Fuji Electric

MONITOUCH V8 series

Reference: Additional Functions

Record of Revisions

Reference numbers are shown at the bottom left corner on the back cover of each manual.

Printing Date	Reference No.	Revised Contents
May, 2008	1060NE0	First edition • Additional functions for the version 5.1.0.0
June, 2008	1060NE0a	English expressions reviewed
September, 2008	1060NE1	Second edition • Additional functions for the version 5.2.0.0
November, 2008	1060NE2	Third edition • Additional functions for the version 5.3.0.0
March, 2009	1060NE3	Fourth edition • Additional functions for the version 5.4.1.0
December, 2009	1060NE4	Fifth edition • Additional functions for the version 5.4.8.0
June, 2010	1060NE5	Sixth edition • Additional functions for the version 5.4.11.0
October, 2010	1060NE6	Seventh edition • Additional functions for the version 5.4.14.0
November, 2010	1060NE7	Eighth edition • Additional functions for the version 5.4.15.0
February, 2011	1060NE8	Ninth edition • Additional functions for the version 5.4.17.0
May, 2011	1060NE9	Tenth edition • Additional functions for the version 5.4.18.0
November, 2011	1060NE10	Eleventh edition • Additional functions for the version 5.4.21.0
February, 2012	1060NE11	Twelfth edition • Additional functions for the version 5.4.22.0
May, 2012	1060NE12	Thirteenth edition • Additional functions for the version 5.4.23.0
August, 2012	1060NE13	Fourteenth edition • Front cover revised • Additional functions for the version 5.4.24.0
November, 2012	1060NE14	Fifteenth edition • Additional functions for the version 5.4.25.0
February, 2013	1060NE15	Sixteenth edition • Additional functions for the version 5.4.27.0
April, 2013	1060NE16	Seventeenth edition • Additional functions for the version 5.4.28.0

Record of Updates

V-SFT Ver.	SYSTEM PROG. Ver.	Additional Functions	Date of Release
5.0.0.0	1.000	V8 series	November, 2007
5.0.1.0	1.010	<Connectable models added> • Multi-link • Multi-link2 • OMRON: E5AR/E5ER • RKC: SR-Mini (MODBUS RTU) • RKC: CB series • RKC: SRV (MODBUS RTU) • Fuji Electric: FVR series <Functions added> • Emulation function	December, 2007
5.0.4.0	1.030	<Connectable models added> • Hitachi Industrial Equipment Systems: HIDIC-H • Hitachi Industrial Equipment Systems: HIDIC-H (Ethernet) • Hitachi Industrial Equipment Systems: HIDIC-EHV • Hitachi Industrial Equipment Systems: HIDIC-EHV (Ethernet) • Hitachi: HIDIC-S10/2α, S10mini • Hitachi: HIDIC-S10/2α, S10mini (Ethernet) • Hitachi: HIDIC-S10V • Hitachi: HIDIC-S10V (Ethernet) • Fuji Electric: MICREX-SX (OPCN-1) • Fuji Electric: MICREX-F • Fuji Electric: FALDIC-α series • Siemens: S7 PROFIBUS-DP • SAIA: PCD • KOYO ELECTRONICS: SU/SG (MODBUS RTU) • KOYO ELECTRONICS: SU/SG (K-Sequence) • KEYENCE: KV10/24 CPU • Yamatake: SDC35/36 • Yamatake: DMC10 • Yamatake: DMC50 (COM) • RKC: SR-Mini (Standard Protocol) • IAI: PCON/ACON/SCON (MODBUS RTU) • SHINKO TECHNOS: DCL-33A • SHINKO TECHNOS: FC series • V-Link • Modbus slave (RTU) • Modbus slave (TCP/IP) <Models added for ladder transfer> • MITSUBISHI ELECTRIC: A series CPU • Yokogawa Electric: FA-M3/FA-M3R • Fuji Electric: FLEX-PC <Functions added> • 128-color monitor	January, 2008
5.0.5.0	1.040	<Connectable models added> • Allen-Bradley: Control Logix/Compact Logix • Allen-Bradley: Control Logix (Ethernet)	February, 2008

V-SFT Ver.	SYSTEM PROG. Ver.	Additional Functions	Date of Release
5.0.7.0	1.060	<Connectable models added> • Allen-Bradley: SLC500 • Allen-Bradley: MicroLogix • Siemens: S7-300/400 (Ethernet) • KEYENCE: KV-3000/5000 • KEYENCE: KV-3000/5000 (Ethernet TCP/IP) • Automationdirect: Direct LOGIC (K-Sequence) • Automationdirect: Direct LOGIC (MODBUS RTU) • OMRON: E5AN/E5EN/E5CN/E5GN • RKC: MA900/MA901 (MODBUS RTU) • MITSUBISHI ELECTRIC: FR-*500 • TOSHIBA: VF-A7 <Models added for ladder monitor> • MITSUBISHI ELECTRIC: QnH	March, 2008
5.0.9.0	1.080	<Connectable models added> • Siemens: S7-200PPI • Siemens: S7-300/400MPI • SAMSUNG: SECNET • LS: MASTER-KxxxS • EATON Cuter-Hammer: ELC • AB OEMax: N7/NX series • SHINKO TECHNOS: C series <Models added for ladder transfer> • Allen-Bradley: SLC500 <Models added for ladder monitor> • Fuji Electric: SPB (N mode) & FLEX-PC CPU • Fuji Electric: Micrex-SX • Yokogawa Electric: FA-M3/FA-M3R	April, 2008
5.1.0.0	1.100 1.110 (V806)	<Edit models added> • V806 series <Connectable models added> • Fuji Electric: HFR-C11K • Fuji Electric: ALPHA5 • Fuji Electric: APR-N series (MODBUS RTU) • LS: MASTER-KxxxS CNET • FATEK AUTOMATION: FACON FB series • UNITRONICS: M90/M91/Vision series (ASCII) • OMRON: V600/V620 • SanRex: DC AUTO (HKD type) • SUNX: LP-400 <New functions> • Data display with entry function • Languages for stroke fonts added • 16 language selection types available • Item show/hide function • USB connection (barcode reader/keyboard/mouse) • E-mail certification • FTP server • MES interface • Two Ethernet ports	May, 2008

V-SFT Ver.	SYSTEM PROG. Ver.	Additional Functions	Date of Release
5.1.1.0	1.120	<Edit models added> • V810C/V808C series • TELLUS3 <Connectable models added> • Fuji Electric: HFR-C9K • Fuji Electric: WE1MA series (MODBUS RTU) • Yokogawa Electric: FA-M3/FA-M3R (Ethernet TCP/IP) • IDEC: MICRO Smart • SAIA: PCD S-BUS • TECO: TP-03 (MODBUS RTU) • DELTA TAU DATA SYSTEMS: PMAC • SAMSUNG: N_Plus • AB OEMax: NX7/NX Plus Series	June, 2008
5.1.2.0	1.130	<Connectable models added> • Allen-Bradley: SLC500 (Ethernet) • Allen-Bradley: MicroLogix (Ethernet) • Yokogawa Electric: UT350/450 • TOSHIBA MACHINE: TC200 • LS: XGT/XGK series • LS: XGT/XGK series CPU • SHARP: JW series • SHARP: JW20 COM port • SHARP: JW100/70H COM port • Fuji Electric: FRENIC-MEGA (MODBUS RTU) • RKC: SRZ (MODBUS RTU) • Matsushita Electric Works: FP-X series • SHINKO ELECTRIC: SELMART • DELTA TAU DATA SYSTEMS: PMAC (Ethernet) • MITSUBISHI ELECTRIC: QnU CPU port	July, 2008
5.2.0.0	1.200	<Connectable models added> • FANUC: Power Mate • IDEC: MICRO3 • Yokogawa Electric: UT100/UT750/UT550/UT520/UT320/UT2400/UT2800 • MITSUBISHI ELECTRIC: MR-J3*A • TOHO: TTM-00BT • TOHO: TTM-200 (MODBUS RTU) <New functions> • Word lamp • Slider switch • Scroll bar (JPEG display) • Operation log function • Security function • Differences transfer • The number of screens increased • Macro commands added (trigonometric functions, conditional branch macro)	August, 2008
5.2.3.0	1.210	<Connectable models added> • Gammaflux: TTC2100 • MITSUBISHI ELECTRIC: QnH (Q) series (CC-LINK) <Models added for ladder transfer> • MITSUBISHI ELECTRIC: QnU series CPU	September, 2008

V-SFT Ver.	SYSTEM PROG. Ver.	Additional Functions	Date of Release
5.3.0.0	1.300	<Connectable models added> • Yamatake: AHC2001, AHC2001+DCP31/32 • GE-FANUC: 90 series (SNP-X) • BECKOFF: ADS protocol <New functions> • Additional alarm function • Network camera of AXIS • Ladder transfer function via USB MITSUBISHI ELECTRIC: QnH series CPU MITSUBISHI ELECTRIC: Q00J/00/01 CPU MITSUBISHI ELECTRIC: QnH (Q) series CPU (multi CPU) Fuji Electric: MICREX-SX SPH/SPB CPU • Screen size selection available for Tellus • I/O comment display of the ladder transfer function for the model of Yokogawa Electric • Multi-link2 Ethernet	October, 2008
5.3.1.0	1.310	<Edit models added> • V815X <Connectable models added> • Allen-Bradley: Control Logix (Ethernet) 1:n connection • TOYO DENKI: μGPCsx series • TOYO DENKI: μGPCsx CPU port • TOYO DENKI: μGPCsx series (Ethernet) • TOYO DENKI: μGPCsx (SX bus) • TOYO DENKI: μGPCsx (OPCN-1) • KEYENCE: KZ-A500 CPU • TOSHIBA: VF-S7 • TOSHIBA: VF-S9 • TOSHIBA: VF-S11 • TOSHIBA: VF-AS1 • TOSHIBA: VF-P7 • TOSHIBA: VF-PS1 • TOSHIBA: VF-FS1 • TOSHIBA: VF-nC1 • MITSUBISHI ELECTRIC: FX series CPU • MITSUBISHI ELECTRIC: FX1S series CPU • MITSUBISHI ELECTRIC: FX-3G <New functions> • Ladder transfer via Ethernet MITSUBISHI ELECTRIC: QnH (Q) series CPU MITSUBISHI ELECTRIC: Q00J/00/01 CPU MITSUBISHI ELECTRIC: QnH (Q) series CPU (multi CPU) MITSUBISHI ELECTRIC: QnU series CPU Fuji Electric: MICREX-SX SPH/SPB CPU • Ladder transfer via USB MITSUBISHI ELECTRIC: QnU series CPU • Selective transfer function • V715X support for ladder monitor	November, 2008

V-SFT Ver.	SYSTEM PROG. Ver.	Additional Functions	Date of Release
5.3.3.0	1.320	<Edit models added > • V808CH (hand-held type) <Connectable models added> • MODBUS TCP/IP Sub Station • Yamatake: SDC10 • Yamatake: SDC20 • Yamatake: SDC21 • Yamatake: SDC30/31 • Yamatake: SDC40A • Yamatake: SDC40G • Yamatake: DCP31/32 <New functions> • V715X dimming method change macro SET_BZ	December, 2008
5.3.4.0	1.320	<Connectable models added> • General-purpose PROFIBUS-DP	December, 2008
5.4.0.0	1.400	<Connectable models added> • General-purpose FL-NET • MOOG: J124-04x series • YAMAHA: RCX142 • TOSHIBA: T series/V series (T compatible) • Siemens: S7 • OMRON: E5CK • OMRON: E5EK • OMRON: E5AK • OMRON: E5ZE • OMRON: E5ZD • MITSUBISHI ELECTRIC: FR-E700 <New functions> • V806 portrait orientation • Alarm acknowledge • Operation log viewer • Trend sampling graph show/hide function • Ethernet network table number increase (up to No. 255) • Macro command SMPL_CSV2, SMPL_CSVBAK2, HDCOPY3 file name designation • Backspace switch enabled for numerical data entry • Scroll bar-ready item added	February, 2009
5.4.1.0	1.410	<New functions> • Remote desktop window display	February, 2009
5.4.3.0	1.430	<Connectable models added> • MITSUBISHI ELECTRIC: QnH (Q) series (Ethernet ASCII) • MITSUBISHI ELECTRIC: QnH (Q) series (multi CPU) (Ethernet ASCII) • OMRON: SYSMAC CV series • TOSHIBA: EX series • RKC: REX-F400/F700/F900 (Standard Protocol) • UNIPULSE: F340A • UNIPULSE: F371 • Hitachi Industrial Equipment Systems: SJ300 series • Hitachi Industrial Equipment Systems: SJ700 series • Banner: PresencePLUS (Ethernet/IP (TCP/IP))	April, 2009
5.4.3.0	1.430	<New functions> • EL-type-compatible display for V808C (128 colors only) • SX simplified instrumentation function	April, 2009

V-SFT Ver.	SYSTEM PROG. Ver.	Additional Functions	Date of Release
5.4.4.0	1.440	<Connectable models added> • MITSUBISHI ELECTRIC: FX3U series (Ethernet) • UNIPULSE: F720A • UNIPULSE: F800 • EMERSON: EC10/EC20/EC20H (MODBUS RTU)	May, 2009
5.4.5.0	1.450	<Connectable models added> • MITSUBISHI ELECTRIC: FX3U/3UC/3G series link (A protocol) • MITSUBISHI ELECTRIC: A series (CC-Link) • MITSUBISHI ELECTRIC: QnA series (CC-Link) • GE Fanuc: 90 series (Ethernet TCP/IP) • DELTA: DVP series <New functions> • Continuous buzzer for switch • Page block batch setting • Macro toolbar	July, 2009
5.4.7.0	1.460	<Connectable models added> • Siemens: S7-300/400 (Ethernet ISOTCP) • Siemens: S7-300/400 (Ethernet TCP/IP PG protocol) • LS: GLOFA GM series (Ethernet UDP/IP) • MODICON: Modbus RTU • Telemecanique: TSX Micro • DELTA: DVP series • MITSUBISHI ELECTRIC: MR-J3-*T • SHINKO TECHNOS: JCx-300 Series • Shimaden: Shimaden standard protocol <New functions> • Multi-link2 (Ethernet) available for 1:n connection using MODBUS RTU	August, 2009
5.4.8.0	1.480	<Connectable models added> • IAI: ROBO CYLINDER (RCP2/ERC) • IAI: ROBO CYLINDER (RCS/E-CON) • L-CPU-B <New functions> • RGB touch switch available at 2 channels • Tag editing • MITSUBISHI ELECTRIC: Ladder monitor function extended • Ladder transfer via USB or Ethernet Yokogawa Electric: FA-M3 Yokogawa Electric: FA-M3R	October, 2009
5.4.9.0	1.500	<Connectable models added> • IDEC: MICRO Smart pentra • Automationdirect: Direct LOGIC (Ethernet UDP/IP) • MODBUS RTU extended format • TOSHIBA MACHINE: VELCONIC series <New functions> • Alarm display Date and time 8-point display • Ladder monitor MITSUBISHI ELECTRIC: QnU series CPU V7-compatible	November, 2009

V-SFT Ver.	SYSTEM PROG. Ver.	Additional Functions	Date of Release
5.4.10.0	1.520	<Connectable models added> • Yaskawa Electric: MP2000 series • Yaskawa Electric: MP2000 series (UDP/IP) • LS: GLOFA CNET • LS: GLOFA GM series CPU • Allen-Bradley: PLC-5 • MITSUBISHI ELECTRIC: MR-J2S-*A • SHARP: DS-30D • SHARP: DS-32D <New functions> • Switch multi-function • Tag editing data import/export • Trend graph superposition • Macro command SET_BZ continuous buzzer sound • 128-color by default for model change from GD-80/V609E to V8 • Line spacing maintained for text on switch/lamp • Automatic change in number setting consistent with screen/overlap number change • Screen library batch change • Cross-reference function extended • 16-bit map import • [Device Connection Setting] PLC table import/export	January, 2010
5.4.11.0	1.530	<Connectable models added> • MODBUS TCP/IP (Ethernet) extended format • OMRON: KM20 • OMRON: KM100 • Fuji Electric: FVR-11S (MODBUS RTU) • M-System: R1M series (MODBUS RTU) <New functions> • Microsoft Windows 7 supported • V806 Japanese conversion function supported • Macro editor function extended • Macro commands FORMAT_DATA (conversion from a string to numerical data) FORMAT_STR (conversion from numerical data to a string) READ_FILE (read universal file) WRITE_FILE (write to universal file) MOVE_FILE (file movement) • Additional network camera model: Panasonic • MODBUS RTU extended format Increase in the maximum number of tables registered per port number • Ladder monitor function OMRON: SYSMAC CS1/CJ1 OMRON: SYSMAC CS1/CJ1 (Ethernet) OMRON: SYSMAC CS1/CJ1 (Ethernet Auto) V810C/C808C/V808CH supported (CF card necessary) • MITSUBISHI ELECTRIC Multi-link2 V7-compatible	April, 2010

V-SFT Ver.	SYSTEM PROG. Ver.	Additional Functions	Date of Release
5.4.14.0	1.570	<Connectable models added> • MITSUBISHI ELECTRIC: QnU series (built-in Ethernet) • MITSUBISHI ELECTRIC: L series link • MITSUBISHI ELECTRIC: L series (built-in Ethernet) • Hitachi: HIDIC-S10/4α • WAGO: 750 series (MODBUS RTU) • WAGO: 750 series (MODBUS Ethernet) • UNITRONICS: Vision Series (ASCII Ethernet TCP/IP) <New functions> • Remote desktop PC screen auto-reduction display • Operation log selection by switches • Operation log viewer item-by-item display • Macro commands IF-ELSE-ENDIF comparison of data in BIT format CLND_TO_GRE/GRE_TO_CLND (macro for conversion between calendar data and GMT-based UNIX time) • Text comparison between files • Use of real numbers for bar graph/pie graph/closed area graph/panel meter • Ladder monitor function extended MITSUBISHI ELECTRIC: folder name designation MITSUBISHI ELECTRIC, OMRON: Ladder monitor display area adjustment to the screen size • Default parts change (2D parts) for item placement • Multi-line text property batch change for switch/lamp • Switch/lamp text centering maintained at the time of automatic resizing • Increase in overlap library/screen library/page block numbers • ON grid position designation • Screen image file output (*.bmp, *.jpg) • Macro editor function extended Memory setting menu display position designation (upper/lower) Error line comment out at the end of the macro editor • Confirmation display at the time of transfer over Ethernet • Options added to the [Transfer Item Selection] dialog: [Buffering Area], [Network Table (Ethernet)], and [Device Memory Map] • Showing/hiding the message “Battery not set” on the Main Menu screen when SRAM is not in use • MITSUBISHI ELECTRIC devices SS, SC, SN, and Z added <Ladder transfer via USB or Ethernet> • MITSUBISHI ELECTRIC: GX-Works2 available	July, 2010

V-SFT Ver.	SYSTEM PROG. Ver.	Additional Functions	Date of Release
5.4.15.0	1.610	<Connectable models added> • OMRON: SYSMAC CS1/CJ1 DNA • OMRON: SYSMAC CS1/CJ1 DNA (Ethernet) • Siemens: S7-1200 (Ethernet ISOTCP) • CIMON: BP series • CIMON: CP series • Chino: LT230 (MODBUS RTU) • Chino: LT300 (MODBUS RTU) • Chino: LT830 (MODBUS RTU) • Chino: DB1000B (MODBUS RTU) • Chino: KR2000 (MODBUS RTU) • Sanmei Electronics: Cuty Axis • Bosch Rexroth: IndraDrive <New functions> • Numerical data entry function extended • Trend graph dealing with real numbers • Offset value designation memory (numerical data display and character display only) • Jump to the target screen by switch ([Function: Screen] only) • END memory and memory count settings added for memory batch change • SRAM forced formatting <Revision> • STA_LIST data sheet consecutive print ($s1009 - $s1011) • CVFD	October, 2010
5.4.17.0	1.650	<Connectable models added> • Yamatake: NX (CPL) • Yamatake: NX (Modbus RTU) • Yamatake: NX (Modbus TCP/IP) • RKC: FB100/FB400/FB900 (MODBUS RTU) • Fuji Electric: FRENIC5000G11S/P11S • Fuji Electric: PH series • MOELLER: PS4 • Turck: BL Series Distributed I/O (MODBUS TCP/IP) • Agilent: 4263 series <New functions> • Global overlap • Panel meter function extended • MES macro command “MES UPDATE” (database update) • Operation log: CF card writing error detection • Message/comment transfer • Recipe file backup • Allen-Bradley ControlLogix (Ethernet) CPU slot No. setting available <Revision> • Update of recipe mode when SV/WR macro command is executed • Specification added for the [Function: Return] switch • Removal of limitation for the registerable number of characters on the switch/lamp (127 characters) • Overlap operation sound off ($s75)	February, 2011

V-SFT Ver.	SYSTEM PROG. Ver.	Additional Functions	Date of Release
5.4.18.0	1.670	<Connectable models added> • SHARP: JW300 series • SHARP: JW series (Ethernet) • SHARP: JW311/312/321/322 (Ethernet) • SHARP: JW331/332/341/342/352/362 (Ethernet) • KOYO ELECTRONICS: SU/SG • KOYO ELECTRONICS: SR-T (K protocol) • Allen-Bradley: NET-ENI (SLC500 Ethernet TCP/IP) • Allen-Bradley: NET-ENI (MicroLogix Ethernet TCP/IP) • GE Fanuc: 90 series • Jetter: JetControl Series2/3 (Ethernet UDP/IP) • Fuji Electric: FALDIC-W series • TOHO: TTM-000 <New functions> • Microsoft Windows Vista/Windows 7 64-bit edition supported • Data display item attribute designation • Data sheet print function expanded • MES setting dialog improved • Tags Siemens S7-200 format import • Selection order batch change for entry targets • Ladder monitor MITSUBISHI ELECTRIC: QnA series link MITSUBISHI ELECTRIC: QnA series (Ethernet) • V808CH brightness adjustment macro command “BRIGHT” supported • GE Fanuc 90 series (SNP-X) multi-link2 V7-compatible • Universal serial specification added <Devices added> • Yokogawa Electric: Device SW/SL/F, PLC_CTL command added FA-M3 (without device F) FA-M3R FA-M3/FA-M3R (Ethernet UDP/IP) FA-M3/FA-M3R (Ethernet TCP/IP) • Fuji Electric: MICREX-SX PLC_CTL command added (redundancy) MICREX-SX SPH/SPB series MICREX-SX SPH/SPB CPU MICREX-SX (Ethernet) MICREX-SX (SX bus) MICREX-SX (T-link) • Yamatake: DMC50 (COM) device C • DELTA TAU DATA SYSTEMS: Device P_INT PMAC PMAC (Ethernet TCP/IP) <Revision> • Numerical data display’s alarm maximum and minimum values targeted for range change • PLC_CLND macro wait function $s1395	April, 2011

V-SFT Ver.	SYSTEM PROG. Ver.	Additional Functions	Date of Release
5.4.21.0	1.720	<Connectable models added> • MITSUBISHI ELECTRIC: Q170MCPU (Multi CPU) • MITSUBISHI ELECTRIC: Q170MCPU (Multi CPU) (Ethernet) • Siemens: S7-200 (Ethernet ISOTCP) • Fuji Electric: WSZ series <New functions> • Panel meter function extended to 128 colors/monochrome • Extended point size range for Windows fonts • E-mail port number setting added • Search for macro commands <Revision> • Time display revised • V7-compatible RGB display by signal input	October, 2011
5.4.22.0	1.750	<Connectable models added> • Yokogawa Electric: FA-M3/FA-M3R (Ethernet UDP/IP ASCII) • Yokogawa Electric: FA-M3/FA-M3R (Ethernet TCP/IP ASCII) • VIGOR: M series • LS: XGT/XGI series • LS: XGT/XGI series (Ethernet) • OMRON: E5CN-HT <Devices added> • TOSHIBA MACHINE: TC200 Device U / M / Q / I (IW) / O (OW) / J (JW) / K (KW) • Jetter: JetControl Series 2/3 (Ethernet UDP/IP) Device ST added, device range for I, O, R and FT expanded <New functions> • V808C portrait orientation • Changes for numerical data display part available with the extended panel meter function used • Refined search filter for project list-view window <Revision> • List on the [Parts List] and [Change Part] dialog improved • Function switch specifications changed • Default value for communication parameters changed • Company name changed from Panasonic Electric Works to Panasonic • List file for Fuji Electric's temperature controller, servo, and inverter added and modified	January, 2012

V-SFT Ver.	SYSTEM PROG. Ver.	Additional Functions	Date of Release
5.4.23.0	1.790	<Connectable models added> • MITSUBISHI ELECTRIC: A Link + Net10 • MITSUBISHI ELECTRIC: A series (OPCN-1) • OMRON: SYSMAC C (OPCN-1) • GE Fanuc: 90 series (SNP) • GE Fanuc: RX3i (Ethernet TCP/IP) • Siemens: S5 PG Port • LS: GLOFA GM7 CNET • LS: XGT/XGK series (Ethernet) • LS: XGT/XGI series CPU • FUFENG: APC series Controller • Fuji Electric: FRENIC-MEGA SERVO (MODBUS RTU) • Fuji Electric: ALPHA5 Smart (MODBUS RTU) • SHINKO TECHNOS: GC series • SHINKO TECHNOS: PC-900 • SHINKO TECHNOS: PCD-33A • SHINKO TECHNOS: ACS-13A • SHINKO TECHNOS: ACD/ACR series • SHINKO TECHNOS: WCL-13A <Connectable models added> • OMRON: CJ2 • KEYENCE: KV-LE20V • Fuji Electric: FePSU Breaker <New functions> • Text search and replacement • Ladder transfer via USB or Ethernet LadderComOp version 2: Compatibility with Windows Vista/Windows 7 • Ladder monitor Compatibility with ladder monitor CJ2 (OMRON) Device search expanded (Yokogawa Electric) Number of blocks increased for function block change (Yokogawa Electric) • Compatibility with KeepAlive MITSUBISHI ELECTRIC, OMRON <Revision> • Display function compatible with EL-type MONITOUCH: All models in the V8 series (128 colors) • Japanese conversion function additional specifications • TELLUS version 3 [Printer Setting]	April, 2012

V-SFT Ver.	SYSTEM PROG. Ver.	Additional Functions	Date of Release
5.4.24.0	1.830	<Connectable models added> • JTEKT: TOYOPUC (Ethernet PC10 Mode) • Allen-Bradley: PLC-5 (Ethernet) • Siemens: TI 500/505 • Siemens: TI 500/505 V4 Compatible • Yamatake: MX series • RS: OEMax NX700 Series (Ethernet) • Oriental motor: Highly-efficient AR series (MODBUS RTU) • Oriental motor: CRK series (MODBUS RTU) <Devices added> • RS: OEMax NX7/NX Plus series (70P/700P/CCU+) device TC/SV/PV/SR/D • Panasonic: LP-400 PLC_CTL command added <New functions> • [GD-80E/V609E Compatible] setting for V810C added • Trend sampling/trend graph Expansion of X-axis point setting (valid in TELLUS) • Trend sampling Expansion of sampling word count • Additional network camera model: BANNER • Tags Siemens STEP7 tag import • Ladder monitor function MITSUBISHI ELECTRIC Expansion of program switching count • Communication interrupt/restart memory ($P) In MODBUS RTU expanded format only • Compatibility with CC-Link version 2 (communication unit “CU-02-2”) • Compatibility with LED backlight (V812(i)S, V810(i)S, V810(i)T, V810(i)C) • Compatibility with KeepAlive function JTEKT: TOYOPUC (Ethernet PC10 mode) <Revision> • Windows fonts position adjustment	July, 2012

V-SFT Ver.	SYSTEM PROG. Ver.	Additional Functions	Date of Release
5.4.25.0	1.890	<Connectable models added> • Universal DeviceNet • OMRON: E5AK-T • Fuji Electric: WE1MA (version B) (MODBUS RTU) • Chino: LT400 series (MODBUS RTU) • Panasonic: MINAS A4 series <New functions> • Fuji Electric: Improvement of the memory conversion dialog for model change MICREX-F → MICREX-SX • Tags MITSUBISHI ELECTRIC: Importing variable name files exported from GX Works2 • Recipe mode: Display order change • Compatibility with LED backlight (V815iX, V808(i)S, V808(i)C, V806 series) • Backlight information storage ($s1349) • KEYENCE: KV-3000/5000 Multi-link2 V7-compatible <Revision> • Fuji Electric: WE1MA (version A) (MODBUS RTU) name change	October, 2012

V-SFT Ver.	SYSTEM PROG. Ver.	Additional Functions	Date of Release
5.4.27.0	1.920	<Connectable models added> • OMRON: E5CK-T • Fuji Electric: FRENIC-HVAC/AQUA (MODBUS RTU) • Panasonic: KW Series • Asahi Engineering: Stepping motor <Connectable models added> • MITSUBISHI ELECTRIC: QnU series CPU Q10UDH/Q13UDH/Q20UDH/Q26UDH • TOSHIBA MACHINE: TC200 compatible with RS-485 (2-wire) • Allen-Bradley: ControlLogix (Ethernet) CompactLogix L27ERM <Devices added> • FUFENG: APC Series Controller TSW/TP/CSW/CP/KJS/KP/KJL/KJH/KI/KJC/KJR <New functions> • Switch language changeover • Trend graph/sampling function extended Zooming in/out, showing sampling times, cursor point values, and scales • Tags Siemens: DB filter, import • Allen-Bradley: User tag (extension: *.L5K) import • Compatibility with KeepAlive function Yokogawa Electric • Compatibility with Multi-link2 V7 OMRON: SYSMAC C OMRON: SYSMAC CV OMRON: SYSMAC CS1/CJ1 <Revision> • Error/warning full text display on the Main Menu screen of V806 • Display of the power-off prohibition message during automatic uploading from CF card	January, 2013

V-SFT Ver.	SYSTEM PROG. Ver.	Additional Functions	Date of Release
5.4.28.0	1.950	<Connectable models added> • Yokogawa Electric: FA-M3V • Yokogawa Electric: FA-M3V(Ethernet) • Yokogawa Electric: FA-M3V(Ethernet ASCII) • KEYENCE: KZ series link • RS Automation: X8 Series • RS Automation: X8 Series(Ethernet) • MODBUS ASCII • Koganei: IBFL-TC <New functions> • Microsoft Windows 8 (32-bit / 64-bit) supported • Switch Switching to Main Menu • Ladder transfer via USB or Ethernet Siemens: S7-200 PPI • Compatibility with KeepAlive function JTEKT: TOYOPUC(Ethernet) • Compatibility with TELLUS and V-Server Lite <Revision> • Default parts improved • Auto-installation of the USB driver for screen data transfer • Ladder transfer via USB or Ethernet Compatibility with user authorization • Default value for Buffering Area Setting changed [☐Start Bit] of [Sampling Method: Alarm Logging] • Windows fonts position adjustment (Multi Text) • Default value for [Device Connection Setting] changed Fuji Electric: PPMC(MODBUS RTU) [Signal Level] WAGO: 750 series(MODBUS RTU) [Connection Mode] SAMSUNG: N_plus [Send Delay Time]	April, 2013

Preface

Congratulations on your purchase of the configuration software (V-SFT-5) for the MONITOUCH V series.
For clear understanding of the software and efficient configuration for the MONITOUCH, carefully read this manual and other manuals provided together with the MONITOUCH.

Notes:

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About Manuals

This manual describes the functions of the MONITOUCH V8 series in detail.
The following manuals are available for the MONITOUCH V8 series:

Manual Name	Reference No.	Contents
V8 Series Reference: Additional Functions (this manual)	1060NEx	The functions that are added from the V-SFT version 5.1.0.0 to the MONITOUCH V8 series are explained in detail.
V8 Series Reference Manual	1055NEx	The functions of the MONITOUCH V8 series are explained in detail.
V Series Macro Reference	1056NEx	An overview of macros of the V-SFT version 5 as well as macro editor operations and macro command descriptions are explained in detail.
V8 Series Introductory Manual	1057NEx	An overview of the MONITOUCH V8 series as well as basic operating procedures of the configuration software are explained in detail.
V8 Series Operation Manual	1058NEx	The information related to the operations of the V-SFT version 5, such as software composition, editing procedure or limitations, is explained in detail.
V8 Series Hardware Specifications	2016NEx	Hardware specifications and handling procedures of the MONITOUCH V8 series are explained.
V806 Series Hardware Specifications	2017NEx	Hardware specifications and handling procedures of the MONITOUCH V806 series are explained.
V815 Hardware Specifications	2018NEx	Hardware specifications and handling procedures of the MONITOUCH V815 are explained.
V808CH Hardware Specifications	2019NEx	Hardware specifications and handling procedures of the MONITOUCH V808CH are explained.
V8 Series Connection Manual	2201NEx	Connections with respective devices and wiring diagrams between the MONITOUCH V8 series are explained.
V Series DLL Function Specifications	1059NEx	An overview and contents of DLL files used for Ethernet (HKEtn20.DLL) and CF card (VCFAcs.DLL) are explained in detail.

V Series Functions

The V8 series is equipped with the following functions. Depending on the V series model, some functions may not be available. Please note the availability of each function. For more information, refer to the related chapter.

Functions Described in the V8 Series Reference Manual

V8 Series Reference Manual		V8 Series								
Chap.	Contents	V815iX	V812iS V810iS V810iT V808iS	V812S V810S V810T V808S	V810iC V808iC	V810C V808C	V808iCH	V808CH	V806iT V806iC V806iM	V806T V806C V806M
2	Overlap	○	○	○	○	○	○	○	○	○
	Superimpose	○	○	○	×	×	×	×	×	×
	Video overlap	△	△	×	×	×	×	×	×	×
3	Switch	○	○	○	○	○	○	○	○	○
	Coordinate output[*1]	○	○	○	○	○	○	○	○	○
	Transparency	○	○	○	○	○	○	○	○	○
	Multi-output	○	○	○	○	○	○	○	○	○
	Delay/ Message box	○	○	○	○	○	○	○	○	○
4	Lamp	○	○	○	○	○	○	○	○	○
	Transparency	○	○	○	○	○	○	○	○	○
5	Data display	○	○	○	○	○	○	○	○	○
6	Message display	○	○	○	○	○	○	○	○	○
	Comment display	○	○	○	○	○	○	○	○	○
7	Entry mode	○	○	○	○	○	○	○	○	○
	Automatic writing when the entry target has been moved	○	○	○	○	○	○	○	○	○
	Switch [Function: Cancel]	○	○	○	○	○	○	○	○	○
	Switch [Function: Max./Min. Value Entry]	○	○	○	○	○	○	○	○	○
	Password: variable	○	○	○	○	○	○	○	○	○
	Digital switch (add/subtract switch)	○	○	○	○	○	○	○	○	○
	Japanese conversion function	○	○	○	○	○	○	○	○	○
8	Graph	○	○	○	○	○	○	○	○	○
	Scale: variable	○	○	○	○	○	○	○	○	○
9	Trend	○	○	○	○	○	○	○	○	○
	XY parameters	○	○	○	○	○	○	○	○	○
	X scale	○	○	○	○	○	○	○	○	○
10	Sampling	○	○	○	○	○	○	○	○	○
	Acknowledge display: (acknowledge) function	○	○	○	○	○	○	○	○	○
11	Graphic	○	○	○	○	○	○	○	○	○
12	Time display/calendar	○	○	○	○	○	○	○	○	○
13	Recipe mode	○	○	○	○	○	○	○	○	○

V8 Series Reference Manual		V8 Series								
Chap.	Contents	V815iX	V812iS V810iS V810iT V808iS	V812S V810S V810T V808S	V810iC V808iC	V810C V808C	V808iCH	V808CH	V806iT V806iC V806iM	V806T V806C V806M
14	Multimedia	–	–	–	–	–	–	–	–	–
	Animation	○	○	○	×	×	×	×	×	×
	Video/RGB display	△	△	×	×	×	×	×	×	×
	JPEG display	○	○	○	○	○	○	○	○*2	○*2
	Sound replay function	△	△	×	×	×	×	×	×	×
15	Others	–	–	–	–	–	–	–	–	–
	Data block area	○	○	○	○	○	○	○	○	○
	Memory card mode	○	○	○	○	○	○	○	○	○
	CF card	○	○	○	○	○	○	○	○	○
	SRAM	○	○	○	○	○	○	○	○	○
	CREC	○	○	○	○	○	×	×	○	○
	Memo pad*1	○	○	○	○	○	○	○	○	○
16	Print	○	○	○	○	○	○	○	○	○
	Data sheet print Serial	○	○	○	○	○	×	×	○	○
	USB	○	○	○	○	○	○	○	○	○
17	Barcode One-dimensional	○	○	○	○	○	○	○	○	○
	Two-dimensional	○	○	○	○	○	○	○	○	○
18	CF card Built-in	○	○	○	○	○	○	○	△	△
	USB	○	○	○	○	○	×	×	○	○
	2-drive connection	○	○	○	○	○	×	×	△	△
19	Ethernet function	○	○	△	○	△	○	×	○	△
	Screen data transfer	○	○	△	○	△	○	×	○	△
	PLC connection	○	○	△*3	○	△*3	○	×	○	△*3
	E-mail	○	○	×	○	×	○	×	○	×
	Web server	○	○	×	○	×	○	×	○	×
20	Slider switch	○	○	○	○	○	○	○	○	○
A1	Buffering area	○	○	○	○	○	○	○	○	○
	Store target: SRAM	○	○	○	○	○	○	○	○	○
	Store target: CF card	○	○	○	○	○	○	○	○	○
A2	SRAM/clock setting	○	○	○	○	○	○	○	○	○
A3	Display language	○	○	○	○	○	○	○	○	○
	Multi-language selection	○	○	○	○	○	○	○	○	○
	Displayed character selection	○	○	○	○	○	○	○	○	○
	Multi-language screen	○	○	○	○	○	○	○	○	○
–	Windows fonts	○	○	○	○	○	○	○	○	○

○: Available △: Optionally available ×: Not available

*1 For analog switch type only
*2 Not supported by V806iM and V806M.
*3 Only UDP/IP is supported.

Functions Described in the V8 Series Reference: Additional Functions (this manual)

V8 Series Reference: Additional Functions		V8 Series								
Chap.	Contents	V815iX	V812iS V810iS V810iT V808iS	V812S V810S V810T V808S	V810iC V808iC	V810C V808C	V808iCH	V808CH	V806iT V806iC V806iM	V806T V806C V806M
2	Global overlap	○	○	○	○	○	○	○	○	○
3	Switch Multi-function	○	○	○	○	○	○	○	○	○
	Language changeover	○	○	○	○	○	○	○	○	○
	Switching to Main Menu	○	○	○	○	○	○	○	○	○
	Continuous buzzer	○	○	○	○	○	○	○	○	○
4	Word lamp	○	○	○	○	○	○	○	○	○
5	Data display Offset value designation memory	○	○	○	○	○	○	○	○	○
	Attribute change	○	○	○	○	○	○	○	○	○
6	Data display with entry function	○	○	○	○	○	○	○	○	○
	Slider switch[*1]	○	○	○	○	○	○	○	○	○
	Numerical data entry (extended)	○	○	○	○	○	○	○	○	○
7	Graph (real values)	○	○	○	○	○	○	○	○	○
	Panel meter function extended Alarm 2	○	○	○	○[*2]	○[*2]	○	○	○[*2]	○[*2]
	Indicator setting extended	○	○[*3]	○[*3]	×	×	×	×	×	×
	Scale setting extended	○	○[*3]	○[*3]	○[*2 *3]	○[*2 *3]	○[*3]	○[*3]	○[*2 *3 *4]	○[*2 *3 *4]
	Numerical data display	○	○	○	○[*2]	○[*2]	○	○	○[*2]	○[*2]
8	Trend graph/sampling Scale display	○	○	○	○	○	○	○	○	○
	Expansion of word count	○	○	○	○	○	○	○	○	○
	Real numbers	○	○	○	○	○	○	○	○	○
	Trend sampling Cursor point value display	○	○	○	○	○	○	○	○	○
	Sampling time display	○	○	○	○	○	○	○	○	○
	Zooming in/out	○	○	○	○	○	○	○	○	○
	Graph show/hide function	○	○	○	○	○	○	○	○	○
9	Alarm function Parameter addition function	○	○	○	○	○	○	○	○	○
	Acknowledge	○	○	○	○	○	○	○	○	○
10	RGB display (touch switch emulation)	△	△	×	×	×	×	×	×	×
	Enlarged display (full screen)	△	△	×	×	×	×	×	×	×
	Size adjustment	△	△	×	×	×	×	×	×	×
11	Scroll[*1]	○	○	○	○	○	○	○	○	○
12	Expanded data sheet	○	○	○	○	○	○	○	○	○

V8 Series Reference: Additional Functions		V8 Series								
Chap.	Contents	V815iX	V812iS V810iS V810iT V808iS	V812S V810S V810T V808S	V810iC V808iC	V810C V808C	V808iCH	V808CH	V806iT V806iC V806iM	V806T V806C V806M
13	Stroke fonts	○	○*3	○*3	○	○	○	○	○	○
	Extended point size range for Windows fonts	○	○	○	○	○	○	○	○	○
	16-language selection	○	○	○	○	○	○	○	○	○
14	CF card Screen added	○	○	○	○	○	○	○	○	○
	Message storage	○	○	○	○	○	○	○	○	○
	Addition of titles to CSV file (sampling data)	○	○	○	○	○	○	○	○	○
15	Item display function	○	○	○	○	○	○	○	○	○
16	FTP server	○	○	×	○	×	○	×	○	×
17	E-mail certification	○	○	×	○	×	○	×	○	×
	Two Ethernet ports	○	△	×	△	×	×	×	△	×
18	Network camera	○	○*3	×	○*2 *3	×	○*3	×	○*2 *3 *4	×
19	Remote desktop window display*1	○	○*3	×	○*2 *3	×	○*3	×	○*3 *4	×
20	MES interface	○	○	△	○	△	○	×	○	△
21	Operation log/Log viewer	○	○	○	○	○	○	○	○	○
22	Security	○	○	○	○	○	○	○	○	○
23	Macros	○	○	○	○	○	○	○	○	○
24	Tag editing	○	○	○	○	○	○	○	○	○
25	Jump to the target screen	○	○	○	○	○	○	○	○	○
	Refined search filter for project list-view window	○	○	○	○	○	○	○	○	○
	Memory batch change	○	○	○	○	○	○	○	○	○
	Selection order batch change	○	○	○	○	○	○	○	○	○
	Cross-reference Macro command search	○	○	○	○	○	○	○	○	○
	Text search and replacement	○	○	○	○	○	○	○	○	○
	Image file 3D part conversion	○	○	○	○	○	○	○	○	○
	Text comparison	○	○	○	○	○	○	○	○	○
	Selective transfer	○	○	○	○	○	○	○	○	○
	Message/comment transfer	○	○	○	○	○	○	○	○	○
26	USB barcode reader	○	○	○	○	○	×	×	○	○
	USB keyboard	○	○	○	○	○	×	×	○	○
	USB mouse	○	○	○	○*2	○*2	×	×	○*2	○*2
	USB-FDD	○	○	○	×	×	×	×	×	×
27	Ladder transfer USB	○	○	○	○	○	○	○	○	○
	Ethernet	○	○	×	○	×	○	×	○	×

○: Available △: Optionally available ×: Not available

*1 For analog switch type only

*2 Not available on the portrait-orientated V808C/V806

*3 The 128-color mode is not supported.

*4 The V806M is not supported.

Notes on Safe Usage of MONITOUCH

In this manual, you will find various notes categorized under the following levels with the signal words “DANGER”, and “CAUTION”.

DANGER	Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.

CAUTION	Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury and could cause property damage.

Note that there is a possibility that the item listed with CAUTION may have serious ramifications.

DANGER

- Never use the output function of MONITOUCH for operations that may threaten human life or damage the system, such as switches to be used in case of emergency. Please design the system so that it can cope with the malfunction of a touch switch. A malfunction of the touch switch will result in machine accident or damage.
- Turn off the power supply when you set up the unit, connect new cables, or perform maintenance or inspections. Failure to do so could cause electric shock or damage to the unit.
- Never touch any terminals while the power is on. Otherwise, electric shock may occur.
- You must put a cover on the terminals on the unit when you turn the power on and operate the unit. Without the terminal cover in place, electric shock may occur.
- The liquid crystal in the LCD panel is a hazardous substance. If the LCD panel is damaged, do not ingest the leaked liquid crystal. If the liquid crystal spills on skin or clothing, use soap and wash off thoroughly.
- For MONITOUCH using a lithium battery, never disassemble, recharge, deform by pressure, short-circuit, reverse the polarity (+/–) of the battery, or dispose of the battery in fire. Failure to follow these conditions will lead to explosion or fire.
- For MONITOUCH using a lithium battery, never use a battery that is deformed, leaks, or shows any other signs of abnormality. Failure to follow these conditions will lead to explosion or fire.
- If the screen becomes dark due to a failure or service life of the backlight, the POWER lamp starts flashing. The switches on the screen remain active even in this condition. However, if the screen is too dark to view the switches while the POWER lamp is flashing, do not touch the screen. Doing so could cause unexpected activation, resulting in machine damage or accident.

⚠CAUTION

- Check the appearance of MONITOUCH when it is unpacked. Do not use the unit if any damage or deformation is found. Failure to do so may lead to fire, damage, or malfunction.
- For use in a facility or for a system related to nuclear energy, aerospace, medical, traffic equipment, or mobile installations, please consult your local distributor.
- Operate (or store) MONITOUCH under the conditions indicated in this manual and related manuals. Failure to do so could cause fire, malfunction, physical damage or deterioration.
- Understand the following environmental limits for use and storage of MONITOUCH. Otherwise, fire or damage to the unit may result.
  - Avoid locations where there is a possibility that water, corrosive gas, flammable gas, solvents, grinding fluids or cutting oil can come into contact with the unit.
  - Avoid high temperature, high humidity, and outside weather conditions, such as wind, rain or direct sunlight.
  - Avoid locations where excessive dust, salt, and metallic particles are present.
  - Avoid installing the unit in a location where vibration or physical shock may be transmitted.
- Equipment must be correctly mounted so that the main terminal of MONITOUCH can not be touched inadvertently. Otherwise, an accident or electric shock may occur.
- Tighten the fixtures of MONITOUCH with a torque in the specified range. Excessive tightening may distort the panel surface. Loose tightening may cause MONITOUCH to come off, malfunction, or be short-circuited.
- Check periodically that terminal screws on the power supply terminal block and fixtures are firmly tightened. Loosened screws may result in fire or malfunction.
- Tighten terminal screws on the power supply terminal block equally to a torque of 0.5 N•m. Improper tightening of screws may result in fire, malfunction, or other trouble.
- MONITOUCH has a glass screen. Do not drop or give physical shock to the unit. Otherwise, the screen may be damaged.
- Connect the cables correctly to the terminals of MONITOUCH in accordance with the specified voltage and wattage. Over-voltage, over-wattage, or incorrect cable connection could cause fire, malfunction or damage to the unit.
- Be sure to establish a ground of MONITOUCH. The FG terminal must be used exclusively for the unit with the level of grounding resistance less than 100 Ω. Otherwise, electric shock or fire may occur.
- Prevent any conductive particles from entering the MONITOUCH. Failure to do so may lead to fire, damage, or malfunction.
- After wiring is finished, remove the paper used as a dust cover before starting to operate MONITOUCH. Operation with the cover attached may result in accident, fire, malfunction, or other trouble.
- Do not attempt to repair MONITOUCH at your site. Ask Hakko or the designated contractor for repair.
- Do not disassemble or modify MONITOUCH. Otherwise, malfunctions may occur.
- Hakko Electronics Co., Ltd. is not responsible for any damages resulting from repair, overhaul or modification of MONITOUCH that was performed by an unauthorized person.
- Do not use a sharp-pointed tool when pressing a touch switch. Doing so may damage the screen.
- Only experts are authorized to set up the unit, connect the cables, or perform maintenance and inspections.
- For MONITOUCH using a lithium battery, handle the battery with care. The combustible materials such as lithium or organic solvent contained in the battery may generate heat, explode, or catch fire, resulting in personal injury or fire. Read related manuals carefully and handle the lithium battery correctly as instructed.
- When using a MONITOUCH that has an analog switch resolution with resistance film, do not press two or more points on the screen at the same time. If two or more positions are pressed at the same time, the switch located between the pressed positions will activate.
- Take safety precautions during such operations as setting change during running, forced output, start, and stop. Any misoperation may cause unexpected machine motions, resulting in machine accident or damage.
- In facilities where a failure of MONITOUCH could lead to accident threatening human life or other serious damage, be sure that the facilities are equipped with adequate safeguards.
- At the time of disposal, MONITOUCH must be treated as industrial waste.
- Before touching MONITOUCH, discharge static electricity from your body by touching grounded metal. Excessive static electricity may cause malfunction or other trouble.
- During the CF card power supply, the LED inside the CF card cover illuminates in red. If you remove the CF card or turn the MONITOUCH off while the LED is illuminating, data on the CF card may become corrupt. Before removing the CF card or turning MONITOUCH off, ensure that the LED is not illuminating.

[General Notes]

- Never bundle control cables and input/output cables with high-voltage and large-current carrying cables such as power supply cables. Keep these cables at least 200 mm away from high-voltage and large-current carrying cables. Otherwise, malfunction may occur due to noise.
- When using MONITOUCH in an environment where a source of high-frequency noise is present, it is recommended that the FG shielded cable (communication cable) be grounded at its ends. However, the cable may be grounded only at one end if necessary due to unstable communication conditions, or for any other reason.
- Plug connectors or sockets of MONITOUCH in their correct orientation. Otherwise, malfunctions may occur.
- When an LAN cable is wrongly connected to the MJ1/MJ2 connector, the counterpart device may be damaged. Double-check the connector to avoid improper insertion.
- Do not use thinners for cleaning because they may discolor the MONITOUCH surface. Use an alcohol-based cleaner which is commercially available.
- If a “data receive error” occurs when MONITOUCH and the counterpart (PLC, temperature controller, etc.) are started at the same time, read the manual for the counterpart unit and handle the error correctly.
- Avoid discharging static electricity on the mounting panel of MONITOUCH. Static charges can damage the unit and cause malfunctions. Otherwise, malfunction may occur due to noise.
- Avoid prolonged display of any fixed pattern. Due to the characteristics of the liquid crystal display, an afterimage may occur. If a prolonged display of a fixed pattern is expected, use the auto OFF function of the backlight.

[Notes on LCD]

Note that the following conditions may occur under normal circumstances:

- The response time, brightness and colors of MONITOUCH may be affected by ambient temperature.
- Tiny spots (dark or luminescent) may appear on the display due to liquid crystal characteristics.
- There are variations in brightness and colors on each unit.
- When LCDs incorporating CCFL (cold cathode fluorescent lamp) backlights are used, their optical properties (brightness, irregular colors, etc.) may change over time, especially at low temperatures.

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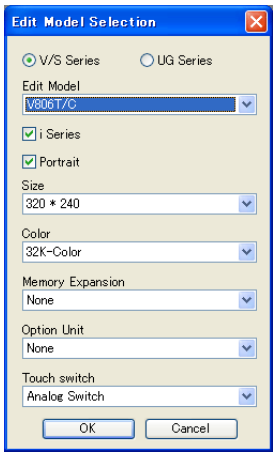
1 System Settings

1.1 Edit Model Selection

V806 Series

The “V806 series”, 5.7-inch QVGA type, has been added to the MONITOUCH V8 series.



Model	Edit Model	☐ i Series	☐ Portrait	Size	Color	Option Unit	Touch Switch
V806iT V806iC	V806T/C	Checked	Portrait	320 * 240	64K-Color w/o blinking 32K-Color 128-Color (☐ Portrait not allowed)	None CF+D-sub	Analog switch
V806T V806C		Unchecked					
V806iM	V806M	Checked	None		16 gray scales		
V806M		Unchecked					

* The screen data of the V806 series cannot be saved into an earlier version (for example, V7 or V6 series).

V806 Series Specifications

The main specifications are shown below:

Item	V806iT	V806T	V806iC	V806C	V806iM	V806M
Display device	TFT color		STN color		STN monochrome	
Display size	5.7-inch					
Display colors	65,536 colors (w/o blinking), 32,768 colors (w/ blinking), 128 colors (w/ 16-color blinking)				16 gray scales (w/ blinking)	
Resolution (W × H)	320 × 240 dots					
FROM capacity	4.5 MB					
SRAM capacity	512 kB	128 kB	512 kB	128 kB	512 kB	128 kB
Serial port	2 serial ports (MJ1, MJ2), 1 D-sub 9-pin port (CN1) added when option unit “DU-10” is mounted					
Ethernet port	Built-in	Communication unit “CU-03-3”	Built-in	Communication unit “CU-03-3”	Built-in	Communication unit “CU-03-3”
USB A/B ports	Built-in					
CF card interface	CF card socket added when option unit “DU-10” is mounted					

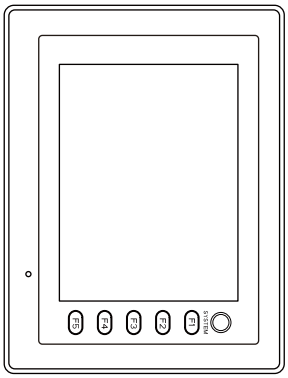
* For more information, refer to the V806 Series Hardware Specifications Manual.

Portrait Orientation

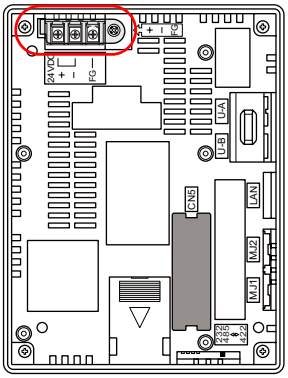
The V806 series can be installed in portrait orientation.

Be sure that the power supply faces upward. In this position, the function switches on the V806 are in a lower position.

Front View



Rear View



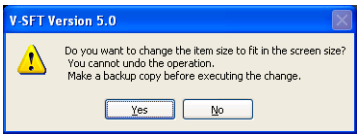
V-SFT

When the box for [☐ Portrait] is checked in the [Edit Model Selection] dialog, V-SFT editing that suits a portrait-orientated unit is possible.

For where the setting item is provided, refer to page 1-1.

Notes

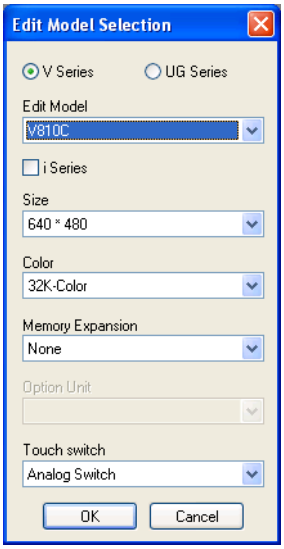
- In a case where you attempt to convert landscape-orientated data in V-SFT to portrait-oriented data (by automatic resizing), the following dialog appears.
  You cannot undo the conversion.

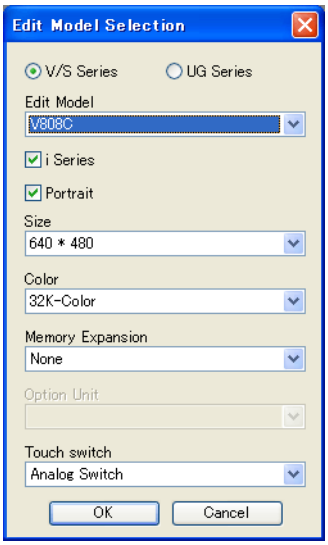


- Automatic resizing is executable in the following areas:
  Screen, screen library, overlap library, graphic library, and data block
- Character properties will be adjusted to a maximum extent, according to resizing.
  However, such an adjustment to character properties is not available with the following functions: bit order alarming, alarm sub-display, time order alarming, alarm logging, message mode, data sampling, alarm tracking, and memory card
- For any parts which are not ready for automatic resizing, resize them by manual operation.
- Unchecking the box for [☐ Place switches on switch grids] (in the V-SFT, [View] → [Grid] → [Grid Setting]) will help resize characters neatly.
- When specifying the coordinates (start X, start Y) of an overlap in dots, they are determined in increments of one dot on the X axis and four dots on the Y axis. (For landscape orientation, coordinates are determined in increments of four dots on the X axis and one dot on the Y axis.) Therefore, when portrait orientation is adopted, a Y-axis coordinate will be rounded down to a multiple of 4.

V8C Series

The “V8C series” has been added to the MONITOUCH V8 series.





Model	Edit Model	☐ i Series	☐ Portrait	Size	Color	Memory Expansion	Touch Switch
V810iC	V810C	Checked	None	640 * 480	64K-Color w/o blinking 32K-Color 128-Color (☐ Portrait not allowed)	None	Analog switch / Matrix switch
V810C		Unchecked					
V808iC	V808C	Checked	Portrait				Analog switch
V808C		Unchecked					

* The screen data of the V8 series cannot be saved into an earlier version (for example, V7 or V6 series).

V8C Series Specifications

The main specifications are shown below.

Item	V810iC	V810C	V808iC	V808C
Display device	TFT color			
Display size	10.4-inch		8.4-inch	
Display colors	65,536 colors (w/o blinking), 32,768 colors (w/ blinking), 128 colors (w/ 16-color blinking)			
Resolution (W × H)	640 × 480 dots			
FROM capacity	12.5 MB	4.5 MB	12.5 MB	4.5 MB
SRAM capacity	512 kB	128 kB	512 kB	128 kB
Serial port	3 serial ports: D-sub 9-pin (CN1), modular jacks (MJ1, MJ2)			
Ethernet port	Built-in	Communication unit “CU-03-3”	Built-in	Communication unit “CU-03-3”
USB A/B ports	Built-in			
CF card interface	Built-in			

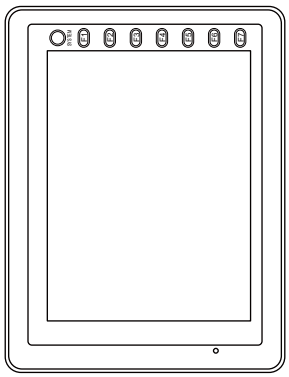
* For more information, refer to the V8 Series Hardware Specifications Manual.

Portrait

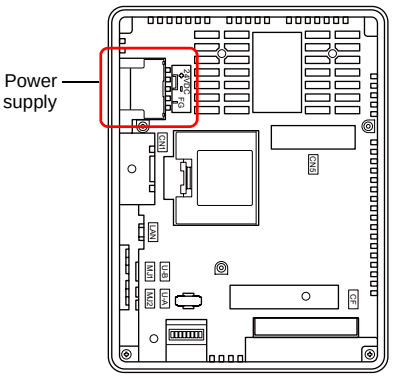
The V808C series can be installed in portrait orientation.

> Be sure that the power supply faces upward. In this position, the function switches on the V808C series are in a upper position.

Front View



Rear View



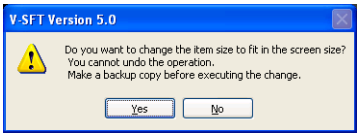
V-SFT

When the box for [☐ Portrait] is checked in the [Edit Model Selection] dialog, V-SFT editing that suits a portrait-orientated unit is possible.

For where the setting item is provided, refer to page 1-3.

Notes

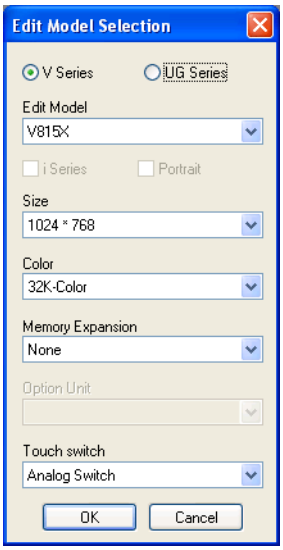
- In a case where you attempt to convert landscape-orientated data in V-SFT to portrait-oriented data (by automatic resizing), the following dialog appears.
  You cannot undo the conversion.



- Automatic resizing is executable in the following areas:
  Screen, screen library, overlap library, graphic library, and data block
- Character properties will be adjusted to a maximum extent, according to resizing.
  However, such an adjustment to character properties is not available with the following functions:
  Bit order alarming, alarm sub-display, time order alarming, alarm logging, message mode, data sampling, alarm tracking, and memory card
- For any parts which are not ready for automatic resizing, resize them by manual operation.
- Unchecking the box for [☐ Place switches on switch grids] (in the V-SFT, [View] → [Grid] → [Grid Setting]) will help resize characters neatly.
- When specifying the coordinates (start X, start Y) of an overlap in dots, they are determined in increments of one dot on the X axis and four dots on the Y axis. (For landscape orientation, coordinates are determined in increments of four dots on the X axis and one dot on the Y axis.) Therefore, when portrait orientation is adopted, a Y-axis coordinate will be rounded down to a multiple of 4.

V815iX

The model V815X has been added to the MONITOUCH V8 series.



Model	Edit Model	Size	Color	Memory Expansion	Touch Switch
V815iX	V815X	1024 * 768	64K-color w/o blinking 32K-color	None	Analog switch

* The screen data of the V8 series cannot be saved into an earlier version (for example, V7 or V6 series).

V815iX Specifications

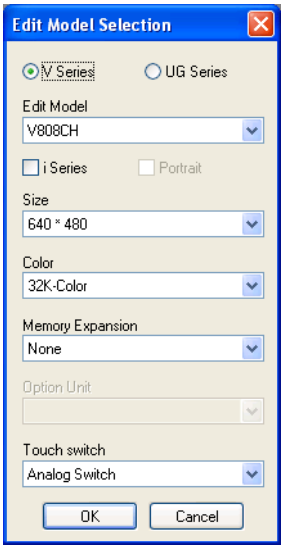
The main specifications are shown below.

Item	V815iX
Display device	TFT color
Display size	15-inch
Display colors	65,536 colors (w/o blinking), 32,768 colors (w/ blinking)
Resolution (W × H)	1,024 × 768 dots
FROM capacity	12.5 MB
SRAM capacity	512 kB
Serial port	3 serial ports: D-sub 9-pin (CN1), modular jacks (MJ1, MJ2)
Ethernet port	Built-in
USB A/B ports	Built-in
CF card interface	Built-in

* For more information, refer to the V815 Hardware Specifications Manual.

V808CH

The model V808CH has been added to the MONITOUCH V8 series.



Model	Edit Model	☐ i Series	Size	Color	Memory Expansion	Touch Switch
V808iCH	V808CH	Checked	640 * 480	64K-color w/o blinking 32K-color 128-color	None	Analog switch
V808CH		Unchecked				

* The screen data of the V8 series cannot be saved into an earlier version (for example, V7 or V6 series).

V808CH Specifications

The main specifications are shown below.

Item	V808iCH	V808CH
Display device	TFT color	
Display size	7.5-inch	
Display colors	65,536 colors (w/o blinking), 32,768 colors (w/ blinking), 128 colors (w/ 16-color blinking)	
Resolution (W × H)	640 × 480 dots	
FROM capacity	12.5 MB	4.5 MB
SRAM capacity	512 kB	128 kB
Terminal block	RS-232C (TB2), RS-422/RS-485 (TB3)	
Ethernet port	Built-in	-
USB-B port	Built-in	
CF card interface	Built-in	

* For more information, refer to the V808CH Hardware Specifications Manual.

1.2 EL-type MONITOUCH (GD-80E/V609E) Display Compatibility Function

Overview

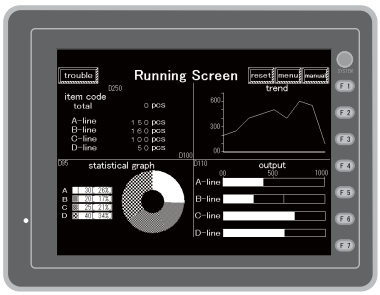
- If an EL-type MONITOUCH, such as GD-80E or V609E (production discontinued), needs to be replaced, models V808(i)C and V810(i)C are recommended as substitutions since EL types are no longer available.
  However, V808(i)C and V810(i)C are higher in vertical resolution by 80 dots. By using the compatibility function explained in this section with these models, screens can be automatically centered in the vertical direction. Therefore, the substitution of EL types is made easy, with no need to change the layout of screen data.
- If an EL-type MONITOUCH is substituted with a model in the V8 series, batch color change is possible for converting the former screens into two-color display, using a color specified other than black.

Example: Substitution of GD-80E or V609E by V808C

GD-80E/V609E (640 * 400 dots)

V808C (640 * 480 dots)

White specified for
[Color Batch Change]



* Centering in the vertical direction supported by V808(i)C/V810(i)C only

Model substitution

Before Substitution	After Substitution	Color *1
GD-80E	All units in the V8 series*2 (V808(i)C/V810(i)C recommended)	128 colors
V609E		

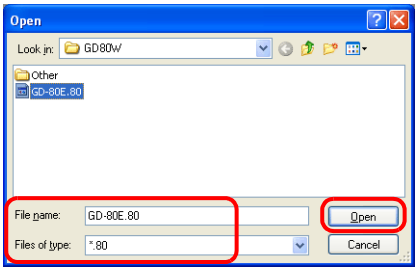
*1 If any setting other than “128 colors” is specified, this function cannot be used.

*2 Only the model V808(i)C/V810(i)C supports the centering in the vertical direction (checking [☐ GD-80E/V609E Compatible]).
For more information on the centering, refer to page 1-9.

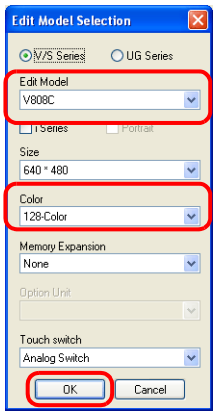
Screen data conversion procedure (GD-80E/V609E → V808C)

This section describes the procedure to convert the screen data of the GD-80E into data for the V808C.

1. Click [File] → [Open]. The [Open] dialog is displayed.
2. Select "*.80" for [Files of type]. Then select the screen data of GD-80E and click [Open].



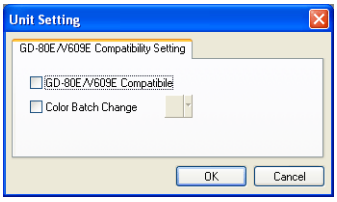
3. The [Edit Model Selection] dialog is displayed. Select options as shown below and click [OK].
   - [Edit Model] → "V808C"
   - [Color] → "128-Color"

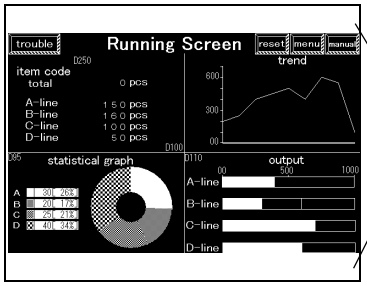
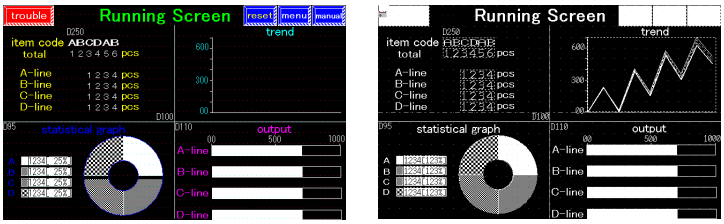


If any option other than "128-Color" is specified for [Color], the dialog shown in step 4 will not appear.

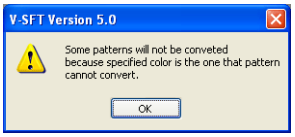
4. The [Unit Setting] dialog is displayed.

> To display this dialog after the setting is finished, click [System Setting] → [Unit Setting] → [GD-80E/V609E Compatible].



☐ GD-80E/V609E Compatible (V808(i)C/ V810(i)C only)	Checked: The screen data is displayed in the center of the V8 screen with top and bottom margins of 40 dots, respectively. (No part can be placed on these margins.) Screen data of 640*400 dots is displayed on V-SFT. Display on V808C  Margins of 40 dots are kept at the top and bottom, respectively. (Displayed in black on the V8.) Unchecked: On the V8, screen data is displayed in the same position as specified on V-SFT.
☐ Color Batch Change	Checked: Converts any colors other than black into the color specified here to make the display color the same as the one used on GD-80E/V609E (2 colors). GD-80E/V609E data displayed on computer V808C data displayed on computer  *** The color data cannot be restored after conversion.** Unchecked: Screen data is displayed in the same colors as those before conversion.

*** For pattern data, there are some colors that cannot be converted. In such a case, the dialog shown below is displayed.**

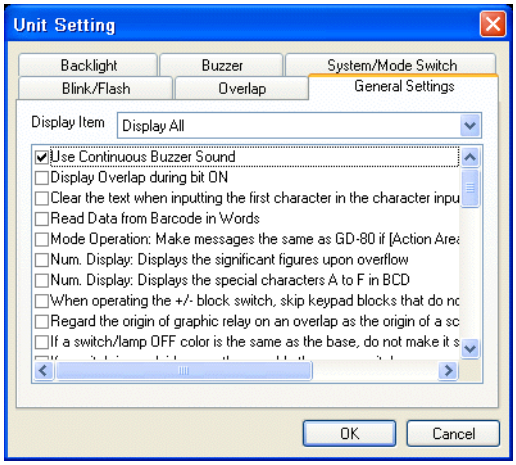


5. Click [OK] after setting.

1.3 General Settings

Options Added to [General Settings] Tab Window

The options described below have been added.
For description of the other options, refer to the V8 Series Reference Manual.



Allow to use Insert/DELETE keys when entering values	For more information, refer to “6.3 Numerical Data Entry (Numeral Insertion/DELETE Keys Enabled)”.
Format the SRAM forcefully	This option determines the action to be taken in the event of error: 161 (0:), indicating an SRAM formatting error, no SRAM data immediately after shipment, or loss of SRAM data due to battery disconnection. • Unchecked (default): Formatting the SRAM is executed on the Main Menu screen while the battery is connected with the V8 unit. • Checked: A forced formatting is executed. Whether an automatic formatting has been executed can be reviewed at $s1085. (Upon execution, “1” is placed at $s1085. The value at the address is cleared back to zero at the time of the reentry to the Main Menu screen.
Retain compatibility with negative value handling of CVFD macro command	This option determines the action to be taken for the conversion of negative values. • Unchecked (default): An operation is performed according to the value at $s99. • Checked: A truncation is performed, irrespective of the value at $s99. *** For more information on the macro command CVFD, refer to the Macro Reference Manual.**

Backup the recipe file	This option determines the action to take when an error occurs in writing to a CSV file in the recipe mode. • Unchecked (default): No backup file is created. • Checked: When recipe data has been written successfully, a backup file “XXX.BAK” is created together with the CSV file. When it has failed, temporary files “xxx.000 - xxx.999” * are created. *** If temporary files “xxx.000” through “XXX.999” already exist, the oldest file is retrieved and is deleted.**
Display the recipe mode after executing SV/WR macro commands	This option determines the action to take whether or not to update the recipe mode when the RECIPE folder in the CF card is read again by the following macro commands. [Applicable commands] SV_RECIPE, SV_RECIPE2, SV_RECIPESEL, SV_RECIPESEL2, WR_RECIPE_FILE, WR_RECIPE_LINE, WR_RECIPE_COLUMN • Unchecked (default): The recipe mode item is not updated. • Checked: The recipe mode item is updated. The recipe mode item is reset to the default status. If editing is disabled by the command memory, the current display status is kept.
Return switch prohibited when switching the screen by an external command	This option determines the action to take when the [Function: Return] switch is used. • Unchecked (default): It is possible to go back to the screen previously displayed when it is switched by an external command. • Checked: It is not possible to go back to the screen previously displayed when it is switched by an external command.
Cancel the restriction on the number of registerable characters for Switch and Lamp (127 characters)	This option determines the number of characters that can be displayed on the switch or lamp. • Unchecked (default): The number of registerable characters is limited according to the width of the item. • Checked: A maximum of 127 characters can be registered regardless of the width of the item. *** If [☐ Size Automatic Adjustment] is checked in the [Switch] or [Lamp] dialog ([Text] tab window), the setting for [☐ Size Automatic Adjustment] overrides the setting made here.**

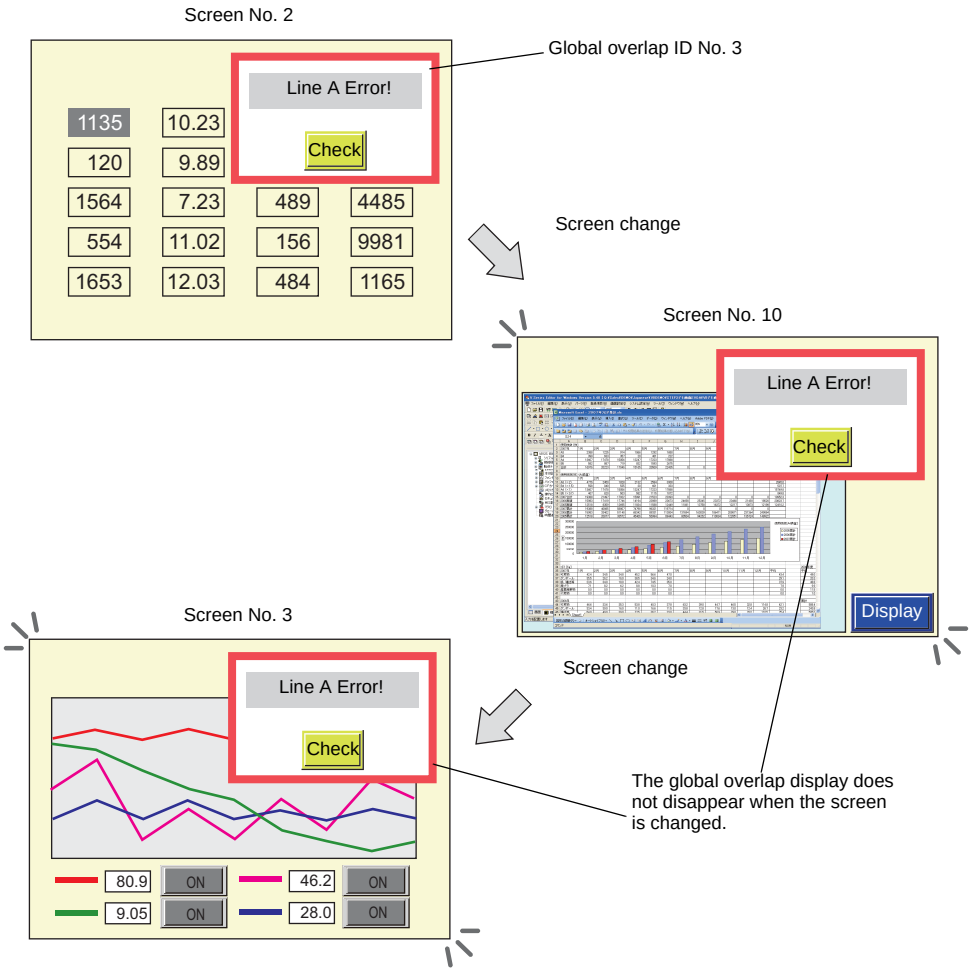
Scale the upper/lower limit of the alarm for num. display	This option determines the range of values associated with alarm issue for numerical data display. Example: Numerical data display to be colored blue for a value 101 or above Numerical data display memory : D100 Alarm maximum value memory : $u1000, Alarm color: blue Before range change : 0 - 1000 After range change : 0 - 100 (101 or above: Alarm color → blue) • Unchecked (default): The maximum and minimum values for alarm are set in the range according to “After range change”. Alarm maximum value: $u1000 = 100 • Checked: The maximum and minimum values for alarm are set in the range according to “Before range change”. (With constant designated, the operation as the above “Unchecked” will take place.) Alarm maximum value: $u1000 = 1000
Change the display from “00:00 AM/PM” to “12:00 AM/PM”	Time can be displayed in the format based on the 12-hour clock system. [Target parts] Alarm display, time display, CSV files output associated with sampling • Unchecked: At midnight → Displayed as “00:00 AM” At noon → Displayed as “00:00 PM” • Checked (default): At midnight → Displayed as “12:00 AM” At noon → Displayed as “12:00 PM”
Check signal changes while displaying RGB input	This option determines the RGB input signal (frequency) acquisition timing. • Unchecked: The screen is displayed under the control of the input signal at the time of initial connection. (In the case of input signal discontinued, the image being displayed remains on the screen.) • Checked (default)*: The screen is always displayed under control of the newest input signal. This mode is useful in a case where the frequency of the input signal is variable (example: resolution change from SVGA to VGA). A screen display is produced based on the clip start position and the clip size as default. (In the case of input signal discontinued, the screen is cleared and goes black.) *** While multiple channels are set for screen displays, the display speed may decrease even at the time of signal input over only one channel.** **With the optional unit “GU-01” connected, input signal acquisition takes place periodically. During the acquisition process, communications (with PLCs) may become slow.**

Adjust Windows Font with +1 dot in the Y direction	This option sets whether or not to adjust the positions of characters in Windows fonts. • Unchecked (default): Characters placed in the editor software are moved up by one dot on the Y axis when they are displayed on MONITOUCH. • Checked: Characters are displayed in the same positions as set in the editor software.
Adjust position of Windows Font (Multi Text)	This option sets whether or not to adjust the positions of characters when the Windows fonts are used in the Multi Text. • Unchecked: The heights of characters are calculated at a fixed value. • Checked (default): The heights of characters are adjusted not to protrude from the multi-text area.

2 Global Overlap

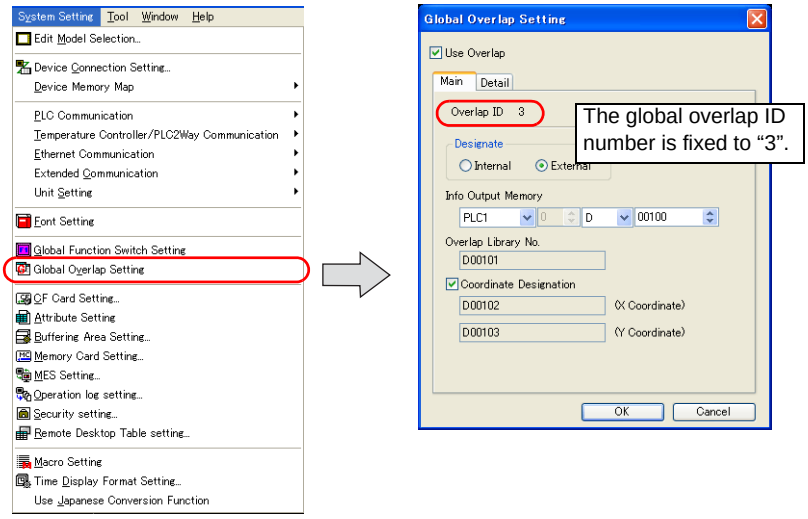
Overview

With the earlier version of V-SFT, the multi-overlap display must be set on multiple screens to made it appear on any screen when the screen display is changed over. With the version of 5.4.17.0 or later, once the global overlap display is set, the overlap display remains displayed even when the screen is changed.



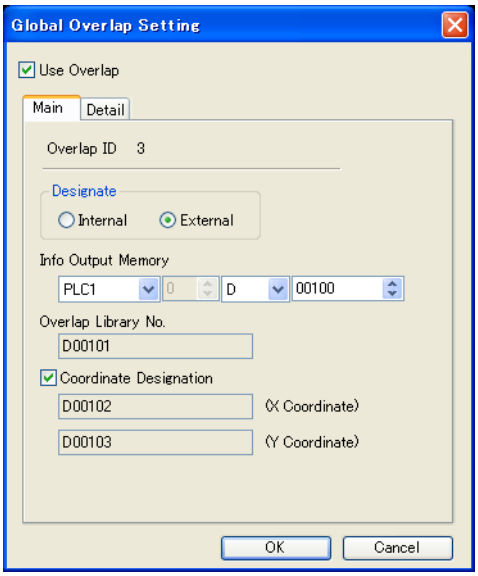
[Global Overlap Setting] Dialog

Click [System Setting] → [Global Overlap Setting], and check [☑ Use Overlap].



The global overlap display works as overlap ID No. 3.

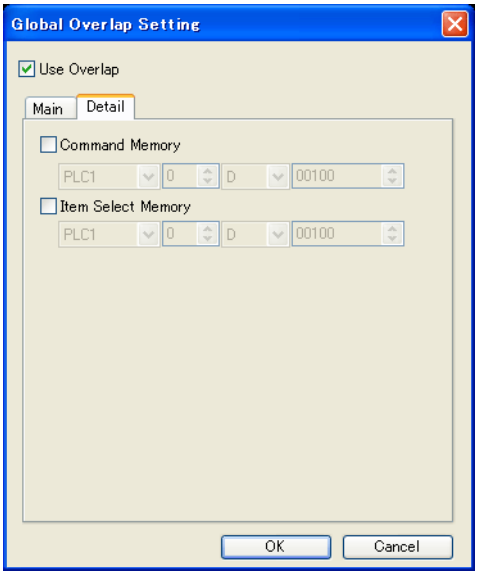
[Main] Tab Window

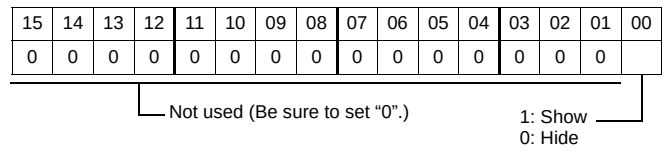


<table>
<tr>
<td>Designate
(Internal, External)</td>
<td>
Internal:
An overlap display can be shown or hidden by pressing a switch placed on the screen or using a macro command.
<table>
<tr><th>Method</th><th>Details</th><th>See:</th></tr>
<tr><td>Switch</td><td>Function: Multi-Overlap Display → Show
Function: Overlap Display (OFF) → Hide</td><td>page 2-5</td></tr>
<tr><td>Macro</td><td>SET_MOVLP → Show
OVLP_SHOW → Hide</td><td>page 2-5</td></tr>
</table>
External:
An overlap display can be shown or hidden by specifying an overlap library number in memory. In this case, the display position can also be specified by an external command.
<table>
<tr><th>Method</th><th>Details</th><th>See:</th></tr>
<tr><td>Read area
“n + 1”</td><td>Bits 3 of read area “n + 1”
(1: show, 0: hide)
<table>
<tr><td>Target library designation</td><td>Overlap Library No.
(= Info Output Memory “n + 1”)</td></tr>
<tr><td>Coordinate designation</td><td>This is valid only when [☐ Coordinate Designation] is checked.
(= Info Output Memory “n + 2”, “n + 3”)</td></tr>
</table></td><td>page 2-6</td></tr>
<tr><td>Command Memory</td><td>Command Memory Bit 0
(1: show, 0: hide)
<table>
<tr><td>Target library designation</td><td>Overlap Library No.
(= Info Output Memory “n + 1”)</td></tr>
<tr><td>Coordinate designation</td><td>This is valid only when [☐ Coordinate Designation] is checked.
(= Info Output Memory “n + 2”, “n + 3”)</td></tr>
</table></td><td>page 2-6</td></tr>
</table>
</td>
</tr>
<tr>
<td>Info Output Memory</td>
<td>Specify the desired memory address.
The overlap library number currently shown on the screen is stored in the top memory address “n”. When no overlap display is shown, “-1” is stored.
If [Internal] is selected for [Designate], one word of top memory address “n” is used.
If [External] is selected for [Designate], a maximum of four words from top memory address “n” is used.(n to n+3)</td>
</tr>
<tr>
<td>Overlap Library No.</td>
<td>This is valid only when [External] is selected for [Designate].
A memory address of [Info Output Memory] “n + 1” is automatically allocated.
Specify the overlap library number to be displayed in advance.</td>
</tr>
</table>

☐ Coordinate Designation	This is valid only when [External] is selected for [Designate]. A memory address of [Info Output Memory] “n + 2” or “n + 3” is automatically allocated. Checked: Specify the coordinate position where the overlap display is shown from the memory. [Info Output Memory] “n + 2”: X coordinate [Info Output Memory] “n + 3”: Y coordinate Unchecked: The overlap display is shown in the same position as it is placed for the overlap library.

[Detail] Tab Window



☐ Command Memory *	Checked: Specify one word of memory as desired. This is used for showing or hiding the overlap display according to the data in the specified memory address. However, it is not possible to use bit 3 of read area “n + 1” for showing or hiding the overlap display.  Unchecked: Bit 3 of read area “n + 1” is used at all times.
☐ Item Select Memory	This is required when using “entry mode” on the overlap screen. For more information, refer to the V8 Series Reference Manual.

*** If you select [System Setting] → [Device Communication Setting] → [Read/Write Area] and check [☐ GD-80 Compatible Read/Write Area], the setting for [☐ Command Memory] becomes invalid.**

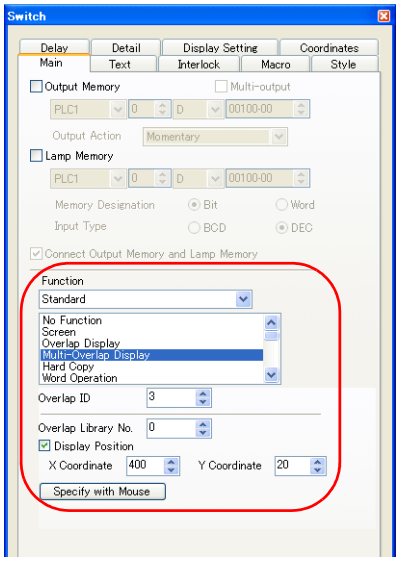
Showing/Hiding Global Overlap Display

Internal Command

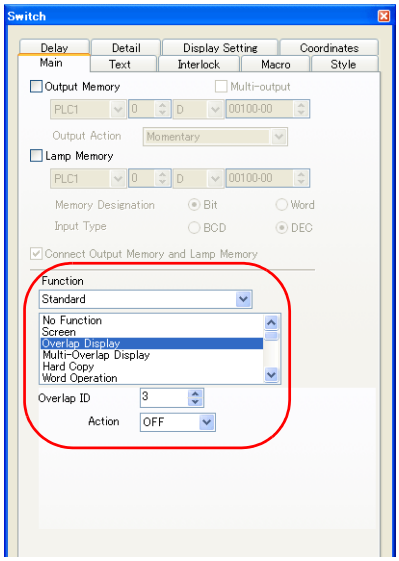
Switch

The global overlap display can be shown or hidden by using a switch.

Show



Hide



Function	Description
Multi-Overlap Display	Select to show the global overlap display. [Overlap ID]: 3 (cannot be changed) [Overlap Library No.]: Specify the desired number. [☐ Display Position]: Unchecked: The overlap display is shown in the same position as it is placed for the overlap library. Checked: You can specify the display position as desired for respective switches.
Overlap Display	Select to hide the global overlap display. [Overlap ID]: 3 (cannot be changed) [Action]: OFF

Macro commands

Use the macro command “SET_MOVLP” (show) or “OVLP_SHOW” (hide).
Be sure to set “3” for the overlap ID.

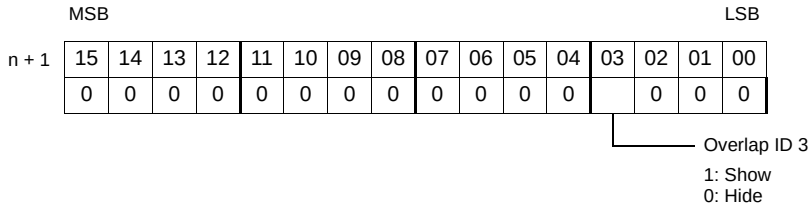
*** For more information on macro commands, refer to the Macro Reference Manual.**

External Command

Read area

The global overlap display can be shown or hidden by setting the read area.

1. Specify the overlap library number for [Overlap Library No.].
2. Set bit 3 of read area “n + 1” in the [Read/Write Area] tab window that is displayed by selecting [System Setting] → [Device Connection Setting] → [Read/Write Area].

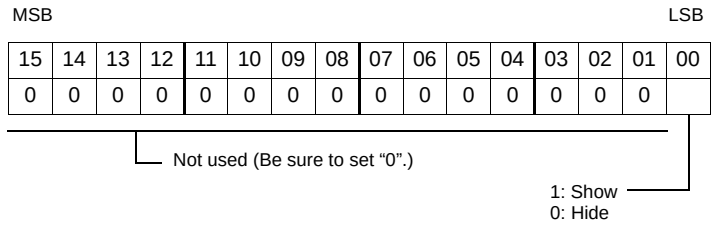


*** If it is desired for a memory address to show or hide the overlap display, use the command memory.**

Command memory

The global overlap display can be shown or hidden by using the command memory.

1. Specify the overlap library number for [Overlap Library No.].
2. Check [☑ Command Memory] in the [Detail] tab window in the [Global Overlap Setting] dialog that is displayed by selecting [System Setting] → [Global Overlap Setting]. Specify the desired address for [Command Memory].
   The overlap display is shown or hidden according to the setting of bit 0 in the command memory.

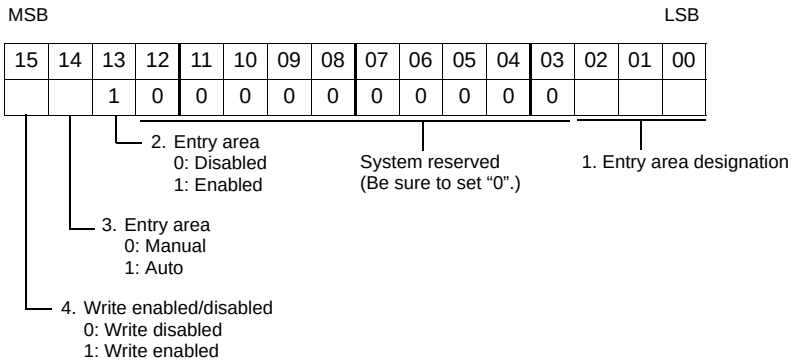


Function Related to Global Overlap Display (Entry Mode)

The global overlap setting is added to the command memory and information output memory in the entry mode.

Command Memory

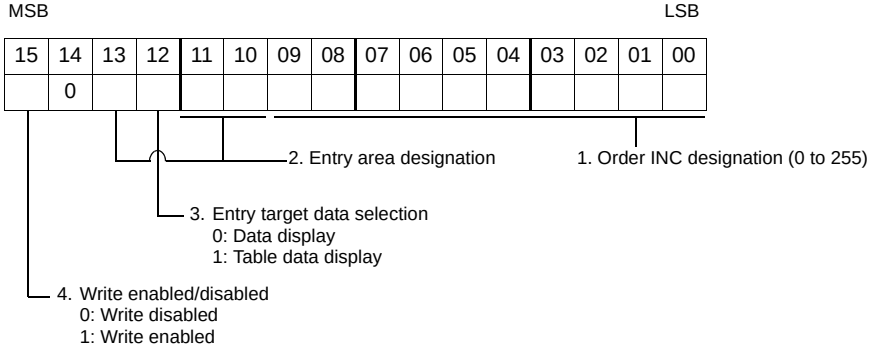
[Input Item Select: Internal]



1. Entry area designation	This is valid when entry area (2.) is set to enabled [1]. Specify the area where the cursor can move. The content is shown below:
2. Entry area	Select the area where the cursor can move between the data fields to select an entry target. 0: Disabled The cursor moves in the areas in the following order: 1) Base screen 2) Overlap ID 0 3) Overlap ID 1 4) Overlap ID 2 5) Global overlap ID 3 1: Enabled The cursor moves in the specified area only. For the procedure of area designation, refer to "1. Entry area designation".
3. Cursor movement	For more information, refer to the V8 Series Reference Manual.
4. Write enabled/disabled	

Bit No.			Type	
02	01	00	Data Display	Data Block
0	0	0	Base	Data block area No. 0
0	0	1	Overlap ID 0	Data block area No. 1
0	1	0	Overlap ID 1	Data block area No. 2
0	1	1	Overlap ID 2	Data block area No. 3
1	0	0	Global overlap ID 3	-

[Input Item Selection: External]

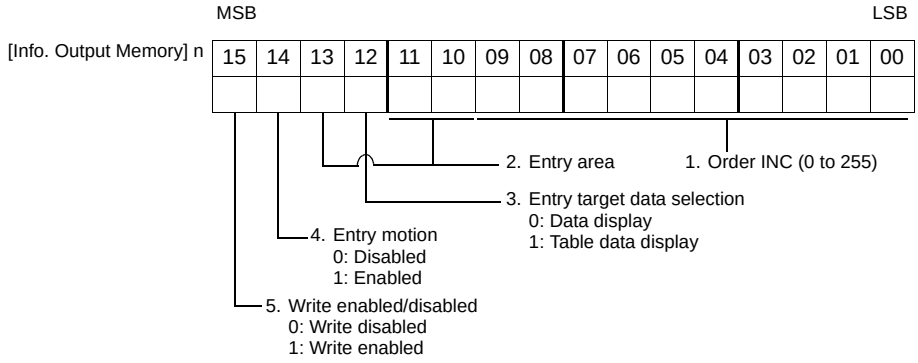


1. Order INC designation	For more information, refer to the V8 Series Reference Manual.
2. Entry area designation	Specify the area the cursor can move. The content is shown below:

Bit No.			Type	
13	11	10	Data Display	Data Block
0	0	0	Base	Data block area No. 0
0	0	1	Overlap ID 0	Data block area No. 1
0	1	0	Overlap ID 1	Data block area No. 2
0	1	1	Overlap ID 2	Data block area No. 3
1	0	0	Global overlap ID 3	-

3. Entry target data	For more information, refer to the V8 Series Reference Manual.
4. Write enabled/disabled	

Info. Output Memory



1. Order INC	For more information, refer to the V8 Series Reference Manual.

<table>
<tr><td>2. Entry area</td><td>The currently selected entry area number is written. The content is shown below:
<table>
<tr><th colspan="3">Bit No.</th><th colspan="2">Type</th></tr>
<tr><th>12</th><th>11</th><th>10</th><th>Data Display</th><th>Data Block</th></tr>
<tr><td>0</td><td>0</td><td>0</td><td>Base</td><td>Data block area No. 0</td></tr>
<tr><td>0</td><td>0</td><td>1</td><td>Overlap ID 0</td><td>Data block area No. 1</td></tr>
<tr><td>0</td><td>1</td><td>0</td><td>Overlap ID 1</td><td>Data block area No. 2</td></tr>
<tr><td>0</td><td>1</td><td>1</td><td>Overlap ID 2</td><td>Data block area No. 3</td></tr>
<tr><td>1</td><td>0</td><td>0</td><td>Global overlap ID 3</td><td>-</td></tr>
</table></td></tr>
<tr><td>3. Entry target data selection</td><td>This bit is valid, provided that [☑ Line/Column Output] is checked.
For more information, refer to the V8 Series Reference Manual.</td></tr>
<tr><td>4. Entry motion</td><td rowspan="2">For more information, refer to the V8 Series Reference Manual.</td></tr>
<tr><td>5. Write status</td></tr>
</table>

*** For more information on the usage of the info. output memory, refer to the V8 Series Reference Manual.**

System Memory

The following describes the system memory associated with the global overlap display.

<table>
<tr><th>$s</th><th>Description</th><th>Remarks</th></tr>
<tr><td>1560</td><td>Registration/display status
MSB LSB
15 | 14 | 13 | 12 | 11 | 10 | 09 | 08 | 07 | 06 | 05 | 04 | 03 | 02 | 01 | 00
Overlap registration
0: No
1: Yes
Display status
0: Hide
1: Show</td><td>← V</td></tr>
<tr><td>1561</td><td>Display position: X coordinate
<table>
<tr><th>Model</th><th>Dot</th><th>Column
(1 column = 8 dots)</th></tr>
<tr><td>V815X</td><td>0 to 1023</td><td>0 to 127</td></tr>
<tr><td>V812S/V810S/V808S</td><td>0 to 799</td><td>0 to 99</td></tr>
<tr><td>V810T/V810C/V808C/V808CH</td><td>0 to 639</td><td>0 to 79</td></tr>
<tr><td>V806T/V806C/V806M</td><td>0 to 319</td><td>0 to 39</td></tr>
</table></td><td>← V</td></tr>
<tr><td>1562</td><td>Display position: Y coordinate
<table>
<tr><th>Model</th><th>Dot</th><th>Line
(1 line = 20 dots)</th></tr>
<tr><td>V815X</td><td>0 to 767</td><td>0 to 37</td></tr>
<tr><td>V812S/V810S/V808S</td><td>0 to 599</td><td>0 to 29</td></tr>
<tr><td>V810T/V810C/V808C/V808CH</td><td>0 to 479</td><td>0 to 23</td></tr>
<tr><td>V806T/V806C/V806M</td><td>0 to 239</td><td>0 to 11</td></tr>
</table></td><td>← V</td></tr>
<tr><td>1563</td><td>Overlap library number
No.: 0 to 9999
Not displayed: -1</td><td>← V</td></tr>
</table>

Limitations

Size Limitations

There is a limit to the size of the overlap display that can be shown on one screen.
Set the size of overlap displays (normal, call-, multi-overlap display (of the maximum size when showing several multi-overlap displays) and global overlap display) so that the combined size does not exceed the maximum overlap size shown here.

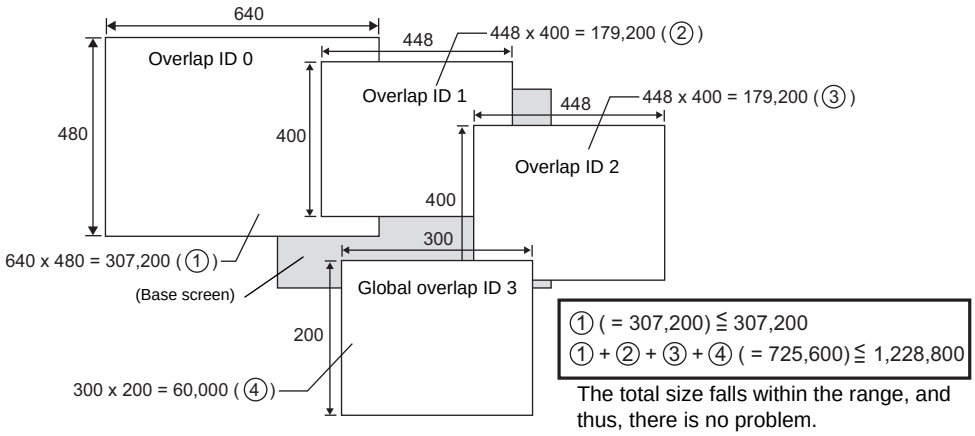
*** For the size of the overlap displays when the global overlap display is not used, refer to the V8 Series Reference Manual.**

Overlap display size calculation method (unit: dots)
Overlap size = Overlap display width × Overlap display height

(Unit: dots)

Model	Maximum Screen Size	Maximum Overlap Size	Maximum Overlap Size (for Video)
V815iX (1024 × 768)	786,432	3,145,728	1,572,864 (The total of widths of four overlap displays must not exceed 2,048 dots.)
V8xxxS (800 × 600)	480,000	1,920,000	960,000 (The total of widths of four overlap displays must not exceed 2,048 dots.)
V810xT (640 × 480)	307,200	1,228,800	614,400 (The total of widths of four overlap displays must not exceed 2,048 dots.)
V810xC (640 × 480)	307,200	921,600	-
V808xC (640 × 480)			
V808CH (640 × 480)			
V806xx (320 × 240)	76,800	230,400	-

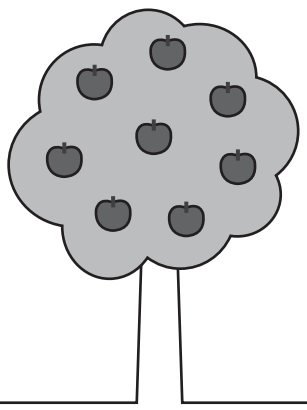
Example: For V810T



Display Limitations

- When the global overlap display has been hidden by the internal command (switch or macro command) after it was brought up by the external command, bit 3 of the external command must be set (0 → 1) to display the global overlap display again. It is recommended that you use the external command to hide the overlap display once it has been shown by the external command.
- Note that the overlap display with “superimpose” is placed over the global overlap display.
- When the global overlap display with “superimpose” is shown, the transparent color and the blend value become the same as those set for the screen on which the global overlap display first appeared.
- The global overlap display is not shown while the login screen registered on the [Security Setting] dialog is displayed.
  After the screen display is switched to another, the global overlap display will be shown.
- The global overlap display will be shown again after any of the following functions is executed.
  - The macro command CHG_LANG has been executed to change the language.
  - The item placed on the global overlap display has been shown/hidden.
  - The offset memory value of the item placed on the global overlap display has been changed.
  - The overlap display of the same overlap library number has been displayed while the global overlap display is displayed.
- The data block area cannot be used on the global overlap display. If used in this way, the contents in the data block area will not be displayed on MONITOUCH.
  “Warning” is displayed on the [Error Check] window in the following cases:
  - In the case where [Designate: Internal] is selected and the macro command “SET_MOVLP” is used or [Designate: External] is selected:
    Do not specify the overlap library number of the data block area for the global overlap display.
  - In the case of the [Function: Multi-Overlap Display] switch with [Designate: Internal] selected:
    Change the overlap library number, or delete the data block area from the specified overlap library.
- When the global overlap display is used, “3” cannot be specified for [Order INC] in the [Detail] tab window in the [Data Block Area] dialog. Specify a value from 0 to 2 for [Order INC].
- The global overlap display cannot be set for component parts. It cannot be called up from component parts.

MEMO



Please use this page freely.

3 Switch

3.1 Multi-function

Overview

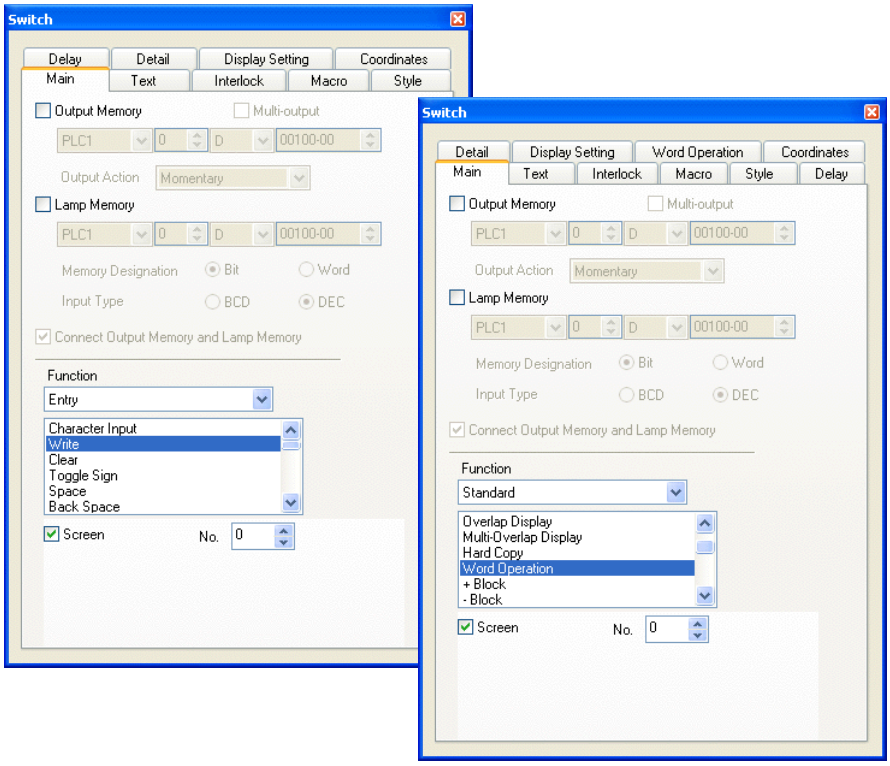
In regards to a switch placed on a screen, which is provided with the [Write] or [Word Operation] function, you may also enable the switch to work as a screen change switch. To accomplish the screen change function of the switch in a conventional manner, the macro command SET_SCRN must be used as the switch ON (or OFF) macro.
However, in accordance with the multi-function switch setting discussed hereafter, a switch can easily be capable of two functions.

Targeted Switches

- Switches with the following setting: Under [Function] in the [Switch] dialog, [Entry] and [Write] or [Standard] and [Word Operation] are selected.

Location for Setting

Click the target switch. Its [Switch] dialog is displayed.
When [Write] or [Word Operation] is selected under [Function], the [☐ Screen] field at the bottom of the dialog becomes active.



*** When a switch that works for [Write] or [Word Operation] is provided with [☐ Screen] setting, pressing the switch implements the action of [Write] or [Word Operation] first and then a screen change.**

3.2 Language Changeover

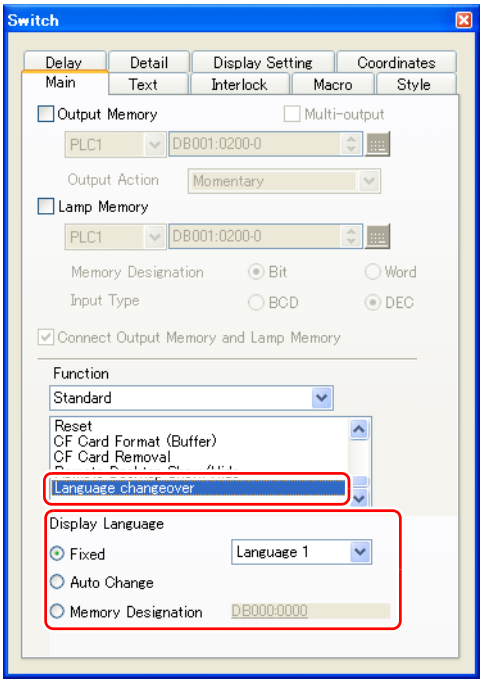
Overview

The interface language can be switched easily with a switch provided with the function [Language changeover].
Each time a [Language changeover] switch is pressed, the interface language switches in the specified order beginning from [Initial Interface Language]. Meanwhile, a desired language can be displayed by specifying its number with an external command.

Location for Setting

Click the target switch to open its dialog.
Select [Language changeover] under [Function].

*** To see the number of interface languages, go to [System Setting] → [Font Setting].**



Fixed	The interface language is displayed according to the specified language number.* Language 1 - 16
Auto Change	The interface language is switched in the specified order beginning from [Initial Interface Language] set in the [Font Setting] dialog. Languages that are not selected in the dialog will not be displayed.
Memory Designation	The interface language of the number placed at the specified memory address is displayed.* 0 : Language 1 1 : Language 2 2 : Language 3 : 15 : Language 16

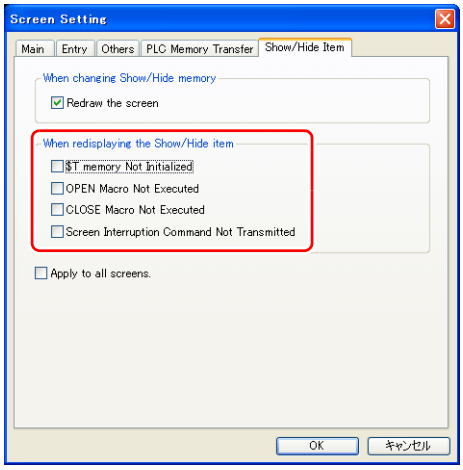
*** If a nonexistent language number is specified for display, an error beep sounds and no action takes place.**

Redrawing Timing

When the interface language is switched, the screen is redrawn. The following actions also take place at the same time.

- Open macro, close macro (screen, multi-overlap library)
- Cycle macro (screen)
- $T memory zero clear (screen)
- Screen interrupt command transfer (PLC type: universal serial) (screen)

If you do not want to execute these operations at the time of redrawing, check the boxes as required.



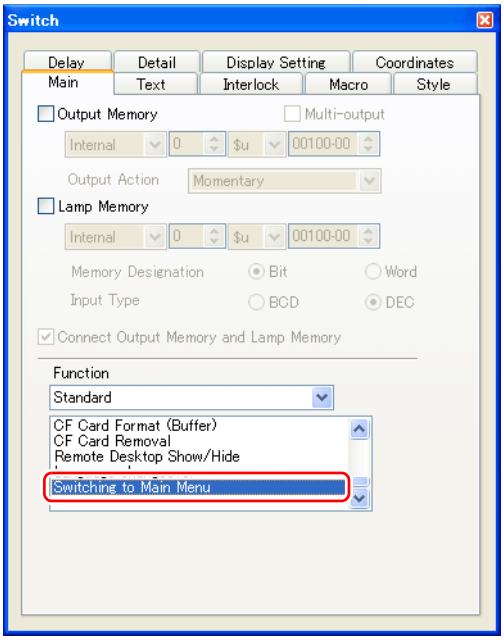
3.3 Switching to [Main Menu] screen

Overview

The [Main Menu] screen can be switched easily with a switch provided with the function [Switching to Main Menu].

Location for Setting

Click the target switch to open its dialog.
Select [Switching to Main Menu] under [Function].



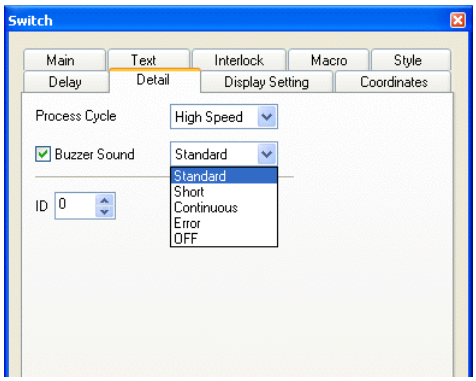
3.4 Buzzer

Overview

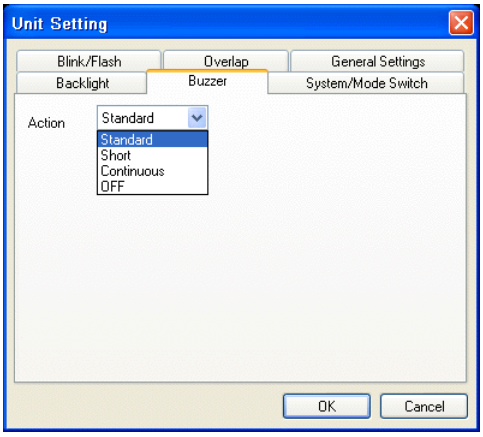
In a conventional manner, the setting for the buzzer sound of MONITOUCH, as well as for the switch buzzer sound, is comprehensively made in the [Unit Setting] dialog.
A new function is now available to set a buzzer sound on a switch-by-switch basis.
It is also possible to produce a continuous sound while a switch is held down.

Location for Setting

1. Click the target switch. Its [Switch] dialog is displayed.
2. Open the [Detail] tab window. Check [☐ Buzzer Sound] and select an option.

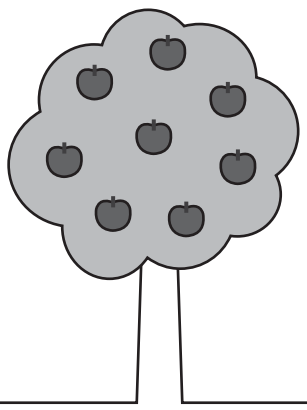


In the [Buzzer] tab window in the [Unit Setting] dialog ([System Setting] → [Unit Setting]), you can set a buzzer sound for the V8 unit including switches.
However, if [☐ Buzzer Sound] is checked in the [Switch] dialog for any switch, the option selected for [Buzzer Sound] takes priority.



(Default: [Standard])

MEMO



Please use this page freely.

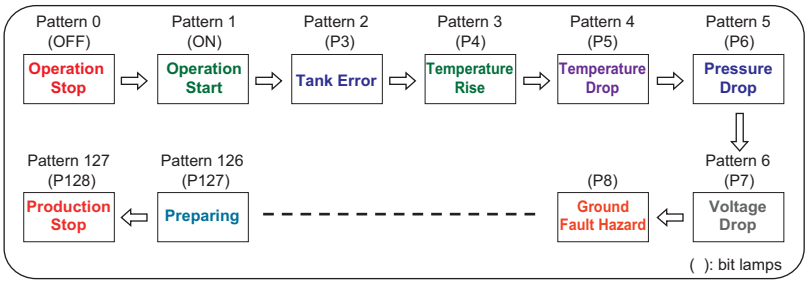
4 Lamp

Overview

- A maximum of 128 patterns (pattern 0 to 127) can be registered for one lamp part (including the one in the switch part).
- The lamp display can be changed by bit ON/OFF operation or pattern number designation.

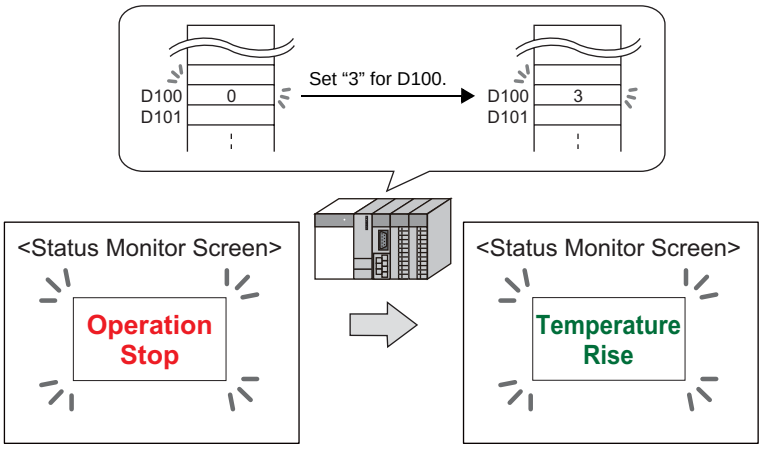
Usage Example

Register 128 patterns for the lamp part in advance.



Word lamp

Lamp part: 1
Lamp memory: D100
Number of patterns: 128



When “0” is set for D100 in the PLC memory, pattern 0 is displayed.

Set “3” for D100 in the PLC memory. Pattern 3 is displayed.

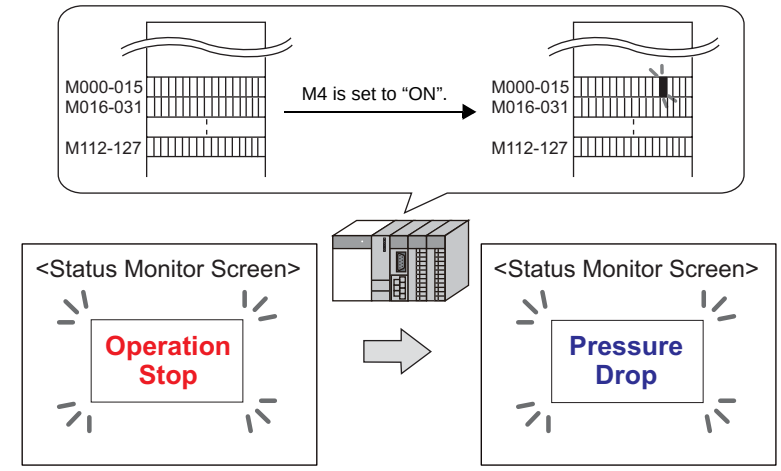
*** When a value outside the specified range is set on MONITOUCH, the lamp display is not changed.**

Bit lamp

Lamp part: 1

Lamp memory: M0 (allocated consecutively from M0 for the number of patterns)

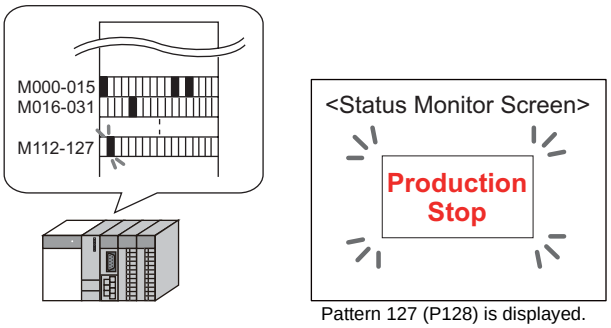
Number of patterns: 128



When “OFF” is set for M0 to 126 in the PLC memory, pattern 0 (OFF) is displayed.

Set “ON” for M4 in the PLC memory. Pattern 5 (P6) is displayed.

*** When multiple bits are set to “ON”, the pattern of the most significant bit is displayed.**



Pattern 127 (P128) is displayed.

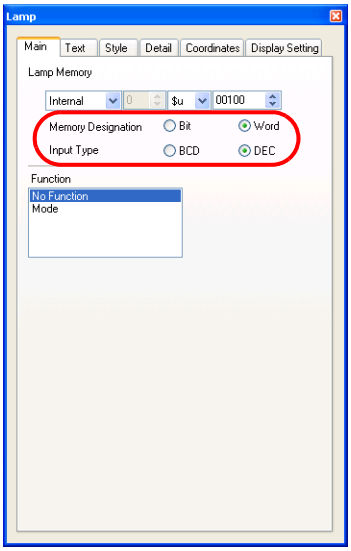
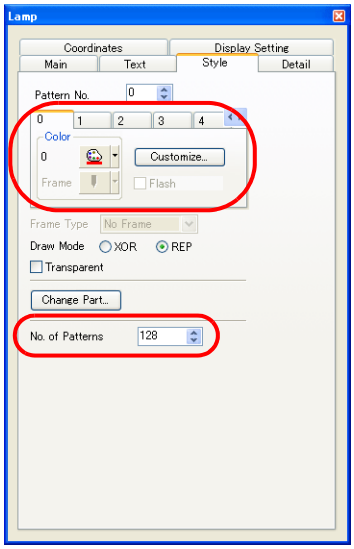
Setting Procedure

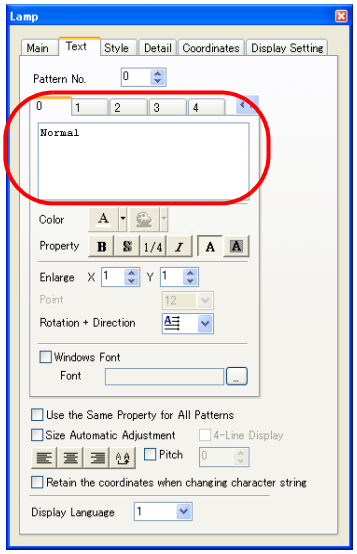
Applicable Items

- Lamp part or switch part

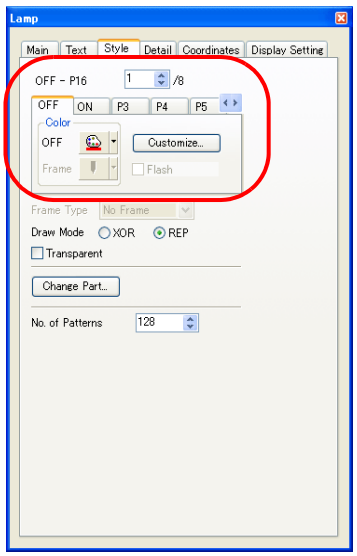
Setting Procedure

The procedure for setting a lamp part with word designation is explained.

Step 1	Click on the lamp part placed on the screen to display the item dialog. Select [Word] for [Memory Designation], and [BCD] or [DEC] for [Input Type]. 
Step 2	In the [Style] tab window, specify the number of patterns for [No. of Patterns] (up to 128). A maximum of 128 patterns of styles and text can be registered. 

	In the [Text] tab window, register the text for each pattern. *** If you cannot select a tab window other than [0], select [REP] for [Draw Mode] in the [Style] tab window.**  The necessary settings have been completed.

* When bit designation is used for the lamp part, the dialog shown below is displayed. For the setting procedure, refer to the procedure for word designation mentioned above.



5 Data Display

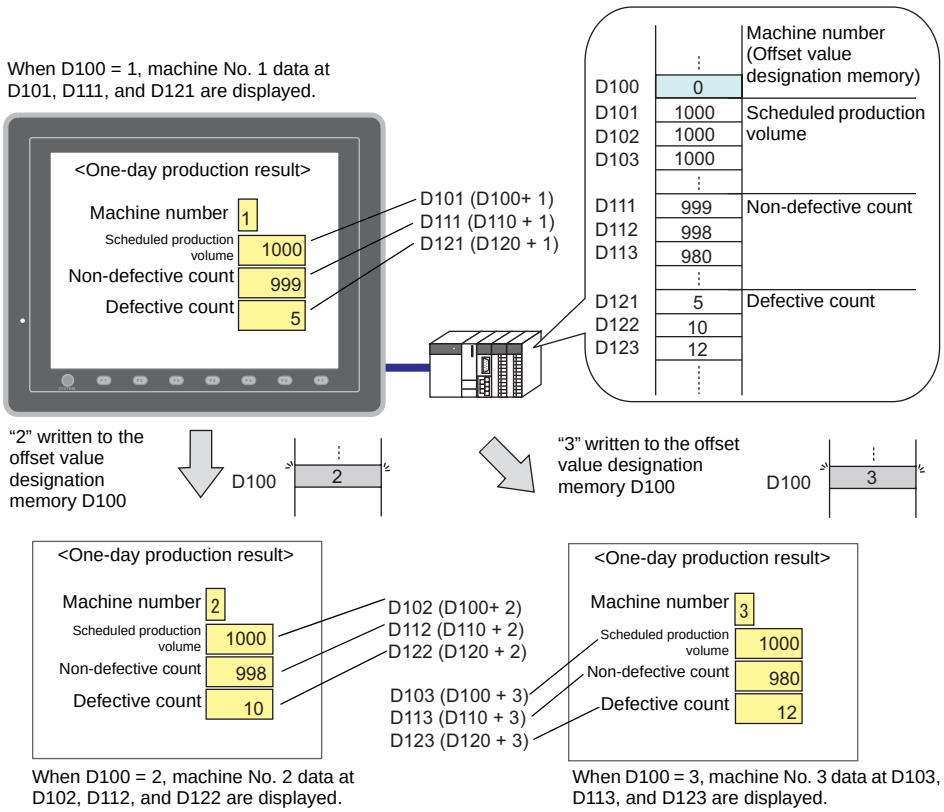
5.1 Offset Value Designation Memory

Overview

Once you have placed a numerical data display part on the screen, you can monitor the value at the PLC memory address assigned to the part and also write data to the memory address.
When using additional memory addresses, however, you need to add parts for the memory addresses or register them with another screen.
With the offset value designation memory, one numerical data display part becomes available with multiple memory addresses. This feature reduces the number of screens or parts used and facilitates screen maintenance.

Example: Display of the scheduled production volume, non-defective count, and defective count for a machine selected from Nos. 1 to 3

Numerical data display	
Machine number:	D100 (memory)
Scheduled production volume:	D100 (base memory), D100 (offset value designation memory)
Non-defective count:	D110 (base memory), D100 (offset value designation memory)
Defective count:	D120 (base memory), D100 (offset value designation memory)



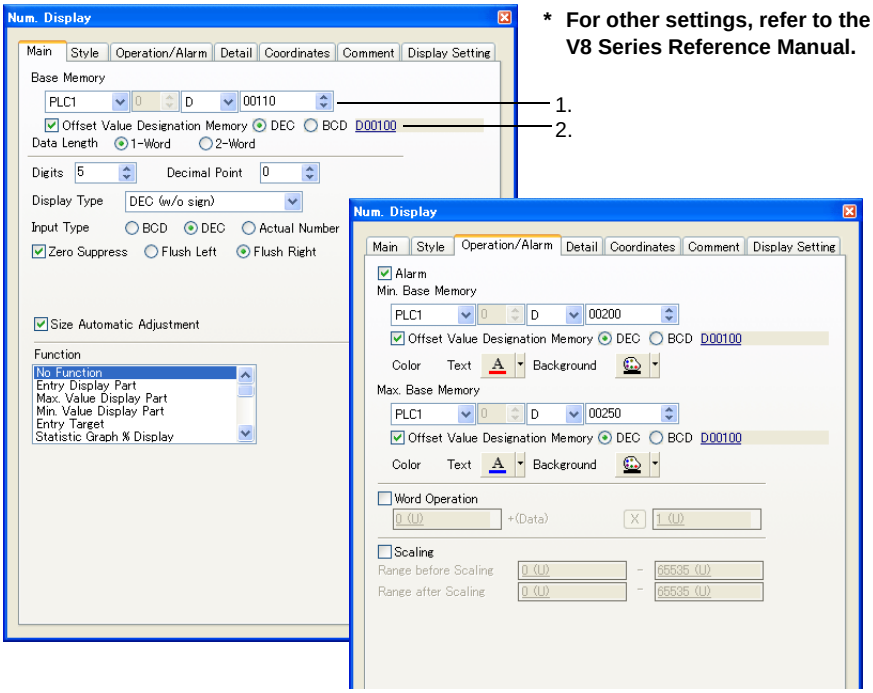
Applicable Items

- Numerical data display: [Function: No Function/Entry Target/Digital Switch], [Alarm: Max./Min.]
- Character display: [Function: No Function/Entry Target/Password Input]

Setting Items

In the [Main] tab window in the [Num. Display] dialog, check [☑Offset Value Designation Memory].

Example: Numerical data display

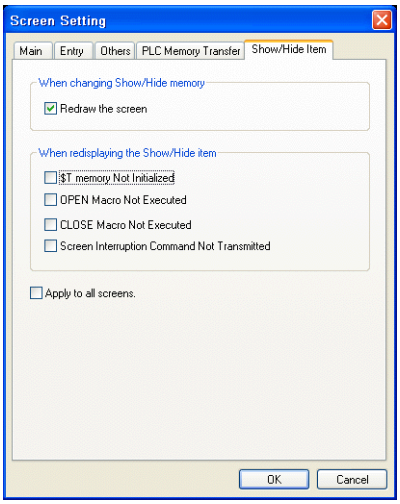


*** For other settings, refer to the V8 Series Reference Manual.**

1. Base Memory	Specify a memory location as the base (= offset memory). Memory: PLC1 - PLC8 memory — Remarks: (blank) Memory: Internal memory — Remarks: (blank) Memory: Tag — Remarks: Valid types: Word address, Bit address, Double-word address Memory: Memory table — Remarks: Component parts
2. Offset Value Designation Memory	Specify a memory location to store the offset value for the base memory and either code DEC or BCD. It is possible to use a constant. Ranges DEC: 0 - 65535 BCD: 0 - 9999 Constant: 0 - 65535

Update Timing

The offset value designation memory is read in every cycle, irrespective of the item processing cycle. When to update the screen depends on the setting made at [Redraw the screen] ([☑Screen Setting] → [Screen Setting] → [Show/Hide Item]).



- Checked:
  The screen is updated when the value in the offset value designation memory changes.
- Unchecked:
  Screen change
  Screen redisplay
  Multi-overlap change (with parts placed on multi-overlap)
  Data block change (with parts placed in data block)

Limitations

Display Limitations

- When the screen is updated, the offset value designation memory is read for the items placed on the screen.
  For a screen including multiple offset value designation memory locations, the updated screen is displayed upon completion of reading all these memory locations. If updating is time-consuming, the use of the internal memory is recommended.
- When setting offset values on a screen, finish the setting before switching the screen to another. In a case where an offset value is designated in an OPEN macro, the offset value is not valid when the screen is open, but becomes valid when the screen is updated.

Others

- An offset value designation memory location is counted as one of the number of the set memory locations.
  For more information on the number of permissible memory locations, refer to the V8 Series Operation Manual.
- For the use of the MICREX-SX series (Fuji Electric) in IEC mode (with the variable name cooperation function), specify a variable for access with memory designation (memory designated in the [AT] field in the dialog). Specifying any variable without memory designation (in the [AT] field) will result in malfunction.
- If a value placed in offset value designation memory is outside the permissible range, an error arises. Observe the specified range for setting.
  PLC memory: Communication error Format
  Internal memory: Error 46

5.2 Attribute Specification Memory

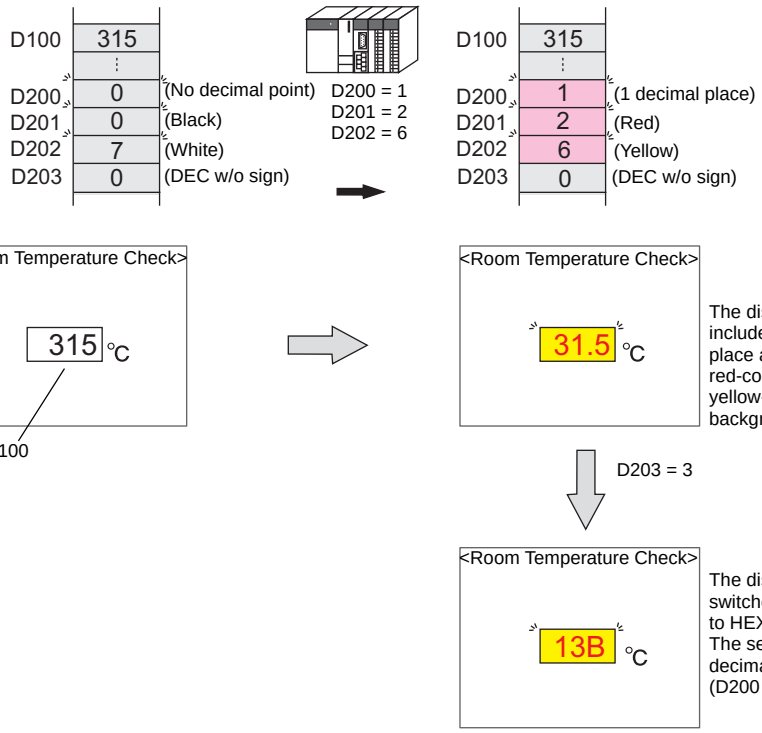
Overview

The macro command CHG_DATA was previously required to change any numerical data display attributes during the RUN mode of MONITOUCH. Meanwhile for character display, no attribute change macro command was provided.
However, the attribute specification memory explained in this section helps change those attributes (the number of digits, decimal point, display type, text color/background color, or the number of bytes) easily for numerical data and character displays while MONITOUCH is in the RUN mode.

Example: Numerical data display D100 (no transparency)
Decimal point: 0 → 1, Text color: black → red, Background color: white → yellow

Attribute specification memory

Decimal point:	D200
Text color:	D201
Background color:	D202
Display type:	D203



Applicable Items

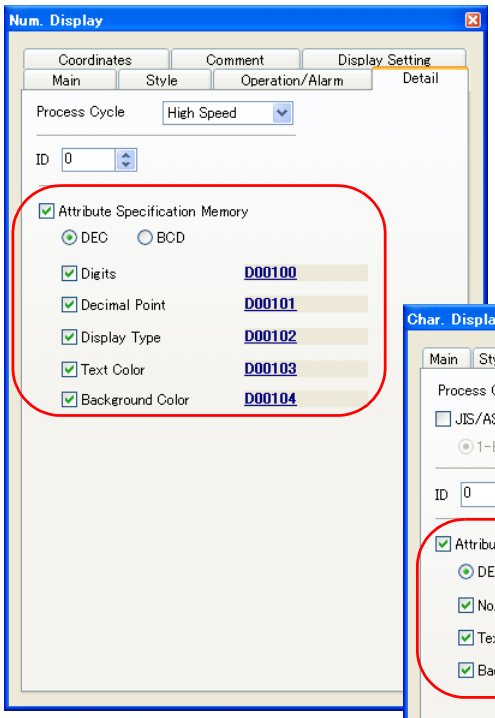
- Numerical data display → number of digits/decimal point/display type/text color/background color
- Character display → number of bytes/text color/background color

* **Attribute specification memory is not available with table data display, data sampling, graphic library, and data sheet (but available with expanded data sheet).**

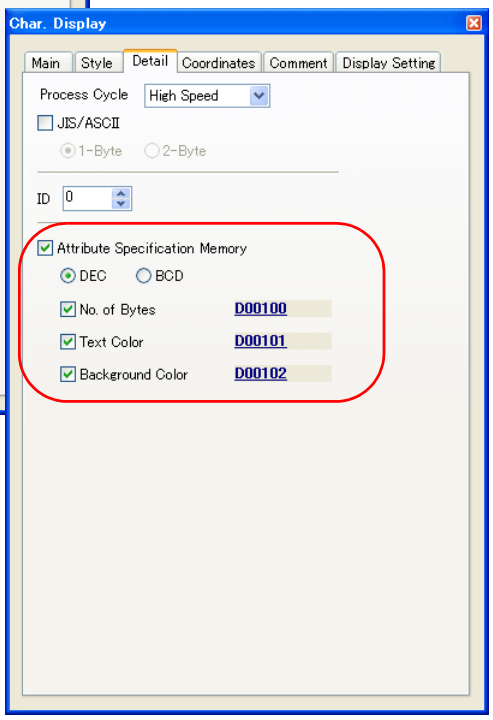
Setting Items

In the [Detail] tab window in the [Num. Display] or [Char. Display] dialog, check [☑Attribute Specification Memory].

[Num. Display] dialog



[Char. Display] dialog



*** The attributes checked in these dialogs will be displayed according to the values specified at the attribute specification memory addresses. However, the attribute specification memory is not available with [☐Display Type] if [Input Type: Actual Number] is selected in the [Main] tab window. In this case, display in actual number is fixed.**
For other settings, refer to the V8 Series Reference Manual.

☐Attribute Specification Memory	Check this option for changing attributes according to the values at the attribute specification memory addresses.
DEC/BCD	Select either code to be used for reading the attribute specification memory. This selection is commonly applied to all attributes.

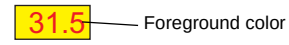
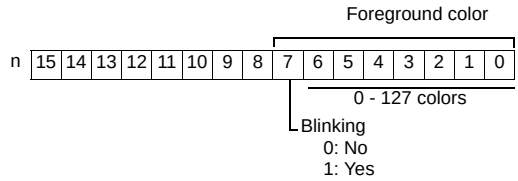
<table>
<tr><td>Digits</td><td>Set a memory address used to specify the number of digits of the numerical data display.
When the numerical data display includes decimal places, the number of digits specified at this address must include the number of decimal places.

<table><tr><th>Display Type</th><th>Digits</th></tr><tr><td>DEC</td><td>1 to 10</td></tr><tr><td>HEX</td><td>1 to 8</td></tr><tr><td>OCT</td><td>1 to 11</td></tr><tr><td>BCD</td><td>1 to 8</td></tr><tr><td>BIN</td><td>1 to 32</td></tr><tr><td>FLOAT</td><td>1 to 32</td></tr></table>
* If the number of digits of a value being read exceeds the limit specified, a hyphen is displayed, indicating an overflow.</td></tr>
<tr><td>Decimal Point</td><td>Set a memory address used to specify the number of decimal places of the numerical data display.

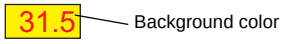
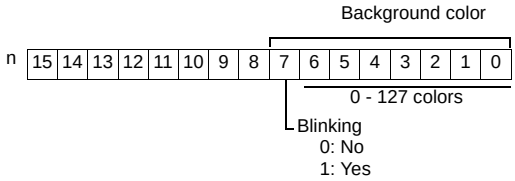
<table><tr><th>Display Type</th><th>Decimal Point</th></tr><tr><td>DEC</td><td>0 to 9</td></tr><tr><td>BCD</td><td>0 to 7</td></tr><tr><td>FLOAT</td><td>0 to 31</td></tr><tr><td>HEX/OCT/BIN *</td><td>-</td></tr></table>
* The number of decimal places must be smaller than the number of digits. If the number of decimal places is the same as or more than the number of digits, an overflow arises.
For HEX, OCT or BIN as [Display Type], decimal point setting does not take effect.
Even if a value is set for [Decimal Point] in such a case, it is assumed to be zero.</td></tr>
<tr><td>Display Type</td><td>Set a memory address used to specify the display type of the numerical data display.
Place a value at the memory address according to the following:

0: DEC (w/o sign)
1: DEC (w/ -sign)
2: DEC (w/ +-sign)
3: HEX
4: OCT
5: BIN
6: FLOAT*
7: BCD (w/o sign)
8: BCD (w/ -sign)
9: BCD (w/ +-sign)

* This setting takes effect when [Data Length: 2-Word] is selected in the [Main] tab window. The [Display Type] setting is invalid when [Input Type: Actual Number] is selected in the [Main] tab window.</td></tr>
</table>

Text Color	Set a memory address used to specify the text color.  Bits 0 to 6: Color Bit 7: Blinking (0: No, 1: Yes)  You can select a color from 128 colors (with blinking) on [Palette 1] in the [Custom Color] dialog. Colors correspond to the following color codes: [Color Palette 1]

Color	Code (DEC)
Black	00
Blue	01
Red	02
Magenta	03
Green	04
Cyan	05
Yellow	06
White	07

Background Color	Set a memory address used to specify the text background color.  Bits 0 to 6: Color Bit 7: Blinking (0: No, 1: Yes)  You can select a color from 128 colors (with blinking) on [Palette 1] in the [Custom Color] dialog. For color codes, refer to the section of "Text Color". *** However, the [Background Color] setting does not take effect when [Transparent] is selected for [Property] in the [Style] tab window.**
No. of Bytes	Set a memory address used to specify the number of bytes of the character display. No. of Bytes: 1 to 127 *** Irrespective of the setting for [No. of Bytes], 127 bytes (64 words) will always be read.**

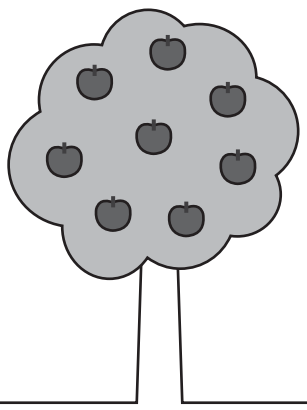
Update Timing

The update timing depends on the [Process Cycle] in the [Detail] tab window for each data display.

Limitations

- For a numerical data or character display provided with a frame, the frame size is not changed according to the setting of [Digits], [Decimal Point], [Display Type] or [No. of Bytes]. For this reason, you need to set the maximum number of digits or bytes in the screen data.
- For a numerical data or character display with [Property: Not Transparent] selected in the [Style] tab window, its background drawing area will be influenced by the setting of [Digits], [Decimal Point], [Display Type] or [No. of Bytes]. If the set number of digits or bytes is decreased, therefore, the background color will be left.
  For this reason, you need to set the maximum number of digits or bytes in the screen data. Or, you may update the display with the macro command SYS (RESET_SCRN) or by screen change.
- If a value displayed in a numerical data display has become higher than the maximum or lower than the minimum specified for alarm, the value is shown in the color preset for alarm.
- When [☑Attribute Specification Memory] is checked in the [Num. Display] dialog, the macro command CHG_DATA is not executable for the numerical data display.
- For a numerical data or character display with [Function: Entry Target], its display is switched when the cursor is moved from the display field.

MEMO



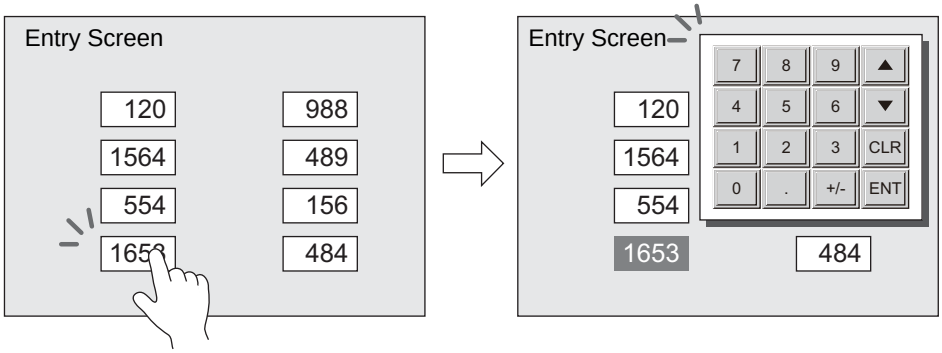
Please use this page freely.

6 Parts with Entry Function

6.1 Data Display (with Entry Keys)

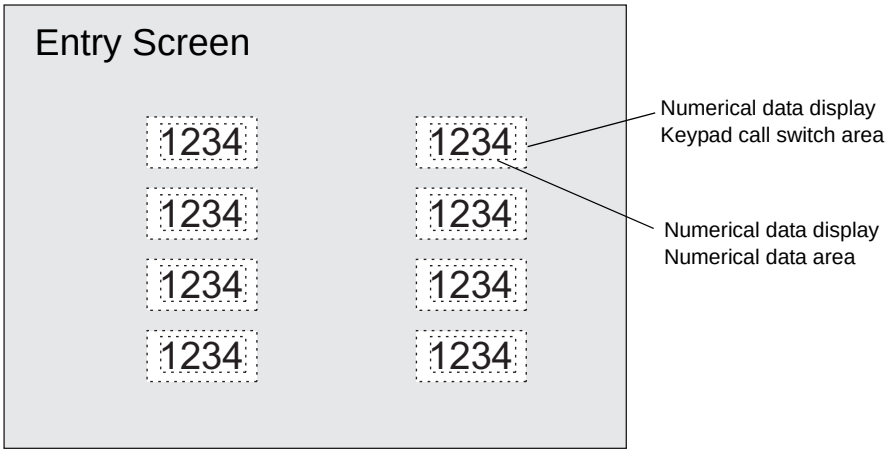
Overview

- A keypad call switch can automatically be set to numerical data display or character data display parts.



Pressing on a numerical data display part brings up a keypad equipped with entry keys.

- The area of the numerical data display or character data display part works, when it is pressed, as a switch for calling a keypad registered on the [Multi-Overlap] dialog.



Each numerical data display area works as a switch.

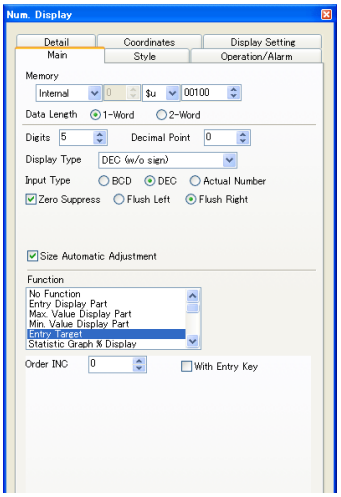
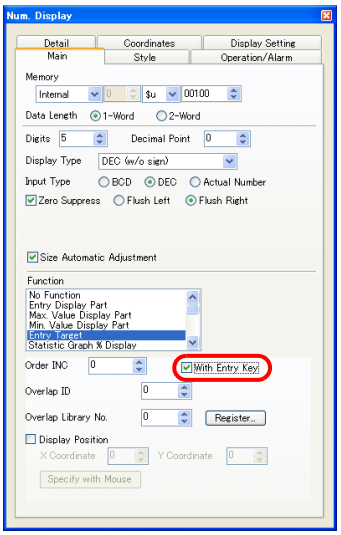
Setting Procedure

Setting Position

- Numerical data display part or character data display part
  *[Function: Entry Target] must be selected.

Setting Procedure

The procedure is explained with an example of a numerical data display part.

Step 1	Select [Entry Target] for [Function] of the numerical data display part placed on the screen. The [☐ With Entry Key] check box appears underneath. 
Step 2	Check the box for [☐ With Entry Key]. The setting items shown below appear. 

<table>
<tr><td>Step 3</td><td>Set up the multi-overlap settings for showing the keypad.

<table>
<tr><td>Overlap ID *1</td><td>Specify the overlap ID to be used for showing the keypad.</td></tr>
<tr><td>Overlap Library No.</td><td>Specify the overlap library number of the keypad.
Press the [Register] button *2, select the desired keypad, and register it in the overlap library.
If it is already registered in the overlap library, simply specify the number.</td></tr>
<tr><td>☐ Display Position</td><td>When this box is checked, the multi-overlap display position can be set.

• [X Coordinate], [Y Coordinate]
Specify the coordinate values to set the display position.
• [Specify with Mouse] button
When this button is clicked, a cross-shaped cursor appears on the screen. Move the cursor to the desired position and click the mouse to determine the position.</td></tr>
</table>
*1 With [☐ With Entry Key] checked, if any overlap display other than the multi-overlap display has been registered, the following message is displayed.

Select another ID.

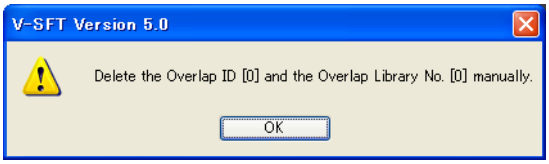
If another multi-overlap display is already registered at the same overlap ID, no error occurs.
However, when the keypad is displayed on the MONITOUCH, the multi-overlap display that is previously displayed will disappear.

*2 Unless you press the [Register] button, the keypad will not be registered in the overlap library.</td></tr>
<tr><td>Step 4</td><td>When the setup has been completed, an overlap icon (for multi-overlap) is displayed in addition to the numerical data display on the screen.

</td></tr>
</table>

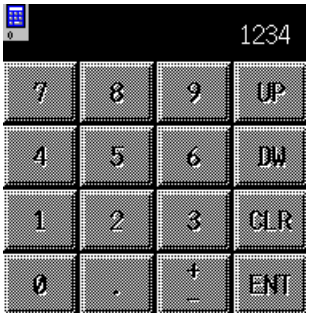
Notes on canceling the data display with entry function

Once the setup has been completed, if you uncheck the box for [☐ With Entry Key] of a numerical data display or character display part, or if a function other than [Entry Target] is selected for [Function], the confirmation dialog shown below will be displayed.



Click [OK], and manually delete the overlap ID icon and the overlap library.

Overlap icon

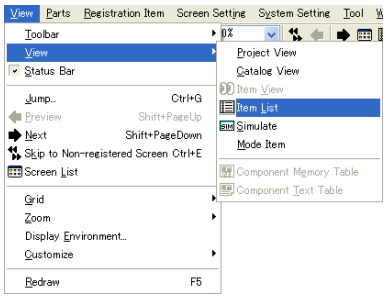


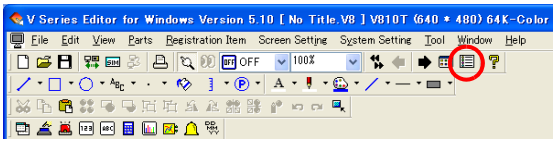
Overlap library

Other Notes

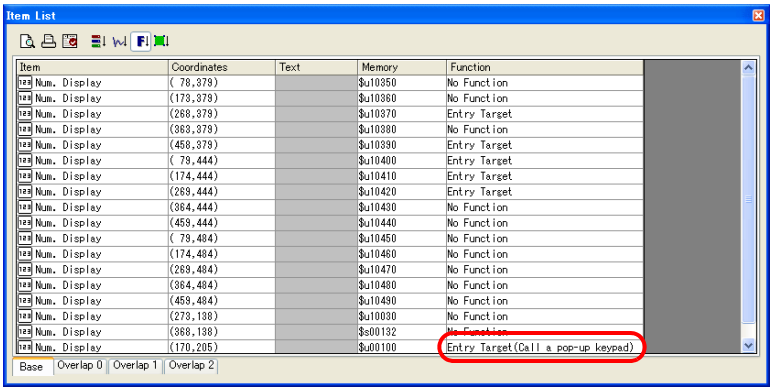
Checking the Data Display with Entry Function

When checking whether the “data display with entry function” has been set on the screen, use the [Item List] view.





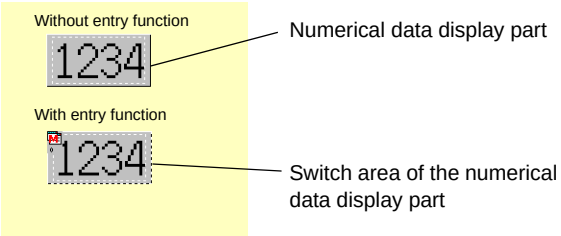
[Item List] view



This indicates a data display part with a pop-up keypad.

Switch Area

The data display with entry function has a switch area.
The switch area will be displayed with dotted lines when you select [Display Environment] → [Display] and check the box for [☐ Display Area].

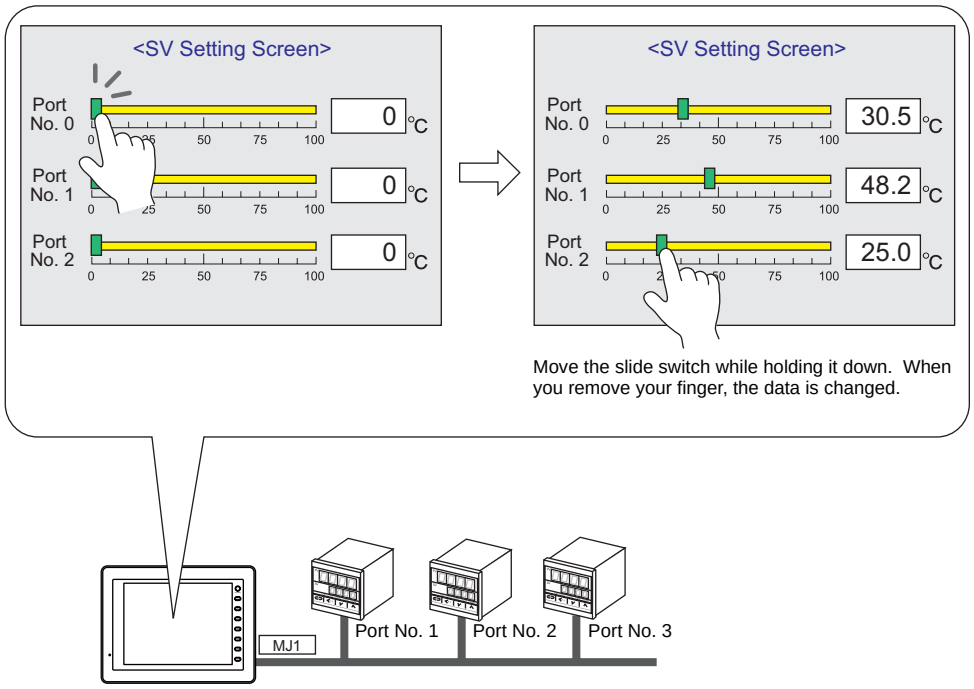


6.2 Slider Switch

Overview

- The slider switch is useful to change the setting values on the screen.
- A maximum of 1024 parts* (192 parts* for the V806 series) can be placed on one screen.

* Including switches and scroll bars

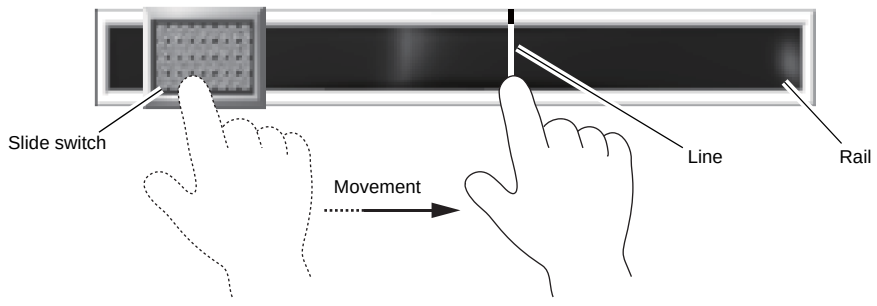


Position to be pressed and data write timing

- The slider switch works only when the slide switch is pressed (it does not work when a position on the rail is pressed).
- When you remove your finger from the slide switch, a value is written and the slide switch is moved at the same time.

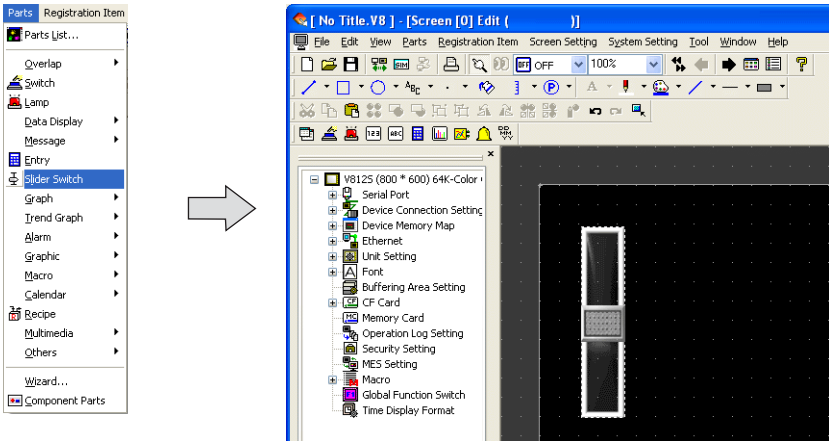
Display for slide switch movement

- While you are moving your finger to move the slide switch, only a line indicating the switch position to be moved is displayed. The slide switch does not move together with your finger.



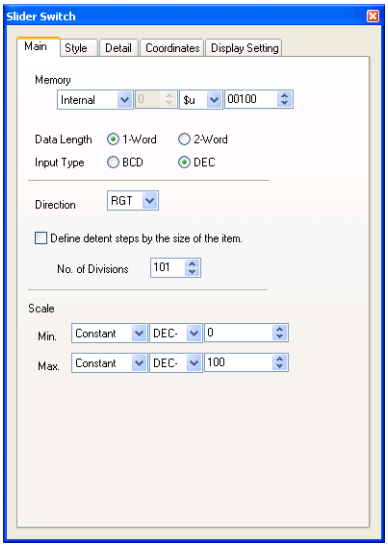
Setting Procedure

Select [Parts] → [Slider Switch] to place a slider switch part on the screen.
(Alternatively you can place it by selecting [Slider Switch] on the [Parts List] window that is displayed by selecting [Parts] → [Parts List].)



Setting Dialog

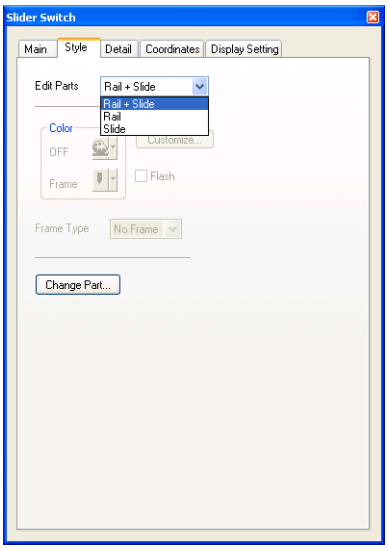
[Main] tab window



Memory	Specify a memory address to be changed by the slider switch.
Data Length (1-Word, 2-Word)	Select the data length of the memory address.
Input Type (BCD, DEC)	Select a code type to be used when importing data into the V series.
Direction (↑, ↓, →, ←)	Select a sliding direction.

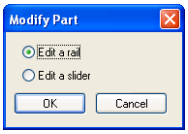
☐ Define detent steps by the size of the item.	When this check box is checked, the number of divisions for the rail is automatically defined according to the size and scale value of the rail.
No. of Divisions (2 to 1024)	Specify the number of divisions of the rail. If the size of the rail is smaller than the number of divisions, the rail is divided into the number defined in the case where [☐ Define detent steps by the size of the item.] is checked.
Scale	Specify the setting range available for the slider switch. It is also possible to make it variable by specifying the memory address.

[Style] tab window



Edit Parts (Rail + Slide, Rail, Slide)	Select the part whose design is to be changed.
Color	Change the color of the part which is selected for [Edit Parts]. (This is valid only when [Rail] or [Slide] is selected.)
Change Part*	Press this button to apply changes to the part selected for [Edit Parts]. For more information, refer to “3.6 Parts” in the V8 Series Operation Manual.

* Parts change can be executed by selecting an option on the [Modify Part] window. Select a slider switch and select [Edit] → [Change Part] → [Modify Part]. The dialog shown below is displayed. Select [Edit a rail] or [Edit a slider].



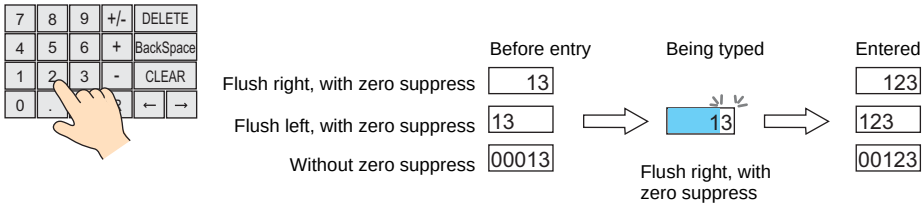
6.3 Numerical Data Entry (Numeral Insertion/DELETE Keys Enabled)

Overview

To change numerical data already entered through the keypad, you need to type over the data, or delete every numeral with the backspace key and then type in new data.
With the numeral insertion/DELETE key function discussed in this section, you can use the arrow keys "←" and "→" to move the cursor, and enter/delete numerals to/from the places specified with the cursor.

Display During Data Entry

Numerals being typed are displayed in a flush-right format with zero suppress, irrespective of which settings (flush right and zero suppress) are currently made for the numerical data display. After the numerals being typed are entered, they are displayed in the set format.

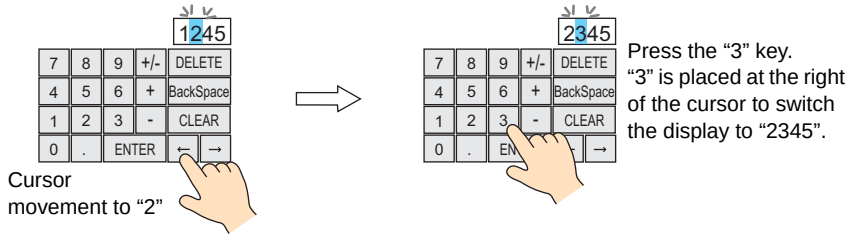


Examples

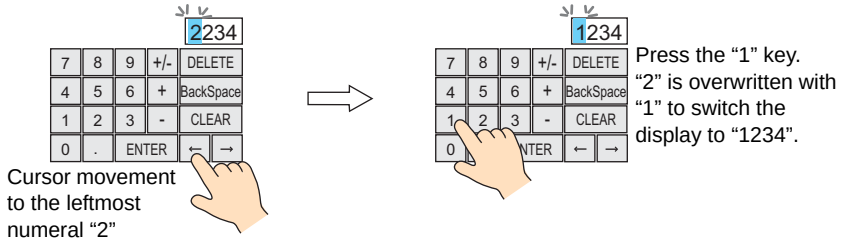
Insertion of numerals

- The whole number part
  A numeral insertion is made to the right of the cursor.
  When numerals exist at all places, entering a new numeral deletes the leftmost numeral.
  Additionally, entering a numeral at the leftmost place of the whole number part overwrites the current numeral.

Example: Insertion of "3" between "2" and "4" to show "2345"

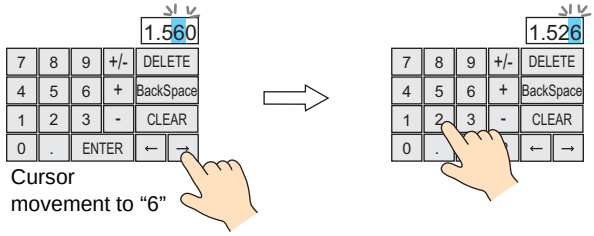


Example: Overwriting the leftmost numeral "2" to show "1234"

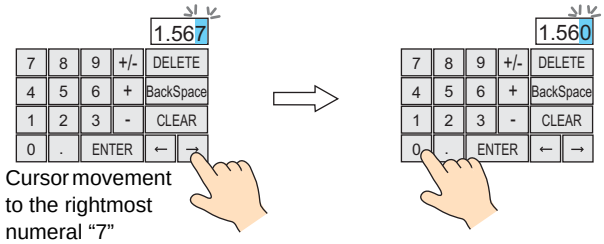


- The fractional part
  A numeral insertion is made to the left of the cursor. When numerals exist at all places, entering a new numeral deletes the rightmost numeral of the fractional part.
  Additionally, entering a numeral at the rightmost place of the fractional part overwrites the current numeral.

Example: Insertion of “2” between “5” and “6” to show “1.526”



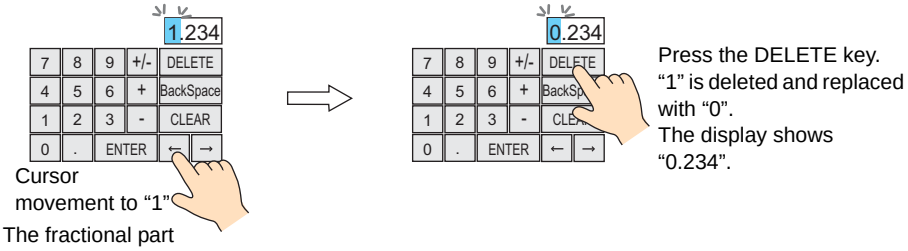
Example: Overwriting the rightmost numeral “7” to show “1.560”



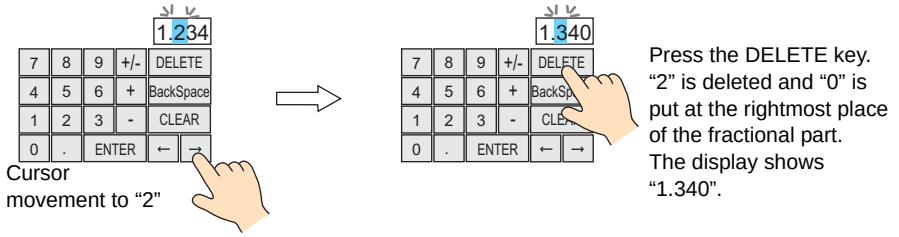
Deletion of numerals

The DELETE key deletes the numeral at the cursor.

- The whole number part
  Example: Deletion of “1” from the whole number part of “1.234”

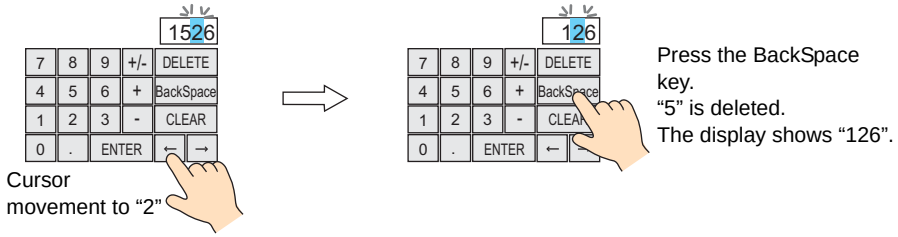


- The fractional part
  Example: Deletion of the tenth place of “1.234”

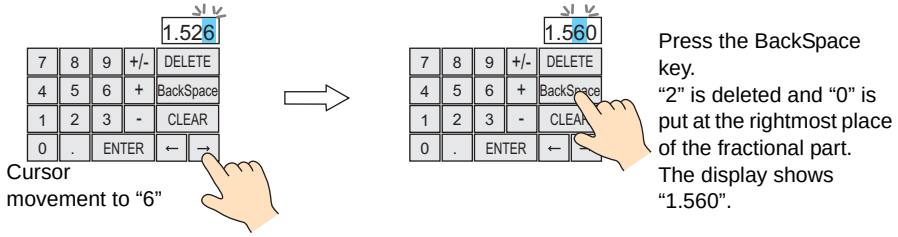


The backspace key deletes the numeral to the left of the cursor.

- The whole number part
  Example: Deletion of “5” from “1526”



- The fractional part
  Example: Deletion of “2” from “1.526”



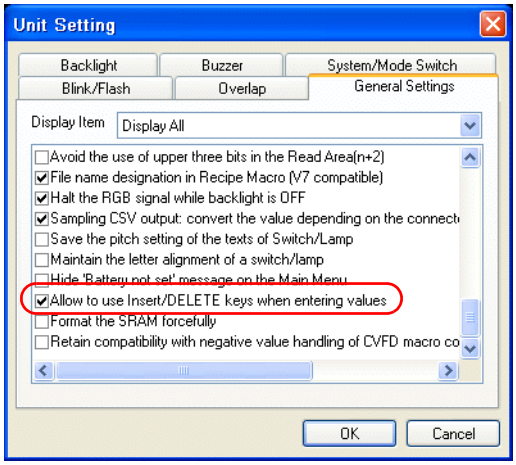
6

Applicable Items

- Numerical data display: [Function: Entry Target]
- Entry mode: [Type: Data Display, Data Block, or Direct]

Setting Items

Click [System Setting] → [Unit Setting], and open the [General Settings] tab window. In the tab window, click [☑ Allow to use Insert/DELETE keys when entering values].



(Default: unchecked)

*** The above setting is reflected throughout the entry mode for all screens.**

Keypad

The keys of the keypad work as described below.

Key Function	Action	Remarks
Character Input	0 to 9, A to F, +, -, . In a condition immediately after a selection with the cursor, pressing any of these key clears the existing data and enters the data of the key you pressed. When the cursor has been moved by the switch function of the arrow key "←" or "→", a numeral can be put at the place determined with the cursor. A decimal number can be displayed with the "." key. The cursor is then movable through the whole number part and the fractional part.	2-byte valid
Write	This key writes the entered data to the specified memory.	
Clear	This key clears the entered data.	
+/-	This key inverts the sign of the entered data.	
Back Space	This key deletes one numeral to the left of the cursor. However, this key does not delete the leftmost numeral of the whole number part as well as the tenth place of the fractional part. When a numeral is deleted from the whole number part, the cursor remains in the same place. When a numeral is deleted from the fractional part, the cursor is moved left one space and "0" is put at the rightmost place of the fractional part. Example: Deletion of "4" from "12.345" results in "12.350".	Unable to delete decimal point and signs
Delete	This key deletes one numeral at the cursor. After a deletion with this key, the cursor remains in the same place. When the leftmost numeral is deleted from the whole number part, "0" is put at the place. When one numeral is deleted from the fractional part, "0" is put at the rightmost place.	Unable to delete decimal point and signs
Cancel	Pressing this key while data is being typed returns the display to the previous data.	
←	This key moves the cursor left one space. The cursor is not put over the decimal point.	
→	This key moves the cursor right one space. The cursor is not put over the decimal point.	

7 Graph

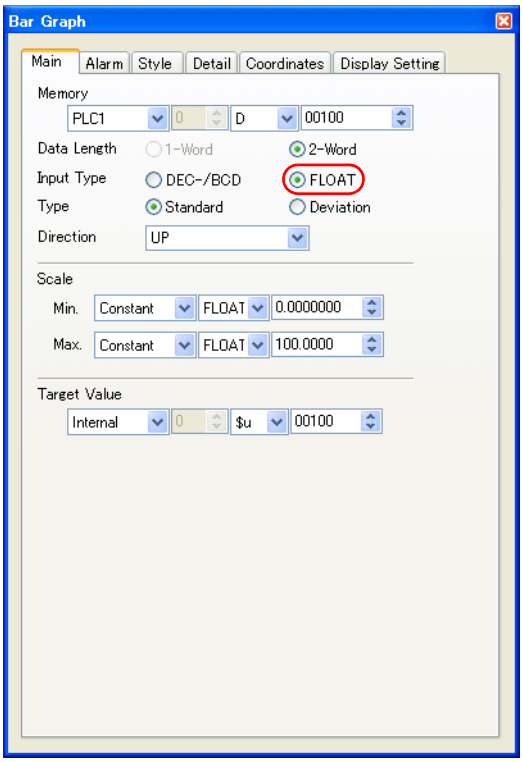
7.1 Real Numbers

Data of real numbers (float) can be read and shown in graphs.

Applicable Items

- Bar graph
- Pie graph
- Closed area graph
- Panel meter

Example: Bar graph



*** The [DEC-/BCD] for [Input Type] depends on the setting for [Code] in the [Communication Setting] tab window ([System Setting] → [Device Connection Setting]).**
For other settings, refer to the V8 Series Reference Manual.

Limitations

- If any real number set for memory, minimum or maximum scale value, target value, or alarm falls outside the permissible range of MONITOUCH, the number cannot be displayed. For more information on the permissible range, refer to the V8 Series Reference Manual.

7.2 Panel Meter (Extended)

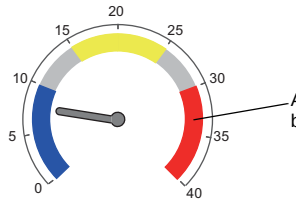
Overview

Extended Alarm Function

[Alarm 2] is added on the [Alarm] tab window. On the [Alarm 2] field, you can set a maximum of 16 alarm ranges and their respective colors.
Note that the color of the indicator does not change according to the alarm condition.

Example: [No. of Divisions] = “3”

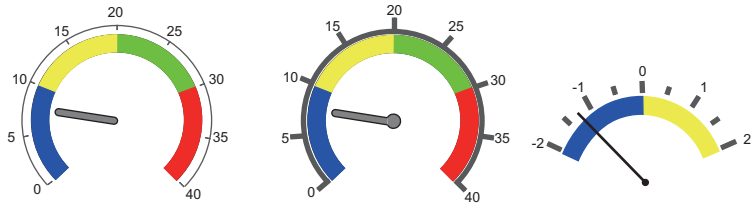
(Blue) Upper Limit [10]
Lower Limit [0]
(Yellow) Upper Limit [25]
Lower Limit [15]
(Red) Upper Limit [40]
Lower Limit [30]



A maximum of 16 alarm ranges can be set.

Extended Indicator/Scale Function

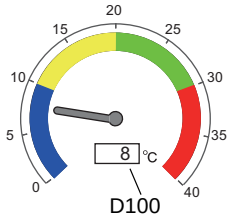
The design of the scale or indicator can be changed to the desired one by using a bitmap file, etc.



Numerical Data Display

The current data can be displayed on the panel meter in numerical form.

Example: When “8” is set in the memory address D100:



Applicable Items

- Panel meter

Available V8 Models

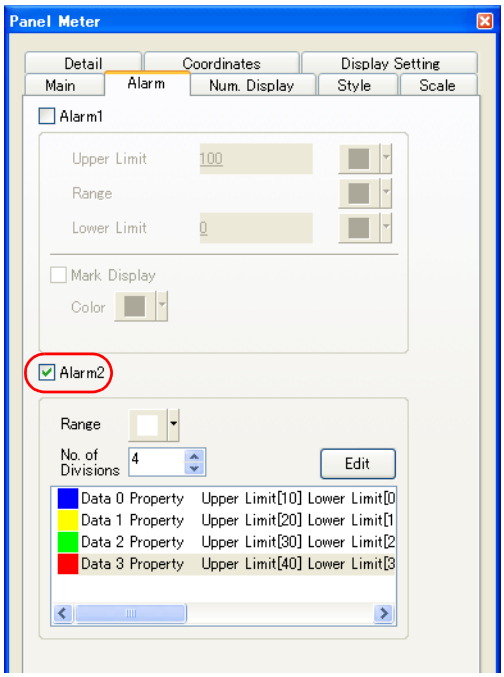
Model		V815iX/V812(i)S V810(i)S/V810(i)T V808(i)S		V810(i)C V808(i)C *1 V808(i)CH		V806(i)T/V806(i)C *1		V806(i)M
		64k colors, 32k colors	128 colors	64k colors, 32k colors	128 colors	64k colors, 32k colors	128 colors	Monochrome
Alarm 2		○	○	○	○	○	○	○
Indicator extended setting			×	×	×	×	×	×
Scale	Show		○	○	○	○	○	○
	Extension		×	○	×	○	×	×
Numerical data display			○ *2	○	○ *2	○	○ *2	○ *2

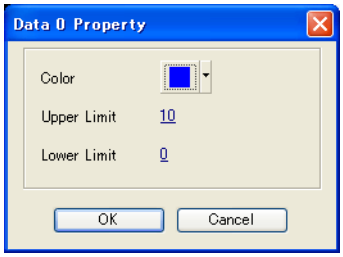
*1 Not available on the portrait-oriented model.

*2 Custom bitmap unsupported.

Extended Alarm Function

Set the color and the number of divisions for [Alarm 2] in the [Alarm] tab window in the [Panel Meter] dialog.



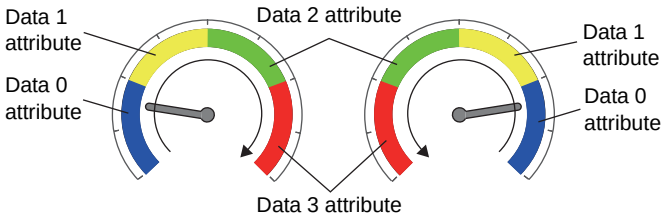


☐ Alarm 1	For more information, refer to the V8 Series Reference Manual.
☐ Alarm 2	Set the number of divisions and their respective alarm colors.

Range	Set the color to display for the value outside the range specified for data attributes.
No. of Divisions (1 - 16)	Set the number of divisions for alarm.
Edit	Used to set the color and the upper and lower limit values for each data attribute.

Example: [No. of Divisions] = “4”

Indicator’s moving direction: right Indicator’s moving direction: left



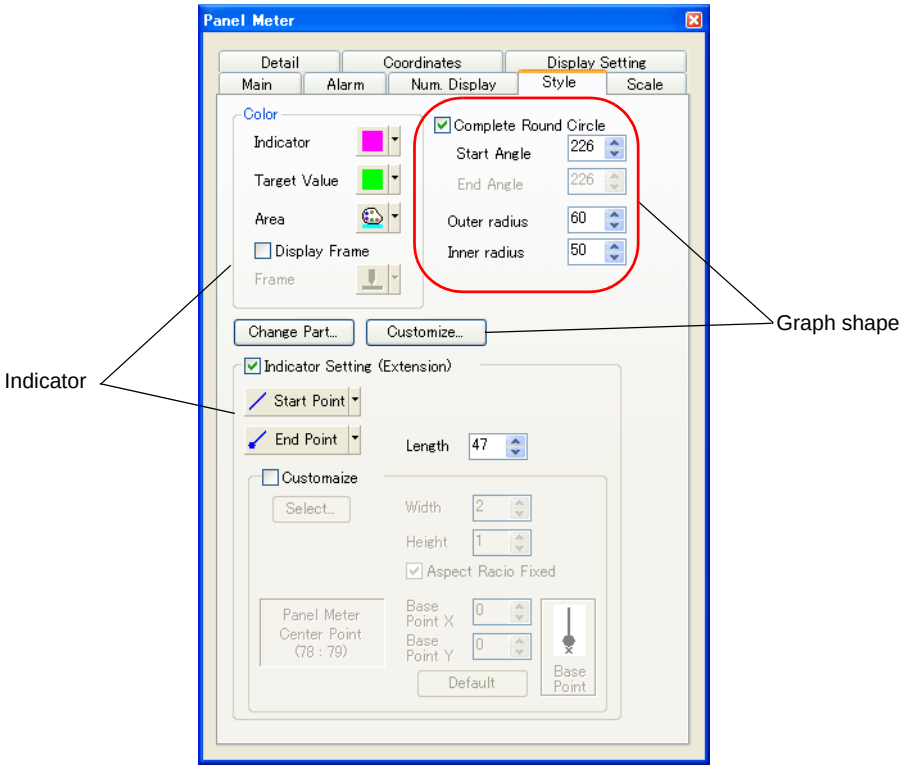
(The indicator’s moving direction can be selected in the [Main] tab window.)

*** Painting is overlaid in order from “Data 0 property” to “Data 15 property”.**
When a painted range overlaps with another, the color of the greater number comes to the fore.

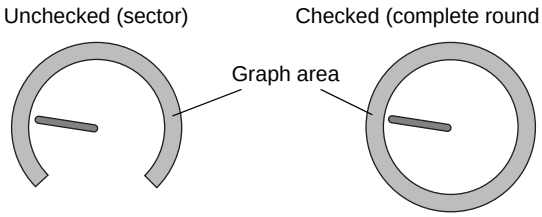
Extended Indicator/Scale Function

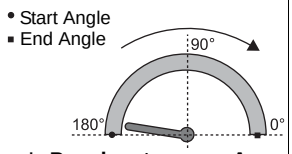
In the [Style] tab window in the [Panel Meter] dialog, the graph shape and the color and length of the indicator can be specified as desired. In the [Scale] tab window, settings related to the scale, such as show/hide, scale properties, scale direction, etc., can be made.
The design of the scale or indicator can be changed to the desired one by using a bitmap file, etc. For more information, refer to “Customizing the Indicator and Scale” (page 7-10).

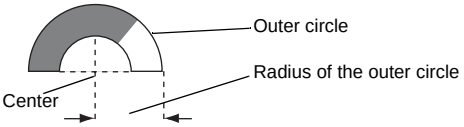
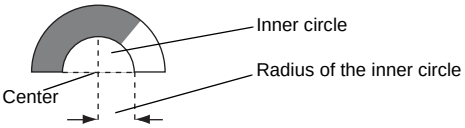
Style

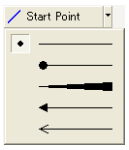
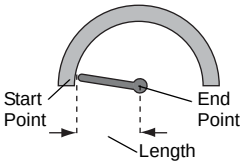
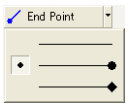


Indicator	Set the indicator color. When [Alarm 2] is selected, the indicator color remains in the color set here even if a value falls outside the specified alarm range.
Target Value	Set the graph color. When [Alarm 2] is selected, settings for [Target Value] and [Area] cannot be made. For more information on settings, refer to the V8 Series Reference Manual.
Area	
☐ Display Frame	
Frame	

<table>
<tr><td>☐ Complete Round Circle</td><td>Check this box to make a complete round graph area.
 

<table>
<tr><td>Start Angle</td><td>Set the start angle.</td><td rowspan="2">Example: [Start Angle: 180], [End Angle: 0]
 

* Panel meter area: Area circularly enclosed from the start angle to the end angle in the clockwise direction</td></tr>
<tr><td>End Angle</td><td>This setting is active only when [☐ Complete Round Circle] is not checked.
Set the end angle.</td></tr>
</table></td></tr>
<tr><td>Outer radius *1</td><td>Set the radius of the outer circle of the panel meter.
 
</td></tr>
<tr><td>Inner radius *1</td><td>Set the radius of the inner circle of the panel meter.
 
</td></tr>
<tr><td>Change Part</td><td>Used for changing a part design of the panel meter.</td></tr>
<tr><td>Customize *2</td><td>A desired bitmap file can be used for the panel meter design. The selected bitmap file is stored in “.\V-SFT-5\Parts\User”.
For the detailed procedure, refer to “Customizing the Indicator and Scale” (page 7-10).</td></tr>
</table>

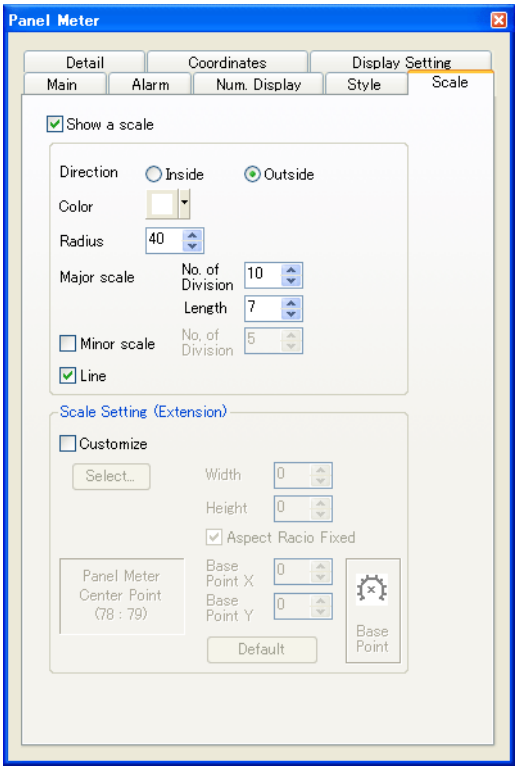
<table>
<tr><td>☐ Indicator Setting (Extension) *3</td><td>Check this box to change the indicator part. A desired bitmap file can be used.
<table>
<tr><td>Start Point
  </td><td>Select a shape of the top and end of the indicator.</td><td rowspan="2">  </td></tr>
<tr><td>End point
  </td></tr>
<tr><td>Length</td><td>Specify the length of the indicator in dots.
(Maximum value: radius of the panel meter, minimum value: 1)</td></tr>
<tr><td>☐Customize</td><td colspan="2">Check this box when using a desired bitmap file for the design of the indicator.
For more information on the setting, refer to “Customizing the Indicator and Scale” (page 7-10).</td></tr>
</table></td></tr>
</table>

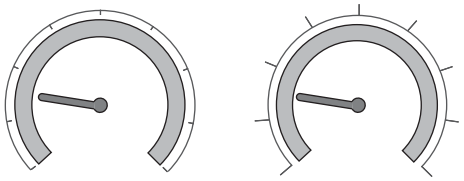
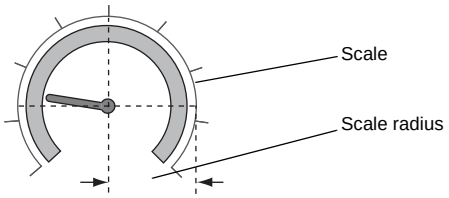
*1 The inner circle must be set. The minimum radius of the inner circle is 10 dots. The minimum difference in radius between the outer and inner circles is 3 dots.

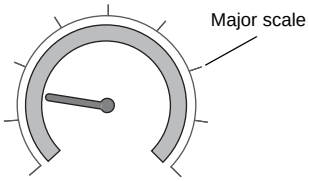
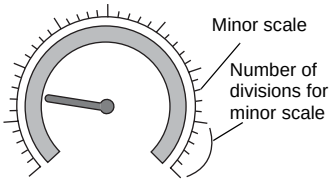
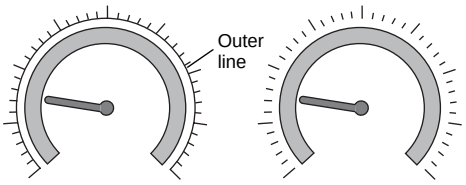
*2 Unavailable with 128-color and monochrome V8(i) series

*3 Available with 64k-color or 32k-color MONITOUCH (V815iX, V812(i)S, V810(i)S, V810(i)T or V808(i)S)

Scale



Direction Inside / Outside	Select the position of the scale; inside or outside of the outer circle. Inside Outside 
Color	Set the scale color.
Radius	Set the scale radius. 

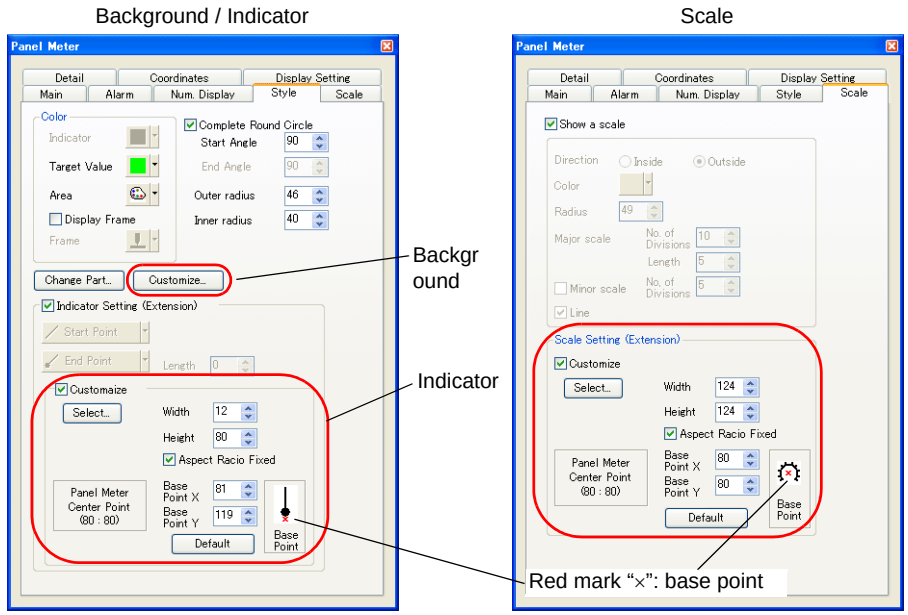
<table>
<tr><td>Major scale</td><td>Set the number of divisions and length of the major scale.
<table><tr><td>No. of Divisions</td><td>1 - 255</td><td rowspan="2">Example: [No. of Division] = “8”
 
</td></tr><tr><td>Length</td><td>1 - 16
(When [☑ Minor scale] is checked, the length can be set in increments of “2”.)</td></tr></table></td></tr>
<tr><td>☐ Minor scale</td><td>Check this box and set the number of divisions when drawing a minor scale between major scales. (The length is the half of the one set for [Length] at [Major scale].)
<table><tr><td>No. of Divisions</td><td>1 - 16</td><td>Example: Major scale [No. of Division] = “8”
Minor scale [No of Division] = “5”
 
</td></tr></table></td></tr>
<tr><td>☐ Line</td><td>Check this box to add the outer line to the scale.
Example: Major scale [No. of Division] = “8”,
Minor scale [No. of Division] = “5”
Checked: Unchecked:
 
</td></tr>
<tr><td>☐ Customize *1</td><td>Check this box when using a desired bitmap file for the scale design.
For more information on the setting, refer to “Customizing the Indicator and Scale” (page 7-10).</td></tr>
</table>

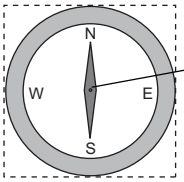
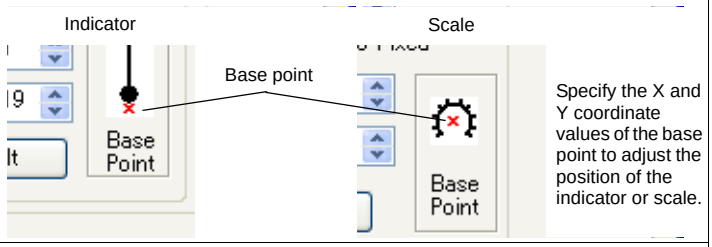
*1 Unavailable with 128-color and monochrome V8(i) series

Customizing the Indicator and Scale

A desired bitmap file can be used for the part design (background, indicator and scale).

[Style], [Scale]

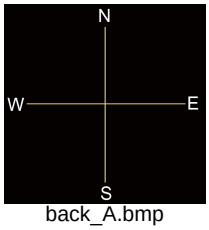


Customize (background) Select (indicator, scale)	Choose a bitmap file in the desired folder. The selected bitmap file is stored in ".\V-SFT-5\Parts\User".
Width / Height	Change the width and height of the imported bitmap image.
☐ Aspect Ratio Fixed	Check this box when changing the size of the bitmap image while fixing the ratio between the width and height.
Panel Meter Center Point	The coordinate values of the panel meter (circle) center point are displayed. (0, 0) 
Base Point X Base Point Y	Specify the X or Y coordinate value of the base point in dots. The indicator turns around the point specified for [Panel Meter Center Point]. 
Default	Resets the X and Y coordinate values of the base point to those specified for [Panel Meter Center Point].

Procedure

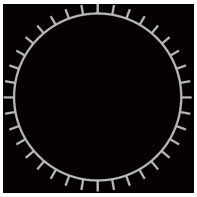
This section explains the procedure for importing a bitmap image into the panel meter.

Background of the panel meter



back_A.bmp

Scale

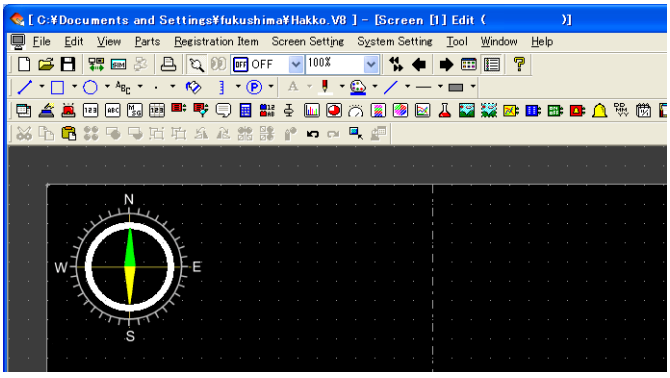


scale_A.bmp

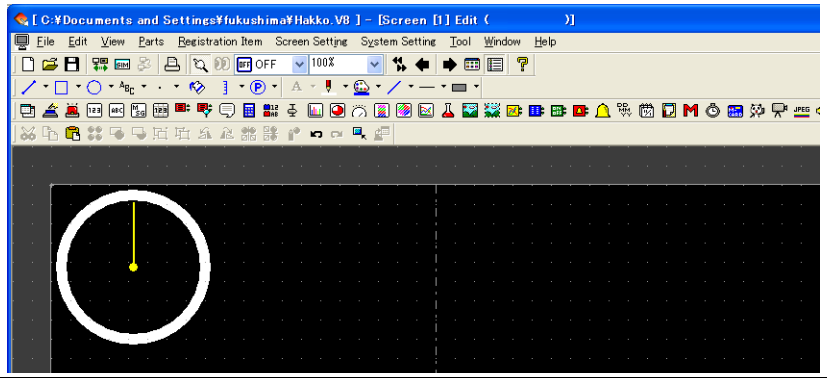
Indicator

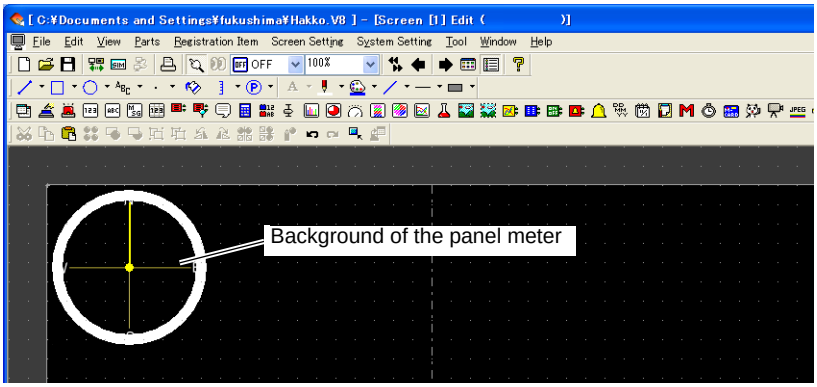
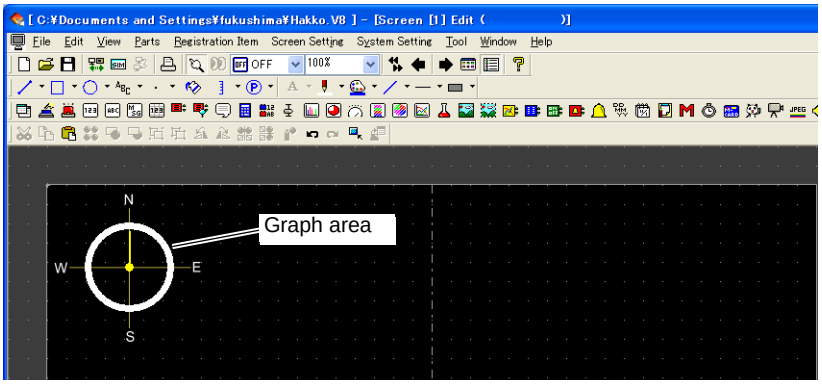
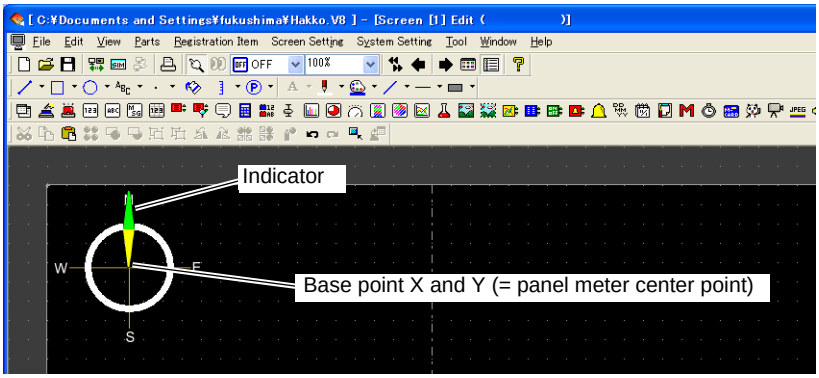
pin_A.bmp

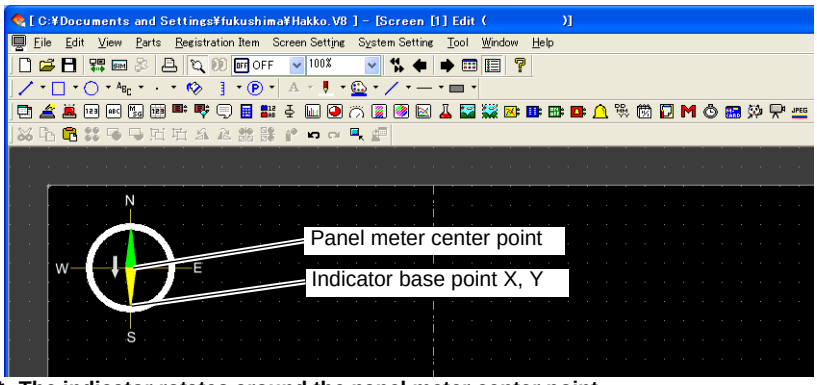
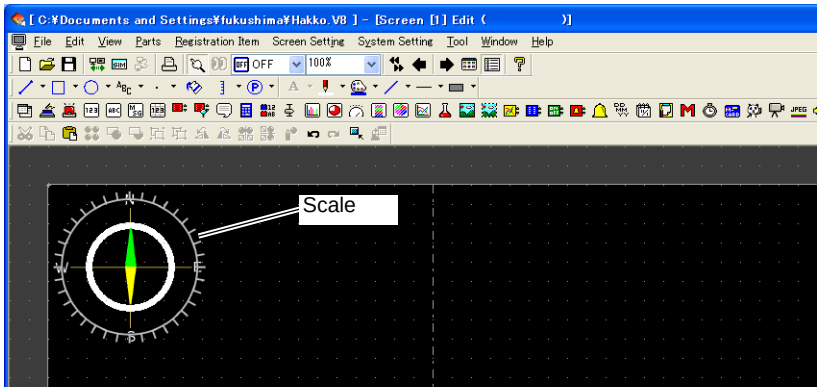
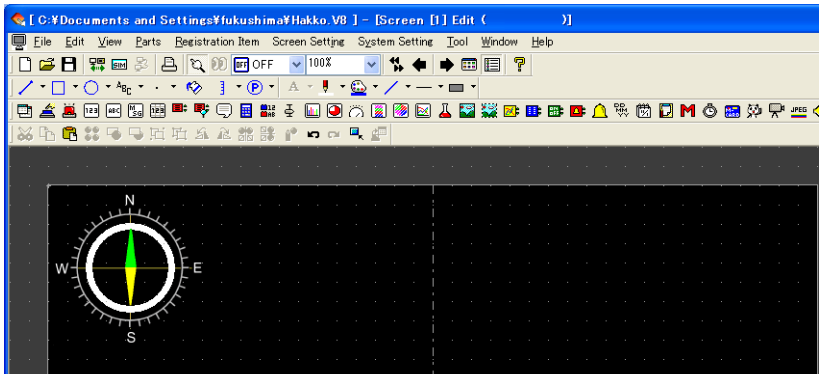
Black (code 0000) in the bitmap image automatically becomes transparent on MONITOUCH.



Step 1	Place a panel meter on the screen.

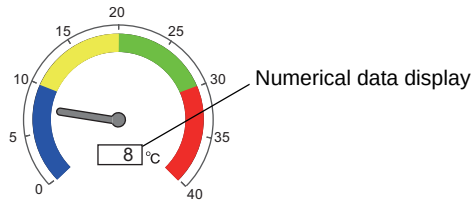


Step 2	Import a background image of the panel meter. Select [Customize] in the [Style] tab window in the [Panel Meter] dialog and check [☑ Use Custom Bitmap]. Press the [Open] button and select a bitmap file. (Example: back_A.bmp) 
Step 3	Enlarge or reduce the size of the graph area by specifying desired values for [Outer radius] and [Inner radius] in the [Style] tab window. 
Step 4	Import a bitmap image of the indicator. Select [☑ Indicator Setting (Extension)] → [☑ Customize] on the [Style] tab window in the [Panel Meter] dialog and check [☑ Use Custom Bitmap]. Press the [Open] button and select a bitmap file. (Example: pin_A.bmp)  *** The bitmap image of the indicator is imported while it is pointing upward with reference to the panel meter center point.** **The indicator cannot be rotated on the editor.**

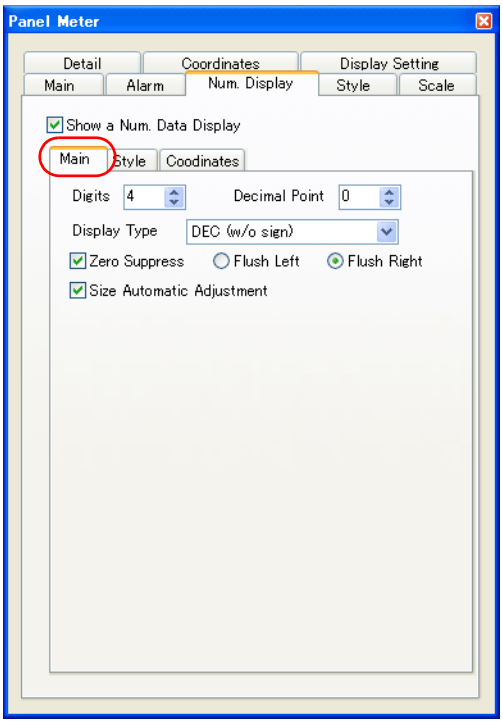
Step 5	Move the indicator part downward by specifying values for [Base Point X] and [Base Point Y] in the [Style] tab window. It can be enlarged or reduced by specifying values for [Width] and [Height].  * **The indicator rotates around the panel meter center point.**
Step 6	Import a bitmap image of the scale. Select [☑ Show a scale] → [☑ Customize] in the [Scale] tab window in the [Panel Meter] dialog and check [☑ Use Custom Bitmap]. Press the [Open] button and select a bitmap file. (Example: scale_A.bmp) 
Step 7	Specify values for [Width] and [Height] in the [Scale] tab window to reduce the size of the scale. The scale can be moved by specifying values for [Base Point X] and [Base Point Y].  The necessary settings have been completed.

Numerical Data Display

Make settings in the [Num. Display] tab window in the [Panel Meter] dialog.
The numerical data display is used to show a measurement value in numerical form on the panel meter.

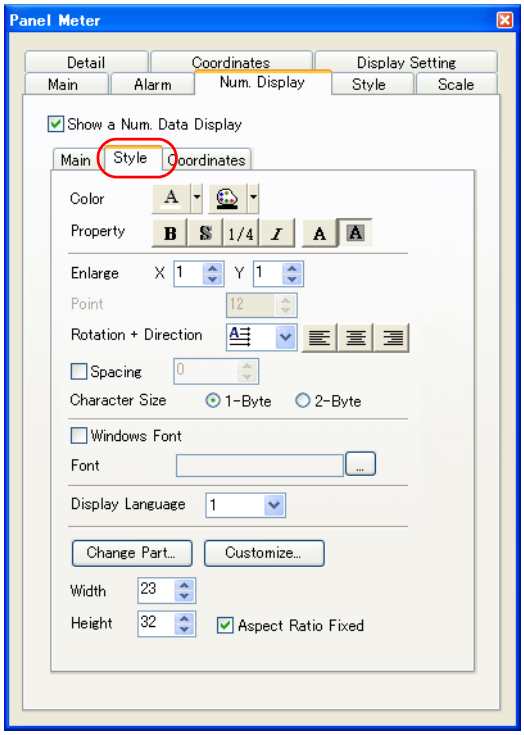


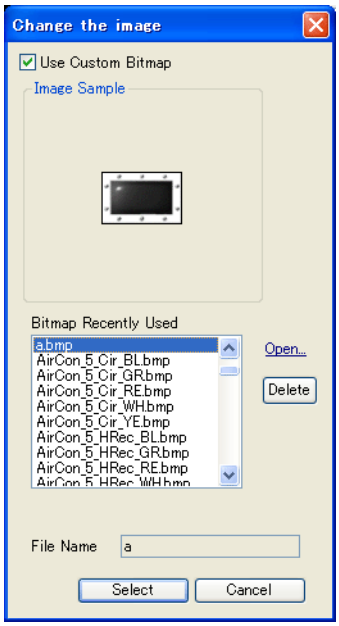
[Main] Tab Window



Digits	Specify properties of the numerical data display. For more information, refer to the V8 Series Reference Manual.
Decimal Point	
Display Type	
☐ Zero Suppress	
☐ Size Automatic Adjustment	

[Style] Tab Window



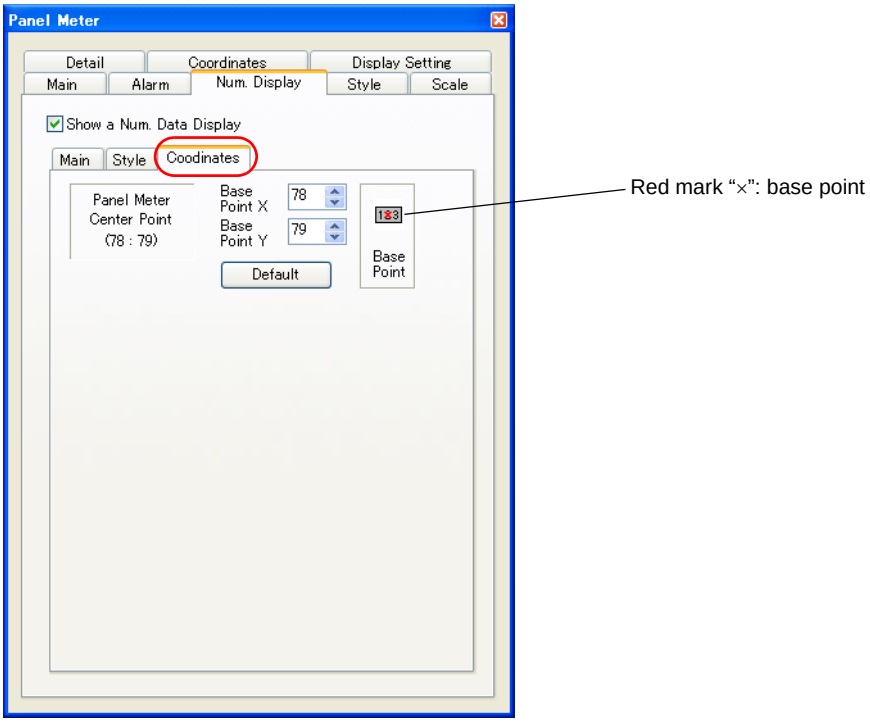


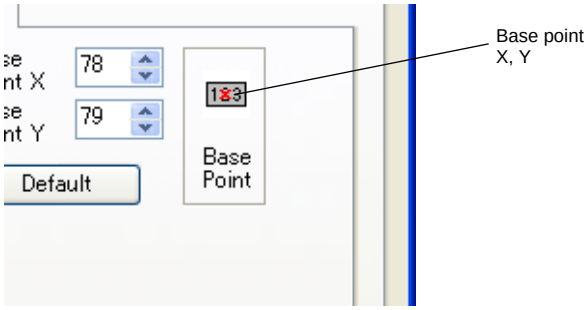
Color Property Enlarge Point Rotation + Direction ☐ Spacing Character Size ☐ Windows Font Font Display Language	Set a color and text size for the numeric data display. For more information, refer to the V8 Series Reference Manual.
Change Part	Changes a part design of the numerical data display.
Customize *1	Check this box when using a desired bitmap file for the design of the numeric data display. Black (code 0000) on the image automatically becomes transparent on MONITOUCH. To display black, specify a color approximate to black.

Width / Height	Change the width and height of the imported bitmap image.
☐ Aspect Ratio Fixed	Check this box when changing the size of the bitmap image while fixing the ratio between the width and height.

*1 Unavailable with 128-color and monochrome V8(i) series

[Coordinates] Tab Window



Panel Meter Center Point	The coordinate values of the panel meter center point are displayed.
Base Point X Base Point Y	Specify the X and Y coordinate values of the base point on the numerical data display. 
Default	Resets the X and Y coordinate values of the base point on the numerical data display to those specified for [Panel Meter Center Point].

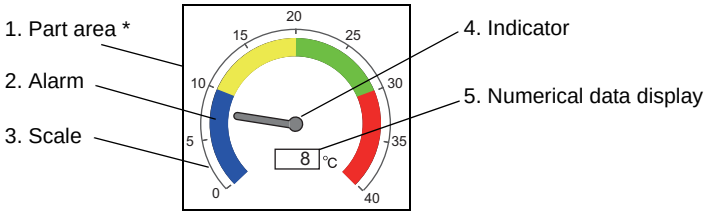
Limitations

- The maximum sizes of the panel meter are shown below:

MONITOUCH Model	Max. Size of Panel Meter (unit: dots)
V815iX	Height 768, width 512
V812(i)S / V810(i)S / V808(i)S	Height 600, width 400
V810(i)T	Height 480, width 320
V810(i)C / V808(i)C / V808(i)CH V806(i)T / V806(i)C / V806(i)M	Height × width = max. 65936

- Draw a panel meter in order from the smaller number shown below.
  When any setting is made for [Alarm 2], [Indicator Setting (Extension)] or [Num. Display] and a value on the panel meter or [Alarm 2] is changed, the panel meter is updated entirely.

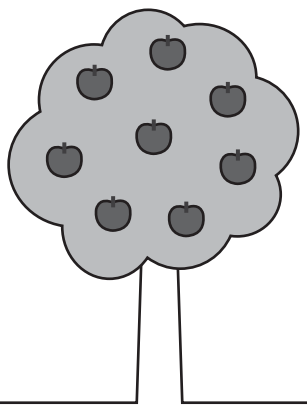
Panel meter structure



*** When a draw item edited in the [Modify Part] window is placed with the 3D panel meter part, the item is placed over the panel meter.**

- The numerical data display is displayed even when a value falls outside the range specified for [Scale] (in the [Main] tab window). However, when the number of digits exceeds the specified value, "---" is displayed.

MEMO



Please use this page freely.

8 Trend Graph

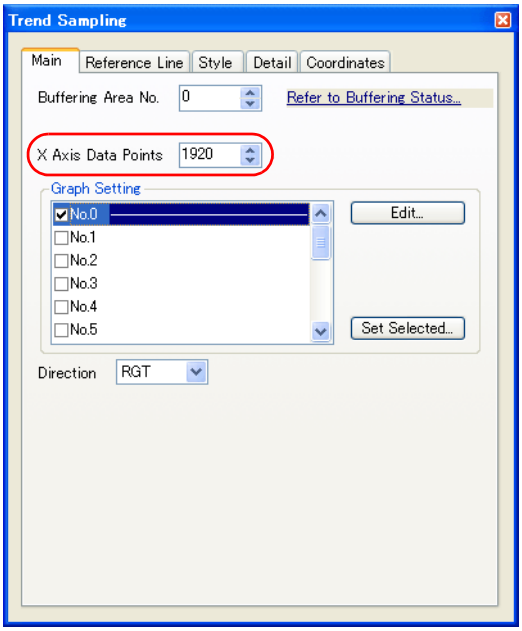
8.1 Expansion of X-Axis Point Setting

Overview

A maximum of 1,920 points can be set on the X axis in trend graph (or trend sampling). This expanded point setting is also valid when [Edit Model: TELLUS] or [Size: 1920 × 1080] is specified in the [Edit Model Selection] dialog.

Applicable Items

- Trend graph
- Trend sampling



*** Enter a value for [X Axis Data Points] smaller than the resolution of MONITOUCH.**

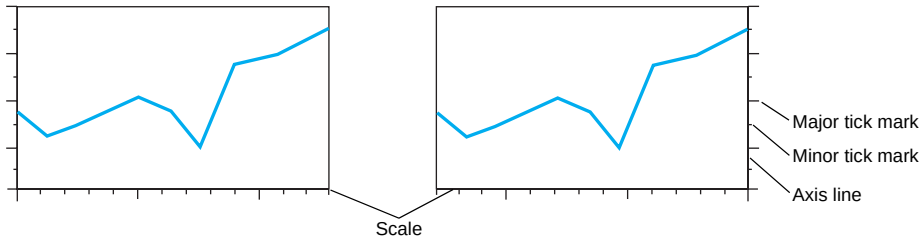
8.2 Scale Display

Overview

Scale

A graph can be provided with a scale along any sides: right, left, top, or bottom.

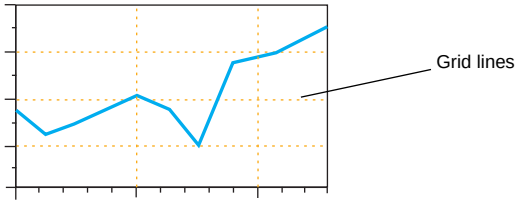
- Scale along the left and bottom sides
- Scale along the right and bottom sides



Grid lines

Grid lines can be drawn in accordance with tick marks.

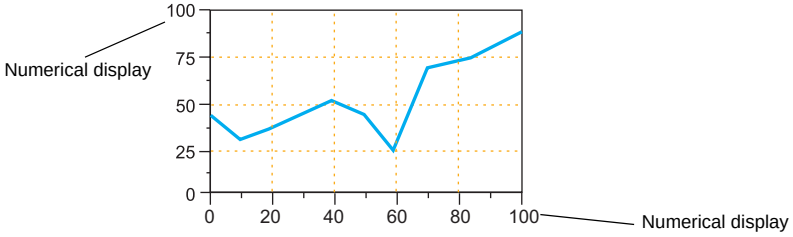
Example: Grid lines at major tick marks



Numerical Display

Reference numbers can be displayed at tick marks.

Example: Reference numbers at major tick marks

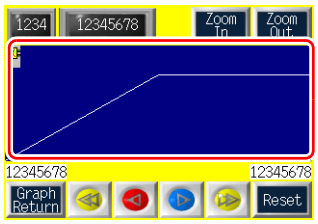


Applicable Items

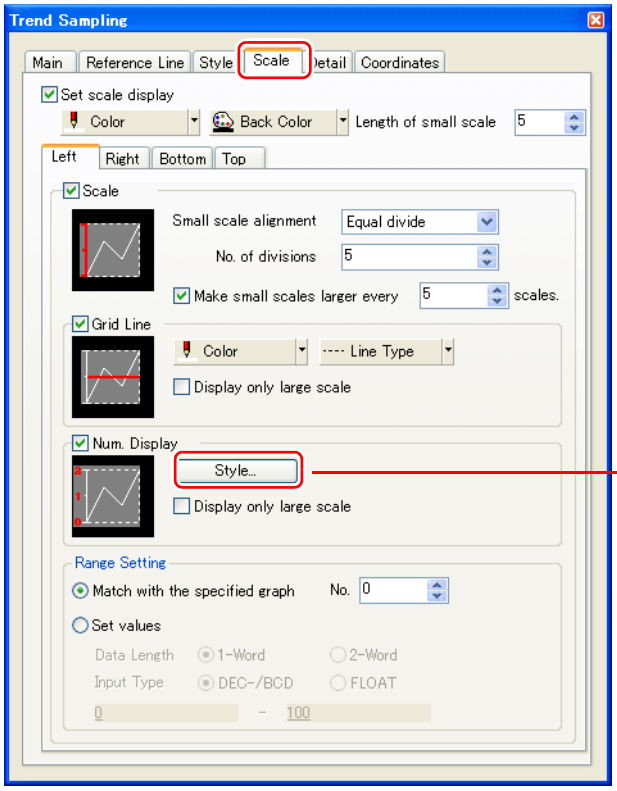
- Trend graph
- Trend sampling

Setting Items

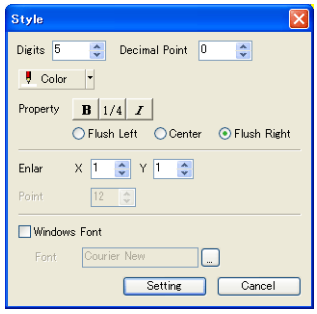
In the item dialog, open the [Scale] tab window, and check [☑ Set scale display].



Click or double-click.



Example: Trend sampling



8

<table>
<tr><td>Color, Back Color</td><td>Select the color of the major and minor tick marks, and axis lines of the scale.
Each setting is common to all left, right, bottom, and top sides.</td></tr>
<tr><td>Length of small scale</td><td>Set the length of the minor tick marks of the scale.
This setting is common to all left, right, bottom, and top sides.
1 - 16
The thickness of the marks is fixed.</td></tr>
<tr><td>[☐ Scale] in [Left], [Right], [Bottom], and [Top] tab windows</td><td>Check these boxes as necessary for the sides of the graph when showing a scale, grid lines, or reference numbers.
Default: [☑ Left] and [☑ Bottom] checked</td></tr>
<tr><td>Small scale alignment</td><td>• [Equal divide] (based on [No. of divisions])
Minor tick marks are equally spaced according to the specified number of divisions along the axis line.
• [Equal interval] (based on [No. of intervals])
Minor tick marks are equally spaced according to the specified interval from the zero point along the axis line within the following range.
<table><tr><th>Direction</th><th>Side</th><th>Range</th></tr><tr><td>LFT/RGT</td><td>Top/Bottom</td><td rowspan="2">[X Axis Data Points] or [Range Setting] in the [Scale] tab window</td></tr><tr><td>UP/DW</td><td>Left/Right</td></tr><tr><td>LFT/RGT</td><td>Left/Right</td><td rowspan="2">[Range Setting] in the [Scale] tab window</td></tr><tr><td>UP/DW</td><td>Top/Bottom</td></tr></table></td></tr>
<tr><td>☐ Make small scales larger every n scales.</td><td>Check this box when placing major tick marks.
The major tick mark is twice the length of the minor. The thickness of the markings is fixed.</td></tr>
<tr><td>☐Grid Line</td><td>Check this box when drawing grid lines. Grid lines are drawn at the major and minor tick marks of the scale.
<table><tr><td>Color, Line Type</td><td>Set the color or the line type of the grid lines.</td></tr><tr><td>☐ Display only large scale</td><td>Check this box when drawing grid lines only at the major tick marks of the scale.
Uncheck this box to draw grid lines at both minor and major tick marks.</td></tr></table></td></tr>
<tr><td>☐Num. Display</td><td>Check this box when showing reference numbers at the major and minor tick marks of the scale.
<table><tr><td>Style</td><td>Set the number of digits or the color of reference numbers shown at tick marks.</td></tr><tr><td>☐ Display only large scale</td><td>Check this box when showing reference numbers only at the major tick marks of the scale.
Uncheck this box to show reference numbers at both minor and major tick marks.</td></tr></table></td></tr>
</table>

<table>
<tr>
<td>Range Setting</td>
<td>
* Settings in this area are valid, provided that [Small scale alignment: Equal interval] is set or [☑ Num. Display] is checked.

[Match with the specified graph]
<table>
<tr><th>Direction</th><th>Side</th><th>Range</th></tr>
<tr><td>LFT/RGT</td><td>Top/Bottom</td><td rowspan="2">[X Axis Data Points]*1</td></tr>
<tr><td>UP/DW</td><td>Left/Right</td></tr>
<tr><td>LFT/RGT</td><td>Left/Right</td><td rowspan="2">[Graph Min. Value] and [Graph Max. Value] specified for the selected graph number*2</td></tr>
<tr><td>UP/DW</td><td>Top/Bottom</td></tr>
</table>

[Set values]
Specify the minimum and maximum values using constants or memory addresses.*2

</td>
</tr>
</table>

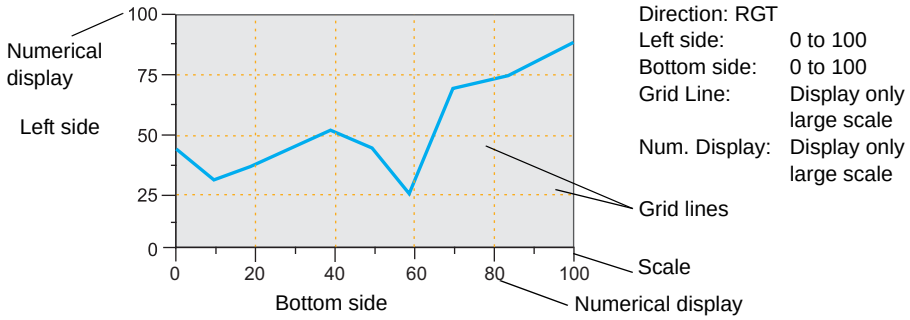
*1 If [☑ X Scale] is checked in trend graph settings, the range is determined by the minimum and maximum values of the X scale.

*2 If the minimum and maximum values are specified with memory addresses (other than constants) in the [Range Setting] area and if these values are changed during RUN, an update resulting from the change occurs at the following times:

- The screen including a trend graph or trend sampling is redrawn.
- In the case of a trend graph, the bit for redraw or redraw after clear in the control memory is set (ON).
- In the case of trend sampling, the macro command TREND_REFRESH is executed.

Setting Procedure

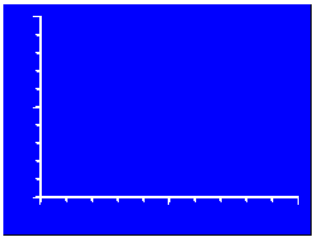
As an example, this section describes how to set a scale with reference numbers and grid lines for a trend graph.



1. Place a trend graph part without scale (*) on the screen.

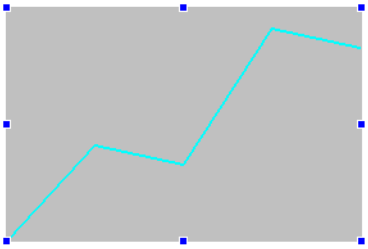
   * If scale settings are made for a graph part with scale, scales will overlap one another. Be sure to select a part without scale.

   Trend graph part with scale

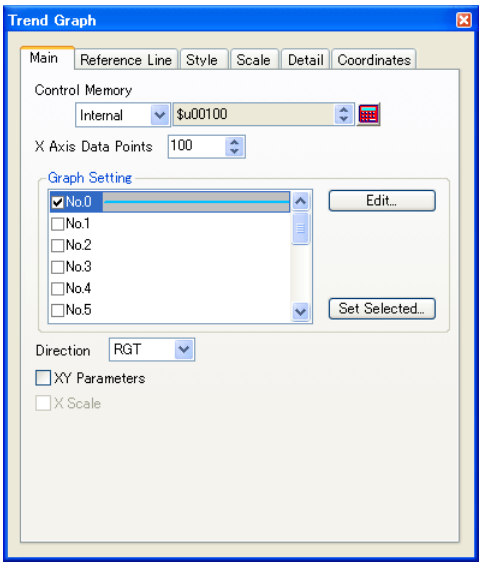


   Scales doubly displayed

2. Click or double-click the trend graph part to open its item dialog.
   Make settings as necessary in the [Main] tab window.
   For more information on settings, refer to the V8 Series Reference Manual.

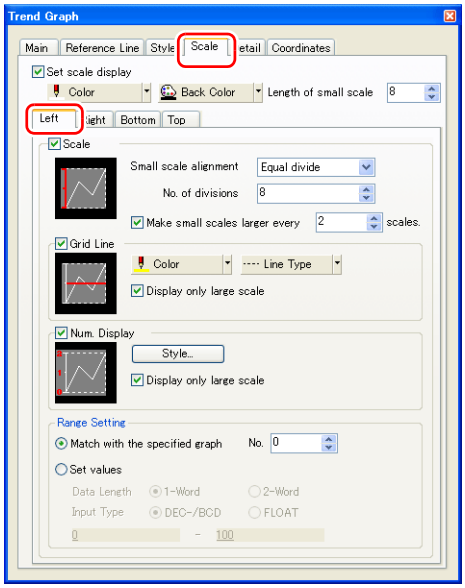


Trend graph part without scale

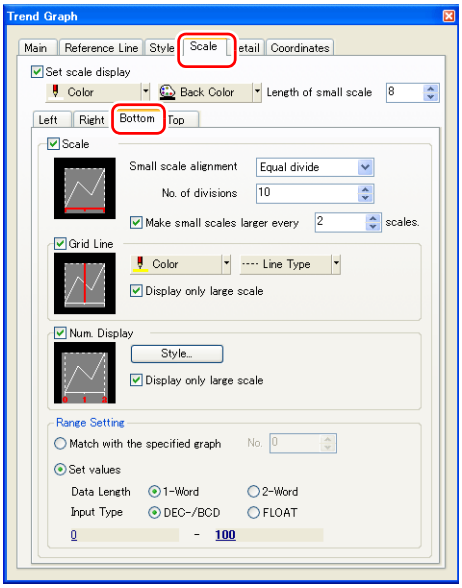


3. Click the [Scale] tab. Set the [Left] and [Bottom] tab windows as follows.

[Left]



[Bottom]



4. The necessary settings have been completed.

Limitations

Trend Graph

- For asynchronous display of multiple trend graphs, the scale of the parent trend graph is displayed. Scale settings made for child trend graphs are invalid.

Trend Graph and Trend Sampling

- If a tile pattern is selected for [Color] in the [Style] tab window in the above dialog, other color settings, such as for [Grid Line], are invalid. Do not select tile patterns.

8.3 Expansion of Word Count

Overview

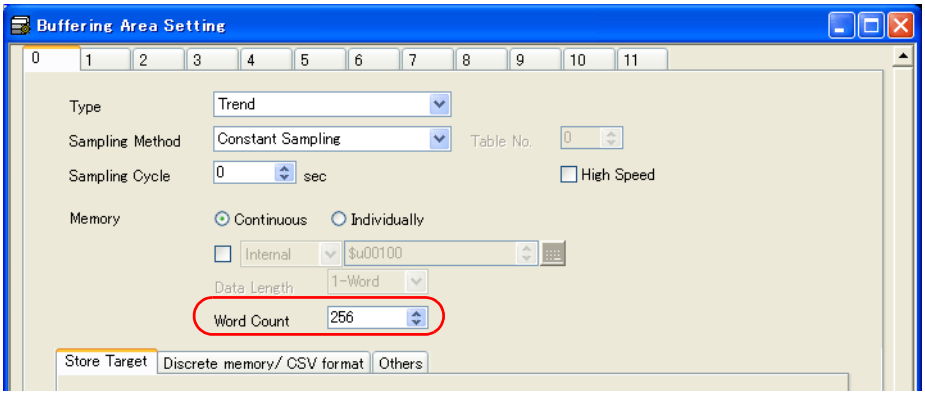
A maximum of 256 words can be set for sampling data.

Applicable Items

- Trend sampling
- Data sampling

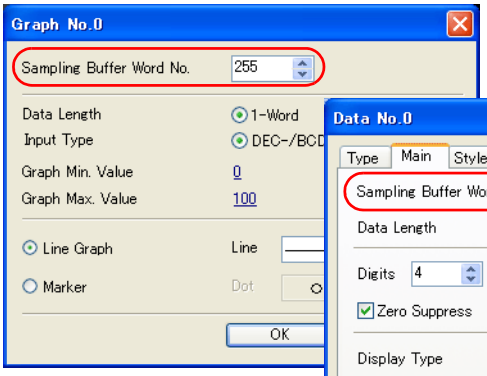
Location for Setting

- [System Setting] → [Buffering Area Setting]



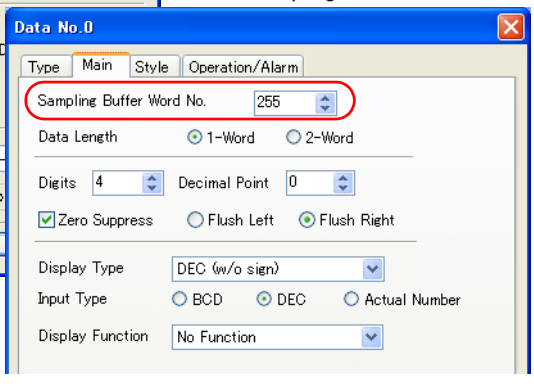
- Item dialogs

Trend sampling



Setting Range: 0 to 255

Data sampling



8.4 Real Numbers

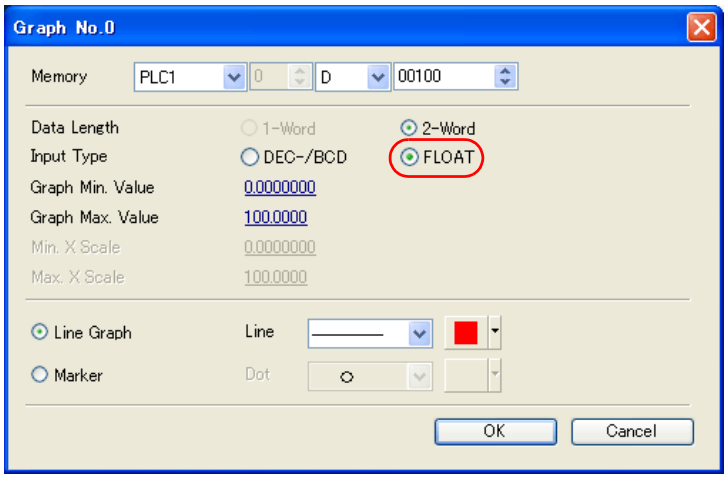
Overview

Data of real numbers (float) can be read and shown in trend graphs.

Applicable Items

- Trend graph
- Trend sampling
- Data sampling

Trend graph/trend sampling



*** The [DEC-/BCD] for [Input Type] for trend graph, or trend sampling, depends on the setting for [Code] in the [Communication Setting] tab window ([System Setting] → [Device Connection Setting]).**
For other settings, refer to the V8 Series Reference Manual.

Limitations

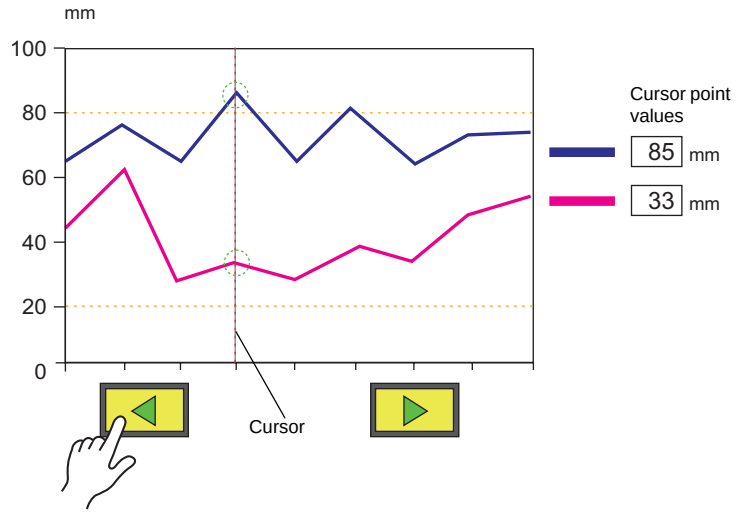
- If any real number set for memory, minimum or maximum scale value, target value, or alarm falls outside the permissible range of MONITOUCH (nonnumeric data included), the number cannot be displayed. For more information on the permissible range, refer to the V8 Series Reference Manual.
- If real data set for trend sampling or data sampling exceeds the permissible range of MONITOUCH, the data output in a CSV format is expressed as hyphens "---".

8.5 Cursor Point Value Display (Trend Sampling)

Overview

When a cursor is displayed on a trend sampling graph by pressing a switch for [Roll Up], [Roll Down], [+Block] or [-Block], the values of the trend lines at the cursor point can be displayed by simple settings explained in this section. When the cursor is hidden, the latest values of the trend lines are displayed instead.

Example: Cursor displayed on the graph



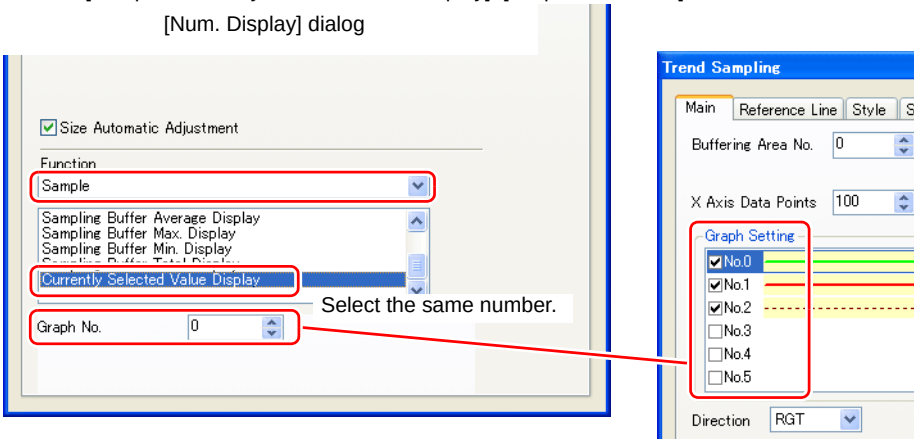
Applicable Items

- Trend sampling

Setting Items

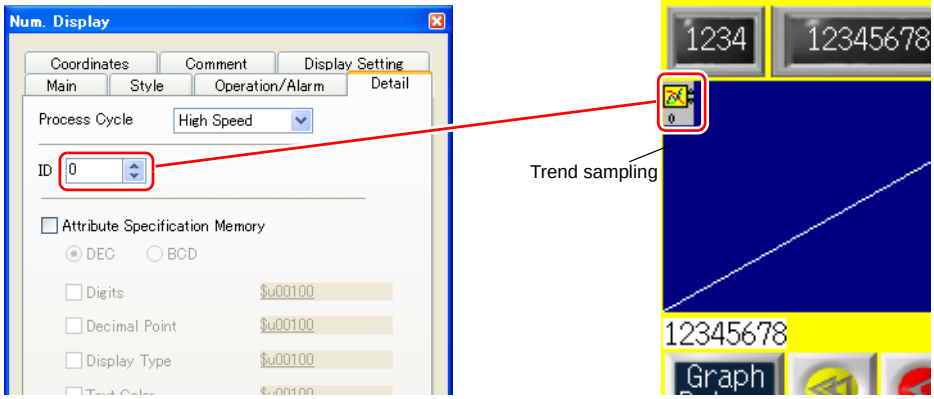
Numerical data display part

- Function: [Sample: Currently Selected Value Display], [Graph No. 0 to 15]



* Values at cursor points are displayed according to [Data Length] and [Input Type] specified for the graph number selected in the [Trend Sampling] dialog.
If an unregistered graph number is selected for numerical data display, no value appears in the value display fields. Select a graph number that exists.

- Select the same number as the trend sampling ID number.



Limitations

- Windows fonts cannot be used.
- Values at cursor points are only displayed, not stored. To store these values in memory, use the macro command SAMPLE. For more information, refer to the Macro Reference Manual.

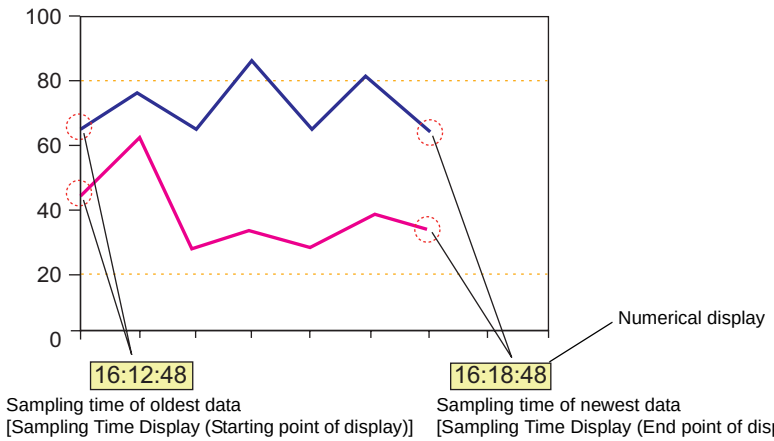
8.6 Sampling Time Display (Trend Sampling)

Overview

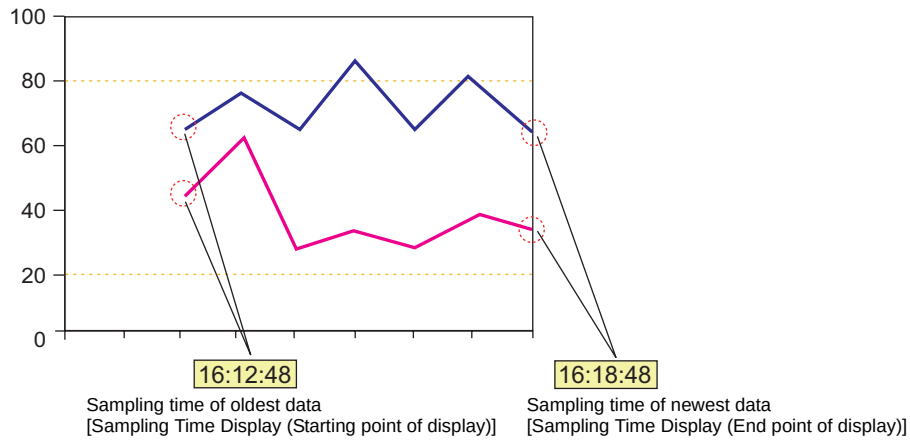
For the currently displayed graph, the sampling times of the newest and oldest data (at the display start and end points) can be displayed. These times will be updated when the cursor is placed by pressing a switch for [Roll Up], [Roll Down], [+Block], or [-Block], or when the graph is zoomed in.

Example: [Direction: RGT]

- [☐ Pen Recorder Display] unchecked



- [☑ Pen Recorder Display] checked



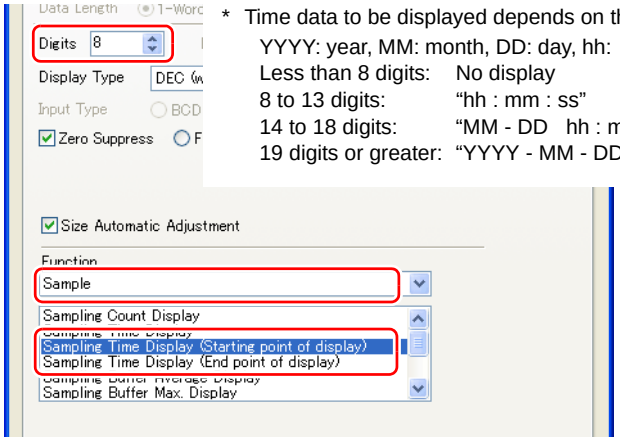
Applicable Items

- Trend sampling

Setting Items

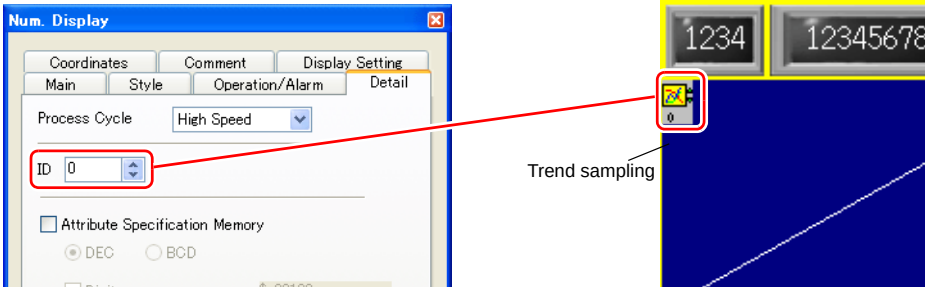
Numerical data display part

- Function: [Sample]
  - [Sampling Time Display (Starting point of display)]
  - [Sampling Time Display (End point of display)]



* Time data to be displayed depends on the specified number of digits.
YYYY: year, MM: month, DD: day, hh: hour, mm: minute, ss: second
Less than 8 digits: No display
8 to 13 digits: “hh : mm : ss”
14 to 18 digits: “MM - DD hh : mm : ss”
19 digits or greater: “YYYY - MM - DD hh : mm : ss”

- Select the same number as the trend sampling ID number.



8.7 Zooming in/out (Trend Sampling)

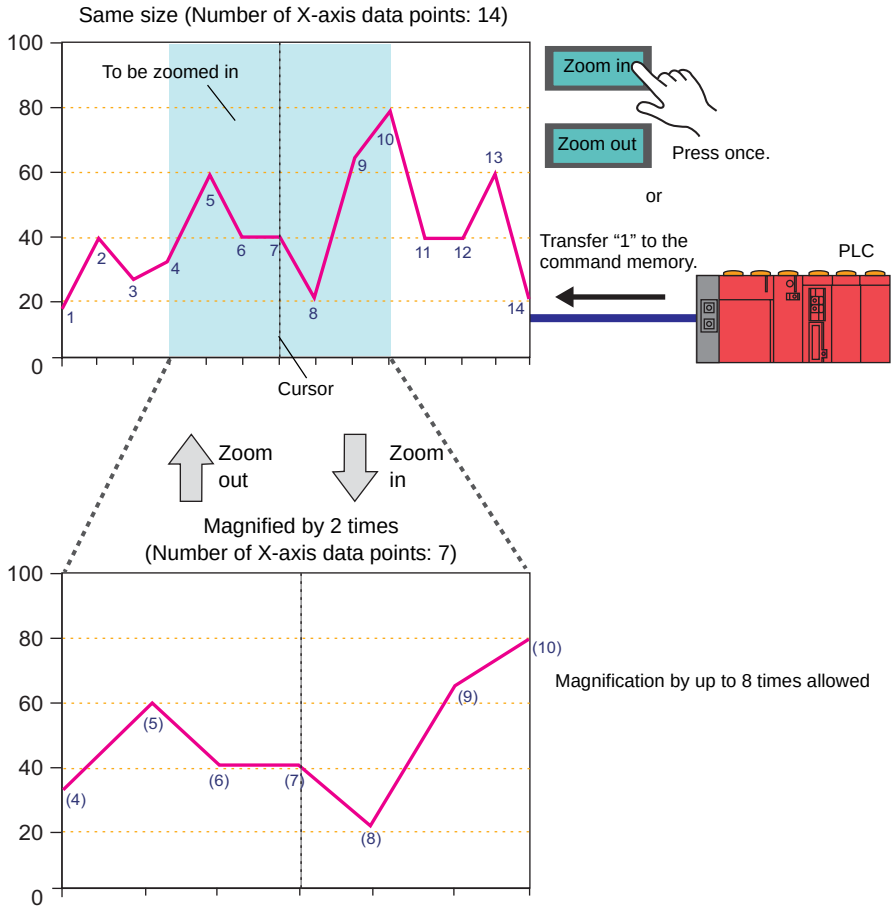
Overview

With switches or external commands, a currently displayed graph can be zoomed in to a magnification of 2, 4 or 8 times.
Each time the magnification is doubled, the number of X-axis data points is halved.*

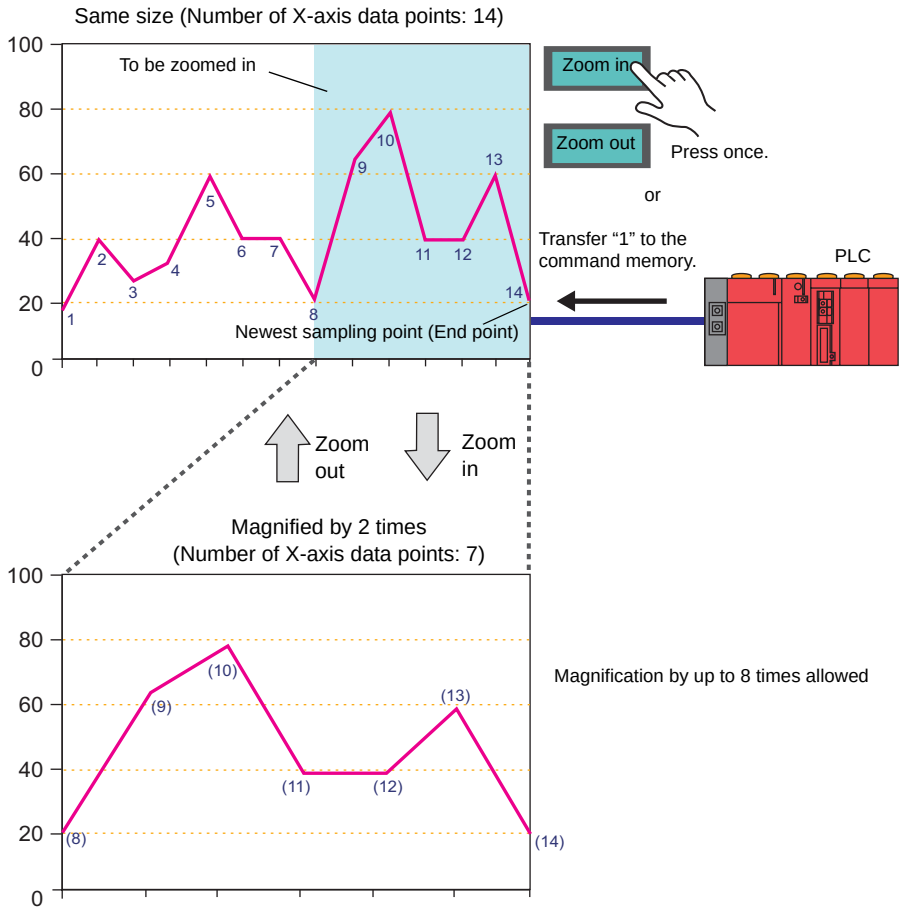
* Depending on the number of X-axis data points, however, the number will not be halved. For more information, refer to “Limitations” page 8-18.

Example: Same size → Magnified by 2 times

- Cursor displayed
  Magnification centered on cursor

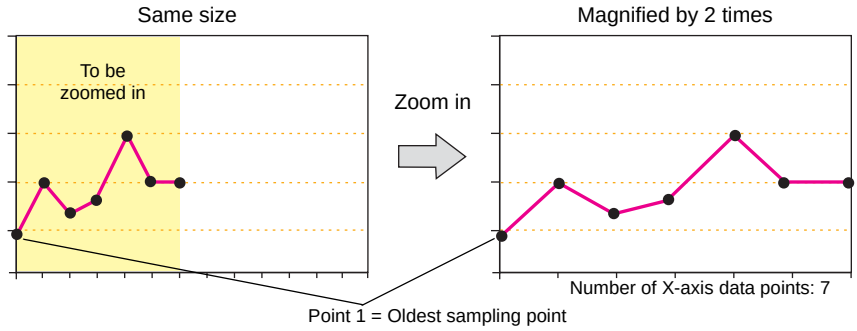


- No cursor displayed
  Magnified with the newest (end) sampling point in the rightmost position



* Immediately after sampling start (sampling data count on the graph is less than the specified number of X-axis data points), the graph is zoomed in from point 1 (the oldest sampling point).

Example: Number of X-axis data points: 14 (same size)

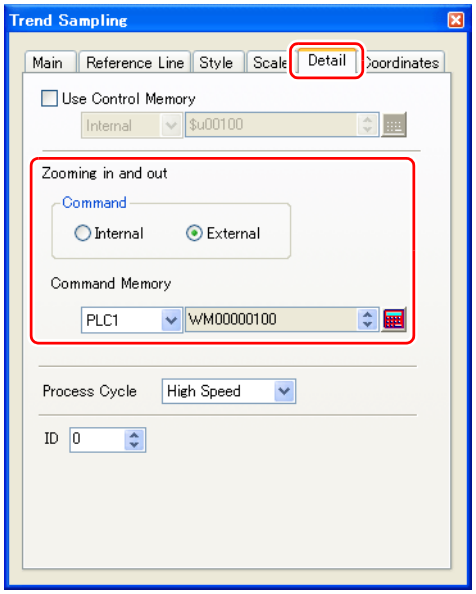


Applicable Items

- Trend sampling

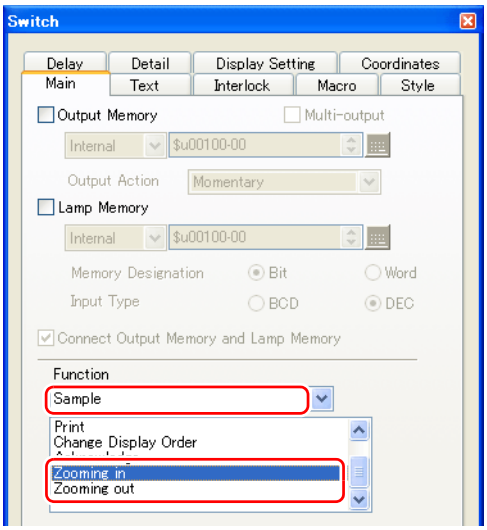
Setting Items

- Open the [Detail] tab window in the item dialog. Check [Internal] or [External] for [Command].

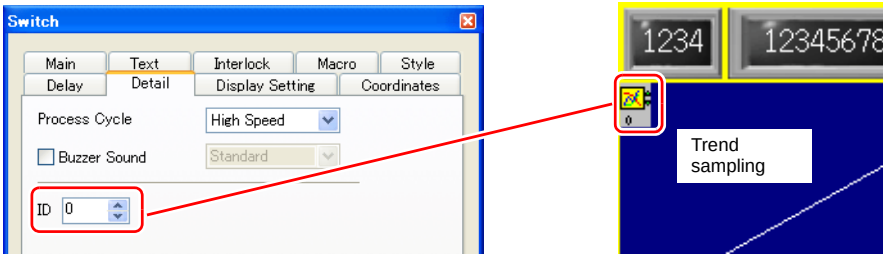


Command	• Internal A switch is used to zoom in or out the graph. Zoom in: same size → 2 times → 4 times → 8 times Zoom out: 8 times → 4 times → 2 times → same size • External The graph is zoomed in or out according to the value specified in the command memory.
Command Memory	This setting is valid only when [External] is selected for [Command]. The graph will be zoomed in to a magnification of the following. 0: Same size 1: 2 times 2: 4 times 3: 8 times
Process Cycle (High Speed, Low Speed, Refresh)	Specify the command memory read cycle. Redrawing of the graph occurs at the following times: • High Speed Every cycle • Low Speed • Once in several cycles • One cycle when the screen is opened • At the leading edge (OFF → ON) of bit 15 (data read refresh) in read area “n + 1” For more information, refer to the V8 Series Reference Manual. • Refresh • At the leading edge (OFF → ON) of bit 15 (data read refresh) in read area “n + 1” For more information, refer to the V8 Series Reference Manual. • Macro command TREND_REFRESH For more information, refer to the V Series Macro Reference Manual.

- Switch part ([Command: Internal])
  - [Function: Zooming in or Zooming out]



  - Select the same number as the trend sampling ID number.



Trend Sampling Area and Plot Points

- If a plot point pitch calculation leaves a remainder, depending on the X size of the trend sampling display area and the number of X-axis data points, a blank area will be created on the graph.

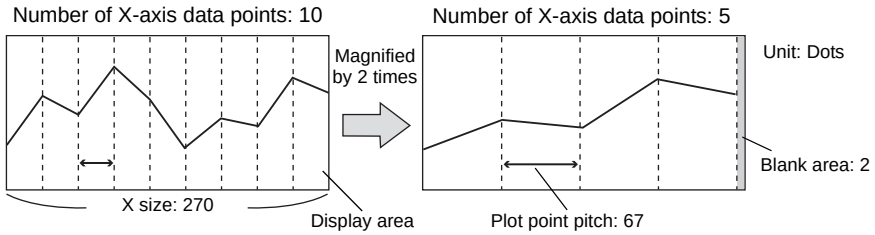
  Calculate the equation below to obtain the plot point pitch. (Minimum plot point pitch: 1 dot)

  Calculation: Plot point pitch = X size ÷ (Number of X-axis data points – 1)

  Example: Display area: 270 dots, Direction: RGT

  270 ÷ (5 – 1) = 67, remainder 2

  The plot point pitch is 67 dots and the remainder (2 dots) creates a blank area.



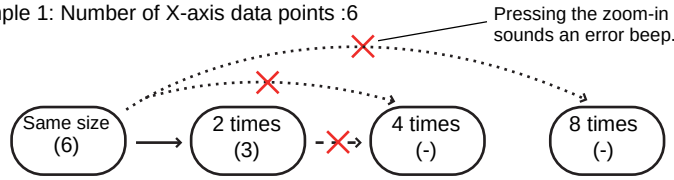
  After setting the number X-axis data points, correct the X size of the trend sampling display area to eliminate the blank area.

Limitations

- If the number of X-axis data points before zooming in/out is odd, the number after zooming in/out will be rounded up.

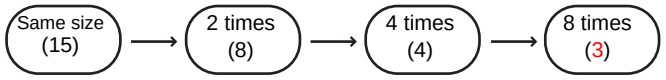
- The minimum number of the X-axis data points is 3.
  If a magnification in which the number of X-axis points is less than 3 is specified, the magnification will be adjusted so that the number of X-axis data points becomes 3.

  Example 1: Number of X-axis data points :6



  Magnification by 4 times or higher disabled

  Example 2: Number of X-axis data points: 15



  The number of X-axis data points will be 3 (e.g., the minimum value) when a magnification of 8 times is specified.

  Numbers of X-axis data points are parenthesized.

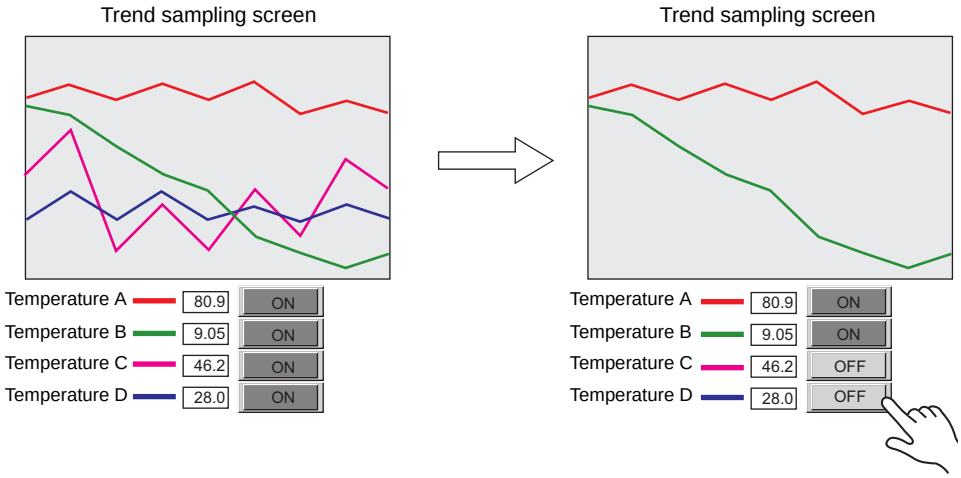
- [Command: Internal]
  - The graph will be restored to the same size when the following actions are taken:
    - Turning off and back on the power
    - Switching between the RUN mode and the Main Menu screen
    - Switching the screen
    - Redisplaying the screen (by the macro command RESET_SCRN or item showing/hiding)
  - Operating the zoom-in or zoom-out switches are not recorded in operation logs.

- [Command: External]
  - If any value other than 0 to 3 is specified in the command memory, the graph will initially be displayed in the same size.
    However, if any value other than 0 to 3 is specified in the command memory for a graph after zooming in, its display will not change.
  - If trend sampling graphs assigned with the same external command memory address are placed on one screen, they will be zoomed in or out at the same time. Assign different command memory addresses to individual trend sampling graphs.

8.8 Graph Show/Hide Function (Trend Sampling)

Overview

It is possible to arbitrarily show or hide trend sampling graph lines registered with a screen. Showing or hiding graph lines can be easily changed as necessary, depending on the operating conditions.



Applicable Items

- Trend sampling

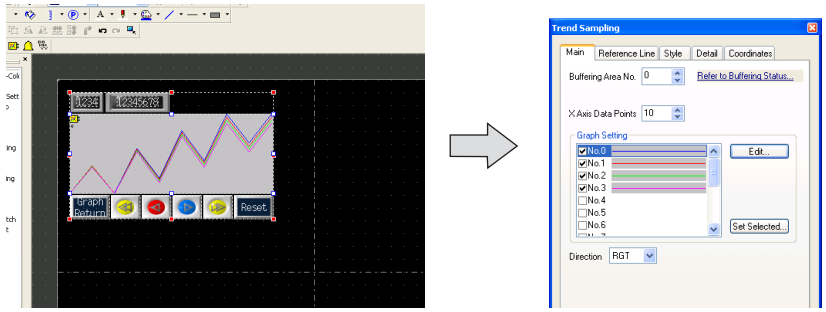
Setting Items

- [☐ Use Control Memory] in the [Trend Sampling] dialog → page 8-20
  (For trend sampling setting instructions, refer to the Reference Manual provided separately.)

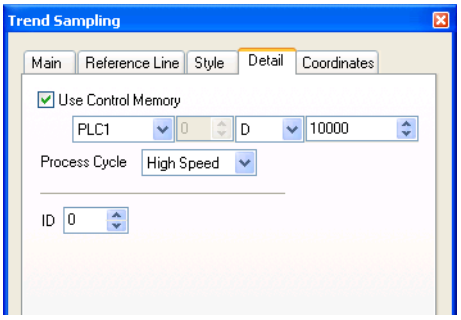
Setting Procedure

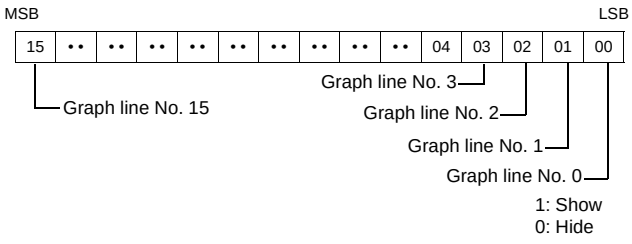
In this section, a graph that shows four lines (Nos. 0 - 3) is used and how to show only two of them (graph Nos. 0 and 1) with the PLC memory address D10000 is explained.

1. Click on the trend sampling display area to display the item dialog.



2. Open the [Detail] tab window and check [☐ Use Control Memory]. Select the PLC memory address D10000.



☐ Use Control Memory (Word designation)	This memory address is associated with showing or hiding graph line Nos. 0 - 15. Each graph line is shown and hidden when the corresponding bit is set (ON) and reset (OFF). 

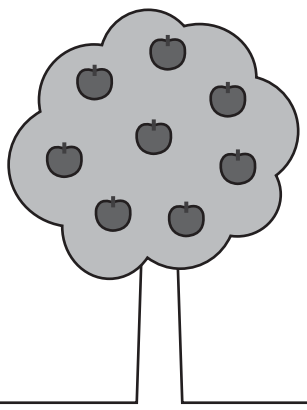
Process Cycle (High Speed, Low Speed, Refresh)	Specify the command memory read cycle. Redrawing of the graph occurs at the following times: • High Speed Every cycle • Low Speed • Once in several cycles • One cycle when the screen is opened • At the leading edge (OFF → ON) of bit 15 (data read refresh) in read area “n + 1” For more information, refer to the V8 Series Reference Manual. • Refresh • At the leading edge (OFF → ON) of bit 15 (data read refresh) in read area “n + 1” For more information, refer to the V8 Series Reference Manual. • Macro command TREND_REFRESH For more information, refer to the V Series Macro Reference Manual.

3. Transfer the screen data to the V8 series.
When bits 0 and 1 are set (ON) at D10000, only graph line Nos. 0 and 1 are drawn.

Limitations

- If memory designation has been selected for [Scale Max.] and [Scale Min.] of reference lines and for [Graph Max. Value] and [Graph Min. Value] of graph lines, and also if changes are made to the values at the designated addresses, graph redrawing does not occur even at the time of setting or resetting the bits in the control memory. Use the macro command TREND_REFRESH* instead.
  * For more information on the macro, refer to the Macro Reference Manual provided separately.
- If memory designation has been selected for [Reference Line], the process cycle set in the [Detail] tab window takes effect.
  * When [☐ Use Control Memory] is not checked, the update timing depends on [High Speed] for [Process Cycle].
- When [☐ Use Control Memory] is set, this setting is counted as one of the number of memory locations that is permitted for one screen.
  * For more information on the number of permissible memory locations, refer to the V8 Series Operation Manual.
- Even if all the graph lines are hidden with the use of [☐ Use Control Memory], the switches for [Roll Up], [Roll Down],[+ Block], [– Block] and [Graph Return] work.
- Even if all the graph lines are hidden with the use of [☐ Use Control Memory], and if any cursor movement has been made with the [Roll Up], [Roll Down], [+ Block], or [– Block] switches, any variation in cursor point is retained (however, the point is not shown).
- When graph line showing or hiding is implemented with the use of [☐ Use Control Memory], flickering associated with graph redrawing will occur momentarily.

MEMO



Please use this page freely.

9 Alarm Function

The alarm function in the V8 series is provided with new features: parameter addition and alarm acknowledgement.

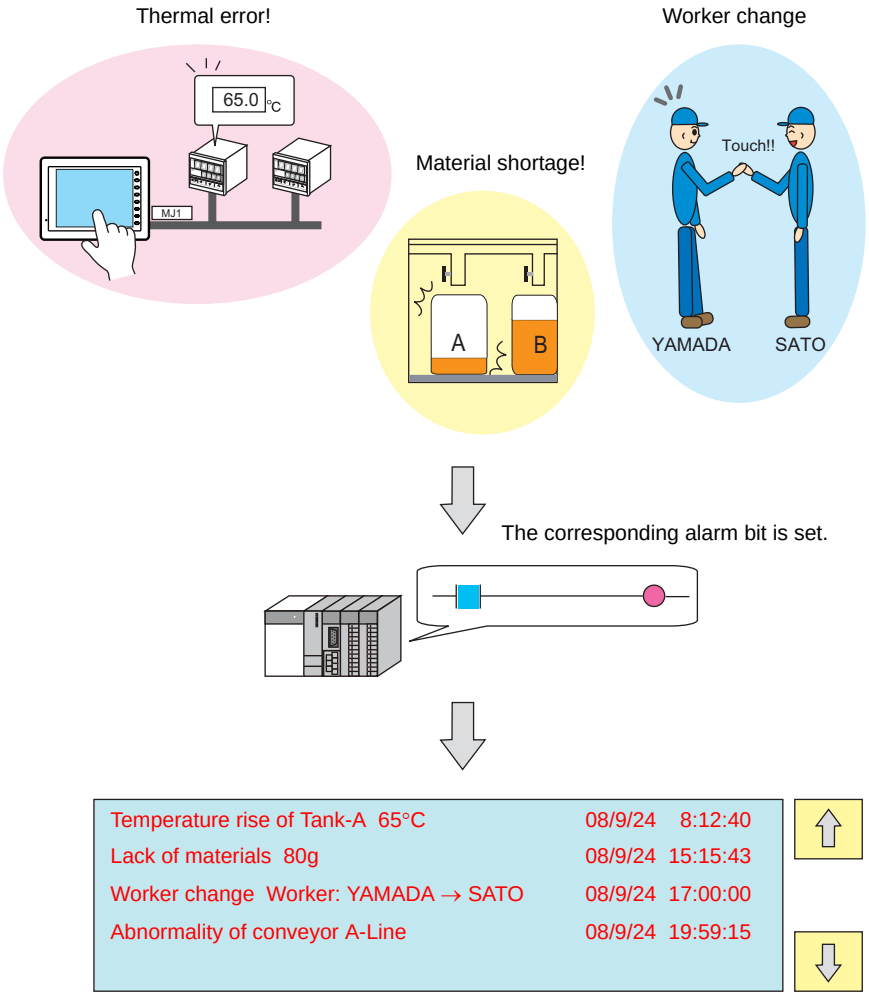
9.1 Parameter Addition Function

Overview

In the event of an alarm, the data associated with its occurrence can be displayed together with the alarm message. Logging the history of such alarm-relevant data will help you locate and investigate the causes of alarms.

Example: An alarm on September 24

Temperature control memory D2 : PV value 65°C
PLC memory D100 : Worker SATO
PLC memory R0 : Material 80 g



Applicable Items

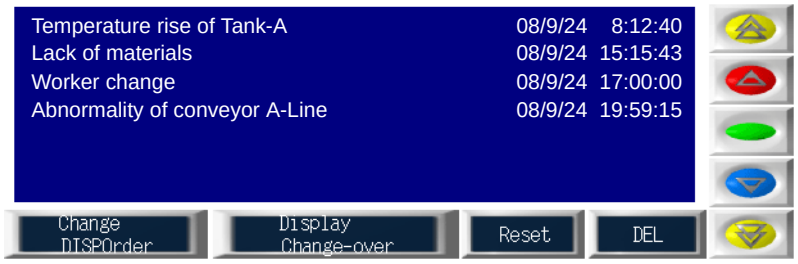
- Alarm tracking
- Time order alarming
- Alarm logging

Setting Items

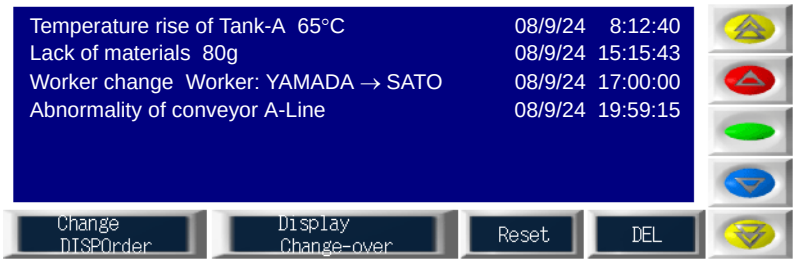
- Alarm tracking
  Time order alarming
  Alarm logging → Refer to the Reference Manual.
- Buffering area → page 9-3
- Message edit → page 9-7

This chapter describes the settings for the additional alarm function in conjunction with the use of alarm tracking.

Alarm display example when [Record Parameters] is not checked

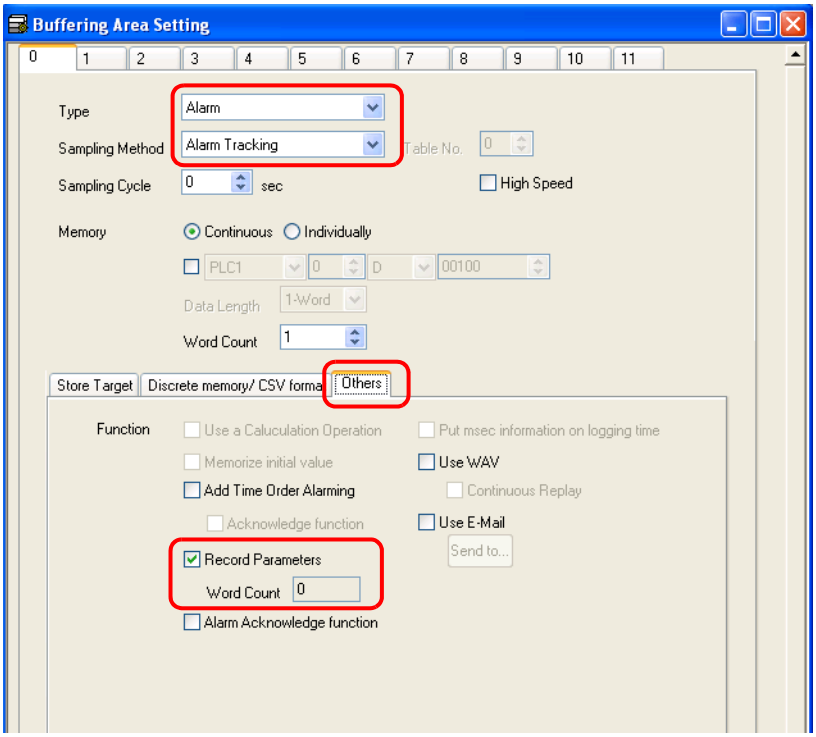


Alarm display example when [Record Parameters] is checked



Buffering Area Setting

1. Select [System Setting] → [Buffering Area Setting] → [Others].

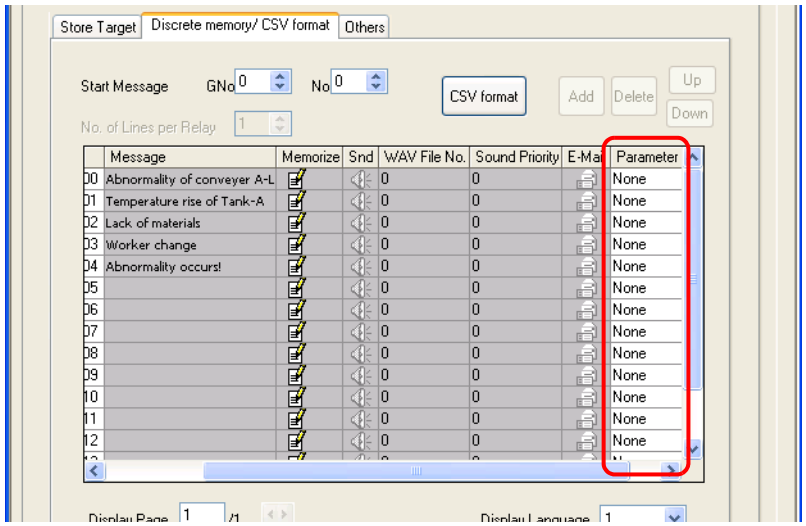


☐Record Parameters	Check this box when using parameters.
Word Count	This field shows the number of words used for parameters.*

* For the determination of the size of the primary storage, refer to “Buffer size calculation for the use of parameters and the alarm acknowledge function” page 9-17.

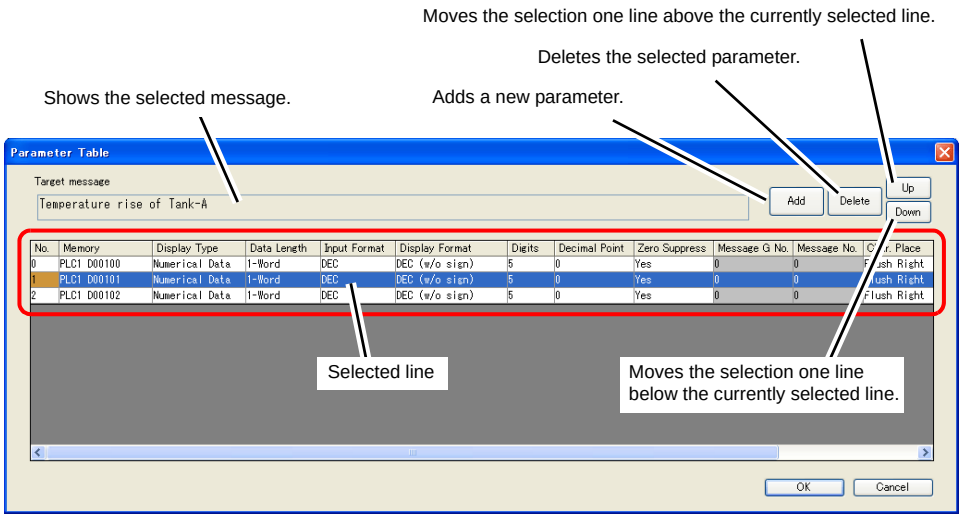
2. Check [☐Record Parameters].

3. Open the [Discrete memory/CSV format] tab window.
   Sliding the scroll bar to the right allows you to view the [Parameter] column.



Parameter (Yes/None)	Select either option for each message. Double-clicking the box under [Parameter] calls up the [Parameter Table] dialog.

4. Double-click the box under [Parameter] for your desired message. The [Parameter Table] dialog appears.

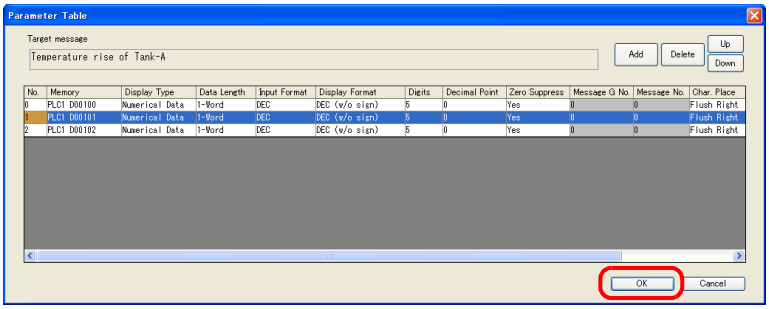


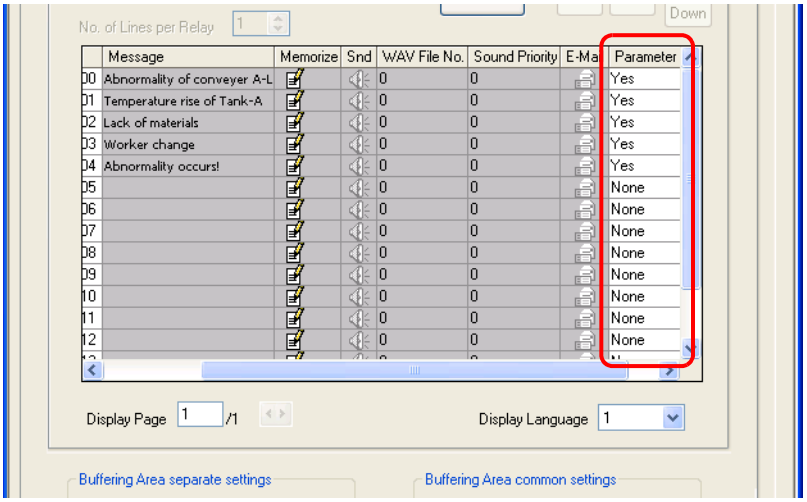
The items which can be set depends on the selection under [Display Type].

No.	A maximum of eight parameters can be registered. No. 0 to 7
Memory	Specify the memory address assigned to the parameter.

Display Type	Numerical Data: This option is for the display of data at the memory address. Text: This option is for the display of the text set at the memory address. Message No.: This option is for the display of a message according to a designated message number (absolute address) that is already registered. Bit: When the bit is set (ON), the message specified under [Message No.] is displayed. When the bit is reset (OFF), the next message (corresponding to the number of [Message No.] plus one) is displayed.
Data Length	Specify the length of the data stored at the address set under [Memory]. 1-Word/2-Word
Input Format	Select the code to be used at the time of data reading. DEC/BCD/FLOAT
Display Format	Select the format of the data to be displayed. DEC (w/o sign) / DEC (with sign -) / DEC (with sign +-) / HEX / OCT / BIN (binary) / Real Number Type
Digits	Specify the number of digits. 1 to 32
Decimal Point	Specify the number of decimal places. When no decimal point is required, set “0”. 0 to 31
Zero Suppress	Select whether to execute zero suppress. (Example: 5-digit numeral display 123; without zero suppress: 00123)
Message No.	Specify the message G number and message number you wish to display. Message GNo. 0 to 127, Message No. 0 to 255
Char. Place	Select either flush right or flush left for text display. Flush Right/Flush Left
Characters	Specify the number of characters. 1 to 127
Text Process	Set the recognition of MSB and LSB in one word. LSB → MSB, MSB → LSB

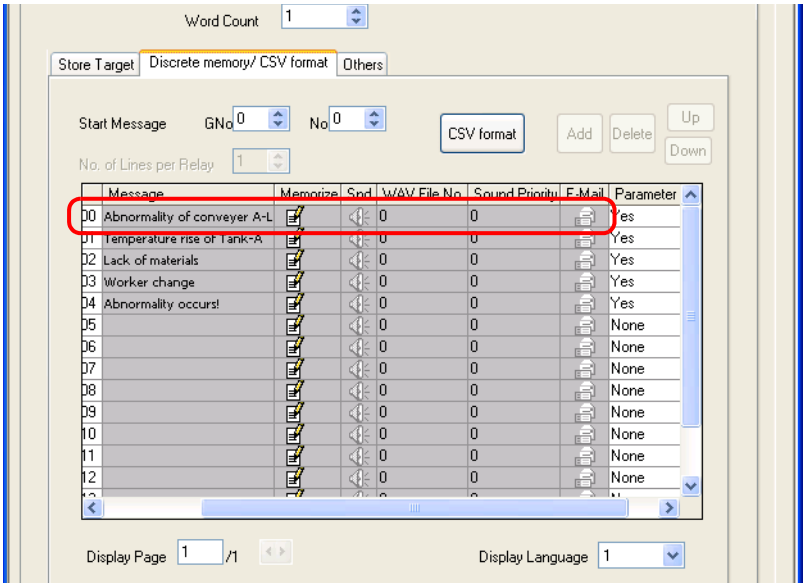
5. When the settings have been completed in the [Parameter Table] dialog, click [OK] to close it.



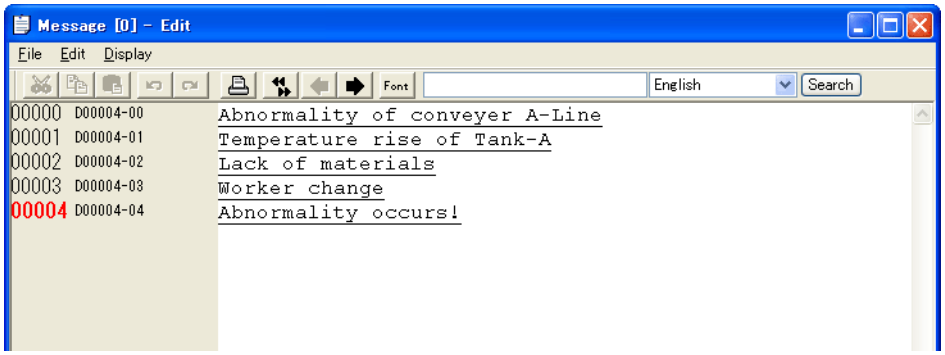


Message Edit

1. Double-click the area enclosed in the red box as shown below.



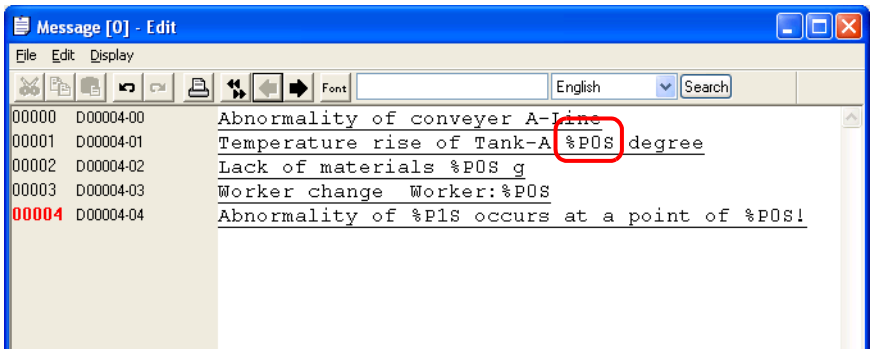
2. The [Message Edit] window is displayed.



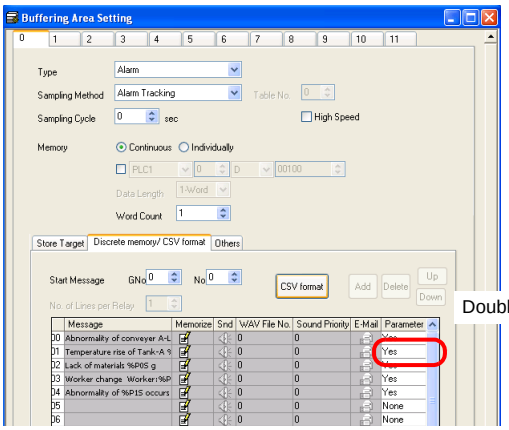
9

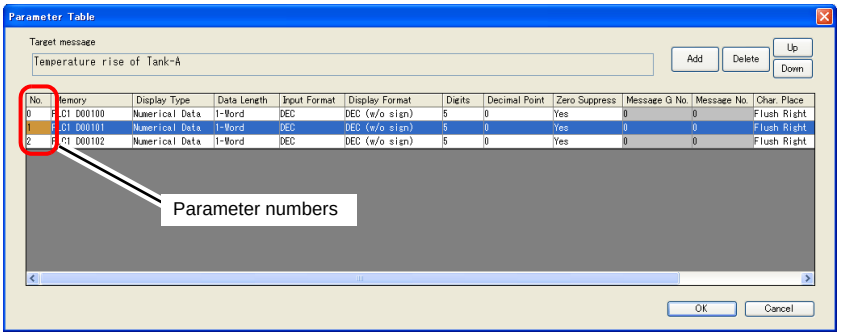
3. According to the parameter numbers registered in the [Parameter Table] dialog, specify those numbers in the [Message Edit] window.

%PxS
└─Specify a parameter No. 0 to 7 as registered in the [Parameter Table] dialog.



Go to the [Parameter Table] dialog to see the registered parameter numbers.





Limitations

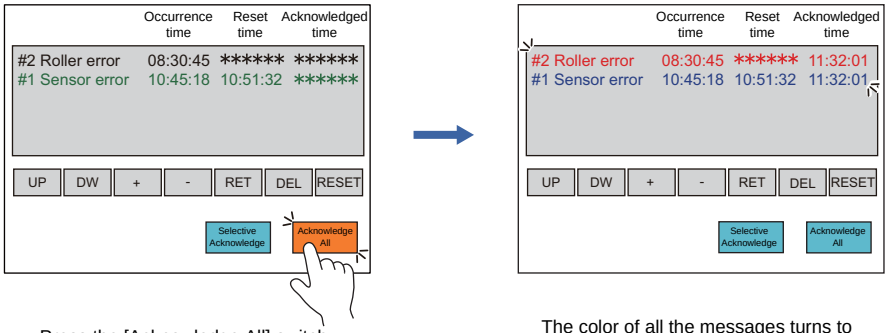
- When the parameter settings have been made with Windows fonts, parameter symbols (%PxS) are shown as they are in the alarm messages to be displayed.
- For parameter Nos. 0 to 7 specified in the [Parameter Table] dialog, the maximum allowable number of words is 128 (automatically calculated*). Be sure to use 128 or fewer words in total.
  * To see the number of words used, check “Record Parameters” in “Buffering Area Setting” page 9-3.
- In the event of a failure to read parameter memory, “****” is displayed in place of the parameter in the message.
- If [Message No.] is selected for [Display Type] in the [Parameter Table] dialog and if the corresponding message includes parameter symbols, the symbols “%PxS” appear as they are when the message is displayed.
- If [Total Frequency of Occurrence Display] or [Total Time of Occurrence Display] is selected for alarm history display, the parameter symbols in alarm messages are displayed as “****”.
- If changes are made to the data in the [Parameter Table] dialog, such as the number of parameters, the order of parameters, or the assigned memory addresses, after the execution of data sampling and then if screen data transfer is performed in this condition, the data previously sampled may not be displayed correctly on the screen. Whenever any changes as mentioned above have been made, formatting is required before sampling start.
- Real-time printing of alarm logging data will show parameters as “****”.
- In the case of alarm logging, the parameters will be displayed to indicate alarm bit set (ON) and reset (OFF) conditions.
- When [Occurrence/Cancellation Time] is selected for the history display associated with alarm tracking, the parameters will not be displayed for alarm bit reset (OFF) conditions.

9.2 Acknowledge Function

Overview

In the event of an alarm, the data associated with its occurrence, such as when the alarm was caused and reset, can be displayed together with the alarm message. Through the use of the acknowledge switch, when the alarm was acknowledged can also be displayed. Additionally, a distinction between acknowledged and unacknowledged messages is drawn in the display of alarm messages.

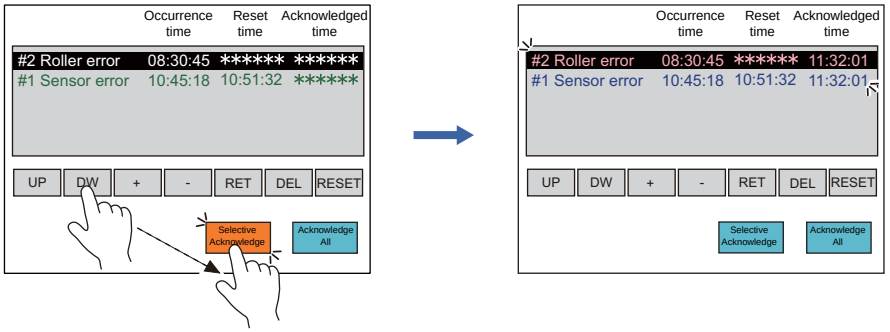
- The [Acknowledge All] switch enables you to acknowledge all alarm messages and show their acknowledged time.



Press the [Acknowledge All] switch.

The color of all the messages turns to the color for acknowledgement and the acknowledged time appears.

- The [Selective Acknowledge] switch enables you to acknowledge the selected alarm message and show its acknowledged time.



Select a message with the scroll switch and press the [Selective Acknowledge] switch.

The color of the selected messages turns to the color for acknowledgement and the acknowledged time is shown.

Applicable Items

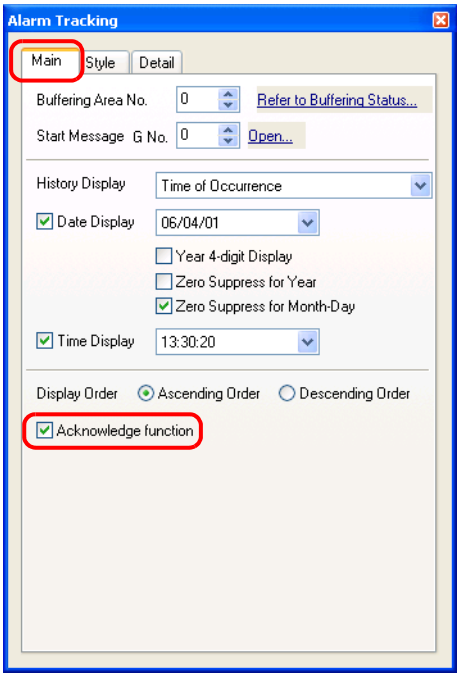
- Alarm tracking

Setting Items

- Alarm tracking → page 9-11
- Buffering area → page 9-14
- Message edit → Refer to the Reference Manual.
- Acknowledge switch → page 9-15

Alarm Tracking

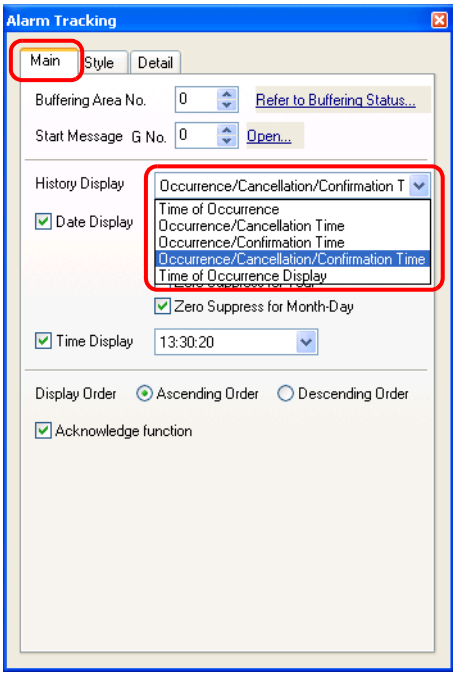
1. Go to the [Alarm Tracking] dialog and open the [Main] tab window.



☐ Acknowledge function	Check this box when using the acknowledge function.

2. Check the box for [☐ Acknowledge function].

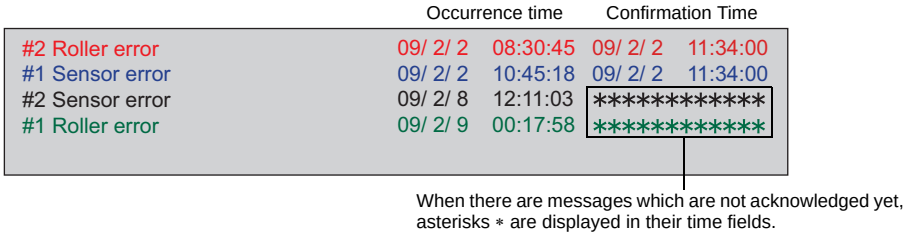
3. Go to [History Display] and select an option of time information that will be shown with alarm messages.



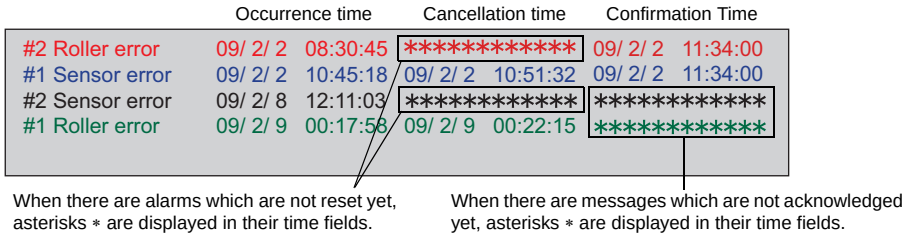
History Display*	Select an option for time information you wish to display with alarm messages. When the [☐ Acknowledge function] is checked, the options [Occurrence/Confirmation Time] and [Occurrence/Cancellation/Confirmation Time] become additionally selectable.

*** [History Display] options**

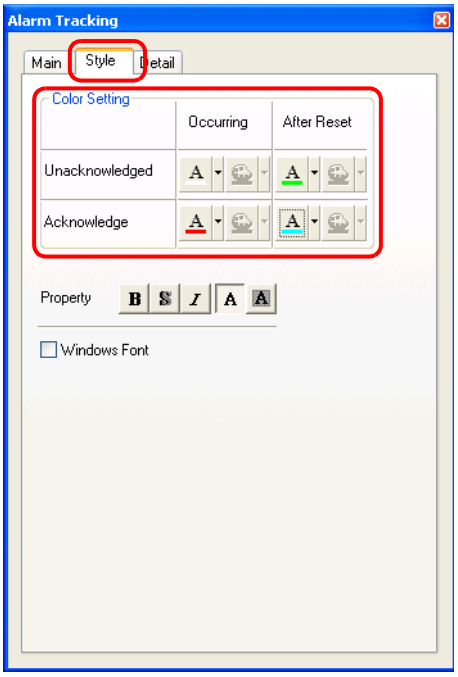
[Occurrence/Confirmation Time]



[Occurrence/Cancellation/Confirmation Time]



4. Open the [Style] tab window.



Color Setting[*1] (Unacknowledged Occurring/ Unacknowledged After Reset/ Acknowledge Occurring/ Acknowledge After Reset)	Four colors can be set to display alarm messages, depending on the status. Unacknowledged Occurring[*2]: Select a color used to display an occurring alarm, for which the acknowledge switch is not pressed yet. Unacknowledged After Reset: Select a color used to display a reset alarm, for which the acknowledge switch is not pressed yet. Acknowledge Occurring: Select a color used to display an occurring alarm, for which the acknowledge switch is already pressed. Acknowledge After Reset: Select a color used to display a reset alarm, for which the acknowledge switch is already pressed.

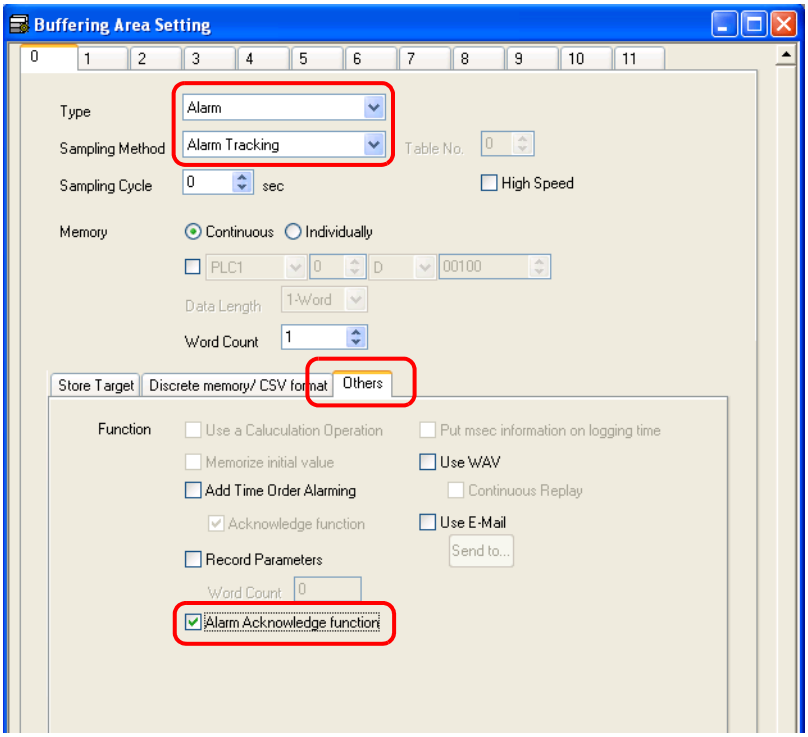
*1 This is settable when [☐Acknowledge function] is checked in the [Main] tab window.

*2 This is not settable if [☐Windows Font] is checked.
The color selected in the [Message Edit] window takes effect instead.

5. Select your desired colors under [Color Setting] for the display of alarm messages and time information.

Buffering Area Setting

1. Select [System Setting] → [Buffering Area Setting] → [Others].



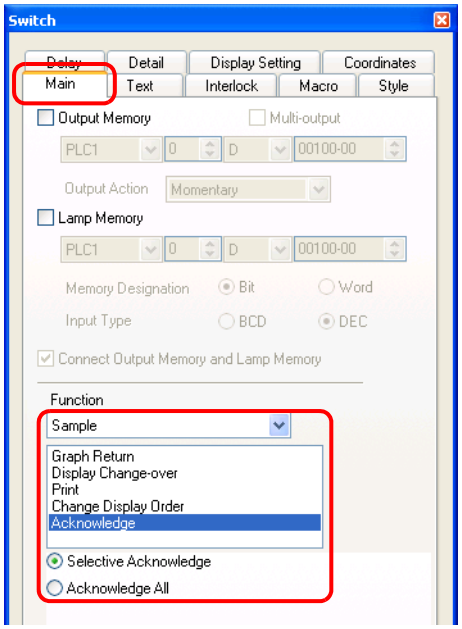
☐ Alarm Acknowledge function	Check this box when using the alarm acknowledge function.

2. Check the box for [☐ Alarm Acknowledge function].

Acknowledge Switch

1. Follow the steps below to place an acknowledge switch.

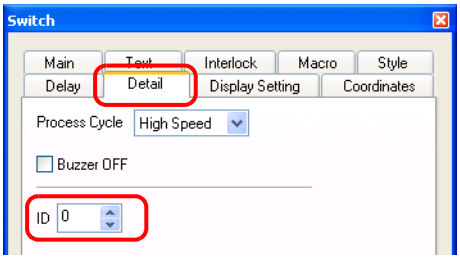
2. Open the [Main] tab window in the [Switch] dialog.



Function	Description
Acknowledge	Alarm acknowledged times can be displayed in the alarm tracking area. Selective Acknowledge: For a selected alarm message, this switch is used to acknowledge the message and to show the acknowledged time. Acknowledge All: For all the displayed alarm messages, this switch is used to acknowledge the messages and to show the acknowledged time.

3. Select [Acknowledge] under [Function].

4. In the [Switch] dialog, open the [Detail] tab window.



ID (0 to 255)	Set the same number as the ID number of the alarm tracking item.

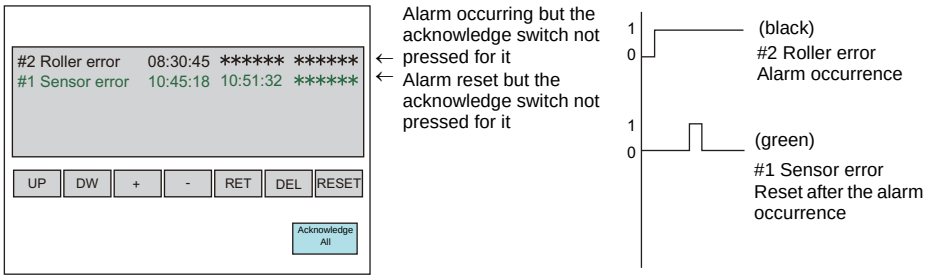
Example

When the acknowledge function is used, message and time display can have the following four conditions:

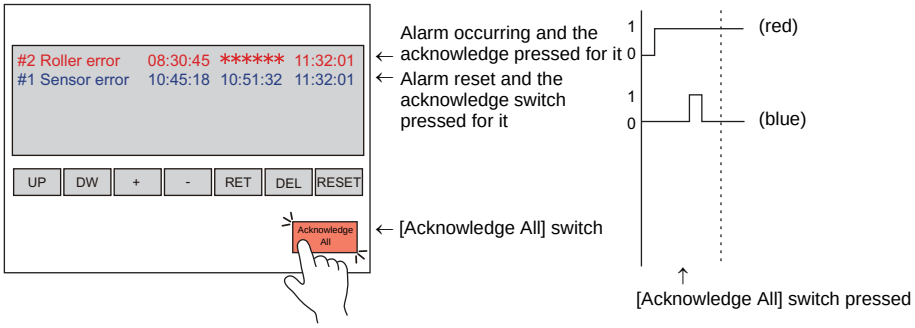
As an example, the following colors are selected for the message and time display.

A: An alarm is occurring but the acknowledge switch is not pressed yet: black
B: An alarm is reset but the acknowledge switch is not pressed yet: green
C: An alarm is occurring and the acknowledge switch is pressed: red
D: An alarm is reset and the acknowledge switch is pressed: blue

If an alarm occurs and the [Acknowledge All] switch is not pressed, the alarm message is displayed in black. When the alarm is reset afterwards, the message turns green.



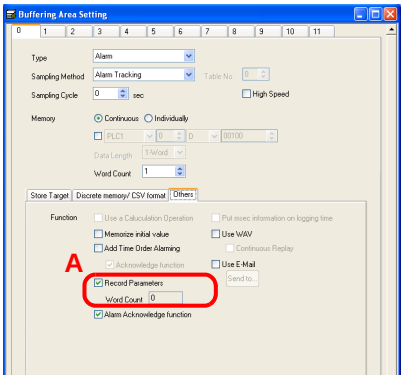
When the [Acknowledge All] switch is pressed, the color of the occurring alarm message changes from black to red.
Once the alarm is reset, the message color changes from green to blue.

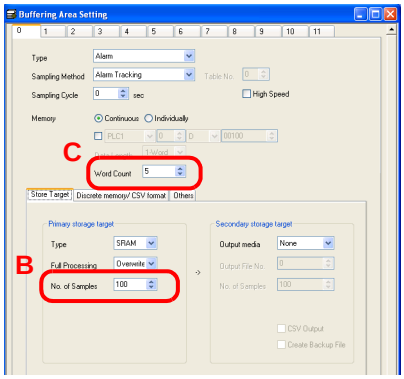


Buffer size calculation for the use of parameters and the alarm acknowledge function

The size of the primary storage can be calculated with the equations below.

A: Number of parameter words, B: Number of sampling times, C: Number of sampling words





Type	Sampling Method	Equation for capacity calculation
Alarm	Alarm Logging	{(3 + **A** + 1 *5) × **B**} +**C** *1
	Time Order Alarming	{(5 + **A** + 1 *5) + 1 *2} × **C** × 16
	Alarm Tracking	{(5 + **A** + 1 *5) + 1 *2) × **B**} + {((6 + **A** + 1 *6) + 1 *4 + 2 *3) × **C** × 16)} + (7 + **C** *1)

*1 The addition is performed when [☐ Memorize initial value] is checked.

*2 The addition is performed when [☐ Acknowledge function] is checked.

*3 The addition is performed when [☐ Add Time Order Alarming] is checked.

*4 The addition is performed when [☐ Add Time Order Alarming] and also [☐ Acknowledge function] are checked.

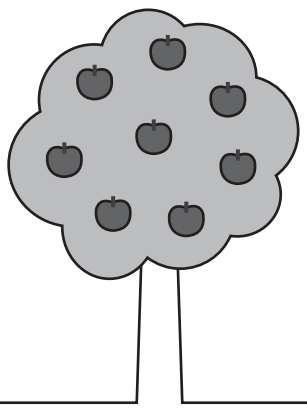
*5 The addition is performed when [☐ Record Parameters] is checked.

*6 The addition is performed when [☐ Add Time Order Alarming] and also [☐ Record Parameters] are checked.

Limitations

- A displayable alarm acknowledged time ranges from the time of alarm occurrence until the time 65,535 seconds (18 hours approximately) at the maximum elapse. If you press the acknowledge switch after a lapse of 65,535 seconds or longer, the time to be displayed then is the occurrence time plus 65,535 seconds.
- If there is an occurring alarm, for which the acknowledge switch is not pressed yet, and if [Occurrence/Cancellation/Confirmation Time] has already been selected for [History Display], the alarm reset and acknowledged times will be displayed as "-----" at the time of rebooting the V8 unit or change to the Main Menu screen. Even if you press the acknowledge switch in this state, the acknowledged time is not displayed.

MEMO



Please use this page freely.

10 RGB Display

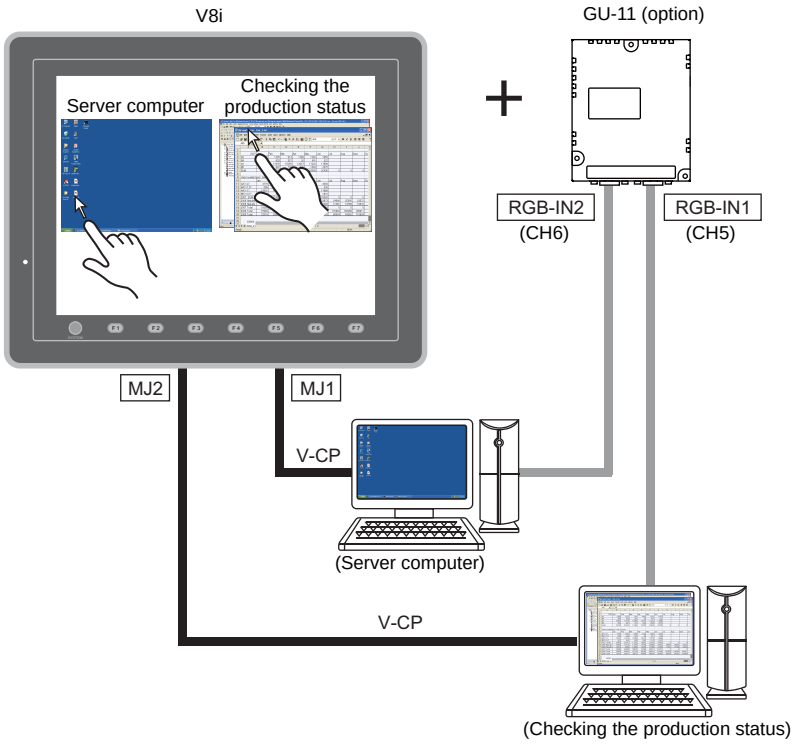
10.1 Touch Switch Emulation

Overview

With the earlier version of V-SFT, when screen data is displayed on the V8i series by using the RGB display function with two computers connected, the touch switch emulation function is available only with the one computer connected to “5CH”.

With the version of 5.4.8.0 or later, touch switch operation becomes possible for the two computers at the same time by using modular jacks (MJ1/MJ2).

You can operate each computer on MONITOUCH according to different purposes, such as viewing data stored by a user on the computer, operating the server computer for maintenance, etc.



* Only “GU-11” (option unit) is equipped with two channels.

Operating Environment

V8

Applicable models

MONITOUCH Model	Port	Color	Option Unit
V815iX/V812iS V810iS/V810iT/V808iS	MJ1/MJ2	32k or more colors	GU-11

*** For more information on adjustment of the RGB display position, refer to the V8 Series Reference Manual provided separately.**

Computer

Applicable OS

Microsoft Windows 98/95/NT4.0/2000/Me/2000/XP

Touch panel driver settings

For more information on the touch panel driver, refer to “Chapter 14” in the V8 Series Reference Manual provided separately.

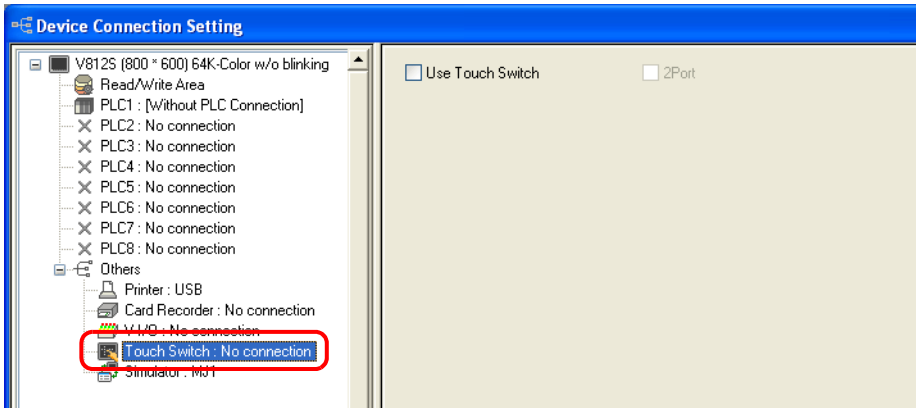
V-SFT Setting

How to display the RGB screen → Refer to the V8 Series Reference Manual provided separately.

How to enable 2 channels for touch switches → page 10-3

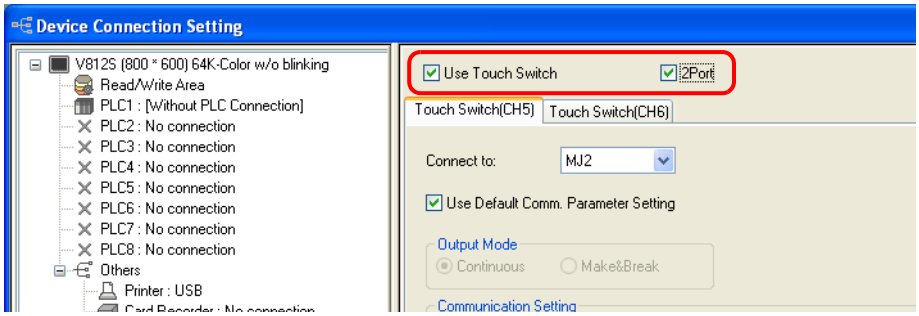
V-SFT Setting

1. Select [System Setting] → [Device Connection Setting] and select [Touch Switch].



2. Check the boxes for [☐Use Touch Switch] and [☐2 Port].

Both MJ1 and MJ2 must be used.
If either port is used for other purpose, this setting is not available.



3. Select an option for [Connect to:]

GU-11 (Option Unit)	V-SFT Setting	Connection Port
RGB-IN1	Touch Switch (CH5)	MJ1/MJ2
RGB-IN2	Touch Switch (CH6)	

*** Do not uncheck the box for [☐ Use Default Comm. Parameter Setting].**

Limitations

- When the touch switch emulation of the RGB display function and the remote desktop window display function are used at the same time, a USB mouse cannot be used for the remote desktop window.

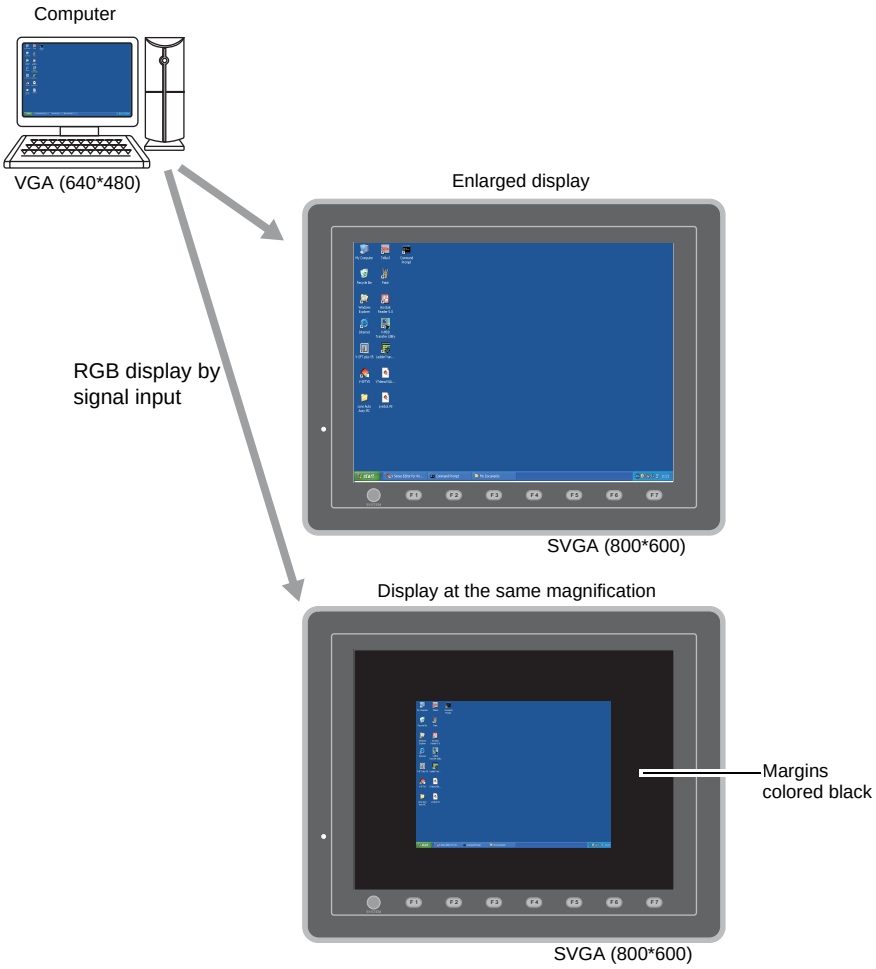
10.2 Enlarged Display

Overview

Previously in the case of RGB display by signal input on the V8i series under control bit 12 in the read area “n + 1” or the macro command “SYS (SET_RGB)”, the display could be produced only at the same magnification regardless of the resolution of the V8i series. If the V8i series is higher than your computer in resolution, therefore, the unit shows the RGB display at the center surrounded with margins colored black.

With the enlarged display feature newly made available, an RGB display can be the full-screen size, with the solution higher than that of the computer.

Example: Display from a computer (VGA (640*480)) → V812iS (SVGA (800*600)):

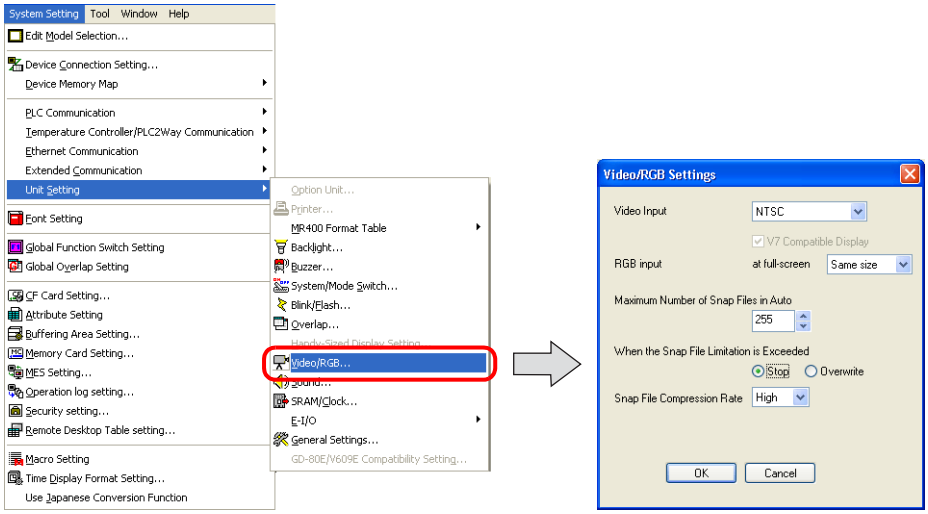


Applicable Models

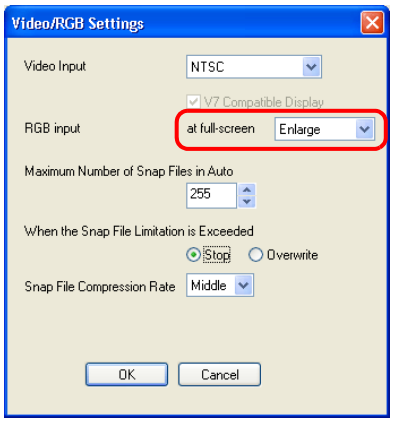
MONITOUCH Model	Color	Option Unit
V815iX/V812iS V810iS/V810iT/V808iS	32k or more colors	GU-01/GU-10/GU-11

Setting

1. Click [System Setting] → [Unit Setting] → [Video/RGB]. The [Video/RGB Settings] dialog is displayed.



2. Go to [at full-screen] and select [Enlarge].



[Same size] selected by default

*** For RGB display by signal input and other settings, refer to the V8 Series Reference Manual.**

Notes

Enlarged display is allowed when switching to the RGB display by signal input is executed at either command below.

- Bit 12 in read area “n + 1” → See the V8 Series Reference Manual
- Macro command “SYS (SET_RGB)” → See the Macro Reference manual.

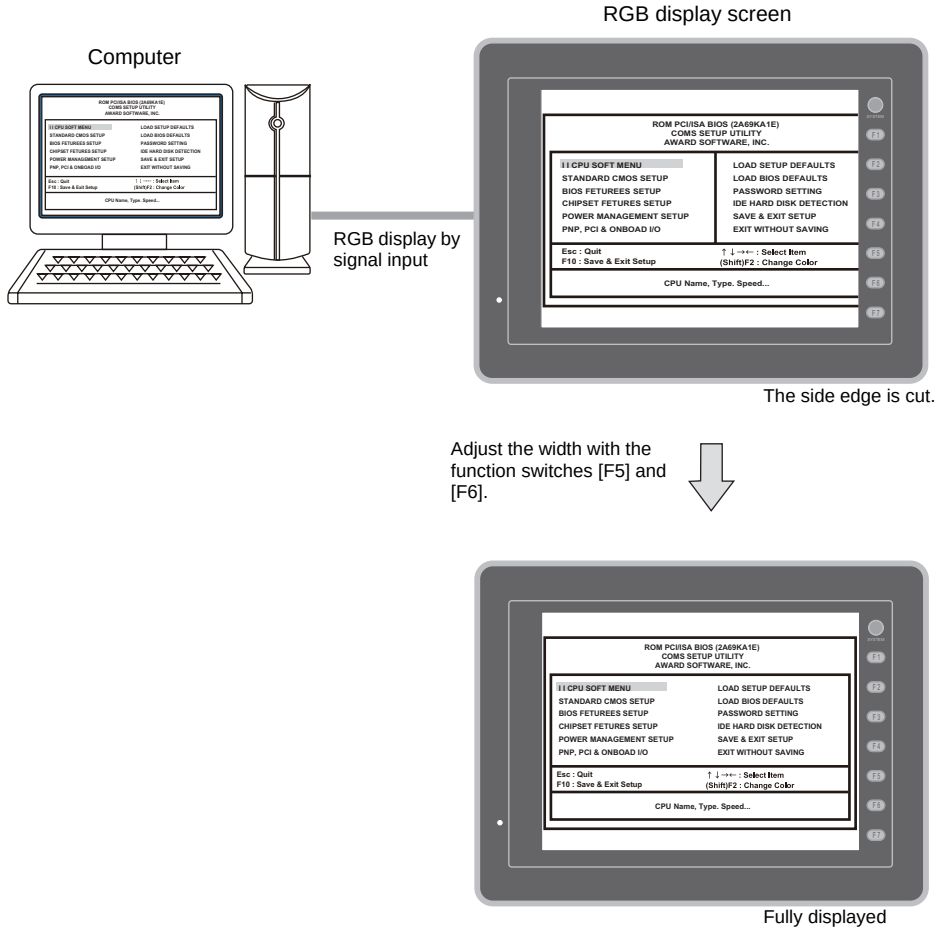
For full-screen display with RGB display items:
Go to the [Video/RGB Display] dialog. In the dialog, set [Display Size: Free] and check the checkbox of [☑ Fit to display area].
For more information, refer to the V8 Series Reference Manual.

10.3 Size Adjustment

Overview

Even if the signal frequency from the computer is suitable for the V8 series, an RGB display by signal input produced on the V8 series may be cut at the side edge because of the difference in BIOS screen width.

If this kind of problem is encountered, a size adjustment to the width is easy to perform on the RGB Adjustment screen. The clip start position remains the same even after the width adjustment. This feature assures adjustments in a smooth manner.



Applicable Models

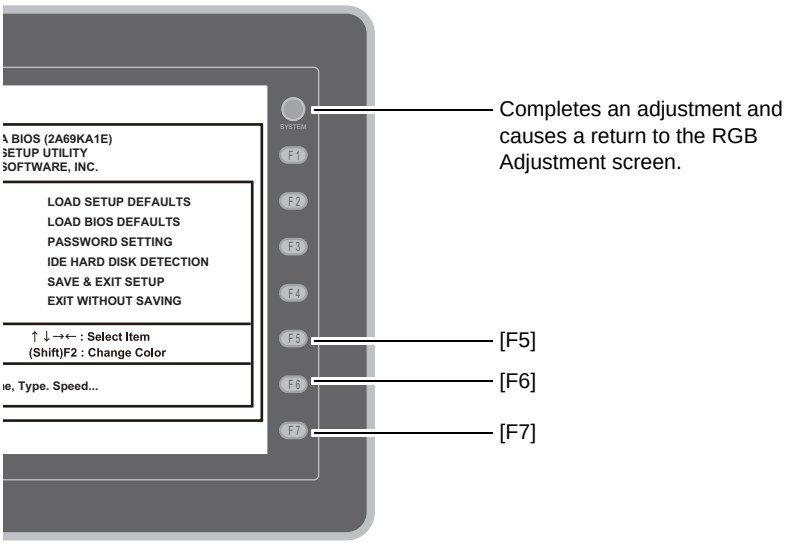
MONITOUCH Model	Color	Option Unit
V815iX/V812iS V810iS/V810iT/V808iS	32k or more colors	GU-01/GU-10/GU-11

Adjustment

Location for Setting

The size of the width is adjustable with the function switches [F5] and [F6].

RGB display for adjustment



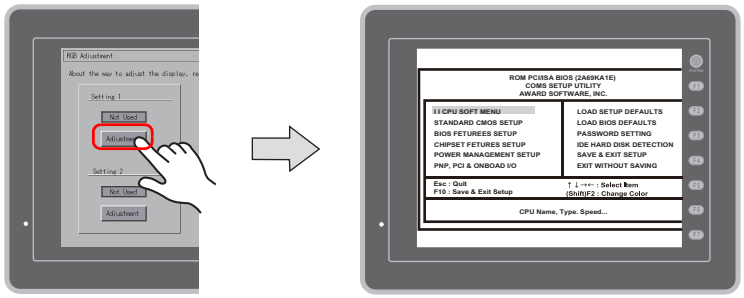
Function Switch	Function
[F5]	Decreases the width by one dot.
[F6]	Increases the width by one dot.
[F7]	Restores the display to the default. When any adjustment made has been saved with the [Save] button on the RGB Adjustment screen, this switch brings up the screen as adjusted.

*** The display position is adjustable with the function switches [F1] through [F4]. For more information, refer to the V8 Series Reference Manual.**

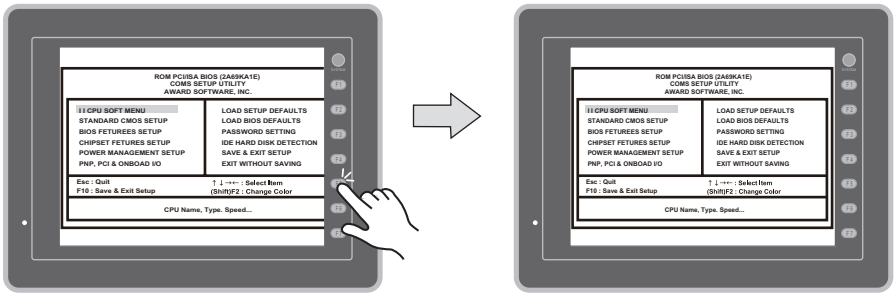
Adjustment Procedure

1. Allow the computer to show the BIOS screen in advance.
2. On the Main Menu screen, press the [RGB Adjustment] button to open the RGB Adjustment screen.
3. On the RGB Adjustment screen, press the [Adjustment] button under [Setting 1] to switch the screen to the RGB display under the BIOS screen.

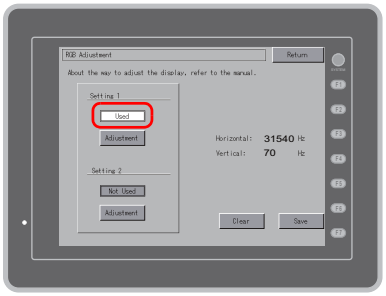
RGB Adjustment screen RGB display (for adjustment)



4. Decrease the width dot by dot with the function switch [F5].



5. When the width adjustment is complete, press the [SYSTEM] switch. The RGB Adjustment screen is displayed again.
   The [Used] lamp for [Setting 1] comes on.



6. Press the [Save] button to save the adjustment.
   (Because the setting for adjustment is stored into the flash ROM, it is retained when the power is turned off and on.)

The necessary settings have been completed.

10.4 Addition of Adaptive Frequencies

RGB display by signal input can be produced at the following frequencies:

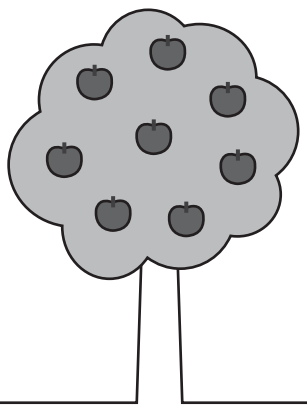
Connected Device	Picture Element No. (Dots)	Horizontal (kHz)	Vertical (Hz)	Remarks
PC-9801	640 × 400	24.826	56.422	
VESA 640 × 480 60 Hz	640 × 480	31.469	59.94	
VESA 640 × 480 72 Hz	640 × 480	37.861	72.809	
VESA 640 × 480 75 Hz	640 × 480	37.5	75.0	
VESA 640 × 480 85 Hz	640 × 480	43.269	85.008	
VESA 800 × 600 56 Hz	800 × 600	35.156	56.250	
VESA 800 × 600 60 Hz	800 × 600	37.879	60.317	
VESA 800 × 600 72 Hz	800 × 600	48.077	72.188	
VESA 800 × 600 75 Hz	800 × 600	46.875	75.0	
VESA 800 × 600 85 Hz	800 × 600	53.674	85.061	
VESA 1024 × 768 60 Hz	1024 × 768	48.363	60.004	
640 × 400 70 Hz	640 × 400	31.540	70.0	BIOS screen

*** For more information on RGB display, refer to the V8 Series Reference Manual.**

Limitations

- The width (640 dots) varies with devices connected.
  Make a size adjustment to the width according to your device in use. For more information on the adjustment procedure, refer to “10.3 Size Adjustment”.
- The display position is adjustable with the function switches [F1] through [F4].
  For more information on the adjustment procedure, refer to the V8 Series Reference Manual.
- A screen display will not be correctly produced if the input signal is at any unsuitable frequency.
  (This is also the same where [☑ Check signal changes while displaying RGB input] is checked in the [General Settings] tab window ([System Setting] → [Unit Setting]).
  If an input signal at an adaptive frequency is detected, however, a screen display is produced under the signal.

MEMO



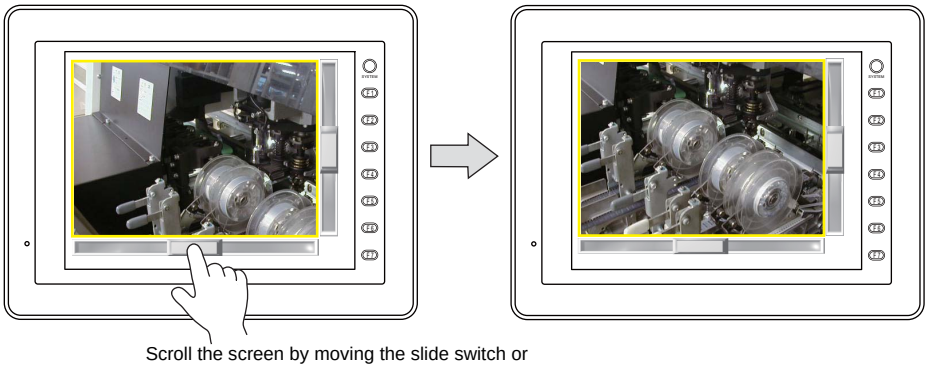
Please use this page freely.

11 Scroll Bar

Overview

- You can bring portions of messages or JPEG data that lie off screen into view by using a scroll bar.
- A maximum of 1024 parts* (192 parts* for the V806 series) can be placed on one screen.

* Including switches and slide switches



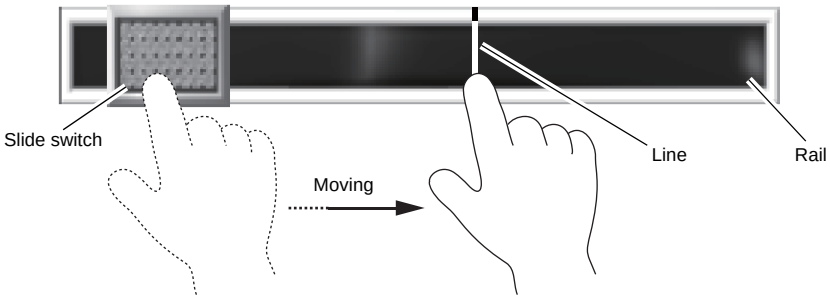
Scroll the screen by moving the slide switch or pressing a desired point on the rail.

Position to be pressed and data write timing

- The scroll bar works when either the slide switch or the rail is pressed.
- When you remove your finger from the slide switch (or the rail), a value is written and the slide switch is moved at the same time.

Display for slide switch movement

- While you are moving your finger to move the slide switch, only the line indicating the position of the switch you are moving is displayed. The slide switch does not move together with your finger.



Applicable Items

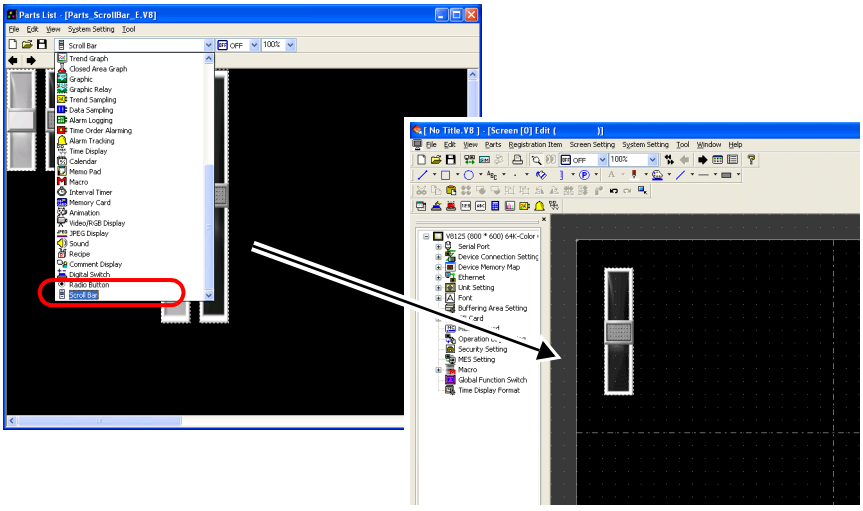
Item	Scroll direction
JPEG display	Vertical and horizontal
Bit order alarming and alarm sub-display	Vertical and horizontal
Message mode	Vertical and horizontal
Trend sampling	Vertical or horizontal*
Alarm logging	Horizontal
Time order alarming	Horizontal
Alarm tracking	Horizontal
Memory card mode	Vertical and horizontal
Recipe	Vertical and horizontal

* The scroll direction depends on the [Direction] setting in the [Trend Sampling] dialog.
[UP] [DW]: vertical direction, [RGT] [LFT]: horizontal direction

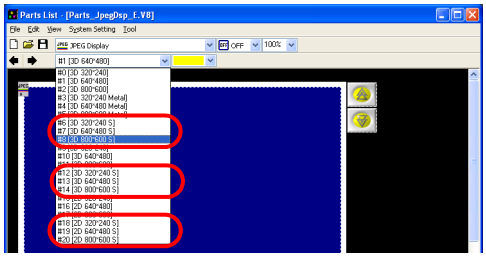
Setting Procedure

This section describes the settings for the scroll bar in conjunction with the use of JPEG display.

Select [Parts] → [Parts List] to display the [Parts List] window.
Select [Scroll Bar] in the drop-down list*. Select a part and drag it onto the screen with the mouse.

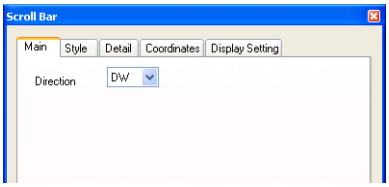


* A part can also be placed by selecting [JPEG Display] in the drop-down list and dragging each item onto the screen.



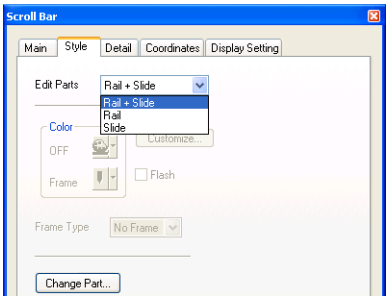
Setting Dialog

[Main] tab window



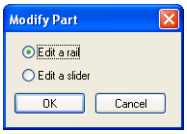
Direction (UP, DW, RGT, LFT)	Select a sliding direction.

[Style] tab window

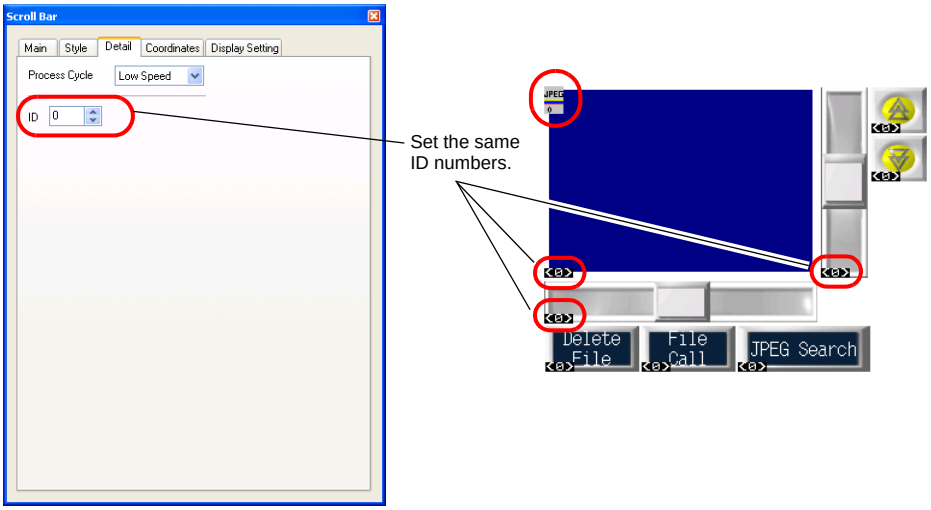


Edit Parts (Rail + Slide, Rail, Slide)	Select the part whose design is to be changed.
Color	Change the color of the part which is selected for [Edit Parts]. (This is valid only when [Rail] or [Slide] is selected.)
Change Part*	Press this button to apply changes to the part selected for [Edit Parts]. For more information, refer to “3.6 Parts” in the V8 Series Operation Manual.

* Parts change can be executed by selecting an option in the [Modify Part] window.
Select a scroll bar and select [Edit] → [Change Part] → [Modify Part]. The dialog shown below is displayed. Select [Edit a rail] or [Edit a slider].



[Detail] tab window



Process Cycle (High Speed, Low Speed, Refresh)	Set a cycle for the PLC to read the PLC data while it is communicating with the V8 series. For more information, refer to “Appendix 5 Process Cycle” in the V8 Series Reference Manual.
ID (0 to 255)	Set the same number as the ID number of the JPEG display item.

Limitations

- Scrolling is performed in dots.
- A JPEG file with an XGA (1024 × 768 dots) resolution can be displayed at the maximum.
- In the case of alarm tracking, only alarm messages can be scrolled horizontally. The date and time fields cannot be scrolled.
- In the case of the recipe mode, as many rows and columns as displayed can be scrolled in units of a row or a column.
- If multiple scroll bars provided with the same ID, which do not link to items, are placed, the scroll bar at the front takes effect.

12 Data Sheet Print (Expanded)

Overview

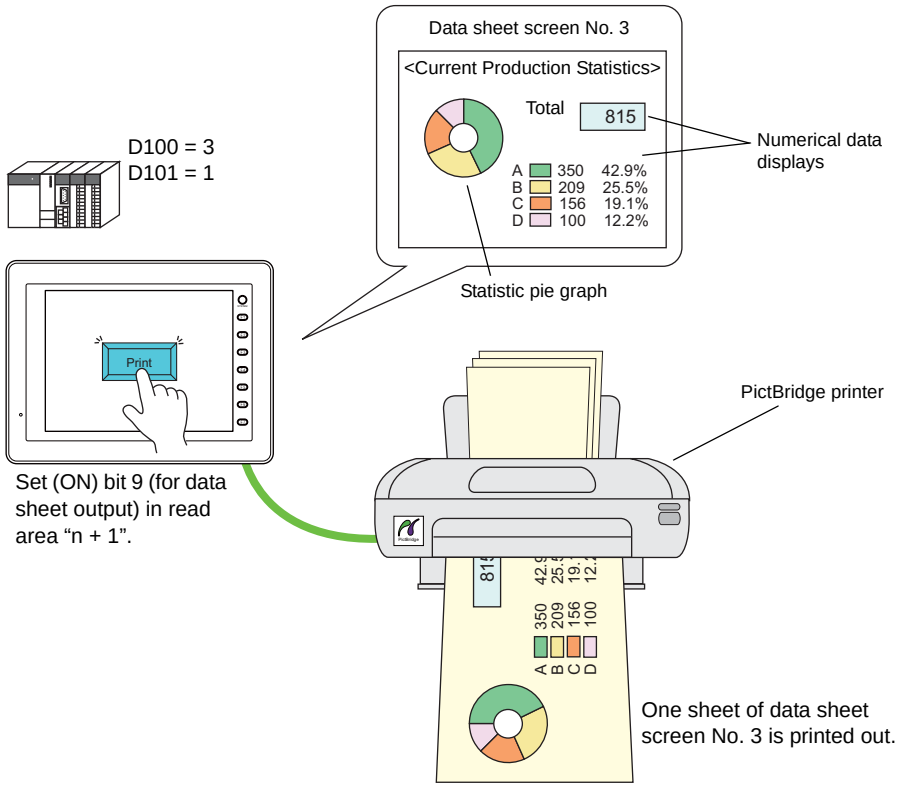
The parts that are usable on data sheet screens are limited to data display parts (for numerical data and characters) and graphic parts (text, lines, and boxes). Layouts of parts are also limited on data sheet screens because parts are not freely changeable in size and require being placed along the grids.

With the expanded functions of data sheet explained in this chapter, you can use additional parts, such as lamps and graphs, and change the sizes of those parts. Moreover, the expanded functions allow for parts placement irrespective of the grids, thereby diversifying layouts on data sheet screens. Those data sheets can be printed out in color.

Example: Printing data sheet screen No. 3 onto A4 paper in landscape orientation

Top page setting memory

Start data sheet No.:	D100
Number of output data sheet pages:	D101



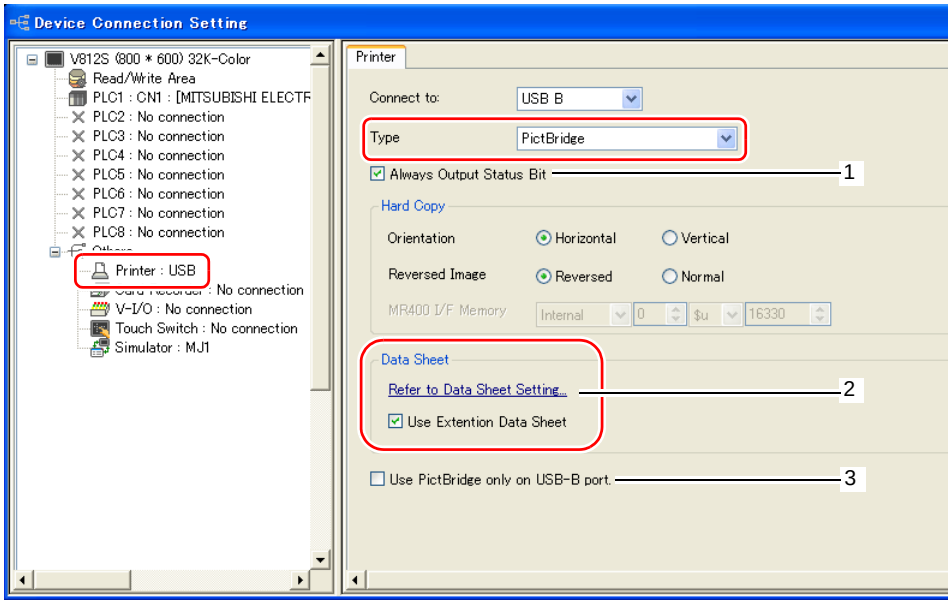
Applicable Printer Models

PictBridge-compatible printer

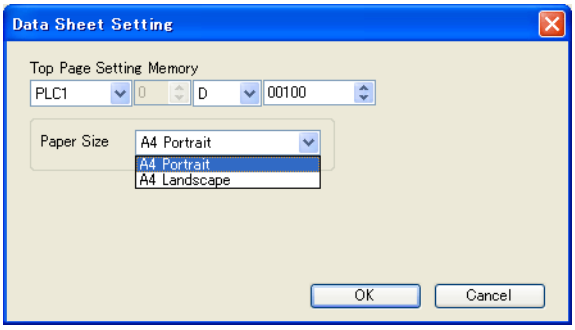
Setting

Click [System Setting] → [Device Connection Setting] → [Printer]. Make the following settings in the [Printer] tab window.

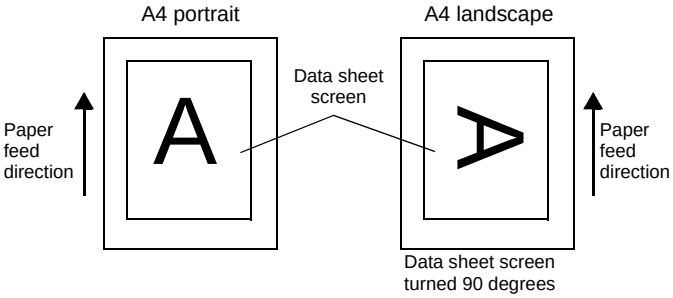
- Type: PictBridge
- [☑Use Extension Data Sheet] checked



[Data Sheet Setting] dialog (2)



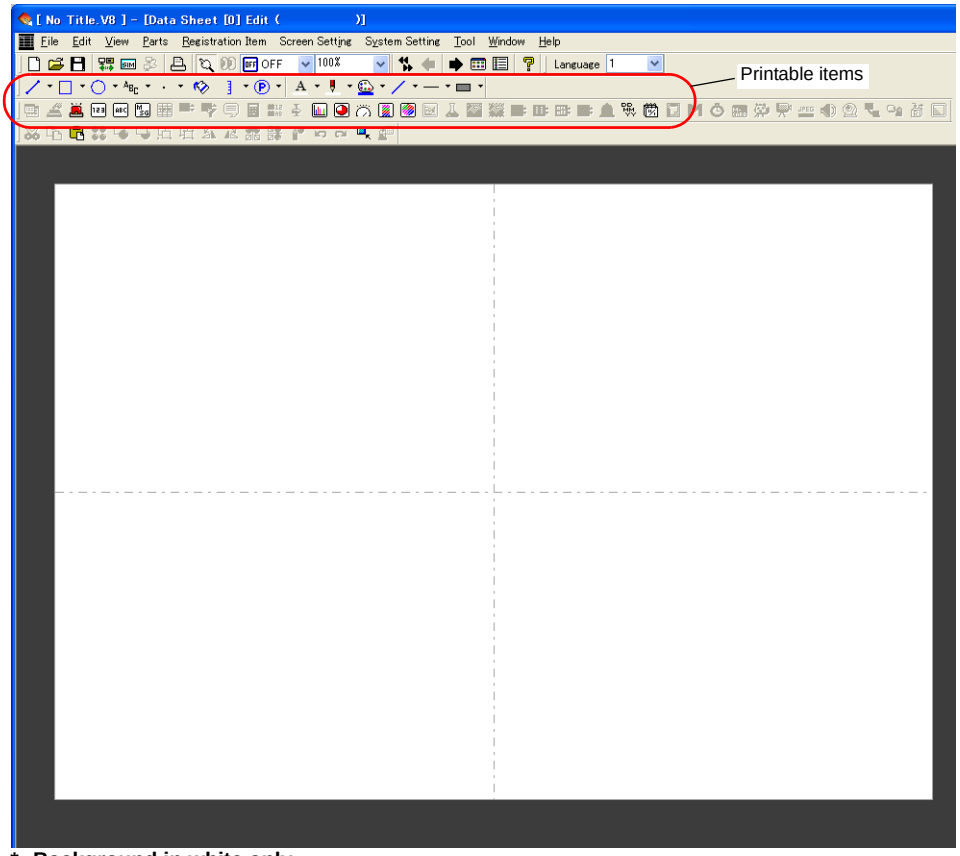
*** You may go to the [Data Sheet Setting] dialog in another way by clicking [Registration Item] → [Data Sheet] → [Screen Setting] → [Data Sheet Setting].**

<table>
<tr><td>1</td><td>☐ Always Output Status Bit</td><td>When a print command is issued, [0 → 1] is output at the start of data transmission and [1 → 0] is output at the end of transmission.
However, if the print data is minimal, the signal may not be output.
Check this box when you want to output the bit regardless of the data size.
• Bit 10 of write area “n + 1”
MSB LSB
15 14 13 12 11 10 09 08 07 06 05 04 03 02 01 00
0 0 0 0 0
0: End (standby)
1: Transmitting print data
• Bit 0 of internal memory $s16
MSB LSB
15 14 13 12 11 10 09 08 07 06 05 04 03 02 01 00
0 0 0 0 0 0 0 0 0 0 0 0 0
0: End (standby)
1: Transmitting print data</td></tr>
<tr><td>2</td><td>Top Page Setting Memory</td><td>Use this memory when printing data sheets by the command given in the read area.
Consecutive two words are used.
<table><tr><th>Memory</th><th>Description</th></tr><tr><td>n</td><td>Start data sheet number (→ V)</td></tr><tr><td>n + 1</td><td>The number of pages to be output (→ V)</td></tr></table>* For print execution procedure, refer to “Print Execution” (page 12-6).</td></tr>
<tr><td></td><td>Paper Size (A4 Portrait/ A4 Landscape)</td><td>Select the orientation of the data sheet screen. (Paper size: A4 fixed)
<table><tr><th>Paper Size (Graphic area: height × width)</th><th>Orientation</th></tr><tr><td>A4 Portrait (912 × 640 dots)</td><td>Vertical</td></tr><tr><td>A4 Landscape (640 × 912 dots)</td><td>Horizontal</td></tr></table>Example: Print on 4 paper fed in portrait orientation
 
</td></tr>
<tr><td>3</td><td>☐ Use PictBridge only on USB-B port.</td><td>Check this option when using the USB-B port for connection with the PictBridge printer during the RUN mode of MONITOUCH. Switch the MONITOUCH display to the Main Menu screen at the time of transferring screen data via the USB-B port.</td></tr>
</table>

Configuration of Expanded Data Sheet Screen

When creating a data sheet screen, click [Registration Item] → [Data Sheet].
A maximum of 1,024 screens can be registered.

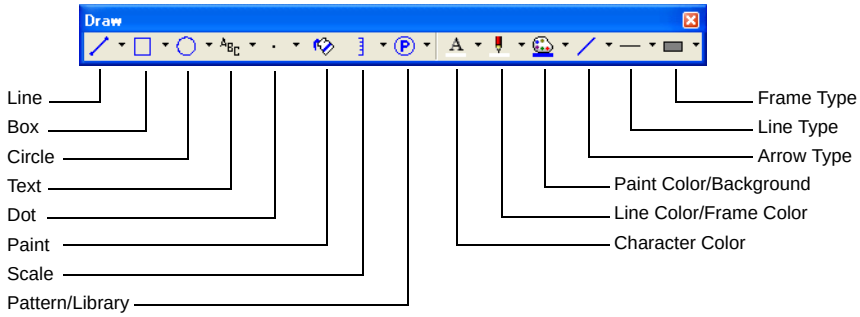
[Paper Size: A4 Landscape]

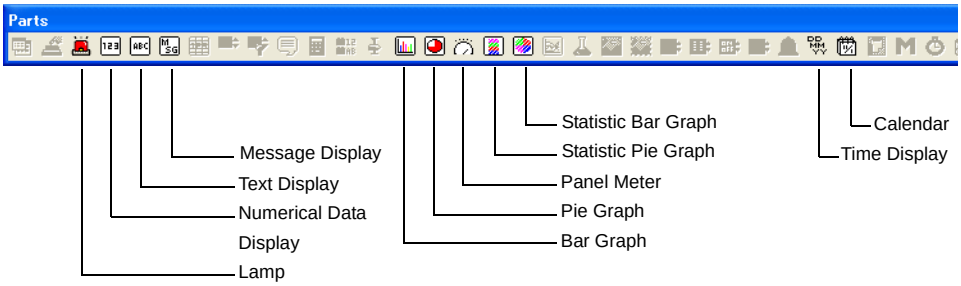


*** Background in white only**

Printable Items

The following items can be printed.





Parts	Graphics
Lamp	Line/continuous line
Numerical data display	Box
Text display	Circle
Message display	Text/multi-text
Bar graph	Dot
Pie graph	Paint
Panel meter	Scale
Statistic bar graph	Pattern
Statistic pie graph	
Time display	
Calendar	

*** You can paste parts copied from screens; however, component parts cannot be placed. The number of items that can be placed per page is limited. For more information, refer to “Limited Number of Items” (page 12-8).**

Print Execution

Data sheet screens can be printed through the V8 series in the following two manners.

Command from Read Area

Bit 9 of read area “n + 1” is the data sheet output bit.
Data sheet is printed at [0 → 1] edge.

Printing procedure

1. Specify the data sheet number to be the first page for [Top Page Setting Memory] “n”.
2. Specify the number of output pages for [Top Page Setting Memory] “n + 1”.

   *** No printing is executed when “0” is set as the number of output pages. When the range specified for print includes an unregistered number, the page corresponding to the number will not be printed.**
3. Set bit 9 of read area “n + 1” (0 → 1).
4. Data sheet is printed.

With the Macro Command

The macro command SYS (STA_LIST) is available to print data sheets.

Available memory

	Internal Memory	PLC1 - PLC8 Memory	Memory Card	Constant
F1	◎			

○: Setting enabled (indirect designation disabled)
◎: Setting enabled (indirect designation enabled)

Range

	Value
F0	STA_LIST
F1	Print start data sheet number
F1 + 1	Number of pages to be printed

Example

Printing data sheet No. 3

```
$u100 = 3 (W)  [Print start data sheet number]
$u101 = 1 (W)  [Number of pages to be printed]
SYS (STA_LIST) $u100
```

One sheet of data sheet No. 3 is printed.

*** No printing is executed when “0” is set as the number of pages to be printed. When the range specified for print includes an unregistered number, the page corresponding to the number will not be printed.**

System Memory

The status of the connection between the V8 series and the PictBridge printer is output to the internal memory address $s1066.

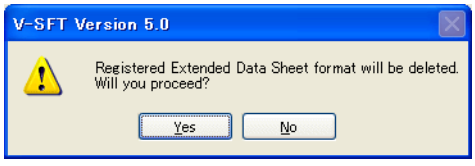
Value	Description	Cause and Remedy
0	The PictBridge printer is not connected, or it is in the normal state.	-
1	Printing is in process at the PictBridge printer.	-
-1	Printer error (related to hardware)	The cable is not connected. Check the USB cable connection.
		Check if the printer is out of order.
		The printer may not be a PictBridge-compatible type. Review the printer specifications.
-2	Printer error (related to paper)	The printer runs out of paper. Add paper.
		Paper is not correct. Set correct paper.
-3	Printer error (related to ink) *	The ink is not set. Install an ink cartridge.
		The ink level is low. Install a new ink cartridge.

*** The error may be output as "-1" (printer error related to hardware) depending on the printer used.**

Limitations

Compatibility with Data Sheet Screens Before Expansion

- When [Use Extension Data Sheet] is checked ([System Setting] → [☑ Use Extension Data Sheet]), the existing data sheet screen is converted to the expanded data sheet screen. Restoration to the original is not possible.
  Data display parts then will be converted to the following:
  [Display Type: other than CHAR] → Numerical data display, [Display Type: CHAR] → Character display
  If the contents of a data sheet is not held within the size of paper as a result of expansion, correct the data.
- Unchecking [Use Extension Data Sheet] ([System Setting] → [☑ Use Extension Data Sheet]) brings up the following message dialog. Clicking [Yes] deletes all parts registered with the data sheet screen.



- Parts placed on a data sheet screen before expansion cannot be copied to an expanded data sheet screen.

Printing

- For parts placed on an expanded data sheet screen, the setting with [Display Setting] takes effect. When a part should always be printed, select [Show] for [Display Setting]
- Monochrome print is performed with the V806M. Otherwise, color print is performed.
- The print size is A4 only. Use a printer that handles A4 paper. If A4 paper is fed in landscape orientation or a selected print size is different from the paper size set in the printer, printing cannot be performed correctly. (Data that cannot be held in the area is not printed.)
- The print start position and print size cannot be changed. Margins to be left will slightly vary among different printer models.
- How to correct printer errors depends on the printer models. For more information, refer to the instruction manual for the printer.

Limited Number of Items

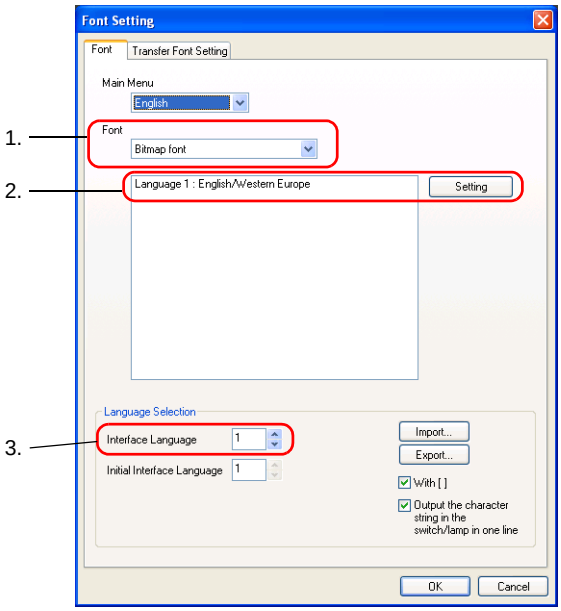
The number of items that can be placed on a data sheet page when only one item type is placed is limited as follows:

Item	Maximum Number per Page
Straight line, continuous straight line, box, circle, text, multi-text, dots, paint, scale, pattern	Unlimited
Lamp	768
Numerical data display, character display, message display	768
Bar graph, pie graph, panel meter	762
Statistic bar graph, statistic pie graph	243
Time display	768
Calendar	256

13 Fonts

13.1 Font Setting

Select [System Setting] → [Font Setting]. The [Font Setting] dialog is displayed.
In the [Font Setting] dialog, set the number of languages to be displayed and the font to be used on the MONITOUCH.



1. Font selection	Select the desired font from [Bitmap font], [Gothic font] and [Stroke font] first. (For the information on the differences among fonts, refer to the next section.)
2. Setting	Set the font to be used for each language. For the operating procedure, refer to the next page.
3. The number of interface languages	Set the number of interface languages. A number up to 16 can be registered.

Differences among Fonts

Bitmap font

([Japanese 32], [Japanese], [English/Western Europe], etc. are included.)
The font data in the 16 × 16 dots or 32 × 32 dots (two-byte characters) are scaled according to the X/Y enlargement factors and displayed on the screen.
This font type occupies less memory but is not suitable if a smoother-line typeface is required.

Stroke font, Gothic font

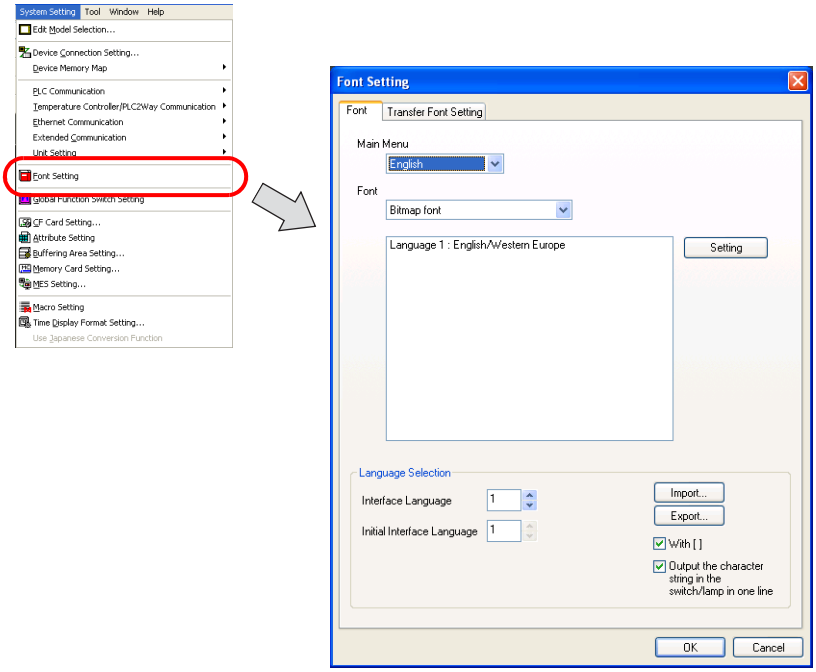
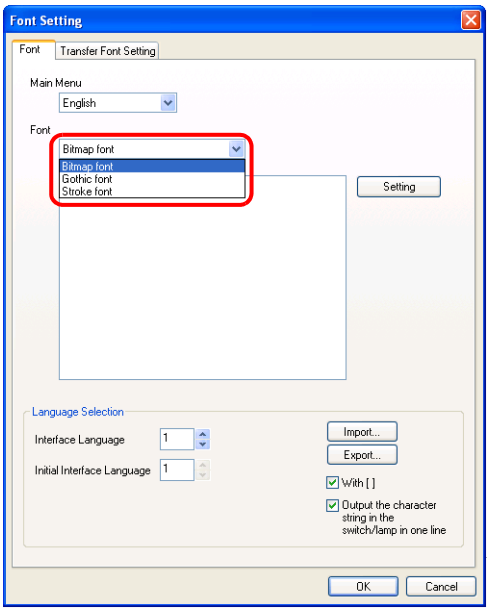
The font data is displayed in a specified point size.
Since the font data of each point size is transferred to the MONITOUCH, the required memory capacity is larger than that of bitmap fonts while the displayed typeface has smoother lines.
In the case of Gothic fonts, depending on the function assigned to the part or item, some limitations, such as automatic or manual setting for fonts, may apply.
In the case of stroke fonts, there is no limitation that applies depending on the assigned function; however, there are other limitations and points to be noted. (For more information, refer to “13.2 Stroke Fonts”.)

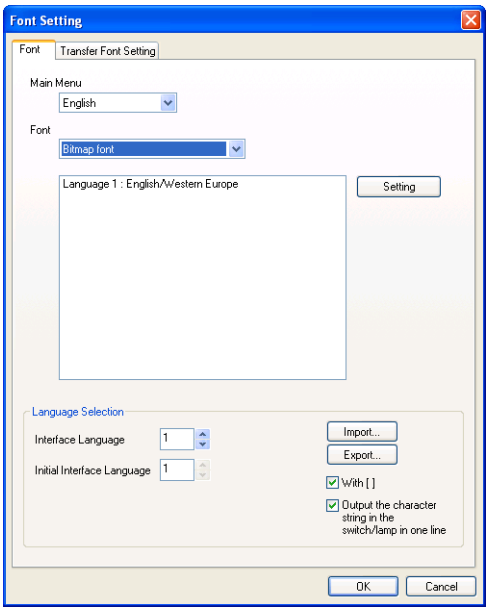
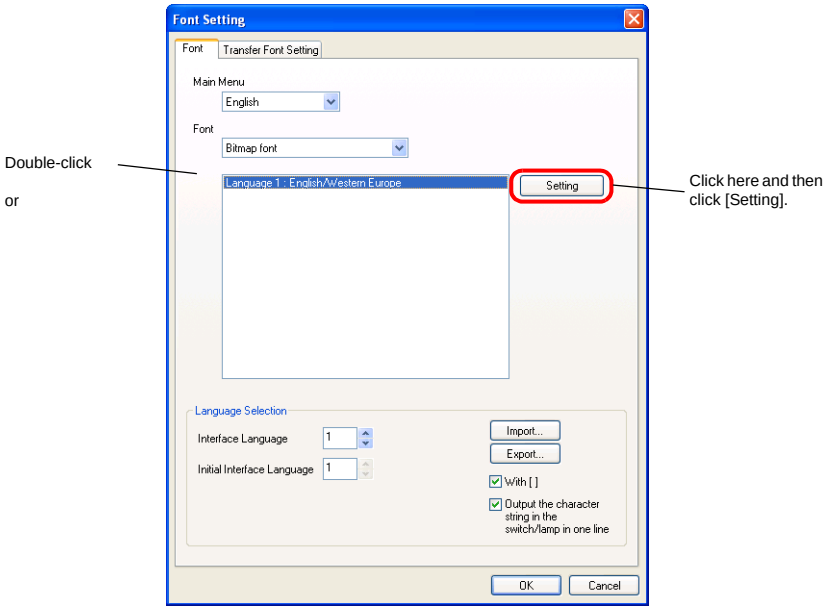
Windows fonts

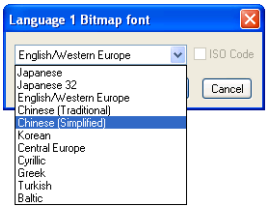
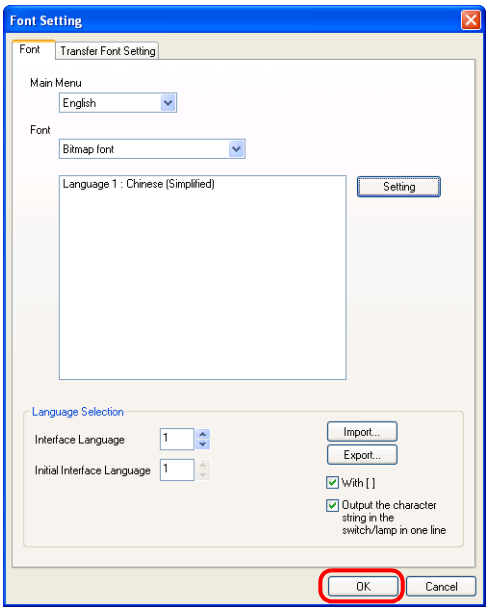
No font data is stored in the MONITOUCH but the fonts used on Windows, such as “Times New Roman” or “Arial”, are used as image data.
For more information, refer to the V8 Series Operation Manual.

Font Setting Procedure

Follow the steps below:

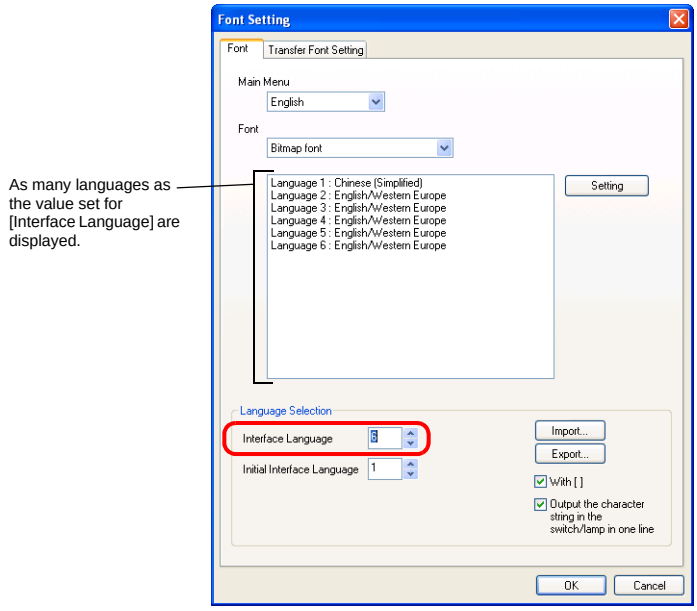
Step 1	Select [System Setting] → [Font Setting]. The [Font Setting] dialog is displayed. 
Step 2	Choose the font type for [Font]. Choose [Bitmap font] here. 

Step 3	"English/Western Europe" is displayed for "Language 1". (If the editor is started for the first time, "Japanese 32" is displayed.) 
Step 4	To change to another language, double-click on [Language 1: English/Western Europe], or click on [Language 1: English/Western Europe] and then click the [Setting] button. 

Step 5	The dialog shown below is displayed. Select the desired font from the drop-down list and click [OK]. Choose [Chinese (Simplified)] here. 
Step 6	When the font has been selected, click [OK]. 

Multiple Language Selection

If you increase the value for [Interface Language], you can set as many fonts as the value set.



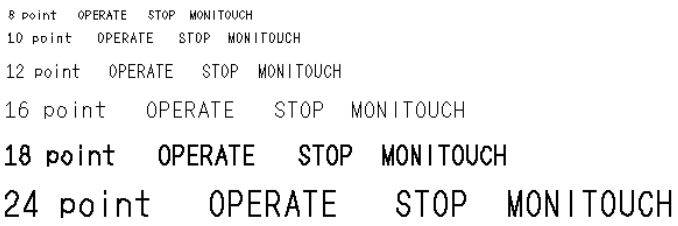
Double-click the language name, or click the language name and press the [Setting] button.
A dialog is displayed. Select the desired bitmap font from the drop-down list and click [OK].

When creating multi-language screens using bitmap fonts, select from the bitmap fonts for all the languages to be used. (It is not possible to use stroke fonts or Gothic fonts in combination.)

13.2 Stroke Fonts

Overview

- “Stroke fonts” are different from “English/Western Europe” or “Chinese (Simplified)” conventionally available and represent the typeface with smoother lines.



* Note that, however, one-byte characters of 8 to 20 points may look rigid compared with those of greater point sizes.

- Point size specification can make your screen configuration easier.

The same “OPERATE” button can be shown in various point sizes.

Applicable Models

- All units in the V8 series*
  * Except for the 128-color mode of V812(i)S/V810(i)S/V810(i)T/V808(i)S

For more information on the limitations, refer to “Limitations” (page 13-15).

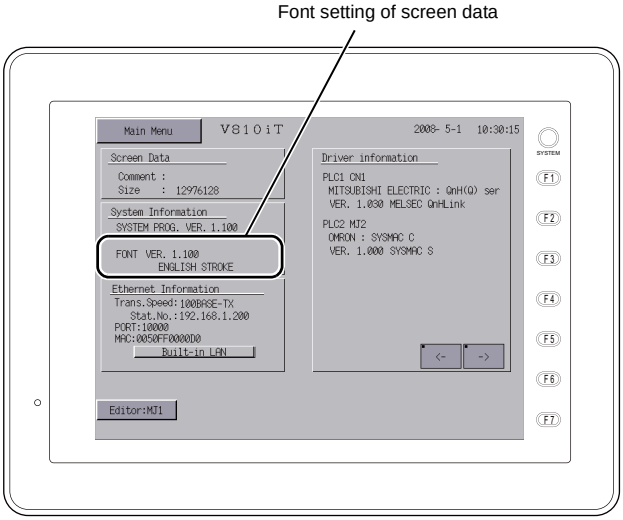
Stroke Font Types

The font types used on the MONITOUCH for each language are shown below.

Font	Language	Characters
Japanese stroke	Japanese, English	JIS X 0201 JIS X 0208 NEC special characters IBM extensions NEC selection of IBM extensions
English/Western Europe stroke	English, Icelandic, Irish, Italian, Dutch, Swedish, Spanish, Danish, German, Norwegian, Portuguese, Finnish, Faeroese, French	CP1252 code
Chinese (Traditional) stroke	Chinese (traditional), English	BIG5 code (A141 to F9FE) + ASCII code
Chinese (Simplified) stroke	Chinese (simplified), English	GB2312 code (A1A1 to F7FE) + ASCII code
Korean stroke	Hangul, English	KS code (A1A1 to FDFE) + ASCII code
Central Europe stroke	Croatian, Czech, Hrvatska (Croatian), Hungarian, Polish, Romanian, Slovakian, Slovene	CP1250 code
Cyrillic stroke	Russian, Ukrainian, Kazakh, Bulgarian, Uzbek, Azerbaijani	CP1251 code
Greek stroke	Greek	CP1253 code
Turkish stroke	Turkish	CP1254 code
Baltic stroke	Estonian, Latvian, Lithuanian	CP1257 code

Font Display on MONITOUCH

This section explains the procedure of checking the font on the Main Menu screen.
The font name is displayed in the position shown below on the Main Menu screen.



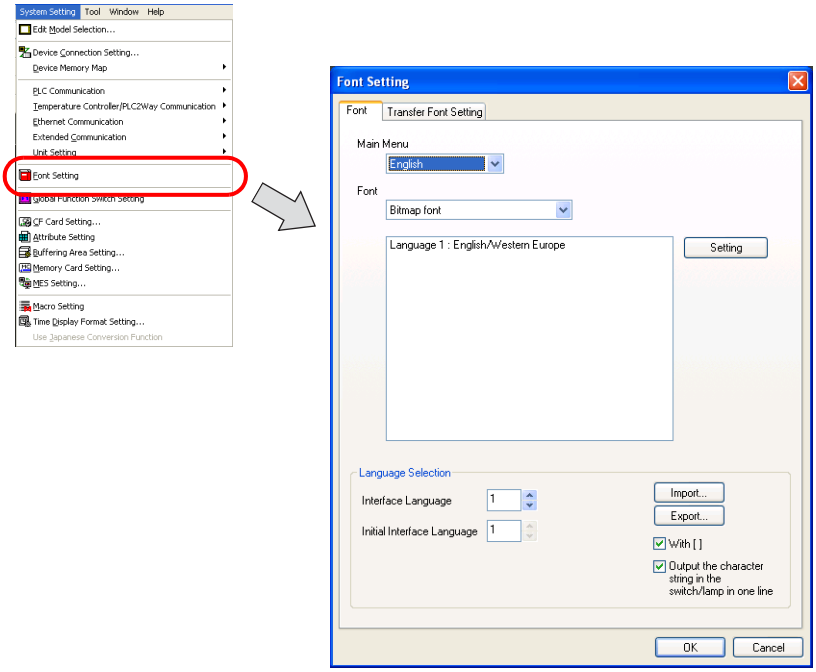
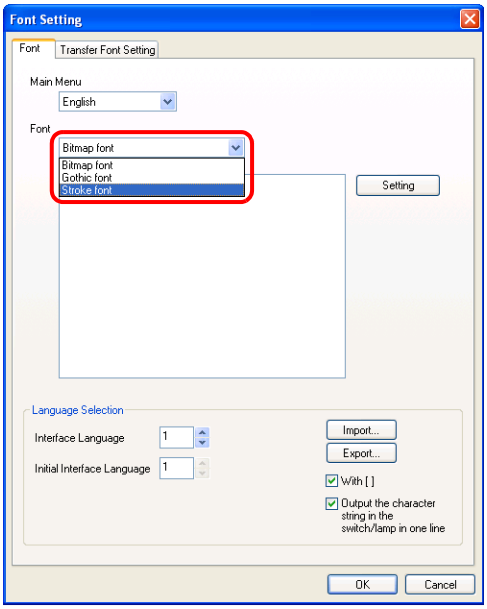
Font names

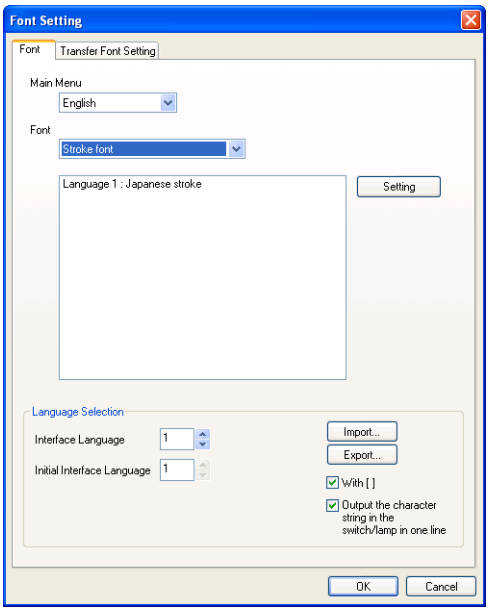
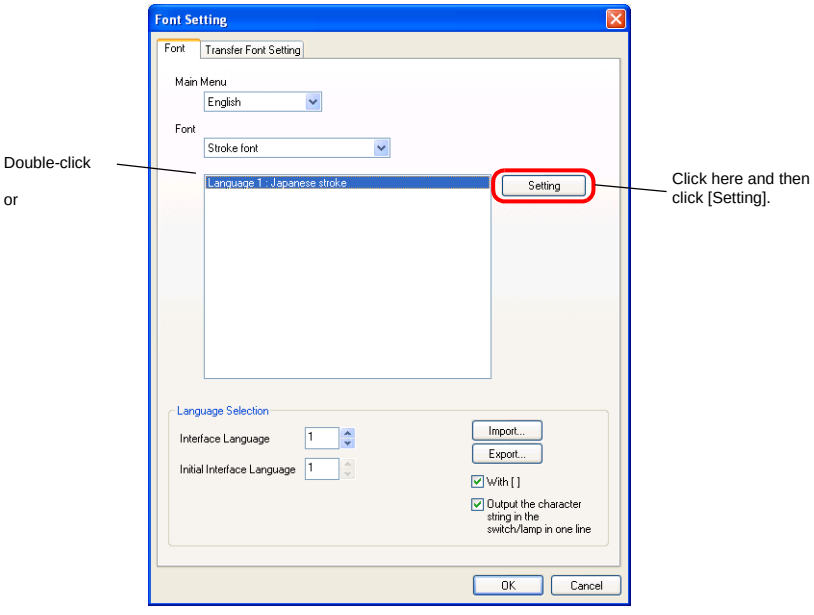
The following font names are displayed on the Main Menu screen:

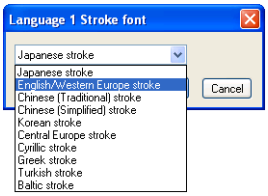
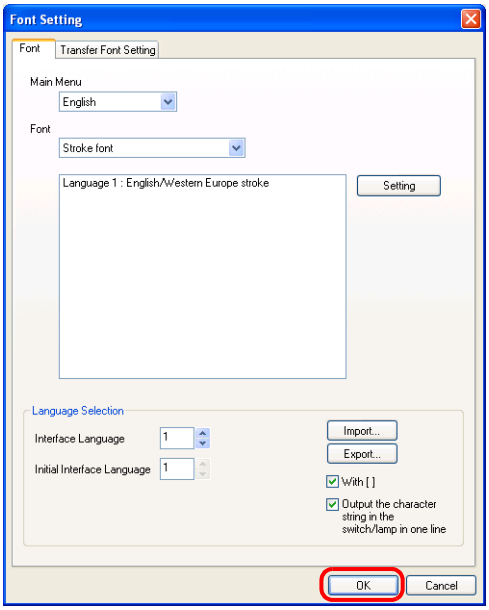
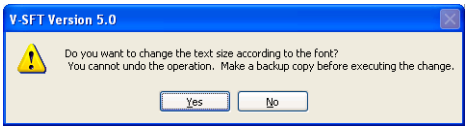
Font	Main Menu screen
Japanese stroke	JAPANESE STROKE
English/Western Europe stroke	ENGLISH STROKE
Chinese (Traditional) stroke	CHINESE (TRD) ST
Chinese (Simplified) stroke	CHINESE (SIM) ST
Korean stroke	KOREAN STROKE
Central Europe stroke	Cent.Eur. STROKE
Cyrillic stroke	Cyrillic STROKE
Greek stroke	Greek STROKE
Turkish stroke	Turkish STROKE
Baltic stroke	Baltic STROKE
When two or more fonts shown above are selected *	MULTI LANG

* Multiple fonts can be selected on the [Transfer Font Setting] tab window in the [Font Setting] dialog.
For more information, refer to “Transfer Font Setting” (page 13-14).

Font Setting

Step 1	Select [System Setting] → [Font Setting]. The [Font Setting] dialog is displayed. 
Step 2	Choose [Stroke font] for [Font]. 

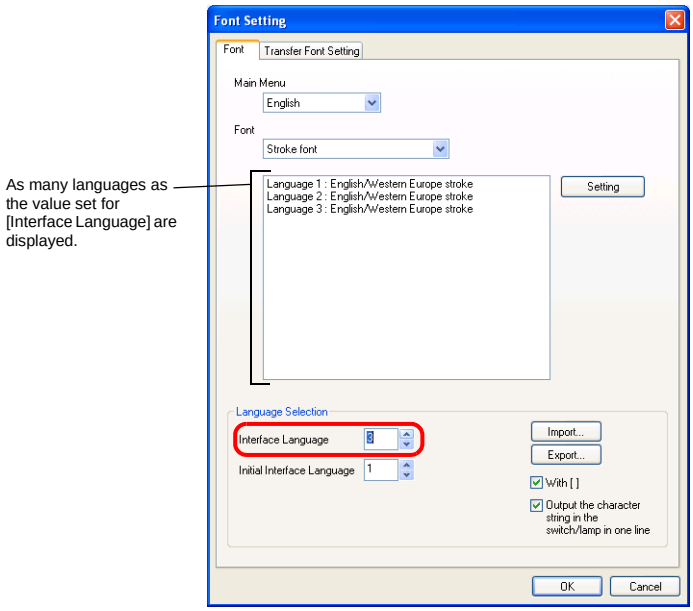
Step 3	“Japanese stroke” is displayed for “Language 1”. 
Step 4	To change to a stroke font of another language, double-click on [Language 1: Japanese stroke], or click on [Language 1: Japanese stroke] and then click the [Setting] button. 

Step 5	The dialog shown below is displayed. Select the desired stroke font from the drop-down list and click [OK]. 
Step 6	When the font has been selected, click [OK].  * If you change from a non-stoke font to a stroke font, the message shown below will be displayed.  To change, select “Yes”; if you need to make a backup copy, select “No”.

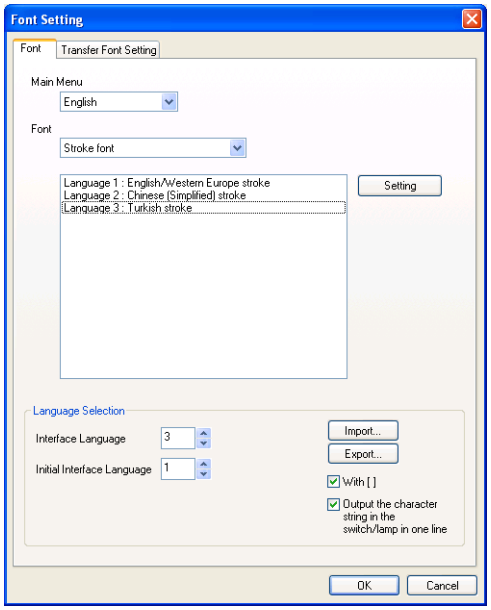
Multi-language Screen

Font

Select [System Setting] → [Font Setting] → [Font], and increase the value for [Interface Language]. As many fonts as this value can be set for the languages to be used.



Double-click the language name, or click the language name and press the [Setting] button. A dialog is displayed. Select the desired stoke font from the drop-down list and click [OK].



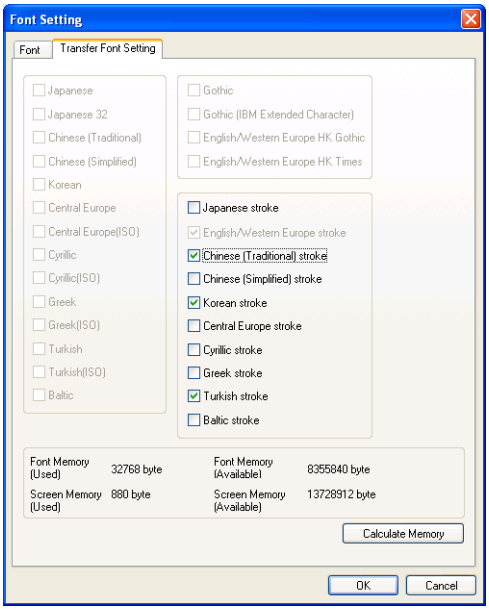
When creating multi-language screens using stroke fonts, select from the stroke fonts for all the languages to be used. (It is not possible to use bitmap fonts or Gothic fonts in combination.)

Transfer Font Setting

Set the font to be transferred to the MONITOUCH.

If you select the necessary fonts, the interface language can be switched without using the CF card.

> The more fonts selected for transfer, the less the capacity for screen data becomes available. If the total capacity is not sufficient, do not select fonts that are not necessary.



Font Size

Specify the font size in points. Correspondence between character sizes and points is shown below:

Points	Remarks
8	One-byte 6 × 11 dots, two-byte 11 × 11 dots
9	One-byte 6 × 12 dots, two-byte 12 × 12 dots
10	One-byte 7 × 13 dots, two-byte 13 × 13 dots
11	One-byte 8 × 15 dots, two-byte 15 × 15 dots
12	One-byte 8 × 16 dots, two-byte 16 × 16 dots
14	One-byte 10 × 19 dots, two-byte 19 × 19 dots
16	One-byte 11 × 21 dots, two-byte 21 × 21 dots
18	One-byte 12 × 24 dots, two-byte 24 × 24 dots
20	One-byte 14 × 27 dots, two-byte 27 × 27 dots
22	One-byte 15 × 29 dots, two-byte 29 × 29 dots
24	One-byte 16 × 32 dots, two-byte 32 × 32 dots
26	One-byte 18 × 35 dots, two-byte 35 × 35 dots
28	One-byte 19 × 37 dots, two-byte 37 × 37 dots
36	One-byte 24 × 48 dots, two-byte 48 × 48 dots
48	One-byte 32 × 64 dots, two-byte 64 × 64 dots
72	One-byte 48 × 96 dots, two-byte 96 × 96 dots

Limitations

- All units in the V8 series*

  * Except for the 128-color mode of V812(i)S/V810(i)S/V810(i)T/V808(i)S

- Characters in 12 points
  “1/4” and “Italic” typefaces are not available.

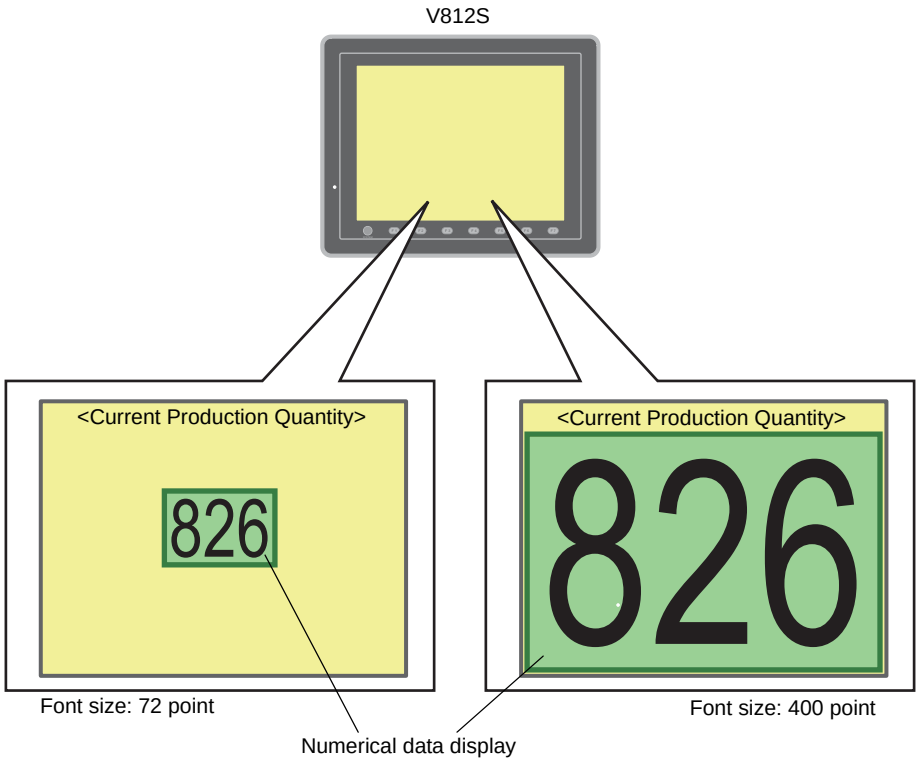
- Characters other than those in 12 points
  “Bold”, “1/4” and “Italic” typefaces are not available.

13.3 Windows Fonts (Extended Point Size Range)

Overview

Because the available point sizes have been increased, the desired point sizes from the wider range can be selected. Font size setting is made easy, without the use of the graphic relay mode. Font sizes are changeable smoothly just by manually entering the required point sizes.

Example: Numerical data display part placed on the screen (Windows font: MS Gothic)



*** For how to draw and change languages using Windows fonts, refer to the V8 Series Operation Manual.**

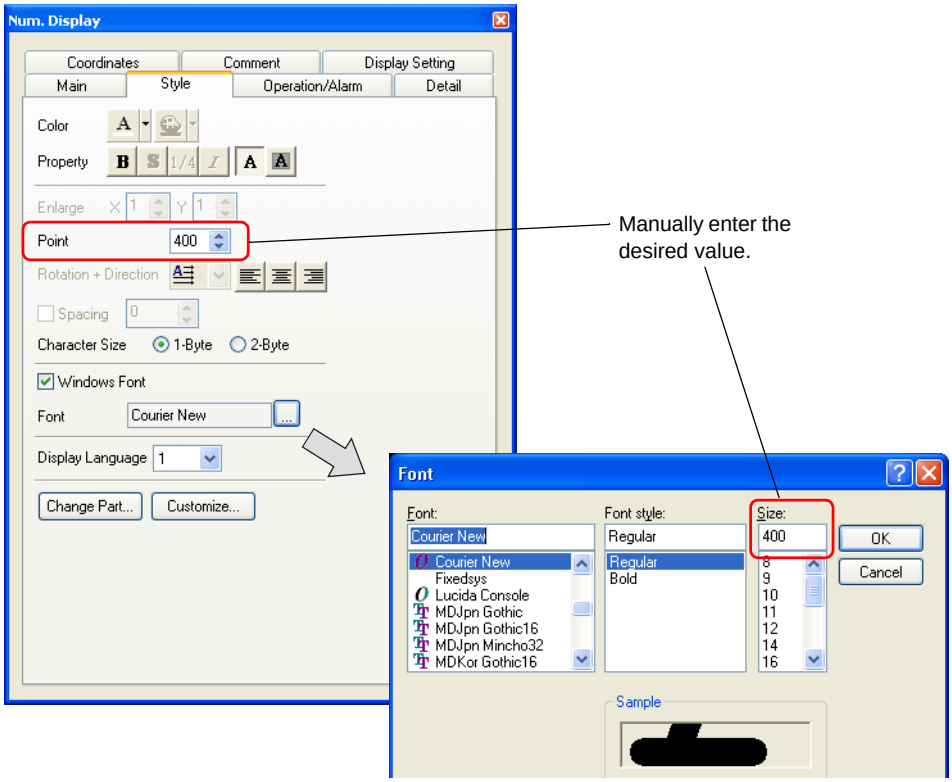
Applicable Items

- All parts that are available with Windows fonts

Setting

In the following dialog, check [☑ Windows Font] and enter the desired value for [Point].

Example: Numerical data display



Point	Specify the point size of the selected Windows font in increments of one point. Setting range: 6 to 999*

*** In terms of the vertical lengths of the individual screens, the maximum permissible point sizes should be as shown below. A point size larger than specified can be set, but a character in that size does not fit into the space of the screen.**

Example: MS Gothic

Model	Resolution (in dots)		Point (approx.)
V815iX	1,024 × 768		576
V812(i)S/V810(i)S/V808(i)S	800 × 600		450
V810(i)T/V810(i)C	640 × 480		359
V808(i)C	640 × 480		359
V806(i)T/V806(i)C	320 × 240	Landscape orientation	180
		Portrait orientation	241
V806(i)M	320 × 240		180

(The maximum point sizes mentioned above may slightly vary with Windows fonts.)

Limitations

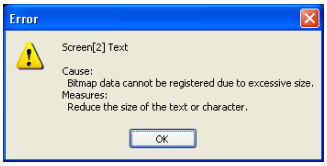
Capacity

The maximum sizes (bitmap sizes) allowed for Windows fonts are as specified below for one screen data file.

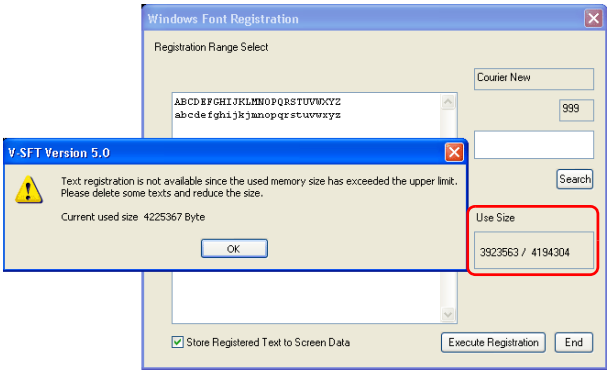
Part	Maximum Size *1
text, multi-text, switch, lamp, message display (including table data display), bit order alarming, alarm sub-display, message mode, sampling, comment display	4 MB per part
numerical data display, character display (including table data display), time display, calendar	4 MB per data area *2

*1 If font data registered is larger than 4 MB, an error will result. Reduce the amount of the font data.
For saving Windows font data to a CF card, refer to “Saving to CF Card” (on page 13-20).

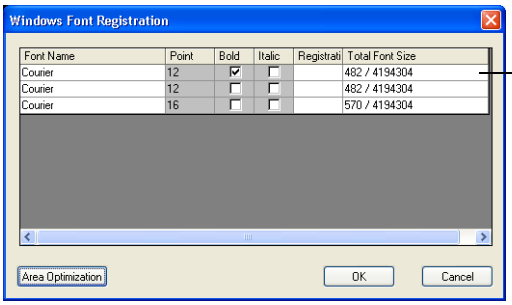
Text



Character display



*2 About one data area
The current status of use is shown in the [Windows Font Registration] dialog ([Tool] → [Register Windows Font]).
A maximum of 1,024 areas can be registered in one screen data file.

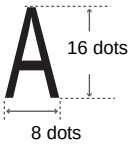


One data area

Bitmap size

Monospaced fonts (like MS Gothic or Courier New) are the same in bitmap size, provided that they are the same in point size and byte count: one-byte or two-byte character. Meanwhile, proportional fonts (like Arial) slightly vary in bitmap size, depending on characters, even if characters are the same in point size and byte count: one-byte or two-byte character.

Example: 12-point and one-byte character “A” in MS Gothic



Bitmap size: 16 bytes

Point (approx.)	Width × Height Size (Unit: Dots)	Bitmap Size (Unit: Bytes)
6	4 × 8	8
12	8 × 16	16
72	48 × 97	582
180	120 × 240	3,600
359	240 × 479	14,370
450	300 × 600	22,800
576	384 × 768	36,864
810	540 × 1,080	73,440
999	666 × 1,332	111,888

Transparency

Limitations are placed on the use of transparency for numerical data and character display parts.

If any limitation mentioned here is exceeded, transparency does not work correctly. Then reduce the settings for transparency.

Model			Max. Number of Parts	Area (Height × Width)
V815iX	Without video	64k colors 32k colors	256	1,228,800 dots (= 2,457,600 bytes)
		128 colors		1,228,800 dots (= 1,228,800 bytes)
	With video	64k colors 32k colors		393,216 dots (= 786,432 bytes)
V812(i)S V810(i)S V810(i)T V808(i)S	Without video	64k colors 32k colors	256	1,228,800 dots (= 2,457,600 bytes)
		128 colors		1,228,800 dots (= 1,228,800 bytes)
	With video	64k colors 32k colors		1,228,800 dots (= 2,457,600 bytes)
V810(i)C V808(i)C V808(i)CH		64k colors 32k colors	256	131,072 dots (= 262,144 bytes)
		128 colors		262,144 dots (= 262,144 bytes)

Model		Max. Number of Parts	Area (Height × Width)
V806(i)	64k colors 32k colors	64	131,072 dots (= 262,144 bytes)
	128 colors Monochrome		131,072 dots (= 131,072 bytes)

Saving to CF Card

Limitations below are placed on saving the data of Windows fonts to a CF card ([System Setting] → [CF Card Setting] →[☑ Store Windows Font in CF Card]).

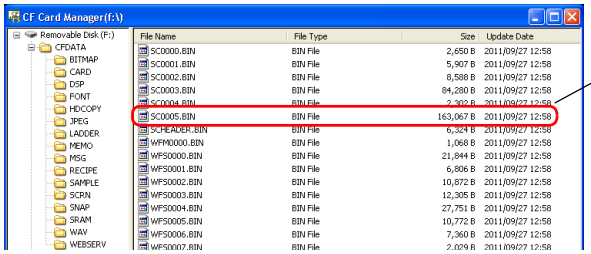
- When you save one file, WFSxxxx.BIN or WFMxxxx.BIN, to a CF card, note that the file can be of the following size at the maximum. The maximum permissible size depends on the setting with [☑ Range of Screen to be Saved to CF Card] in the [CF Card] dialog ([System Setting] → [CF Card Setting]).
  If a file in excess of the maximum size exists, the error: 99 will be displayed on MONITOUCH. Reduce the size or the number of Windows fonts being used to correct the error.

Model	[☐ Range of Screen to be Saved to CF Card]	
	Unchecked	Checked (See the equation below.)
V815iX V812(i)S V810(i)S V810(i)T V808(i)S	7.6 MB	7.6 MB - [SCxxxx.BIN file size]*
V810(i)C V808(i)C V808(i)CH	6.9 MB	6.9 MB - [SCxxxx.BIN file size]*
V806(i)	3.4 MB	3.4 MB - [SCxxxx.BIN file size]*

*** The file size assigned to the equation is determined from the maximum size file of SCxxxx.BIN files.**
For more information on SCxxxx.BIN files, refer to "14.1 Screen Data File Capacity Increased".

Example: Screen data file for V810S (access folder name: CFDATA)

Contents of the CF card



The size of the SC0005.BIN file is assigned to the equation because the file is the largest of the screen files SCxxxx.BIN.

Size: 163,067 bytes (approx. 0.2 MB)

The maximum size of one file is approximately 7.4 MB as calculated by the equation

- Screen data including large characters in height × width size may result in an error, depending on the settings of the screen. Also, such large characters in screen data will interfere with the use of operation log or remote desktop window display. Reduce the size or the number of Windows fonts being used to avoid those problems.

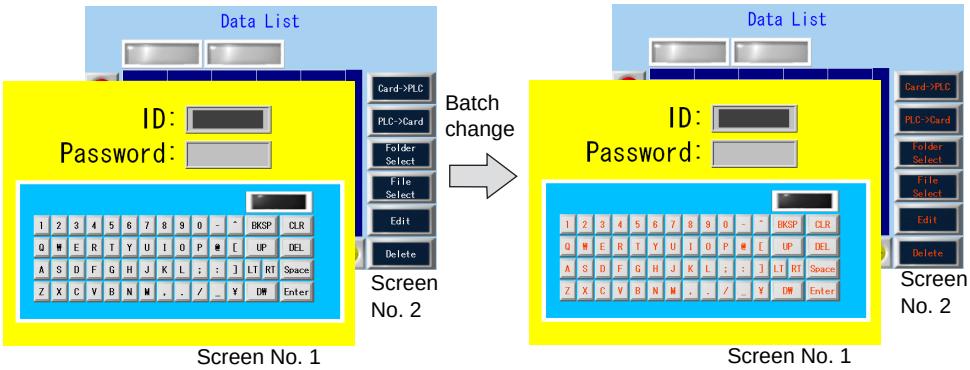
13.4 Multi-language Editing Function

Multi-language Batch Change

Overview

Properties of items placed on multi-language screens are readily changeable in a batch. This method of batch change can be implemented on a language-by-language basis for languages 1 to 16 used on multi-language screens.

Example: Changing the properties of the text on the switches
Language 2: English/Western Europe



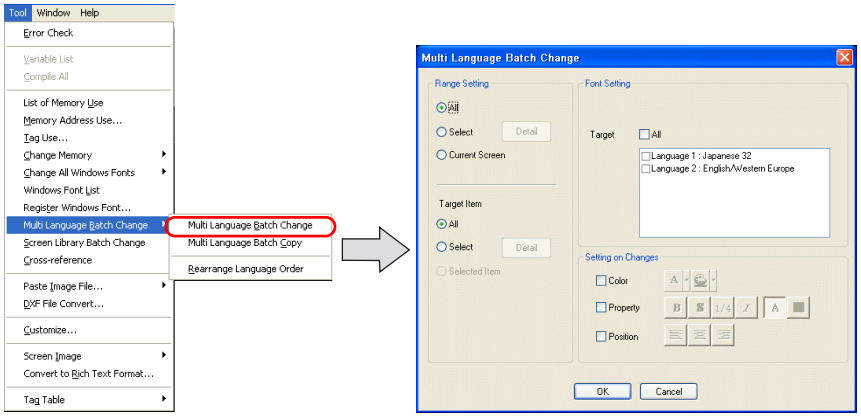
Setting Procedure

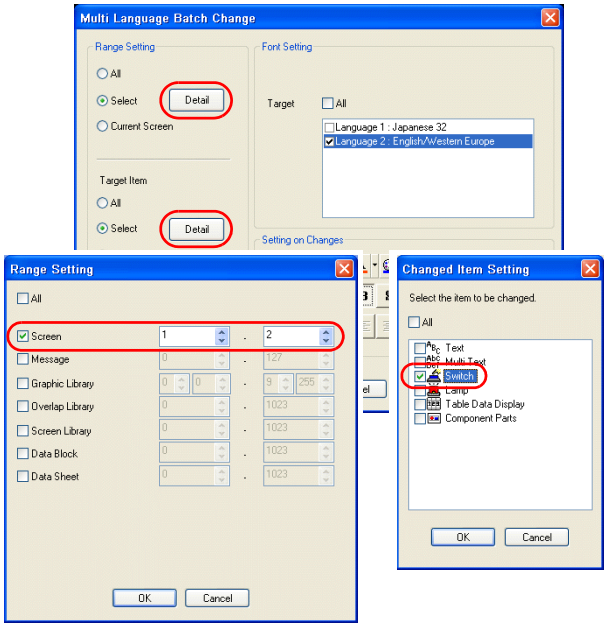
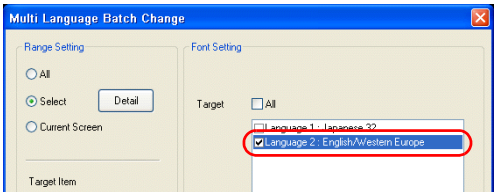
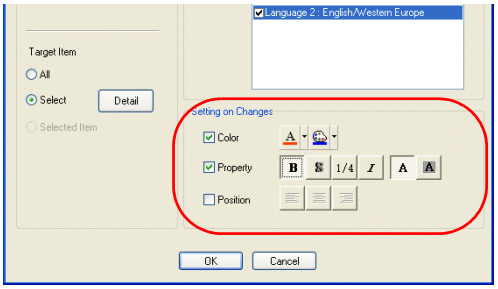
This section explains the procedures for batch change, taking the following case for an example.

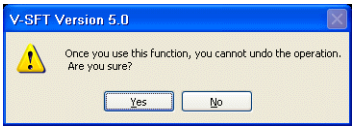
Switches on screen Nos. 1 and 2 in language 2

[Color]:	Black and white	→	[Color]:	Orange
[Property]:	Standard	→	[Property]:	Boldface

Step 1	Open the multi-language screen data. Select [Tool] → [Multi Language Batch Change] → [Multi Language Batch Change]. The [Multi Language Batch Change] dialog is displayed.



Step 2	Batch change in this example targets the properties of the switches on screen Nos. 1 and 2. Go to the [Range Setting] area in the dialog, check [Select], and press the [Detail] button. In the [Range Setting] dialog to be displayed, check [Screen] and specify screen Nos. 1 and 2 as the range. Also go to the [Target Item] area, check [Select], and press the [Detail] button. In the [Changed Item Setting] dialog to be displayed, check [Switch]. 
Step 3	Go to the [Font Setting] area in the [Multi Language Batch Change] dialog. Check [Language 2] as the target language. 
Step 4	Go to the [Setting on Changes] area. Check [Color] and select orange. Also check [Property] and select boldface. 

Step 5	Review the settings made in the previous steps, and click [OK]. The following dialog is displayed.  When you are sure about the message, click [Yes]. Changing the properties is complete.

Multi-language Batch Copy

Overview

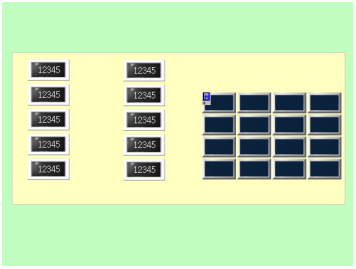
On multi-language screens in languages other than language 1, characters on the keypad or item numbers may be the same as those placed on the screen in language 1. Even so, you typically needed to enter or copy each of those characters or numbers one by one for placing them on screens in different languages. The function of multi-language batch copy discussed in this section enables you to copy such characters or numbers in a batch.

Example: Copying the text and the characters on the switches in a batch
Language 1: Japanese 32
Language 2: English/Western Europe

- Before copying

Language 1

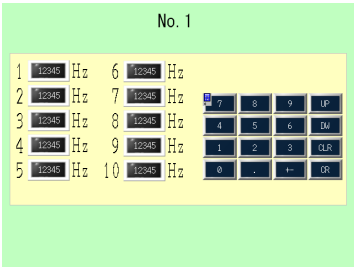
Language 2



Batch copy

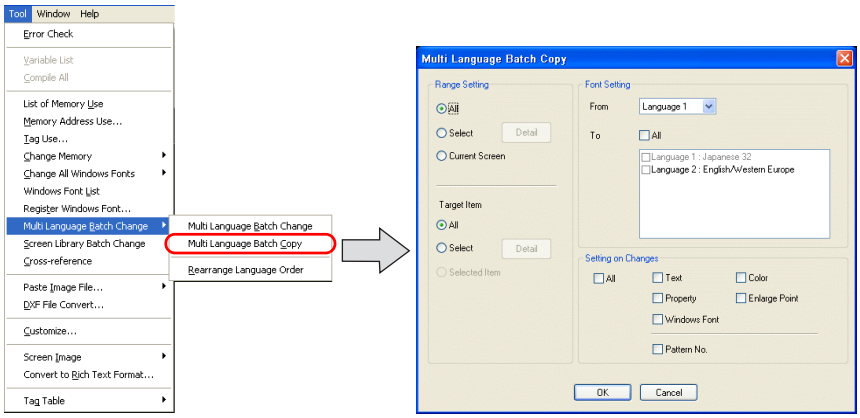
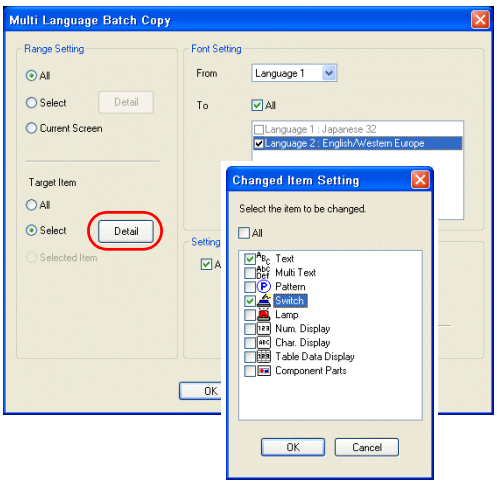
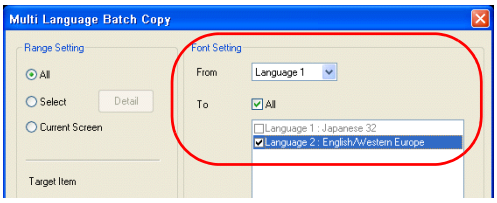
- After copying

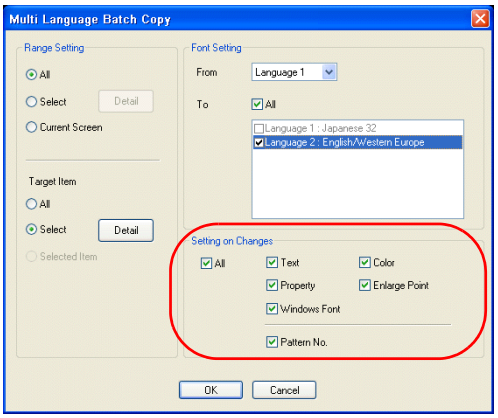
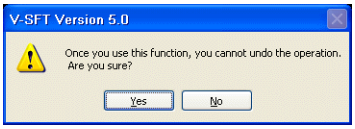
Language 2



Setting Procedure

The section explains the procedures for batch copy, taking the following case for an example.
In this example, the text and the characters on the switches placed on a screen in language 1 are copied to another screen in language 2.

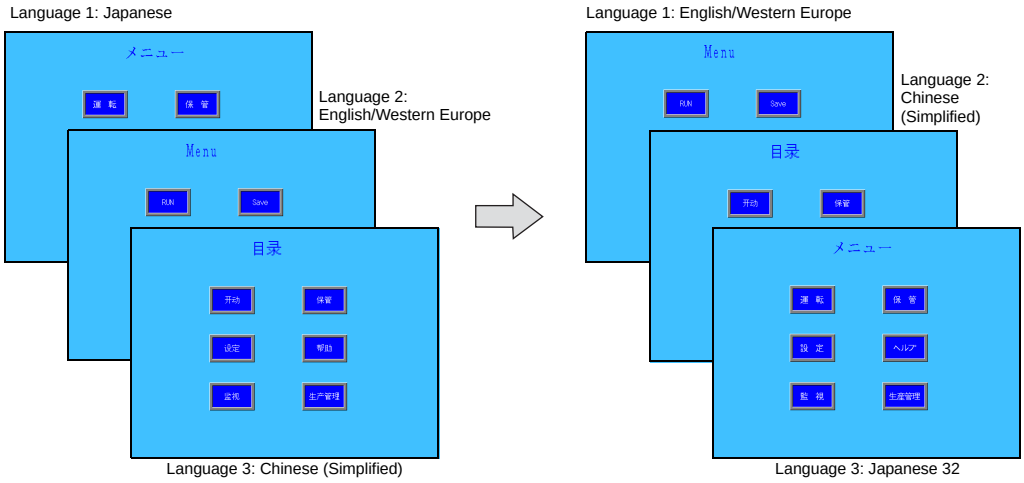
Step 1	Open the multi-language screen data. Select [Tool] → [Multi Language Batch Change] → [Multi Language Batch Copy]. The [Multi Language Batch Copy] dialog is displayed. 
Step 2	Batch copy in this example targets all the text and switches in language 1. Go to the [Range Setting] area in the dialog, and check [All]. Go to the [Target Item] area, check [Select], and press the [Detail] button. In the [Changed Item Setting] dialog to be displayed, check [☐ Text] and [☐ Switch]. 
Step 3	Go to the [Font Setting] area in the [Multi Language Batch Copy] dialog. Select [Language 1] for [From], and [Language 2] for [To]. 

Step 4	Batch copy in this example targets all properties. Go to the [Setting on Changes] area and check [☐ All]. 
Step 5	Review the settings made in the previous steps, and click [OK]. The following dialog is displayed.  When you are sure about the message, click [Yes]. Copying the screen items is complete.

Multi-language Editing Function

Multi-language Switching Tool

Interface languages from language 1 to language 16 can be switched easily using this tool.



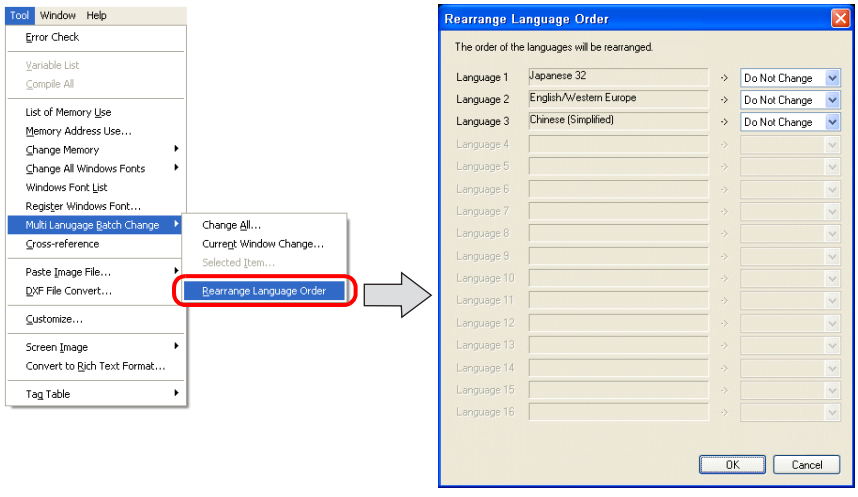
Setting Procedure

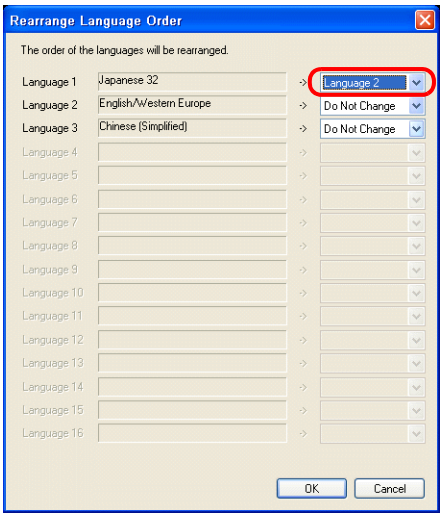
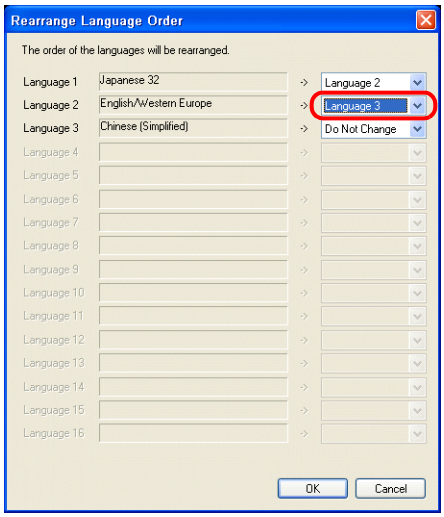
The procedure is explained with an example shown below.

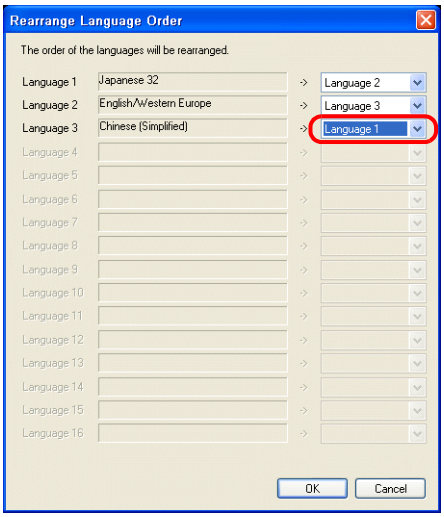
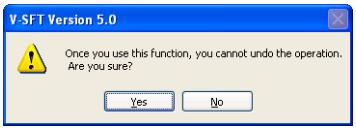
Language 1: Japanese 32		Language 1: English/Western Europe
Language 2: English/Western Europe	→	Language 2: Chinese (Simplified)
Language 3: Chinese (Simplified)		Language 3: Japanese 32

Set as shown below:

Step 1	Open the multi-language screen data. Select [Tool] → [Multi Language Batch Change] → [Rearrange Language Order]. The [Rearrange Language Order] dialog is displayed.



Step 2	To change language 1 to [Chinese (Simplified)], select [Language 2] (= Chinese (Simplified)) in the drop-down list for [Language 1]. 
Step 3	To change language 2 to [Japanese], select [Language 3] (= Japanese) in the drop-down list for [Language 2]. 

Step 4	To change language 3 to [English/Western Europe], select [Language 1] (= English/Western Europe) in the drop-down list for [Language 3]. 
Step 5	Check the settings, and click [OK]. The dialog shown below is displayed.  If the settings are correct, click [Yes]. The selected languages are rearranged and displayed.

Unicode Text Supported for Export / Import

- When exporting or importing text from multi-language screens, conventionally only ".csv" files are supported. With V-SFT version 5.1.0.0, Unicode text (*.txt) is also supported.

- Since Unicode text can be edited on Excel, translation or editing can be made while showing two languages side by side using that program.

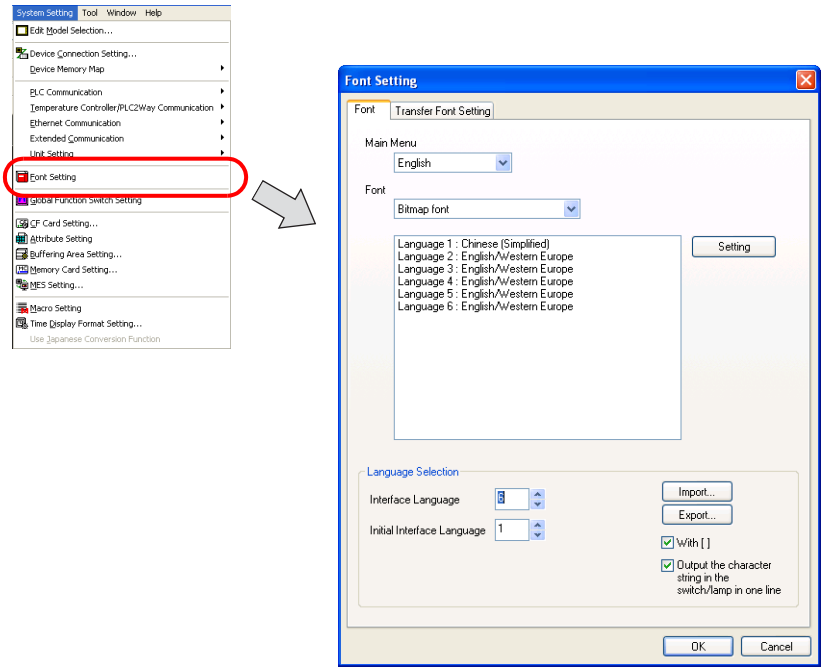
  <Earlier than version 5.1.0.0>
  1. Change the file extension "*.csv" to "*.txt".
  2. Translate the text as an encoded text on Word and save the file.
  3. Change the file extension "*.txt" to "*.csv".

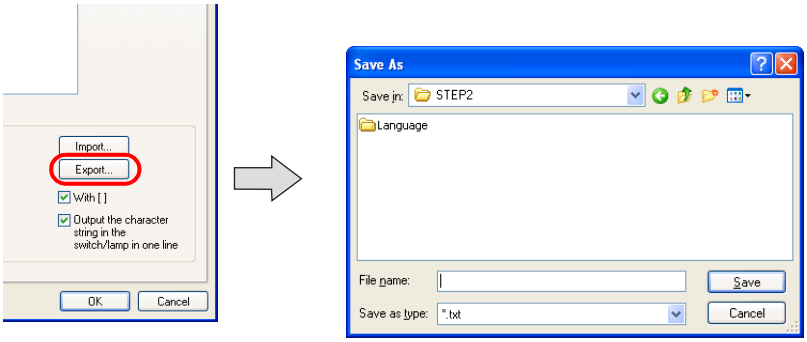
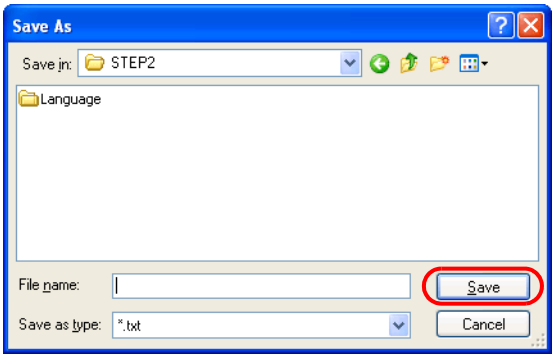
  From this new version, it is not necessary to change the file extension. Simply open the file directly in Excel, translate the text into the desired language, and import the file.

- Note that, however, in the case of Unicode text, batch import is not possible. Import the files for each language one by one.

Export / Import Procedure

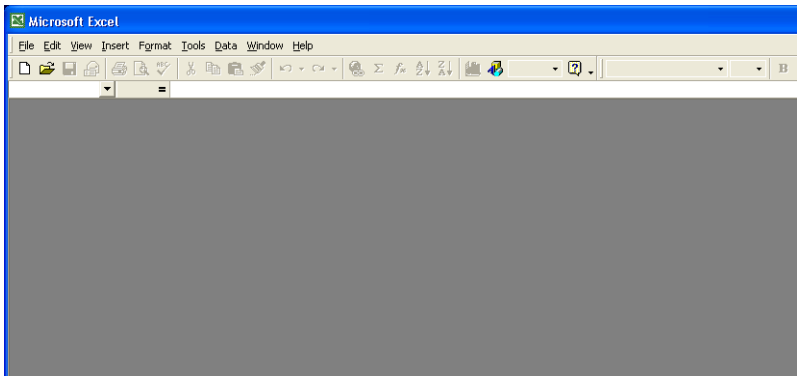
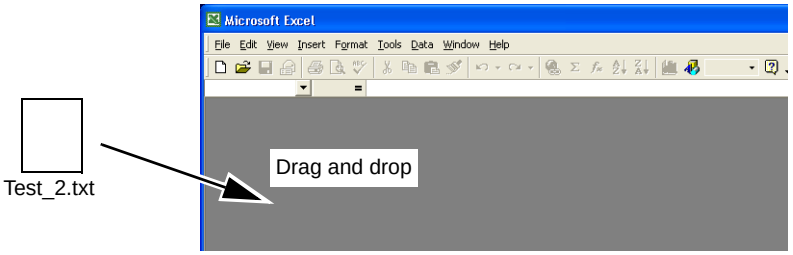
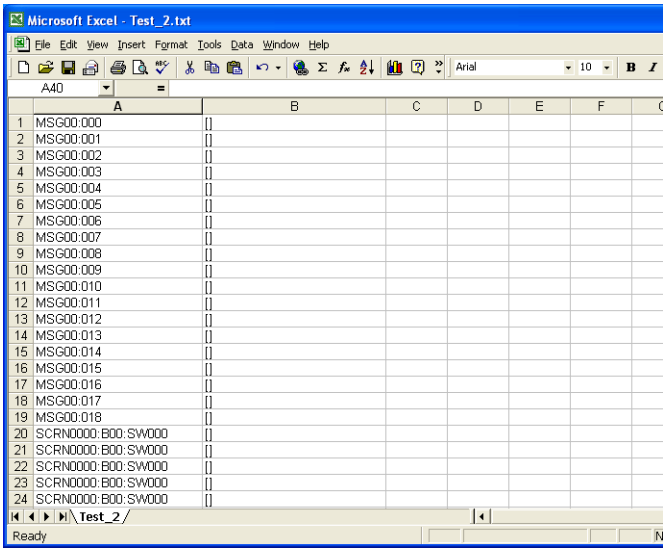
Step 1	Select [System Setting] → [Font Setting]. The [Font Setting] dialog is displayed.

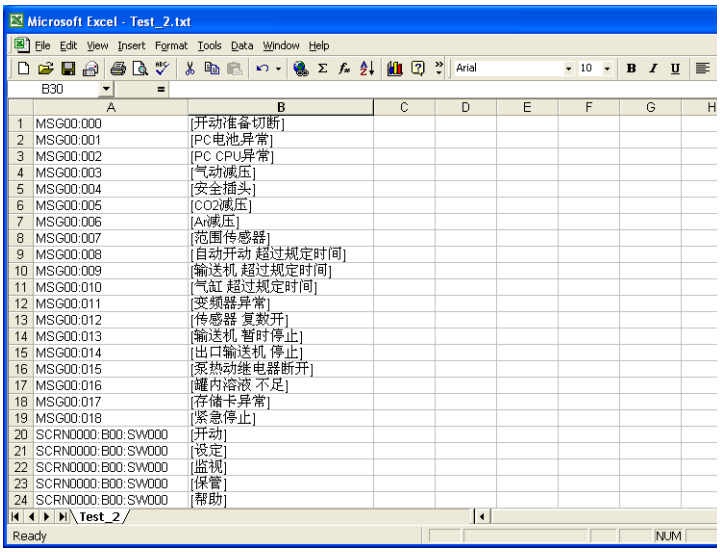
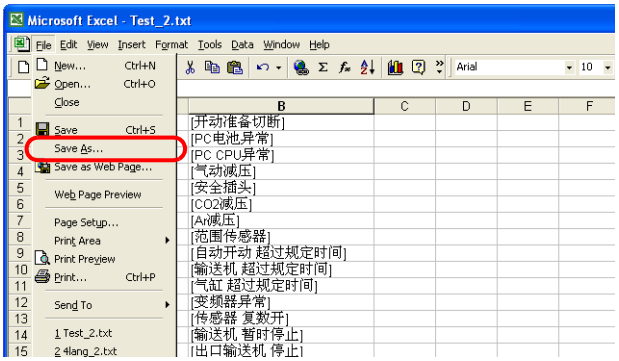
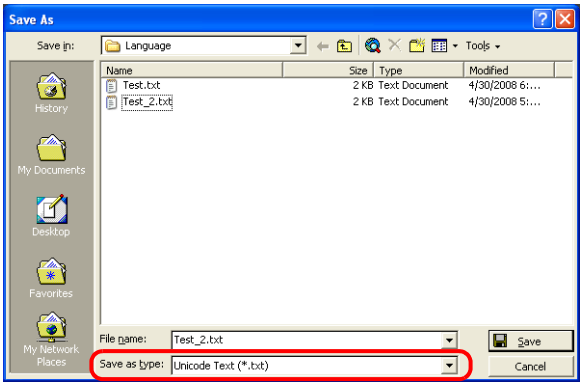


Step 2	Click the [Export] button (or [Import] button). The [Save As] dialog (or [Open] dialog) is displayed. "*.txt" is selected for [Save as type].  * If you do not want to save into a Unicode text file but a .csv file, select "*.csv" for [Save as type].
Step 3	Click the [Save] button (or [Open] button). The file is saved in Unicode text format. 

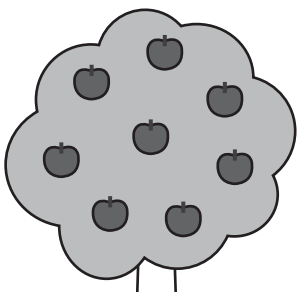
Unicode Text Editing Procedure

Exported Unicode text files can be edited on Excel. When editing, follow the steps below:

Step 1	Start Excel. 
Step 2	Select the Unicode text file you have exported, and drag and drop the file on Excel. 
Step 3	Unicode text is displayed on Excel. 

Step 4	Edit the text as desired. (In the example below, Chinese (simplified) is input). 
Step 5	To save the file, select [File] → [Save As]. The [Save As] dialog is displayed. 
Step 6	Select “Unicode Text (*.txt)” for [Save as type] and save the file under the same filename. 

MEMO



Please use this page freely.

14 CF Card

14.1 Screen Data File Capacity Increased

Overview

- When the data of the following items included in the screen data file is saved on a CF card, the memory space of the MONITOUCH can be used sparingly.

  • Screen BIN data
  • Windows fonts
  • 3D parts

- If you store data for the items that would occupy a large memory space, such as Windows fonts or 3D parts, on a CF card, you can reduce the MONITOUCH memory space required for elaborate screen configuration.

Storing Screen BIN Data

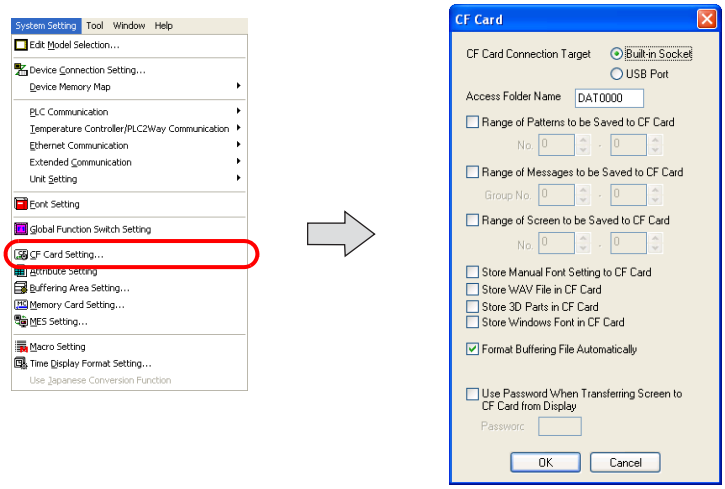
Setting Procedure

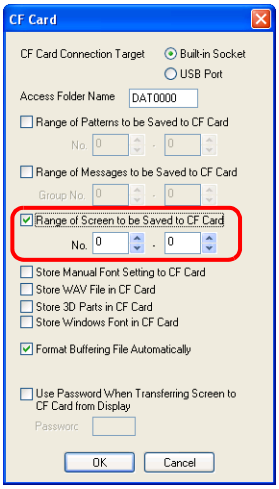
Store screen BIN data on a CF card as shown below.

A maximum of 4,000 screens can be registered in the range of Nos. 0 - 9999.

1. Editor settings

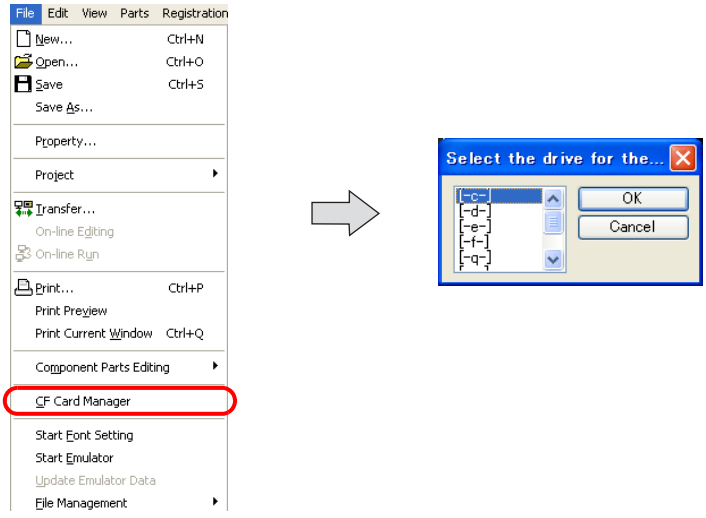
Step 1	Select [System Setting] → [CF Card Setting]. The [CF Card] dialog is displayed.

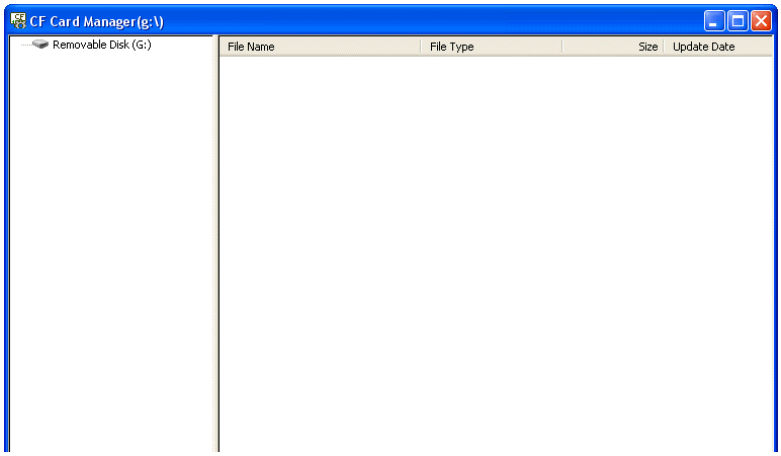
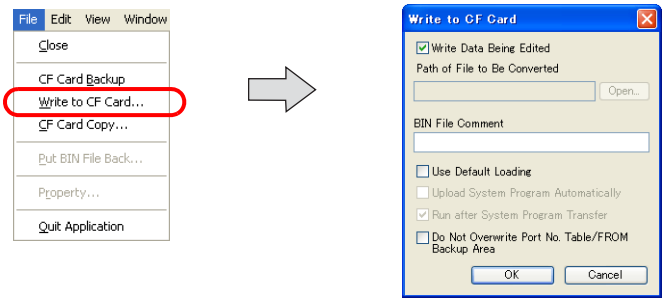


Step 2	Check the box for [☐ Range of Screen to be Saved to CF Card]. Specify the start screen number and the end screen number to be saved on a CF card.  * Screens must be selected in consecutive numbers.
Step 3	Click [OK].

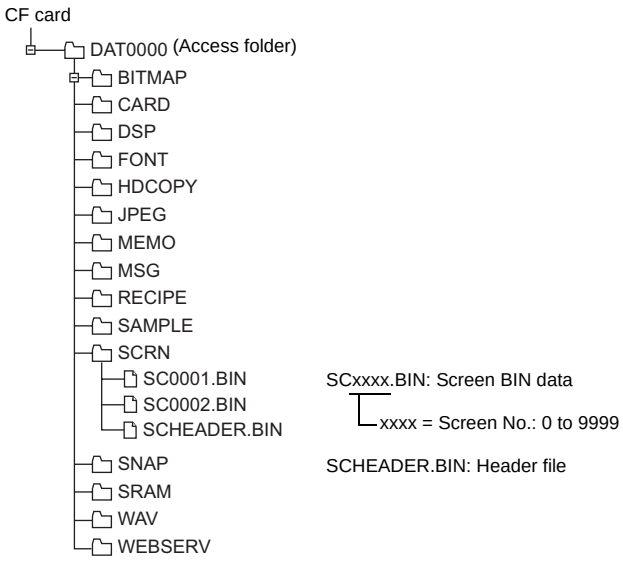
2. Writing data to a CF card

This is the same as writing ordinary screen data.

Step 1	Start V-SFT.
Step 2	Select [File] → [CF Card Manager]. The dialog shown below is displayed. 

Step 3	Specify the drive where the CF card is inserted and click [OK]. The CF Card Manager will start. 
Step 4	Click [File] → [Write to CF Card]. The [Write to CF Card] dialog is displayed. 
Step 5	If the screen data is being edited, check the box for [☐ Write Data Being Edited]. If the screen data is not being edited, uncheck the box for [☐ Write Data Being Edited]. In the [Path of File to Be Converted] field, click the [Open] button and select the "*.V8" file that you want to write to the CF card.

Step 6	When completing the setting, click [OK]. The files shown are saved in the “SCRN” folder under the access folder on the CF card.



3. Operations on MONITOUCH

Insert the CF card with screen BIN data that is saved as described above into the MONITOUCH. When opening a screen on the MONITOUCH, the CF card is automatically referenced for the screen.

* If screen BIN data is not stored correctly on the CF card or if the CF card is not inserted into the MONITOUCH, the MONITOUCH recognizes that there is no screen BIN data present.
If you press the [Function: Screen] switch, an error beep sounds and the switch operation cannot be accepted. If a screen number is specified in the read area from the PLC, the screen will not be displayed. (If this occurs immediately after the power is turned on, the error message “Screen No. Error” will be displayed.)

“SCRN” Folder

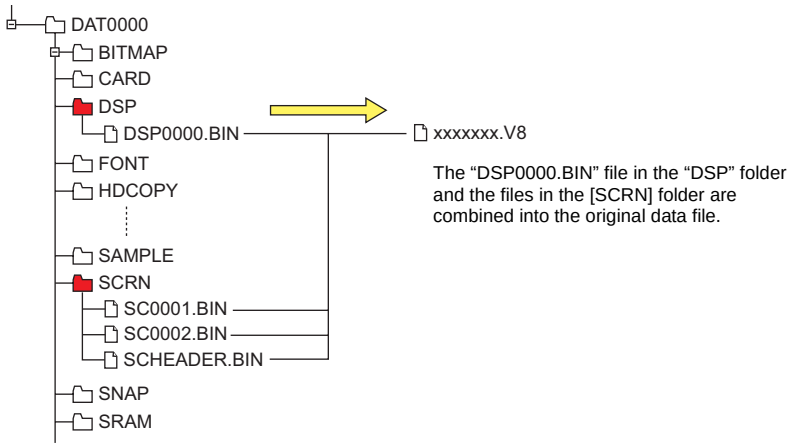
The “SCRN” folder contains the following files:

SCHEADER.BIN	Header file	
SCxxxx.BIN	Screen file	xxxx = Screen No.: 0 to 9999
MCRxxxx.BIN	Macro block file in a component part	xxxx = Block No.: 0 to 1023
MSGxxxx.BIN	Sampling message file in a component part	xxxx = Buffer No.: 0 to 11

* In addition to the folder shown above, the “DSP0000.BIN” file stored in the “DSP” folder is also required when returning the screen files from the CF card to the computer.
For more information, refer to the next page.

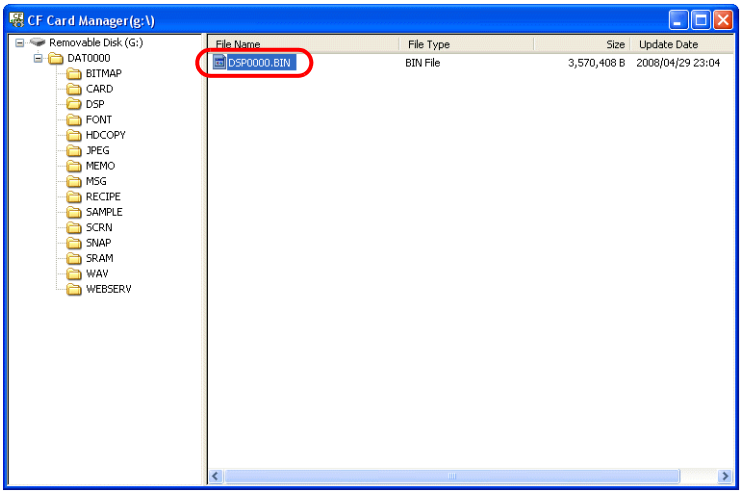
To Return Screen BIN Data to the Computer

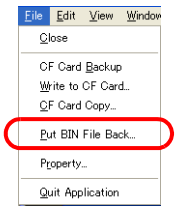
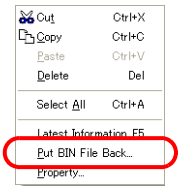
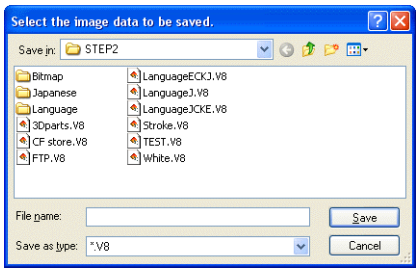
To return screen BIN data in the “SCRN” folder to the original data file, the following files are required.



* However, if data information of “DSP0000.BIN” in the “DSP” folder does not match that of “SCHEADER.BIN” in the “SCRN” folder, data will not be combined and screen data is returned while the screen BIN data in the “SCRN” folder is missing.

To return to the original data file, it is necessary to convert “DSP0000.BIN” in the “DSP” folder. Follow the steps below:

Step 1	Start V-SFT.
Step 2	Select [File] → [CF Card Manager]. The dialog for specifying the CF card drive is displayed.
Step 3	Specify the drive where the CF card is inserted and click [OK]. The CF Card Manager will start.
Step 4	Check that “DSP0000.BIN” (BIN file) exists in the “DSP” folder in the access folder, and select the file. 

Step 5	Select [File] → [Put BIN File Back]. Alternatively, right-click and click [Put BIN File Back].  or 
Step 6	The dialog shown below is displayed. Specify the location and the file name and click [Save]. 

Notes

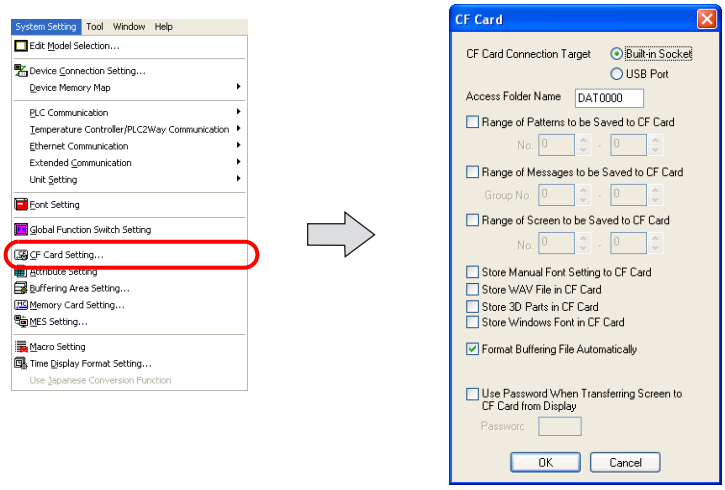
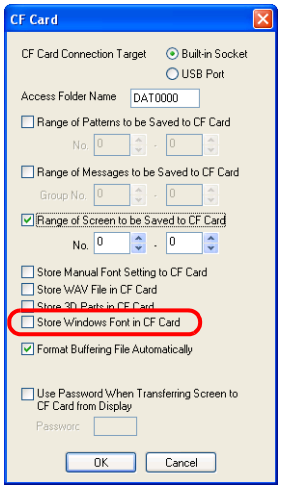
- The screen BIN data size that can be stored on a CF card is 512 kB maximum per file.
  The size of each screen BIN data can be viewed by selecting [Tool] → [List of Memory Use].
  However, the sizes of the screen BIN data to be saved on a CF card according to the [CF Card Setting] dialog (select [System Setting] → [CF Card Setting]) are not displayed in this list.
  Check the data size before setting the [CF Card Setting] dialog.
- The screen BIN data stored on a CF card may take longer before the screen appears on the MONITOUCH than the one stored in the MONITOUCH memory.
  Please keep such a time lag in mind.

Storing Windows Fonts

Setting Procedure

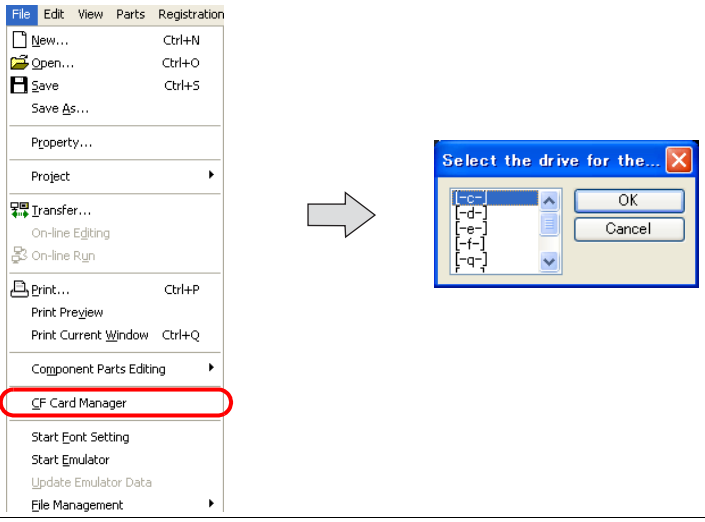
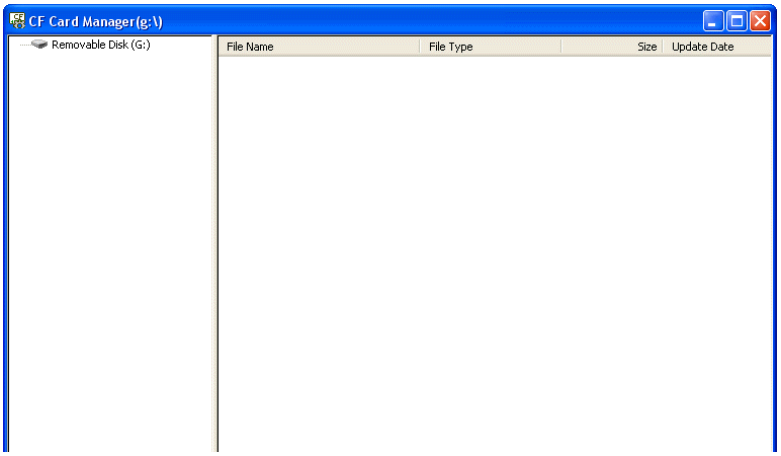
Store Windows fonts on a CF card as shown below:

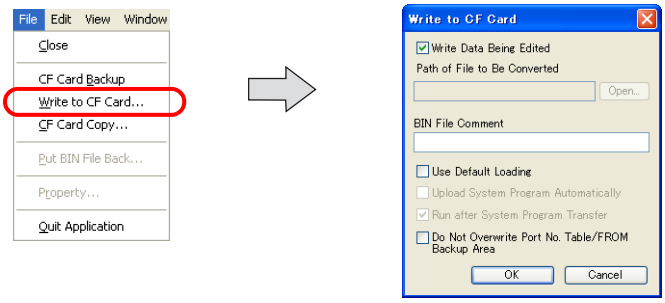
1. Editor settings

Step 1	Select [System Setting] → [CF Card Setting]. The [CF Card] dialog is displayed. 
Step 2	Check the box for [☐ Store Windows Font in CF Card]. 
Step 3	Click [OK].

2. Writing data to a CF card

This is the same as writing ordinary screen data.

Step 1	Start V-SFT.
Step 2	Select [File] → [CF Card Manager]. The dialog shown below is displayed. 
Step 3	Specify the drive where the CF card is inserted and click [OK]. The CF Card Manager will start. 

Step 4	Click [File] → [Write to CF Card]. The [Write to CF Card] dialog is displayed. 
Step 5	If the screen data is being edited, check the box for [☐ Write Data Being Edited]. If the screen data is not being edited, uncheck the box for [☐ Write Data Being Edited]. In the [Path of File to Be Converted] field, click the [Open] button and select the "*.V8" file that you want to write to the CF card.
Step 6	When completing the setting, click [OK]. The files shown are saved in the "SCRN" folder under the access folder on the CF card. CF card DAT0000 (Access folder) BITMAP CARD DSP FONT HDCOPY JPEG MEMO MSG RECIPE SAMPLE SCRN SCHEADER.BIN WFM0000.BIN WFS0000.BIN SNAP SRAM WAV WEBSERV WFSxxxx.BIN: Windows font data (graphics) xxxx = Data No.: 0 to 4095 WFMxxxx.BIN: Windows font data (message) xxxx = Data No.: 0 to 4095 SCHEADER.BIN: Header file

3. Operations on MONITOUCH

Insert the CF card with Windows fonts that are saved as described above into the MONITOUCH. When opening a screen on the MONITOUCH or when switching a message displayed, the CF card is automatically referenced for displaying Windows fonts on the MONITOUCH.

* If Windows fonts are not stored correctly on the CF card or if the CF card is not inserted into the MONITOUCH, the characters in Windows fonts will not be displayed on the MONITOUCH.

“SCRN” Folder

The “SCRN” folder contains the following files:

SCHEADER.BIN	Header file	
WFSxxxx.BIN	Windows font (graphics) file	xxxx = Data No.: 0 to 4095
WFMxxxx.BIN	Windows font (message) file	xxxx = Data No.: 0 to 4095

Notes

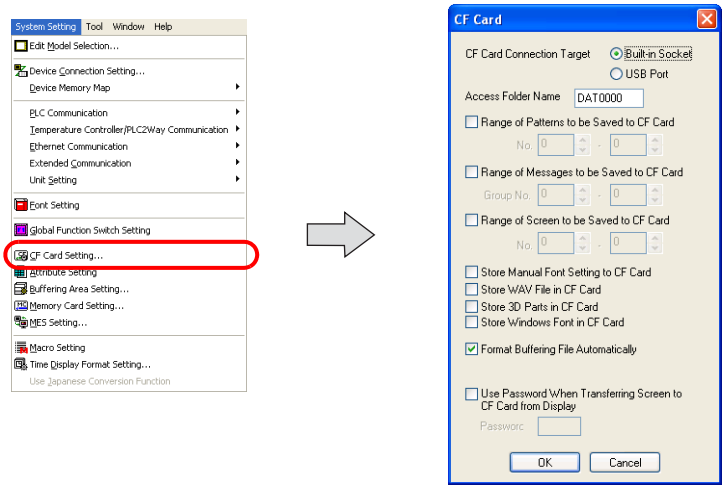
- The Windows fonts stored on a CF card may take longer before the characters appear on the MONITOUCH than those stored in the MONITOUCH memory.
  Please keep such a time lag in mind.

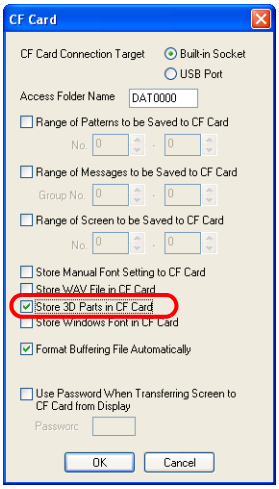
Storing 3D Parts

Setting Procedure

Store 3D parts on a CF card as shown below:

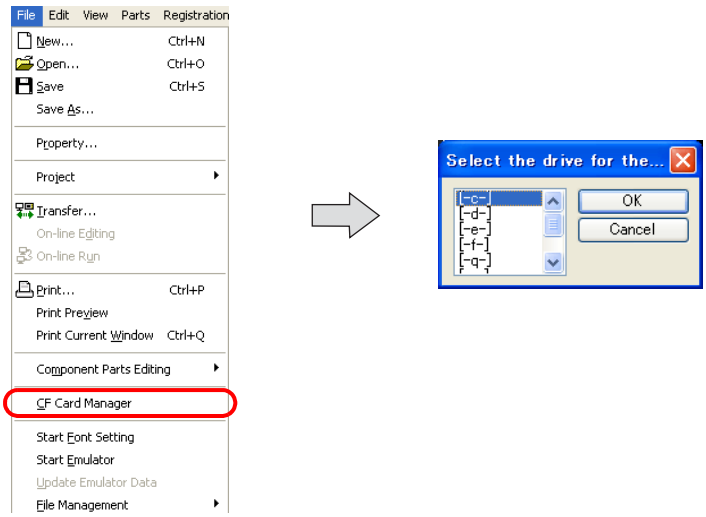
1. Editor settings

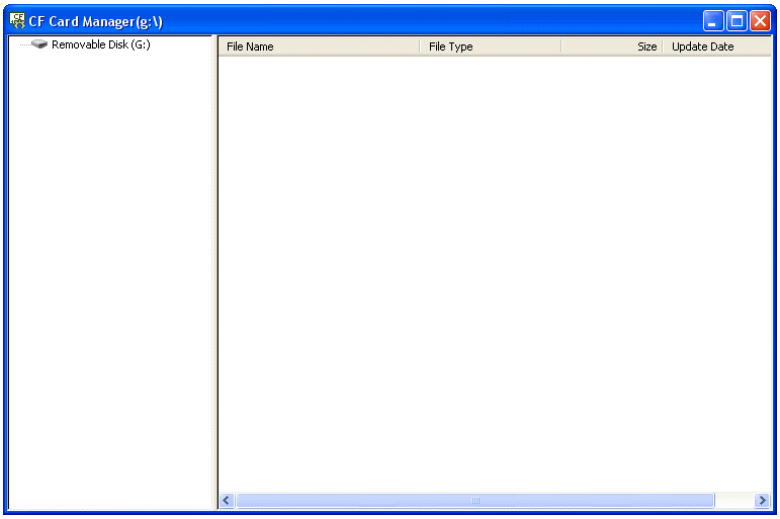
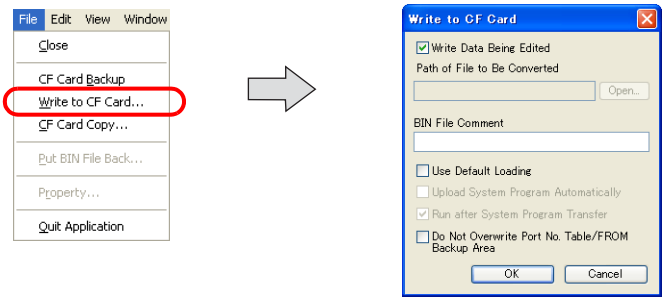
Step 1	Select [System Setting] → [CF Card Setting]. The [CF Card] dialog is displayed. 

Step 2	Check the box for [☐ Store 3D Parts in CF Card]. 
Step 3	Click [OK].

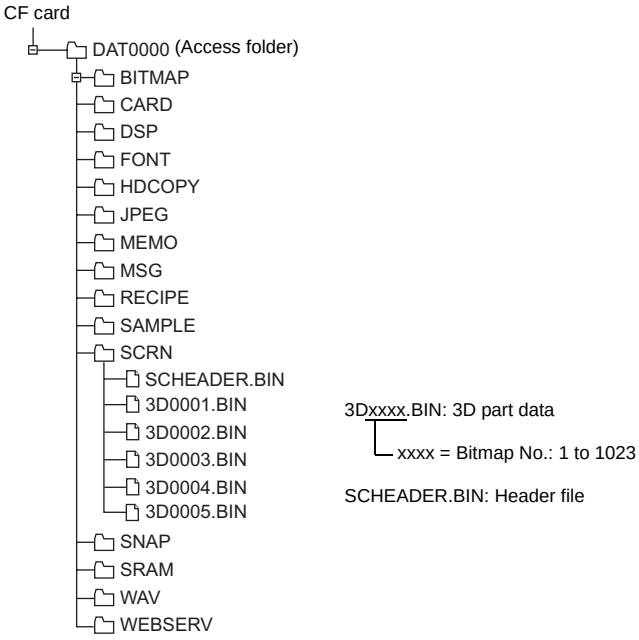
2. Writing data to a CF card

This is the same as writing ordinary screen data.

Step 1	Start V-SFT.
Step 2	Select [File] → [CF Card Manager]. The dialog shown below is displayed. 

Step 3	Specify the drive where the CF card is inserted and click [OK]. The CF Card Manager will start. 
Step 4	Click [File] → [Write to CF Card]. The [Write to CF Card] dialog is displayed. 
Step 5	If the 3D part is being edited, check the box for [☐ Write Data Being Edited]. If the 3D part is not being edited, uncheck the box for [☐ Write Data Being Edited]. In the [Path of File to Be Converted] field, click the [Open] button and select the “*.V8” file that you want to write to the CF card.

Step 6	When completing the setting, click [OK]. The files shown are saved in the “SCRN” folder under the access folder on the CF card.



3. Operations on MONITOUCH

Insert the CF card with 3D parts that are saved as described above into the MONITOUCH. When opening a screen on the MONITOUCH, the CF card is automatically referenced for showing the 3D parts on the MONITOUCH.

* If 3D parts are not stored correctly on the CF card or if the CF card is not inserted into the MONITOUCH, the 3D parts will not be displayed on the MONITOUCH.

“SCRN” Folder

The “SCRN” folder contains the following files:

SCHEADER.BIN	Header file	
3Dxxxx.BIN	Bitmap file for 3D part	xxxx = Bitmap No.: 1 to 1023

Notes

- The 3D parts stored on a CF card may take longer before the 3D parts appear on the MONITOUCH than those stored in the MONITOUCH memory.
  Please keep such a time lag in mind.

14.2 Storing Message Data

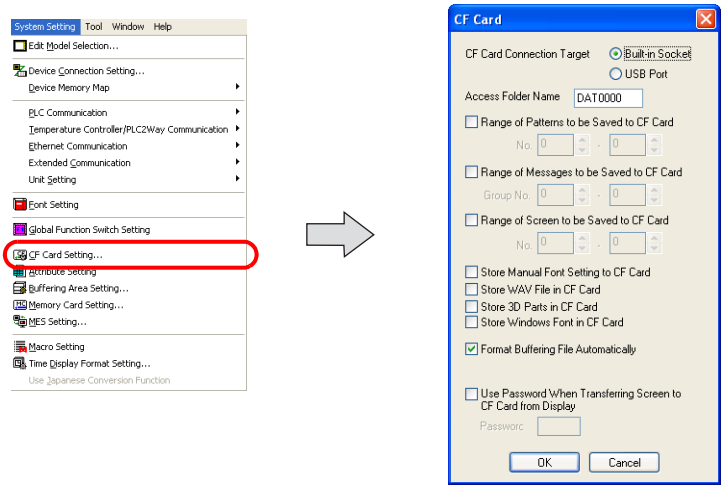
Overview

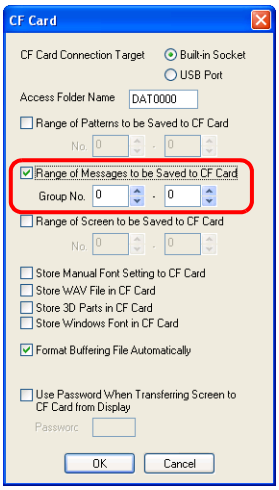
- Message data can be stored on a CF card not as a BIN file but as a TXT file.
- If the messages need changing quickly, it may be useful to save the messages in TXT file format on a CF card; the messages in TXT file format can be edited anywhere without the dedicated editor and in addition the MONITOUCH memory space is saved.

*** Note that, however, the TXT file must be saved on a CF card manually. This will not be created automatically.**

Setting Procedure

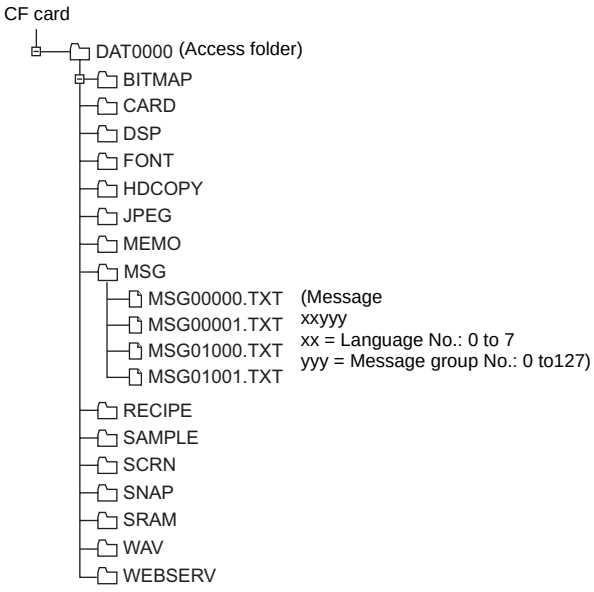
1. Editor settings

Step 1	Set up the following settings on the screen data file beforehand. Select [System Setting] → [CF Card Setting]. The [CF Card] dialog is displayed. 

Step 2	Check the box for [☐ Range of Messages to be Saved to CF Card] and set the range of messages to be stored.  * Message groups must be selected in consecutive numbers. When the setting has been made, click [OK] and save the screen data file.

2. Storing TXT files

TXT files must be prepared manually separately.
Create files under the filenames shown below and store them in the “MSG” folder on the CF card.



* TXT files must be created in accordance with the message group numbers specified on the [CF Card Setting] dialog (select [System Setting] → [CF Card Setting]).
  If the TXT file is not in accordance with the specified group number, it will not be recognized.

When creating TXT files, you can either create text data from scratch and give the required filenames correctly or convert the “MSGxxyyy.BIN” files, which are automatically created when screen data is written to a CF card, into TXT files.
For the procedure of converting BIN files into TXT files, refer to “18 CF Card” in the V8 Series Reference Manual.

3. Operations on MONITOUCH

Insert the CF card with messages that are saved as described above into the MONITOUCH.
When opening a screen on the MONITOUCH, the CF card is automatically referenced for showing the messages on the MONITOUCH.

“MSG” Folder

Store the following files in the “MSG” folder:

MSGxxyyy.TXT	Text file for messages	xx = Language No.: 0 to 15 yyy = Message group No.: 0 to127

Notes

- If both text files “MSGxxyyy.BIN” conventionally used and “MSGxxyyy.TXT” available from this version exist in the same “MSG” folder on a CF card, only “MSGxxyyy.TXT” will be recognized.

14.3 Addition of Titles to a CSV File (Sampling Data)

Overview

When sampling data in the V8 series is saved in a CSV-format file to a CF card, the sampling data in the CSV file shows only the buffering area number in the header line. The titles of the sampling data items do not appear.

However, when you create a CSV file for titles and store it on the CF card beforehand, sampling data converted to CSV format shows titles in the header line.

Example: Output of sampling data in buffering area 2 to a CSV file

No titles

Buffering area number

SMP0002.csv

	A	B	C	D	E	F	G	H	I	J	K
1	No.002										
2	2010/4/13 17:59	22.5	27.5	22.5							
3	2010/4/13 17:59	23.5	28.5	23.5							
4	2010/4/13 17:59	24.5	29.5	24.5							
5	2010/4/13 18:00	25.5	27	25.5							
6	2010/4/13 18:00	26.5	28	27.5							
7	2010/4/13 18:00	21	26	25							
8	2010/4/13 18:00	22	25	24							
9	2010/4/13 18:00	23	24	23							
10	2010/4/13 18:00	23.5	23	24							
11	2010/4/13 18:00	23	23	25							
12	2010/4/13 18:00	21.5	23	26							
13	2010/4/13 18:00	22	21.5	22							
14	2010/4/13 18:00	22	22.5	23							
15	2010/4/13 18:00	22	23.5	24							
16	2010/4/13 18:00	23	22	25							
17	2010/4/13 18:00	23	21	22.5							

The titles appear in place of the buffering area number.

With titles

SMP0002.csv

	A	B	C	D	E	F	G	H
1	Date	CH1 Thermal Data	CH2 Thermal Data	CH3 Thermal Data				
2	2010/4/13 19:00	22	21.5	22				
3	2010/4/13 19:00	22	22.5	23				
4	2010/4/13 19:00	22	23.5	24				
5	2010/4/13 19:00	23	22	25				
6	2010/4/13 19:00	23	21	22.5				
7	2010/4/13 19:00	23	22	23.5				
8	2010/4/13 19:00	23	22.5	23.5				
9	2010/4/13 19:00	23	23	24				
10	2010/4/13 19:00	23.5	23	24				
11	2010/4/13 19:00	23	23	25				
12	2010/4/13 19:00	21.5	23	26				
13	2010/4/13 19:00	22.5	27.5	22.5				
14	2010/4/13 19:00	23.5	28.5	23.5				
15	2010/4/13 19:00	24.5	29.5	24.5				
16	2010/4/13 19:00	25.5	27	25.5				

Applicable Items

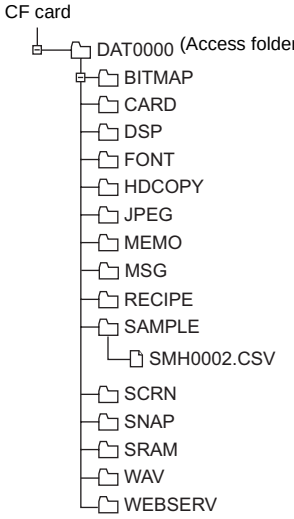
- Trend sampling
- Data sampling
- Alarm tracking
- Alarm logging

Setting Procedure

1. Creating a CSV file for titles

Create a CSV file for titles.

Users are requested to create a CSV file for titles.
Name a CSV file for tiles as designated below and store it in the “SAMPLE” folder on a CF card.



CSV file for titles*
SMHxxxx.CSV
xxxx = 0000 - 0011: Buffering area number

*** Enter the buffering area number, to which you intend to add titles. If the buffering area number specified in the file name does not exist, the file has no effect.**

SMH0002.CSV file

SMH0002.csv

	A	B	C	D	E	F	G	H
1	Date	CH1 Thermal Data	CH2 Thermal Data	CH3 Thermal Data				
2								
3								
4								
5								
6								
7								
8								
9								
10								

*** There is no limitation to the number of rows and columns for titles.**
A CSV file for titles must be within 239 KB in size.

2. Operations on MONITOUCH

Insert a CF card that stores the CSV file for titles into MONITOUCH.

When sampling data is output from MONITOUCH in CSV format to the CF card, the titles automatically appear in the header line of the sampling data.

CSV0002.CSV file

SMP0002.csv

	A	B	C	D	E	F	G	H
1	Date	CH1 Thermal Data	CH2 Thermal Data	CH3 Thermal Data				
2	2010/4/13 19:00	22	21.5	22				
3	2010/4/13 19:00	22	22.5	23				
4	2010/4/13 19:00	22	23.5	24				
5	2010/4/13 19:00	23	22	25				
6	2010/4/13 19:00	23	21	22.5				
7	2010/4/13 19:00	23	22	23.5				
8	2010/4/13 19:00	23	22.5	23.5				
9	2010/4/13 19:00	23	23	24				
10	2010/4/13 19:00	23.5	23	24				
11	2010/4/13 19:00	23	23	25				
12	2010/4/13 19:00	21.5	23	26				
13	2010/4/13 19:00	22.5	27.5	22.5				
14	2010/4/13 19:00	23.5	28.5	23.5				

“SAMPLE” Folder

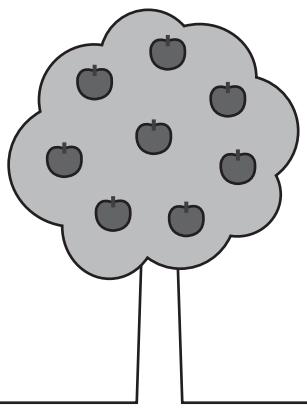
Store the following file in the “SAMPLE” folder.

SMHxxxx.CSV	CSV file for (sampling data) titles	xxxx = 0000 - 0011: Buffering area number

Notes

- There is no limitation to the number of rows and columns in a CSV file for titles named “SMHxxxx.CSV”.
- A CSV file for titles must be within 239 KB in size.

MEMO

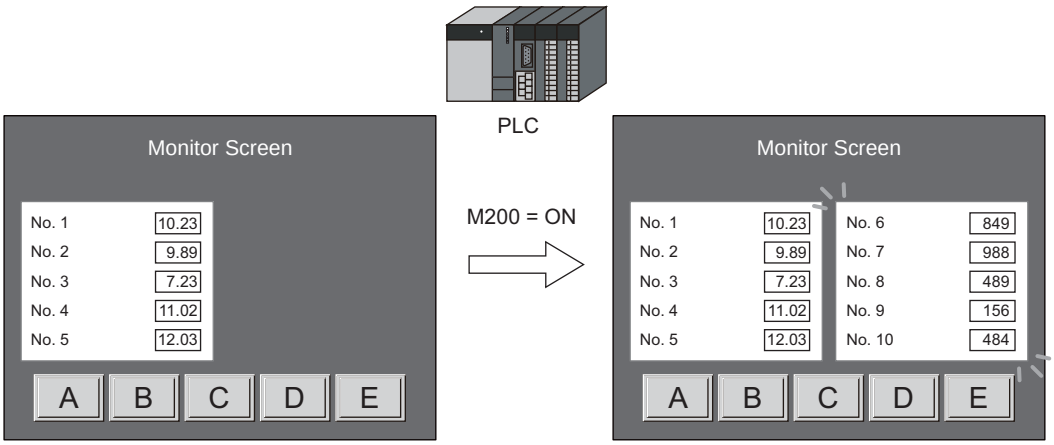


Please use this page freely.

15 Item Show / Hide Function

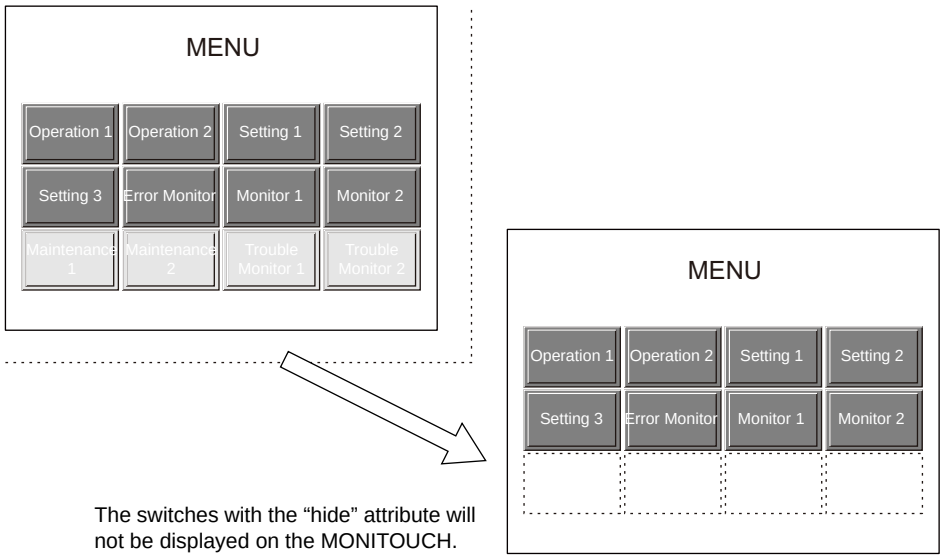
Overview

- The switch or numerical data display parts registered on the screen can be shown or hidden according to its operating status.
  The “show/hide” attribute can be set using the activation of a memory address in the PLC, bit/word designation, etc.



For example, it is possible to bring up the numerical data display group on the right side when M200 is set to “ON” in the PLC.

- The registration items can be equipped with the “show/hide” attribute even if it is not to be used during operation.
  For example, if you plan a future expansion, such as an additional switch or numerical data display parts, you can register these parts in advance and set them with the “hide” attribute, which will make your future expansion easier.



The switches with the “hide” attribute will not be displayed on the MONITOUCH.

Applicable Items

The “show/hide” attribute can be set for the following items:

Switch
Lamp
Numerical data display
Character display
Message display
Graph
Statistic graph
Closed area graph
Link parts
Grouped items (including graphic items)

Registration positions

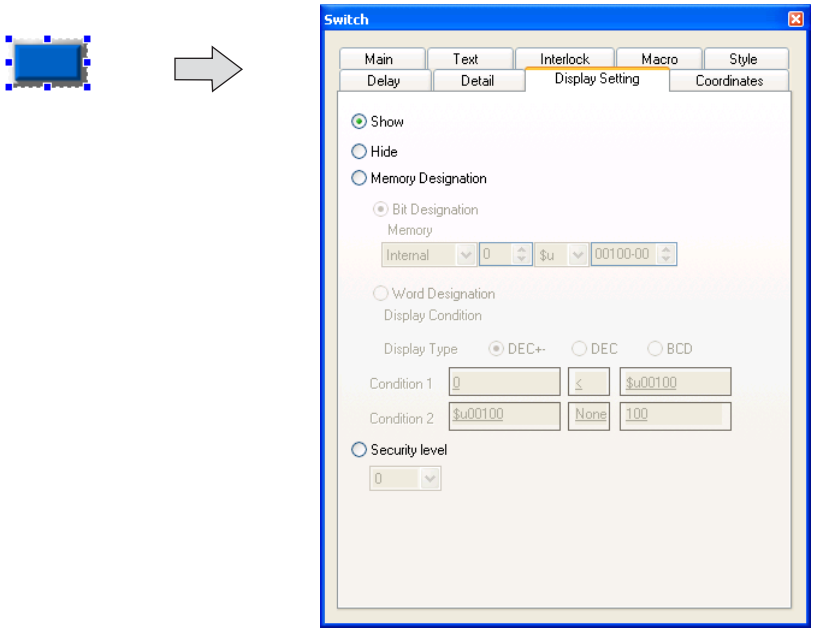
Screen, overlap library, screen library, data block

Setting Procedure

Setting Position

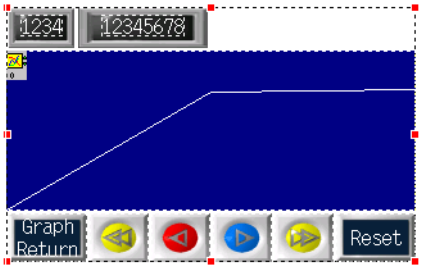
For parts:

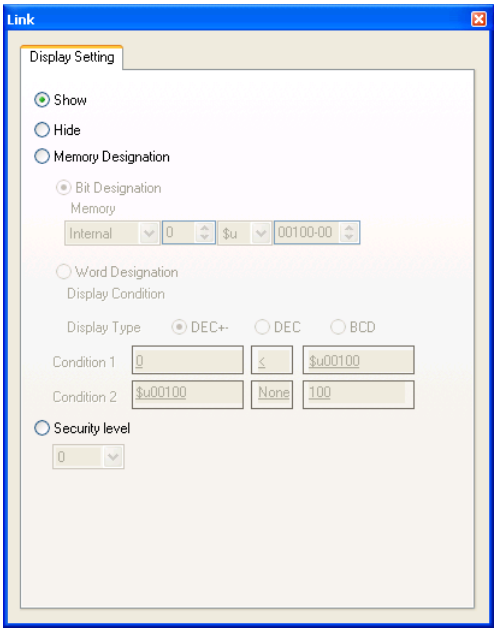
Make the setting on the [Display Setting] tab window in the item dialog.



For link parts or grouped items:

The dialog will be displayed for a link or grouped item.
Make the settings on the [Display Setting] tab window.





Setting Items

Make the following settings:

Show	The item is displayed on the MONITOUCH.	
Hide	The item is not displayed on the MONITOUCH.	
Memory Designation	The “show/hide” attribute can be controlled using a bit or word memory address. Select either method described below. When the condition is satisfied, the item will be shown or hidden.*	
	Bit Designation	The item is shown or hidden according to the activation at the specified bit memory address. Bit ON: Item shown Bit OFF: Item hidden
	Word Designation	The item is shown or hidden according to the status at the specified word memory address.

Display Type	Choose data type of the conditional expression. [DEC+-] / [DEC] / [BCD]
Condition 1	Set an equal sign, value, and memory address as the condition for comparison.
Condition 2	

Security level	The setting is valid when the security function is used. The “show/hide” attribute can be controlled according to the user’s login level of MONITOUCH. For more information, refer to “22 Security Function”.

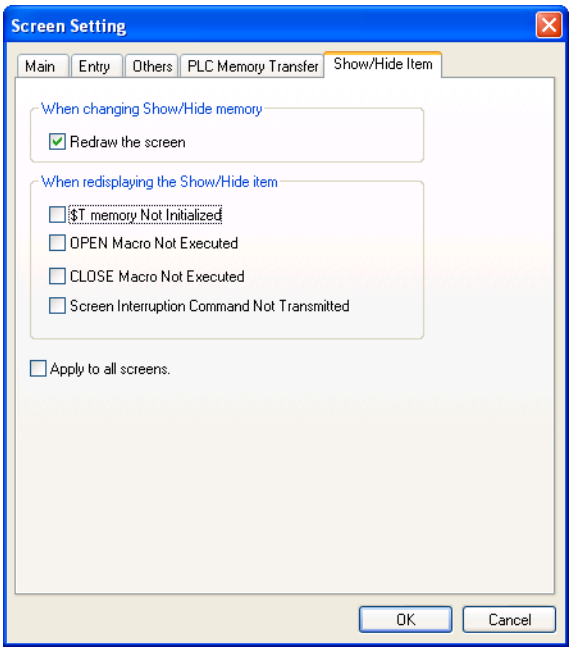
* For the timing of showing or hiding (drawing), refer to the next page.

Timing of Drawing (Memory Designation)

When [Memory Designation] is selected, the item will be shown or hidden according to the settings in the [Screen Setting] dialog.

Screen Setting (Screen)

Select [Screen Setting] → [Screen Setting].
The [Screen Setting] dialog is displayed. Open the [Show/Hide Item] tab window.



Redraw the section

When [☐ Redraw the section] is checked, the screen is redrawn each time the specified memory status changes.

- If the relevant item is registered on the screen, the screen will be redrawn.
  (Any item on the normal overlap part or call overlap part is also applicable.)
  If an item on the multi-overlap library or data block is equipped with the “show/hide” attribute, the multi-overlap or data block will be redrawn.

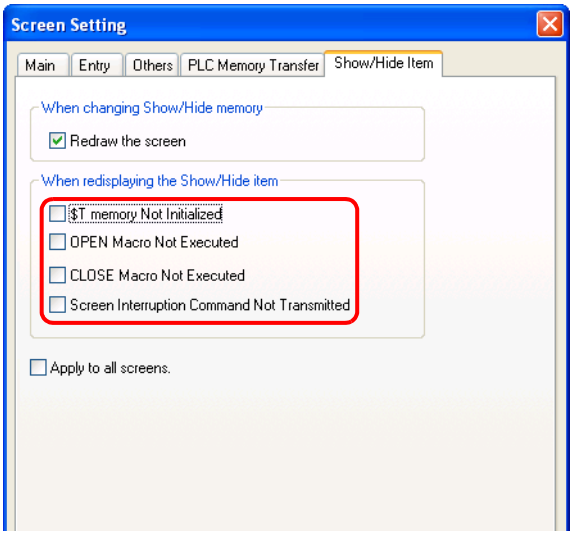
- Since memory status change is monitored at all times, the MONITOUCH may be placed under a loaded condition.

Settings for screen redrawing

When the screen is redrawn, the following operations are also performed at the same time.

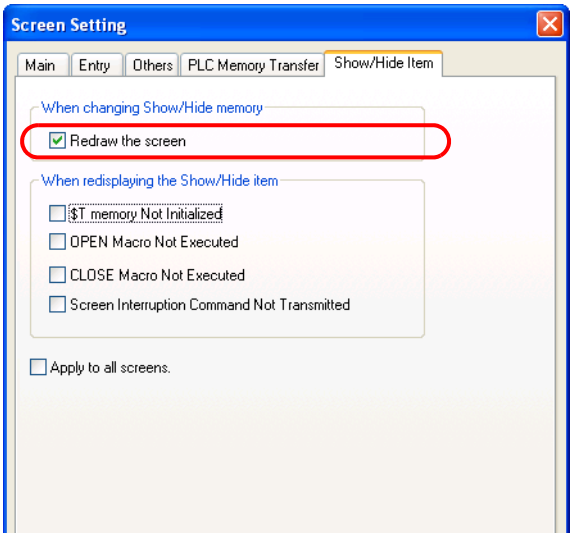
- Open macro, close macro (screen, multi-overlap library)
- Cycle macro (screen)
- $T memory zero clear (screen)
- Screen interrupt command transfer (PLC type: universal serial) (screen)

If you do not want to execute these operations at the time of redrawing, check the boxes as required.



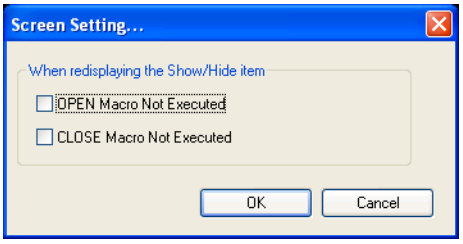
Prohibition of screen redrawing

When [☐ Redraw the screen] is checked, the screen is redrawn each time the item “show/hide” memory status changes.
If it is not necessary to check status change each time, uncheck this box. In this case, the screen is redrawn only when the screen is switched or when the SYS (RESET_SCRN) macro is executed.



Screen Setting (Overlap Library)

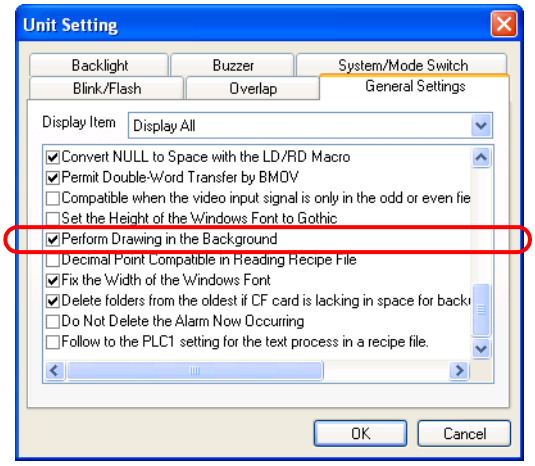
Select [Screen Setting] → [Screen Setting] in the overlap library ([Registration Item] → [Overlap Library]). The [Screen Setting] dialog for the overlap library is displayed.



Determine overlap library operations to be performed at the time of screen redrawing.

Blinking during Screen Redrawing

When the screen is being redrawn, blinking may occur.
To avoid such blinking, select [System Setting] → [Unit Setting] → [General Settings], and check the box for [Perform Drawing in the Background].

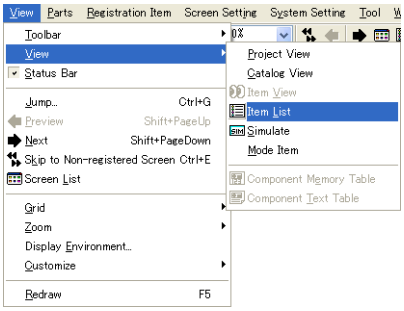


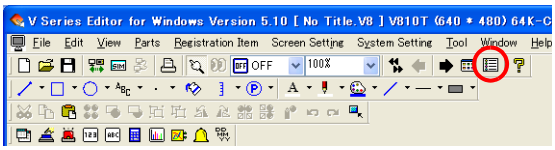
How to Check the Settings on the Editor

Use either method when checking the “show/hide” attribute of each item on the editor.

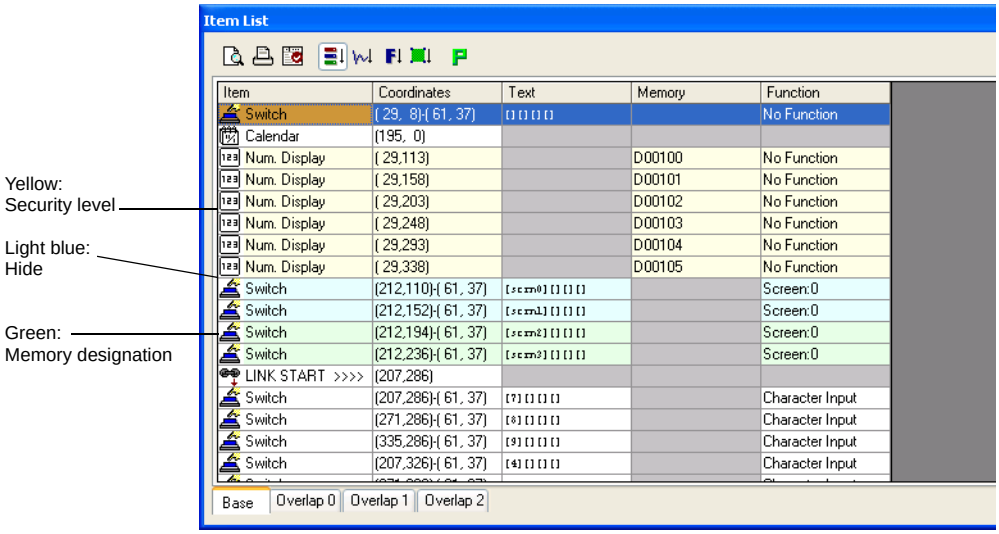
[Item List] View

Click [View] → [View] → [Item List], or click the [Item List] icon. The [Item List] view is displayed.





[Item List] view

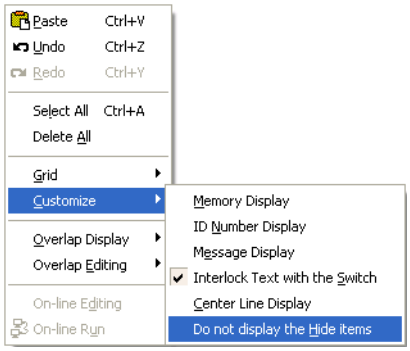


The items set as other than [Show] for the “show/hide” attribute are shown in green, yellow or light blue.
The items set as [Show] have no color.

Right-click Menu or [Display Environment]

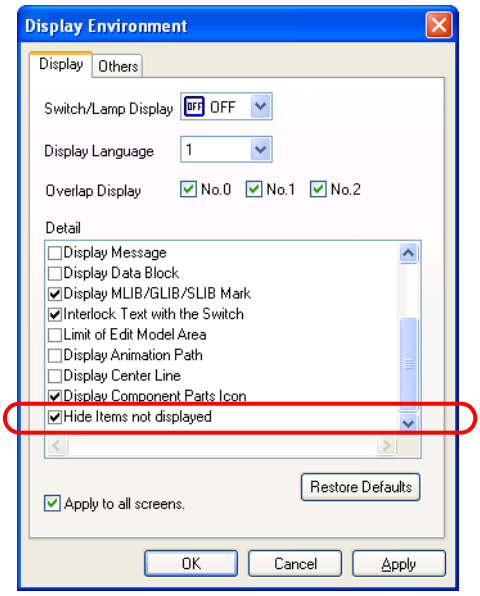
Right-click menu

Right-clicking on the screen brings up a right-click menu.
Click [Customize] → [Do not display the Hide items]. The items set as [Memory Designation] or [Hide] on the [Display Setting] tab window of the item dialog will disappear from the screen.



[Display Environment]

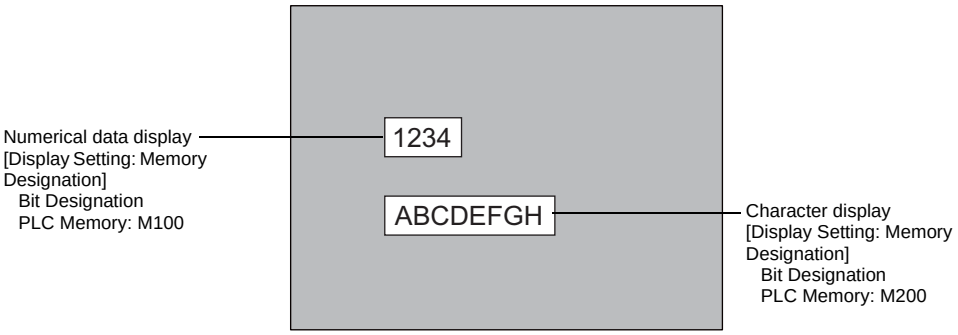
When [☐ Hide Items not displayed] is checked on the [Display Environment] dialog ([View] → [Display Environment]), the items set as [Memory Designation] or [Hide] on the [Display Setting] tab window of the item dialog will disappear from the screen.



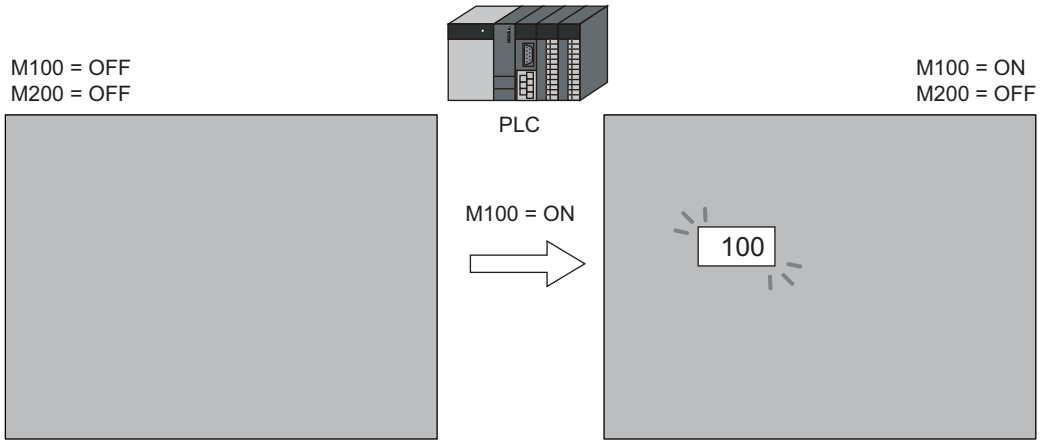
Examples

[Memory Designation: Bit Designation]

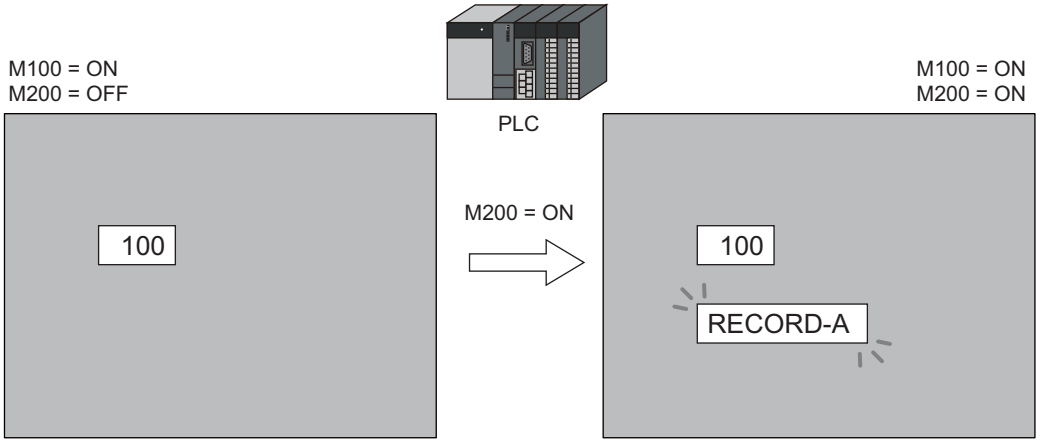
1. Create data display parts with the following settings:



2. When the PLC sets M100 to “ON”, a numerical data display appears as shown below:

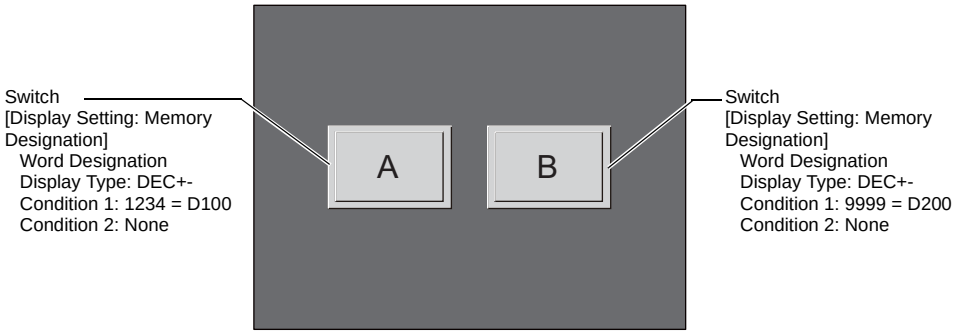


3. When the PLC sets M200 to “ON”, a character display appears as shown below:

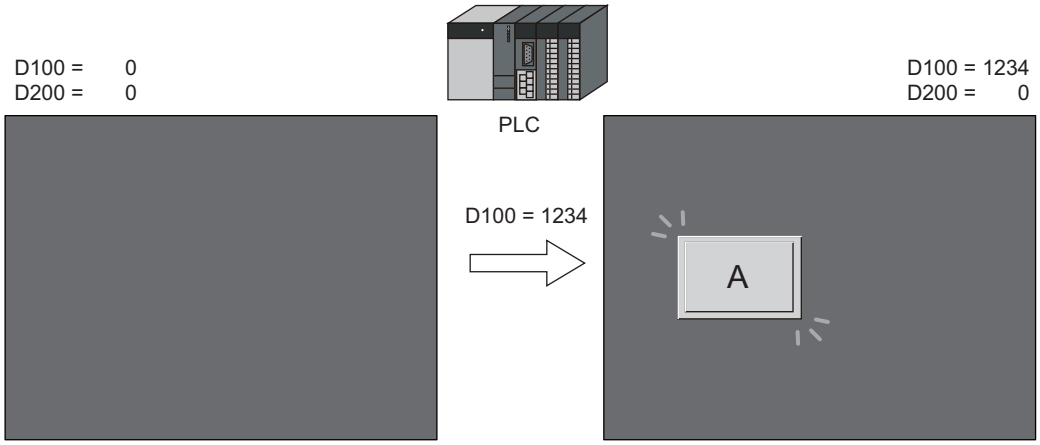


[Memory Designation: Word Designation]

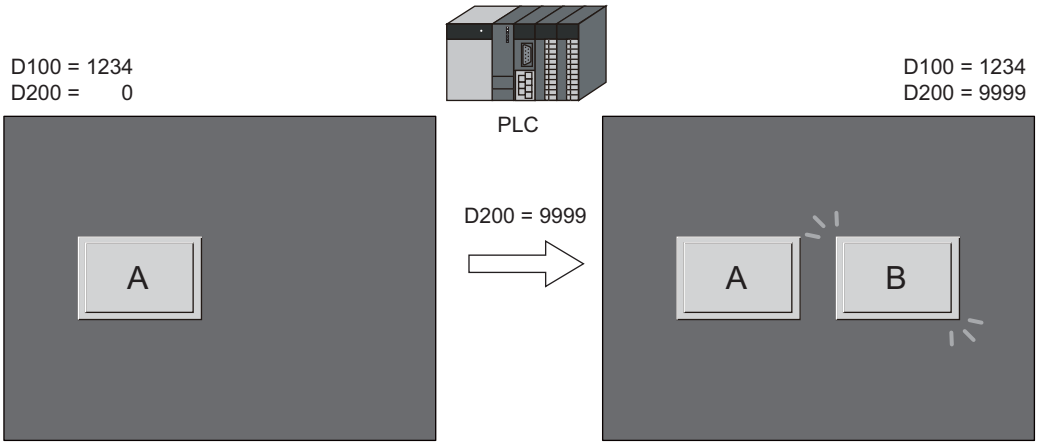
1. Create switch parts with the following settings:



2. When the PLC sets [D100=1234], a switch appears as shown below:

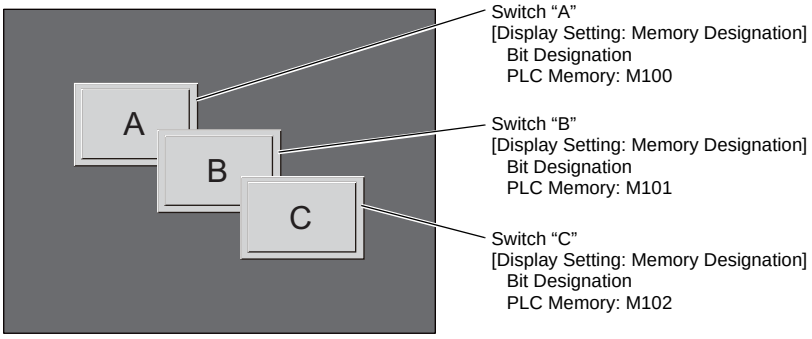


3. When the PLC sets [D200=9999] with [D100=1234], another switch appears as shown below:

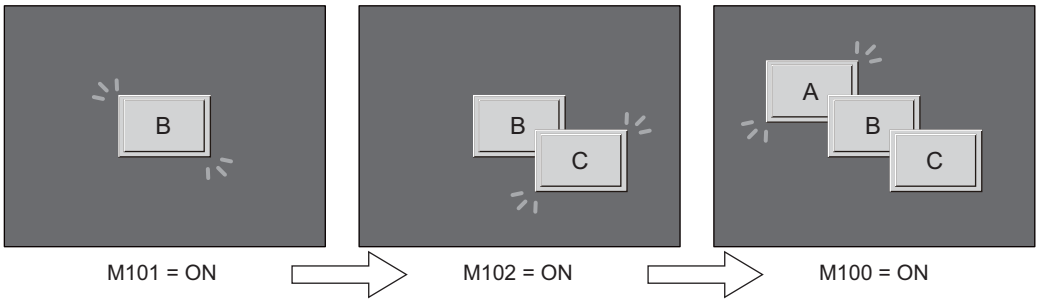


Display Order

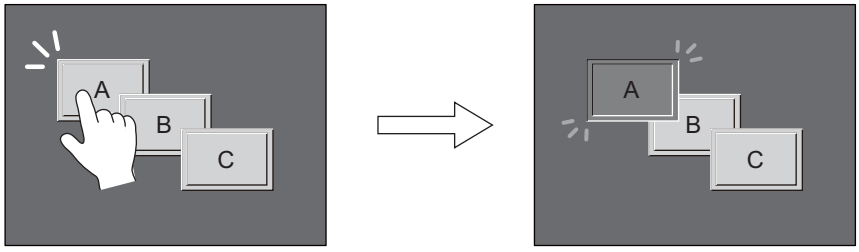
The display order of the items is the same as that of registration on the screen.
For example, if the items are overlaid, they will appear in order of registration on the screen, regardless of the timing of display command memory status change.



For example, with the settings shown above, the switches will be displayed according to the display command memory status change.

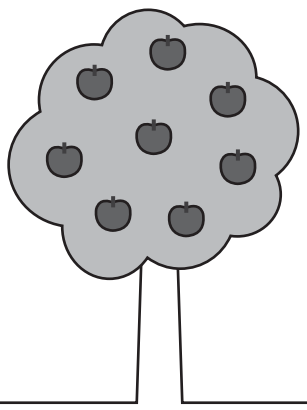


The items with [Process Cycle: High Speed] that are updated every cycle or those with status change will be displayed on top.



When the switch is turned ON, it is displayed on top.

MEMO



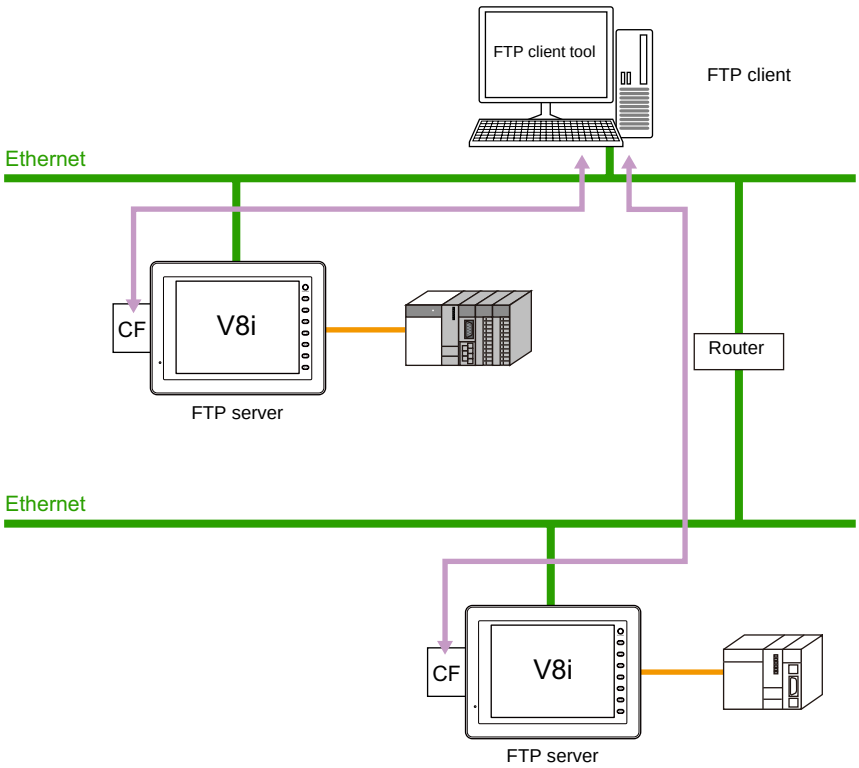
Please use this page freely.

16 FTP Server

Overview

The V8 series is allowed to work as a FTP server in such a manner that an FTP client tool installed on a computer accesses the V8 series over Ethernet, and writes/reads data to/from the CF card inserted in the V8 series.

A standard FTP tool included with Windows is available for data writing to, reading from, and editing in a CF card, without the need for installing any special tool.



Available V8 Models

The V8 series is equipped with a built-in LAN port
(such as V8i series, V806i series, etc.)

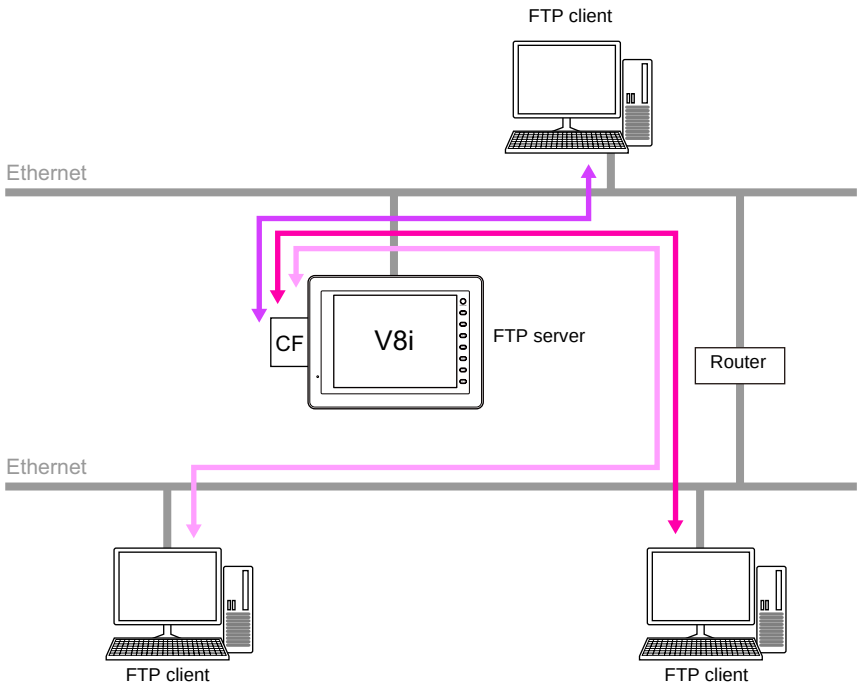
* The Ethernet unit cannot be used because TCP/IP is not available on it.

Specifications

Function Specifications

Item	Description	Location for Setting
Protocol	TCP/IP	–
User name	1 to 12 one-byte alphanumeric characters (case-sensitive)	Editor
Password	1 to 8 one-byte alphanumeric characters (case-sensitive)	Editor
Port number	20, 21	(Fixed)
No. of clients*1	3 sets maximum	–
Input supervisory time	1 to 60 minutes (default: 15 min.)*2	Editor
File readout size	Unlimited (within the capacity of the CF card)	–
File name	One-byte alphanumeric characters only	–
Requirement	Operable in RUN mode only (not operable when the Main Menu screen is displayed)	–

*1 What is a client or an FTP client?
A computer that transmits data reading/writing commands to an FTP server is called a client or an FTP client in this manual. A maximum of three client computers can access a V8 unit.



*2 If no command is input from the FTP client within the time specified for [Input Supervisory Period], the V8 automatically disconnects the connection.

FTP Client Tools (Operation Checked)

Tool	Applicable OS
Command Prompt (included with Windows as standard)	Windows 98/Me/2000/XP
Internet Explorer version 6 or 7 (included with Windows as standard)	
FFFTP version 1.96b (freeware)	

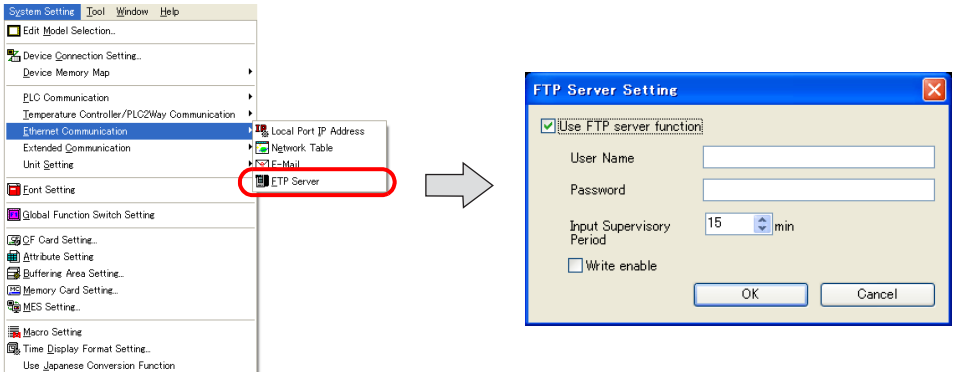
FTP Commands

The following commands are enabled as FTP commands.

Command Name	Function	Refer to:
cd	Changes the current directory.	–
close	Disconnects the connection.	–
dir	Displays the file information.	page 16-13
ls	Displays folder and file names.	page 16-14
put	Writes to a file.	page 16-15
get	Reads a file.	page 16-15
delete	Deletes a file.	page 16-16
rename	Renames a file.	page 16-16
pwd	Displays the current folder name.	–
mkdir	Creates a folder.	page 16-17
rmdir	Deletes a folder.	–
quit	Terminates the FTP client tool after disconnecting the connection.	page 16-11

Setting

Select [System Setting] → [Ethernet Communication] → [FTP Server].
The [FTP Server Setting] dialog is displayed.
Check [☐ Use FTP server function]. The items below become active.

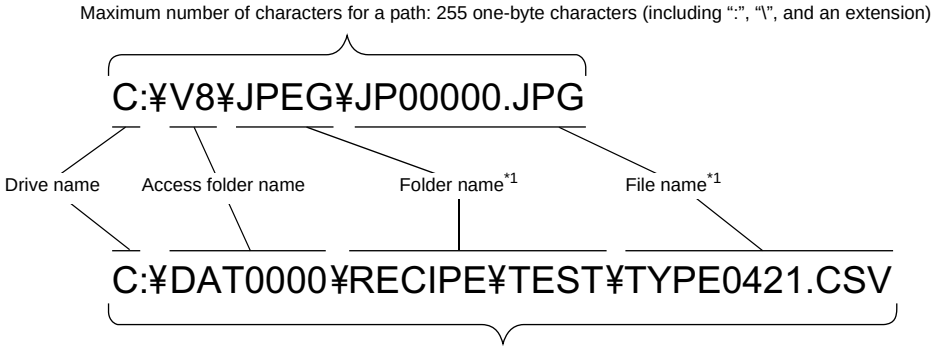


User Name	1 to 12 one-byte alphanumeric characters (case-sensitive)
Password	1 to 8 one-byte alphanumeric characters (case-sensitive)
Input Supervisory Period	1 to 60 minutes (default: 15 min.)*
☐ Write enable	Check this box if you allow the FTP client to write to, delete, or edit files. When this box remains unchecked, only file reading is possible. (Default: unchecked)

* If no command is input from the FTP client within the time specified for [Input Supervisory Period], the V8 automatically disconnects the connection.

Designation of File Location

How to designate a file location



*1 Maximum number of characters for a file name: 194 one-byte characters

*2 "¥" = "/"

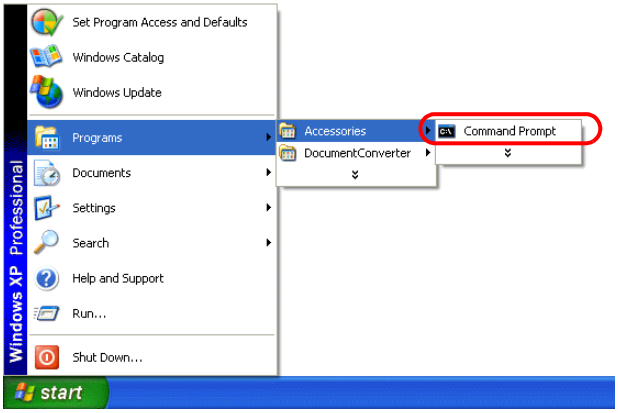
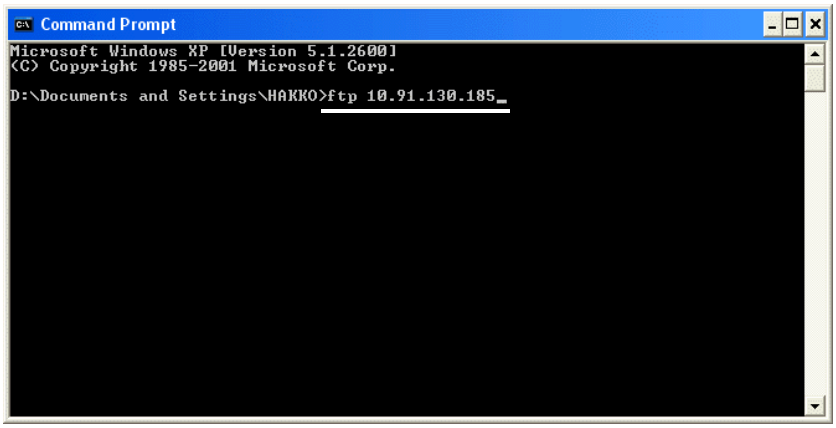
- Drive names
  C: Built-in CF card drive
  D: USB-A port (USB-CFREC, USB memory, etc.)

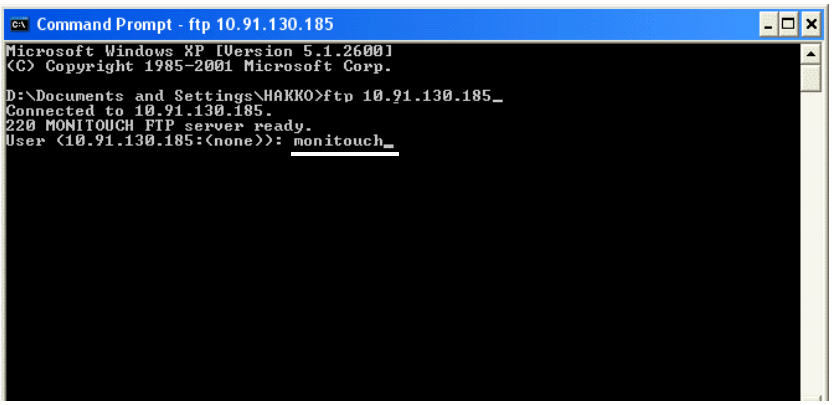
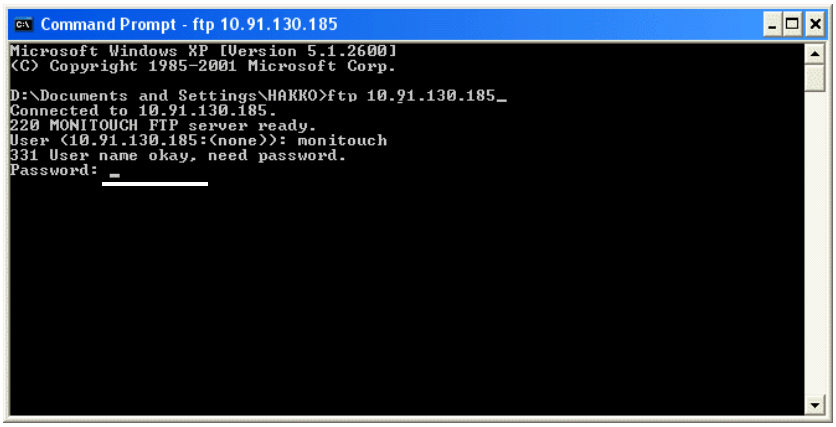
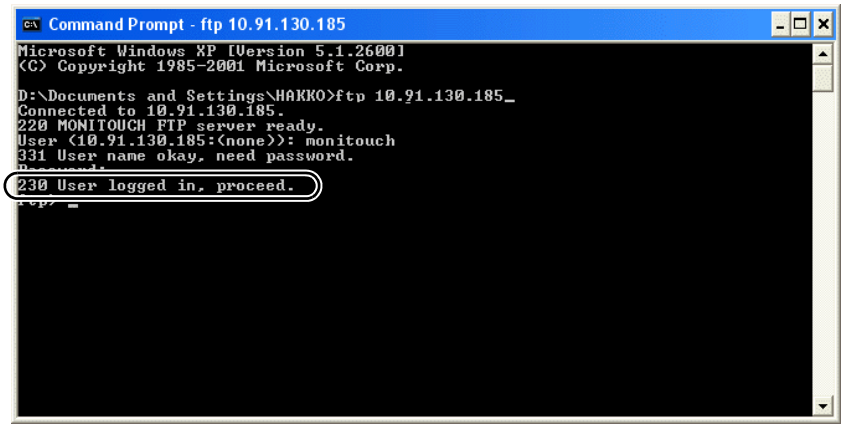
Login

This section explains the steps needed to log in and demonstrates how to operate the FTP tools.
To begin, prepare your MONITOUCH as instructed below.

1. Transfer the screen data, for which the [FTP Server Setting] is finished, to MONITOUCH (the V8i series).
2. Connect your computer to MONITOUCH via Ethernet.
3. Insert a CF card into MONITOUCH and set the unit to the RUN mode.

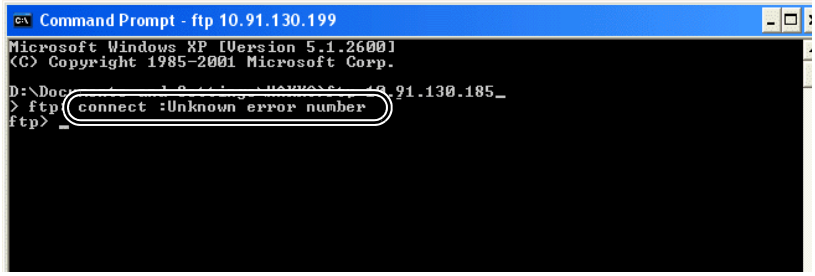
With the Command Prompt

Step 1	Click [Start] → [Programs] → [Accessories] → [Command Prompt]. [Command Prompt] starts. 
Step 2	Enter the FTP command. Key in “ftp”, a one-byte space, and the MONITOUCH IP address. Press the Enter key. 

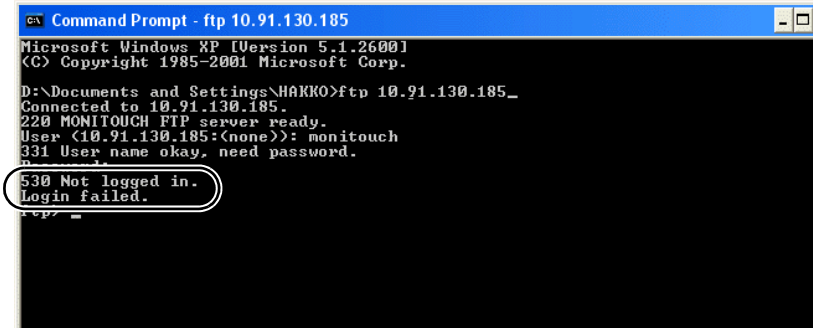
Step 3	The following message appears. Key in the user name that is the same as specified in the [FTP Server Setting] dialog. Press the Enter key. 
Step 4	The following message appears. Key in the password that is the same as specified in the [FTP Server Setting] dialog. Press the Enter key. (The password is not shown on the screen.) 
Step 5	The following message appears indicating the completion of login. 

Causes of login failure:

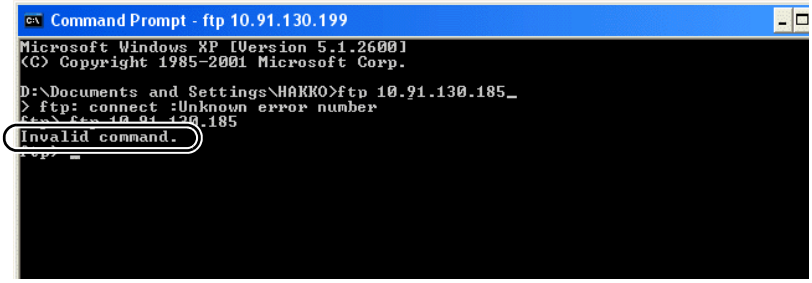
If a wrong IP address is entered, the following message is displayed.



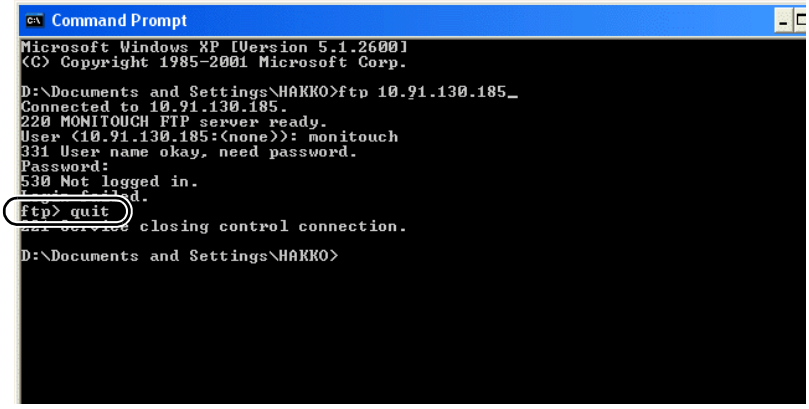
If a wrong password is entered, the following message is displayed.



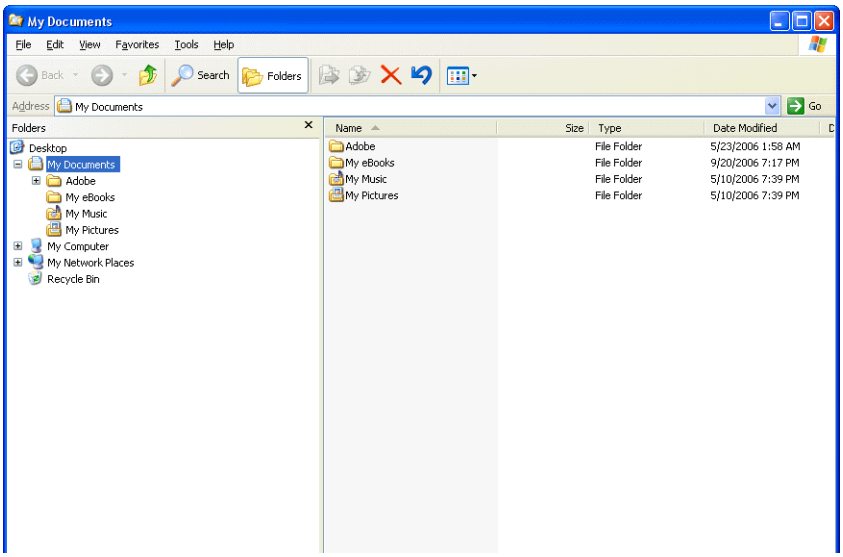
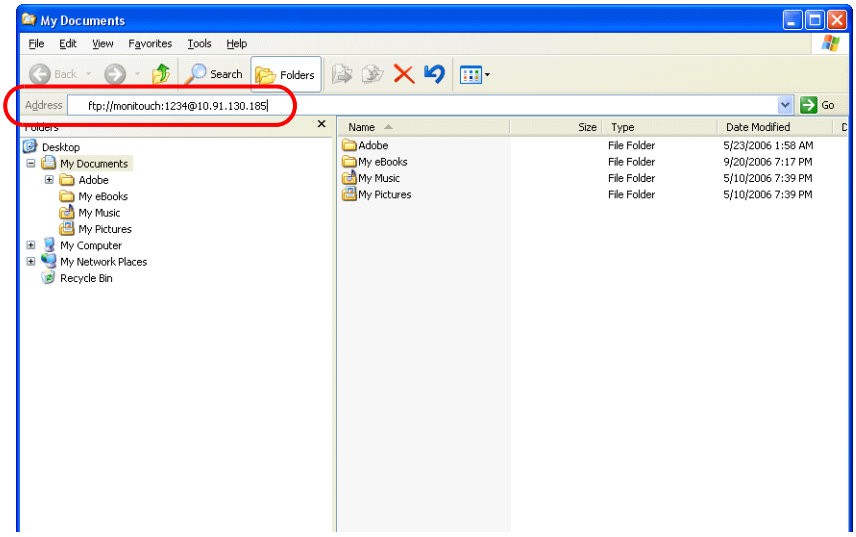
If you enter the correct command after the occurrence of an error, the error message remains.

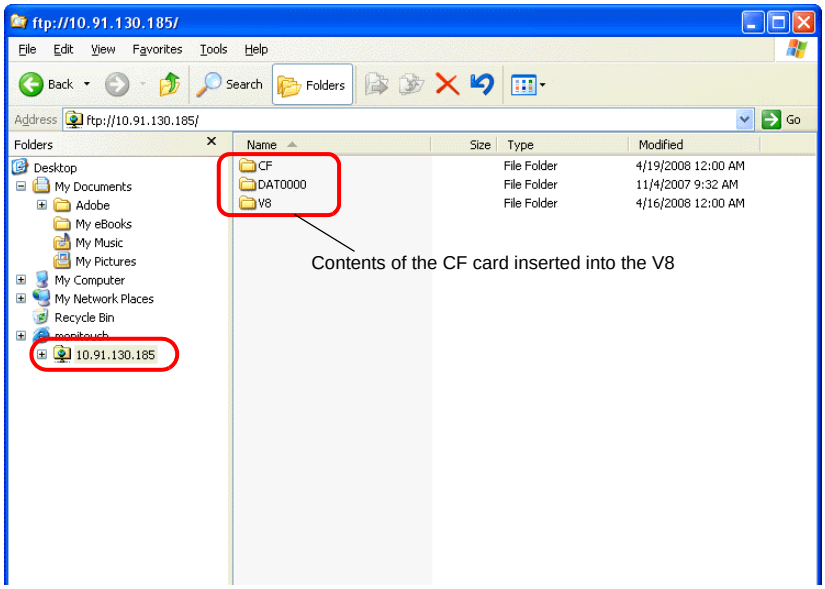
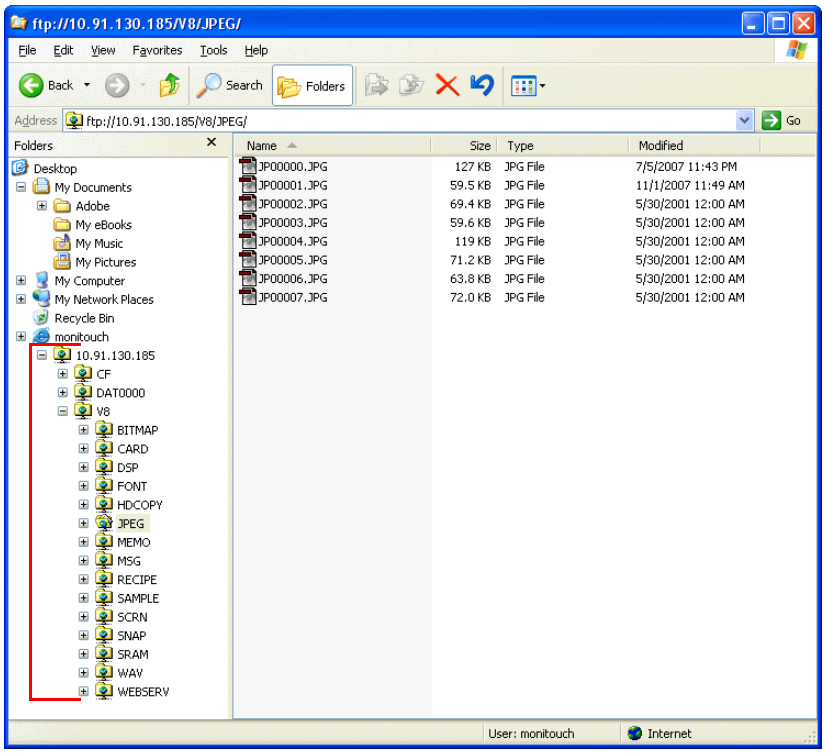


In order to proceed, execute the quit command to disconnect the connection once and enter the correct command.



With Explorer (or Internet Explorer)

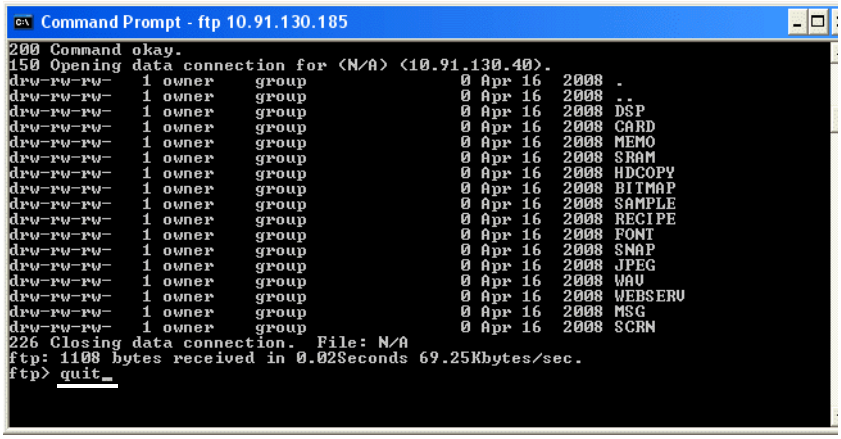
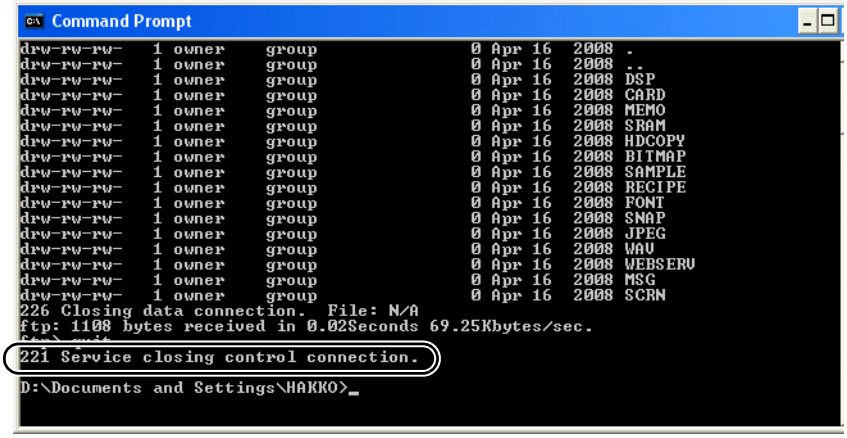
Step 1	Start [Explorer]. 
Step 2	Enter the FTP command in the [Address] field. Key in “ftp://<user name>:<password>@<MONITOUCH IP address>”. Press the Enter key.  * When you use Explorer or Internet Explorer, key in “ftp://<user name>:<password>@<MONITOUCH IP address>”. Typing only “ftp://<MONITOUCH IP address>” may end in failure of user authentication.

Step 3	The computer displays Explorer as the following:  Login has been completed.
Step 4	In Explorer, you can view the contents of the CF card inserted into MONITOUCH. 

Logout

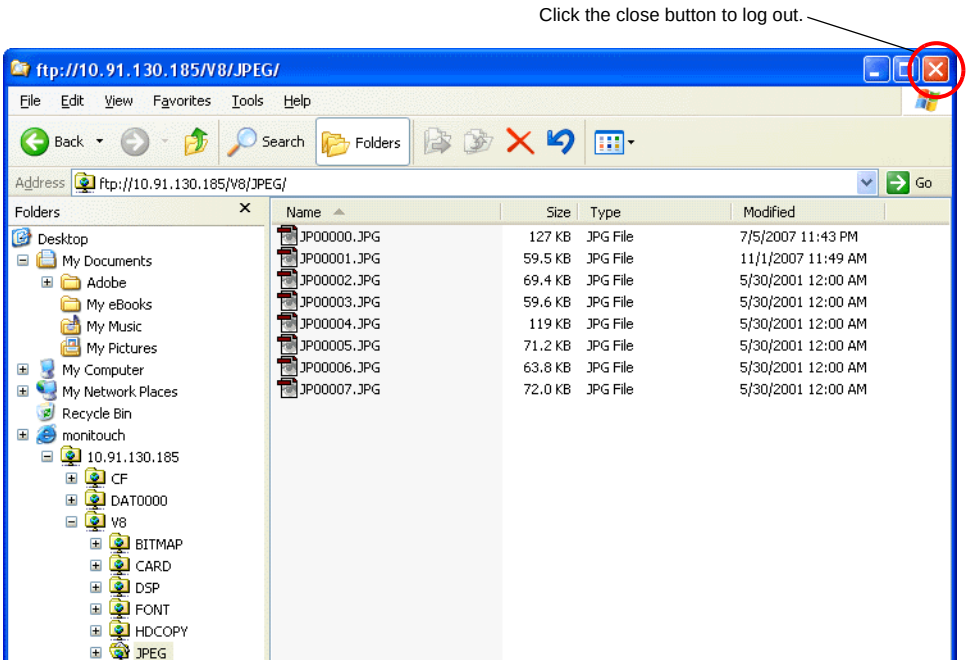
This section explains the steps needed to log out and demonstrates how to operate the FTP tools.

With the Command Prompt

Step 1	When the client logs in to the server, key in “quit” and press the Enter key. 
Step 2	The following message appears. Logout has been completed. 

With Explorer (or Internet Explorer)

To log out, close Explorer.



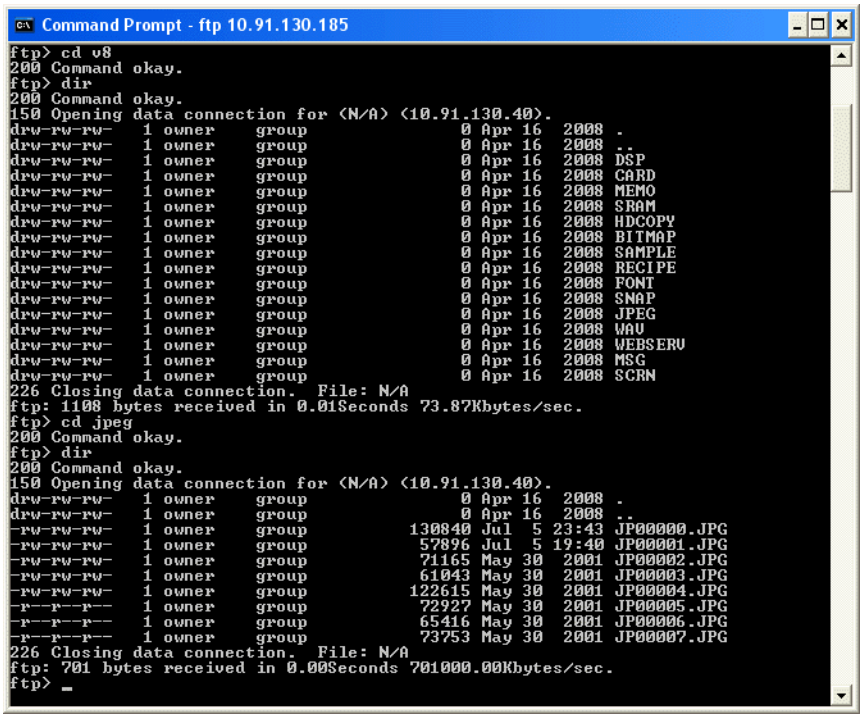
Usage Examples

This section provides examples of executing commands in the Command Prompt.

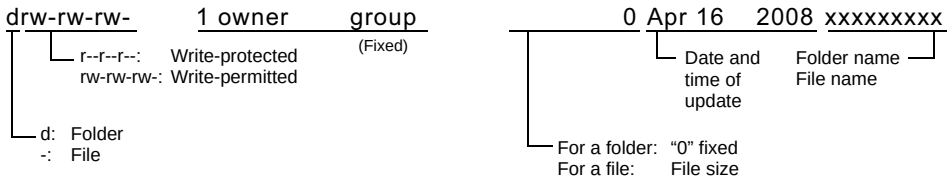
Acquisition of File and Folder List

“dir” command

This command is used to display the list of file and folder information, containing properties, sizes, dates and times of update, and names of files and folders.

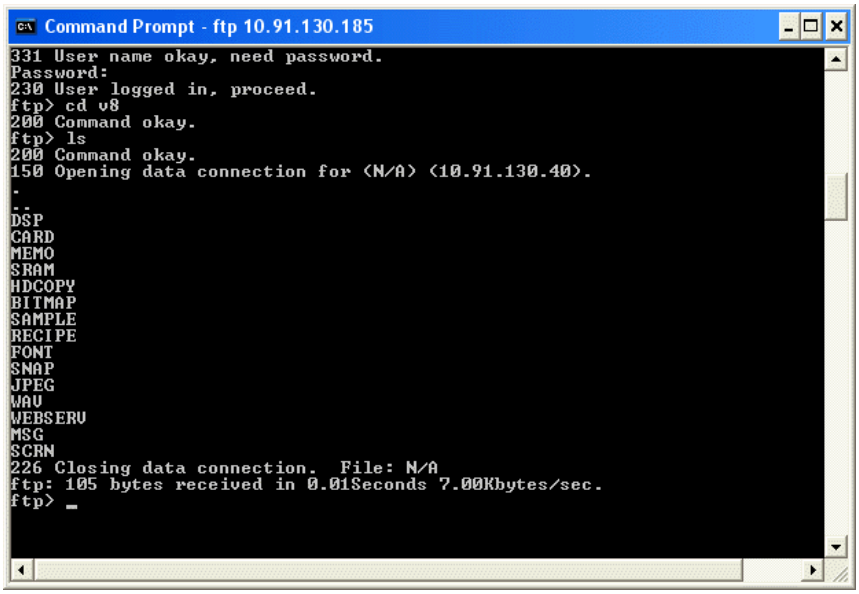


• Details of the list



“ls” command

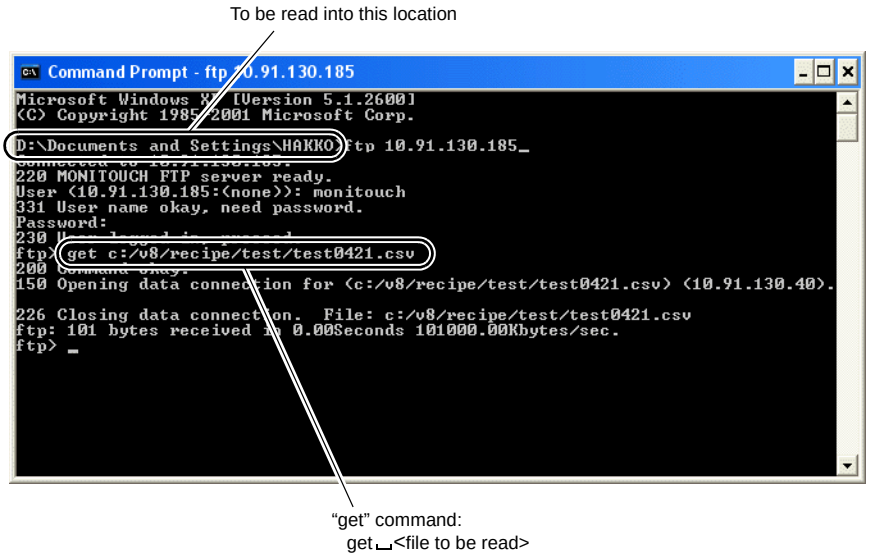
This command is used to display the names of files and folders.



Reading from and Writing to a File

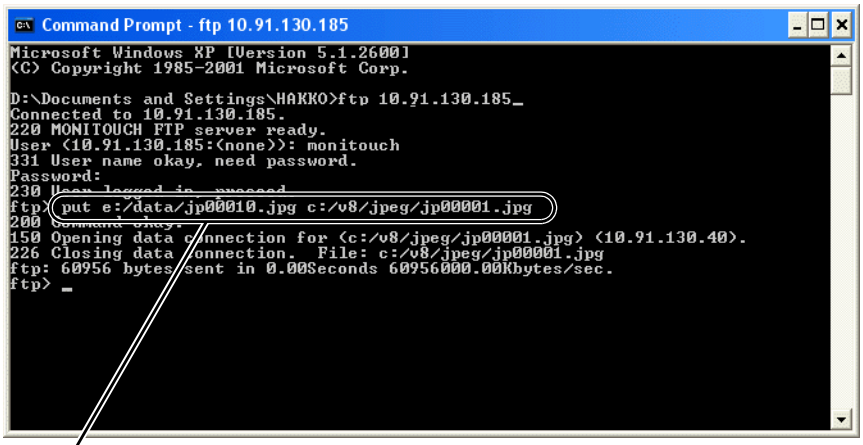
“get” command (reading)

This command is used to read files stored in the CF card in the computer.
The file is read into the folder placed in the computer specified in the Command Prompt.



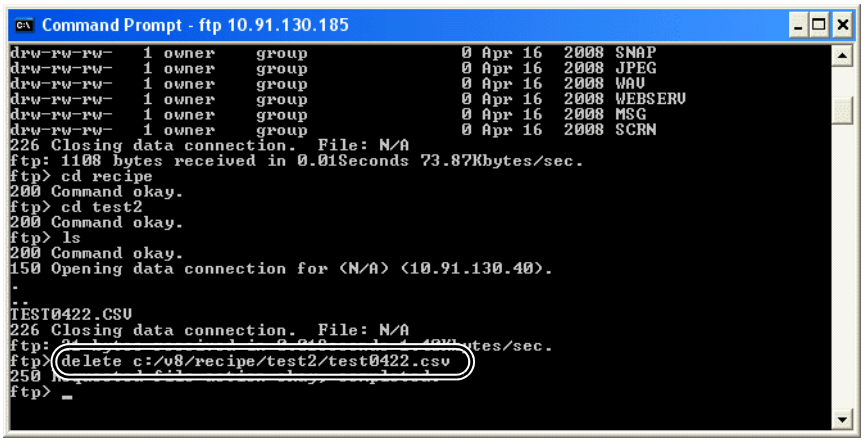
“put” command (writing)

This command is used to write files stored in the computer to the CF card.



Deleting a File

“delete” command

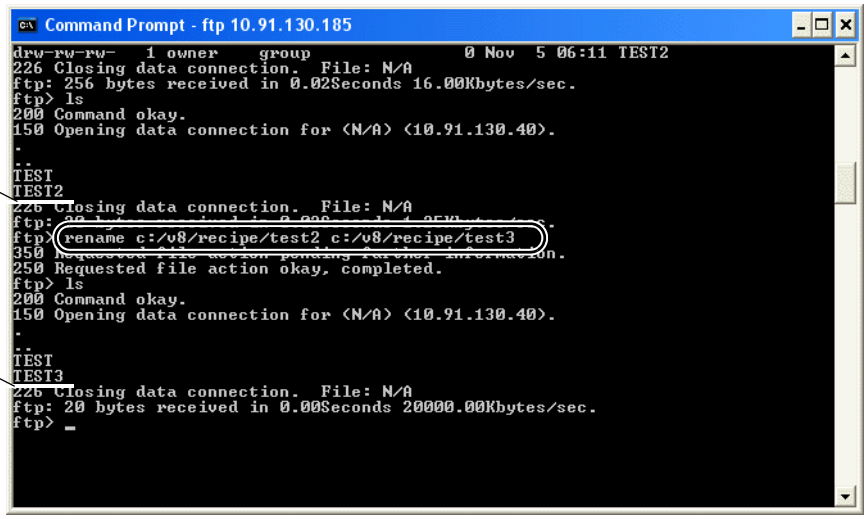


Renaming a File/Folder

“rename” command

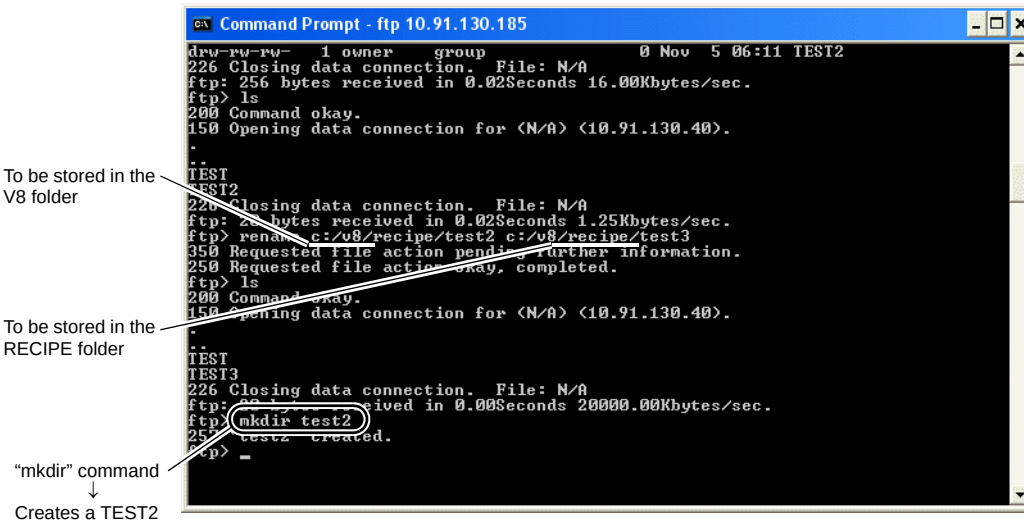
Name before the folder is renamed

Name after the folder is renamed



Creating a Folder

“mkdir” command

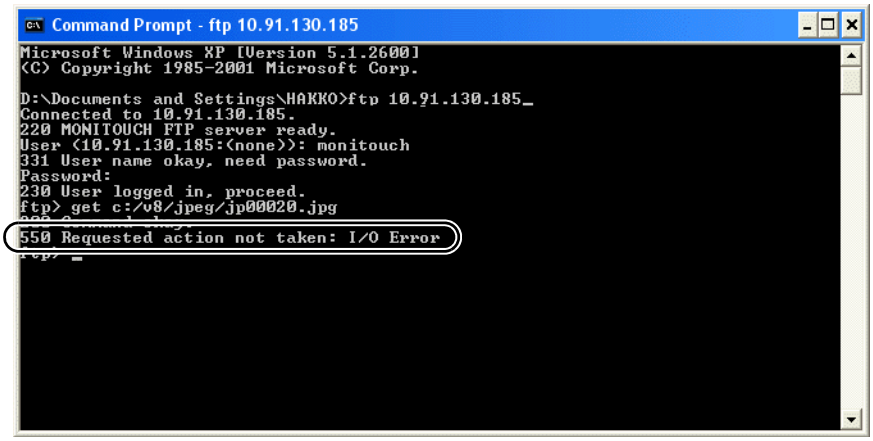


16

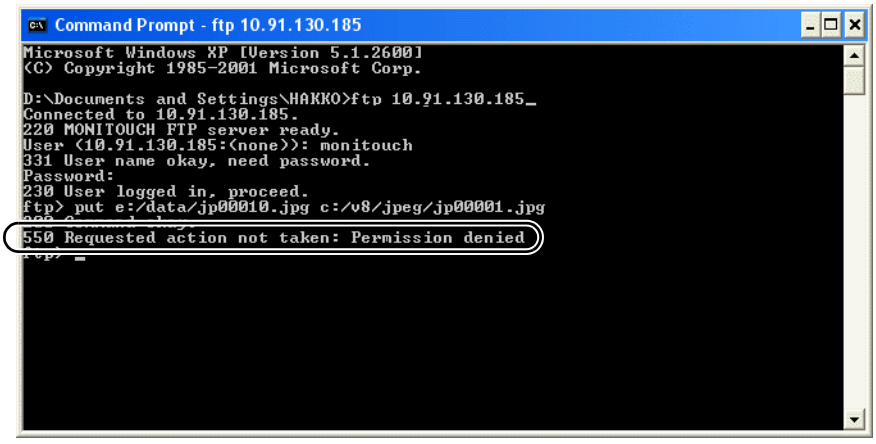
Error Display

If accessing the FTP server ends in error, the FTP client displays the error message.

Example 1: In the case of attempting to read a file that does not exist



Example 2: In the case of attempting to write to a write-protected file



Connection Check

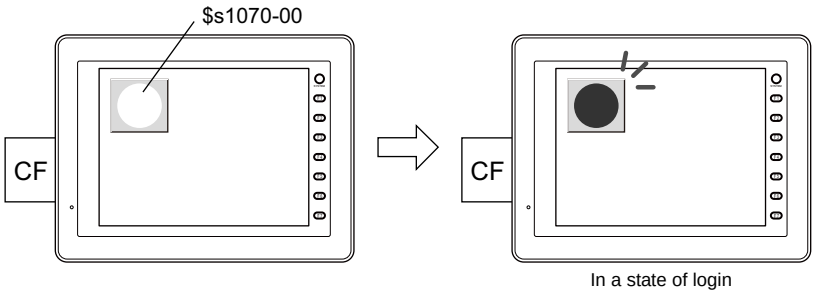
System Memory ($s)

The following describes the system memory associated with the FTP server.

<table>
<tr><th>Address</th><th>Description</th><th>Remarks</th></tr>
<tr><td>$s1070</td><td>Storage of FTP information
MSB LSB
<table>
<tr><td>15</td><td>14</td><td>13</td><td>12</td><td>11</td><td>10</td><td>09</td><td>08</td><td>07</td><td>06</td><td>05</td><td>04</td><td>03</td><td>02</td><td>01</td><td>00</td></tr>
<tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td></td><td></td></tr>
</table>
System reserved (setting “0”)
FTP client
0: Command not executed
1: Command being execute
FTP client
0: Logoff
1: Login
* If two or more FTP clients log in to the FTP server, the data stored in the system memory is based on the status of all these FTP clients.
(Even if only one FTP client is executing a command, bit 1 is set (ON).)</td><td>← V</td></tr>
<tr><td>1071</td><td>Number of FTP clients that log in to the server (3 sets maximum)</td><td>← V</td></tr>
<tr><td>1072</td><td>FTP connection: Forced disconnection
MSB LSB
<table>
<tr><td>15</td><td>14</td><td>13</td><td>12</td><td>11</td><td>10</td><td>09</td><td>08</td><td>07</td><td>06</td><td>05</td><td>04</td><td>03</td><td>02</td><td>01</td><td>00</td></tr>
<tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td></td></tr>
</table>
System reserved (setting “0”)
Connection to FTP client
0→1: Disconnected forcibly</td><td>→ V</td></tr>
</table>

Connection Check

Create a lamp to which the internal memory $s1070-00 is assigned, and place it on the screen. When the lamp is lit, it indicates login, i.e. connection is established.



In a state of login

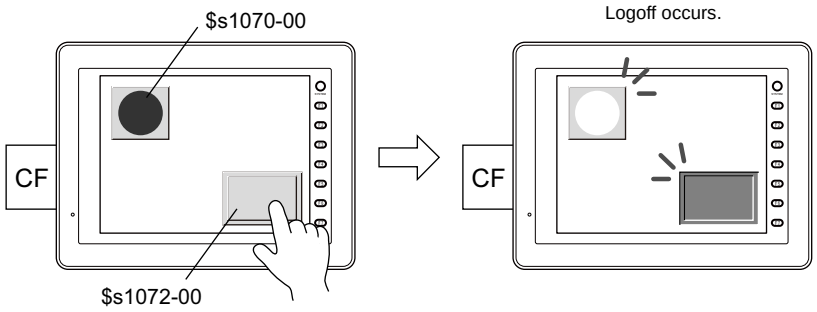
Disconnection

Automatic disconnection

If no command is sent from the FTP client within the time specified for [Input Supervisory Period] in the [FTP Server Setting] dialog (click [System Setting] → [Ethernet Communication] → [FTP Server]), the V8 automatically disconnects the connection with the client.

Manual disconnection from V8

By resetting (OFF to ON) bit 0 of $s1072 on the V8, the connection with the FTP client is disconnected forcibly.



Resetting $s1072-00 (OFF to ON) causes logoff.

Disconnection from FTP client

The FTP client is disconnected from the V8 when the FTP client logs out.
For more information, refer to “Logout” on page 16-11.

Limitations

Number of FTP Clients

A maximum of three FTP clients can be connected to one V8.
Requests from multiple FTP clients cannot be processed at the same time. They are processed one by one. Therefore, while an FTP client is transferring a large-size file, another client cannot transfer a file and must wait until the current file transfer is completed.

File Property Change

Changing file properties (such as a change between write protection and write permission) is not allowed.

Notes

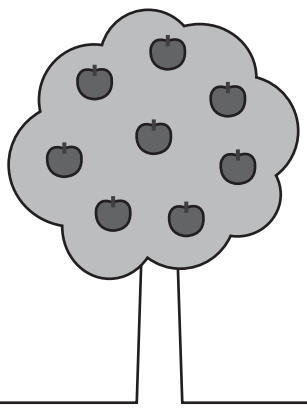
Notes on FTP Server System Design

1. In a case where an FTP client writes a recipe file to the CF card inserted in the V8, the recipe file from the FTP client and the recipe in operation in the V8 must be in the same format.
   In a case where a recipe file is written to a remote location, be sure in advance that writing is enabled in the target location.
2. Before using an FTP client tool, read its manual to understand the functions and operational procedures, and also conduct a trial operation.
   The V8 (FTP server) may not support some functions, depending on the model of the FTP client tool.

Notes on File Transfer

1. If no command is sent from the FTP client within the time specified for [Input Supervisory Period] in the [FTP Server Setting] dialog, connection between the FTP server and the FTP client will be disconnected automatically.
2. While the V8 is in communication with the FTP client, setting the V8 to local mode (Main Menu screen) disconnects them.
3. While the V8 is accessing a file in the CF card, do not allow the FTP client to write to or delete the same file.
   Such an action will cause a malfunction. A file deletion from the CF card, even while the V8 is not accessing the file, will cause a file reading error at the time of the next access by the V8.
   Basically, for any files relevant to V8 operation, do not execute the writing and deleting commands.
4. When a file in the CF card has been overwritten via the FTP server, check that the data in the file is correct.
   If writing to the file ends in error, the file will be deleted from the CF card. In the event of such a deletion, repeat writing from the FTP client.
5. If the FTP client is down, wait until the time for [Input Supervisory Period] elapses and then retry logging in.
6. While the FTP client is accessing a file in the CF card inserted into the V8, do not shut off the V8. Doing so may corrupt data on the CF card.
7. If the V8 is reset or shut off while its connection with the FTP client is established, the next action that the FTP client takes depends on the specifications of the FTP client tool.
   With this in mind, choose an FTP client tool which supports the detection of a FTP server down and also the safe termination in such a case.
8. If the CF card cover is open on the V8, access to the CF card is not allowed.
9. Depending on the model of the FTP client tool, there may be a mismatch in timestamp between a file in the CF card and the FTP client tool. If such a mismatch is found, check the configuration of the FTP client tool.

MEMO



Please use this page freely.

17 Ethernet

Some functions are added to the Ethernet communication executed on the V8 series.

17.1 E-mail

Overview

Authentication method setting is additionally made available an e-mail feature from the V8 series. This addition ensures greater security in e-mailing.

Authentication Methods

Authentication Method	Type in Editor
POP before SMTP *1	POP before SMTP
LOGIN	SMTP Authentication
PLAIN	
CRAM-MD5	
DIGEST-MD5 *2	

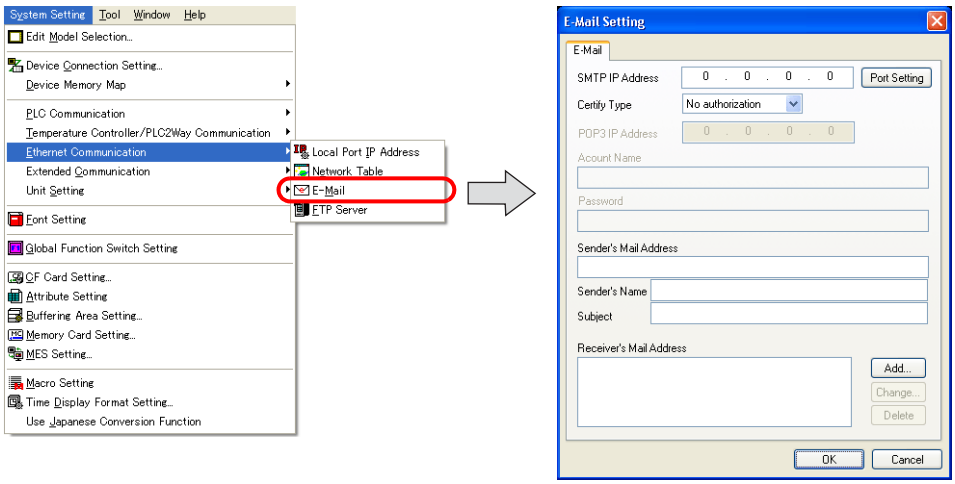
*1 Only POP3 is supported.

*2 Quality of Protection supports “auth” mode only. It does not support “auth-int” and “auth-conf” modes.

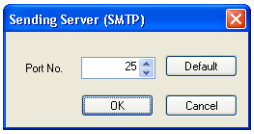
Setting

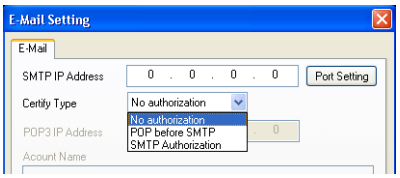
Location for Setting

Select [System Setting] → [Ethernet Communication] → [E-Mail].
The [E-Mail Setting] dialog is displayed.



Setting Items

<table>
<tr><td>Port No.
(0 to 65535)</td><td colspan="2">Specify the SMTP port number.
Example: Yahoo Corporation's Yahoo e-mail: Port No. 587
 

(Default: 25)</td></tr>
<tr><td rowspan="3">Certify Type</td><td colspan="2">The following two methods are supported.
 
</td></tr>
<tr><td>POP before SMTP</td><td>Authentication is performed with the POP3 server.
The settings below must be made.
• POP3 IP address
• Account name (within 63 one-byte characters)
• Password (within 63 one-byte characters)</td></tr>
<tr><td>SMTP Authentication</td><td>Authentication is performed with the SMTP server.
The settings below must be made.
• Account name (within 63 one-byte characters)
• Password (within 63 one-byte characters)</td></tr>
</table>

What is POP before SMTP?

POP before SMTP utilizes authentication with POP3 that is performed at the time of receiving e-mail. SMTP permits the sending of e-mail from the authenticated IP address for a limited time.
Since authentication is disabled after a specific time has elapsed, authentication with POP3 will be required again.

* In the case of authentication with POP3, a password is sent in clear text. POP before SMTP using APOP is also available. With APOP, a password is sent in encrypted form.
The V8 series, however, supports POP3 only.

What is SMTP Authentication?

Authentication is performed with the SMTP server.

SMTP Authentication is classified into several authentication methods.
The V8 series supports LOGIN, PLAIN, CRAM-MD5, and DIGEST-MD5.
Since the SMTP server automatically performs authentication according to the available method, users are not requested to make configurations.

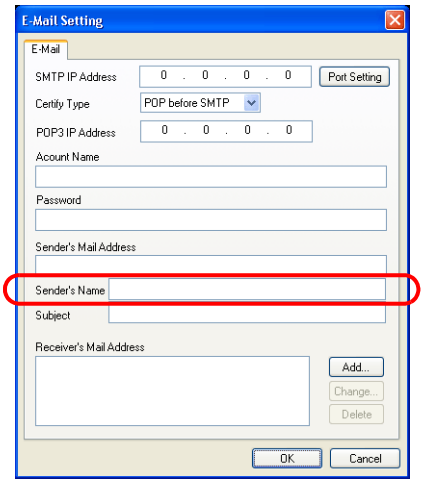
<Automatic authentication steps>
1. Compliant with DIGEST-MD5?
2. Compliant with CRAM-MD5?
3. Compliant with PLAIN?
4. Compliant with LOGIN?
5. Authentication failure

About the authentication methods

- PLAIN
  This method sends user names/passwords in clear text (not in encrypted form).
- LOGIN
  LOGIN is similar to PLAIN. But it often sends information, as performed with POP3, in divided forms, such as USER xxxxx or PASS xxxxxx. Because the standard specifications of LOGIN are not established, there are e-mail servers that use LOGIN in their own way.
- CRAM-MD5
  With CRAM-MD5, the server sends an arbitrary character string (a challenge string) to the client. The client then performs a specific computing process called MD5 (Message Digest V5) by using the challenge string and the password, and returns the result to the server.
  The server that receives the result also performs the same process. When both results match each other, the server judges that the client knows the correct password and authorizes it.
- DIGEST-MD5
  DIGEST-MD5, an expanded version of CRAM-MD5, has an enhanced resistance to dictionary attack and brute force attack.

Notes

- A name consisting of both one-byte and two-byte characters is not allowed for [Sender's Name] in the [E-Mail Setting] dialog.



- The e-mail transfer of the V8 series does not support SSL/TLS encryption. Transfer to the SMTP server that requires encryption is therefore impossible.
  Example: Google's Gmail
  The available languages for sending e-mails are English and Japanese. If any other languages are used, characters will get garbled.

System Memory ($s1006)

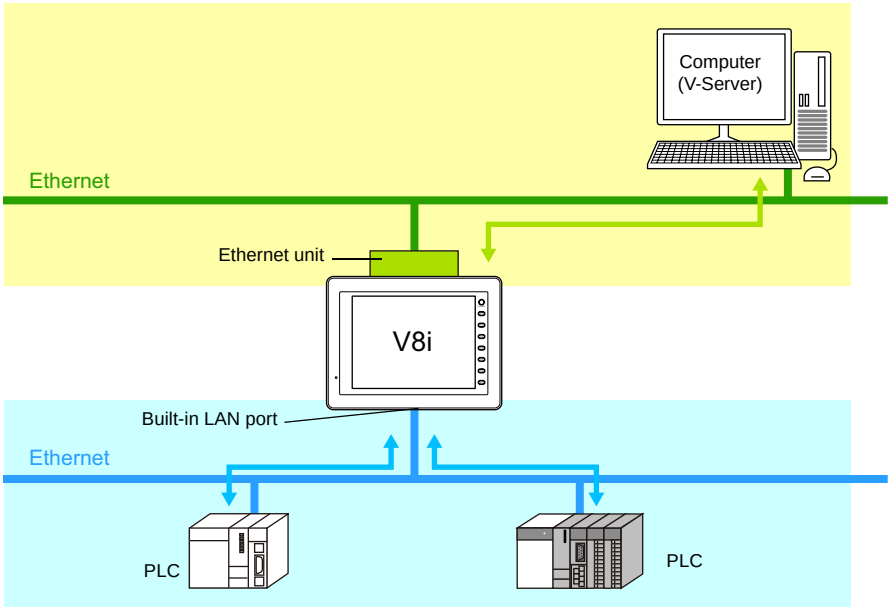
Some changes are made to the error information relevant to e-mailing, which will be stored in memory at $s1006.
The following error numbers will be stored.

Error No.	Description	Solution	Remarks
0	Normal	–	
1	E-mail address error	Check the sender's e-mail address.	
6	Network not connected	Check the connection to the network.	
50	SMPT transmission error	Check the IP address for the SMTP server.	

17.2 Two Ethernet Ports

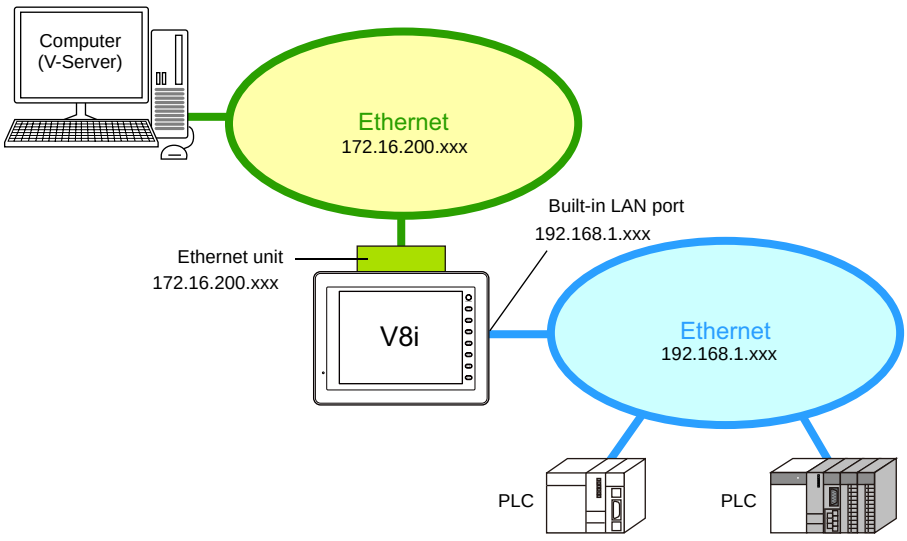
Overview

- On the V8i series (equipped with a built-in LAN port), both the built-in LAN port and an Ethernet unit are usable at the same. They can serve as two different physical ports.



For instance, while the V8i is communicating with PLCs via the built-in LAN port over Ethernet, the V8i can also communicate with the V-Server via the Ethernet unit.

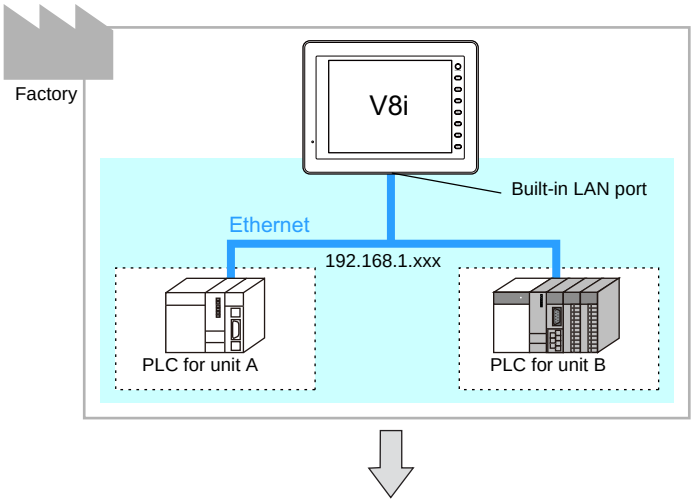
- Networks via the built-in LAN port and the Ethernet unit can be designed separately.



Usage Example

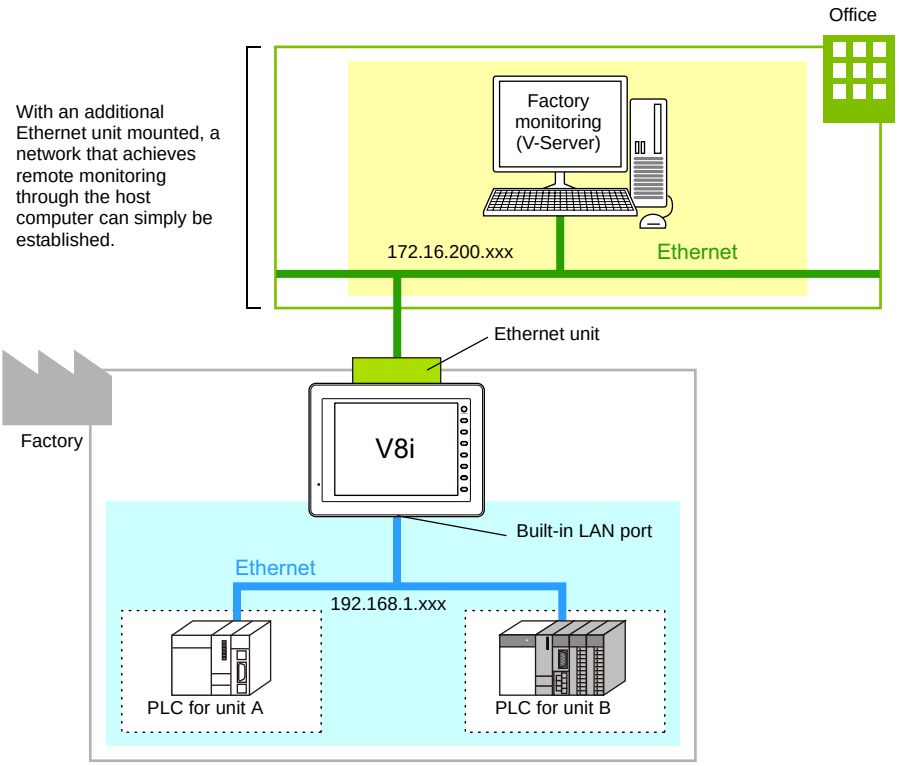
With only one port

V8i is allowed to perform Ethernet communication with PLCs of different manufacturers (PLC for unit A and PLC for unit B) on a LAN (IP address: 192.168.1.xxx) inside the factory.



With two ports

By mounting an Ethernet unit on the present V8i, a new network can be additionally established without the need for changing the current Ethernet network. As a result, a LAN can easily be designed in the office so as to enable the computer installed in the office to monitor the factory.



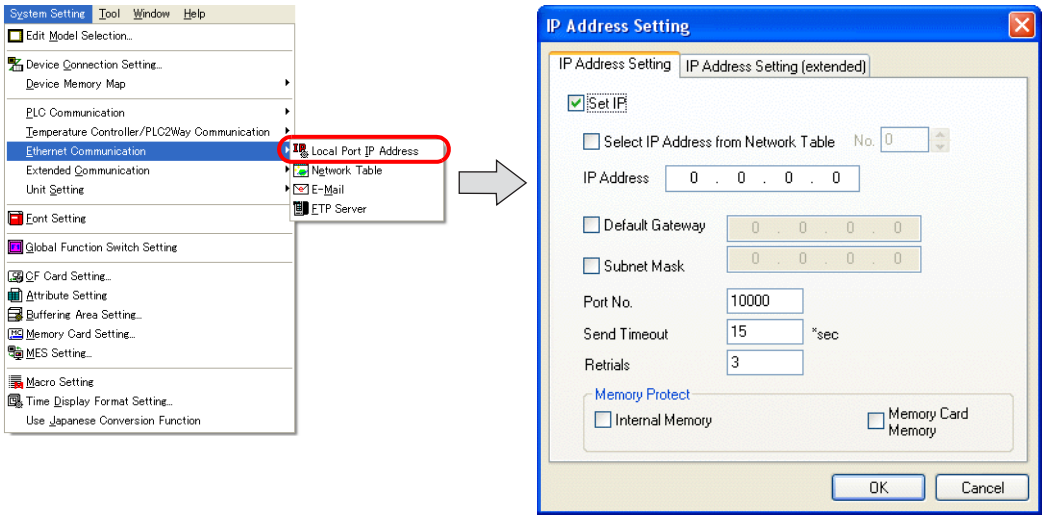
Setting Procedure

IP Address Setting

Two IP addresses must be set for the built-in LAN port and the Ethernet unit.
Click [System Setting] → [Ethernet Communication] → [Local Port IP Address].
The [IP Address Setting] dialog is displayed.

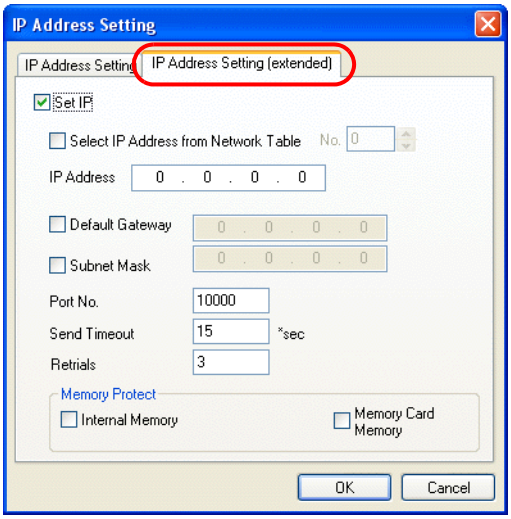
For the built-in LAN port

Set the items in the [IP Address Setting] tab window for the built-in LAN port.



For the Ethernet unit

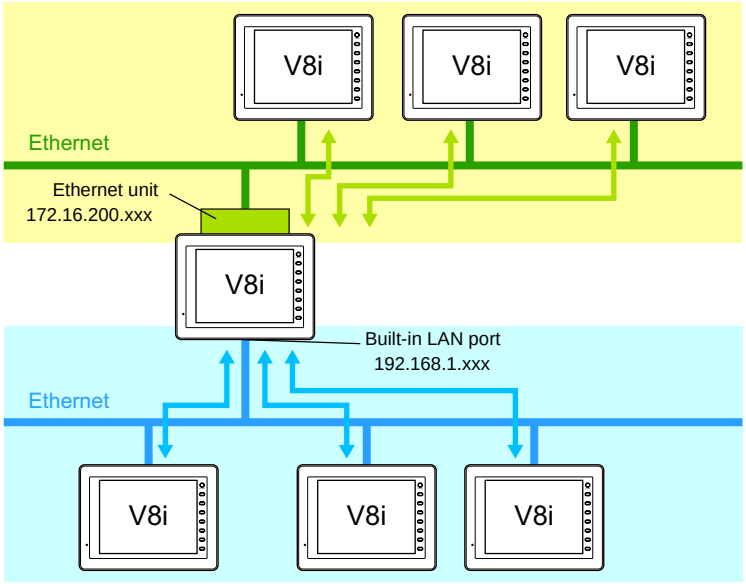
Set the items in the [IP Address Setting (extended)] tab window for the Ethernet unit port.



The included items are the same between the [IP Address Setting] and [IP Address Setting (extended)] tab windows.
For more information, refer to the V8 Series Connection Manual.

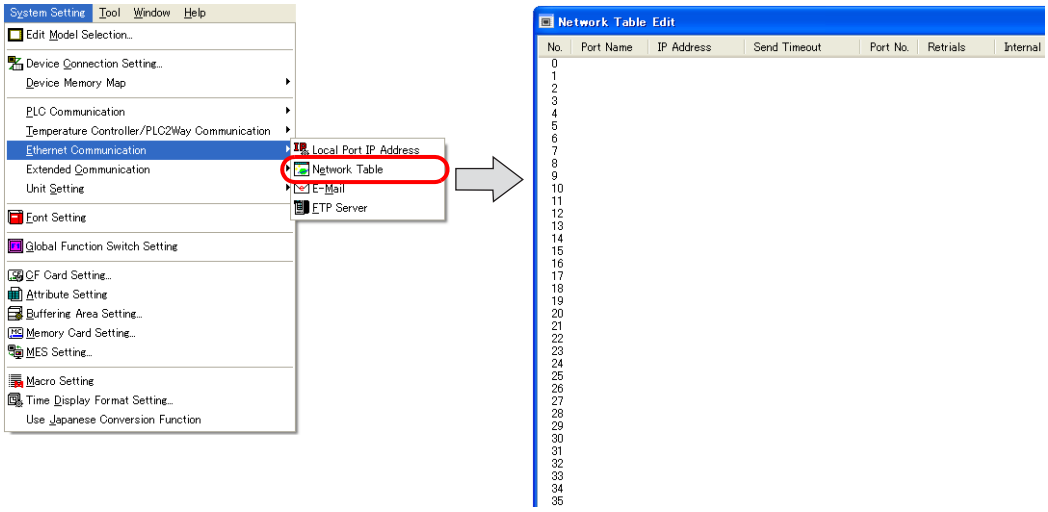
Network Table

In a case where MONITOUCHs are connected as illustrated below, they may communicate with one another using macro commands EREAD and EWRITE (and SEND to send data to the host computer). Communication in this style requires the registration of the IP addresses of the MONITOUCHs (or the host computer) used as the access targets, in addition to the registration of the local port address. Network table registration must therefore be registered.

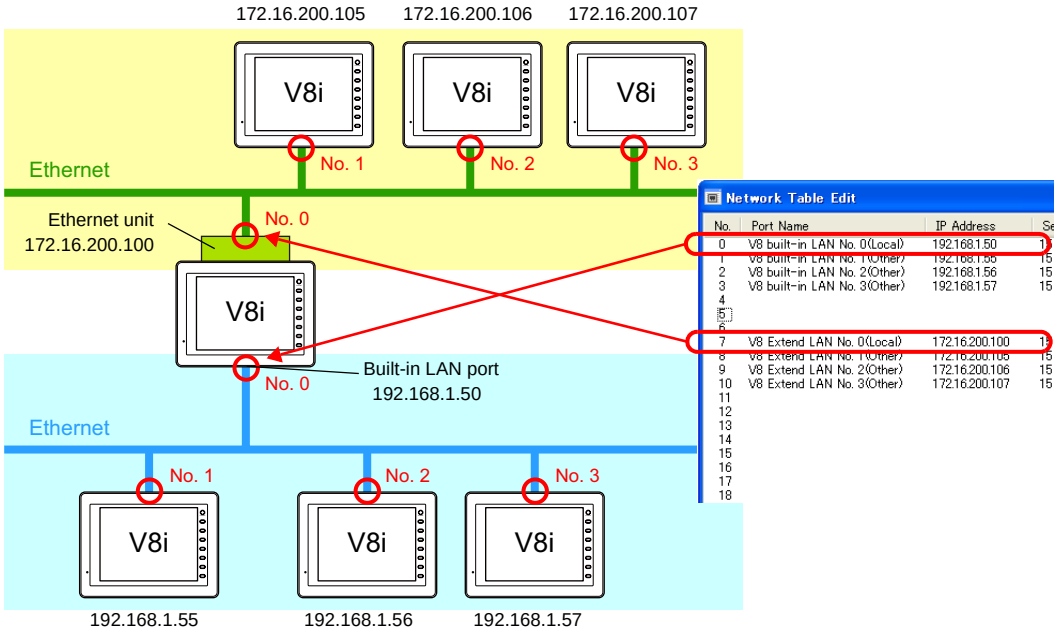


Network table registration

When you use the two ports, go to the [Network Table Edit] window and register network tables (click [System Setting] → [Ethernet Communication] → [Network Table]).



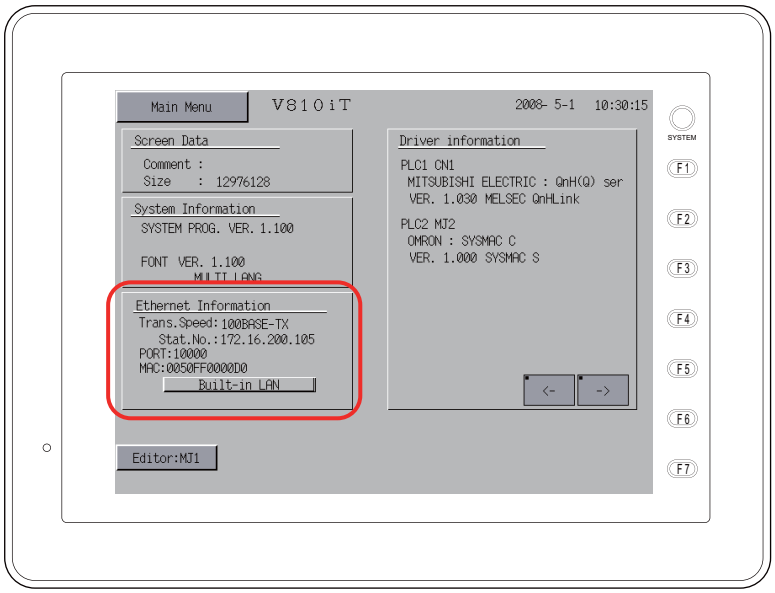
Even when different networks exist, register their respective data including IP addresses in network table editing.



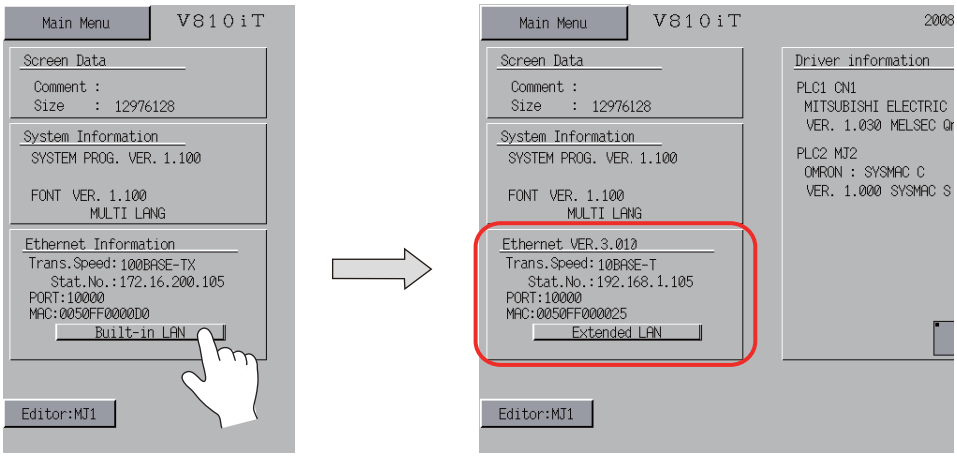
Ethernet Setting on MONITOUCH

Viewing the Ethernet information

The Main Menu screen on MONITOUCH provides information about the built-in LAN port and the Ethernet unit.

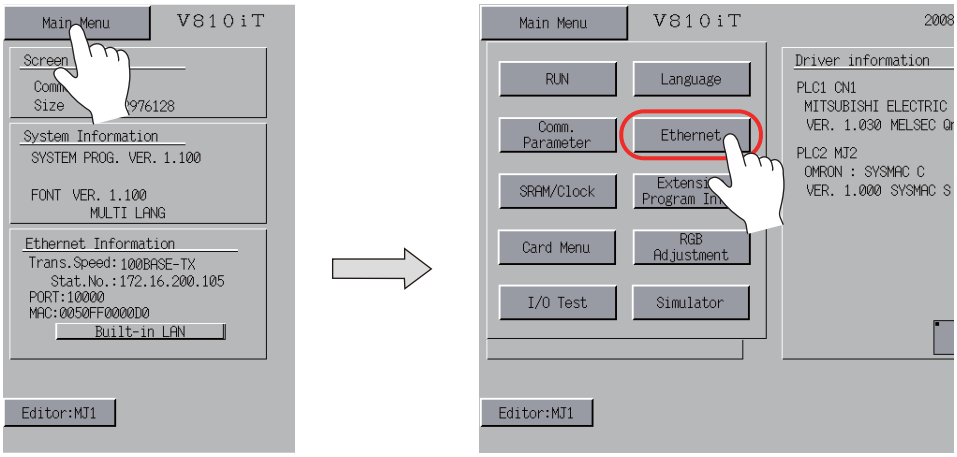


When [Built-in LAN] is displayed in the [Ethernet Information] section on the Main Menu screen, the section shows the information on the built-in LAN port.
Pressing the [Built-in LAN] switch switches it to [Extended LAN]. The section then shows the information on the LAN port for the Ethernet unit.

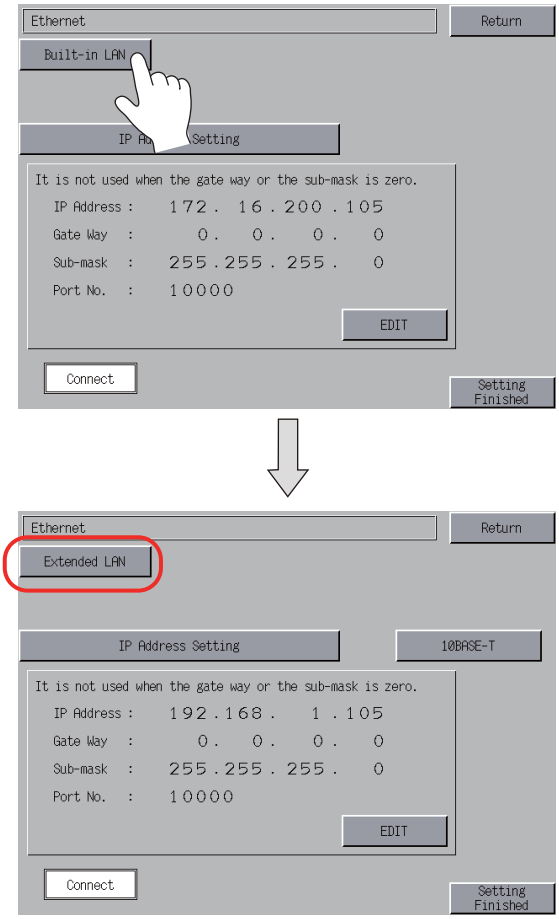


Changing the IP address

When you change the IP address on MONITOUCH, press [Main Menu] → [Ethernet].



When you set the address for the built-in LAN port, show [Built-in LAN].
Pressing the [Built-in LAN] switch switches it to [Extended LAN].



System Memory ($s)

The following describes the system memory associated with two Ethernet ports.

Address	Description	Remarks
$s512	Selection from two Ethernet ports (0: built-in LAN port, other than 0: Ethernet unit)	
513	(Blank)	
514	Macro: Wait request (0: no, 1: yes)	
515	Result of macro execution when the above request is made	
516	(Blank)	
517	(Blank)	
518	Ethernet status (for built-in LAN port)	
519	Ethernet status (for Ethernet unit)*	

* If an Ethernet unit is mounted on the V8 series without the built-in LAN port, $s518 is used for Ethernet status storage.

Description of Addresses

$s512

This address is used to specify a port for sending/receiving Ethernet macros (EREAD/EWRITE/SEND) when two Ethernet ports are used.

0: Built-in LAN port

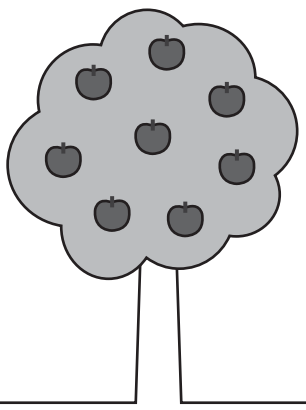
Other than 0: Ethernet unit

The addresses $s514 and $s515 are pertinent to the port selected at $s512.
For more information on $s514 and $s515, refer to the V8 Series Connection Manual.

$s519

This address is enabled only when two ports are used.
The Ethernet status of the Ethernet unit will be stored in memory at $s519.
$s519 is used in the same manner that $s518 is used for the built-in LAN port.
For more information on the address $s518, refer to the V8 Series Connection Manual.

MEMO



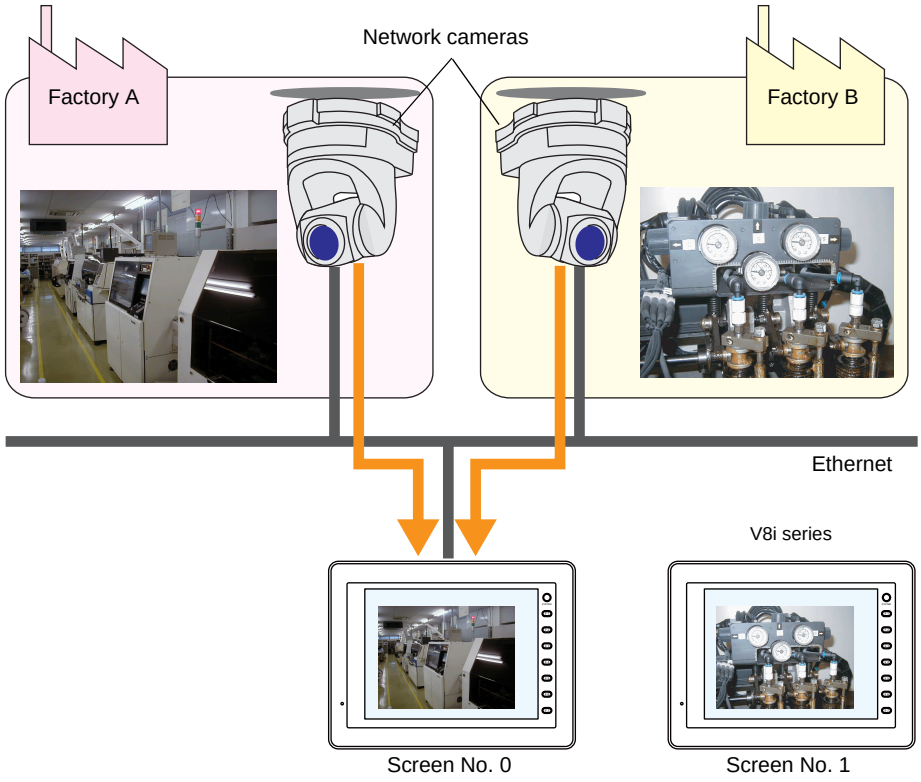
Please use this page freely.

18 Network Camera

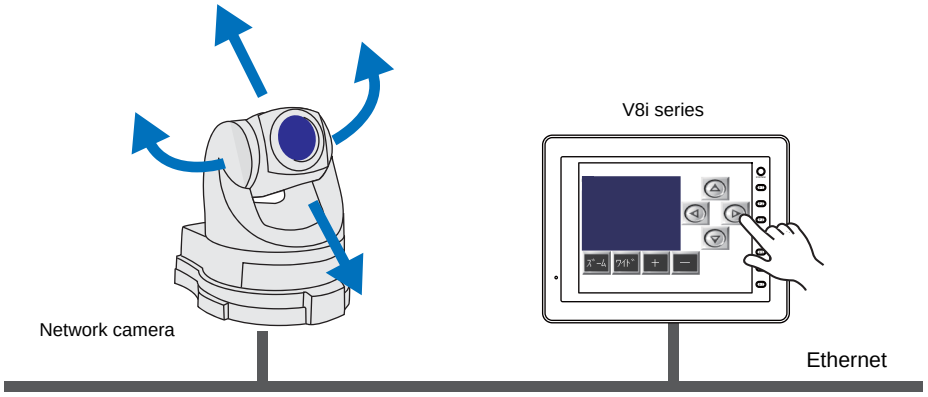
18.1 Overview

- Viewing images taken with a network camera is possible via Ethernet.

Example: Monitoring factory status

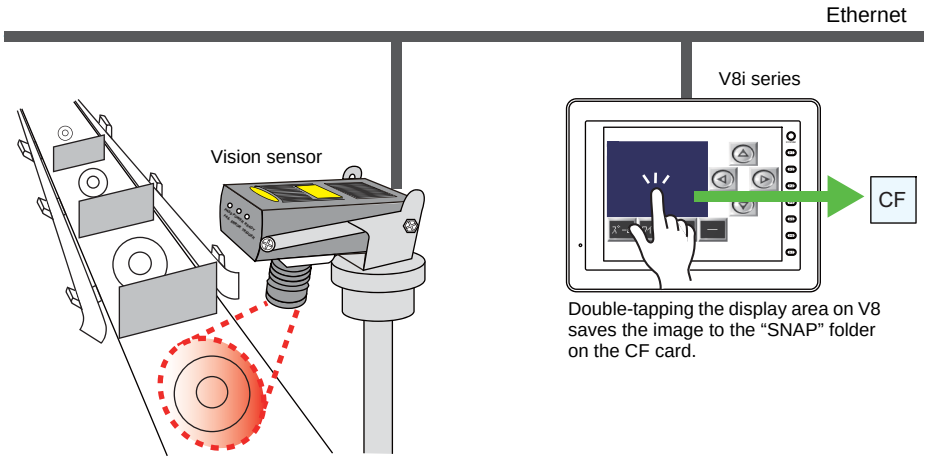


- Network cameras can be redirected easily from remote locations.*



* Some network cameras are not remotely operable. See the specifications of your network camera.
Network camera settings are required for Axis network cameras.
For more information, refer to “Camera Lens Operation from the V8 Series” on page 18-16.

- A currently displayed image can be saved as a JPEG file on a CF card.
  Double-tap the display area to capture the image. (With BANNER sensors only)



*** Macro commands to save captured images are not supported.**

Operating Environment

Available V8 Models

MONITOUCH Model	Port	Color
V815iX/V812iS V810iS/V810iT/V810iC V808iS/V808iC/V808iCH V806iT/V806iC	Built-in LAN	32k or more colors

*** Except for portrait-oriented V808iC or V806i**

Available Network Cameras or Sensors

Maker (Model)	Type	Protocol
Axis	MOTION-JPEG (Moving images)	HTTP protocol communication (TCP/IP)
Panasonic BB series BL series		
BANNER PresencePLUS P4 OMNI	Bitmap (Static images)*	Dedicated protocol

*** When connection between a V8 and a camera or a sensor is first established, no image is displayed on the V8.**
To display images, set the sensor memory PI10000-00 (Trigger) 0 to 1 (leading edge).
To access sensor memory from V8, click [System Setting] → [Device Connection Setting] and set [Maker: BANNER].

Setting Items

V-SFT Setting

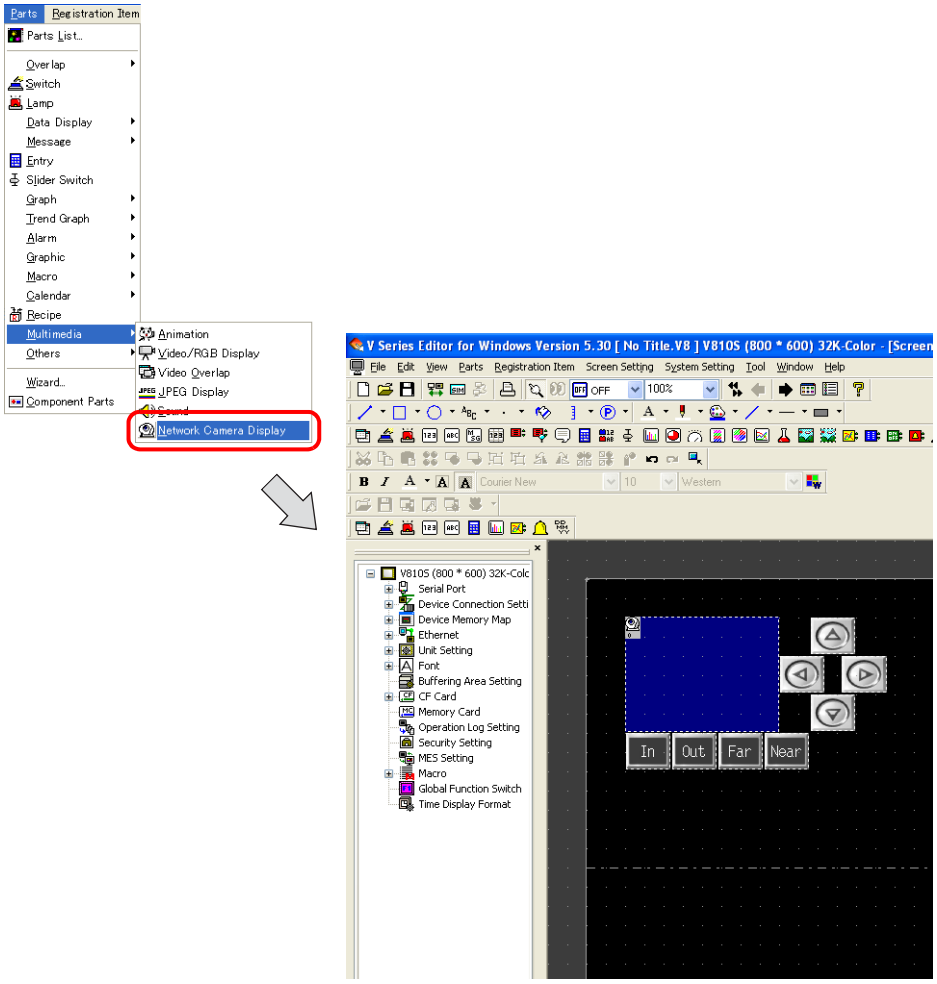
- [Network Camera Display] dialog setting

Network Camera Setting

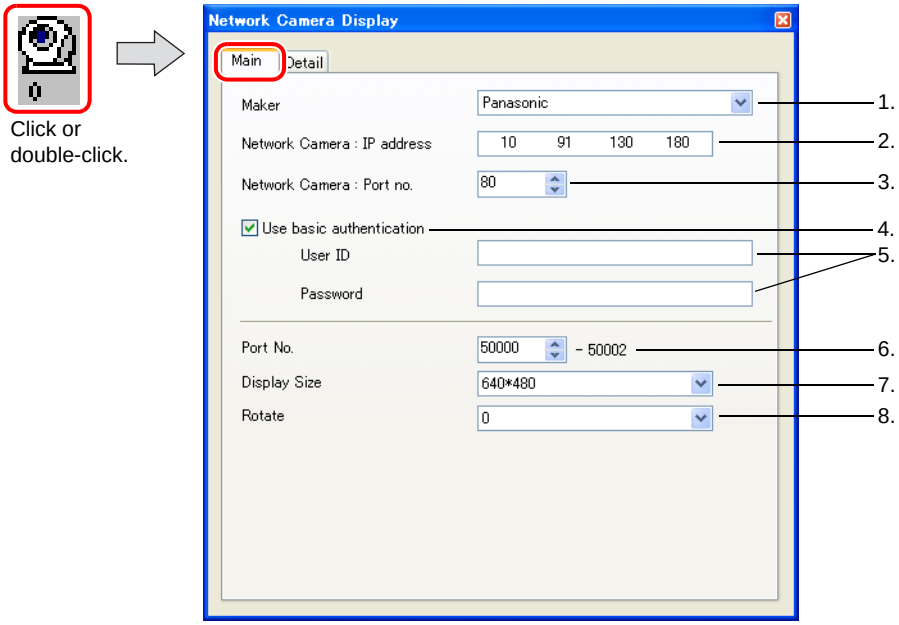
- Axis models → “18.3 Axis Network Camera (Example: Axis 214PTZ)” (page 18-10)
- Panasonic models → “18.4 Panasonic Network Camera (Example: BB-HCM580)” (page 18-17)
- BANNER models → “18.5 BANNER (Example: PresencePLUS P4 OMNI)” (page 18-30)

18.2 V-SFT Setting
[Network Camera Display] Setting

Select [Parts] → [Multimedia] → [Network Camera Display]. An image display part is placed on the screen. (Alternatively you can go to [Parts] → [Parts List], and select [Network Camera Display].)



[Network Camera Display] Dialog



[Main] Tab Window

1.	Maker	AXIS, Panasonic, BANNER
2.	Network Camera: IP address*1	Specify the IP address of the network camera.
3.	Network Camera: Port no. (1 - 65535)	Specify the port number of the network camera. Maker / Default / Remarks Panasonic / 80 / BANNER / 20000 / Setting range for the sensor: 20000 to 20009 * **This setting can be omitted for [Maker: AXIS].**
4.	☐Use basic authentication	If basic authentication is used for the network camera, check this box. For more information, refer to your network camera settings. * **This setting can be omitted for [Maker: BANNER].**
5.	User ID Password	Enter the user name and password registered in the network camera settings. For more information, refer to your network camera settings. * **These settings can be omitted for [Maker: BANNER].**

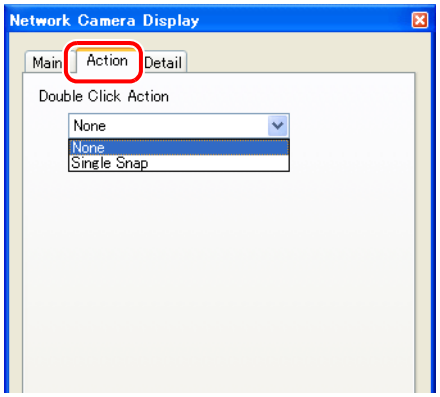
<table>
<tr><td>6. Port No.
(1024 - 65535)</td><td>Specify the port number of V8.
Depending on the network camera manufacturer, the number of ports to be used following the specified port number differs.
<table>
<tr><th>Maker</th><th>No. of Ports</th><th>Default</th></tr>
<tr><td>Axis
Panasonic</td><td>Consecutive 3 ports</td><td>50000 to 50002</td></tr>
<tr><td>BANNER</td><td>1 port</td><td>1969 (fixed)</td></tr>
</table>
</td></tr>
<tr><td>7. Display Size*2
(160*120, 192*144, 320*240, 640*480)</td><td>Select a display size.
* The option “192*144” is invalid for [Maker: AXIS or BANNER].</td></tr>
<tr><td>8. Rotate
(0, 90, 180, 270)</td><td>Select an image rotation angle. Select an angle appropriate for the installed network camera.
When the image display area is linked to the camera icon on the editor software, the area also rotates according to this angle setting.
* The options “90” and “270” are invalid for [Maker: Panasonic or BANNER].</td></tr>
</table>

*1 For how to register the IP address for the network camera, refer to the network camera user’s manual.

Maker	Model (example)	Remarks
Axis	214PTZ	Use Axis’s dedicated tool when changing the default (default: 192.168.0.90).
Panasonic	BB-HCM580	Use the network camera’s accessory CD-ROM when changing the default (default: automatic setup).
BANNER	PresencePLUS P4 OMNI	

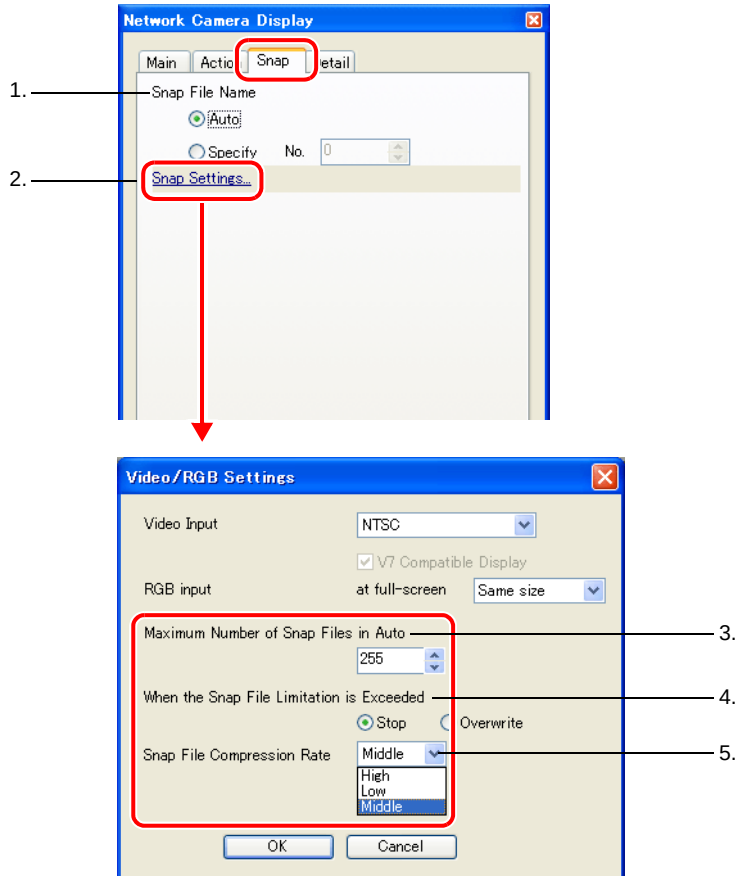
*2 Updating the display of images taken with a network camera is dependent on the image processing cycle. Smaller display sizes are recommended to improve image processing performance.

[Action] Tab Window (For [Maker: BANNER])



Double Click Action	When [Single Snap] is selected, double-tapping the display area saves the image. The file of the image is saved to the “SNAP” folder on the CF card. * **Macro commands to save captured images are not supported.**

[Snap] Tab Window (For [Maker: BANNER])



1.	Snap File Name*1 *2 ([Auto]: 0 - 254 [Specify]: 0 - 32767)	[Auto]: Snapshot files are saved automatically under consecutive numbers starting from “VD00000.jpg”. When the number of snapshot files reaches the [Maximum Number of Snap Files in Auto] (“3” below), previous files will be overwritten starting from the file “VD00000.jpg”. [Specify]: A snapshot file is saved to the specified file “VDxxxxx.jpg”. If the specified file already exists, it is overwritten.
2.	Snap Settings	The [Video/RGB Settings] dialog is displayed. The dialog is commonly used for video and RGB settings.
3.	Maximum Number of Snapshot files in Auto (0 - 255)	Specify the maximum number of times for saving snapshot files to the CF card. This is valid when [Auto] is checked for [Snap File Name] (“1” above).

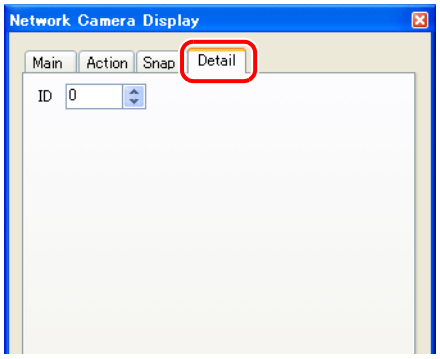
4. When the Snapshot file Limitation is Exceeded	Select the action to take when [Maximum Number of Snap Files in Auto] (“3” above) is exceeded. [Stop]: When the maximum number of snapshots have been taken, saving files stops. [Overwrite]: When the maximum number of snapshots have been taken, the previous snapshot files will be overwritten from the initial file.
5. Snap File Compression Rate (Low/Middle/High)	Select a snapshot file compression rate. [High]: File size decreases with image degradation. [Middle]: File size and image quality are at a medium level. (Approximately twice the level of [High]) [Low]: File size increases with improved image quality. (Approximately twice the level of [Middle])

*1 Setting examples

- [Snap File Name: Auto] and [Maximum Number of Snap Files in Auto: 10]:
  Snapshot files ranging from “VD00000.jpg” to “VD00009.jpg” will be created in sequence. When the file “VD00009.jpg” is created, the previous files will be overwritten from “VD00000.jpg”.
- [Snap File Name: Specify] and [Maximum Number of Snap Files in Auto: 30]:
  Only the file “VD00030.jpg” is created and will be overwritten.

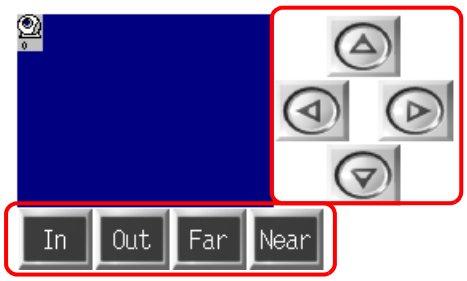
*2 When screen data contains both [Auto] and [Specify] selected for [Snap File Name], enter a value for [Specify] in the 255 to 32767 range so that files according to [Auto] do not overwrite the file according to [Specify].
When [Auto] is selected, the file number saved last is stored in system memory $s932.

[Detail] Tab Window



ID (0 - 255)	Specify the ID. For more information, refer to the V8 Series Operation Manual.

Switches

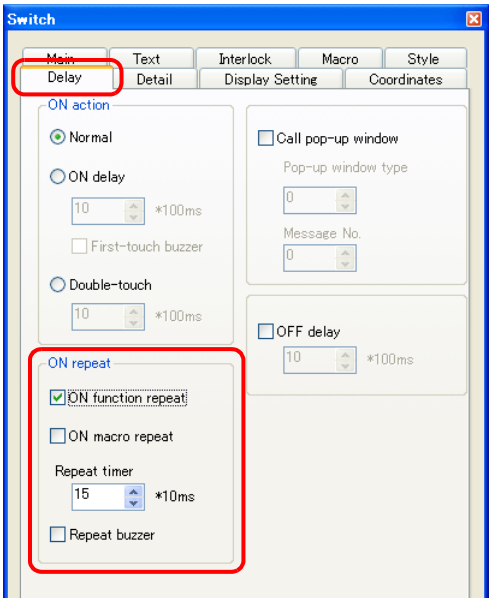


Category	Function *1	Description
Network camera image	Step Left	Turns the camera to the left.
	Step Right	Turns the camera to the right.
	Step Up	Turns the camera upward.
	Step Down	Turns the camera downward.
	Zoom In	Zooms in on an image.
	Zoom Out	Zooms out on an image.
	Focus Far	Focuses the camera on a distant point.
	Focus Near	Focuses the camera on a nearby point.
Video	Pause *2	Stops the movie display.
	Restart *2	Restarts the movie display.

*1 Some models do not support these functions. See your network camera specifications. (No BANNER products support these functions.)

*2 When these switches are linked to the network camera image display, the camera channel settings are invalid.

If the [ON repeat] setting is made in the [Delay] tab window in the [Switch] dialog, the action by the corresponding switch is repeated while it is held down.

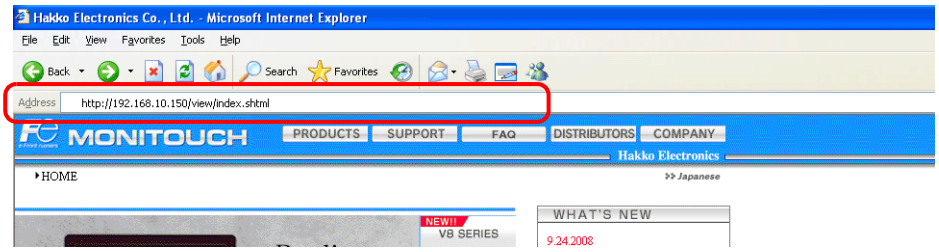


18.3 Axis Network Camera (Example: Axis 214PTZ) Access from the Computer

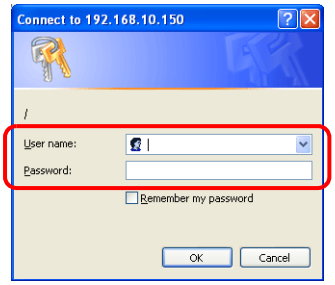
1. Start up Microsoft Internet Explorer on your computer.
2. Enter the IP address of the network camera in the address field.

http://**xxx.xxx.xxx.xxx**

IP address of the network camera

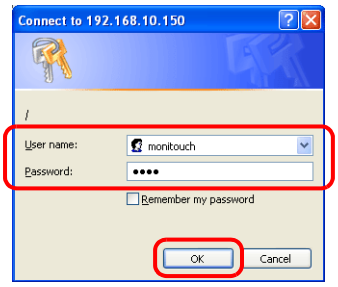


3. When the use of basic authentication* is selected, the following dialog is displayed.
   If basic authentication is not in use, go to step 5.

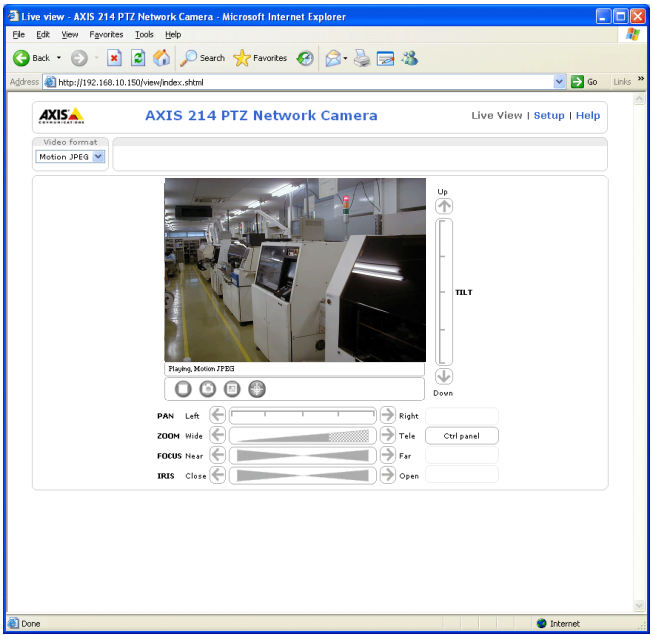


* For more information on basic authentication, refer to “Basic Authentication Setting” page 18-14.

4. Enter the user name and the password as already registered, and click the [OK] button.



5. The [Live view] window is displayed.



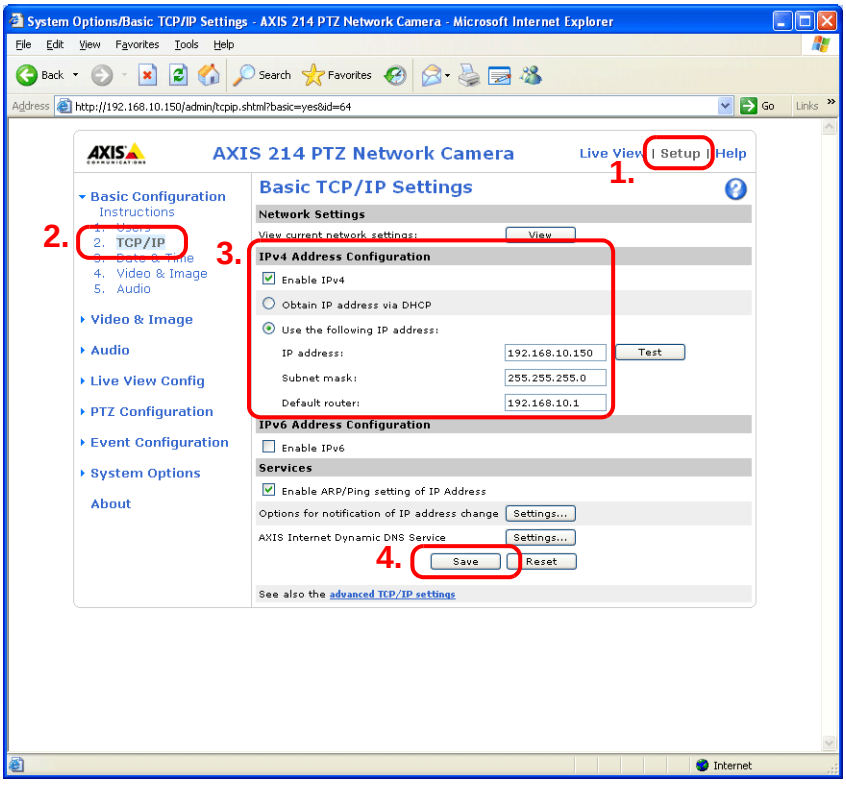
Network Camera Setting

IP Address Check and Change

1. Open the [Setup] window.

> If basic authentication is not in use, pressing the [Setup] button calls up the dialog as shown in step 3 in “Access from the Computer” page 18-10. Enter the user name and the password as already registered.

2. In the menu located to the left of the screen, click [Basic Configuration Instructions] → [2. TCP/IP].
3. Make settings of the network camera IP address, subnet mask, and gateway.



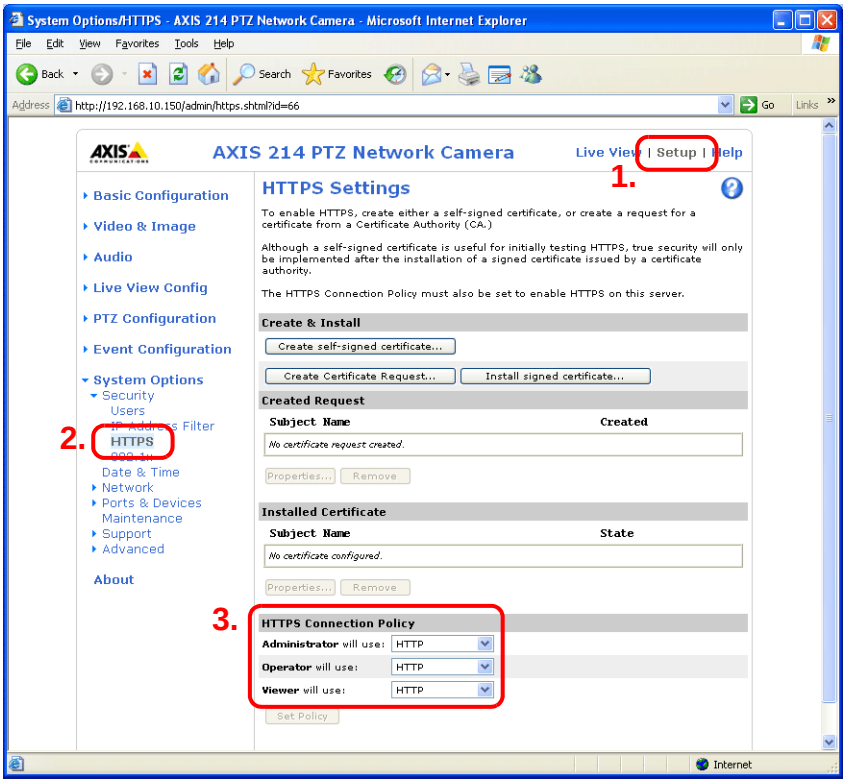
4. If you have made any changes, click the [Save] button to save the changes.

HTTP Setting

1. Open the [Setup] window.

> If basic authentication is not in use, pressing the [Setup] button calls up the dialog as shown in step 3 in “Access from the Computer” page 18-10. Enter the user name and the password as already registered.

2. In the menu located to the left of the screen, click [System Options] → [Security] → [HTTPS].
3. Select “HTTP” for the options under [HTTPS Connection Policy]. (“HTTP” is selected as default.)



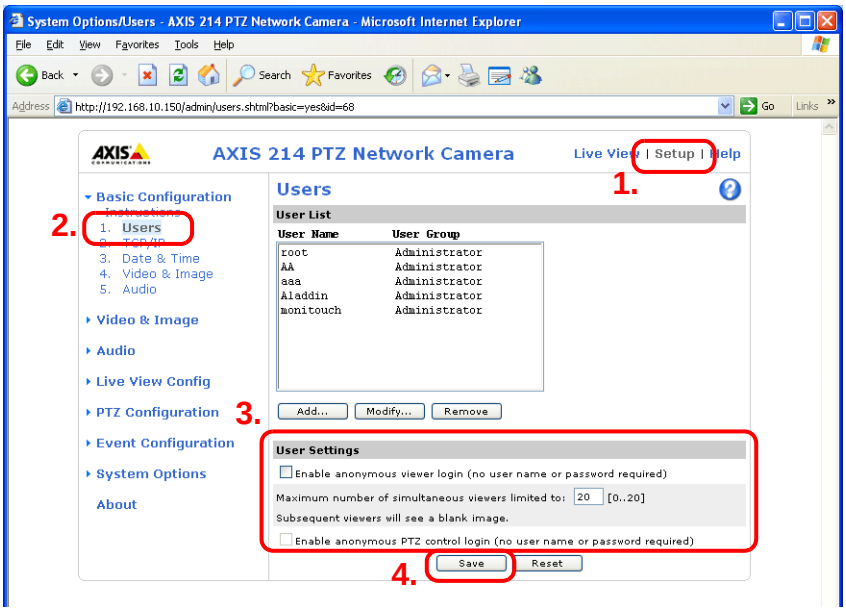
Basic Authentication Setting

Basic authentication is provided to permit or prohibit access from anonymous users.
The use of basic authentication prohibits access from anonymous users.

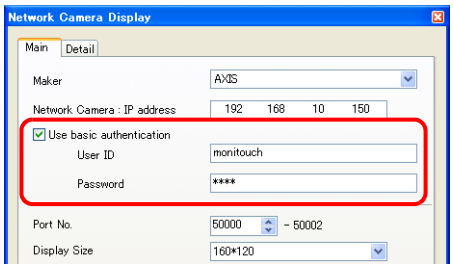
1. Open the [Setup] window.

> If basic authentication is not in use, pressing the [Setup] button calls up the dialog as shown in step 3 in “Access from the Computer” page 18-10. Enter the user name and the password as already registered.

2. In the menu located to the left of the screen, click [Basic Configuration Instructions] → [Users].
3. If there is no check mark for the options under [User Settings], basic authentication is required for the network camera.



> When selecting the use of basic authentication, make the following settings in the V-SFT software: As shown below, check [☐ Use basic authentication] and then enter the user ID and the password as already registered. To see the registered user name and the password, refer to “User Name and Password Check and Registration” page 18-15.



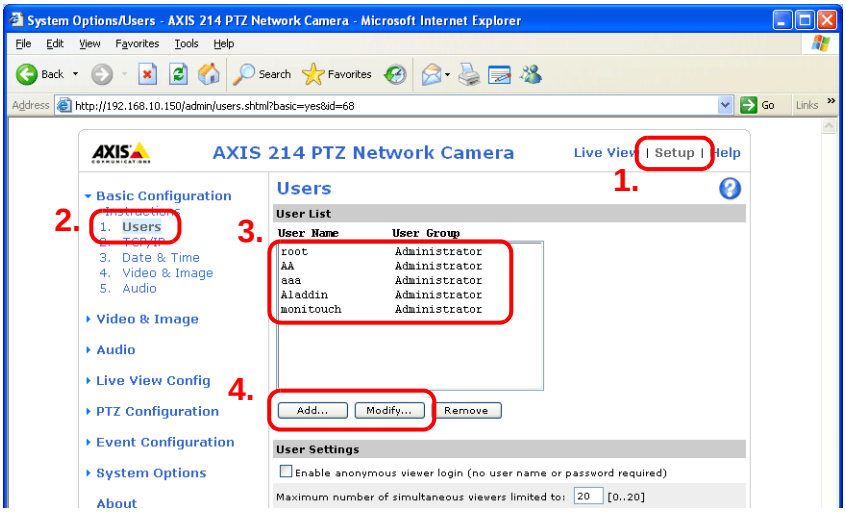
4. If basic authentication is not necessary, check [☐ Enable anonymous viewer login (no user name or password required)] for [User Settings] and click the [Save] button for confirmation.
   * When operating the camera by the switch on the V8 series, check [☐ Enable anonymous PTZ control login (no user name or password required)] and click the [Save] button for confirmation. For more information, refer to “Camera Lens Operation from the V8 Series” (page 18-16).

User Name and Password Check and Registration

1. Open the [Setup] window.

> If basic authentication is not in use, pressing the [Setup] button calls up the dialog as shown in step 3 in “Access from the Computer” page 18-10. Enter the user name and the password as already registered.

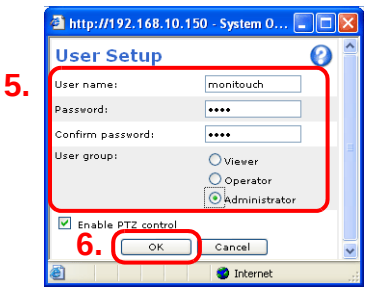
2. In the menu located to the left of the screen, click [Basic Configuration Instructions] → [Users].
3. If user registration has already been completed, the registered contents are displayed under [User List].
4. When registering a new user, click the [Add...] button. When making changes to the registration, click the [Modify...] button.



5. The [User Setup] window is displayed.
   Enter the desired name for [User name]. Also enter the same password for [Password] and [Confirm password].

> Check [Administrator] for [User group].

6. Click [OK] to complete the setting.

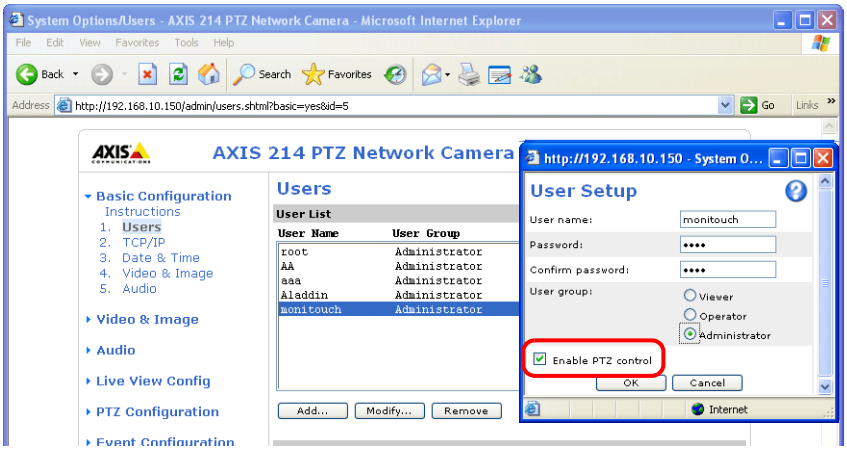


Camera Lens Operation from the V8 Series

You can manipulate the camera lens by using the switches from the V8 series.

- With basic authentication

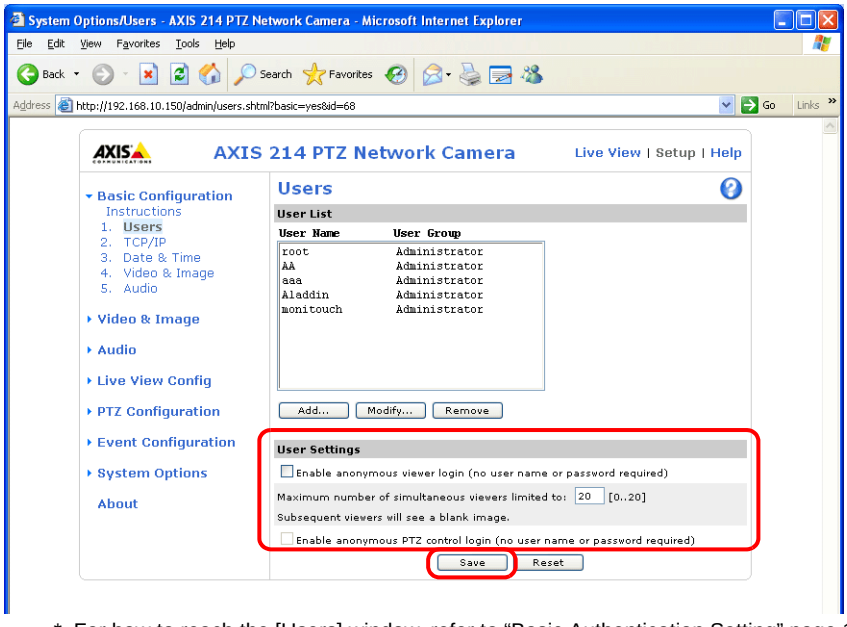
  Open the [User Setup] window* and check [☐Enable PTZ control].



* For how to reach the [User Setup] window, refer to “User Name and Password Check and Registration” page 18-15.

- Without basic authentication

  Open the [Users] window*. Check both boxes under [User Settings] and click the [Save] button for confirmation.



* For how to reach the [Users] window, refer to “Basic Authentication Setting” page 18-14.

18.4 Panasonic Network Camera (Example: BB-HCM580)

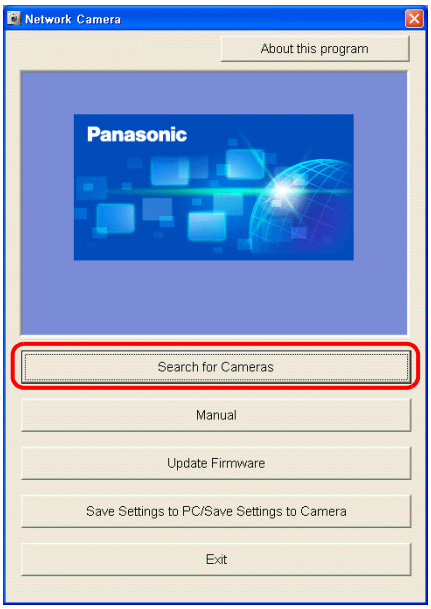
Access from the Computer

You can access from your computer to a network camera via the CD-ROM included with the network camera or via web browser.

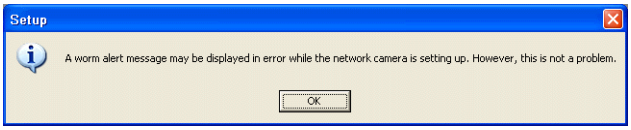
*** Choose the method using the CD-ROM when setting a factory-shipped network camera first.**

CD-ROM

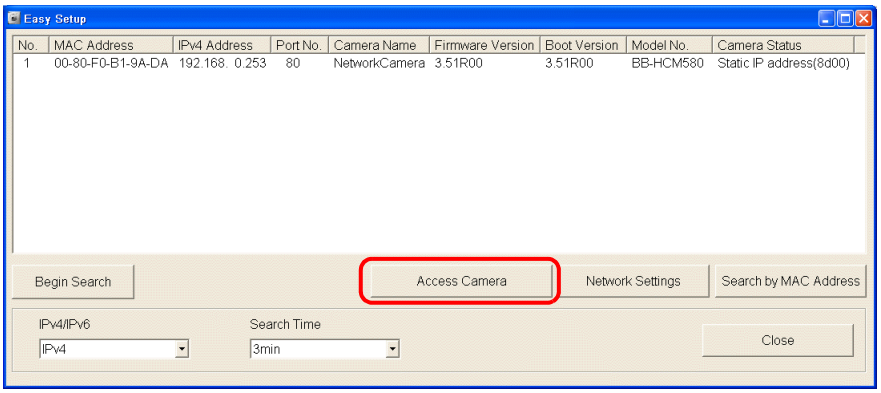
1. Load the CD-ROM included with the network camera into your computer.
2. The [Network Camera] dialog is displayed. Click [Search for Cameras]. Search starts to find the camera, which you are attempting to connect with the computer.



3. The following message appears. Click [OK].



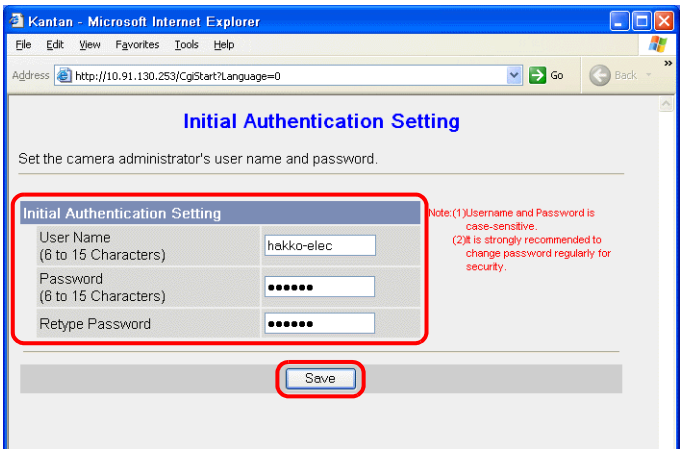
4. When the target network camera is found, its information, such as the MAC address and IP address, is displayed in the [Easy Setup] dialog. Click [Access Camera].*



*** If the IP address of the network camera does not exist in the network group of the computer, click the [Network Settings] button. In the dialog to be displayed, change the IP address of the network camera so that it belongs to the network group of the computer.**

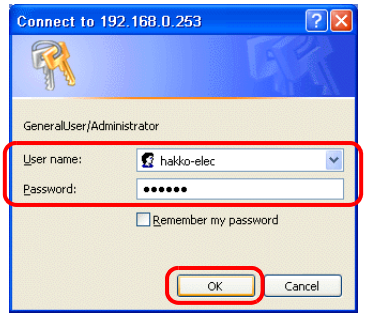
5. When you attempt to connect a factory-shipped network camera to your computer first, the [Initial Authentication Setting] screen appears.
Register a user name and a password for the administrator. (When they have already been registered, go to step 6.) For more information, refer to the network camera user's manual.

The password registered in this step is required for access to the network camera.
Be careful in managing your password not to forget it.

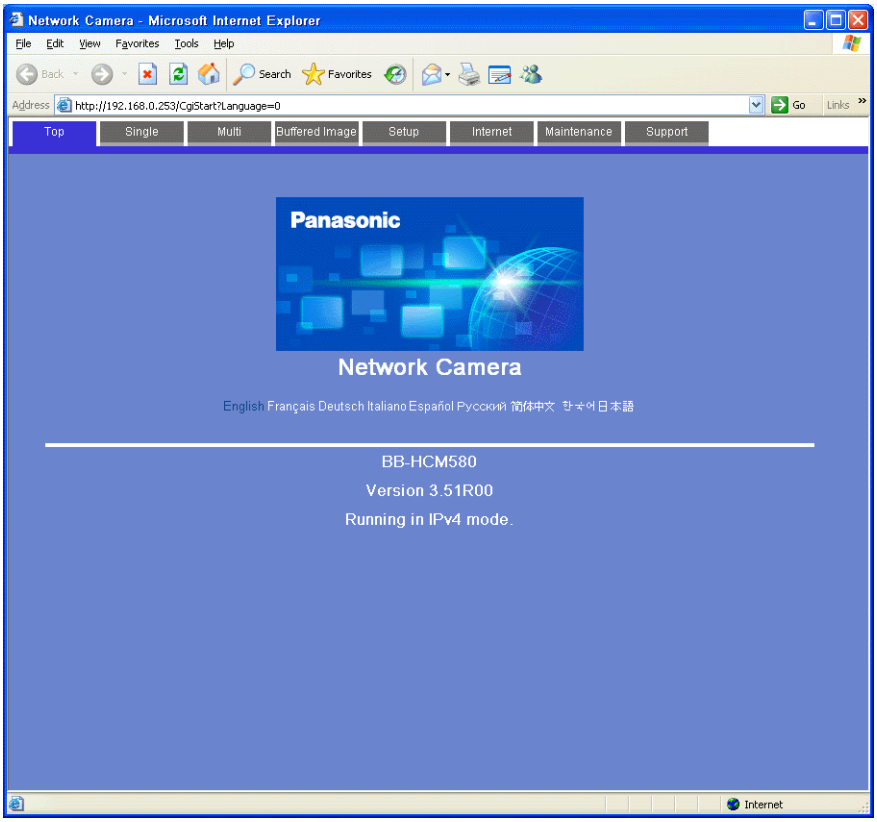


6. The authentication dialog is displayed.
   Enter the administrator-level user name and the password and click [OK].

> When [Permit access from guest users] is checked on the [Administrator] page, the [Top] tab window is displayed. Click the [Login] tab.
> For more information, refer to “Authentication Setting” page 18-24.



7. The [Top] tab window is displayed.
   (This tab window is displayed when login authentication is performed with the administrator-level user name and password. In the case of login by a general or guest user, the tab window to be displayed slightly varies in menu.)



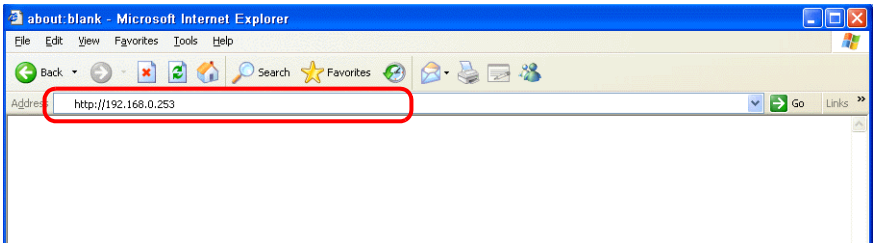
Web Browser (Microsoft Internet Explorer)

1. Start up Microsoft Internet Explorer on your computer.
2. Enter the IP address and the port number of the network camera in the address field.

   *** When the factory-set port No. 80 is used, the entry of the port number may be omitted.**

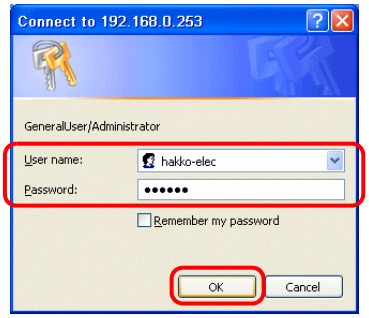
http://**xxx.xxx.xxx.xxx** : Port number/

Network camera IP address

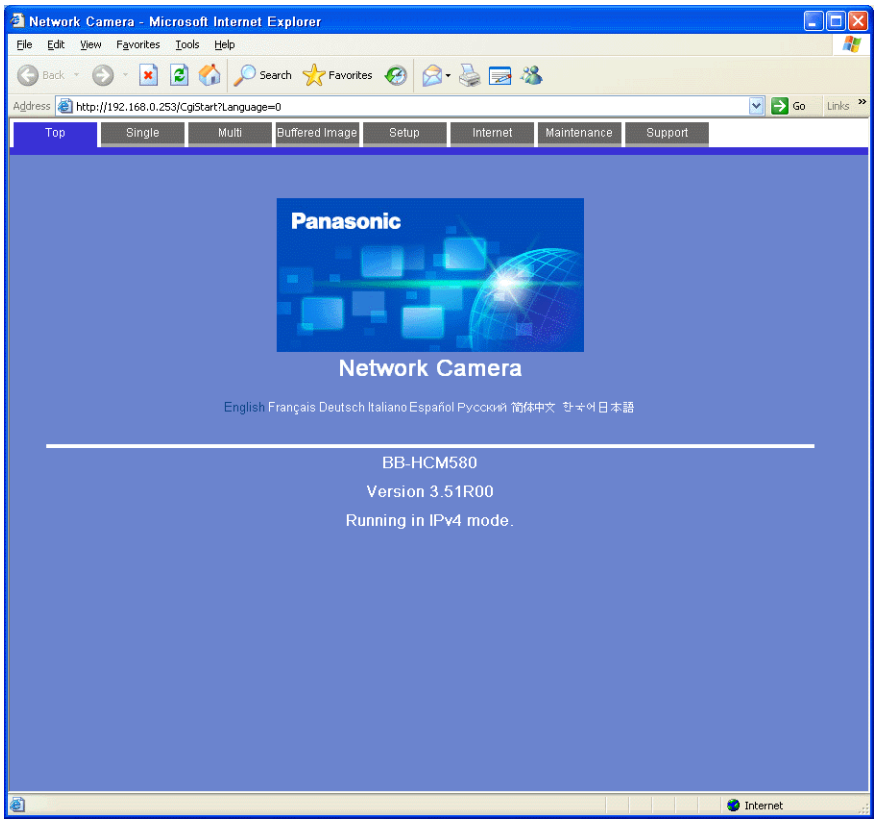


3. The authentication dialog is displayed.
   Enter the administrator-level user name and the password and click [OK].

When [Permit access from guest users] is checked on the [Administrator] page, the [Top] tab window is displayed. Click the [Login] tab.
For more information, refer to “Authentication Setting” page 18-24.



4. The [Top] tab window is displayed.
(This tab window is displayed when login authentication is performed with the administrator-level user name and password. In the case of login by a general or guest user, the tab window to be displayed slightly varies in menu.)

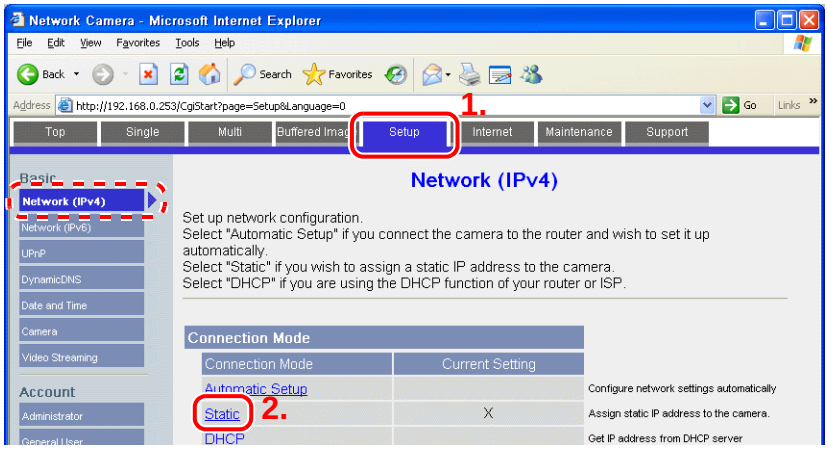


Network Camera Setting

IP Address Check and Change

*** Login with the administrator-level user name and password is required to proceed to the following tab window setting.**

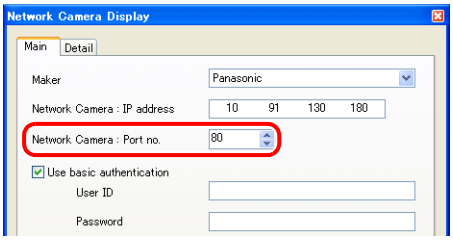
1. Click the [Setup] tab.
2. Check that [Network (IPv4)] is selected in the [Basic] menu at the left of the screen. Go to the [Connection Mode] area and click [Static].



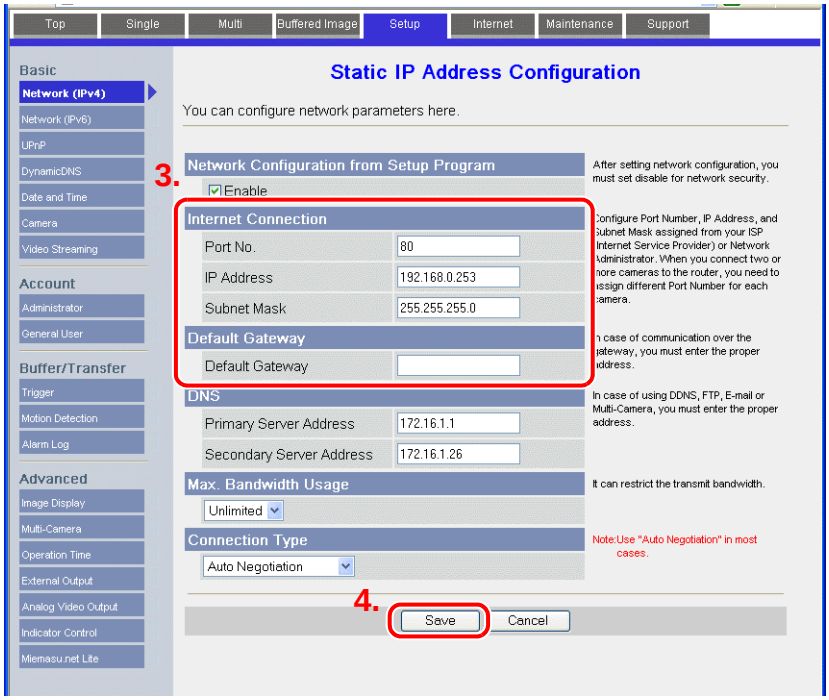
3. Make settings of the network camera port number*, IP address, subnet mask, and gateway.

*** The default port No. is 80. Enter a port number in the 1 to 65535 range.**

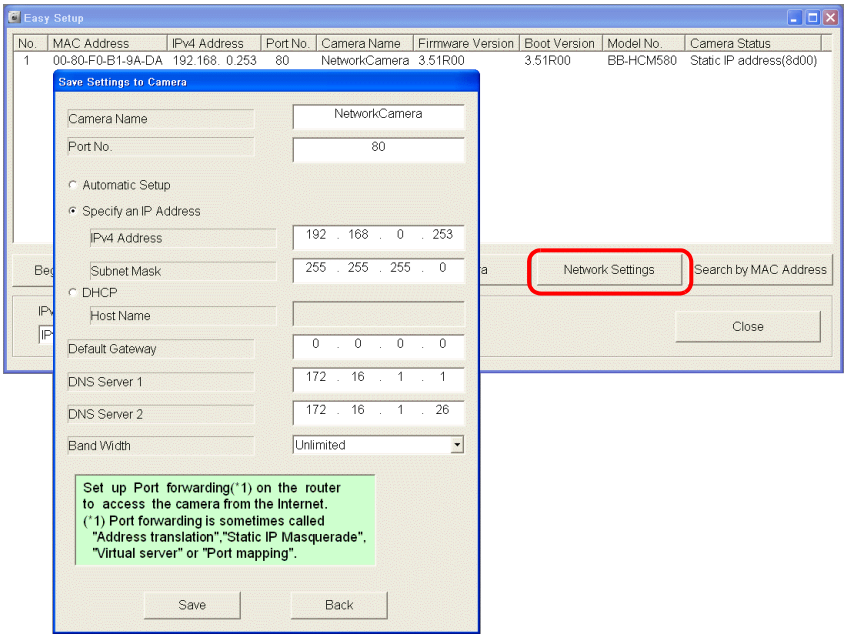
Enter a port number for [Network Camera: Port no.] in the [Network Camera Display] dialog in V-SFT.



4. Click [Save] to save the settings made in the previous steps.



With the CD-ROM accompanying the network camera, reviewing and changing the IP address is possible through the [Network Settings] button placed in the [Easy Setup] window.



Authentication Setting

Authentication setting is made to permit or prohibit access from anonymous users.

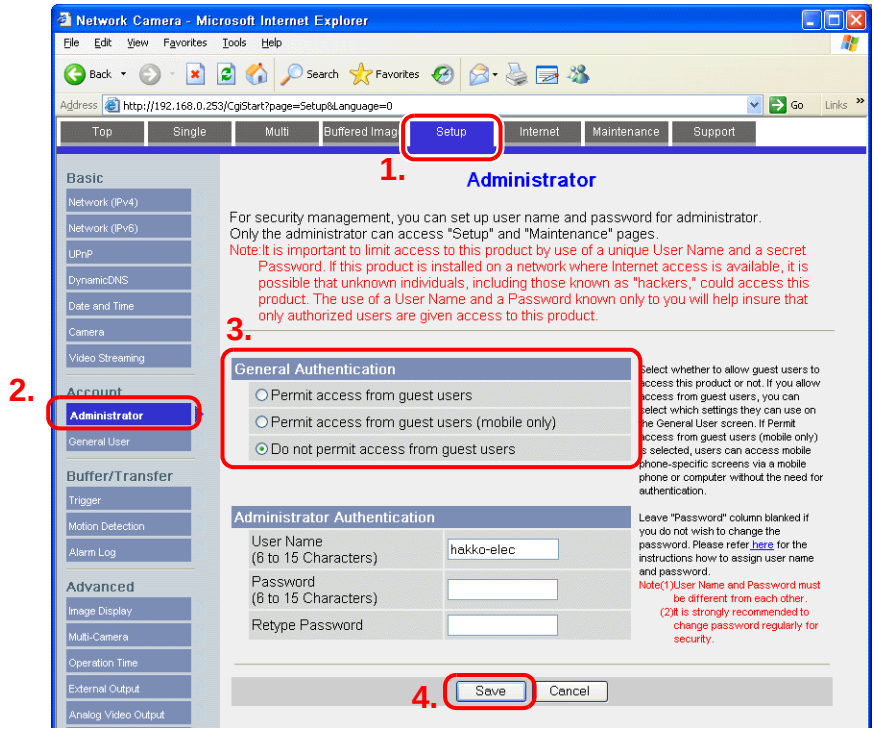
This setting enables you to deny access from anonymous users.

*** Login with the administrator-level user name and password is required to proceed to the following tab window setting.**

1. Click the [Setup] tab.
2. Go to the [Account] menu at the left of the screen. Click [Administrator].
3. In the [General Authentication] area, choose either [Permit access from guest users] or [Do not permit access from guest users].

Permit access from guest users	This option allows anyone to access the network camera without the user name and the password.
Do not permit access from guest users	Whenever you attempt to access the network camera, the authentication dialog appears. By entering the user name and the password as registered, you are granted access to the network camera.

4. Click [Save] to save the setting made in the previous step.



When the option [Do not permit access from guest users] is checked, make the following settings in the V-SFT software. As shown below, check [☐ Use basic authentication] and then enter the user ID and the password as already registered. To see the registered user ID and password, refer to “User Name and Password Check and Registration” page 18-27.

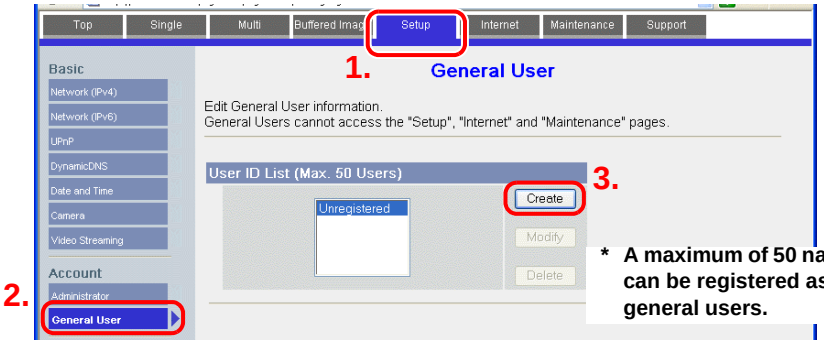
General User Registration and Change

When anyone other than the administrator should gain access to the network camera, general user registration is required.

*** Login with the administrator-level user name and password is required to proceed to the following tab window setting.**

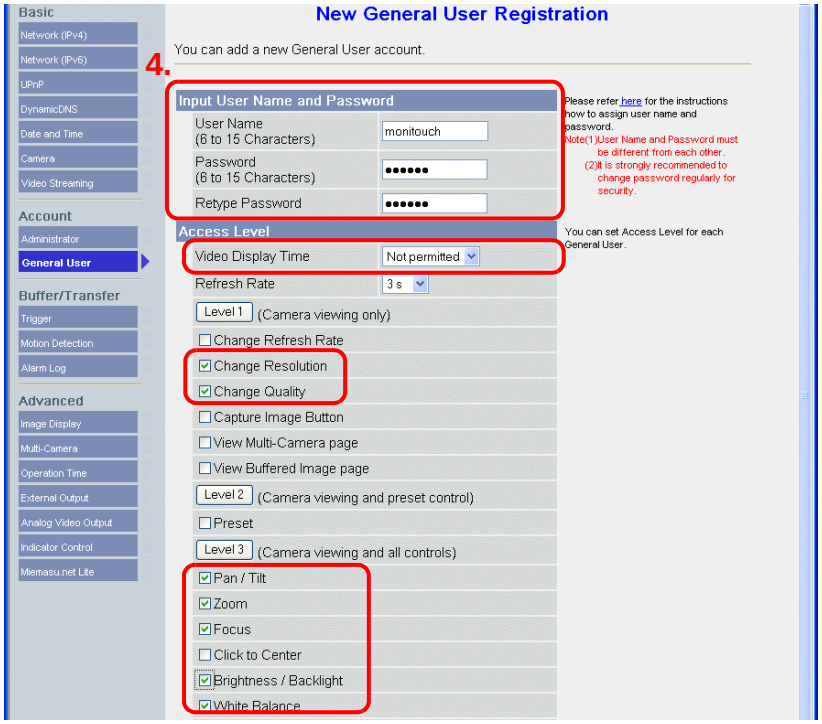
New general user registration

1. Click the [Setup] tab.
2. Go to the [Account] menu at the left of the screen. Click [General User].
3. Click [Create].



4. The [New General User Registration] page is displayed. Set the data items as specified below.

> The password registered in this step is required for access to the network camera. Be careful in managing your password not to forget it.



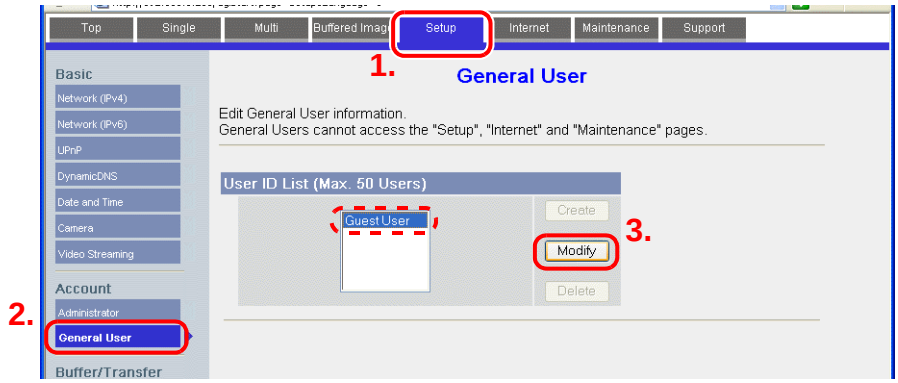
5. Click [Save] to save the settings made in the previous steps.

Changes to the guest user settings

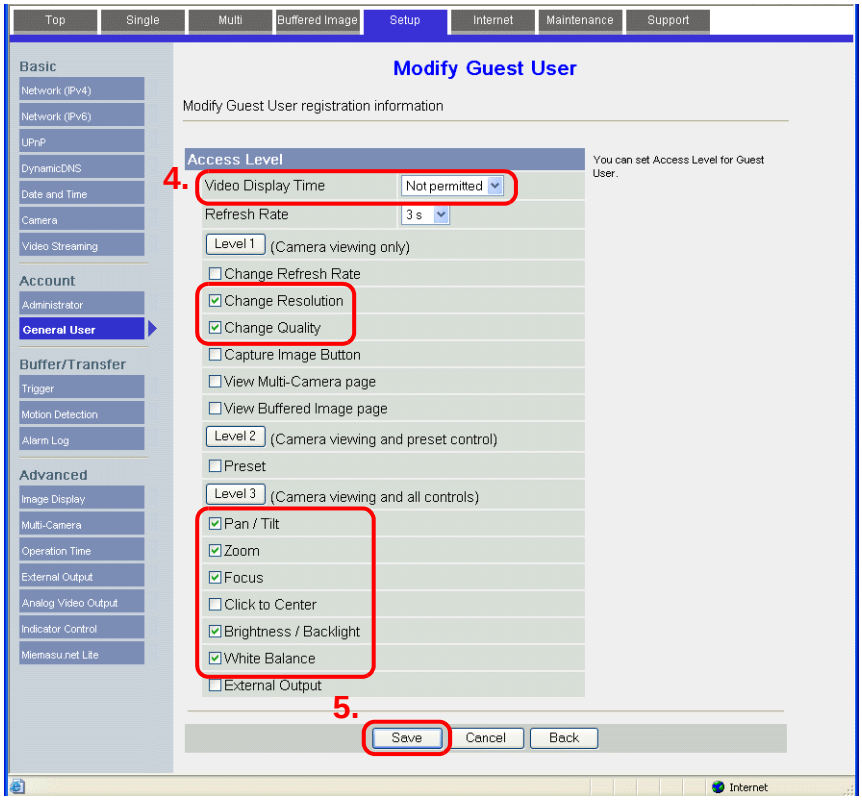
The explanation hereafter is associated with a case where [Permit access from guest users] is checked in the [General Authentication] area.

When someone gains access to the network camera without the user name and the password, the features of the camera made available are limited according to the settings in the following tab window.

1. Click the [Setup] tab.
2. Go to the [Account] menu at the left of the screen. Click [General User].
3. Check that [Guest User] is selected in the [User ID List]. Click [Modify].



4. The [Modify Guest User] page is displayed. Set the data items as specified below.
5. Click [Save] to save the settings made in the previous steps.



User Name and Password Check and Registration

When a password has already been registered, the [Password] field is blanked out.
Be careful in password management. If you forget the password, a password newly registered is usable for authentication.

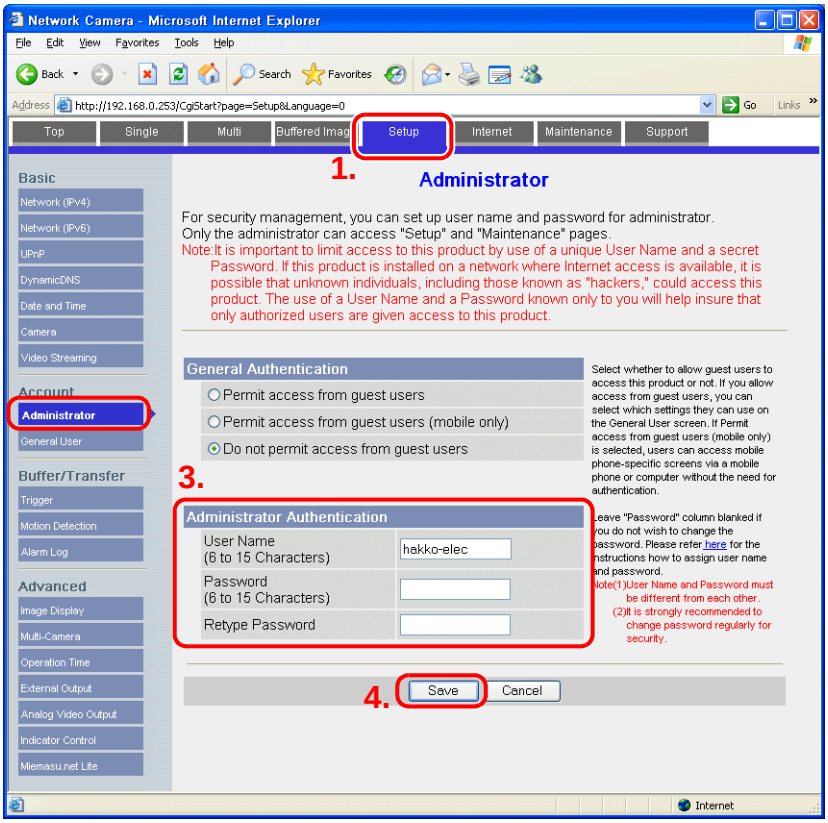
In a case where [☑ Do not permit access from guest users] is checked in the [General Authentication] area, the user name and the password registered for the administrator or a general user in the network camera setting tab window must be set in the V-SFT software.

For more information on the authentication settings, refer to “Authentication Setting” (page 18-24).

*** Login with the administrator-level user name and password is required to proceed to the following tab window setting.**

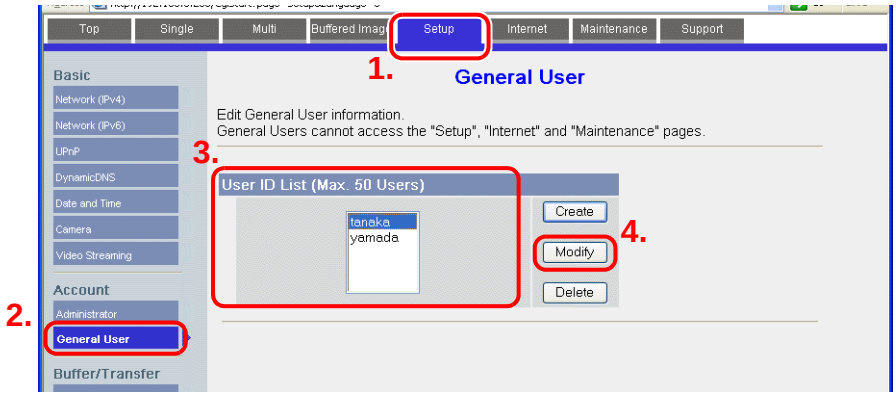
For the administrator

1. Click the [Setup] tab.
2. Go to the [Account] menu at the left of the screen. Click [Administrator].
3. Review the settings in the [Administrator Authentication] area.
4. If any changes are made to these fields, click [Save] to save the changes.



For general users

1. Click the [Setup] tab.
2. Go to the [Account] menu at the left of the screen. Click [General User].
3. Select the target user name from the [User ID List].
4. Click [Modify].



5. Review the settings in the [Input User Name and Password] area.
6. If any changes are made to these fields, click [Save] to save the changes.

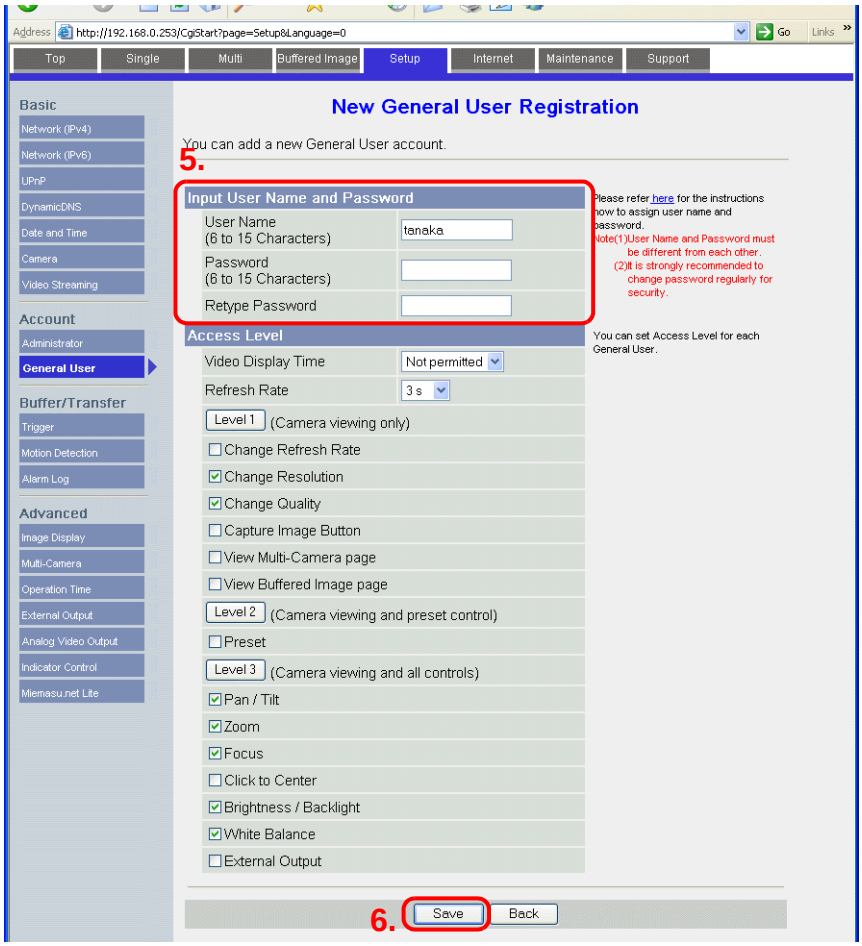


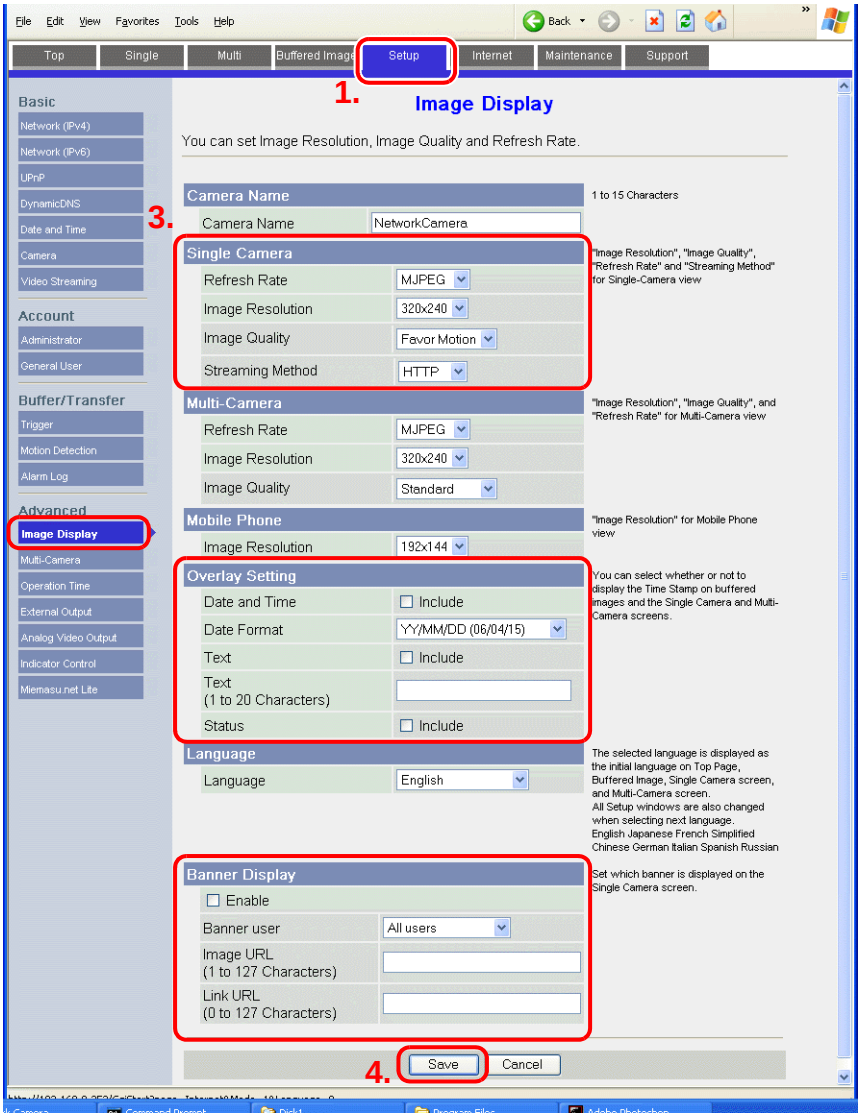
Image Display Setting

*** Login with the administrator-level user name and password is required to proceed to the following tab window setting.**

1. Click the [Setup] tab.
2. Go to the [Advanced] menu at the left of the screen. Click [Image Display].
3. Set the data items as specified below.

> While the V8 unit is in communication with the network camera, the settings for the V8 unit will be overwritten according to the following tab window. Because this overwriting is likely to be somewhat time-consuming, the V8 settings should be made the same as the contents in the tab window beforehand.

4. Click [save] to save the settings made in the previous steps.

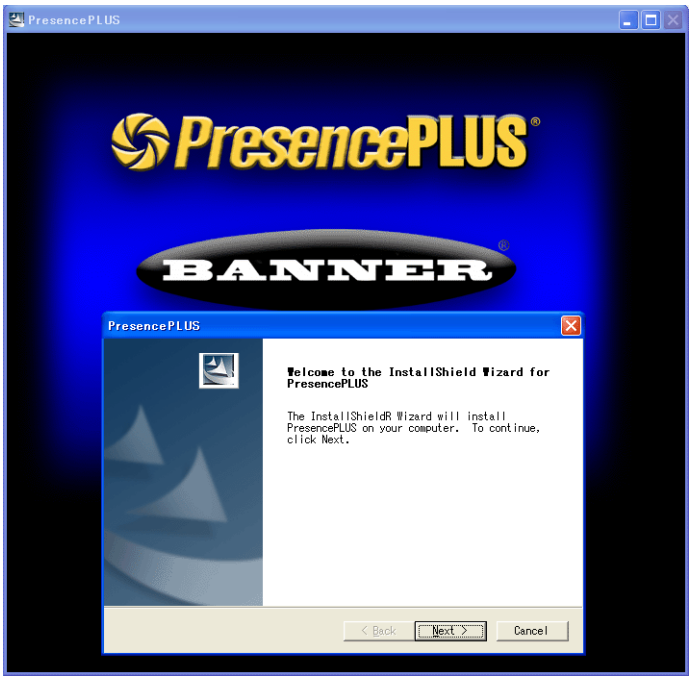


18.5 BANNER (Example: PresencePLUS P4 OMNI) Access from the Computer

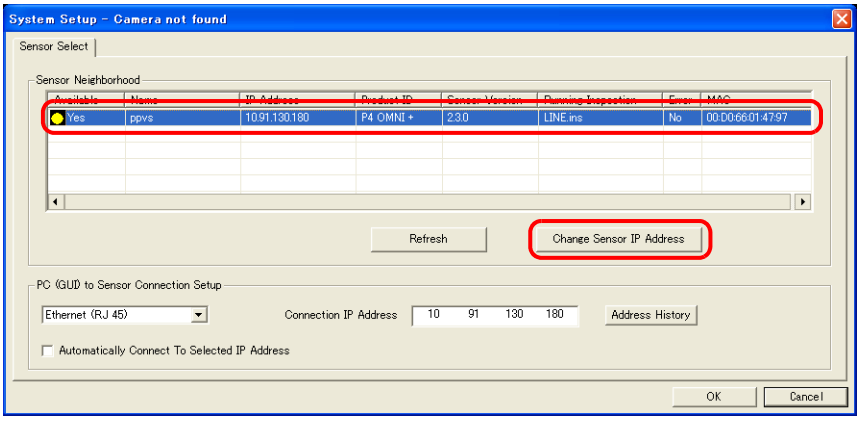
When accessing from a computer to a sensor, use the software “PresencePLUS” dedicated to the sensor.

The CD-ROM accompanying the sensor includes this software. Load the CD-ROM into the computer and install the software.

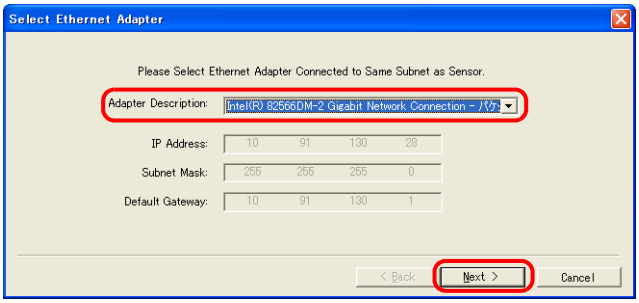
For installation procedure, refer to the manual issued by BANNER.



1. Start the software “PresencePLUS”.
2. The [System Setup] dialog is displayed.
   When a connected sensor is found, the information on the sensor, including the IP address and MAC address, appears in the dialog.
   Select the desired sensor listed under [Sensor Neighborhood] with the cursor and click [Change Sensor IP Address].

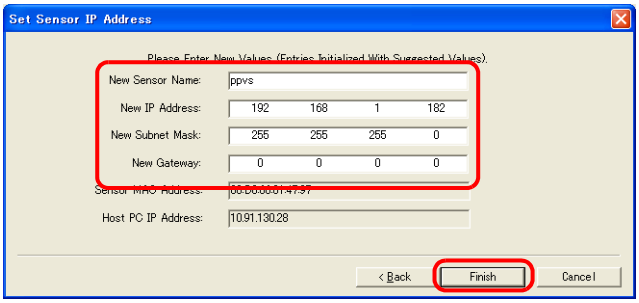


3. The [Select Ethernet Adapter] dialog is displayed.
   Select the Ethernet adapter of the computer and click [Next].



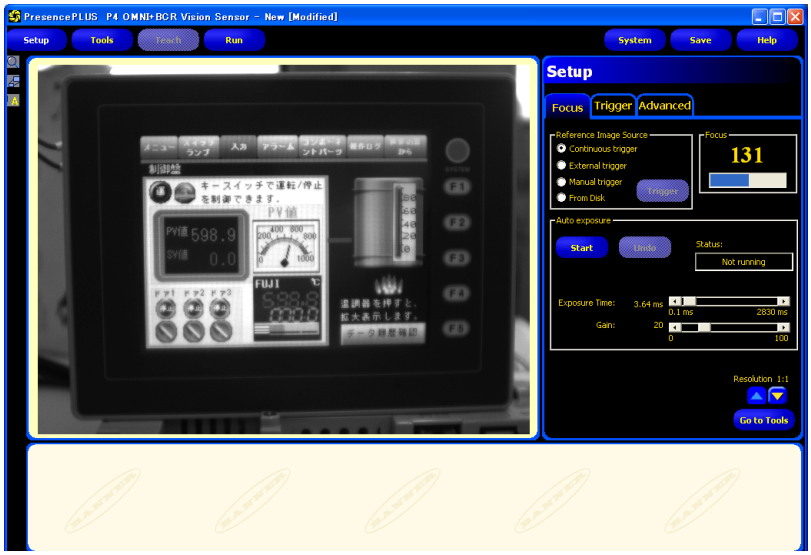
4. The [Set Sensor IP Address] dialog is displayed.
   Make changes to the sensor IP address or subnet mask as necessary and click [Finish].

> The sensor is reset in this step.



*** Make sure that the computer network group and the sensor IP address are on the same network.**

5. Click [OK] in the [System Setup] dialog to exit the dialog.
6. When connection between the computer and the sensor is established, the monitor screen is displayed on the computer.



Sensor Settings

Port Number Setting

1. Click the [Tools] menu button.

2. Click the [Analysis] tab → [Communication].

3. The [Communication Tool] menu opens.
   Enter an arbitrary name for [Name], and check [Image] for [Select].

4. In the [Connection(s)] section, select an Ethernet socket number. The sensor port number corresponding to the selected socket number is used for connection with V8. To see more information on each Ethernet socket number, go to the [Connection Detail] dialog by clicking [View Settings].

Socket No.	Port No. (Fixed)
Ethernet socket 1	20000
Ethernet socket 2	20001
Ethernet socket 3	20002
Ethernet socket 4	20003
Ethernet socket 5	20004
Ethernet socket 6	20005
Ethernet socket 7	20006
Ethernet socket 8	20007
Ethernet socket 9	20008
Ethernet socket 10	20009

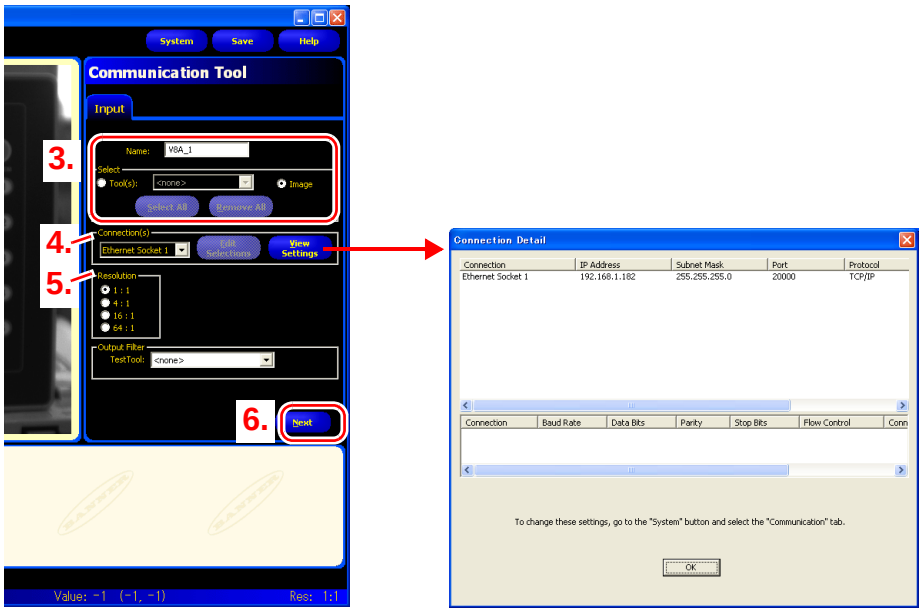
*** The sensor port number corresponding to each Ethernet socket number is fixed.**

5. In the [Resolution] section, select the size of the image to be displayed on V8.

Resolution	Description*
1 : 1	At the same magnification (640 × 480 dots)
4 : 1	One-half (320 × 240 dots) of the width and height in 1 : 1 resolution
16 : 1	One-quarter (160 × 120 dots) of the width and height in 1 : 1 resolution
64 : 1	One-eighth (80 × 60 dots) of the width and height in 1 : 1 resolution

*** The size of images captured with the sensor is based on 640 × 480 dots (default). When changing the size, refer to the manual issued by BANNER.**

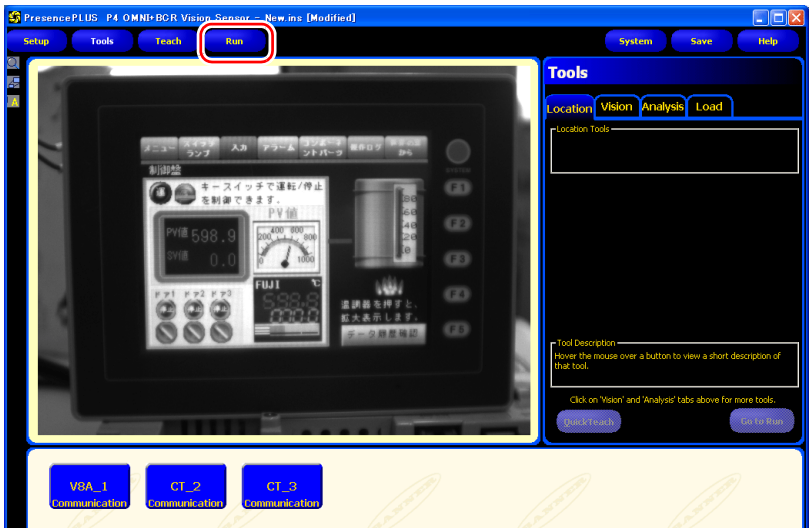
6. Click [Next] to exit the menu.



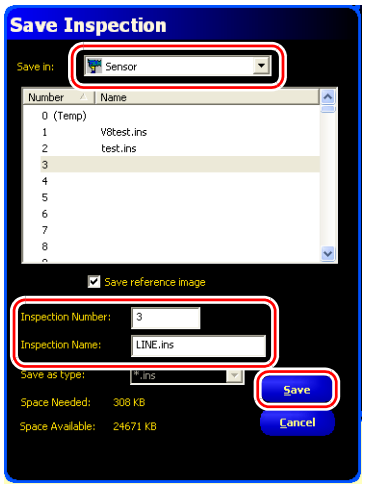
If connecting two or more V8 units (10 units maximum), repeat steps 2 through 5. Only one V8 unit can be connected per sensor port number.

[Run] Menu

1. Click the [Run] menu button.

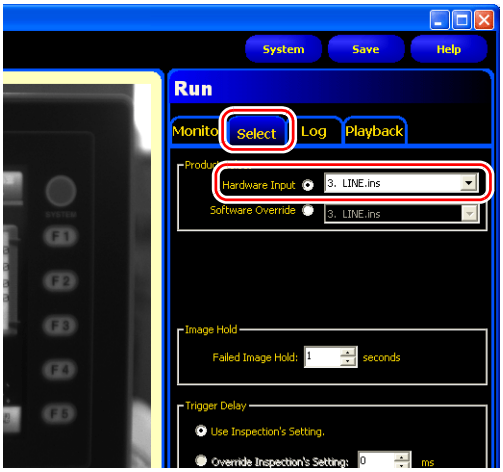


2. The [Save Inspection] dialog is displayed.
   Select “Sensor” for [Save in].
   Enter an [Inspection Number] and [Inspection Name] for registration, and click [Save].



Example
[Inspection Number: 3]
[Inspection Name: LINE.ins]

3. Click the [Select] tab in the [Run] menu. Go to [Hardware Input] and select the name that was entered for [Inspection Name] in step 2.



4. Click the [Monitor] tab → [Start].

Settings in the [Run] menu are complete.

18.6 Limitations

Limitations for individual manufacturers are as follows.

AXIS and Panasonic

- With no basic authentication, size and rotation settings made for a network camera on the screen are invalid. The previous size and rotation settings take effect for the display of images captured with the network camera.
- Focus and brightness of images displayed by a network camera are automatically adjusted.

BANNER

- Focus and brightness of images displayed by a sensor are not automatically adjusted. Sensors do not support these automatic adjustments.
- The resolution of snapshot files saved on V8 is dependent on the resolution of the network camera or sensor.

All Manufacturers

- The display size is dependent on the resolution of the network camera or sensor. If a display area placed on the screen is smaller than the resolution of the network camera or sensor, captured images displayed in the area are partially cut off.
- A single layer (such as a screen or an overlap) cannot show multiple network camera displays at the same time. If multiple displays are placed, the display first shown is active.
  Other images can be displayed by switching the screen.
- In a case where an overlap display area containing a network camera/sensor display is called up while a network camera/screen display is shown on the screen, only the display on the overlap display area will be active.

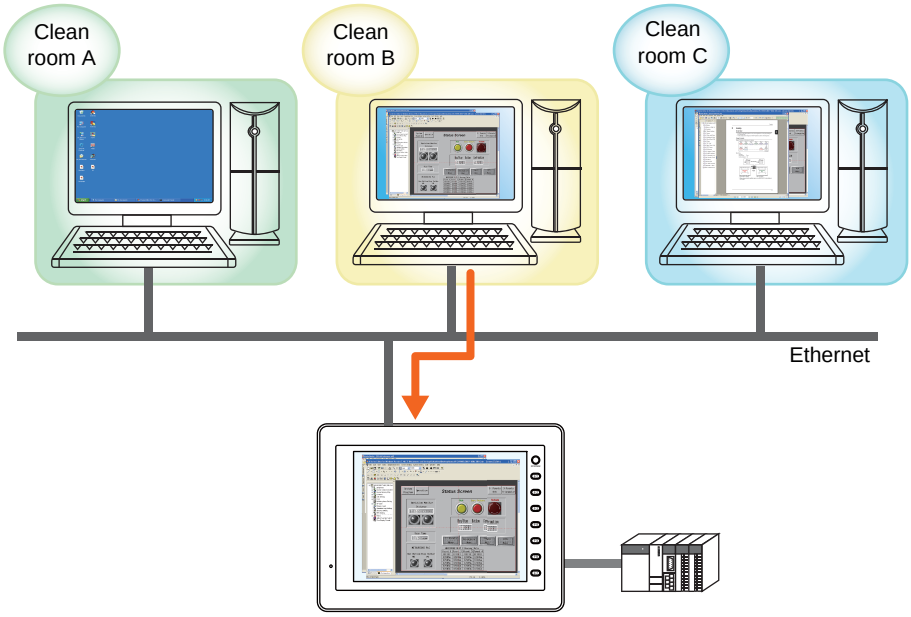
19 Remote Desktop Window Display

19.1 Overview

Overview

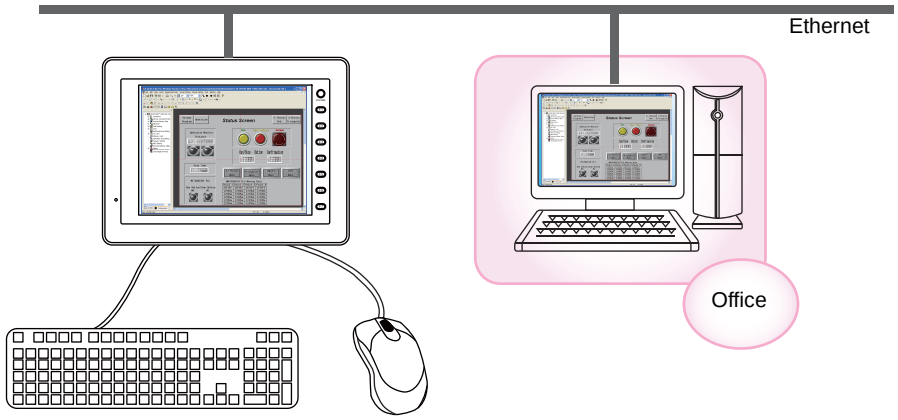
- The remote desktop window display function enables you to view remote computer screens on your V8 series.
  This function serves the purpose of remote monitoring through the V8 series connected to, for instance, a server (computer) that controls the entire production line or computers that are installed in a clean room where access is limited.

Example: Monitoring the server (computer) in Clean room B



- It is also possible to operate the screens of remote computers from the V8 series while you are using a mouse and a keyboard connected to the V8 unit. You can easily enter data or read manuals through the V8 unit even if you are at the worksite where it is difficult to bring a computer with you.

  Example: Editing the V8 screen data in the V-SFT installed in a computer at your office



* For more information, refer to “Remote Desktop Window Configuration and Operation” (page 19-23).

Operating Environment

Available V8 Models

MONITOUCH Model *1	Port	Color	Touch Switch Specifications	Applicable Version *2
V815iX/V812iS V810iS/V810iT/V810iC V808iS/V808iC/V808iCH V806iT/V806iC	Built-in LAN	32k or more colors	Analog	V-SFT Version 5.4.1.0 or later SYSTEM PROG. Version 1.410 or later

*1 Not available on the portrait-oriented V808iC.

*2 If your software is an earlier version, perform a system update. You can download the V-SFT update program from the Hakko Electronics website.

Server (Computer)

Item	Description
OS	Windows XP/Vista 32-bit
Protocol	TCP/IP

Setting Items

Server (Computer) Setting

- “UltraVNC Installation and Setting” → page 19-4

About VNC (Virtual Network Computing)

This software is developed by AT&T Laboratories Cambridge (U.K.) and designed to operate remote computer screens across a network.

V8 Setting

- “Registering/Unregistering the License” → page 19-12

V-SFT Setting

- “[Remote Desktop Table Setting] Dialog” → page 19-14
- “Remote Desktop Window Display Procedure”

  Placement of a Display Area to Show Remote Desktop Window → page 19-15
  Switch to Show/Hide Remote Desktop Window → page 19-18
  Macro Command to Show/Hide Remote Desktop Window → page 19-20

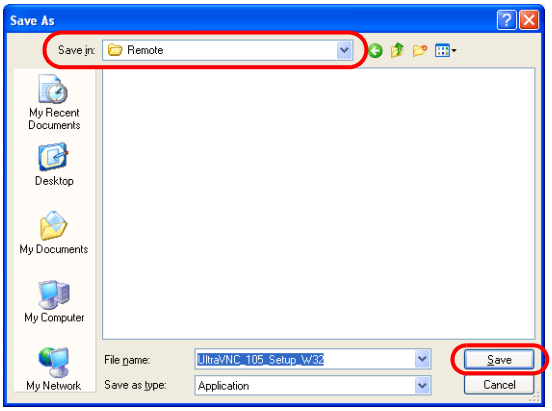
19.2 Server (Computer) Setting
UltraVNC Installation and Setting

This section describes the settings necessary for remote desktop window display, using the UltraVNC as an example.

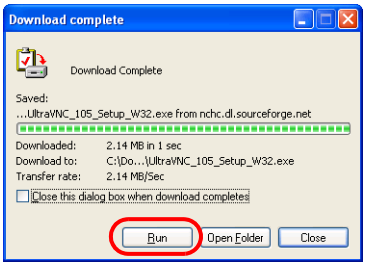
1. Download the UltraVNC from the website (“Location to access”) below.

Item	Description
Location to access	http://www.uvnc.com/download/index.html
Recommended version	UltraVNC Win32 Server 1.0.5

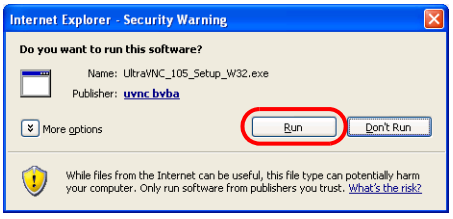
2. Select an option for [Save in:] and click the [Save] button.



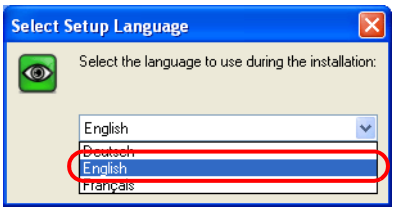
3. The above step completes the download.
When proceeding to installation, click the [Run] button and go to step 7.



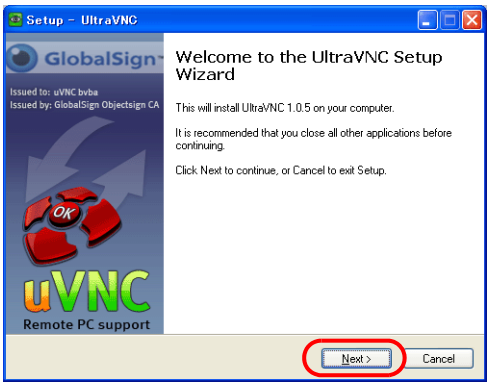
4. Click the [Run] button.



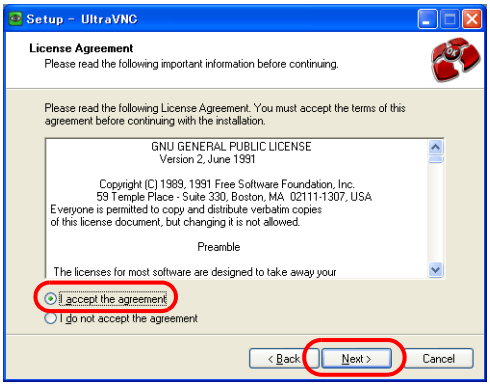
5. Select the language to be used for setup.



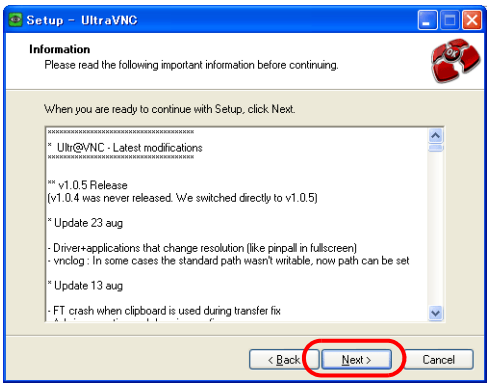
6. Follow the installation steps. Click the [Next] button.



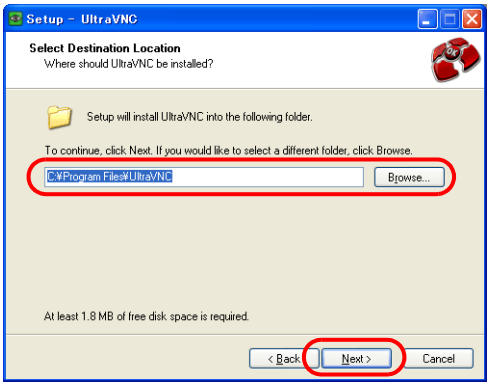
7. Read the License Agreement. When you agree to it, check [I accept the agreement] and click the [Next] button.



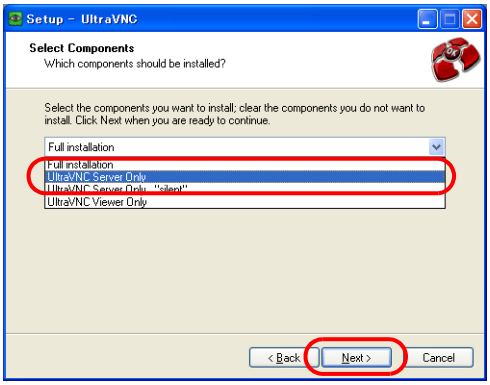
8. Read the Information and click the [Next] button.



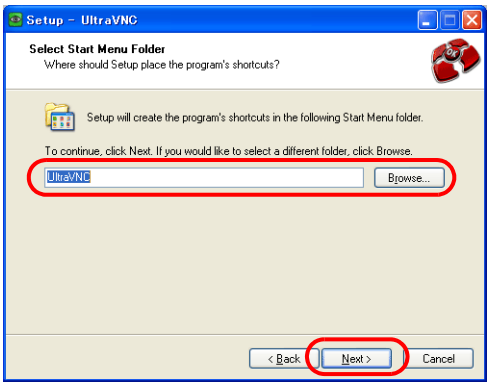
9. Select the location of where to install the UltraVNC and click the [Next] button.



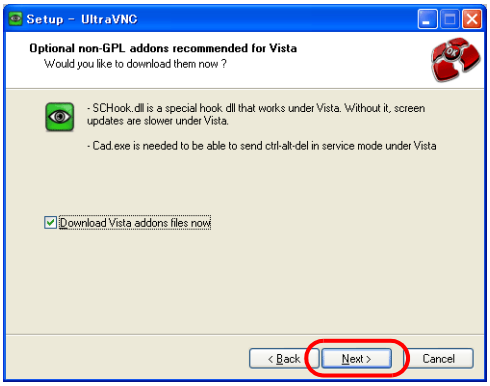
10. Select [UltraVNC Server Only] and click the [Next] button.



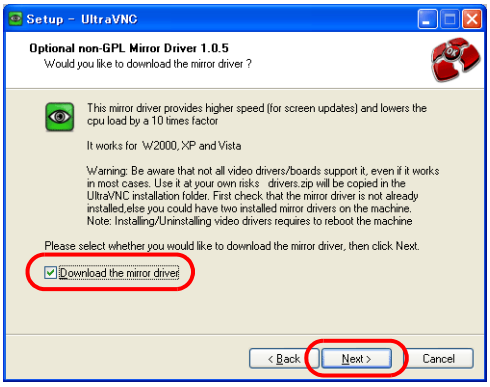
11. For registering the UltraVNC on the start menu, specify its location and the name of the program. Then click the [Next] button.



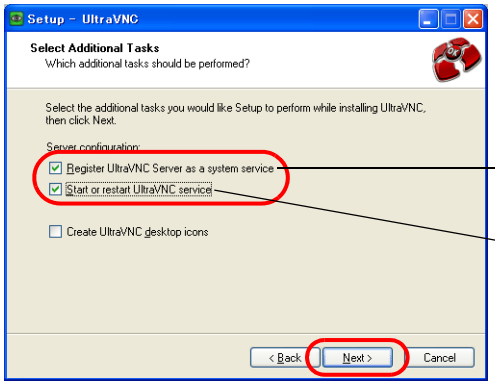
12. Click the [Next] button. (You do not need to check the box below if your OS is not Windows Vista.)



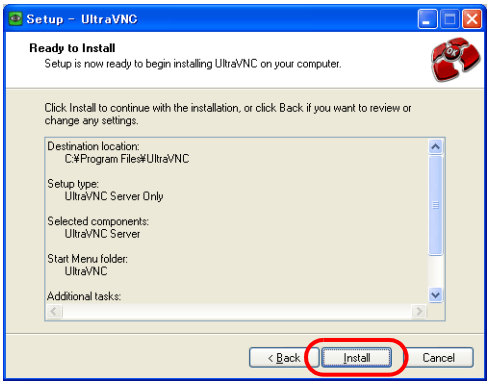
13. Be sure that the box for [Download the mirror driver] is checked and click the [Next] button.



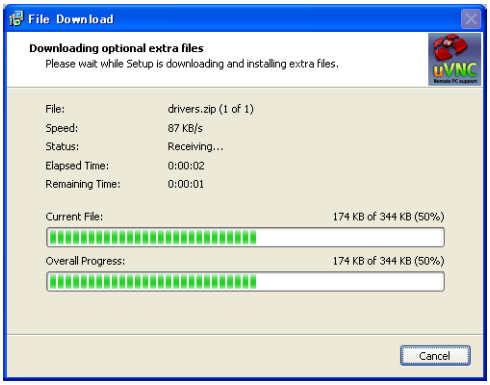
14. Check the following boxes and click the [Next] button.



15. Double-check the settings that you have made so far. If there is no problem, click the [Install] button. If any correction is necessary, go back to the previous step using the [Back] button.

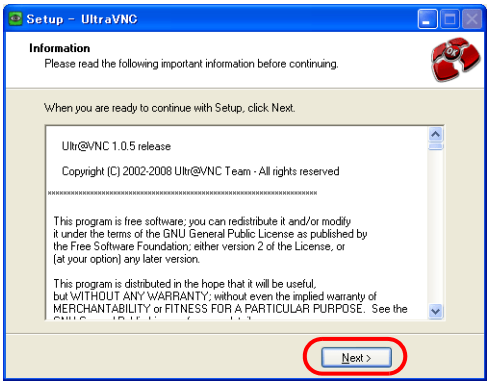


16. Installation starts.

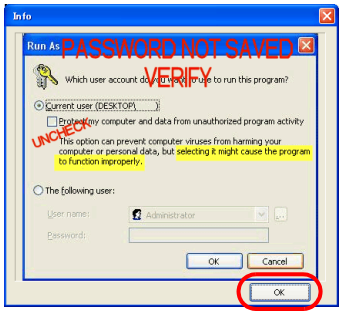


17. The following two dialogs appear.
    In the [Setup] dialog, click the [Next] button. Go to step 21.
    In the [Info] dialog, click the [OK] button. Go to step 22.

[Setup] dialog

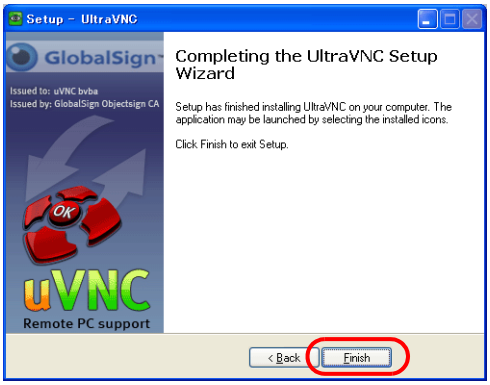


[Info] dialog

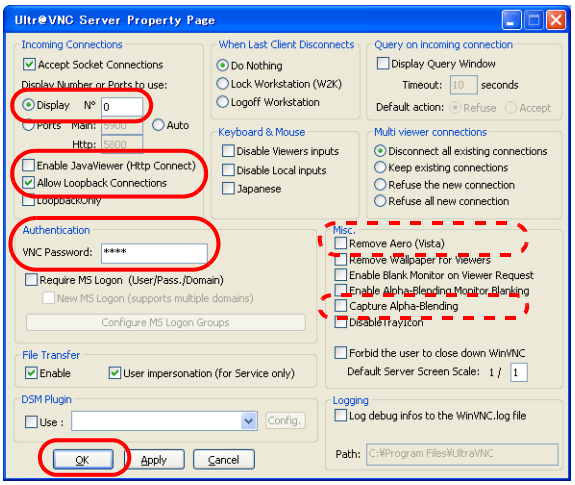


> **About the [Info] dialog**
> This dialog is a notice that it is required to uncheck the box for [☐ Protect my computer and data from unauthorized program activity] in step 23.

18. Click the [Finish] button. The software has been installed.



19. Set the options as the following in this dialog (in Windows Vista, be sure to check the boxes in the dotted frames). Click the [OK] button.

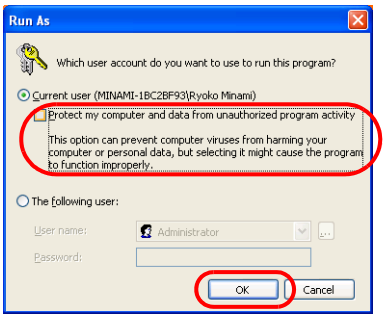


*** For the establishment of connection with multiple V8 units, check [Keep existing connections] under [Multi viewer connections].**

About [VNC Password]

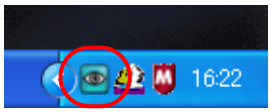
The password set in the above dialog must be entered in the V-SFT when setting the remote desktop table (“[Remote Desktop Table Setting] Dialog” (page 19-14)). Be careful in managing your password not to forget it.

20. Uncheck the box enclosed in the red circle and click the [OK] button.



21. The above is the final step of the installation procedure.
    The “UltraVNC” icon is now added to the taskbar on your computer.

UltraVNC activated (green)



About the UltraVNC icon

Whenever you attempt to display the window of a remote desktop, the UltraVNC must be activated on the computer. (If the UltraVNC is deactivated, the display of the remote desktop window is disabled.) The icon turns orange while connection to the V8 series is established.

Connected to the V8 series (orange)

19.3 V8 Setting

Registering/Unregistering the License

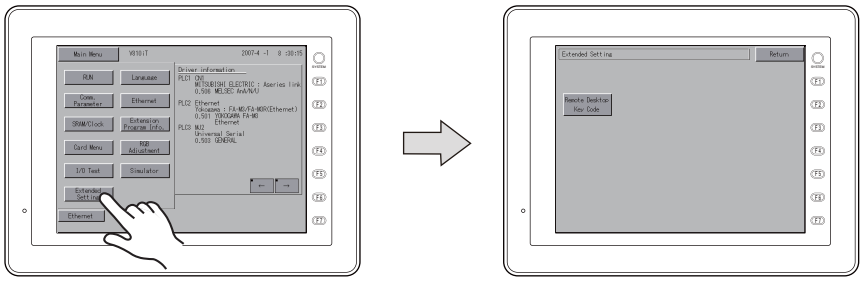
License registration is required for remote desktop window display. One license is granted to one V8 unit.

For purchasing the license “V-RemoteDT”, contact your local distributor.

Registering the License

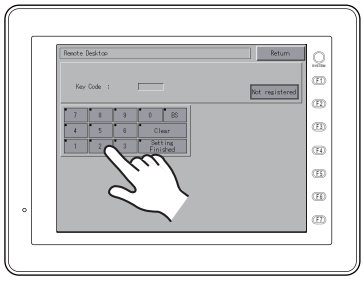
1. Bring up the Main Menu screen on your V8 series.
2. Press the [Extended Setting] switch on the Main Menu screen. The Extended Setting screen appears.
   * If the Main Menu screen does not include the [Extended Setting] switch, the system program version of your V8 unit may be outdated. Update update your system (version 1.410 and later supported).

Extended Setting screen



3. Press the [Remote Desktop Key Code] switch. The Remote Desktop screen appears.

Remote Desktop screen



4. Type the key code (8-digit numerals) on the keypad and press the [Setting Finished] switch to enter.
5. The completion of the registration automatically returns you to the Main Menu screen.

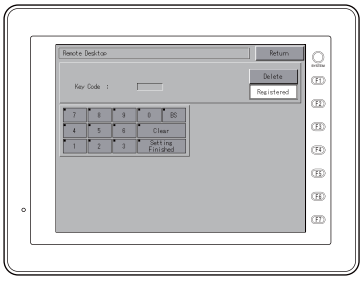
Unregistering the License

You can unregister the license from the V8 series.

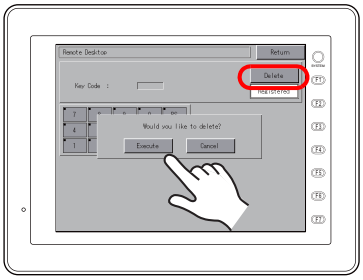
> If you wish to display the window of a remote desktop again, you will be requested to register the key code. Please be careful in managing the key code as reissuing is not allowed.

1. Bring up the Remote Desktop screen.
   For how to switch to the screen, refer to “Registering the License” (page 19-12).

Password registered

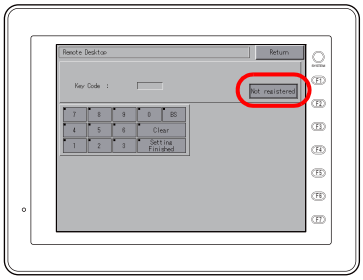


2. Press the [Delete] switch and press the [Execute] switch in the dialog that appears accordingly.



3. The [Delete] switch disappears and [Not registered] appears in its place.

Password unregistered



4. The license is now unregistered.

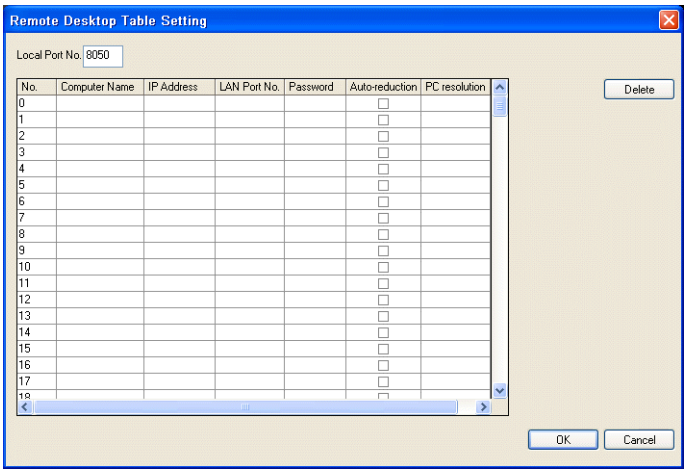
19.4 V-SFT Setting

If you transfer screen data provided with remote desktop table settings to the V8 series, with which no license is registered, “Warning: 214” will be issued to the V8. For more information on license registration, refer to “Registering/Unregistering the License” (page 19-12).

[Remote Desktop Table Setting] Dialog

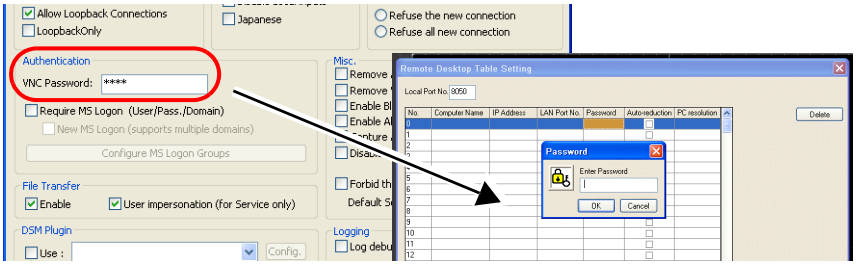
Proceed to the registration of the computer (server) that is connected to the V8 series.

Click [System Setting] → [Remote Desktop Table Setting]. The [Remote Desktop Table Setting] dialog is displayed.



Local Port No.	Select a local port number for the V8 series. This port is used as a sending/receiving port for remote desktop window display (default: 8050, range: 1024 to 65533).
Computer Name	Specify the name of the server (computer).
IP Address	Specify the IP address of the server (computer).
LAN Port No.	Specify the port number of the server (computer) (default for UltraVNC: 5900).
Password	Specify the password. Typing the password shows eight asterisks (one-byte 254 alphanumerics maximum).
☐Auto-reduction	Check this box when you zoom out a computer screen to show it entirely.
PC resolution	When [☐Auto-reduction] is checked, specify the resolution of the computer. (800*600, 1024*768, 1152*864, 1280*1024, 1600*1200, or specify a width in the 800-1600 range and a height in the 600-1200 range)

☺ The password to be entered here must be the same as that set in the UltraVNC. (Refer to step 22 in “UltraVNC Installation and Setting” (page 19-4)).



Remote Desktop Window Display Procedure

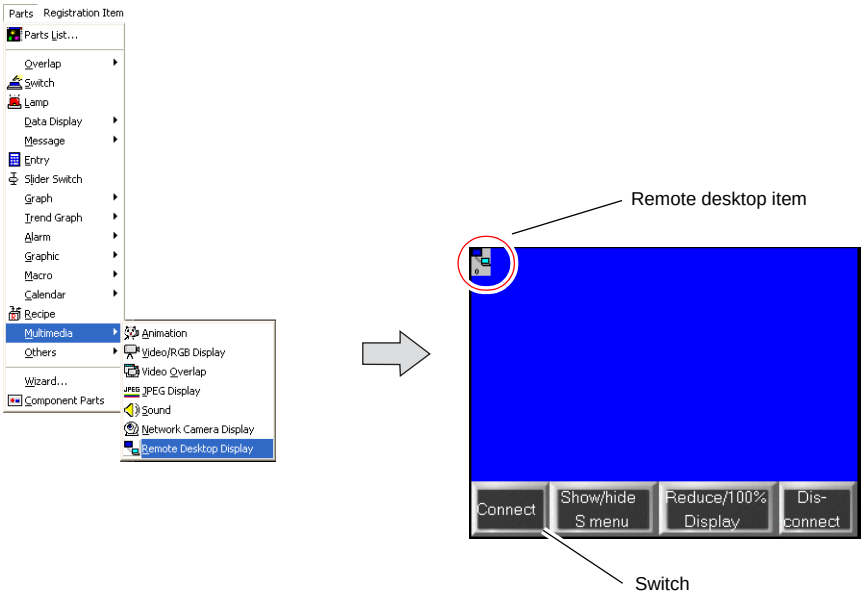
Remote desktop windows can be displayed on your V8 series in the three methods below:

- Placement of a Display Area to Show Remote Desktop Window → page 19-15
- Switch to Show/Hide Remote Desktop Window → page 19-18
- Macro Command to Show/Hide Remote Desktop Window → page 19-20

Placement of a Display Area to Show Remote Desktop Window

A display area placed is readily usable to show the screen of a server (computer) connected to the V8 unit.

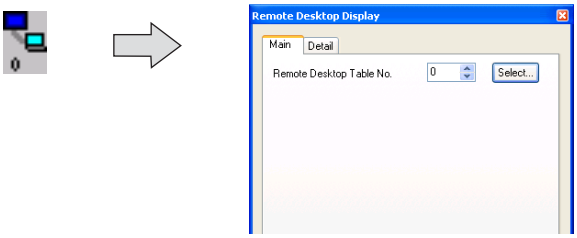
Click [Parts] → [Remote Desktop Display]. A display area part to display a remote desktop window is placed.



[Remote Desktop Display] dialog

Double-clicking or clicking the remote desktop item brings up the [Remote Desktop Display] dialog.

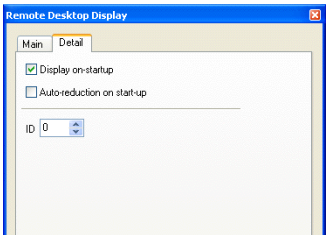
[Main] tab window



- [Main] tab window

Remote Desktop Table No.	Specify the table number of the target server (computer) that has been registered in the [Remote Desktop Table Setting] dialog.

- [Detail] tab window



☐ Display on-startup	The window of the connected server (computer) appears at V8 startup.*1
☐ Auto-reduction on start-up	A computer screen is automatically zoomed out for its entire display. *2 This is enabled when the screen of the connected computer is displayed initially on the V8 unit. From the second display and after, the computer screen will be displayed at the same magnification.
ID (0 - 255)	Specify the ID. For more information, refer to the V8 Series Operation Manual.

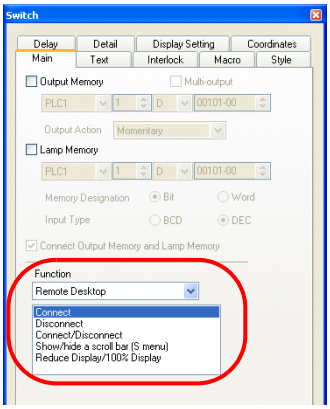
*1 With [Display on-startup] unchecked, the window of the connected server (computer) can be displayed by a switch that is explained in the next section.

*2 The [☐Auto-reduction] box requires to be checked in the [Remote Desktop Table Setting] dialog.
For more information, refer to “[Remote Desktop Table Setting] Dialog” (page 19-14).

Switch

Under [Function], select [Remote Desktop] and an option from [Connect], [Disconnect] and [Connect/Disconnect].

- [Main] tab window



Switch Function	Auxiliary Setting Item	Description
Remote Desktop	Connect	Connection between the V8 unit and the target server (computer) is established to enable the display of the remote desktop window.
	Disconnect	Connection between the V8 unit and the target server (computer) is disconnected to disable the display of the remote desktop window.
	Connect/ Disconnect	Each time you press the switch provided with this function, connection with the server (computer) is established to enable and canceled to disable the display of the remote desktop window.
	Show/hide a scroll bar (S menu)	Each time you press the switch provided with this function, the scroll bar (S menu) is either shown or hidden.*
	Reduce Display/ 100% Display	Each time you press the switch provided with this function, the display of the computer screen is switched between the automatically reduced size and the same magnification.

*** While the auto-reduction function is in use, showing or hiding the scroll bar (S menu) is not selectable.**

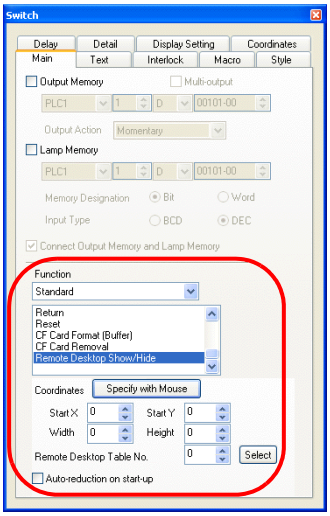
- [Detail] tab window

ID (0 - 255)	The ID specified here must be the same as that set in the [Remote Desktop Display] dialog. For more information on the ID, refer to the V8 Series Operation Manual.

Switch to Show/Hide Remote Desktop Window

With the use of a switch placed on the screen, the window of a target server (computer) can be shown in and hidden from an area at the specified coordinates. In the [Switch] dialog for such a switch, select [Standard] and [Remote Desktop Show/Hide] under [Function].

* Function switch setting is disabled.

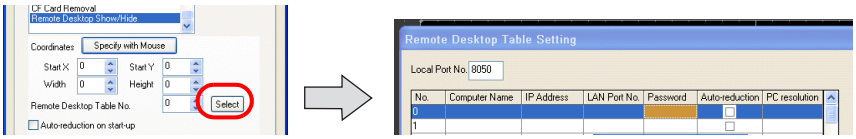


Switch Function	Switch Function/ Auxiliary Setting Item		Description
Standard	Remote Desktop Show/Hide		Each time the switch provided with this function is pressed, the display of a remote desktop window is enabled and disabled.
		Specify with Mouse	The mouse is used to specify the position where a remote desktop window is displayed.
		Start X	Specify an X coordinate as the start point where a remote desktop window is displayed.
		Start Y	Specify a Y coordinate as the start point where a remote desktop window is displayed.
		Width	Specify the width of the area where a remote desktop window is displayed.
		Height	Specify the height of the area where a remote desktop window is displayed.
		Remote Desktop Table No.	Specify the table number of the target server (computer) that has been registered in the [Remote Desktop Table Setting] dialog.
		☐Auto-reduction on start-up	A computer screen is automatically zoomed out for its entire display. *1

*1 The [☐Auto-reduction] box is required to be checked in the [Remote Desktop Table Setting] dialog.
For more information, refer to “[Remote Desktop Table Setting] Dialog” (page 19-14).

About [Remote Desktop Table No.]

Click the [Select] button. Enter the table number the same as the number of the target server (computer) set in the [Remote Desktop Table Setting] dialog (No. 0 in the example dialog).



*** The macro command REMOTEDT_CTL is used in conjunction with showing/hiding the scroll bar (S menu). For more information, refer to "Macro Command to Show/Hide Remote Desktop Window" (page 19-20).**

Macro Command to Show/Hide Remote Desktop Window

The following macro commands are provided to show/hide or switch the window of a target remote server (computer).

SET_REMOTEDT F0 F1

Function: Showing/hiding a remote desktop window

This macro command is used to show/hide the window of a computer (server) provided with remote desktop table No. [F1] specified in the [Remote Desktop Table Setting] dialog, according to [F0].

Available memory

	Internal Memory	PLC1 - PLC8 Memory	Memory Card	Constant
F0	○			
F1	○			○

○: Setting enabled (indirect designation disabled)
◎: Setting enabled (indirect designation enabled)

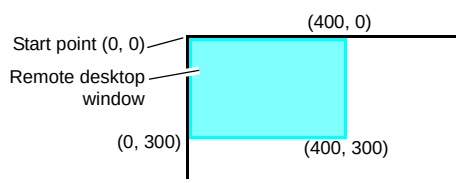
Range

	Value	Remarks
F0	0: Hide 1: Same-sized display 2: Same-sized display (based on the specified coordinates) 3: Automatically reduced display 4: Automatically reduced display (based on the specified coordinates)	
F0 + 1	X coordinate as the start point	Valid when F0 = 2 or 4
F0 + 2	Y coordinate as the start point	
F0 + 3	Width	
F0 + 4	Height	
F1	0 to 255: Remote desktop table number	

Example

Display in an area based on the specified coordinates (V812S, remote desktop table No. 10):

```
$u00100 = 2 (W)      for same-sized display based on the specified coordinates
$u00101 = 0 (W)      for X coordinate as the start point
$u00102 = 0 (W)      for Y coordinate as the start point
$u00103 = 400 (W)    for width
$u00104 = 300 (W)    for height
SET_REMOTEDT ($u00100, 10)
                       T
                       Remote desktop table number
```



Supplementary information

- The macro command SET_REMOTEDT is enabled, provided that the [Remote Desktop Table Setting] dialog has been set. For how to set the dialog, refer to page 19-14.
- This macro command is not usable as an initial macro.
- $s1063 stores the result of macro execution.

Code (DEC)	Description
0	Normal
–1	Execution error

REMOTEDT_CTL F0 F1 F2

Function: Switching the display in the remote desktop window

This macro command is used to switch the display in the window of a computer (server) provided with remote desktop table No. [F1] specified in the [Remote Desktop Table Setting] dialog, according to [F0].

Available memory

	Internal Memory	PLC1 - PLC8 Memory	Memory Card	Constant
F0	○			○
F1	○			○
F2	○			○

○: Setting enabled (indirect designation disabled)
◎: Setting enabled (indirect designation enabled)

Range

	Value		
F0	0: Computer screen reduction 1: Computer screen rotation 2: Show/hide scroll bar (S menu)		
F1	0 to 255: Remote desktop table number		
F2	(F0 = 0)	(F0 = 1)	(F0 = 2)
	0: Same-sized 1: 1/4 2: 1/9 3: 1/16 4: Auto-reduction	0: 0° 1: 90° 2: 270°	0: Hidden 1: Shown normally 2: Automatic*

*** About “2: Automatic”**

Computer (page 19-14) and V8 resolutions	Scroll bar (S menu)
Computer resolution > V8 resolution	Shown
Computer resolution = V8 resolution	Hidden
Computer resolution < V8 resolution	Hidden

Example

Hiding the scroll bar (S menu) (remote desktop table No. 10):

```
REMOTEDT_CTL  2  10  0
                 T
```

Remote desktop table No. 10

Supplementary information

- The macro command REMOTEDT_CTL is enabled, provided that the [Remote Desktop Table Setting] dialog has been set. For how to set the dialog, refer to page 19-14.
- While the auto-reduction function is used to display a screen of the computer, the scroll bar (S menu) cannot be displayed.
- The result of macro execution is stored in $s1063.

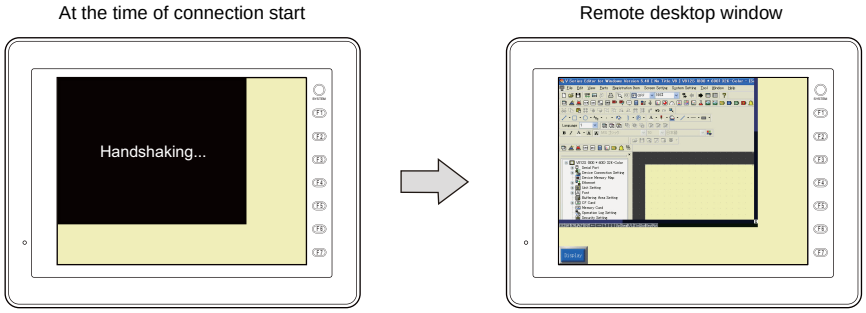
Code (DEC)	Description
0	Normal
–1	Execution error

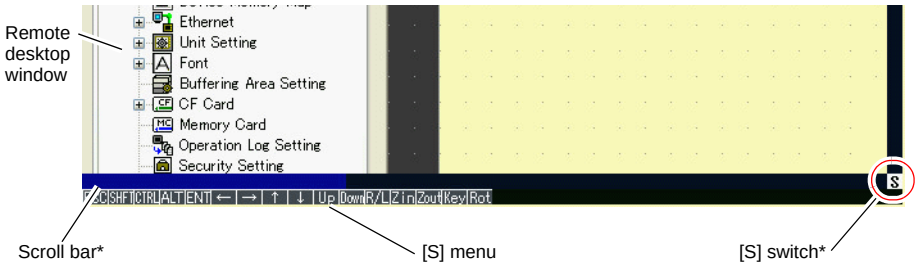
19.5 Remote Desktop Window Configuration and Operation

Window Configuration

When connection is normally established between the V8 series and a target remote server (computer), the window of the server is displayed on the V8 unit. When the V8 series and the server (computer) are disconnected, the window disappears after a momentary display of the “Disconnected.” screen.

Example: [☐ Auto-reduction] unchecked





* The scroll bar (S menu) cannot be displayed while the auto-reduction function is used.

Scroll bar

If the resolution of the server (computer) is higher than that of the remote desktop window display area, you can view the hidden part in the area by scrolling either horizontally or vertically with the scroll bar.

[S] switch

Pressing this switch shows or hides the [S] menu.

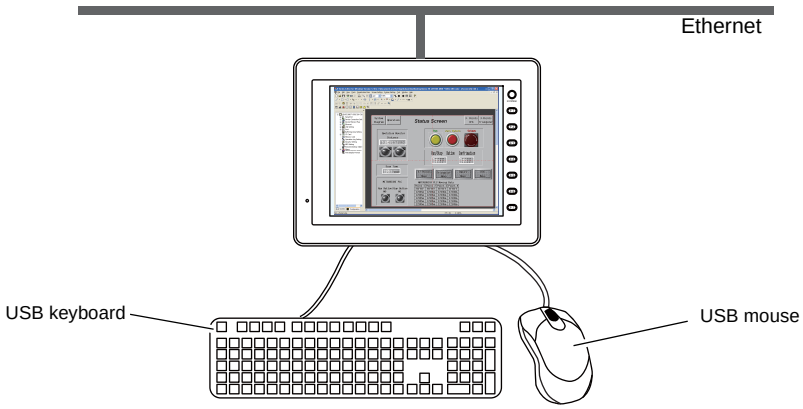
[S] menu

This is a switch menu dedicated to the remote desktop window display. The switches in the menu work as shown in the following table, such as rotating or reducing the display area.

Item	Description	Item	Description
ESC	Esc key entry	↓	↓ key entry
SHFT	Shift key entry	Up	Page-up key entry
CTRL	Ctrl key entry	Down	Page-down key entry
ALT	Alt key entry	R/L	OFF: Equivalent to left-clicking of the mouse ON: Equivalent to right-clicking of the mouse
ENT	Enter key entry	Zin	Screen enlargement: 1/16 → 1/9 → 1/4 → 100% (maximum)
←	← key entry	Zout	Screen reduction: 100% (maximum) → 1/4 → 1/9 → 1/16
→	→ key entry	Key	Not used
↑	↑ key entry	Rot	Screen rotation: 90°, 180°, 270°

Operation

A remote desktop connected to the V8 series is operative from the V8 unit by pressing the screen and using a USB mouse and a USB keyboard.



USB Mouse

The left-click button, right-click button, and wheel of a USB mouse are usable.
For USB mouse specifications, refer to “26 USB Connection”.

USB Keyboard

Language setting must be made for the USB keyboard on the Main Menu screen of the V8 series.
For USB keyboard setting and specifications, refer to “26 USB Connection”.

When no USB keyboard is used, the on-screen keyboard is usable instead. When using the Windows standard on-screen keyboard, follow the steps below:
Click [Start] → [All Programs] → [Accessories] → [Accessibility] → [On-Screen Keyboard].

19.6 System Memory

The following addresses in the system memory are used to store the data regarding the table number (set in the [Remote Desktop Display Setting] dialog) of the remote desktop window currently displayed and whether connection with the remote desktop is established.

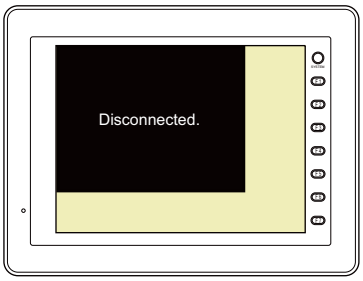
$s	Description
1380	Remote desktop window status 0: Hidden (disconnected) 1: Shown (connected)
1381	Remote desktop connection status 0 or greater: Remote desktop table No. -1: Disconnected -2: Connection failure

19.7 Error

Disconnected. Screen

If connection between the V8 series and a server (computer) fails or is disconnected due to a cable disconnection or an error, the “Disconnected.” screen appears in place of the remote desktop window. Check to see the cable and the server (computer) for any problem, and reestablish connection.

At the time of disconnection



Error Number

For the error number detected during data transfer, refer to “Appendix 2 Error”.

19.8 Limitations

License Limitations

- One license is granted to one V8 unit.
- Reissuing a license key code is not allowed. Please take care in managing the key code.

Display Limitations

- Remote desktop window display is enabled on the screen (in the screen library) only. Display in the overlap library is disabled.
- Multiple remote desktop windows cannot be displayed at the same time. If display areas are concurrently placed for multiple remote desktops and the box for [☐ Display on-startup] is checked, the display area placed first takes effect.
- While a remote desktop window is displayed, an attempt to bring up another on the same screen will turn off the initial window and switches to the next window.
- While a remote desktop window is displayed, a change to the server (computer) resolution will forcibly turn off the window.
- While a remote desktop window is displayed, you can turn it off via a method that is different from the method used to display the window, provided that the same remote desktop table number is specified. However, the [disconnect] switch explained in “Placement of a Display Area to Show Remote Desktop Window” (page 19-17) does not work to turn off the remote desktop window that was displayed by a switch or the macro command.
- If any part placed behind a remote desktop window is updated, the part will be displayed over the window.
- While a remote desktop window is displayed, any switches placed behind the window do not work. (Those switches work when no remote desktop window is displayed.)
- The display of a remote desktop window is always based on the upper left corner of the server (computer) screen as the start point.
- If a remote desktop window display area shows an image smaller than the area, the margin of the area turns black.
- While a remote desktop window is displayed in a display area, turning it off leaves the area in the color as set in the V-SFT.
- When a remote desktop window is displayed by a switch or the macro command, tuning it off will clear the window as well as its display area.
- When a remote desktop window is initially displayed, the image is scaled to 100%.
- Once a remote desktop window is turned off, the settings for the [S] menu will return to the defaults.
- When a remote desktop window is turned off by a switch or the macro command, the V8 screen is refreshed. If there is an overlap being displayed then, it will be deleted at the same time. However, the overlap remains if [☐ Display Overlap during bit ON] is checked in the [General Settings] tab window ([System Setting] → [Unit Setting] → [General Settings]).
- While a remote desktop window is displayed, switching to the Main Menu screen turns the window off.
- While the auto-reduction function is used to display a screen of the target server (computer), the scroll bar (S menu) cannot be displayed.
- For the V806 series, the auto-reduction function is available in the range 800*600 (SVGA) - 1024*768 (XGA).
- The auto-reduction function adjusts the display of a computer screen to the display area of the remote desktop window on the V8 unit, provided that the length and the height of the display area is at the ratio of 4 to 3. (At a ratio other than this, an empty area painted black will be left in the display area.)

Other Limitations

- The macro command SET_REMOTEDT for remote desktop window display is not usable as an initial macro.
- A USB mouse and a USB keyboard are not available with V808CH.
- When the remote desktop window display function and the touch switch emulation of the RGB display function are used at the same time, a USB mouse cannot be used for the remote desktop window.

20 MES Interface Function

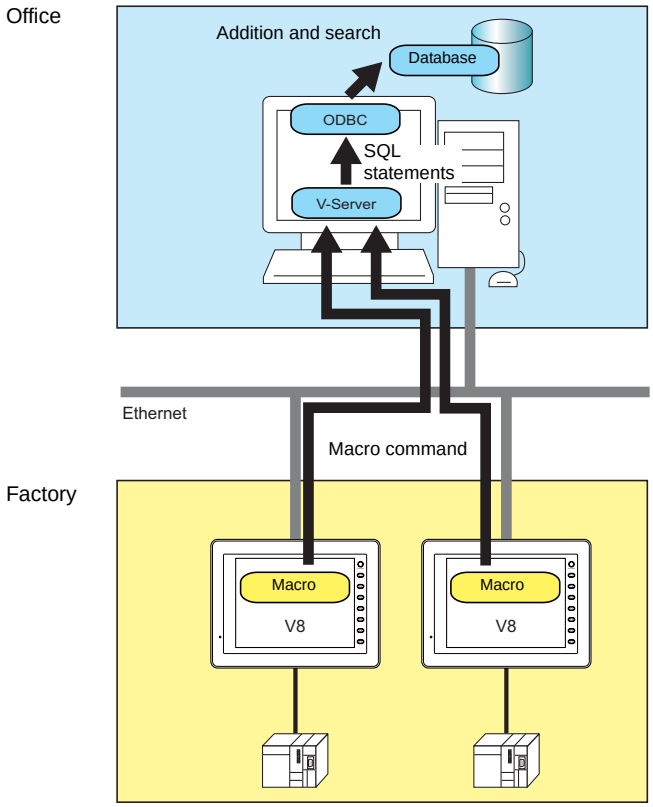
20.1 Overview

Overview

- The V8 series supports the MES interface function.

> **MES: Manufacturing Execution System**
> MES provides information necessary to optimize the production activities (about quality, yield, time of delivery, cost, etc.) throughout processes from order receipt until the completion of products. Based on real-time information obtained from the shop floor, MES serves as a bridge linking management and production, in order to help improve the management of a manufacturer.

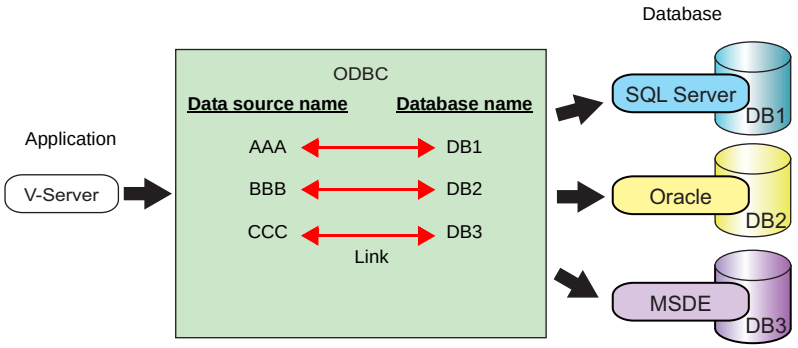
- The MES interface function enables the V8 to add data to, search, and delete data from databases.
  Production control from the computer in the office is made simple by using real-time production information transmitted from the factory to the databases.
- The V8 sends commands to the V-Server in the computer connected via Ethernet. The V-Server sends the commands in SQL statements to ODBC, and ODBC accesses the database.



ODBC: Open DataBase Connectivity

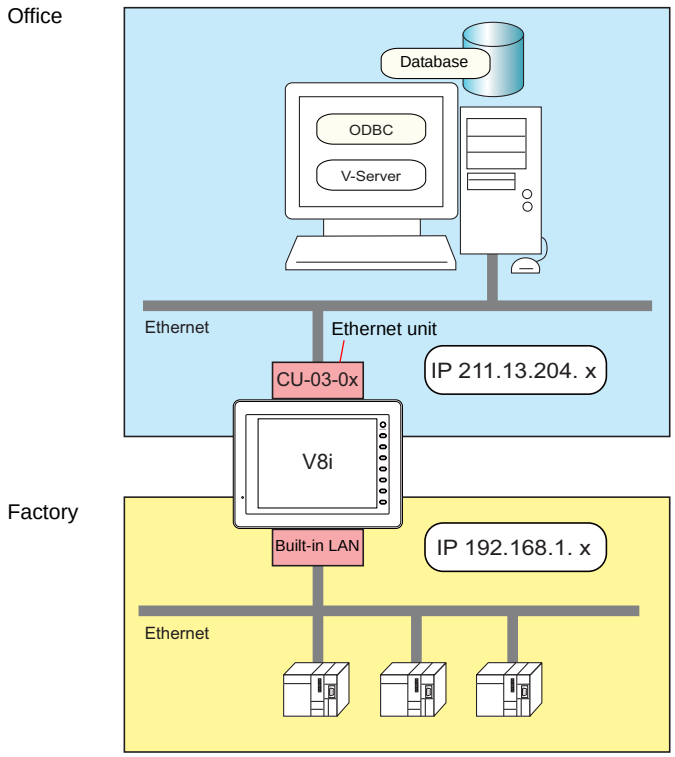
ODBC is the interface between an application (V-Server) and databases.

Because ODBC accommodates the differences in specifications between databases, users just need to create programs based on the ODBC-specified procedure in order to access those databases.

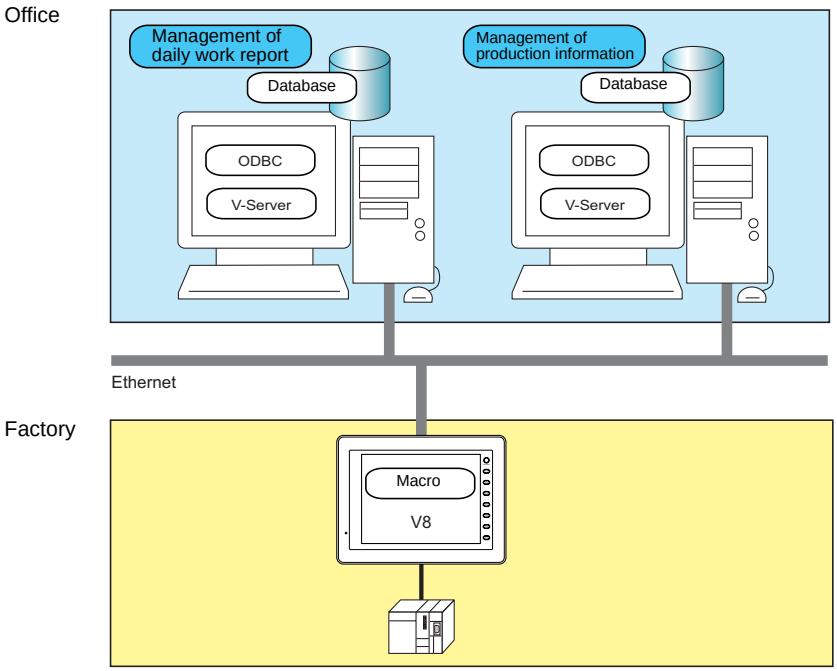


- When two Ethernet ports are used, two IP addresses can be set for the V8 so that different networks can be established respectively in the factory and the office. System configuration is therefore made simple in the existing facilities.

  *** An optional unit is mounted on MONITOUCH equipped with a built-in LAN port.**



- Separate management through multiple V-Servers is enabled.



Operating Environment

Available V8 Models

The MES interface function is available with all models in the V8 series. However, a V8 unit without the built-in LAN port requires an optional unit because it communicates with a computer over the Ethernet.

MONITOUCH Model	Port	Applicable Version[*1]
V815iX/V812iS V810iS/V810iT V808iS V808iCH V806iT/V806iC/V806iM	Built-in LAN	V-SFT Version 5.1.0.0 or later SYSTEM PROG. Version 1.100 or later
	Option unit[*2] CU-03-2 CU-03-3	
V812S V810S V810T V808S V806T/V806C/V806M	Option unit CU-03-2 CU-03-3	

*1 If your software is in earlier version, perform a system update. You can download the V-SFT update program from the Hakko Electronics website.

*2 Not available with the V808iCH

Server PC

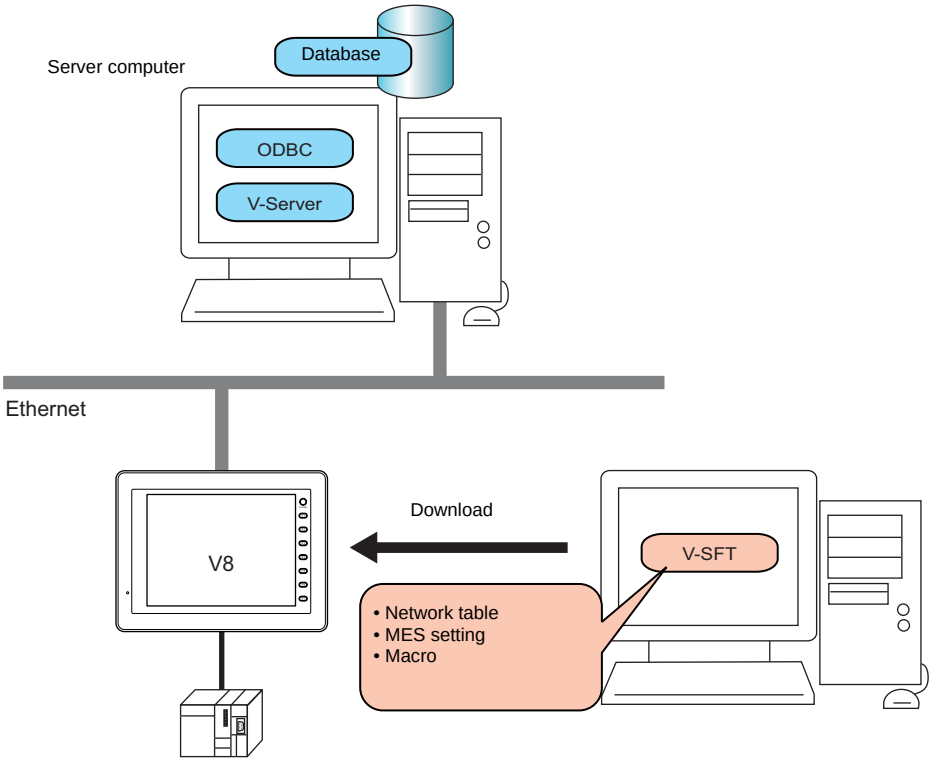
Make sure that your system meets the system requirements in the following table before using Hakko Electronics' software "V-Server".

Item	Description
Computer	Pentium II 450 MHz or equivalent
OS	Windows 98 / Me / NT Ver. 4.0 / 2000 / XP (32-bit, 64-bit) / Vista (32-bit, 64-bit) / 7 (32-bit, 64-bit) / 8 (32-bit, 64-bit)
Memory	Min. 32 MB
Hard disk	50 MB of free disk space
Database	• SQL Server (Microsoft) • MSDE (Microsoft) • Oracle (Oracle Corporation)

20.2 Setting Procedure

System Configuration

The following illustrates the system configuration including the MES interface function.



Preparation on Server Computer

1. V-Server installation (page 20-26)
2. Database installation and table creation (page 20-27)
3. ODBC setting (page 20-40)

V8 Setting

Make the V8 settings in screen data.

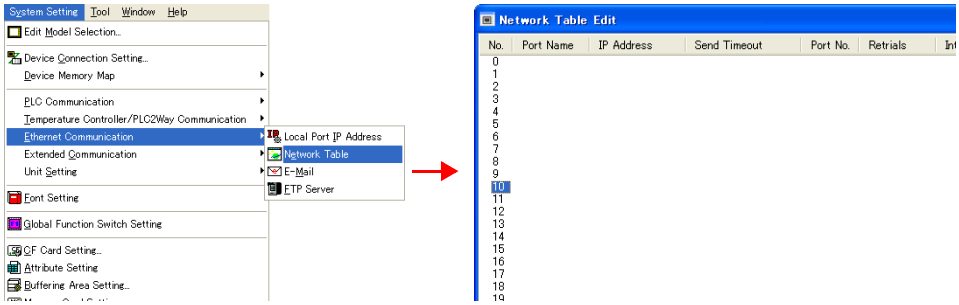
1. Configuration software V-SFT version check
   If your software version is earlier than designated, download the updated program from the Hakko Electronics website and install it.
2. Network table editing (page 20-6)
3. V8 IP address setting (page 20-9)
4. MES setting (page 20-12)
5. Macro programming (page 20-19)
6. Screen data transfer to the V8
7. V8 version check
   If your V8 version is earlier than designated, perform a system update.

20.3 V8 Setting

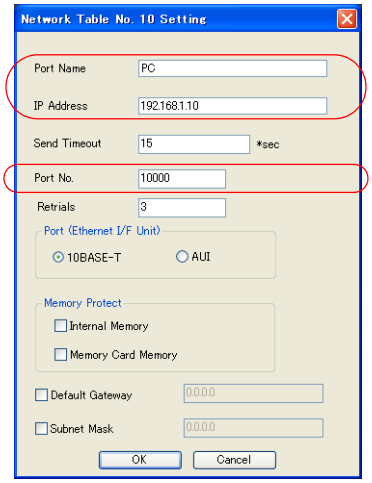
Network Table Editing

Regarding the computer installed with the V-Server, register its IP address and port number in network table editing.

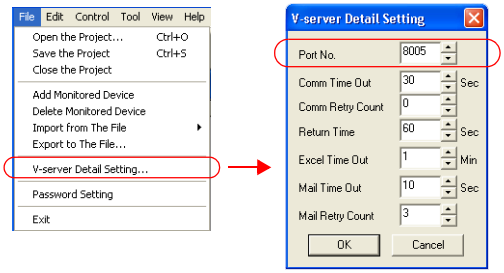
1. Click [System Setting] → [Ethernet Communication] → [Network Table]. The [Network Table Edit] window is displayed.



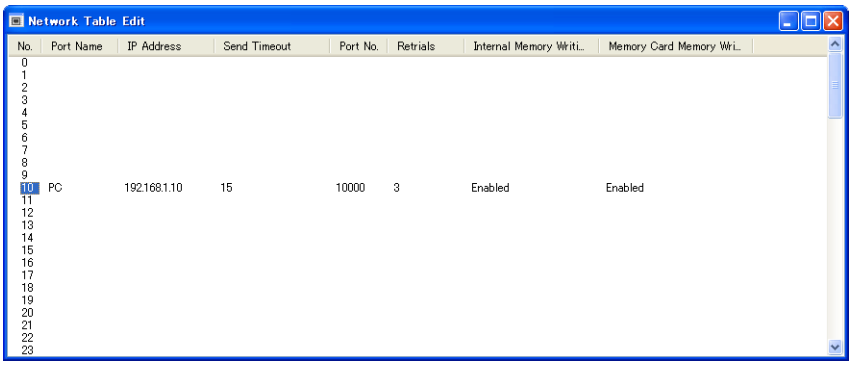
2. Double-click a number under [No.]. The [Network Table Setting] dialog given the same number is displayed.



Port Name	Set the name of the computer.
IP Address	Set the IP address of the computer.

Port No.	Set a port number for the V-Server running on the computer. * The port number is shown at [Port No.] in the [V-server Detail Setting] dialog (in the V-Server, click [File] → [V-server Detail Setting]). 
Send Timeout Retrials Port Memory Protect Default Gateway Subnet Mask	Setting not required * Setting these items is not required when you register the IP address of the computer, but these items must be set for registering the V8's IP address.

3. Click [OK]. The network table is registered.



4. If multiple computers are connected, perform the above registration steps for each of them.

It is also possible to register the IP address of the V8. At this time, be sure to set the items mentioned in step 2 that are not necessary for registering the computer's IP address.

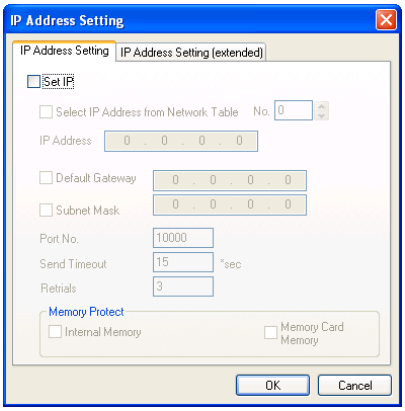
IP Address Setting of the V8

To use the Ethernet functions, it is necessary to set the IP addresses. The IP address can be set either in: setting it through the screen data or selecting a registered network table number on MONITOUCH.

Method 1: Setting within Screen Data

Set the IP addresses within the screen data.

1. Select [System Setting] → [Ethernet Communication] → [Local Port IP Address]. The [IP Address Setting] dialog is displayed.
2. Check [☐ Set IP] and make the settings.



☐ Select IP Address from Network Table	This is valid when the IP address of the V8 has been registered in the network table. An IP address can be selected from network table No. 0 to 99.
IP address *1	Set the IP address of the V8.
☐ Default Gateway *1	Set the default gateway.
☐ Subnet Mask *1	Set the subnet mask. When this box is not checked, the subnet mask is automatically recognized based on the extreme left byte of the IP address. Example When the IP address is “172.16.200.185”, “255.255.0.0” is set. When the IP address is “192.168.1.185”, “255.255.255.0” is set.
☐ Port No. *1	Set a port number (1024 - 65535). (except for “8001”)
Send Time Out	Specify the timeout time to be used when sending the EREAD/EWRITE macro command.
Retrials	0 - 255 Specify the maximum number of retrials to be attempted in the case a timeout occurs.
Memory Protect	Check this box when disabling data writing from a computer or another port.

*1 For more information on the setting items, refer to the V8 Series Connection Manual.

Method 2: Setting at the Main Menu Screen on MONITOUCH

Select the network table number, which is set in the screen data, from the Main Menu on MONITOUCH.

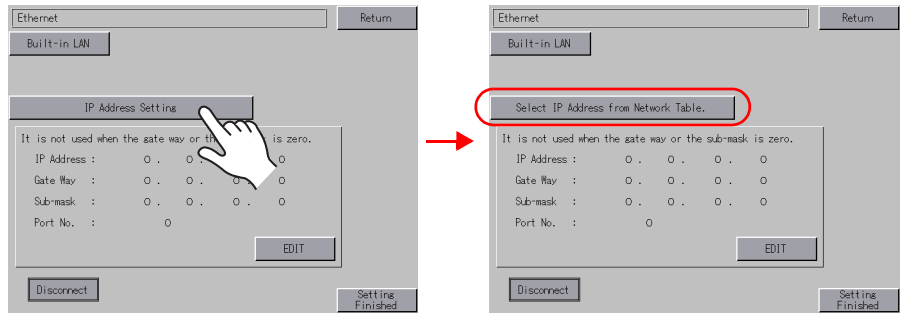
*** When IP address setting is made within the screen data, the setting within the screen data becomes valid.**

Screen data setting

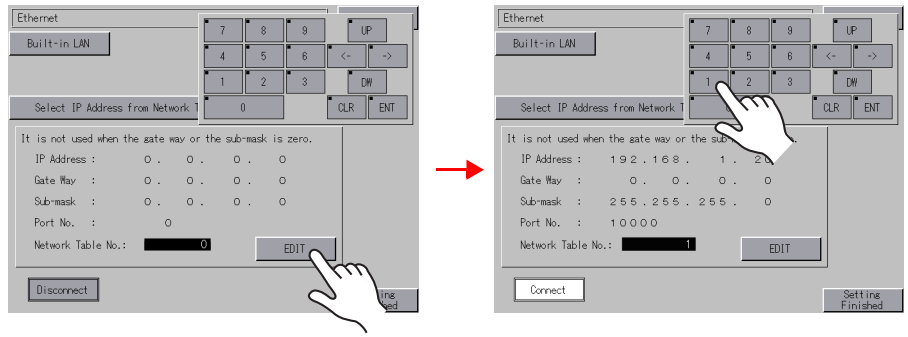
1. Click [System Setting] → [Ethernet Communication] → [Network Table]. The [Network Table Edit] window is displayed.
2. Select a number not in use, and make the necessary settings including the IP address of the V8. For more information on the setting items, refer to the V8 Series Connection Manual.
3. Transfer screen data to MONITOUCH.

MONITOUCH setting

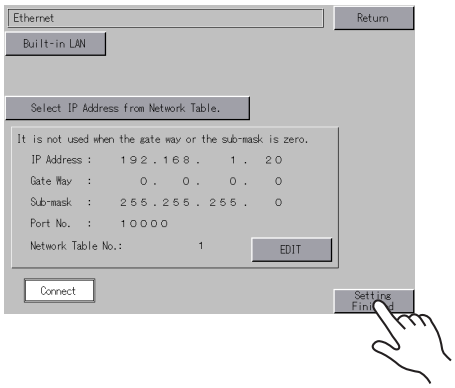
1. Press the [SYSTEM] button on MONITOUCH. The MODE menu is displayed.
2. With the MODE menu displayed, press the [F1] button. The Main Menu screen is displayed on MONITOUCH.
3. Press the [Main Menu] switch at the upper left corner of the screen. The menu is displayed.
4. Press the [Ethernet] switch. The Ethernet screen is displayed.
5. Press the [IP Address Setting] switch and select [Select IP Address from Network Table].



6. Press the [EDIT] switch and set the network table number. The IP address specified in the network table number is displayed.



7. Press the [Setting Finished] switch to end the setting. Check the IP address under [Ethernet] on the Main Menu screen.

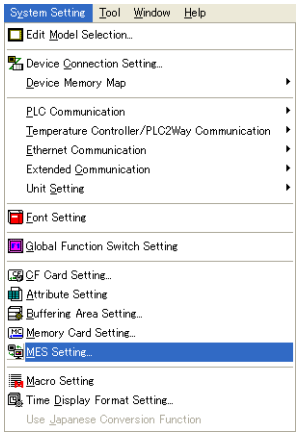


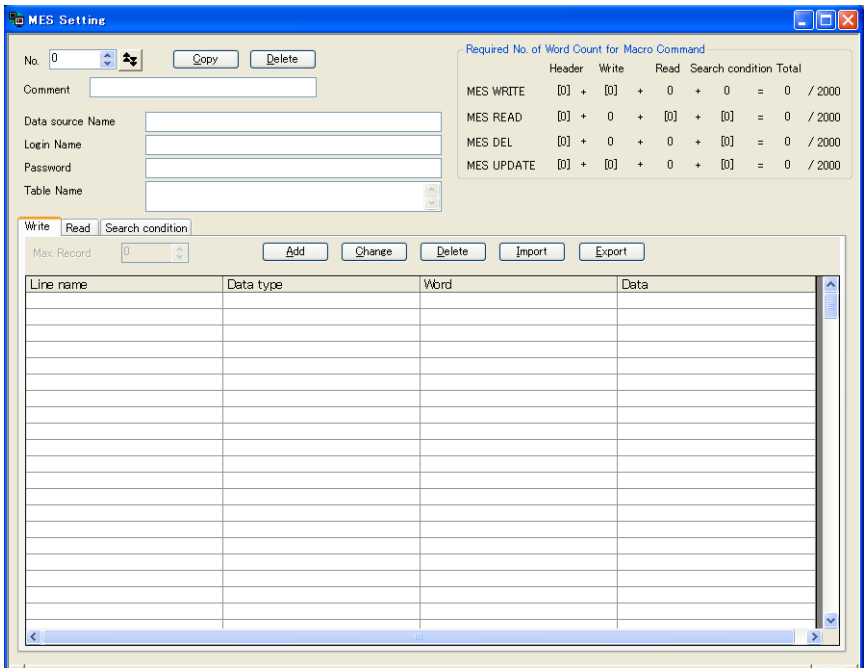
MES Setting

There are 256 MES setting numbers from 0 through 255. You can make the MES settings for adding data to and searching databases and database search conditions.

Location for Setting

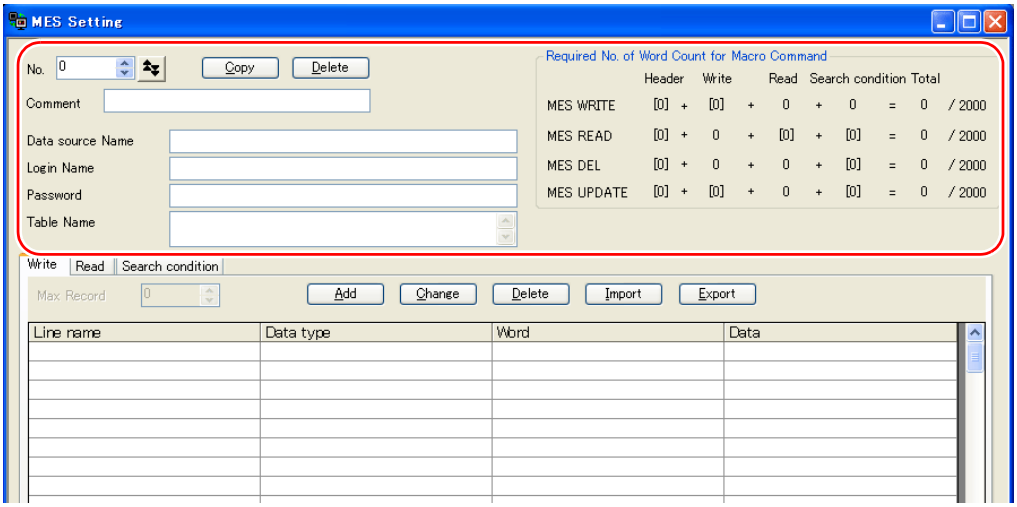
1. Click [System Setting] → [MES Setting]. The [MES Setting] dialog is displayed.

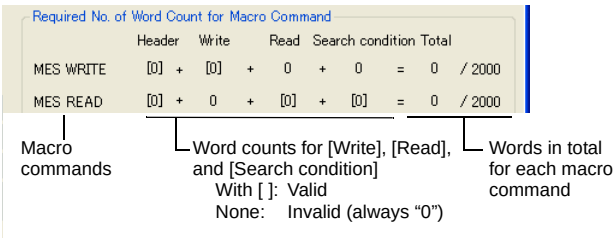




2. Proceed to the setting in the [Write], [Read], and [Search condition] tab windows.

Setting Items



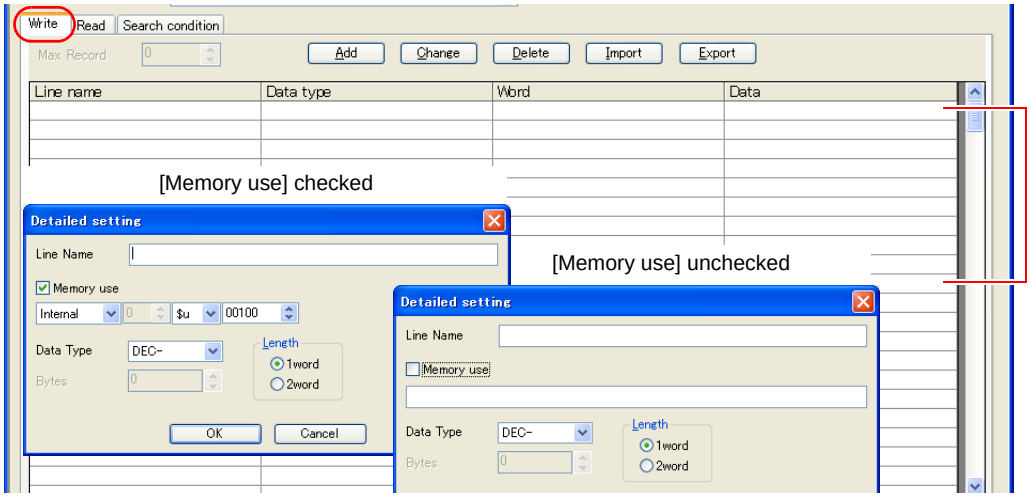
No.	Specify the MES setting number from 0 to 255.
Skip Unregistered No.	Use this button to skip unregistered numbers during selecting a MES setting number.
Copy	Use this button when copying data in the current MES setting number to another chosen MES setting number.
Delete	Use this button when deleting the current MES setting.
Comment	Enter a comment on the MES setting. 16 one-byte (or 8 two-byte) characters maximum
Data source Name	Specify a data source name. 32 bytes maximum
Login Name	Specify a login name used for accessing the database. 32 bytes maximum
Password	Specify a password used for accessing the database. 32 bytes maximum
Table Name	Specify a table name. 128 bytes maximum
Required No. of Word Count for Macro Command	This section shows the number of words used for each macro command based on the current settings. A number more than a maximum of 2,000 words is highlighted in red. Adjust the number of registrations, the length of line name, and the number of words so that 2,000 words are not exceeded. 

20

[Write], [Read] and [Search condition] tabs	Select these tabs to open the individual tab windows for addition to or search of the database or search condition setting. See the following pages for further explanation of the tab windows.

[Write] tab window

The [Write] tab window is used for data addition to the database.

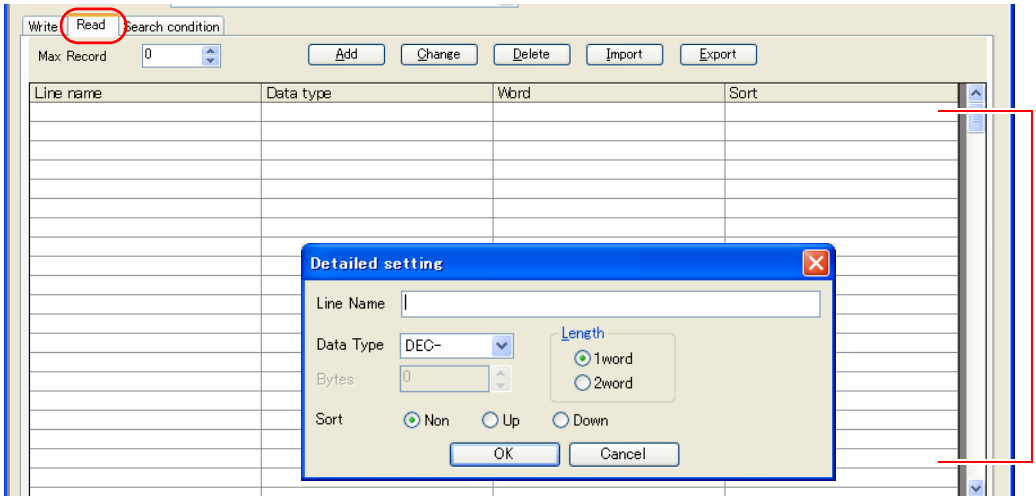


Add	Use this button to bring up the [Detailed setting] dialog. In the dialog, enter a line name as the target for writing and a data type to be additionally registered. 256 maximum
Change	Use this button to bring up the [Detailed setting] dialog. In this dialog, you can make changes to registered settings.
Delete	Use this button when deleting registered settings.
Import	Use this button when importing a CSV file into the current MES setting ([Write]). When the button is pressed, settings already registered (“a.”) are updated.
Export	Use this button when exporting the current MES setting ([Write]) into a CSV file. When the button is pressed, settings already registered (“a.”) are output.
Line Name	Specify the name of the line to which you will add data. 128 bytes maximum *** The line name must not begin with a one-byte numeral.** *** The following characters are not usable:** **~ - ! , { % } ^ ’ & . (\) ` blank**

<table>
<tr><td>☐ Memory use</td><td>Specify the data you wish to add. 256 bytes maximum
• Checked: Select memory.
Specify the memory address at which the data you wish to add is placed.
<table><tr><th>Memory</th><th>Input Type</th><th>Text Process</th></tr><tr><td>PLC1 - PLC8 memory</td><td colspan="2">Depends on the communication settings for each unit.</td></tr><tr><td>Internal memory
Memory card memory</td><td>DEC</td><td>LSB → MSB</td></tr></table>• Unchecked: Fixed
Specify a constant or a fixed string.</td></tr>
<tr><td>Data Type
Length
Bytes</td><td>For the data you wish to add, specify the data type, the data length, and the number of bytes.
<table><tr><th>Data Type</th><th>Length</th><th>Bytes</th></tr><tr><td>DEC-</td><td>1-Word, 2-Word</td><td>-</td></tr><tr><td>CHAR</td><td>128-Word</td><td>256 bytes maximum</td></tr><tr><td>BCD</td><td>1-Word, 2-Word</td><td>-</td></tr><tr><td>FLOAT</td><td>2-Word</td><td>-</td></tr></table></td></tr>
</table>

[Read] tab window

The [Read] tab window is used for database search setting.

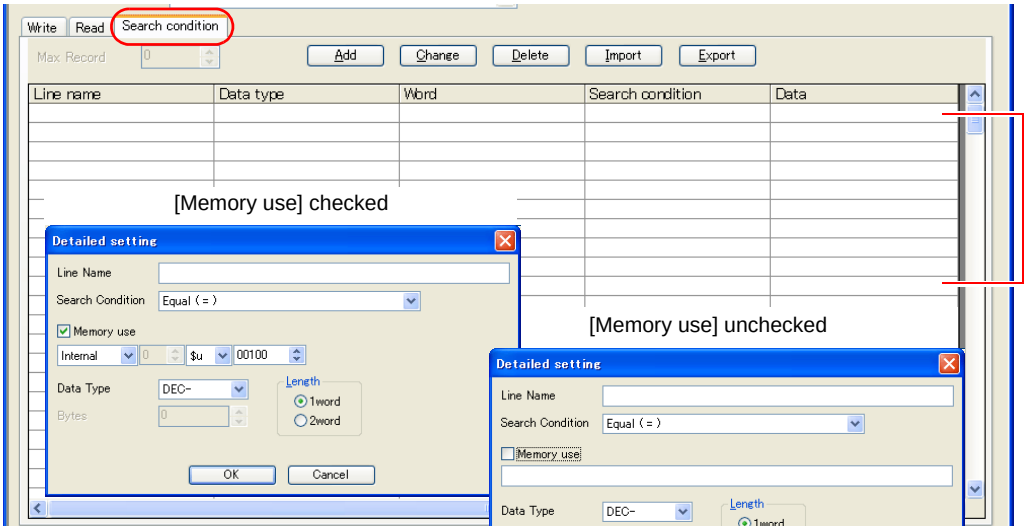


Max. Record	Specify the maximum number of records that will be displayed as the result of search. 65536 maximum
Add	Use this button to bring up the [Detailed setting] dialog. In this dialog, enter a line name for search and a data type to be additionally registered. 256 maximum
Change	Use this button to bring up the [Detailed setting] dialog. In this dialog, you can make changes to registered settings.
Delete	Use this button when deleting registered settings.
Import	Use this button when importing a CSV file into the current MES setting ([Read]). When the button is pressed, settings already registered (“a.”) are updated.
Export	Use this button when exporting the current MES setting ([Read]) into a CSV file. When the button is pressed, settings already registered (“a.”) are output.
Line Name	Specify the name of the line to be searched. 128 bytes maximum * **The line name must not begin with a one-byte numeral.** * **The following characters are not usable:** **~ - ! , { % } ^ ’ & . (\) ` blank**
Data Type Length Bytes	For the data you wish to add, specify the data type, the data length, and the number of bytes.
Sort	Select an option for sorting the search result. Non / Up / Down

Data Type	Length	Bytes
DEC-	1-Word, 2-Word	-
CHAR	128-Word	256 bytes maximum
BCD	1-Word, 2-Word	-
FLOAT	2-Word	-

[Search condition] tab window

The [Search condition] tab window is used for database search condition setting or deletion from the database.



Add	Use this button to bring up the [Detailed setting] dialog. In this dialog, enter a search condition to be additionally registered. 256 maximum
Change	Use this button to bring up the [Detailed setting] dialog. In this dialog, you can make changes to registered settings.
Delete	Use this button when deleting registered settings.
Import	Use this button when importing a CSV file into the current MES setting ([Search condition]). When the button is pressed, settings already registered (“a.”) are updated.
Export	Use this button when exporting the current MES setting ([Search condition]) into a CSV file. When the button is pressed, settings already registered (“a.”) are output.
Line Name	Specify the name of the line to be searched. 128 bytes maximum *** The line name must not begin with a one-byte numeral.** *** The following characters are not usable:** **~ - ! , { % } ^ ’ & . (\) ` blank**

<table>
<tr><td>Search Condition</td><td>Use this button when setting search conditions. When searching based on multiple conditions, use AND.

<table>
<tr><th>Search Condition</th><th>Remarks</th></tr>
<tr><td>Equal (=)</td><td></td></tr>
<tr><td>Not equal (!=)</td><td></td></tr>
<tr><td>Big (> value)</td><td></td></tr>
<tr><td>Small (< value)</td><td></td></tr>
<tr><td>Upper (>= value)</td><td></td></tr>
<tr><td>Under (<= value)</td><td></td></tr>
<tr><td>Include character string</td><td>Wildcard (%) usable
Example:
AA%: Text beginning with AA to be retrieved</td></tr>
<tr><td>Update</td><td>From the specified line name, records that do not mach the data you wish to retrieve are extracted. These records are then replaced with the data for retrieval.</td></tr>
</table></td></tr>
<tr><td>☐ Memory use</td><td>Specify the data you wish to retrieve. 256 bytes maximum
• Checked: Select memory.
Specify the memory address at which the data you wish to retrieve is placed.

<table>
<tr><th>Memory</th><th>Input Type</th><th>Text Process</th></tr>
<tr><td>PLC1 - PLC8 memory</td><td colspan="2">Depends on the communication settings for each unit.</td></tr>
<tr><td>Internal memory
Memory card memory</td><td>DEC</td><td>LSB→MSB</td></tr>
</table>
• Unchecked: Fixed
Data is searched using a specified constant or fixed string.</td></tr>
<tr><td>Data Type
Length
Bytes</td><td>For the data you wish to retrieve, specify the data type, the data length, and the number of bytes.

<table>
<tr><th>Data Type</th><th>Length</th><th>Bytes</th></tr>
<tr><td>DEC-</td><td>1-Word, 2-Word</td><td>-</td></tr>
<tr><td>CHAR</td><td>128-Word</td><td>256 bytes maximum</td></tr>
<tr><td>BCD</td><td>1-Word, 2-Word</td><td>-</td></tr>
<tr><td>FLOAT</td><td>2-Word</td><td>-</td></tr>
</table></td></tr>
</table>

Macro

The MES interface function uses the following five kinds of macros.

MES Macro Command List

Category	Command Name	Mnemonic	Description	Refer to:
MES	MES	MES CHECK (F1, F2, F3)	V-server start check	page 20-20
		MES WRITE (F1, F2, F3)	Adding data to the database	page 20-21
		MES READ (F1, F2, F3)	Searching the database	page 20-22
		MES DEL (F1, F2, F3)	Deleting data from the database	page 20-24
		MES UPDATE (F1 , F2 , F3)	Updating the database	page 20-25

Notes

- If writing the result (returned value, data retrieved by search) of an access to the database ends in error, the result is not output to the V8 and the log data.
- A maximum of 2,000 words can be used for each of the macro commands MES WRITE, MES READ, MES DEL, and MES UPDATE. The [Required No. of Word Count for Macro Command] section shows the current word counts ([System Setting] → [MES Setting]).

MES CHECK (F1, F2, F3)

Function: V-server start check

This macro is used to check whether the V-Server at the location specified in table No. [F2] is running. The returned value [F3] as a result will be stored in memory at the return address [F1].

Available memory

	Internal Memory	PLC1 - PLC8 Memory	Memory Card	Constant
F1	◎			
F2	○			○
F3	○			○

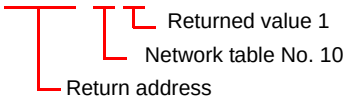
○: Setting enabled (indirect designation disabled)
◎: Setting enabled (indirect designation enabled)

Range

	Value
F0	MES CHECK
F1	Return address
F2	0 to 99: Network table number
F3	0 to 65535 (−32768 to 32767): Returned value

Example

- MES CHECK ($u0000, 10, 1)



The above program checks whether the V-Server in the computer specified in network table No. 10 is running. If the V-server is running, the returned value 1 is stored in memory at the return address $u0000.

Supplementary information

- The value set as a return address must be different from the returned value.
- With $s514, you can set the execution style of the macro. For more information, refer to the V8 Series Connection Manual.
  When a macro command is executed, if “1” (other than “0”) is set for $s514 while the V-Server is not running, no response is given from the V-Server and the V8 will enter in the standby state. It is recommended to execute this command when “0” is set for $s514.
- The result of the macro execution is stored in memory at $s515. For more information, refer to the V8 Series Connection Manual.
- The returned value will not be placed at the address [F1] immediately. The [F1] address can be monitored by the event timer macro, etc.

MES WRITE (F1, F2, F3)

Function: Adding data to the database

This macro is used to add the data set in the [Write] tab window under MES setting No. [F3] to the database. The data will be added via the V-Server at the location specified in table No. [F2]. The result will be stored in memory at the return address [F1].

Available memory

	Internal Memory	PLC1 - PLC8 Memory	Memory Card	Constant
F1	◎			
F2	○			○
F3	○			○

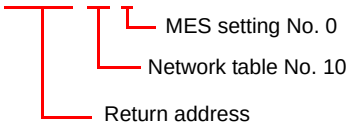
○: Setting enabled (indirect designation disabled)
◎: Setting enabled (indirect designation enabled)

Range

	Value	
F0	MES WRITE	
F1	Return address	Returned value 0: Normally finished –1: End in error
F2	0 to 99: Network table number	
F3	0 to 255: MES setting number	

Example

- MES WRITE ($u0000, 10, 0)



The above program adds data to the database in the computer specified in network table No. 10. The data to be added depends on the settings made in MES setting No. 0.
When the data addition is completed normally, the returned value 0 will be stored in memory at the return address $u0000.

Supplementary information

- With $s514, you can set the execution style of the macro. For more information, refer to the V8 Series Connection Manual.
- The result of the macro execution is stored in memory at $s515.

  -40: The [Write] tab window setting is not made in the specified MES setting number, or any setting error is found.
  For information on other error numbers, refer to the V8 Series Connection Manual.
- The returned value will not be placed at the address [F1] immediately. The [F1] address can be monitored by the event timer macro, etc.
- The primary key for the V-Server must be set for the database table (page 20-36).

MES READ (F1, F2, F3)

Function: Searching the database

This macro is used to search the line set in the [Read] tab window under MES setting No. [F3]. The search will be performed based on the specified search conditions via the V-Server at the location specified in table No. [F2]. The result will be stored in memory at the return address [F1].

Available memory

	Internal Memory	PLC1 - PLC8 Memory	Memory Card	Constant
F1	◎			
F2	○			○
F3	○			○

○: Setting enabled (indirect designation disabled)
◎: Setting enabled (indirect designation enabled)

Range

	Value
F0	MES READ
F1	Return address
F2	0 to 99: Network table number
F3	0 to 255: MES setting number

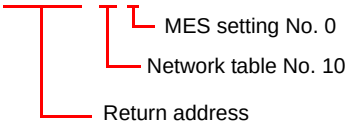
Return address

The following data will be stored in memory at the addresses starting from the return address [F1].

	Value
n	Execution result Normally finished: 0 Error: Other than 0
n + 1	Number of retrieved records The number of records that match the search conditions is stored. If no such record is found, 0 is stored. The maximum number of records is set in the [Read] tab window in the MES setting.
n + 2 -	Obtained data 1 The retrieved data is stored in the format as specified in the [Read] tab window in the MES setting.
:	Obtained data 2
:	Obtained data 3
:	:
:	Obtained data m (= maximum number of records)

Example

- MES READ ($u0000, 10, 0)



The above program searches the database in the computer specified in network table No. 10. The search is performed according to the settings in the [Read] and [Search condition] tab windows under MES setting No. 0.
When the search has been completed normally, the returned value 0 and the obtained data are stored in memory at the addresses starting from the return address $u0000.

Supplementary information

- With $s514, you can set the execution style of the macro. For more information, refer to the V8 Series Connection Manual.
- The result of the macro execution is stored in memory at $s515.

  -40: The [Read] tab window setting is not made in the specified MES setting number, or any setting error is found.
  For information on other error numbers, refer to the V8 Series Connection Manual.
- The returned value will not be placed at the address [F1] immediately. The [F1] address can be monitored by the event timer macro, etc.
- If no [Search condition] tab window setting is made in the specified MES setting number, all records will be the results of the search.

MES DEL (F1, F2, F3)

Function: Deleting records from the database

This macro is used to search the database according to the [Search condition] tab window setting in MES setting No. [F3]. The search is performed via the V-Server at the location specified in table No. [F2]. The records that match the conditions are deleted. The result will be stored in memory at the return address [F1].

Available memory

	Internal Memory	PLC1 - PLC8 Memory	Memory Card	Constant
F1	◎			
F2	○			○
F3	○			○

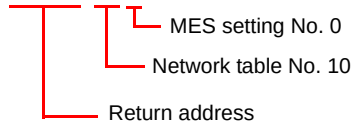
○: Setting enabled (indirect designation disabled)
◎: Setting enabled (indirect designation enabled)

Range

	Value	
F0	MES DEL	
F1	Return address	Returned value 0: Normally finished –1: End in error
F2	0 to 99: Network table number	
F3	0 to 255: MES setting number	

Example

- MES DEL ($u0000, 10, 0)



The above program searches the database in the computer specified in network table No. 10 and deletes the retrieved data. The search is performed according to the [Search condition] tab window in MES setting No. 0.
When the data deletion has been completed normally, the returned value 0 is stored in memory at the return address $u0000.

Supplementary information

- With $s514, you can set the execution style of the macro. For more information, refer to the V8 Series Connection Manual.
- The result of the macro execution is stored in memory at $s515.

  -40: The [Search condition] tab window setting is not made in the specified MES setting number, or any setting error is found.
  For information on other error numbers, refer to the V8 Series Connection Manual.

MES UPDATE (F1 , F2 , F3)

Function: Updating the database

This macro is used to search the line set in the [Write] tab window under MES setting No. [F3]. The search will be performed based on the specified search conditions via the V-Server at the location specified in table No. [F2], then the database will be updated. The result will be stored in memory at the return address [F1].

Available memory

	Internal memory	PLC1 - PLC8 Memory	Memory Card	Constant
F1	◎			
F2	○			○
F3	○			○

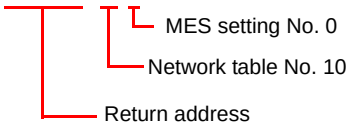
○: Setting enabled (indirect designation disabled)
◎: Setting enabled (indirect designation enabled)

Range

	Value	
F0	MES UPDATE	
F1	Return address	Returned value 0: Normally finished -1: End in error
F2	0 to 99: Network table number	
F3	0 to 255: MES setting number	

Example

- MES UPDATE ($u0000, 10, 0)



The above program searches the database in the computer specified in network table No. 10 and updates the database. The search is performed according to the settings in the [Write] and [Search condition] tab windows under MES setting No. 0.
When the data addition is completed normally, the returned value 0 will be stored in memory at the return address $u0000.

Supplementary information

- With $s514, you can set the execution style of the macro. For more information, refer to the V8 Series Connection Manual.
- The result of the macro execution is stored in memory at $s515.

  -40: The [Write] or [Search condition] tab window setting is not made in the specified MES setting number. Or any setting error is found.
  For information on other error numbers, refer to the V8 Series Connection Manual.
- The returned value will not be placed at the address [F1] immediately. The [F1] address can be monitored by the event timer macro, etc.
- This macro command cannot be executed when “Update” is set in the [Search condition] tab window.

20.4 V-Server

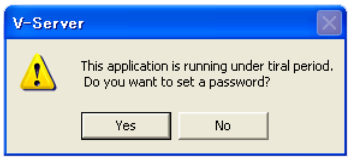
V-Server

Hakko Electronics' V-Server is the software that enables accesses to databases. Once the V-Server is installed on a computer, no configuration is needed.

Installation

1. Download the V-Server to your computer from the Hakko Electronics website at the URL given below.
   http://www.hakko-elec.co.jp/en/download/03tellus/index.html
2. Install the V-Server on the computer.
3. Start V-Server.

* The message that appears at start-up indicates that the V-Server is usable within one hour. If you wish to use the V-Server without the limitation, please apply for the software's license and obtain its password. For more information, refer to the TELLUS and V-Server manual.



20.5 Database

Kinds of Databases

The following databases can be used.

- SQL Server: Microsoft
- MSDE: Microsoft
- Oracle: Oracle Corporation

This manual describes a setting example of Microsoft SQL Server 2005 Express Edition.

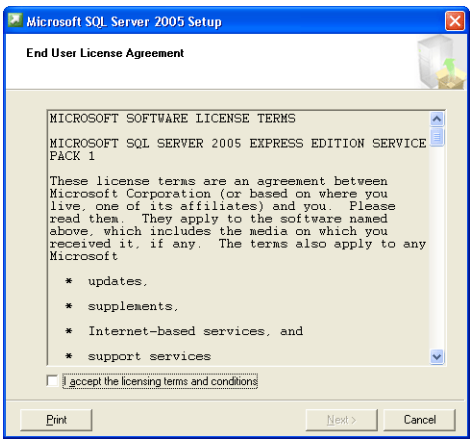
SQL Server 2005 Express Edition

This is a simple version of the SQL Server 2005. You can download the software free of charge from Microsoft's website.

SQL Server 2005 Express Edition

Installation

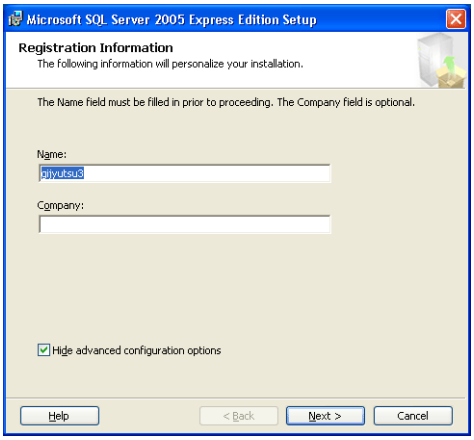
1. Download SQL Server 2005 Express Edition from Microsoft's website.
2. Double-click the downloaded "exe" file. "License Agreement" is displayed. Check "I accept the licensing terms and conditions" and click the [Next] button.



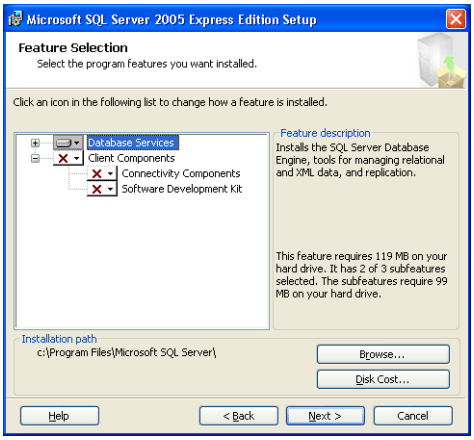
3. The installation screen of the components is displayed. Proceed by following the instructions.

4. The [Microsoft SQL Server 2005 Setup] screen is displayed. Proceed by following the instructions and start installation.

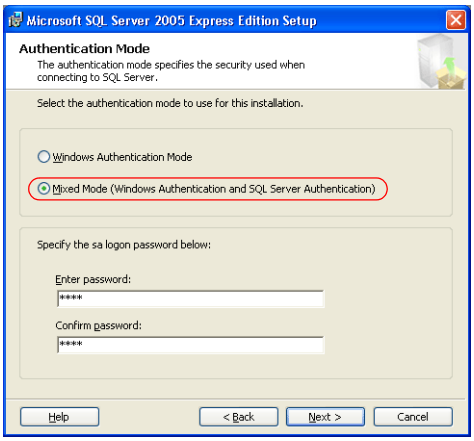
5. The [Registration Information] screen is displayed. Enter your name, your company name, and click the [Next] button.



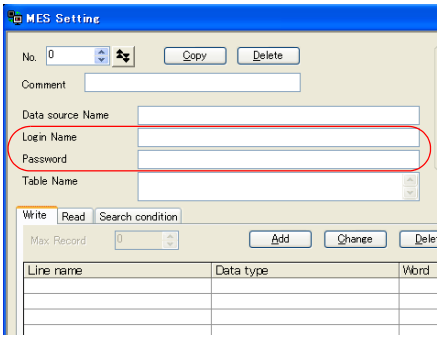
6. The [Feature Selection] screen is displayed. Select an installation path and click the [Next] button.



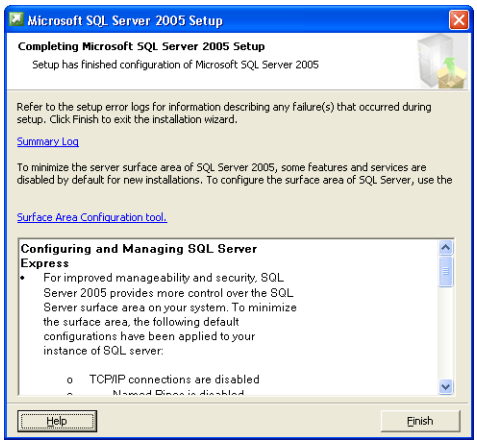
7. The [Authentication Mode] screen is displayed. Select [Mixed Mode] and set a password.



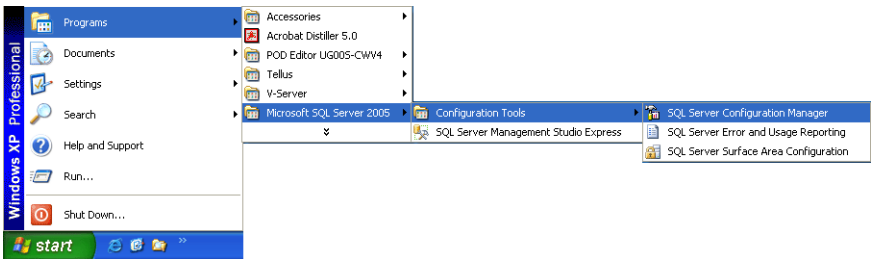
The password is required at the time of connecting to the database or MES setting in the V-SFT. Be careful in managing your password and take care not to lose it.



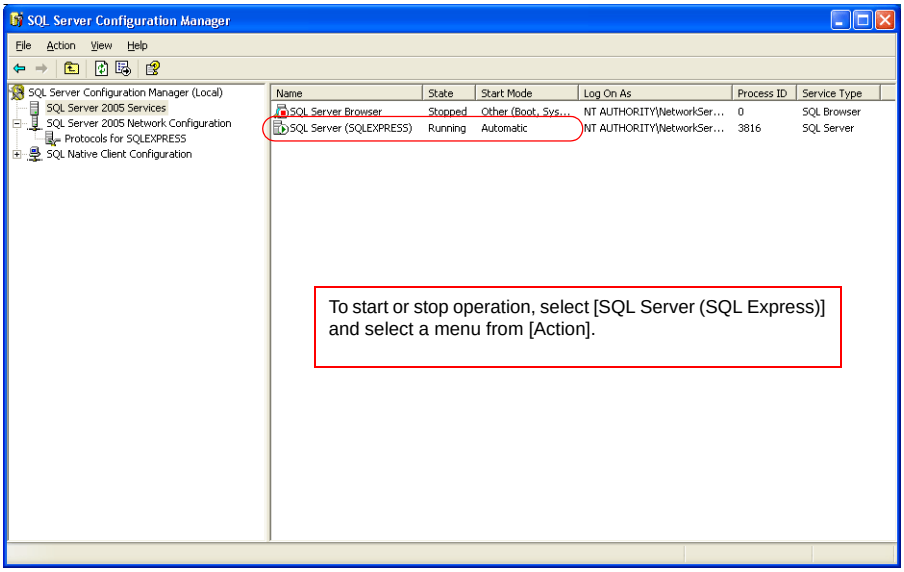
8. Proceed by following the instructions to complete installation.



9. Click [Start] → [Program] → [Microsoft SQL Server 2005] → [Configuration Tools] → [SQL Server Configuration Manager].



10. SQL Server Configuration Manager starts. Check that SQL Server (SQL Express) is running.



Creating a SQL Server Database

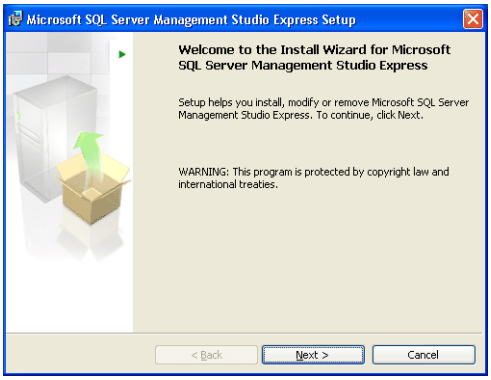
The SQL Server database can be created by using SQL Server Management Studio Express.

Microsoft SQL Server Management Studio Express: SSMSE

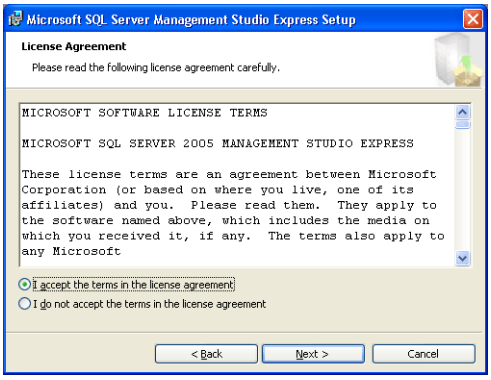
Easy-to-use, graphical management tool intended for the management of the SQL Server 2005 Express Edition and the SQL Server 2005 Express Edition with Advanced Services

Installation

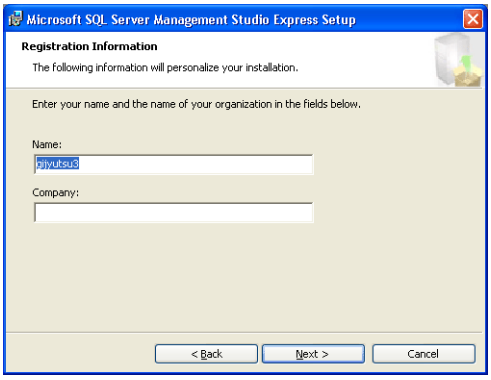
1. Download “SQL Server Management Studio Express” from Microsoft’s website.
2. Double-click the downloaded file. The installation wizard of the SQL Server Management Studio Express is started.



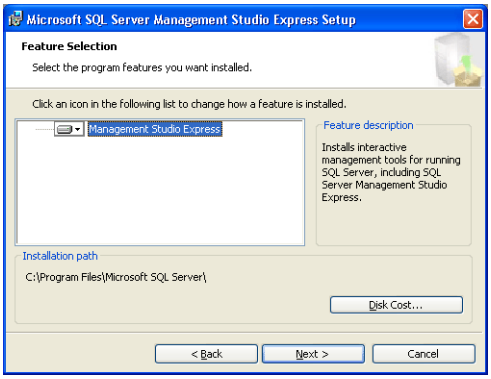
3. Click the [Next] button. “License Agreement” is displayed. Check “I accept the terms in the license agreement” and click the [Next] button.



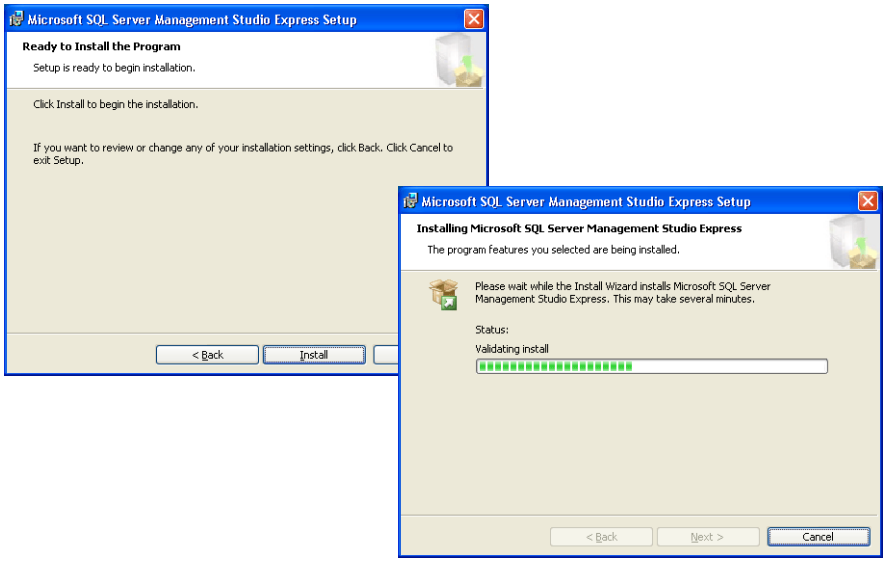
4. The [Registration Information] screen is displayed. Enter your name, your company name, and click the [Next] button.



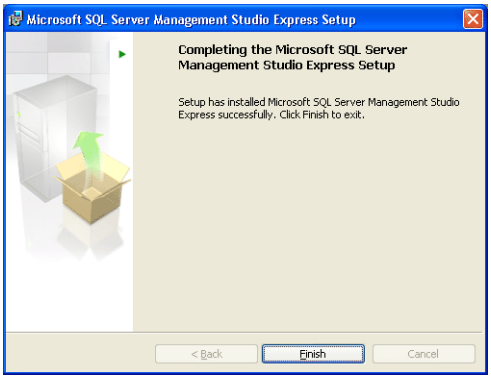
5. The [Feature Selection] screen is displayed. Select an installation path and click the [Next] button.



6. The [Ready to Install the Program] screen is displayed. Click the [Install] button. Installation is started.

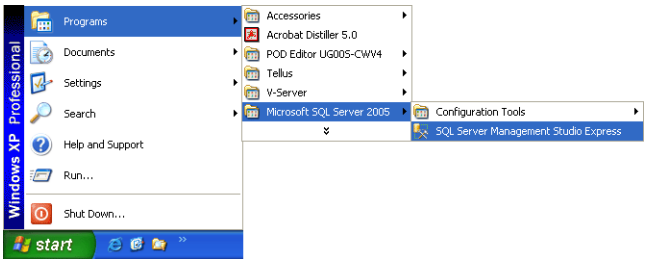


7. The setup completion message is displayed. Click the [Finish] button and close the window.



Starting SQL Server Management Studio Express

1. Click [Start] → [Program] → [Microsoft SQL Server 2005] →[SQL Server Management Studio Express].

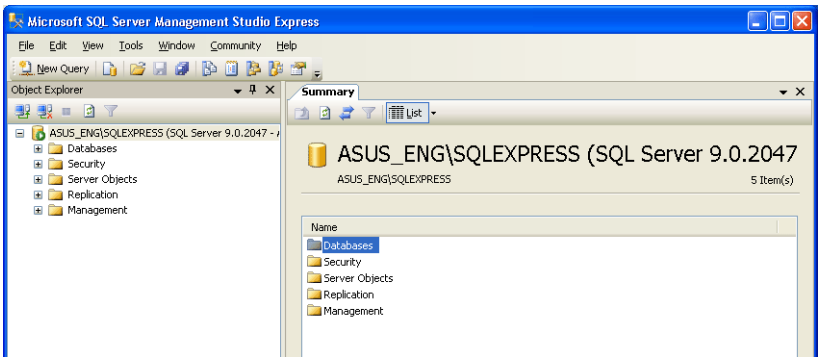


2. The [Connect to Server] screen is displayed. Make the settings and click the [Connect] button.

Server name	Select an SQL Server.
Authentication	Select an authentication. In this example, the authentication of SQL Server is selected.
Login	Specify a user name. In this example, “sa” is specified.
Password	Specify a password.

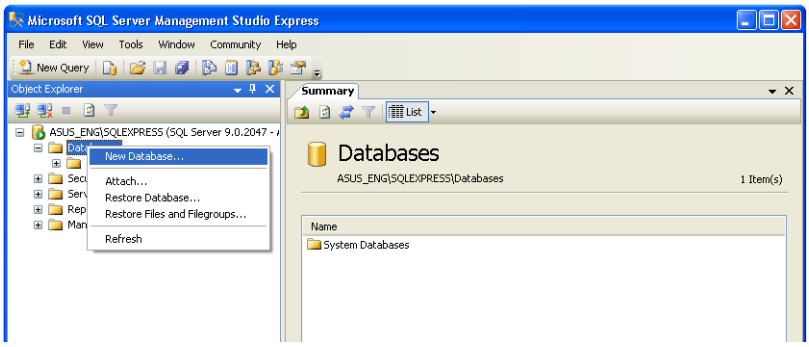
The password for “sa” has been specified on the [Authentication Mode] screen displayed during installation of SQL Server 2005 Express Edition (see page 20-29).

3. SQL Server Management Studio Express is started.

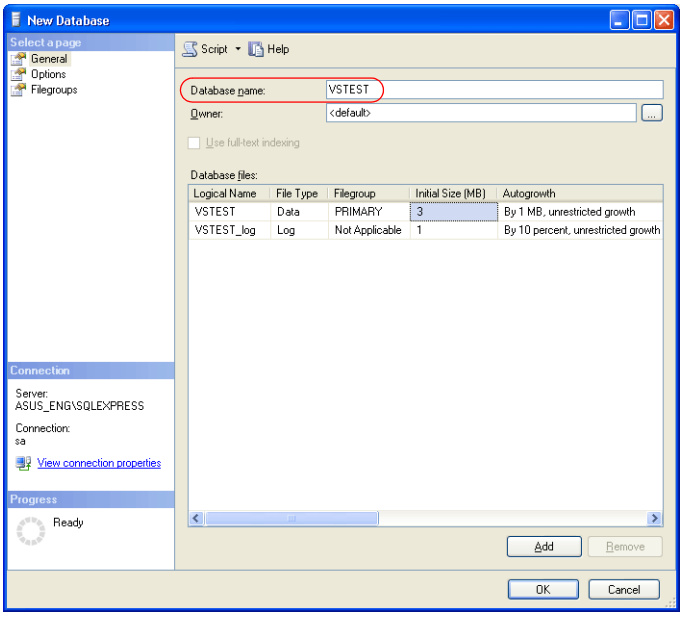


Creating a New Database

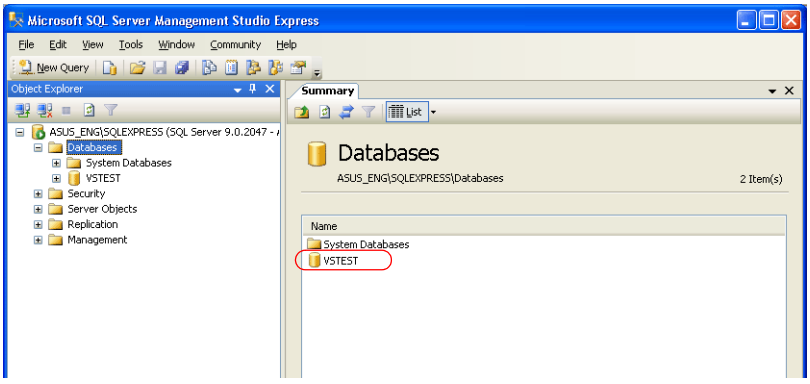
1. Select [Database] and click [New Database] from the right-click menu.



2. The [New Database] screen is displayed. Specify a database name and click the [OK] button.

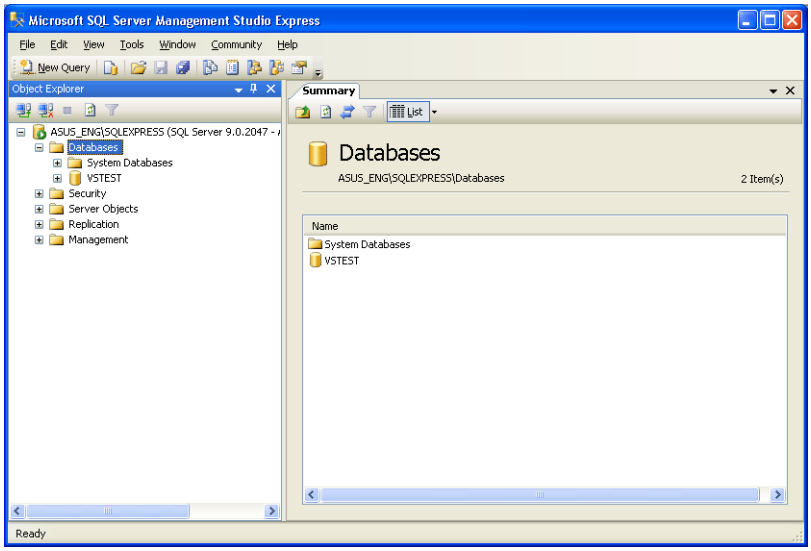


3. A new database is created.

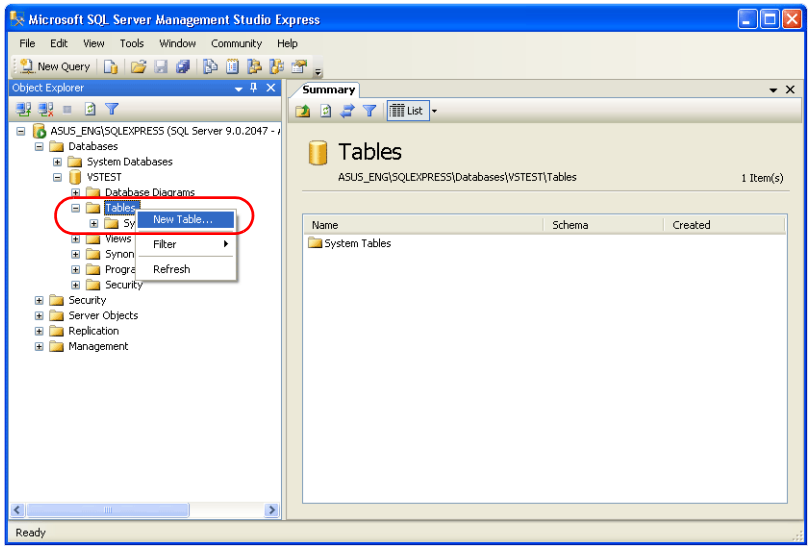


Creating a New Table

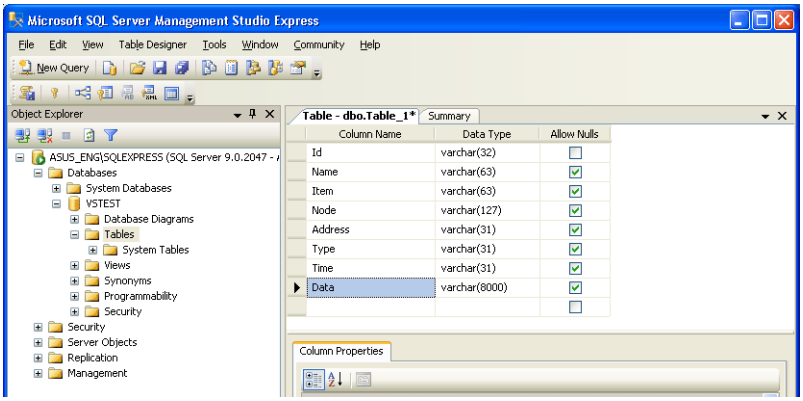
1. Start SQL Server Management Studio Express.



2. Select a database created in the previous section and click [New Database] from the right-click menu.



3. The table creation screen is displayed. Create a table by registering a column name and a data type.



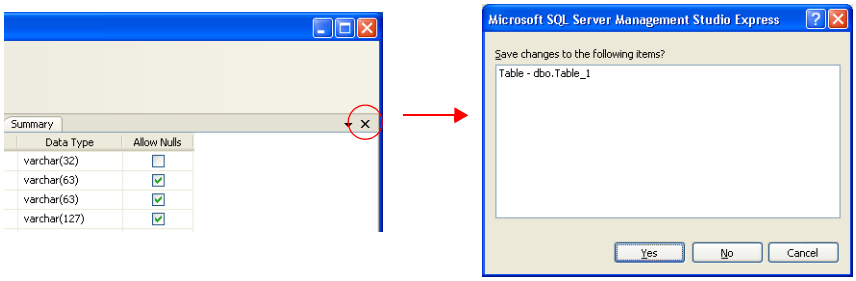
- For a database table to which data is to be added, set the primary key for the V-Server.

Column Name	Data Type	Length	Allow Nulls	Primary Key
VsPrimaryKey	varchar	26 bytes or more	No	○

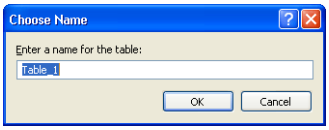
- The following data types are available with the MES interface function. They correspond to the MES settings in the V-SFT.

Database: Table				V-SFT: MES Setting	
Column Name	Data Type	Length	Allow Nulls	Data Type	Length
(Arbitrary)	smallint	1 word	Yes	DEC-BCD	1 word
(Arbitrary)	int	2 words	Yes		2 words
(Arbitrary)	Float	2 words	Yes	FLOAT	2 words
(Arbitrary)	varchar	Arbitrary	Yes	CHAR	Max. 256 bytes

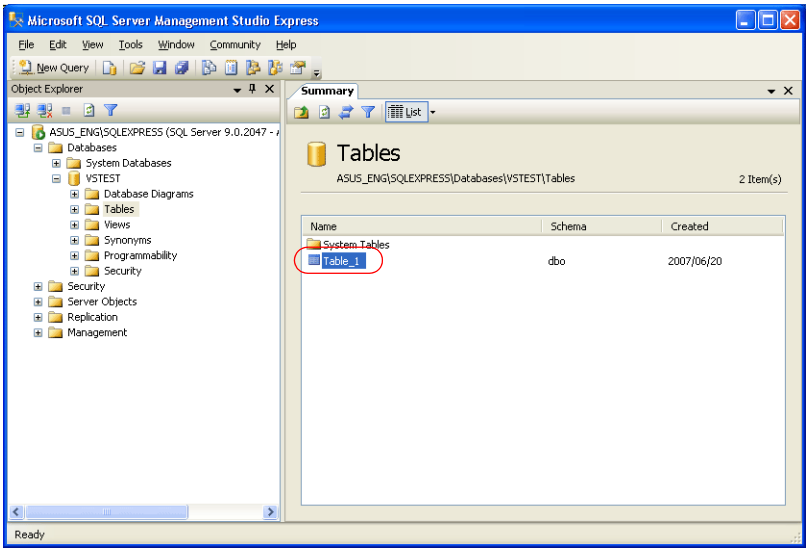
4. When the table setting has been completed, close it. The confirmation screen is displayed. Click the [Yes] button.



5. Enter a name and click the [OK] button.



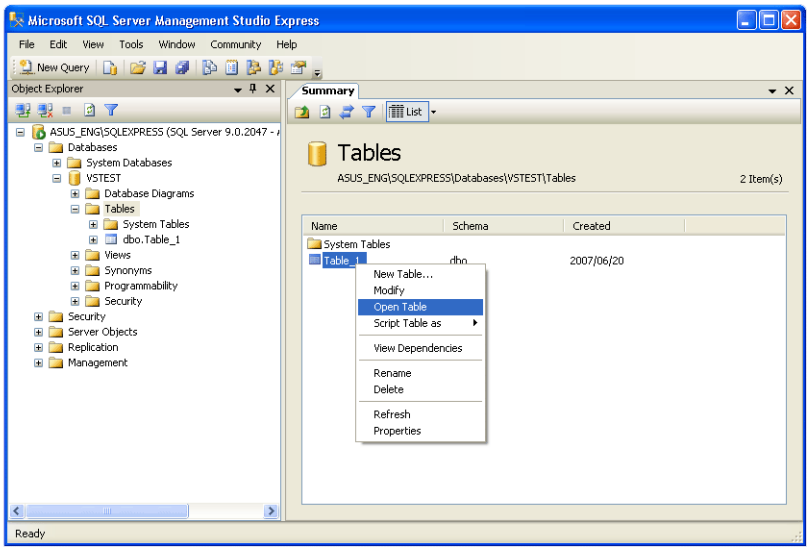
6. The table is created.



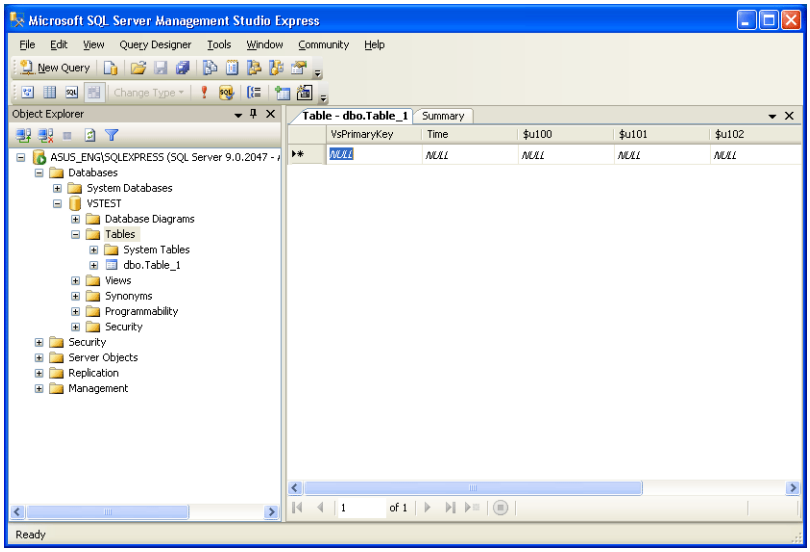
Opening a Table

The data saved in the database can be checked by following the procedure given below.

1. Select a table and click [Open Table] from the right-click menu.



2. The table is opened. A column name registered when the table was created is displayed. Data is saved in “NULL” in order.



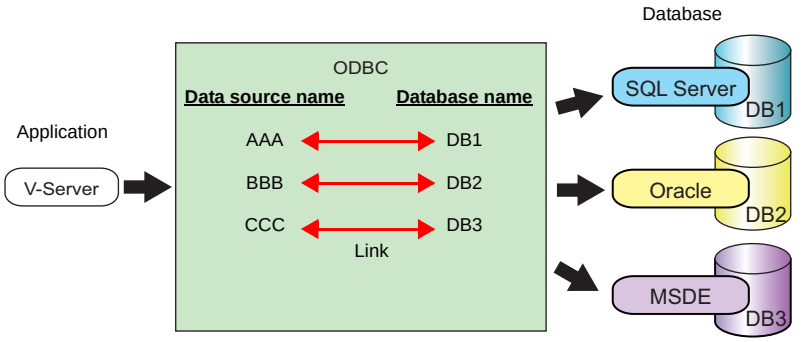
20.6 Data Source (ODBC) Setting

V-Server accesses the database via data source (ODBC). For allowing V-Server to access the database, make the settings for the data source. This manual describes a setting example of the Microsoft SQL Server 2005 Express Edition.

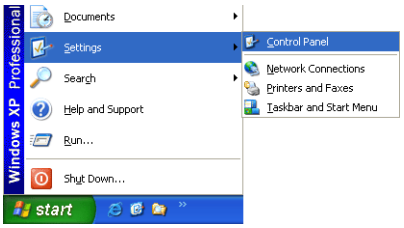
ODBC: Open DataBase Connectivity

ODBC is the interface between an application (V-Server) and databases.

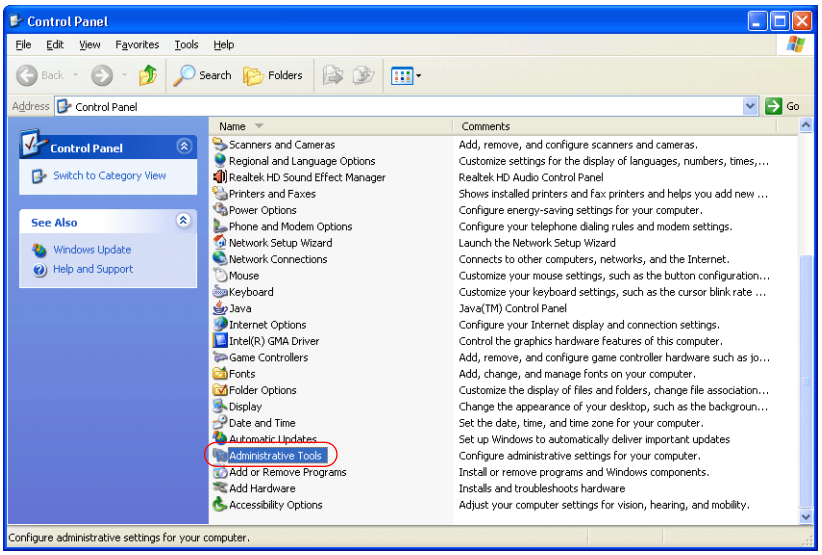
Because ODBC accommodates the differences in specifications between databases, users just need to create programs based on the ODBC-specified procedure in order to access those databases.



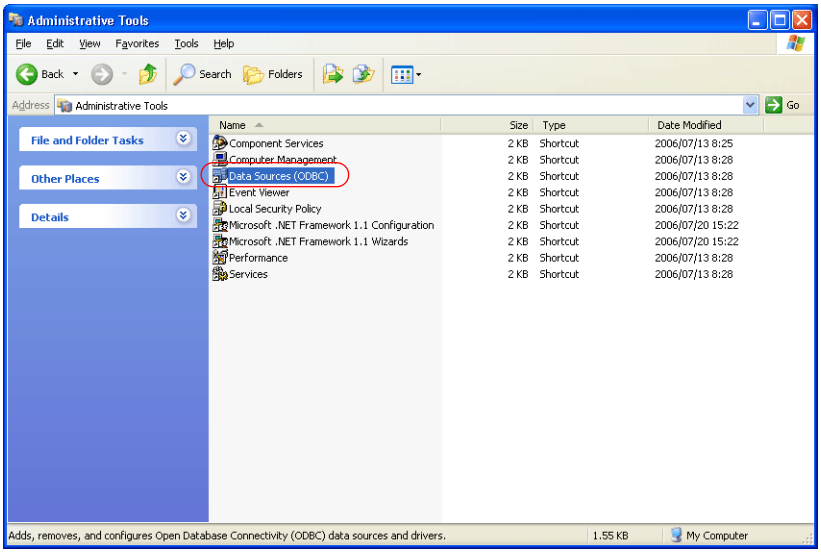
1. From the Windows [Start] menu, click [Settings] and [Control Panel]. The [Control Panel] folder is opened.



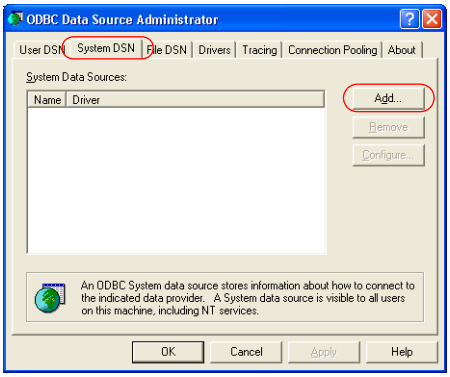
2. Double-click [Administrative Tools].



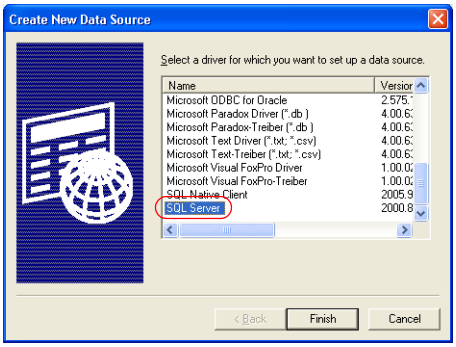
3. The [Administrative Tools] screen is displayed. Double-click [Data Sources (ODBC)].



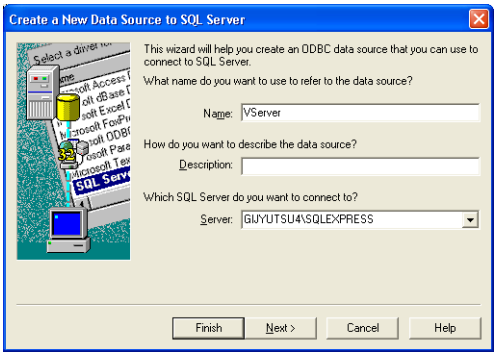
4. The ODBC Data Source Administrator dialog box is displayed. Open the [System DSN] tab window and click the [Add] button.



5. The Create New Data Source dialog box is displayed. Select SQL Server and click the [Finish] button.

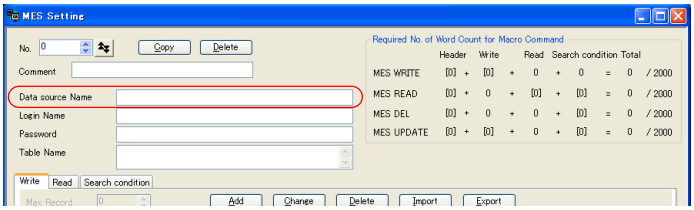


6. The following dialog is displayed. Make the settings and click the [Next] button.



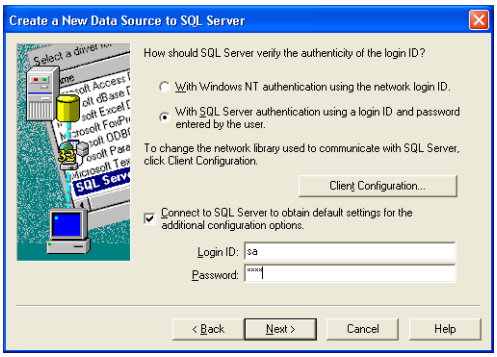
Name	Specify a data source name.
Server	Specify a SQL Server name.

- The data source name is used in the MES setting in the V-SFT.



- The SQL Server name can be checked on the SQL Server Management Studio Express.

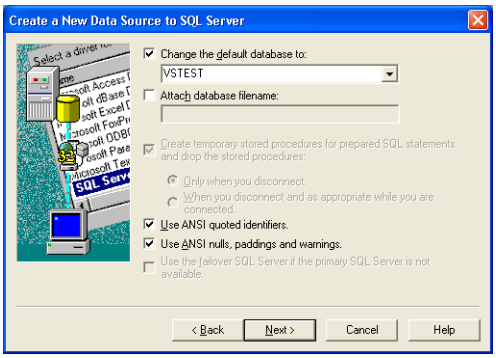
7. The following dialog is displayed.
Select the option [With SQL Server authentication using a login ID and password entered by user], and specify a login ID and a password.



Login ID	Specify a login ID (sa).
Password	Specify a password.

The password for “sa” has been specified on the [Authentication Mode] screen displayed during installation of the SQL Server 2005 Express Edition (see page 20-29).

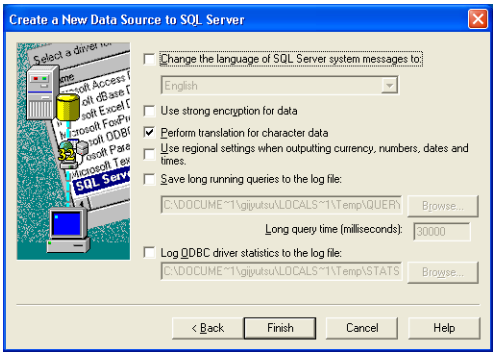
8. Click the [Next] button. The following dialog is displayed.



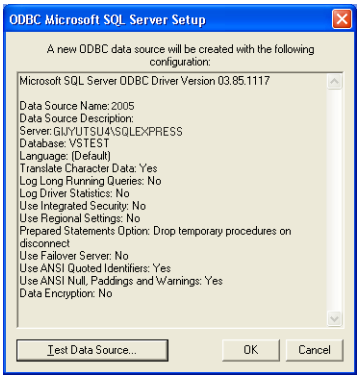
9. Check [Change the default database to] and select a database.

Select a database created using Microsoft SQL Server Management Studio Express (see page 20-31).

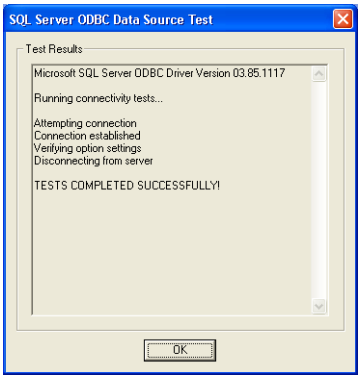
10. Click the [Next] button. The following screen is displayed.



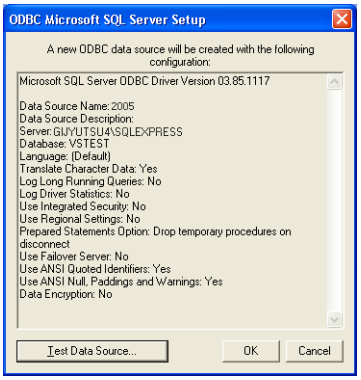
11. Click the [Finish] button. The following screen is displayed.



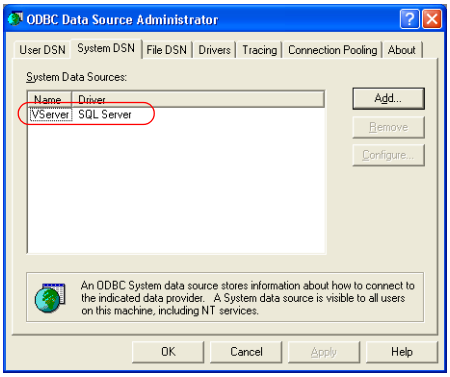
12. Click the [Test Data Source] button. When a connection has been successfully established, the following screen is displayed.



13. Click [OK]. The following screen is displayed.



14. Click [OK]. The data source is then registered.



The necessary settings have been completed.

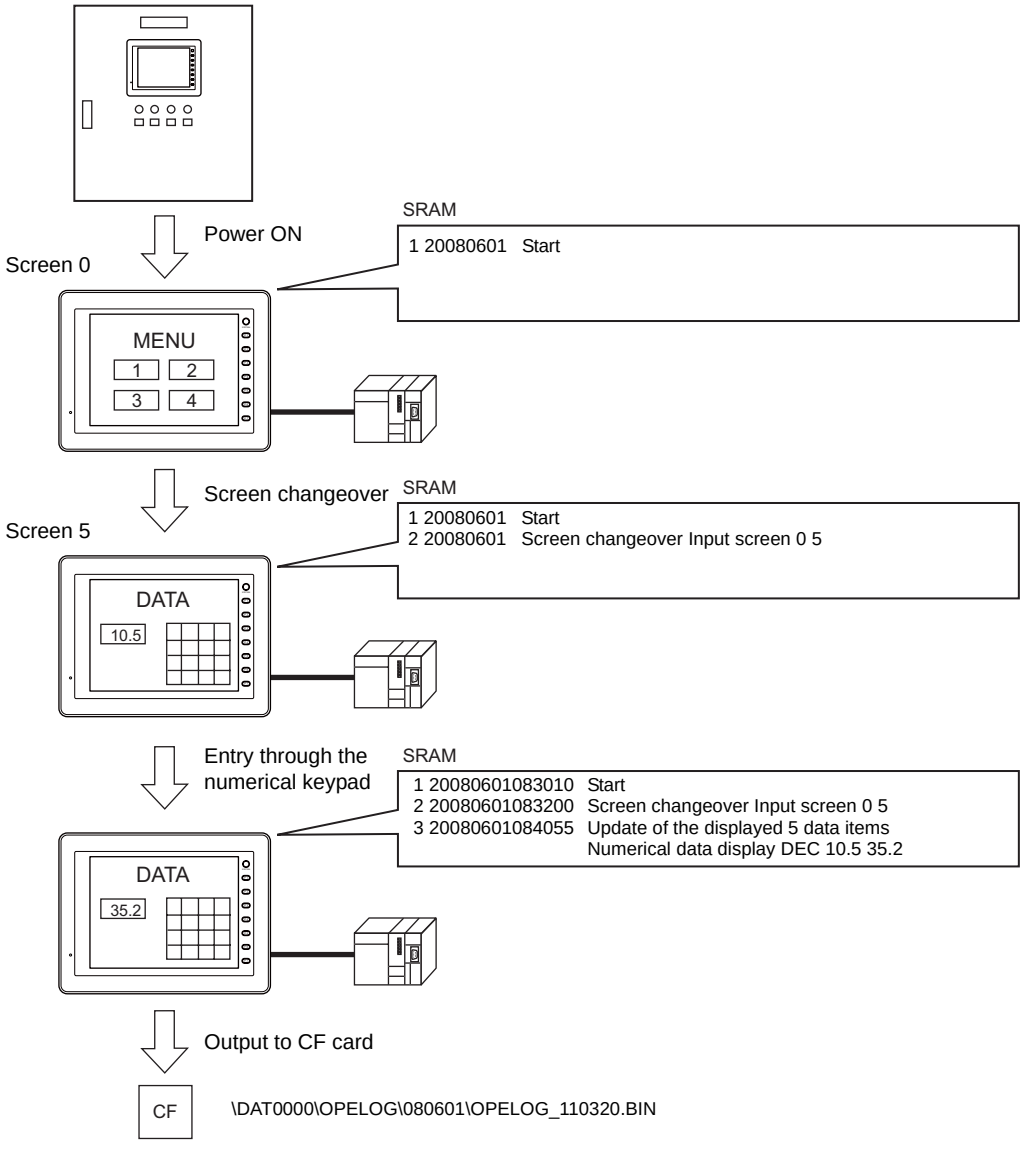
21 Operation Logs

21.1 Operation Log Function

Overview

The operation log function is available to store the screen operation history records (operation logs) in the SRAM area. When the SRAM area becomes full, the logs can be output to a CF card.
In the event of an error, these logs stored will allow you to examine what was conducted at that time; thus helping you analyze the causes of the error. Also, in conjunction with the security function (to be discussed later), you can identify the name of the operator.

Log files to be output to a CF card are in binary format. A dedicated tool is prepared to convert such a log file to a CSV file so that you can view the contents.

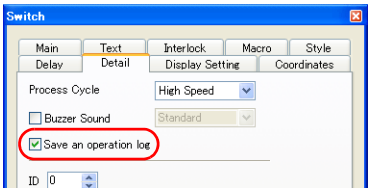


The table below shows the items that can be contained in operation logs and when storage of those logs takes place.

<table>
<tr><th>Item</th><th>Timing of Log Storage</th></tr>
<tr><td>Start</td><td>At power-on</td></tr>
<tr><td>Transfer</td><td>At the time of transferring the screen data or the I/F driver*1</td></tr>
<tr><td>Mode changeover</td><td>At the time of switching between the RUN screen and the Main Menu screen</td></tr>
<tr><td>Screen changeover</td><td>At the time of screen change</td></tr>
<tr><td>Language changeover</td><td>At the time of language selection</td></tr>
<tr><td>Switch</td><td>At the press of a switch*2
<table>
<tr><td colspan="2">Output Action</td><td>Momentary, Set, Reset, Alternate, Momentary W</td></tr>
<tr><td rowspan="6">Function</td><td>Standard</td><td>Screen, Overlap Display, Multi-Overlap Display, Word Operation, Reset, CF Card Format, CF Card Removal, Language changeover</td></tr>
<tr><td>Entry</td><td>Delete (sampling only)</td></tr>
<tr><td>Memory Card</td><td>Card Format, Transfer Card → PLC, Transfer PLC → Card</td></tr>
<tr><td>Digital Switch</td><td>Digital Switch +, Digital Switch –</td></tr>
<tr><td>JPEG</td><td>File Delete</td></tr>
<tr><td>Security</td><td>Login/Logout</td></tr>
</table></td></tr>
<tr><td>Data display update*3</td><td>At the time of updating numerical data/character displays in the entry mode (Write/↓/↑key)</td></tr>
<tr><td>CF Card Writing Error</td><td>At the occurrence of an error during writing into a CF card
* 1,024 words are used in SRAM. The words in use are added and displayed at [Unit Setting] → [SRAM/Clock Setting] → [Operation log storage point].</td></tr>
<tr><td>Log destruction</td><td>At the time of newly restarting to store log data after clearing the SRAM area due to the reasons below:
• SRAM data corruption
• Failure to output to CF card</td></tr>
</table>

*1 Logging does not take place when transferring the MONITOUCH system program.

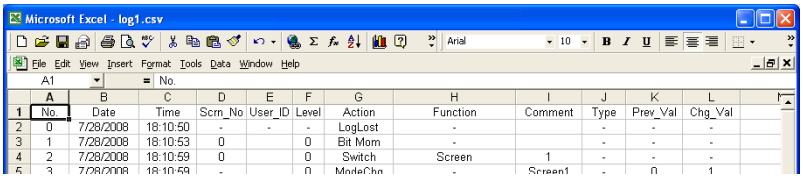
*2 When using a switch to store operation logs, [☑ Save an operation log] must be checked in its [Switch] dialog.



Default: checked

*3 Table data display is not supported.

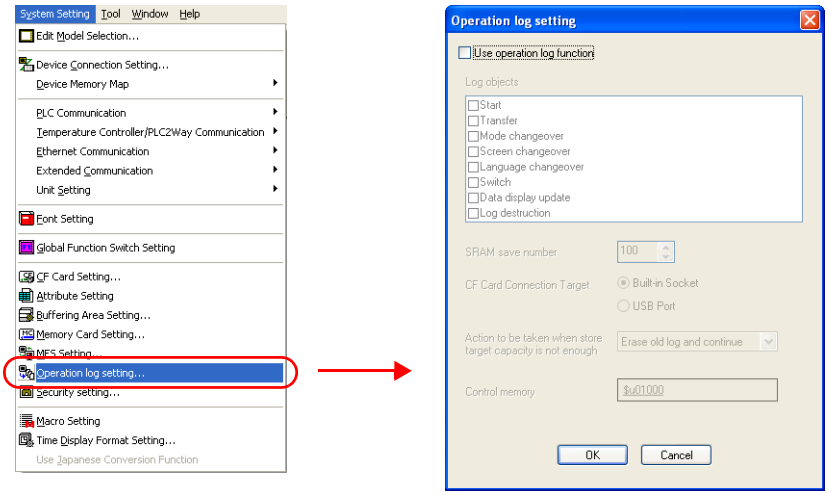
Example of conversion to a CSV file



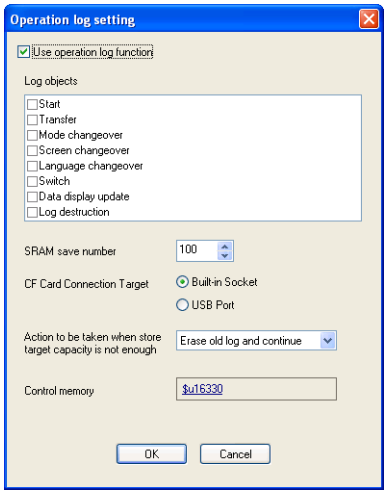
Setting

Location for Setting

Click [System Setting] → [Operation log setting]. The [Operation log setting] dialog is displayed.



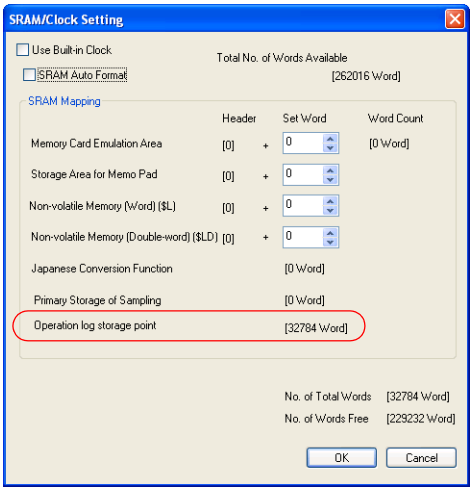
Setting Items



☐ Use operation log function	Check this box when you use the operation log function.
Log objects	Select the options to be contained in log data. (For more information, refer to page 21-2.)
SRAM save number 100 to 512	Specify the number of log data to be stored in the SRAM area.*1
CF Card Connection Target Built-in Socket USB Port	Select the location of the CF card, to which operation logs will be output.

Action to be taken when store target capacity is not enough. Erase old log and continue Stop operation log	Select the action to be taken when CF card has become full.
Control memory*2	Specify a memory address for log output to the CF card.

*1 A memory space required is automatically provided based on the [SRAM save number] setting.



*2 Control memory allocation

Control memory	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

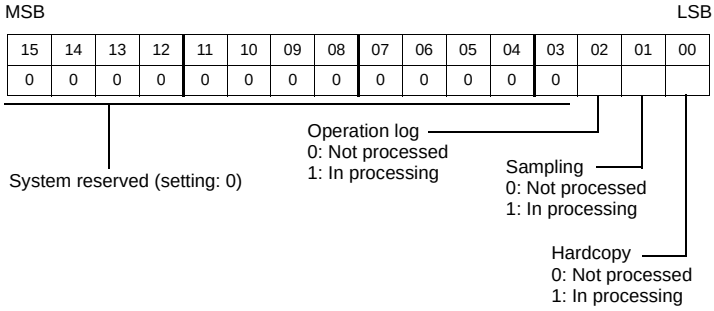
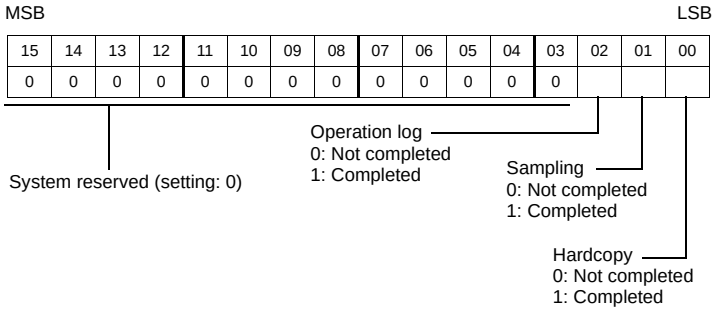
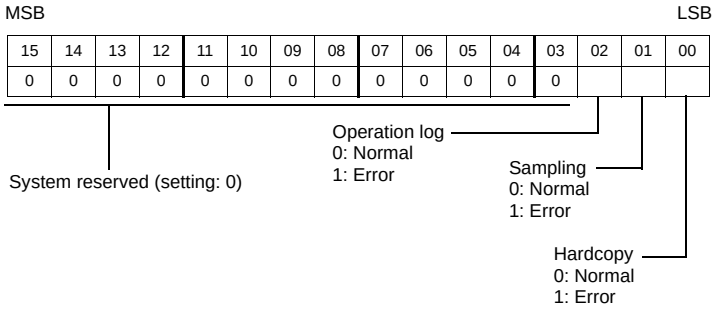
System reserved

Bit for output to CF card

- Bit for output to CF card <No. 0>
  [0 → 1] Log data will be output from the SRAM to the CF card.

System Memory

The following describes the system memory associated with the operation log function.

<table>
<tr><th>Address</th><th>Description</th><th>Remarks</th></tr>
<tr><td>$s1050</td><td>CF card in processing flag
 
</td><td>← V</td></tr>
<tr><td>$s1051</td><td>CF card processing completed flag
 
</td><td>← V</td></tr>
<tr><td>$s1052</td><td>CF card processing error flag
 

* If an error occurs during the execution of the operation log function, it should be a writing error. To know about the condition of the CF card insertion, see $s1030/1035.</td><td>← V</td></tr>
</table>

Log File

SRAM

Log data is stored in the SRAM area in binary format.

The SRAM area consumes a maximum of 64 kB and is capable of storing 512 log data.

After output to the CF card, the SRAM area is cleared and data storage in the area is resumed. The next section describes when output to the CF card takes place.

CF Card

Timing of output to CF card

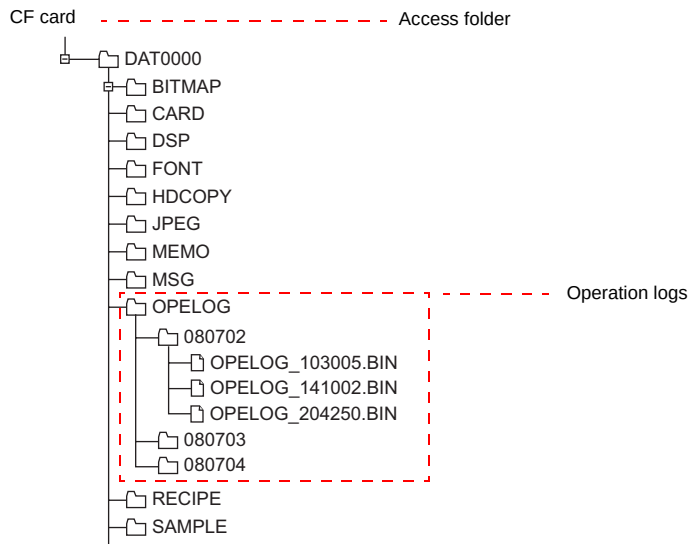
The output of log data from the SRAM area to the CF card takes place when:

- The SRAM area has become full (up to 64 kB/512 log data).
- The bit for output to CF card is set (ON) at the [Control memory] address.
- The [CF Card Removal] switch is activated.
- The CF card cover is opened.

Log File Storage Target and File Name

The following designates the location of where to store log files and their naming.

Storage Target	File Name
Access folder\OPELOG\YYMMDD year, month, and day	OPELOG_hhmmss.BIN hour, minutes, and seconds



Conversion to CSV File

A log file output to the CF card can be converted by a dedicated tool to a CSV file, which enables you to view the contents.

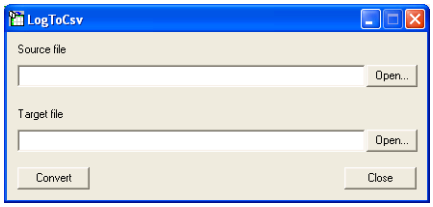
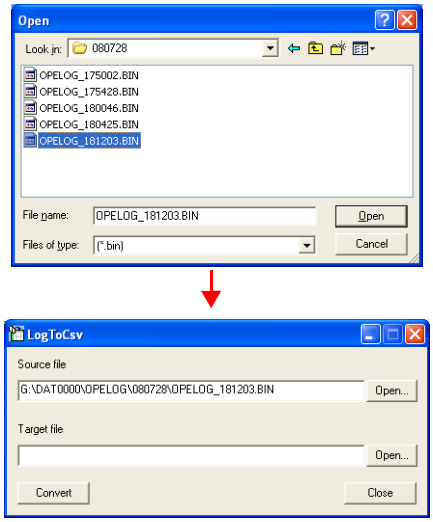
File Conversion Tool (LogToCsv.exe)

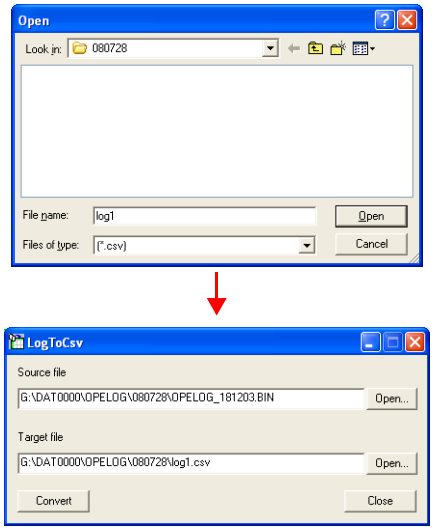
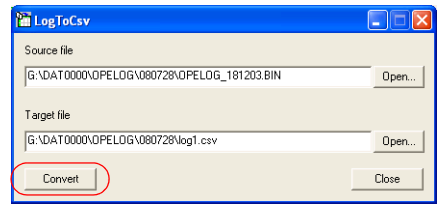
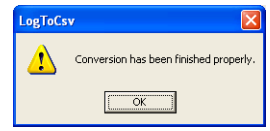
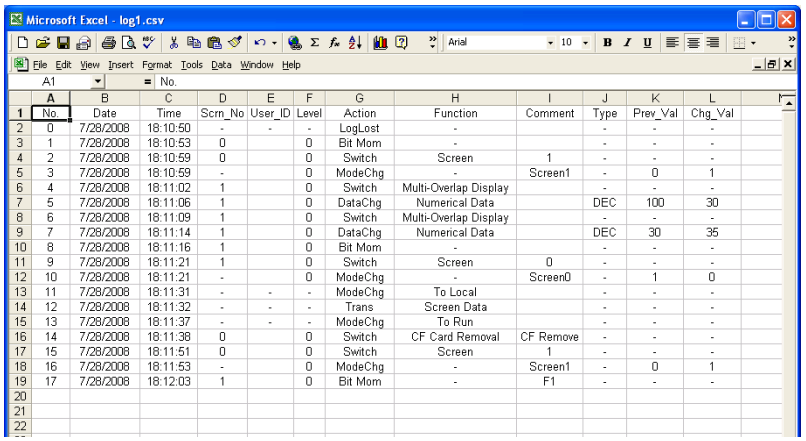
When you have installed the V-SFT-5 version 5.2.0.0 or later from the CD, “LogToCsv.exe” is also installed.

If the version of your V-SFT-5 is earlier than the above, please visit the Hakko Electronics website, and download and install “LogToCsv.exe”.

http://www.monitouch.com

File Conversion Procedure

Step 1	Start the tool, LogToCsv.exe. 
Step 2	Click the [Open] button at [Source file] and select a log file desired. 

Step 3	Click the [Open] button at [Target file] and specify the location of where to store the CSV file and the name of the file. 
Step 4	Click the [Convert] button. 
Step 5	The completion message is displayed. 
Step 6	Open the CSV file. 

	A	B	C	D	E	F	G	H	I	J	K	L
1	No.	Date	Time	Scrn_No	User_ID	Level	Action	Function	Comment	Type	Prev_Val	Chg_Val
2	0	7/28/2008	18:10:50	-	-	-	LogLost	-		-	-	-
3	1	7/28/2008	18:10:53	0		0	Bit Mom	-		-	-	-
4	2	7/28/2008	18:10:59	0		0	Switch	Screen	1	-	-	-
5	3	7/28/2008	18:10:59	-		0	ModeChg	-	Screen1	-	0	1
6	4	7/28/2008	18:11:02	1		0	Switch	Multi-Overlap Display		-	-	-
7	5	7/28/2008	18:11:06	1		0	DataChg	Numerical Data		DEC	100	30
8	6	7/28/2008	18:11:09	1		0	Switch	Multi-Overlap Display		-	-	-
9	7	7/28/2008	18:11:14	1		0	DataChg	Numerical Data		DEC	30	35
10	8	7/28/2008	18:11:16	1		0	Bit Mom	-		-	-	-
11	9	7/28/2008	18:11:21	1		0	Switch	Screen	0	-	-	-
12	10	7/28/2008	18:11:21	-		0	ModeChg	-	Screen0	-	1	0
13	11	7/28/2008	18:11:31	-	-	-	ModeChg	To Local		-	-	-
14	12	7/28/2008	18:11:32	-	-	-	Trans	Screen Data		-	-	-
15	13	7/28/2008	18:11:37	-	-	-	ModeChg	To Run		-	-	-
16	14	7/28/2008	18:11:38	0		0	Switch	CF Card Removal	CF Remove	-	-	-
17	15	7/28/2008	18:11:51	0		0	Switch	Screen	1	-	-	-
18	16	7/28/2008	18:11:53	-		0	ModeChg	-	Screen1	-	0	1
19	17	7/28/2008	18:12:03	1		0	Bit Mom	-	F1	-	-	-
20												
21												
22												

Contents of CSV File

The table below shows the contents of a CSV file.

Title	Description
No.	Log number
Date	Log acquisition date
Time	Log acquisition time
Scrn_No	Screen No. 0 - 9999
User_ID	User ID (8 characters)
Level	Security level (0 - 15)
Action	Action*1
Function	Function*1
Comment	Comment on screen/item (32 bytes)
Type	Numerical data type
Prev_Val	Value before change
Chg_Val	Value after change

*1 For explanation of the items displayed in a file, refer to the individual sections below.

[Start]

A log is saved at power-on. The log contains the data items below.

No.	Date	Time	Scrn_No	User_ID	Level	Action	Function	Comment	Type	Prev_Val	Chg_Val
○	○	○	-	-	-	○	-	-	-	-	-

Start

[Transfer]

A log is saved when the screen data or the I/F driver is transferred. The log contains the data items below.

No.	Date	Time	Scrn_No	User_ID	Level	Action	Function	Comment	Type	Prev_Val	Chg_Val
○	○	○	-	-	-	○	○	-	-	-	-

Screen data
Driver, expansion program

Transfer

[Mode changeover]

A log is saved when the mode is switched between RUN and STOP. The log contains the data items below.

No.	Date	Time	Scrn_No	User_ID	Level	Action	Function	Comment	Type	Prev_Val	Chg_Val
○	○	○	-	-	-	○	○	-	-	-	-

Change to RUN mode
Change to STOP mode (Main Menu)

Mode changeover

[Screen changeover]

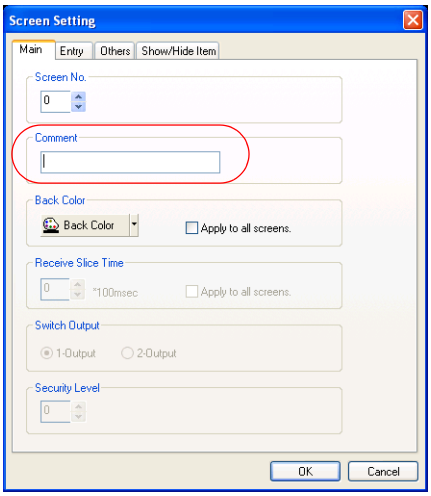
A log is saved when the screen is changed. The log contains the data items below.

No.	Date	Time	Scrn_No	User_ID	Level	Action	Function	Comment	Type	Prev_Val	Chg_Val
○	○	○	-	○	○	○	-	○	-	○	○

Screen changeover

Comment

The comment entered in the [Screen Setting] dialog is stored ([Screen Setting] → [Screen Setting]). When no comment is entered in the dialog, the [Comment] field is left blank.



[Language changeover]

A log is saved when the language is changed. The log contains the data items below.

No.	Date	Time	Scrn_No	User_ID	Level	Action	Function	Comment	Type	Prev_Val	Chg_Val
○	○	○	-	○	○	○	-	-	-	○	○

Language changeover

[Switch]

A log is saved when a switch is pressed. The log contains the data items below.

No.	Date	Time	Scrn_No	User_ID	Level	Action	Function	Comment	Type	Prev_Val	Chg_Val
○	○	○	○	○	○	○	○	○	○	-	-

Action:
- Switch operation (Mom)
- Switch operation (Set)
- Switch operation (Rst)
- Switch operation (Alt)
- Switch operation (Word)
- Switch operation (Sample)
- Switch operation (Alm)

Function:

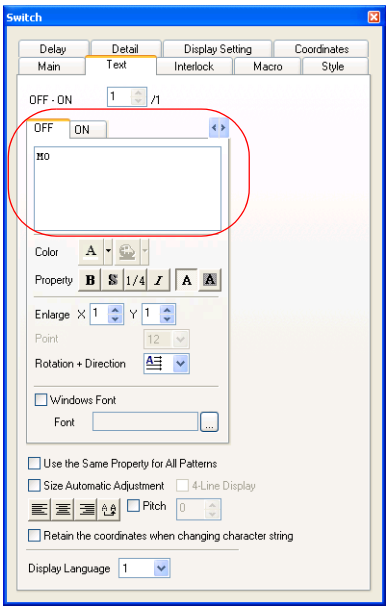
[Standard]	Screen Overlap Display Multi-Overlap Display Word Operation Reset CF Card Format CF Card Removal Language changeover
[Entry]	Delete (sampling only)
[Memory Card]	Card Format Transfer Card → PLC Transfer PLC → Card
[Digital Switch]	Digital Switch + Digital Switch –
[JPEG]	File Delete
[Security]	Log In Log Out

* When an alternate switch is used, switched ON logs will be saved, irrespective of the bit setting (ON)/resetting (OFF).

* When a multi-output switch is used, No. 0 operation logs will be saved.

Comment

The text entered in the [OFF] section in the [Text] tab window is stored ([Item View] → [Text] → [OFF]).



* If the registered text consists of two or more lines, only the first line will be output to log data.

[Data display update]

A log is saved when any numerical data/character display is updated in the entry mode ([Write] key). The log contains the data items below.

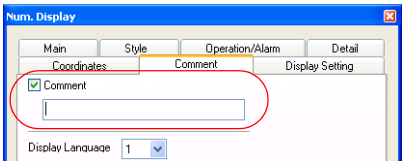
*** Log saving is not available for updates to table data displays.**

No.	Date	Time	Scrn_No	User_ID	Level	Action	Function	Comment	Type	Prev_Val	Chg_Val
○	○	○	○	○	○	○	○	○	○	○	○

Function: Numerical data display, Character display
Action: Data display update

Comment

The comment entered in the [Comment] field in the [Comment] tab window is output ([Item View] → [Comment]).



[CF Card Writing Error]

A log is saved when an error has occurred during writing into a CF card and writing has ended in failure. The log contains the data items below.

No.	Date	Time	Scrn_No	User_ID	Level	Action	Function	Comment	Type	Prev_Val	Chg_Val
○	○	○	-	-	-	○	○	○	-	-	-

Function: Power OFF, Removal of card
Action: Writing error detection

Comment

The directory path of the drive or file where an error has occurred is output.

- Error during access to a CF card: “drive name:\Directory Information”
  (Example) For built-in socket: “C:\Directory Information”
- Error during access to a file “drive name:\full pathname” *
  (Example) In the event of an error occurred during writing of “REC0000.CSV” in the recipe mode
  C:\DAT0000\RECIPE\REC0000.CSV

*** When the number of characters exceeds 32 one-byte characters (16 two-byte characters), the top of the pathname is omitted and displayed as “..”.**
(Example) C:\..\RECIPE\REC0000.CSV

[Log destruction]

A log is saved when the SRAM area is cleared and saving new logs is started because of SRAM data corruption or failure to output to the CF card. The log contains the data items below.

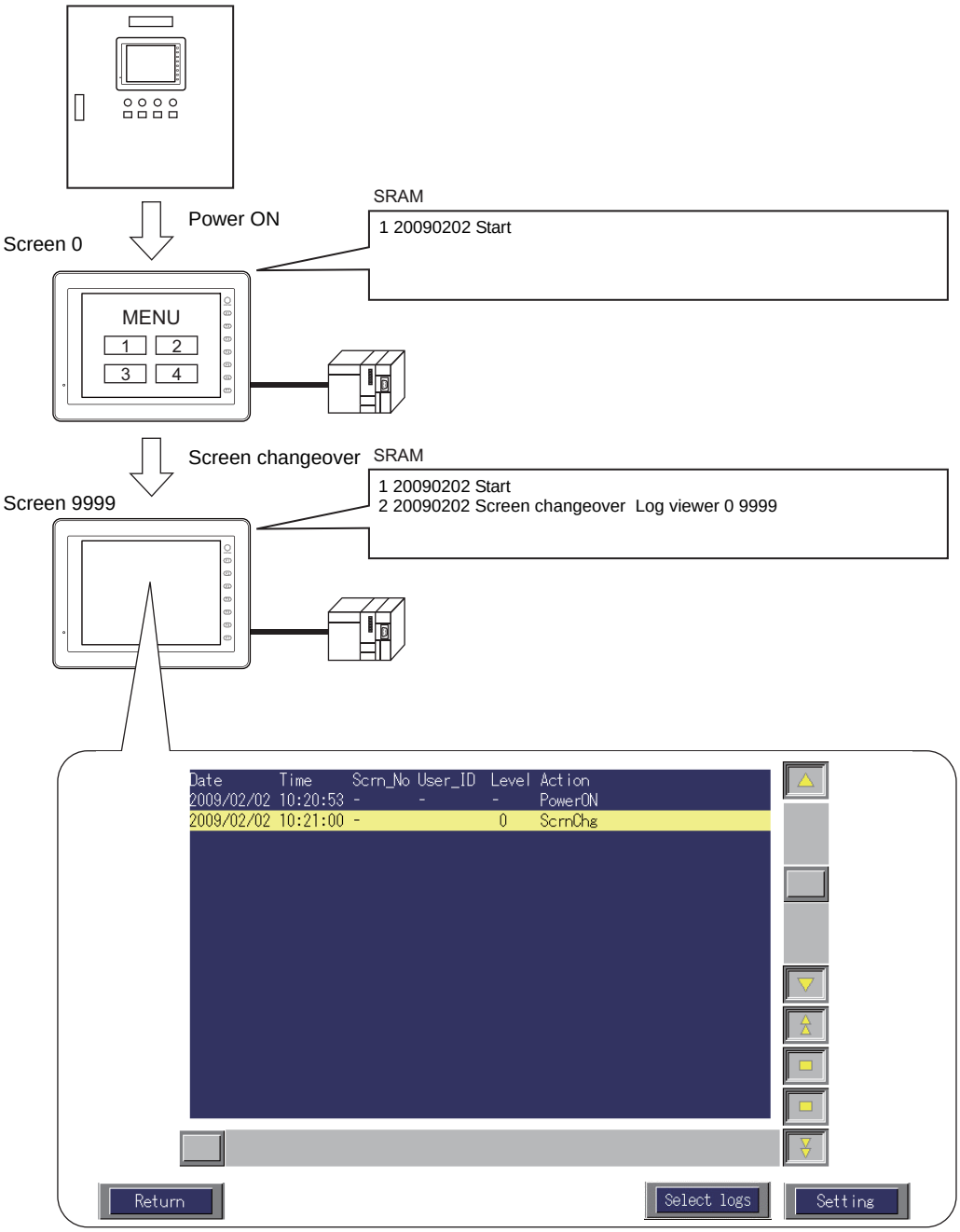
No.	Date	Time	Scrn_No	User_ID	Level	Action	Function	Comment	Type	Prev_Val	Chg_Val
○	○	○	-	-	-	○	-	-	-	-	-

Action: Log destruction

21.2 Operation Log Viewer

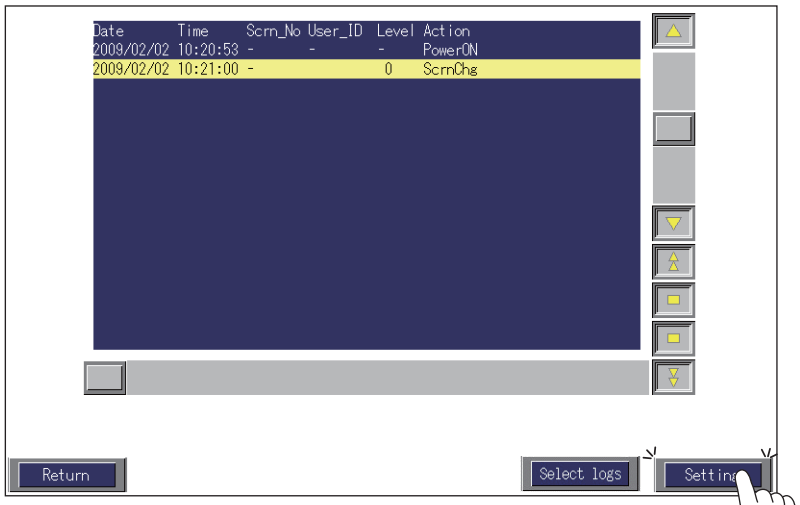
Overview

- The operation history records (operation logs) stored in the SRAM area can be displayed on the V8 series.
  Because the above-mentioned logs help you search for the operational description associated with an alarm (if any occurs), you will be able to track down the causes promptly.
  In addition to the logs stored in the SRAM area, the log files output to the CF card can also be displayed.

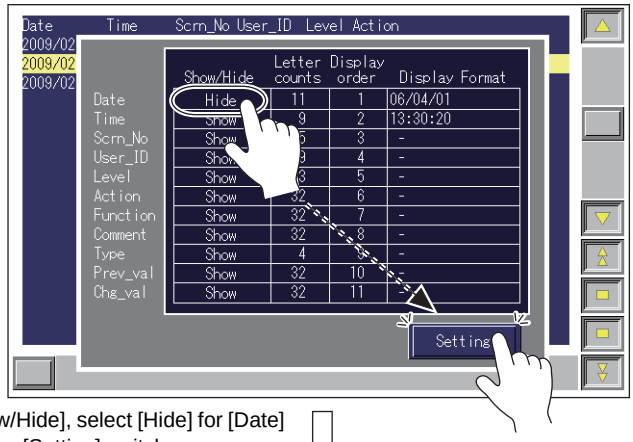


- Through the [Setting] switch on the log viewer screen, you can proceed to showing/hiding items, setting the number of characters, and changing the date/time format.

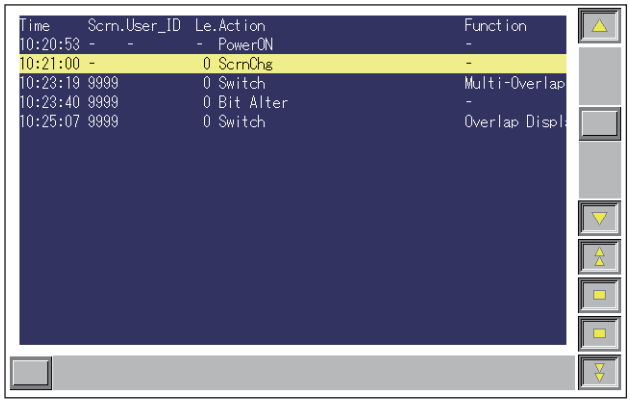
Example: Hiding the date field



Press the [Setting] switch.



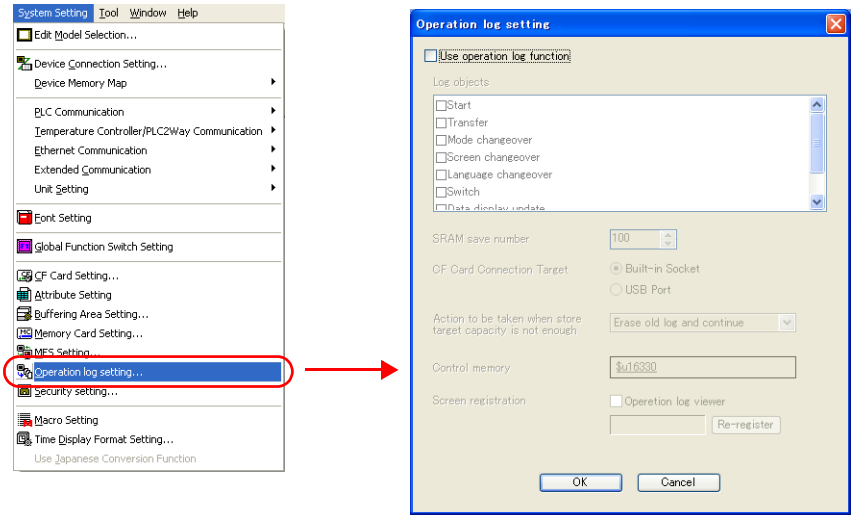
Under [Show/Hide], select [Hide] for [Date] and press the [Setting] switch.



The date field is hidden.

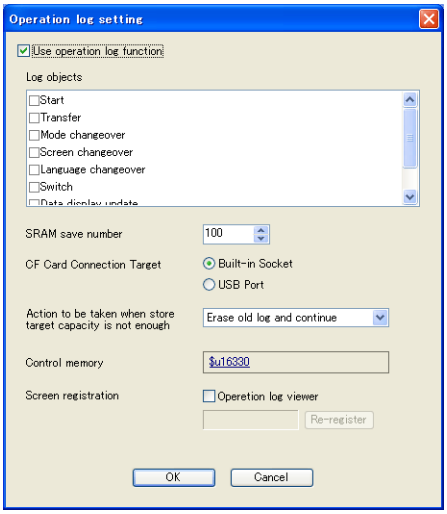
Setting

1. Click [System Setting] → [Operation log setting]. The [Operation log setting] dialog is displayed.



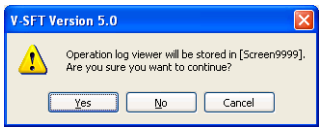
2. Check the box for [☐ Use operation log function].

   * For description of the operation log function, refer to “Operation Log Function” on page 21-1.



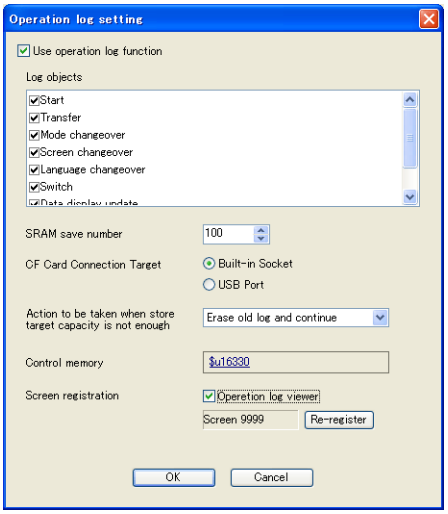
Screen registration ☐ Operation log viewer	Check this box when you use the operation log viewer.

3. Check the box for [☐ Operation log viewer].
   The dialog shown below is displayed.



Yes	The operation log viewer part will be stored at the location as specified in the message.
No	The [Screen] dialog appears and you can select a screen number arbitrarily.
Cancel	The box for [☐ Operation log viewer] becomes unchecked.

4. When the settings have been completed, click [OK].



5. Place the switch used to read the operation log viewer screen ([Function: Screen]).

- If you wish to change the screen registration location, go to the [Operation log setting] dialog, press the [Re-register] button, and perform the above steps 3 and 4. Do not move the screen by manual operation. Do not change or modify any part that has been automatically registered.
  If any changes have been made by the user, there will be no guarantee of proper operation.
- The log data will be displayed in the display area. The size of the area is fixed. Note that a display area of this fixed size will be automatically registered with a screen.

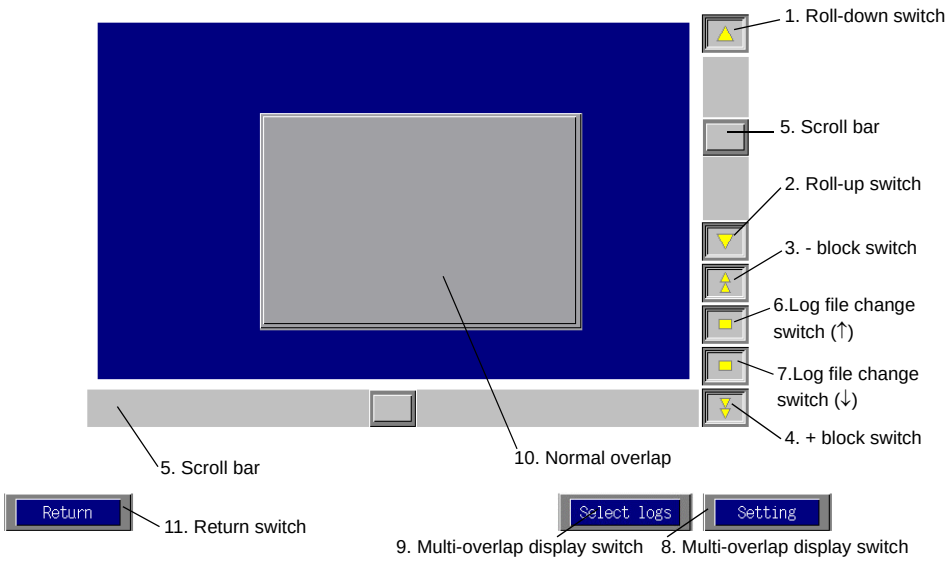
* For description of the registered log viewer screen, refer to “Log Viewer Screen” on page 21-17.

Log Viewer Screen

This section explains the log viewer screen.

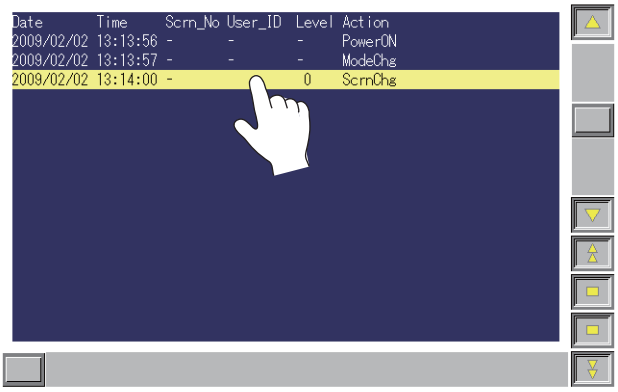
Screen Configuration

A log viewer screen is displayed as the following.

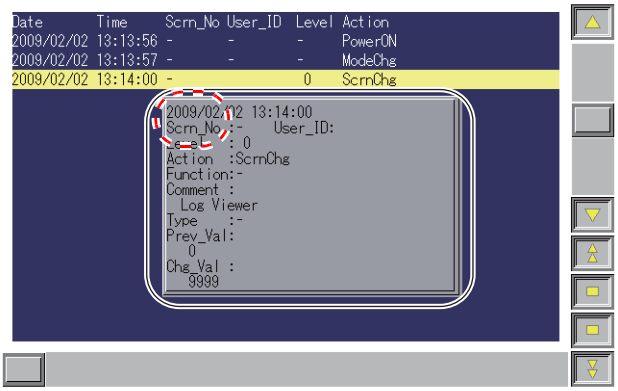


Item	Description
1. Roll-down switch	Scrolls the screen down one row to show the previous data.
2. Roll-up switch	Scrolls the screen up one row to show the next data.
3. - block switch	Scrolls the screen one page to show the previous data.
4. + block switch	Scrolls the screen one page to show the next data.
5. Scroll bar*	Scrolls the screen in the specified direction.
6. Log file change switch (↑)	When the log data in the SRAM area is displayed: This switch does not work. When the log data in the CF card is displayed: Pressing this switch brings up the next new file. When the file currently displayed is the newest one, the switch shifts the screen to the log data in the SRAM area.
7. Log file change switch (↓)	When the log data in the SRAM area is displayed: Pressing this switch shifts the screen to the newest log file in the CF card. When the log data in the CF card is displayed: Pressing this switch brings up the next older file.
8. Multi-overlap display switch	Brings up the display item setting screen. For more information, refer to “Display Item Setting Screen” on page 21-19.
9. Multi-overlap display switch	Brings up the display selection setting screen. For more information, refer to “Display Selection Setting Screen” on page 21-22.
10. Normal overlap*	Displays the contents of the selected log data on the overlap.
11. Return switch	Returns you to the previously displayed screen.

*** If the display area is not large enough to show the entire data, use the scroll bar to show the hidden portion or press your desired log data on the screen to display its contents on the overlap.**



Press on a log data.



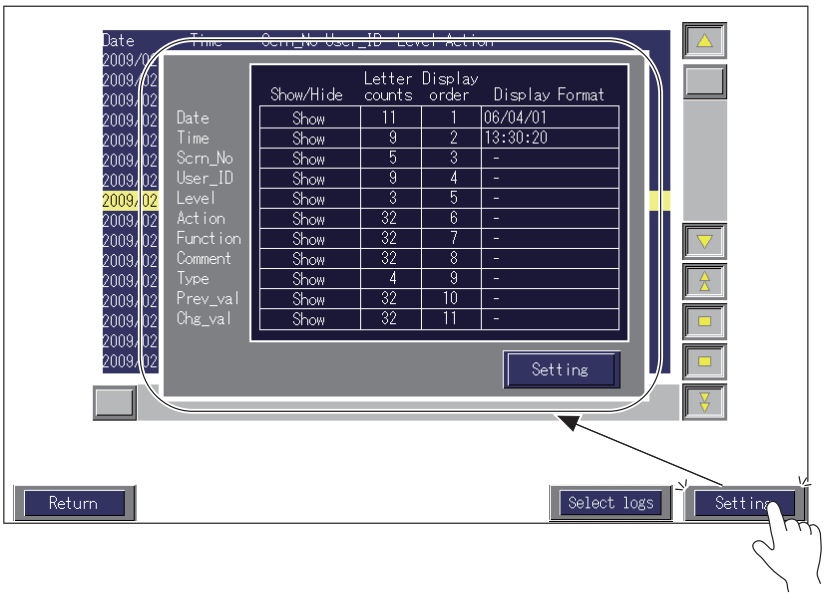
The overlap displays the contents of the selected log data.

Press the top left corner (inside the red dotted frame) on the overlap display twice.

The overlap display is cleared.

Display Item Setting Screen

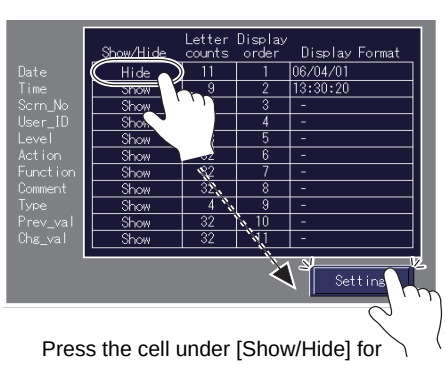
When the [Setting] switch is pressed on the log viewer screen, the display item setting screen is displayed.



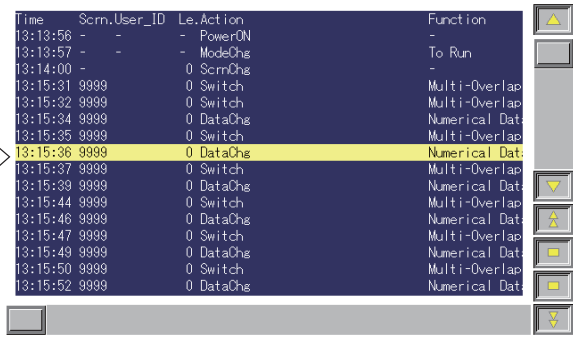
- Show/Hide

  Whether to show or hide each item on or from the log viewer screen can be selected.

  Example: Hiding the date field



Press the cell under [Show/Hide] for [Date] to select [Hide] and press the [Setting] switch.



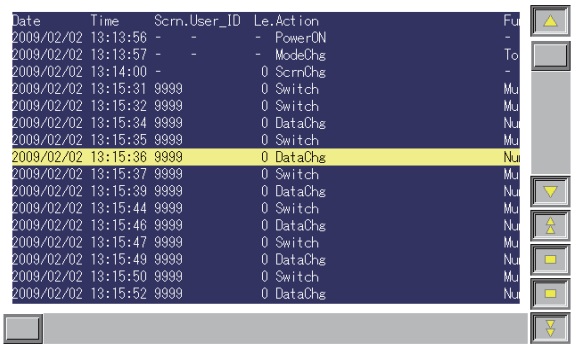
The date field is hidden.

- Letter counts

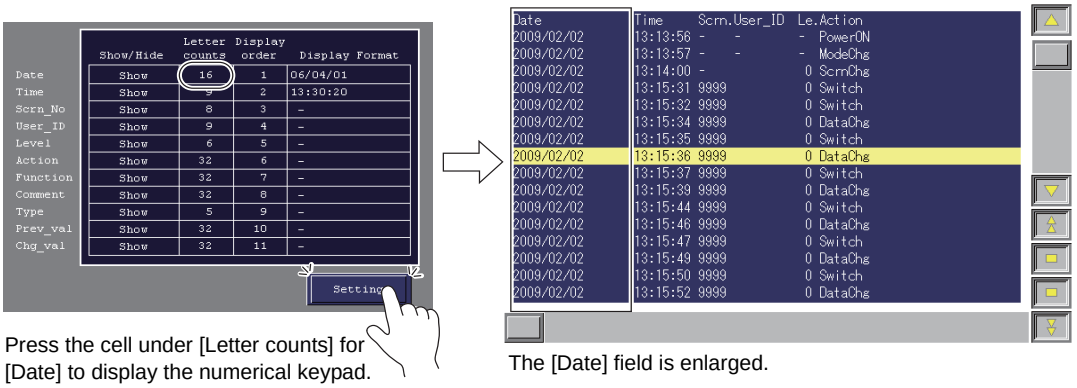
  You can set the number of characters for each item to be displayed on the log viewer screen.

  Example: Increasing the number of characters for [Date] from 11 to 16

Before change:



After change:



Press the cell under [Letter counts] for [Date] to display the numerical keypad.

Enter your desired value and press the [Setting] switch.

The [Date] field is enlarged.

Item	Description
Date	Log acquisition date (16 characters maximum)
Time	Log acquisition time (15 characters maximum)
Scrn_No	Screen No. 0 - 9999 (4 characters maximum)
User_ID	User ID (8 characters maximum)
Level	Security level 0 - 15 (2 characters maximum)
Action	Action (32 characters maximum)
Function	Function (32 characters maximum)
Comment	Comment on screen/item (32 characters maximum)
Type	Numerical data type (3 characters maximum)
Prev_Val	Value before change (32 characters maximum)
Chg_Val	Value after change (32 characters maximum)

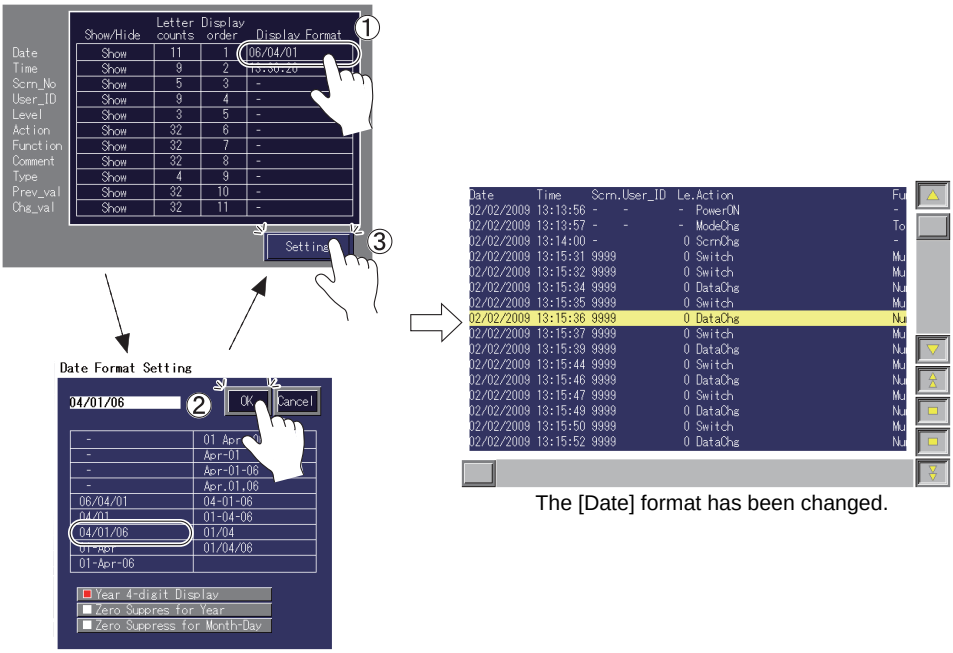
- Display order (fixed)

  The order of the items displayed in the display area is shown.

- Display Format

  You can specify the formats of the dates and times to be displayed in the display area.

  Example: Changing the format for [Date] from “06/04/01” to “04/01/06”



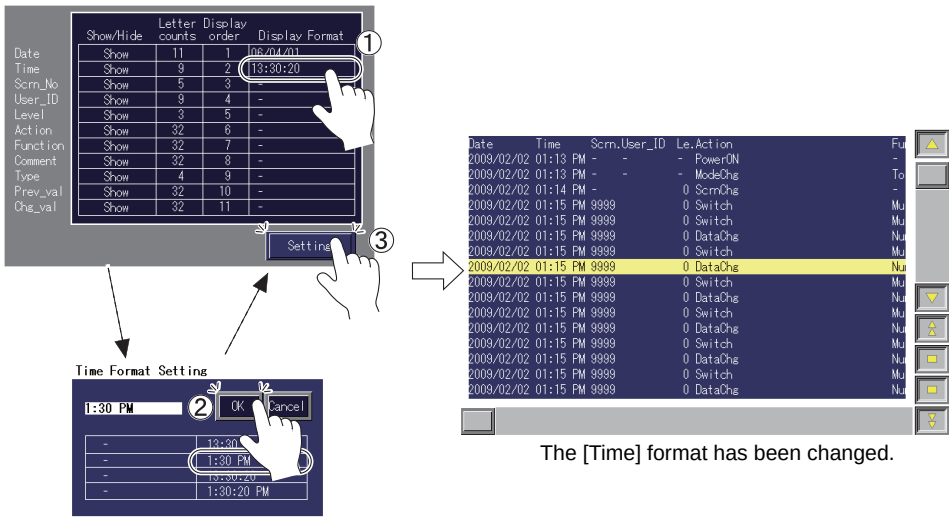
The [Date] format has been changed.

(1) Press the cell under [Display Format] for [Date].

(2) The [Date Format Setting] window is called up. Select a format option and press the [OK] switch.

(3) Press the [Setting] switch for confirmation.

Example: Changing the format for [Time] from “13:30:20” to “1:30 PM”



The [Time] format has been changed.

(1) Press the cell under [Display Format] for [Time].

(2) The [Time Format Setting] window is called up. Select a format option and press the [OK] switch.

(3) Press the [Setting] switch for confirmation.

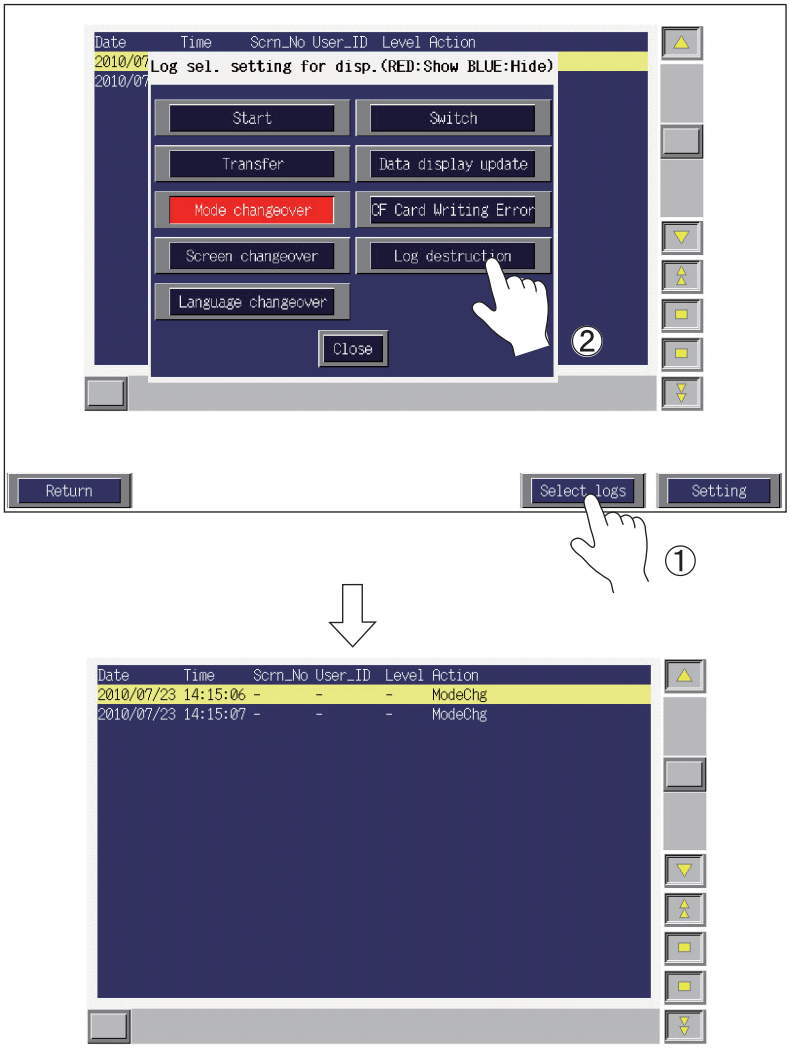
Display Selection Setting Screen

When the [Select logs] switch is pressed on the log viewer screen, the display selection setting screen is displayed.
On the screen, you can select items so that their logs will be displayed on the log viewer screen.

Example: Displaying the mode change logs (between the RUN screen and the Main Menu screen)

(1) Press the [Select logs] switch.

(2) Turn on the [Mode changeover] switch only.



Log Data Change

While the log data in the SRAM area is displayed on the log viewer screen, a log file output to the CF card can be displayed instead by the switch on the screen.

*** The log data stored in the SRAM is displayed at the time of the opening of the log viewer screen.**

Example: Changing the contents on the screen from the log data in the SRAM to a file in the CF card

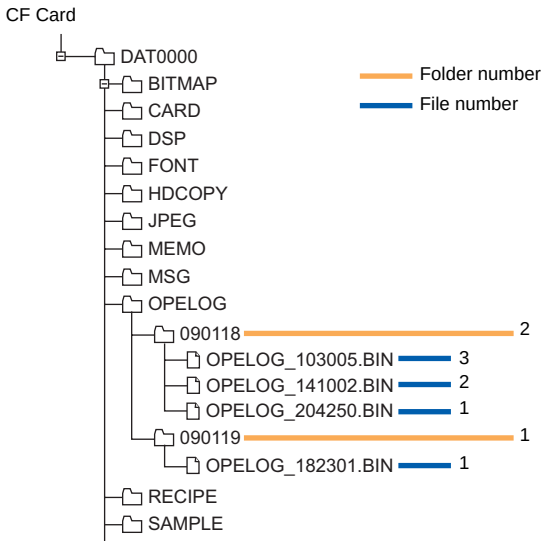
The newest log file stored in the CF card is displayed.

System Memory

The following describes the system memory associated with the operation log viewer.

Address	Description	Remarks
$s1365	Log file number being displayed	← V
$s1366	Log folder number being displayed	

* When the log data in the SRAM is displayed, 0 is stored at both addresses $s1365 and $s1366. When a log file in a CF card is displayed, the files stored in the CF card are numbered sequentially, starting at 1, from the file given the most recent date.
The following illustrates the file and folder configuration in a CF card.



22 Security Function

Overview

In a case where a user ID and a password that match your privilege have been registered, you can manage the display and operation of screens at the corresponding security level.

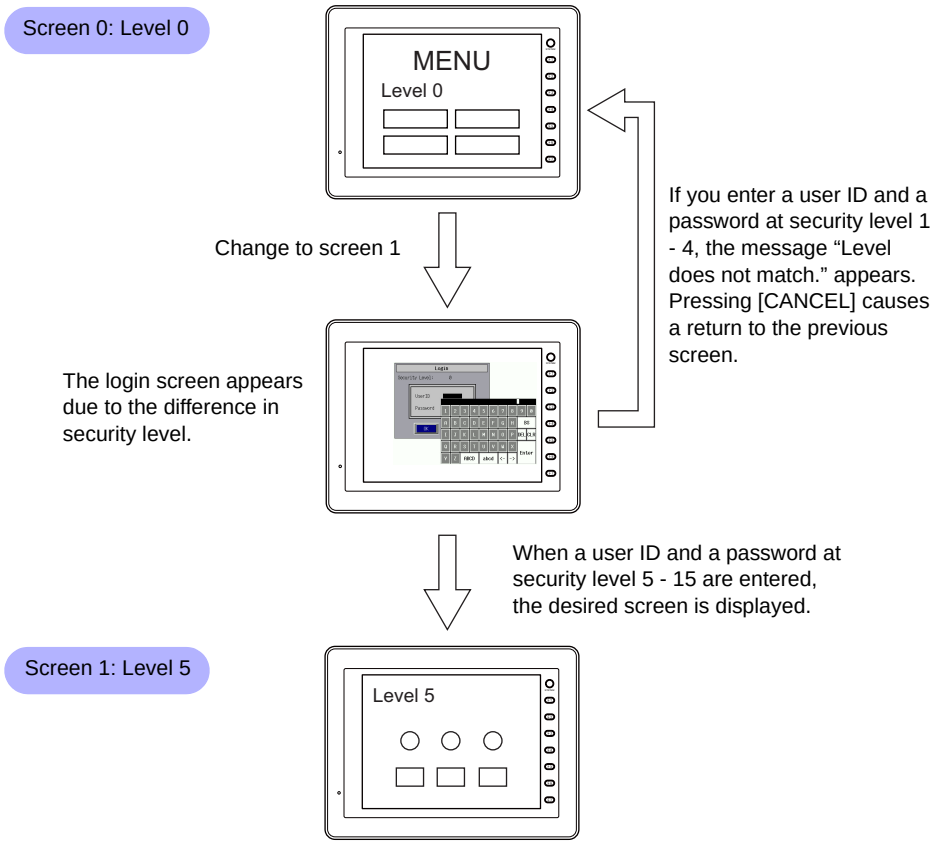
Security levels

Security is settable to level 0 to 15.

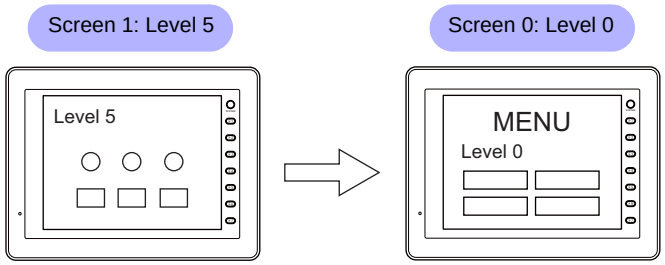
Security Level	Precedence	Description
0	Low	Screen display and operation permitted at level 0 (no security)
1	↓	Screen display and operation permitted at levels 0 and 1
:		:
15	High	Screen display and operation permitted at all levels from 0 through 15

Screen Security Levels

It is possible to set a security level for each screen. An attempt to switch to a higher-security screen will automatically call up the login screen.
By entering a user ID and a password at a level equivalent to or higher than that of the target screen, the screen can be displayed.



When a screen currently displayed is switched to a lower-security screen, the security level may be maintained or automatically lowered, depending on your choice.



- Level lowered — Security level 5 → Security level 0

  *** For switching to a higher-security screen, you are required to log in to the system again.**

- Level maintained — Security level 5 → Security level 5

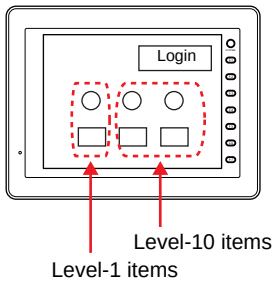
  *** The security level is maintained until a login or a logout is performed.**

Item Security Levels

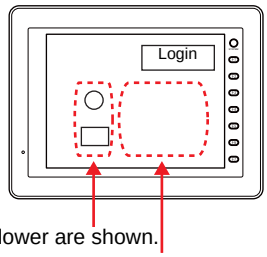
Security levels can be set for every item on the screen, such as switches and data displays.

Once security levels are specified for screen items, these items can be shown or hidden based on the security level you select when you log in to the system. Also, switches can be provided with an interlock setting.

Showing/hiding items



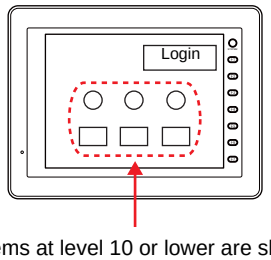
Operator A
Security level **2**



Items at level 2 or lower are shown.

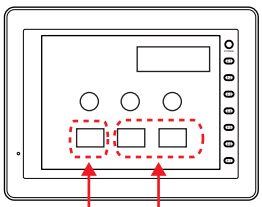
Items at level 3 or higher are hidden.

Operator B
Security level **10**

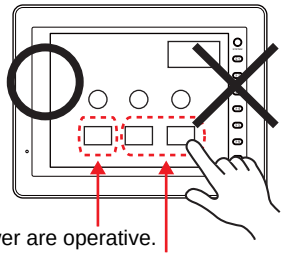


Items at level 10 or lower are shown.

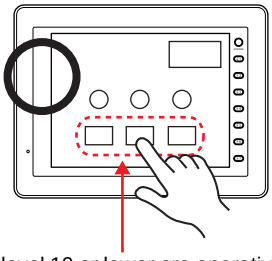
Prohibition of switch operation



Operator A
Security level **2**



Operator B
Security level **10**

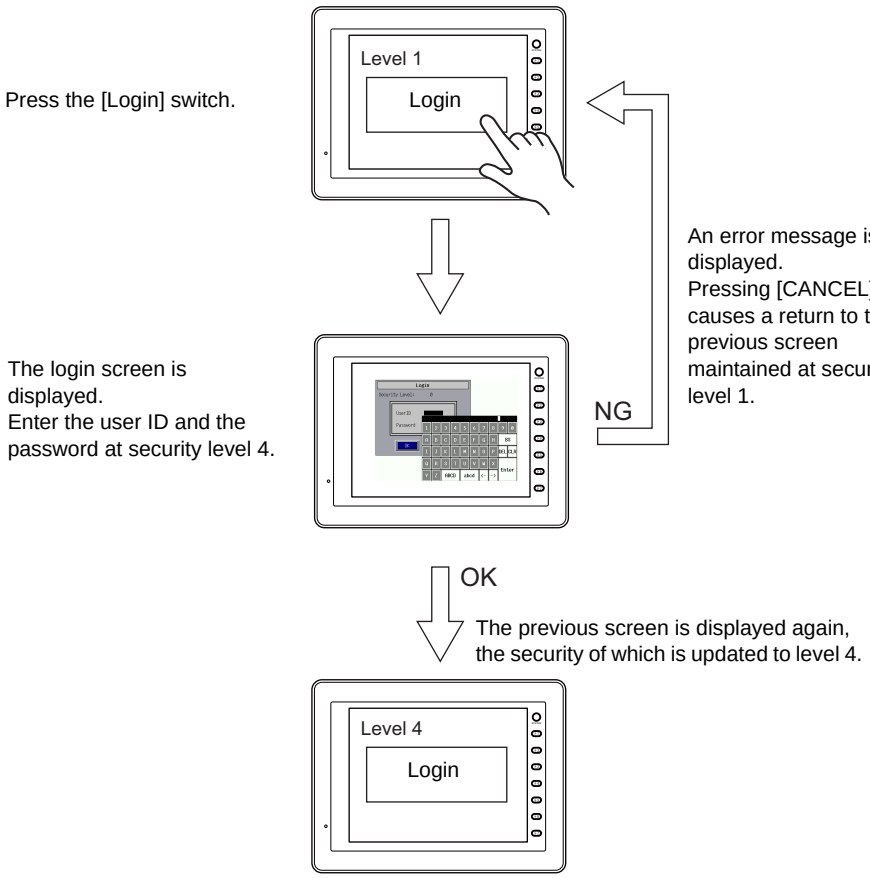


Login/Logout

In addition to the login screen that automatically appears at the time of screen change, a switch for security level change is also available.

Login

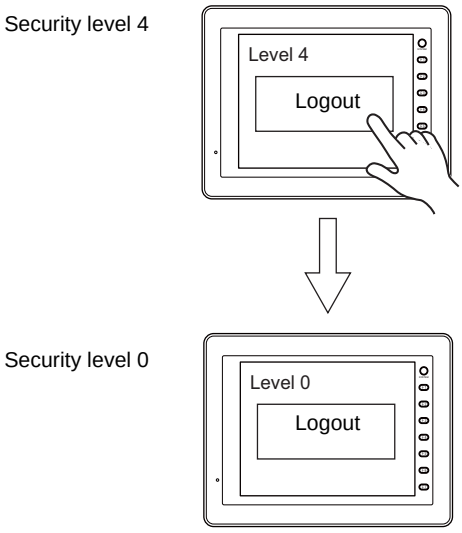
Security level change is allowed through the switch for [Function: Log In].



*** A login is not allowed if a password used is at a lower security level than that of the currently displayed screen. Such an attempt yields the error message "Level does not match.".**

Logout

Pressing the switch for [Function: Log Out] sets the security level to zero (0).

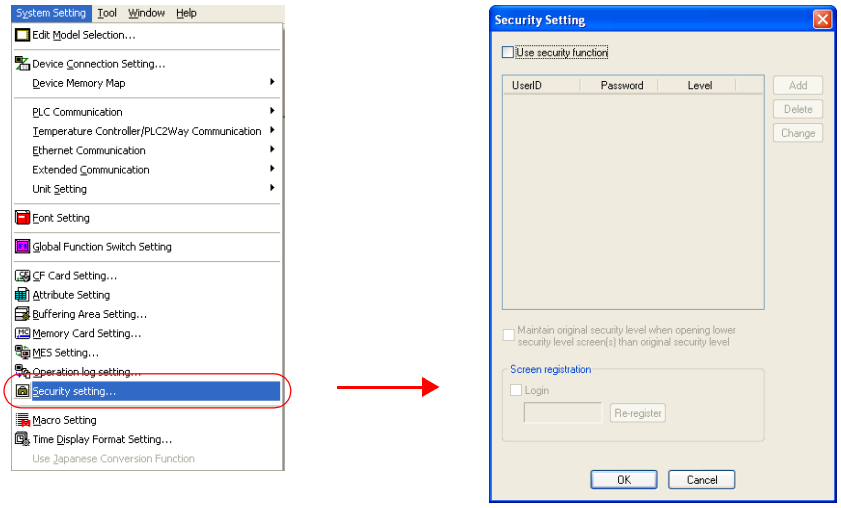


*** When a logout is executed, the security level of the screen is set to zero (0). Since the same screen is displayed continuously after the execution of the logout function, it should be executed on a lower-security screen. If this method is not desirable, the SET_SCRN macro (for screen number change) should be used in conjunction with the function in order to change the screen at the time of a logout.**

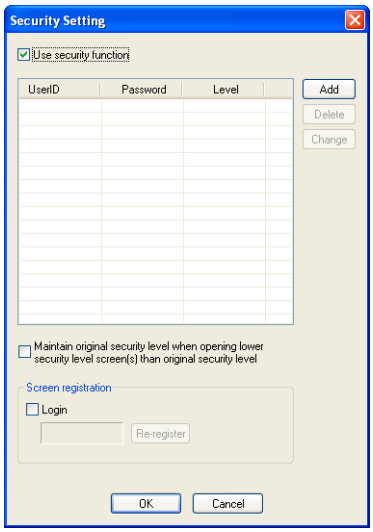
Security Setting

Location for Setting

Click [System Setting] → [Security setting]. The [Security Setting] dialog is displayed.



Setting Items



☐ Use security function	Check this box when you use the security function.
User ID Password Level	Register user IDs, passwords, and security levels through the buttons of [Add], [Delete], and [Change]. A maximum of 64 IDs can be registered. Use eight or fewer one-byte characters. Input is case-sensitive. * **The same user ID cannot be registered repeatedly.** * **The same password can be registered repeatedly with multiple different user IDs.**
☐ Maintain original security level when opening lower security level screen(s) than original security level	Select the action to be taken at the time of screen change. • Unchecked: When you switch to a lower-security screen, the security level being currently valid is also lowered to the level of the target screen. If you switch to a higher-security screen next, you are prompted to enter a password. • Checked: The same security level is maintained until the level is changed through login by another user or a logout occurs.
Screen registration ☐ Login	Register a login screen. Default: Unregistered, maximum screen number

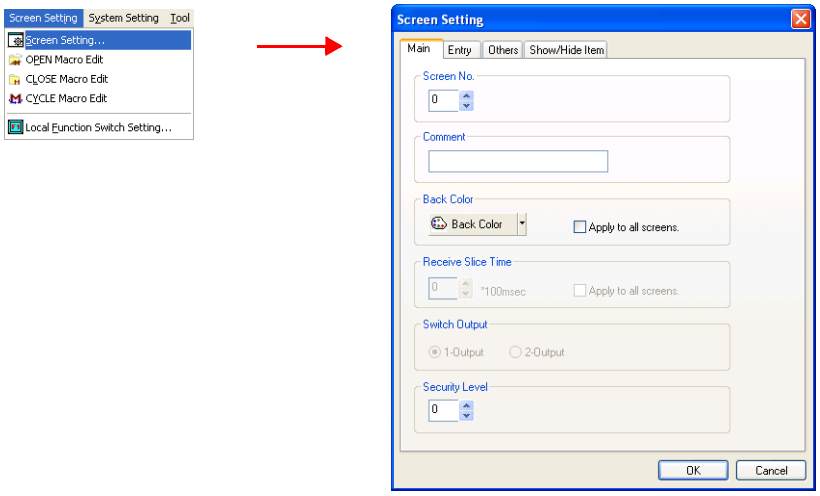
Security Level Selection

The following three are provided as the locations for security level selection. Their procedural steps differ.

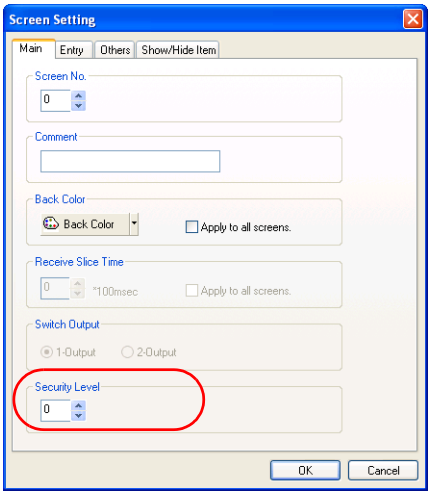
- [Screen Setting] dialog
- [Display Setting] tab window in each item dialog
- [Interlock] tab window in the [Switch] dialog

[Screen Setting] Dialog

1. Click [Screen Setting] → [Screen Setting]. The [Screen Setting] dialog is displayed.



2. Select a desired value for [Security Level].



Security Level	0 to 15

*** For information on other setting items, refer to the V8 Series Operation Manual.**

Setting to Show/Hide Items

Screen items can be shown or hidden according to their security levels.
For more information, refer to “15 Item Show / Hide Function”.

Applicable items

The items below can be provided with security level settings.

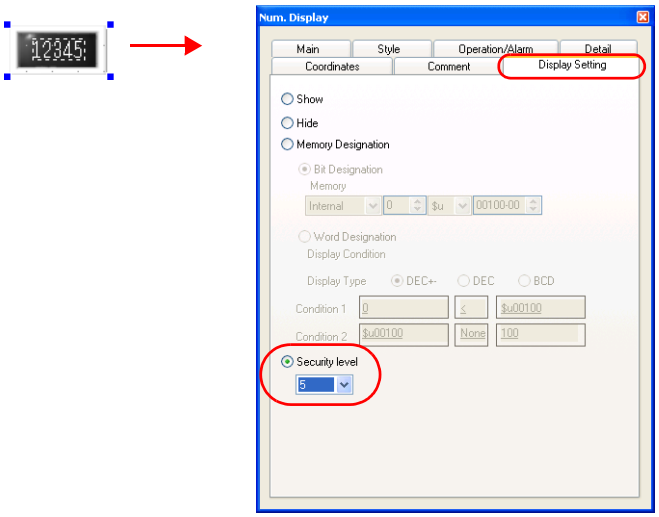
Switches
Lamps
Numerical data displays*1
Character displays*1
Message displays*1
Graphs
Statistic graphs
Closed area graphs
Link parts
Grouped items (including graphic items)

*1 Table data display not supported

Location for setting

Make the setting in the [Display Setting] tab window in the item dialog.

Example: Numerical data display



Security level	0 to 15

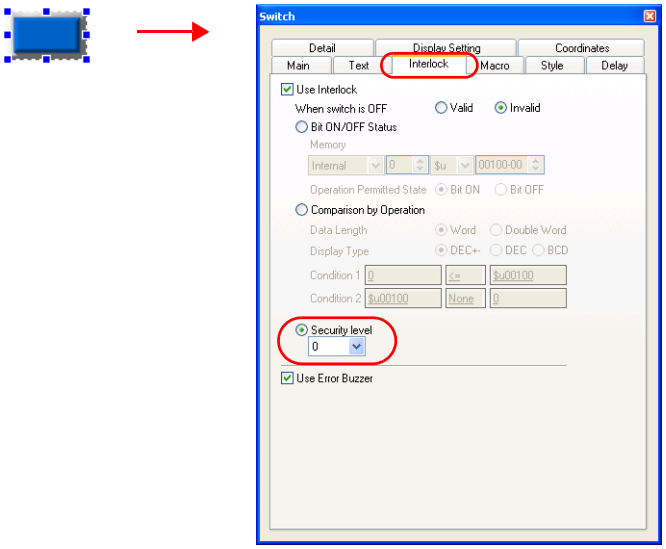
*** For information on other setting items, refer to the V8 Series Operation Manual.**

[Interlock] in the [Switch] Dialog

The operation of switches can be prohibited according to their security levels.

Location for setting

Make the setting in the [Interlock] tab window in the item dialog.



Security level	0 to 15

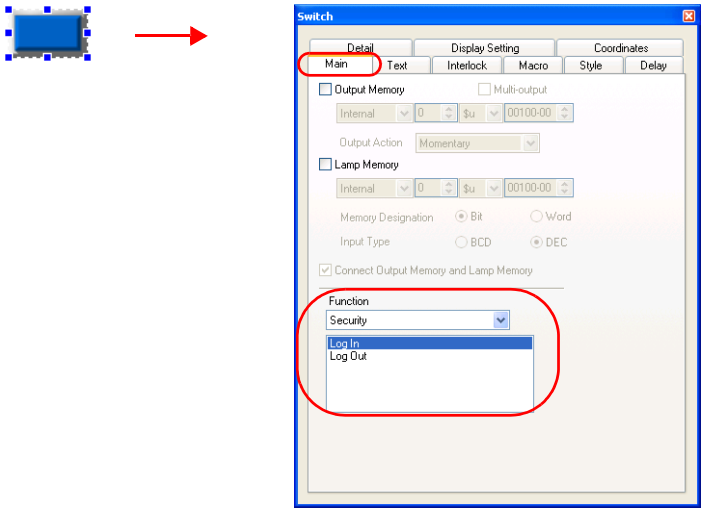
*** For information on other setting items, refer to the V8 Series Reference Manual.**

Login/Logout

A switch for security level change can be created.

Setting Items

Make the setting in the [Main] tab window in the [Switch] dialog.



Function: Security	[Log In] The login screen that is registered in the [Security Setting] dialog ([System Setting] → [Security setting]) is displayed. [Log Out] The security level is set to zero (0). *** Since the same screen is displayed continuously after the execution of the logout function, it should be executed on a lower-security screen. If this method is not desirable, the SET_SCRN (for screen number change) should be used in conjunction with the function in order to change the screen at the time of a logout.**

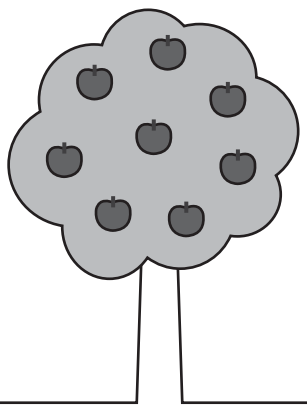
*** For information on other setting items, refer to the V8 Series Reference Manual.**

System Memory ($s)

The following describes the system memory associated with the security function.

Address	Description
$s1360	The current security level 0 - 15 specified when you log in to the system is stored.
$s1361	The current user ID specified when you log in to the system is stored.
$s1362	
$s1363	
$s1364	

MEMO



Please use this page freely.

23 Macro

Overview

- You can obtain a sine, cosine, or tangent of trigonometric functions by using macro commands.
- A conditional branch macro is added for a comparison macro so that a comparison command can be executed more simply.
- You can designate a file name when creating a CSV file or using the hardcopy function.

Macro Commands List

The macro commands given below have newly been added.

Category	Command Name	Mnemonic	Contents	Refer to:
Mathematics/ trigonometric	ABS	F0 = ABS (F1) (W) F0 = ABS (F1) (D) F0 = ABS (F1) (F)	Absolute value	page 23-3
	NEG	F0 = NEG (F1) (W) F0 = NEG (F1) (D) F0 = NEG (F1) (F)	Sign inversion	page 23-4
	SIN	F0 = SIN (F1) (F)	Sine	page 23-5
	COS	F0 = COS (F1) (F)	Cosine	page 23-6
	TAN	F0 = TAN (F1) (F)	Tangent	page 23-7
	ASIN	F0 = ASIN (F1) (F)	Arcsine	page 23-8
	ACOS	F0 = ACOS (F1) (F)	Arccosine	page 23-9
	ATAN	F0 = ATAN (F1) (F)	Arctangent	page 23-10
	DEG	F0 = DEG (F1) (F)	Convert radian to degree	page 23-11
	RAD	F0 = RAD (F1) (F)	Convert degree to radian	page 23-12
Conversion	CLND_TO_GRE	CLND_TO_GRE (F0) (F1) (F2)	Conversion from calendar data to GMT-based UNIX time	page 23-13
	GRE_TO_CLND	GRE_TO_CLND (F0) (F1) (F2)	Conversion from GMT-based UNIX time to calendar data	page 23-15
	FORMAT_DATA	FORMAT_DATA (F0) (F1) (F2)	Conversion from a string to numerical data	page 23-17
	FORMAT_STR	FORMAT_STR (F0) (F1) (F2)	Conversion from numerical data to a string	page 23-21

Comparison	IF
	ELSE
	ENDIF
		IF (F0 (condition) F1) (W)
		IF (F0 (condition) F1) (D)
		IF (condition 2) (F0) (B)
		ELSE
		ENDIF
			Conditional branch	page 23-25

CF Card (Sampling)	SMPL_CSV2	SMPL_CSV2 (F0) (F1)	CSV file creation (file name designation)	page 23-27
	SMPL_CSVBAK2	SMPL_CSVBAK2 (F0) (F1)	CSV file backup saving (file name designation)	page 23-29

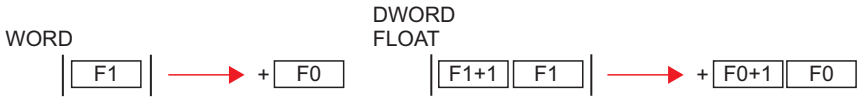
Category	Command Name	Mnemonic	Contents	Refer to:
CF Card (Others)	HDCOPY3	HDCOPY3 (F0)	Hardcopy (file name designation)	page 23-31
	MOVE_FILE	MOVE_FILE (F0) (F1) (F2)	File movement	page 23-32
	READ_FILE	READ_FILE (F0) (F1) (F2) (F3)	Read universal file	page 23-33
	WRITE_FILE	WRITE_FILE (F0) (F1) (F2)	Write to universal file	page 23-35

Mathematics/trigonometric

F0 = ABS (F1) (W) . . . . . WORD
F0 = ABS (F1) (D) . . . . . DWORD
F0 = ABS (F1) (F) . . . . . FLOAT

Function: Absolute value

This macro command is used to store an absolute value of [F1] in [F0].



Available memory

	Internal Memory	PLC1 - PLC8 Memory	Memory Card	Constant
F0	◎			
F1	◎			○

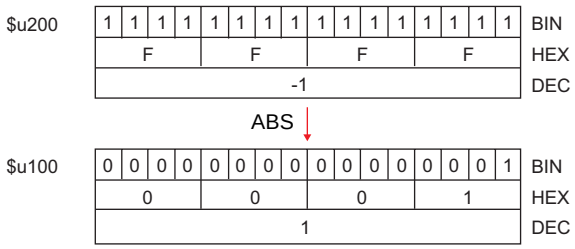
○: Setting enabled (indirect designation disabled)
◎: Setting enabled (indirect designation enabled)

Range

	WORD	DWORD	FLOAT
F0	-32767 to +32767 (Decimal system with signs)	-2147483647 to +2147483647 (Decimal system with signs)	IEEE 32-bit single precision real number
F1			

Example

- $u100 = ABS ($u200) (W)
  When $u200 = “-1”, on command execution “1” is stored in $u100.



Supplementary information

- $s1056 stores the result of macro execution.
  When the execution of the macro is normally complete, the value at the address is not updated.
  Therefore, before macro execution, resetting the value at the address to zero is recommended.

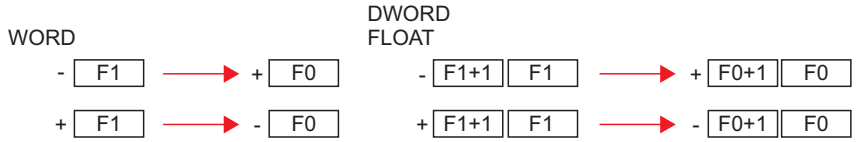
Code (DEC)	Contents
1	Overflow*
2	Underflow*

* An indefinite value is stored in [F0].

F0 = NEG (F1) (W) . . . . . WORD
F0 = NEG (F1) (D) . . . . . DWORD
F0 = NEG (F1) (F) . . . . . FLOAT

Function: Sign inversion

This macro command is used to store a value with its sign inverted from [F1] in [F0].



Available memory

	Internal Memory	PLC1 - PLC8 Memory	Memory Card	Constant
F0	◎			
F1	◎			○

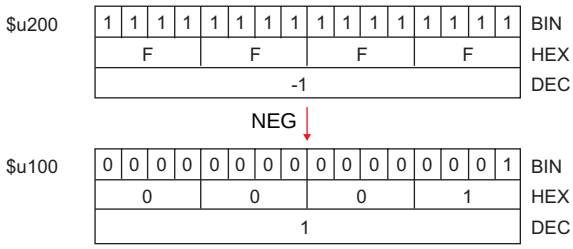
○: Setting enabled (indirect designation disabled)
◎: Setting enabled (indirect designation enabled)

Range

	WORD	DWORD	FLOAT
F0	-32767 to +32767 (Decimal system with signs)	-2147483647 to +2147483647 (Decimal system with signs)	IEEE 32-bit single precision real number
F1			

Example

- $u100 = NEG ($u200) (W)
  When $u200 = “-1”, on command execution “1” is stored in $u100.



Supplementary information

- $s1056 stores the result of macro execution.

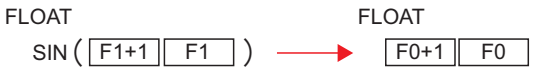
Code (DEC)	Contents
0	Normal
1	Overflow*
2	Underflow*

* An indefinite value is stored in [F0].

F0 = SIN (F1) (F) . . . . . FLOAT

Function: Sine

This macro command is used to store a sine of the angle (in radians) specified for [F1] in [F0]. Specify values for [F0] and [F1] in the format of decimal floating-point data (FLOAT).



Available memory

	Internal Memory	PLC1 - PLC8 Memory	Memory Card	Constant
F0	◎			
F1	◎			○

○: Setting enabled (indirect designation disabled)
◎: Setting enabled (indirect designation enabled)

Range

	Value
F0	IEEE 32-bit single precision real number
F1	

Example

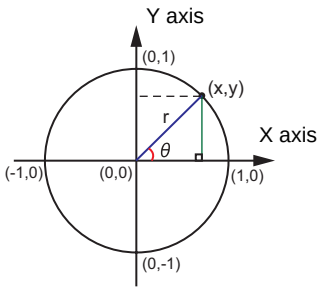
- To obtain the value for sin 90° in radians;

  $u200 = RAD (90) (F)
  $u100 = SIN ($u200) (F)
  The operation result of “1” is stored in $u100.

The sine, cosine and tangent of the trigonometric functions can be obtained based on the formula given to the right.

- Radian (circular measure)
  1 rad = 360/2π =
  Approx. 57.29578 degrees

$$\sin\theta = \frac{y}{r}$$
$$\cos\theta = \frac{x}{r}$$
$$\tan\theta = \frac{y}{x}$$



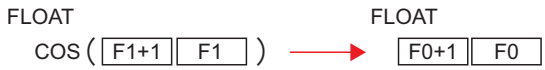
Supplementary information

- For more information on IEEE 32-bit single precision real number, refer to the V8 Series Reference Manual.
- To convert the unit of an angle, use the macro command of DEG (page 23-11) or RAD (page 23-12).

F0 = COS (F1) (F) . . . . . FLOAT

Function: Cosine

This macro command is used to store a cosine of the angle (in radians) specified for [F1] in [F0]. Specify values for [F0] and [F1] in the format of decimal floating-point data (FLOAT).



Available memory

	Internal Memory	PLC1 - PLC8 Memory	Memory Card	Constant
F0	◎			
F1	◎			○

○: Setting enabled (indirect designation disabled)
◎: Setting enabled (indirect designation enabled)

Range

	Value
F0	IEEE 32-bit single precision real number
F1	

Example

- To obtain the value for cos 0° in radians;

  $u200 = RAD (0) (F)
  $u100 = COS ($u200) (F)
  The operation result of “1” is stored in $u100.

  * For more information on cosθ of the trigonometric functions, refer to “Example” of sine on page 23-5.

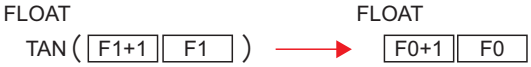
Supplementary information

- For more information on IEEE 32-bit single precision real number, refer to the V8 Series Reference Manual.
- To convert the unit of an angle, use the macro command of DEG (page 23-11) or RAD (page 23-12).

F0 = TAN (F1) (F) . . . . . FLOAT

Function: Tangent

This macro command is used to store a tangent of the angle (in radians) specified for [F1] in [F0]. Specify values for [F0] and [F1] in the format of decimal floating-point data (FLOAT).



Available memory

	Internal Memory	PLC1 - PLC8 Memory	Memory Card	Constant
F0	◎			
F1	◎			○

○: Setting enabled (indirect designation disabled)
◎: Setting enabled (indirect designation enabled)

Range

	Value
F0	IEEE 32-bit single precision real number
F1	

Example

- To obtain the value for tan 45° in radians;

  $u200 = RAD (45) (F)
  $u100 = TAN ($u200) (F)
  The operation result of “1” is stored in $u100.

  * For more information on tanθ of the trigonometric functions, refer to “Example” of sine on page 23-5.

Supplementary information

- $s1056 stores the result of macro execution.

Code (DEC)	Contents
0	Normal
1	Overflow*1
2	Underflow*1
3	Operation execution error*2

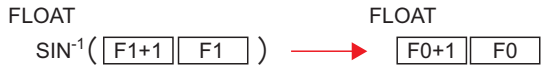
*1 An indefinite value is stored in [F0].
*2 When the value specified for [F1] is π × (0.5 + n), “-1” is stored in [F0]. (n: integer)

- To convert the unit of an angle, use the macro command of DEG (page 23-11) or RAD (page 23-12).

F0 = ASIN (F1) (F). . . . . FLOAT

Function: Arcsine

This macro command is used to store an arcsine of the angle (in radians) specified for [F1] in [F0]. Specify values for [F0] and [F1] in the format of decimal floating-point data (FLOAT).



Available memory

	Internal Memory	PLC1 - PLC8 Memory	Memory Card	Constant
F0	◎			
F1	◎			○

○: Setting enabled (indirect designation disabled)
◎: Setting enabled (indirect designation enabled)

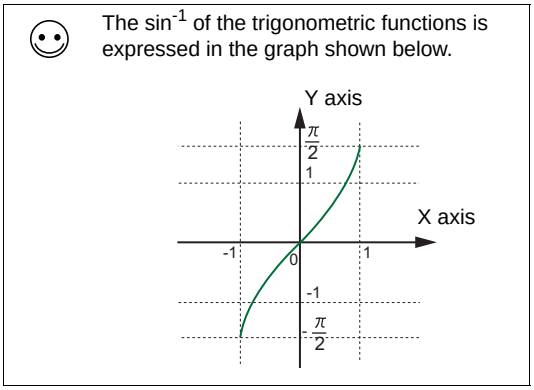
Range

	Value
F0	IEEE 32-bit single precision real number
F1	

Example

- To obtain the value for $\sin^{-1} 1$;

  $u100 = ASIN (1) (F)
  The operation result of "1.570796" (= π/2) is stored in $u100.



Supplementary information

- $s1056 stores the result of macro execution.

Code (DEC)	Contents
0	Normal
1	Overflow*1
2	Underflow*1
3	Operation execution error*2

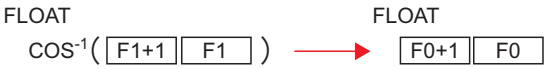
*1 An indefinite value is stored in [F0].
*2 When the value specified for [F1] is outside the range from "-1" to "1", "-1" is stored in [F0].

- To convert the unit of an angle, use the macro command of DEG (page 23-11) or RAD (page 23-12).

F0 = ACOS (F1) (F) . . . . . FLOAT

Function: Arccosine

This macro command is used to store an arccosine of the angle (in radians) specified for [F1] in [F0]. Specify values for [F0] and [F1] in the format of decimal floating-point data (FLOAT).



Available memory

	Internal Memory	PLC1 - PLC8 Memory	Memory Card	Constant
F0	◎			
F1	◎			○

○: Setting enabled (indirect designation disabled)
◎: Setting enabled (indirect designation enabled)

Range

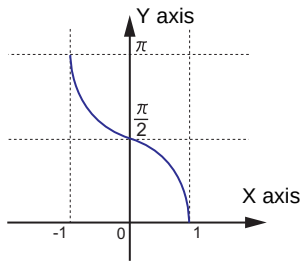
	Value
F0	IEEE 32-bit single precision real number
F1	

Example

- To obtain the value for $\cos^{-1} 0$;

  $u100 = ACOS (0) (F)
  The operation result of "1.570796" (= π/2) is stored in $u100.

The $\cos^{-1}$ of the trigonometric functions is expressed in the graph shown below.



Supplementary information

- $s1056 stores the result of macro execution.

Code (DEC)	Contents
0	Normal
1	Overflow*1
2	Underflow*1
3	Operation execution error*2

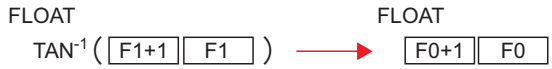
*1 An indefinite value is stored in [F0].
*2 When the value specified for [F1] is outside the range from "-1" to "1", "-1" is stored in [F0].

- To convert the unit of an angle, use the macro command of DEG (page 23-11) or RAD (page 23-12).

F0 = ATAN (F1) (F) . . . . . FLOAT

Function: Arctangent

This macro command is used to store an arctangent of the angle (in radians) specified for [F1] in [F0]. Specify values for [F0] and [F1] in the format of decimal floating-point data (FLOAT).



Available memory

	Internal Memory	PLC1 - PLC8 Memory	Memory Card	Constant
F0	◎			
F1	◎			○

○: Setting enabled (indirect designation disabled)
◎: Setting enabled (indirect designation enabled)

Range

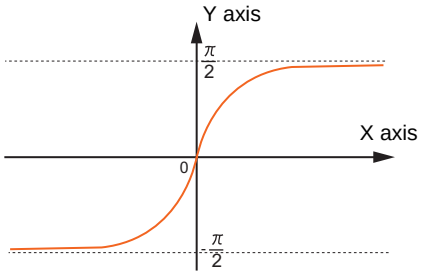
	Value
F0	IEEE 32-bit single precision real number
F1	

Example

- To obtain the value for $\tan^{-1} 0$;

  $u100 = ATAN (0) (F)
  The operation result of “0” is stored in $u100.

The $\tan^{-1}$ of the trigonometric functions is expressed in the graph shown below.



Supplementary information

- $s1056 stores the result of macro execution.

Code (DEC)	Contents
0	Normal
1	Overflow*
2	Underflow*

* An indefinite value is stored in [F0].

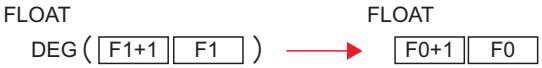
- To convert the unit of an angle, use the macro command of DEG (page 23-11) or RAD (page 23-12).

F0 = DEG (F1) (F) . . . . . FLOAT

Function: Convert radian to degree

This macro command is used to convert the unit of an angle specified for [F1] from radians to degrees and store the converted value in [F0].

Specify values for [F0] and [F1] in the format of decimal floating-point data (FLOAT).



Available memory

	Internal Memory	PLC1 - PLC8 Memory	Memory Card	Constant
F0	◎			
F1	◎			○

○: Setting enabled (indirect designation disabled)
◎: Setting enabled (indirect designation enabled)

Range

	Value
F0	IEEE 32-bit single precision real number
F1	

Example

- To obtain a value in degrees;

  $u100 = ASIN (1) (F)
  $u200 = DEG ($u100) (F)
  The operation result of “90” is stored in $u200.

Supplementary information

- $s1056 stores the result of macro execution.

Code (DEC)	Contents
0	Normal
1	Overflow*
2	Underflow*

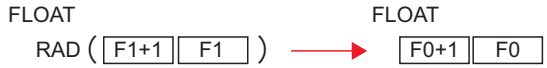
* An indefinite value is stored in [F0].

F0 = RAD (F1) (F) . . . . . FLOAT

Function: Convert degree to radian

This macro command is used to convert the unit of an angle specified for [F1] from degrees to radians and store the converted value in [F0].

Specify values for [F0] and [F1] in the format of decimal floating-point data (FLOAT).



Available memory

	Internal Memory	PLC1 - PLC8 Memory	Memory Card	Constant
F0	◎			
F1	◎			○

○: Setting enabled (indirect designation disabled)
◎: Setting enabled (indirect designation enabled)

Range

	Value
F0	IEEE 32-bit single precision real number
F1	

Example

- To obtain the value for 180° in radians;
  $u100 = RAD (180) (F)
  The operation result of “3.141592” (= π) is stored in $u100.

Supplementary information

- $s1056 stores the result of macro execution.

Code (DEC)	Contents
0	Normal
1	Overflow*
2	Underflow*

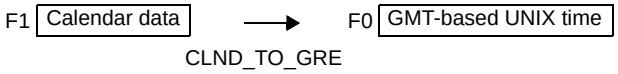
* An indefinite value is stored in [F0].

Conversion

CLND_TO_GRE F0 F1 F2

Function: Conversion from calendar data to GMT-based UNIX time

This macro is used to convert the calendar data [F1] in format [F2] to the UNIX time based on GMT, and to store the converted result in [F0].



Available memory

	Internal Memory	PLC1 - PLC8 Memory	Memory Card	Constant
F0	◎			
F1	◎			
F2	○			○

○: Setting enabled (indirect designation disabled)
◎: Setting enabled (indirect designation enabled)

Range

	Value		Remarks
F0	Time data 0	Time data 1 | Time data 0 UNIX time since January 1, 1970 GMT	DEC only
F0 + 1	Time data 1		
F1	4 or 2 digits: Year		
F1 + 1	1 to 12: Month		
F1 + 2	1 to 31: Day		
F1 + 3	0 to 23: Hour		
F1 + 4	0 to 59: Minutes		
F1 + 5	0 to 59: Seconds		
F2	0: DEC 1: BCD		Data format for [F1]

: ← V series (Return data)

Example

The calendar data in $u200 - $u205 in DEC format, 17 (hour):25 (minutes):10 (seconds) on June 10 in 2010, is converted to the GMT-based UNIX time, and the converted result is stored in $u100 and $u101.

$u200 = 2010 (W)
$u201 = 6 (W)
$u202 = 10 (W)
$u203 = 17 (W)
$u204 = 25 (W)
$u205 = 10 (W)
$u300 = 0 (W)
CLND_TO_GRE $u100 $u200 $u300

The GMT-based UNIX time “1276190710 seconds” is obtained.

Time data 0 → $u100 = 8182 DEC
Time data 1 → $u101 = 19473 DEC

Supplementary information

- The result of macro execution is stored in $s1057.
  When the execution of the macro is normally complete, the value at the address is not updated. Therefore, before macro execution, resetting the value at the address to zero is recommended.

Code (DEC)	Description
-1	Execution error

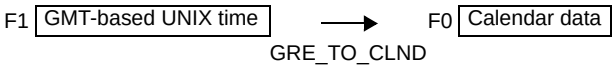
Restrictions

- When setting a numerical data display to show the converted result of calendar data, 3 (hour):14 (minutes):7 (seconds) on January 19, 2038 or after, enable the display to show 2-word long data without sign.
- This macro handles any year divisible by 4 as a leap year. For example, the year 2100 is recognized as a leap year though it is not so. Therefore, an error of one day will result.
- The calendar data displayable on the V8 unit ranges from January 1, 2006 to December 31, 2105. Any calendar data outside this range cannot be converted with this macro correctly.

GRE_TO_CLND F0 F1 F2

Function: Conversion from GMT-based UNIX time to calendar data

This macro is used to convert the UNIX time based on GMT in [F1] to the calendar data in format [F2], and to store the converted result in [F0].



Available memory

	Internal Memory	PLC1 - PLC8 Memory	Memory Card	Constant
F0	◎			
F1	◎			
F2	○			○

○: Setting enabled (indirect designation disabled)
◎: Setting enabled (indirect designation enabled)

Range

	Value		Remarks
F0	4 digits: Year		
F0 + 1	1 to 12: Month		
F0 + 2	1 to 31: Day		
F0 + 3	0 to 23: Hour		
F0 + 4	0 to 59: Minutes		
F0 + 5	0 to 59: Seconds		
F0 + 6	0: Sunday 1: Monday 2: Tuesday 3: Wednesday 4: Thursday 5: Friday 6: Saturday		
F1	Time data 0	Time data 1 | Time data 0 UNIX time since January 1, 1970 GMT	DEC only
F1 + 1	Time data 1		
F2	0: DEC 1: BCD		Data format for [F0]

: ← V series (Return data)

Example

The GMT-based UNIX time, 1278663500 seconds, in $u200 is converted to the calendar data in DEC format, and the converted result is stored in $u100 and after.

```
GRE_TO_CLND $u100 $u200 0
```

The calendar data, “8 (hour):18 (minutes):20 (seconds) on Friday on July 9, 2010,” is obtained.

Year → $u100 = 2010 DEC
Month → $u101 = 7 DEC
Day → $u102 = 9 DEC
Hour → $u103 = 8 DEC
Minutes → $u104 = 18 DEC
Seconds → $u105 = 20 DEC
Day of the week → $u106 = 5 DEC

Supplementary information

- The result of macro execution is stored in $s1057.
  When the execution of the macro is normally complete, the value at the address is not updated. Therefore, before macro execution, resetting the value at the address to zero is recommended.

Code (DEC)	Description
−1	Execution error

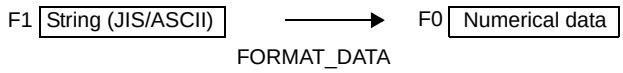
Restrictions

- This macro handles any year divisible by 4 as a leap year. For example, the year 2100 is recognized as a leap year though it is not so. Therefore, an error of one day will result.
- The calendar data displayable on the V8 unit ranges from January 1, 2006 to December 31, 2105. Any data outside this range cannot be converted with this macro correctly.

FORMAT_DATA F0 F1 F2

Function: Conversion from a string to numerical data

This macro is used to convert the string [F1] according to the attributes [F2], and to store the converted result in [F0].



Available memory

	Internal Memory	PLC1 - PLC8 Memory	Memory Card	Constant
F0	◎	◎		
F1	◎			
F2	○			

○: Setting enabled (indirect designation disabled)
◎: Setting enabled (indirect designation enabled)

Range

	Value	Remarks
F0	Target memory: BIN	The number of words depends on [F2 + 1] (data length).
F1	Source memory: String (ASCII)	The number of bytes depends on [F2 + 3] (character count). 32 bytes maximum (16 words) Character processing LSB → MSB fixed
F2	0: DEC without sign (decimal) 1: DEC with a negative sign (decimal) 2: DEC with a positive/negative sign (decimal) 3: HEX (hexadecimal) 4: OCT (octal) 5: BIN (binary) 6: FLOAT (real number)	Format for [F1] If “DEC with a negative sign” or “FLOAT” is selected for [F2] for the conversion of a positive value, add a space code (20H) to the leftmost position of the positive value. Otherwise, an error will result. A space code is not included in the number of digits. Example: For a string “123” to be converted, add a space to make it as “␣123”.
F2 + 1	0: 1 word 1: 2 words	Data length for [F0] If “FLOAT” is selected for [F2], specify “0”.
F2 + 2	0: DEC 1: BCD	Data format for [F0] If “HEX,” “OCT,” “BIN,” or “FLOAT” is selected for [F2], specify “0”.
F2 + 3	1 - 32: [F2] = 0, 1, 2, 5, or 6 1 - 8: [F2] = 3 1 - 11: [F2] = 4	Number of digits for [F1] A positive/negative sign and a decimal point are not included in the number of digits. Example: For a string “-12.3” to be converted, the number of digits is three.
F2 + 4	0 - 10: [F2] = 0, 1, or 2 0 - 31: [F2] = 6	Decimal place for [F1] Example: For a string “12.34” to be converted, specify two decimal places.
F2 + 5	0: With zero suppress 1: Without zero suppress	Format for [F1]

	Value	Remarks
F2 + 6	Valid only when F2 + 5 = 0 0: Leading spaces removed 1: Trailing spaces removed	Format for [F1] When a value in [F1] includes leading spaces, specify “0”. When a value in [F1] includes trailing spaces, specify “1”. Example: 0: ␣␣␣12 → 12 1: 12␣␣␣ → 12
F2 + 7	0 fixed	

Example

The string in $u100 is converted to the numerical data, and the converted result is stored in $u300.

- String “1234”: DEC without sign

						Display
$u100	3	2	3	1	HEX	“12”
$u101	3	4	3	3	HEX	“34”
	↓ FORMAT_DATA					
$u300	1234					“1234”

$u00100 = '1234' (STRING)
$u00200 = 0 (W) [DEC without sign]
$u00201 = 0 (W) [1 word]
$u00202 = 0 (W) [DEC]
$u00203 = 4 (W) [4 digits]
$u00204 = 0 (W) [Without decimal point]
$u00205 = 0 (W) [With zero suppress]
$u00206 = 0 (W) [Leading spaces removed]
$u00207 = 0 (W) [0 fixed]
FORMAT_DATA $u00300 $u00100 $u00200

The result “1234” is stored in $u300.

- String “12.34”: A positive value in DEC with a negative sign format and with two decimal places

$u00100 = ' ␣12.34' (STRING)
;(For a positive value, add a space code 20H in the leftmost position.)
$u00200 = 1 (W) [DEC with a negative sign]
$u00201 = 0 (W) [1 word]
$u00202 = 0 (W) [DEC]
$u00203 = 4 (W) [4 digits]
$u00204 = 2 (W) [Two decimal places]
$u00205 = 0 (W) [With zero suppress]
$u00206 = 0 (W) [Leading spaces removed]
$u00207 = 0 (W) [0 fixed]
FORMAT_DATA $u00300 $u00100 $u00200

The result “1234” is stored in $u300.

- String “−12.34”: A negative value in DEC with a negative sign format and with two decimal places

  $u00100 = '−12.34' (STRING)
  $u00200 = 1 (W) [DEC with a negative sign]
  $u00201 = 0 (W) [1 word]
  $u00202 = 0 (W) [DEC]
  $u00203 = 4 (W) [4 digits]
  $u00204 = 2 (W) [Two decimal places]
  $u00205 = 0 (W) [With zero suppress]
  $u00206 = 0 (W) [Leading spaces removed]
  $u00207 = 0 (W) [0 fixed]
  FORMAT_DATA $u00300 $u00100 $u00200

  The result “−1234” is stored in $u300.

- String “1234”: FLOAT

  $u00100 = ' ␣12.34' (STRING)
  ;(For a positive value, add a space code 20H in the leftmost position.)

  $u00200 = 6 (W) [FLOAT]
  $u00201 = 0 (W) [0 fixed]
  $u00202 = 0 (W) [0 fixed]
  $u00203 = 4 (W) [4 digits]
  $u00204 = 0 (W) [Without decimal point]
  $u00205 = 0 (W) [With zero suppress]
  $u00206 = 0 (W) [Leading spaces removed]
  $u00207 = 0 (W) [0 fixed]
  FORMAT_DATA $u00300 $u00100 $u00200

  The result “1234” is stored in $u300 and $u301.

- String “001234”: In DEC without sign format and without zero suppress

  $u00100 = '001234' (STRING)
  $u00200 = 0 (W) [DEC without sign]
  $u00201 = 0 (W) [1 word]
  $u00202 = 0 (W) [DEC]
  $u00203 = 6 (W) [6 digits]
  $u00204 = 0 (W) [Without decimal point]
  $u00205 = 1 (W) [Without zero suppress]
  $u00206 = 0 (W) [Leading spaces removed]
  $u00207 = 0 (W) [0 fixed]
  FORMAT_DATA $u00300 $u00100 $u00200

  The result “1234” is stored in $u300.

- String “␣␣1234”: In DEC without sign format and with two leading spaces

  $u00100 = ' ␣␣1234' (STRING)
  $u00200 = 0 (W) [DEC without sign]
  $u00201 = 0 (W) [1 word]
  $u00202 = 0 (W) [DEC]
  $u00203 = 6 (W) [6 digits]
  $u00204 = 0 (W) [Without decimal point]
  $u00205 = 0 (W) [With zero suppress]
  $u00206 = 0 (W) [Leading spaces removed]
  $u00207 = 0 (W) [0 fixed]
  FORMAT_DATA $u00300 $u00100 $u00200

  The result “1234” is stored in $u300.

- String “1234 ␣ ␣”: In DEC without sign format and with two trailing spaces

  $u00100 = '1234 ␣ ␣' (STRING)
  $u00200 = 0 (W) [DEC without sign]
  $u00201 = 0 (W) [1 word]
  $u00202 = 0 (W) [DEC]
  $u00203 = 6 (W) [6 digits]
  $u00204 = 0 (W) [Without decimal point]
  $u00205 = 0 (W) [With zero suppress]
  $u00206 = 1 (W) [Trailing spaces removed]
  $u00207 = 0 (W) [0 fixed]
  FORMAT_DATA $u00300 $u00100 $u00200

  The result “1234” is stored in $u300.

Supplementary information

- If “HEX” is specified as an attribute for conversion, characters “A” - “F” of the source data is not case-sensitive.
- If this macro, with “FLOAT” specified as an attribute, results in underflow, “0” is obtained as the converted result.
- Conversion with this macro is in the order of LSB → MSB.
- The following PLCs provided with PLC-specific data format are capable of handling negative values in BCD with a sign format. When you run this macro using such a value with any of these PLCs, the internal memory is not valid for [F0]. Therefore, be sure to assign the PLC memory (specific to the PLC model) to [F0].
  1) Fuji Electric: All of the MICREX-F series
  2) Yaskawa: Memobus (transfer mode 1)
  3) OMRON: All (transfer mode 2)
- The result of macro execution is stored in $s1057.
  When the execution of the macro is normally complete, the value at the address is not updated. Therefore, before macro execution, resetting the value at the address to zero is recommended.

Code (DEC)	Description
−1	Execution error

FORMAT_STR F0 F1 F2

Function: Conversion from numerical data to a string

This macro is used to convert the numerical data [F1] according to the attributes [F2], and to store the converted result in [F0].

Available memory

	Internal Memory	PLC1 - PLC8 Memory	Memory Card	Constant
F0	◎			
F1	◎	◎		
F2	○			

○: Setting enabled (indirect designation disabled)
◎: Setting enabled (indirect designation enabled)

Range

	Value	Remarks
F0	Target memory: String (ASCII code)	The number of bytes depends on [F2 + 3] (character count). 32 bytes maximum (16 words) Character processing LSB → MSB fixed
F1	Source memory: BIN	The number of words depends on [F2 + 1] (data length).
F2	0: DEC without sign (decimal) 1: DEC with a negative sign (decimal) 2: DEC with a positive/negative sign (decimal) 3: HEX (hexadecimal) 4: OCT (octal) 5: BIN (binary) 6: FLOAT (real number)	Format for [F1] If “DEC with a negative sign” or “FLOAT” is selected for [F2] and the converted result is a positive value, a space code (20H) is added to the leftmost byte of the positive value. Example: For numerical data “123” to be converted, a space is added to provide a converted result as “␣123”.
F2 + 1	0: 1 word 1: 2 words	Data length for [F1] If “FLOAT” is selected for [F2], specify “0”.
F2 + 2	0: DEC 1: BCD	Data format for [F1] If “HEX,” “OCT,” “BIN,” or “FLOAT” is selected for [F2], specify “0”.
F2 + 3	1 to 32: [F2] = 0, 1, 2, 5, or 6 1 to 8: [F2] = 3 1 to 11: [F2] = 4	Number of digits for [F0] A positive/negative sign and a decimal point are not included in the number of digits. If the number of digits specified for [F2 + 3] is smaller than that of the converted string, the result is given as a hyphen “-”. Example: For a string “-12.3” as the converted result, the number of digits is three.
F2 + 4	0 to 10: [F2] = 0, 1, or 2 0 to 31: [F2] = 6	Decimal place for [F0] Example: For a string “12.34” as the converted result, the number of digits is four and two decimal places are given.

	Value	Remarks
F2 + 5	0: With zero suppress 1: Without zero suppress	Format for [F0] Select whether to execute zero suppress. Example: For a string “00012” as the converted result, specify “1”.
F2 + 6	Valid only when F2 + 5 = 0 0: Leading spaces inserted 1: Trailing spaces inserted	Format for [F0] When a value in [F0] includes leading spaces, specify “0”. When a value in [F0] includes trailing spaces, specify “1”. Example: 0: 12 → ␣␣␣12 1: 12 → 12␣␣␣
F2 + 7	0 fixed	

Example

The numerical data in $u100 is converted to a string according to the specified attributes, and the converted result is stored in $u300.

- Numerical data “1234”: DEC without sign

						Display
$u100	1234					“1234”
	↓FORMAT_STR					
$u300	3	2	3	1	HEX	“12”
$u301	3	4	3	3	HEX	“34”

$u00100 = 1234 (W)
$u00200 = 0 (W) [DEC without sign]
$u00201 = 0 (W) [1 word]
$u00202 = 0 (W) [DEC]
$u00203 = 4 (W) [4 digits]
$u00204 = 0 (W) [Without decimal point]
$u00205 = 0 (W) [With zero suppress]
$u00206 = 0 (W) [Leading spaces added]
$u00207 = 0 (W) [0 fixed]
FORMAT_STR $u00300 $u00100 $u00200

The result “1234” is stored in $u300 and $u301.

- Numerical data “1234”: In DEC without sign format, and with zero suppress and leading spaces

$u00100 = 1234 (W)
$u00200 = 0 (W) [DEC without sign]
$u00201 = 0 (W) [1 word]
$u00202 = 0 (W) [DEC]
$u00203 = 6 (W) [6 digits]
$u00204 = 0 (W) [Without decimal point]
$u00205 = 0 (W) [With zero suppress]
$u00206 = 0 (W) [Leading spaces added]
$u00207 = 0 (W) [0 fixed]
FORMAT_STR $u00300 $u00100 $u00200
The result “␣␣1234” is stored in $u300 - $u302.

- Numerical data “1234”: In DEC without sign format, and with zero suppress and trailing spaces

  $u00100 = 1234 (W)
  $u00200 = 0 (W) [DEC without sign]
  $u00201 = 0 (W) [1 word]
  $u00202 = 0 (W) [DEC]
  $u00203 = 6 (W) [6 digits]
  $u00204 = 0 (W) [Without decimal point]
  $u00205 = 0 (W) [With zero suppress]
  $u00206 = 1 (W) [Trailing spaces added]
  $u00207 = 0 (W) [0 fixed]
  FORMAT_STR $u00300 $u00100 $u00200

  The result “1234␣␣␣” is stored in $u300 - $u302.

- Numerical data “1234”: In DEC without sign format and without zero suppress

  $u00100 = 1234 (W)
  $u00200 = 0 (W) [DEC without sign]
  $u00201 = 0 (W) [1 word]
  $u00202 = 0 (W) [DEC]
  $u00203 = 6 (W) [6 digits]
  $u00204 = 0 (W) [Without decimal point]
  $u00205 = 1 (W) [Without zero suppress]
  $u00206 = 0 (W) [Leading spaces added]
  $u00207 = 0 (W) [0 fixed]
  FORMAT_STR $u00300 $u00100 $u00200

  The result “001234” is stored in $u300 - $u302.

- Numerical data “12.34”: In DEC with a negative sign format and with two decimal places

  $u00100 = 1234 (W)
  $u00200 = 1 (W) [DEC with a negative sign]
  $u00201 = 0 (W) [1 word]
  $u00202 = 0 (W) [DEC]
  $u00203 = 4 (W) [4 digits]
  $u00204 = 2 (W) [Two decimal places]
  $u00205 = 0 (W) [With zero suppress]
  $u00206 = 0 (W) [Leading spaces added]
  $u00207 = 0 (W) [0 fixed]
  FORMAT_STR $u00300 $u00100 $u00200

  The result “␣12.34” is stored in $u300 - $u302.
  (For a positive value, a space code 20H is added to the leftmost position.)

- Numerical data “1234.00”: FLOAT

  $u00100 = 1234 (D)
  $u00100(F) <- $u00100(D) 0 (D)
  $u00200 = 6 (W) [FLOAT]
  $u00201 = 0 (W) [0 fixed]
  $u00202 = 0 (W) [0 fixed]
  $u00203 = 6 (W) [6 digits]
  $u00204 = 2 (W) [Two decimal places]
  $u00205 = 0 (W) [With zero suppress]
  $u00206 = 0 (W) [Leading spaces added]
  $u00207 = 0 (W) [0 fixed]
  FORMAT_STR $u00300 $u00100 $u00200

  The result “␣1234.00” is stored in $u300 - $u303.
  (For a positive value, a space code 20H is added to the leftmost position.)

Supplementary information

- Conversion with this macro is in the order of LSB → MSB.
- A NULL code is added to the end of the string as a result of conversion. If a conversion results in even bytes, one more word is used for this reason.
- The following PLCs provided with PLC-specific data format are capable of handling negative values in BCD with a sign format. When you run this macro using such a value with any of these PLCs, the internal memory is not valid for [F1]. Therefore, be sure to assign the PLC memory (specific to the PLC model) to [F1].
  1) Fuji Electric: All of the MICREX-F series
  2) Yaskawa: Memobus (transfer mode 1)
  3) OMRON: All (transfer mode 2)
- The result of macro execution is stored in $s1057.
  When the execution of the macro is normally complete, the value at the address is not updated. Therefore, before macro execution, resetting the value at the address to zero is recommended.

Code (DEC)	Description
−1	Execution error

Comparison

IF (F0 (condition) F1) (W) . . . . . WORD
IF (F0 (condition) F1) (D) . . . . . DWORD
IF (condition 2) (F0) (B) . . . . . BIT
(1)
ELSE
(2)
ENDIF

Function: Conditional branch

The above-mentioned macro commands for data in WORD and DWORD formats are used to compare [F0] and [F1], and to execute processing (1) if true, or (2) if false.

The macro command for data in BIT format is used to compare [F0] and condition 2, and to execute processing (1) if true, or (2) if false.

Processing of “ELSE” and (2) can be omitted.

Conditions 1

Symbol	Contents
==	Equal
!=	Different
<	Less than
>	Greater than
<=	Less than or equal to
>=	Greater than or equal to

Conditions 2

Symbol	Contents
ZERO	0
NON ZERO	Other than 0

Available memory

	Internal Memory	PLC1 - PLC8 Memory	Memory Card	Constant
F0	◎	◎	◎	○
F1	◎	◎	◎	○

○: Setting enabled (indirect designation disabled)
◎: Setting enabled (indirect designation enabled)

Range

	WORD	DWORD	BIT
F0	-32768 to +32767 (Decimal system with signs)	-2147483648 to +2147483647 (Decimal system with signs)	0, 1
F1			-

Example

- IF ($u100 < 10) (W)
  $u100 = $u100 + 1 (W)
  ELSE
  $u100 = 0 (W)
  ENDIF
  “$u100 = $u100 + 1” is executed when $u100 is smaller than 10. When $u100 is 10 or more, “$u100 = 0” is executed.
- Comparison of data in BIT format
  IFNZ ($u100-00) (B)
  $u100 = $u100 + 1 (W)
  ELSE
  $u100 = 0 (W)
  ENDIF
  If $u100-00 is ON, $u100 = $u100 + 1 is executed. If $u100-00 is OFF, $u100 = 0 is executed.

Restrictions

- IF-ELSE-ENDIF commands can be nested up to 8 levels.

Supplementary information

- An error occurs to the macro editor when any of the following conditions is met.

  1) When IF-ELSE-ENDIF commands are nested beyond 8 levels;

  Example:
  ```
  IF ($u100 > 0)
  IF ($u100 < 10)
        :
  IF ($u200 == 1)
  ENDIF
  ```
  ✖ There are 9 or more IF commands between IF-ENDIF commands.

  2) When the number of IF commands is not the same as the one of ENDIF commands;

  Example:
  ```
  IF ($u100 == 0)
  IF ($u100 == 0)
  ENDIF
  ```
  ✖ There are two IF commands while there is one ENDIF command.

  3) When the number of IF commands is not the same as the one of ELSE commands;

  Example:
  ```
  IF ($u100 == 0)
  ELSE
  ELSE
  ENDIF
  ```
  ✖ There is one IF command while there are two ELSE commands.

  4) When FOR and NEXT commands are specified in a series of IF-ELSE-ENDIF commands.

  Example:
  ```
  IF ($u100 == 0)
  FOR 10
  ELSE
  ENDIF
  NEXT
  ```
  ✖ Only ELSE and ENDIF commands are specified between FOR and NEXT commands.

- $s1059 stores the result of macro execution.
  When the execution of the macro is normally complete, the value at the address is not updated.
  Therefore, before macro execution, resetting the value at the address to zero is recommended.

Code (DEC)	Contents
–1	Execution error*

* When reading from [F0] and [F1] ends in failure, an error occurs and "–1" is stored in $s1059.
When an execution error occurs, it is regarded as a fault.

CF Card (Sampling)

SMPL_CSV2

Function: CSV file creation (file name designation)

This macro command is used to convert the sampling data in buffering area No. [F0] into the CSV file format under the name [F1] and saves the file in the SAMPLE folder in the CF card.

If the specified file does not exist, a new file will be created.

Available memory

	Internal Memory	PLC1 - PLC8 Memory	Memory Card	Constant
F0	◎			○
F1	◎			

○: Setting enabled (indirect designation disabled)
◎: Setting enabled (indirect designation enabled)

Range

	Value
F0	0 to 11: Buffering area number
F1	ASCII code (64 one-byte uppercase alphanumerics at the maximum): CSV file name

File

Storage target: \access folder\SAMPLE
File name: xxxxxxxx.csv

Example

- The file named "SEISAN.CSV" is created in buffering area No. 1.

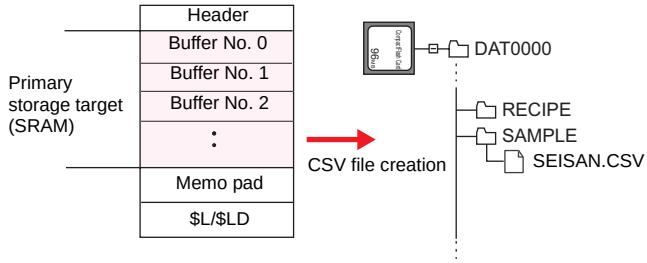
```
$u00100 = 'SEISAN' (STRING)
SMPL_CSV2 1 $u00100
```

File name designation
Buffering area number designation

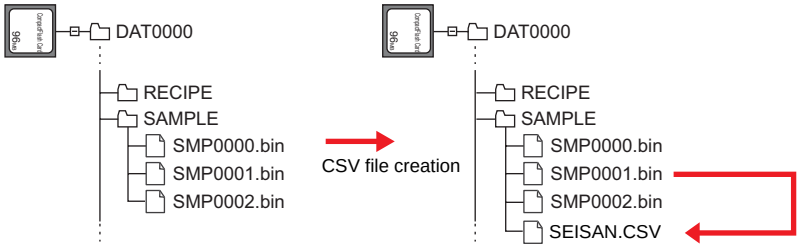
If [☐ Insert/Overwrite together with STRING Command] is checked in the [Memory Setting] or [Macro Editing Support] dialog, the macro command STRING can also be registered.

For more information on the STRING command, refer to the Macro Reference Manual.

In the case of [Primary storage target: SRAM] and [Secondary storage target: None]:

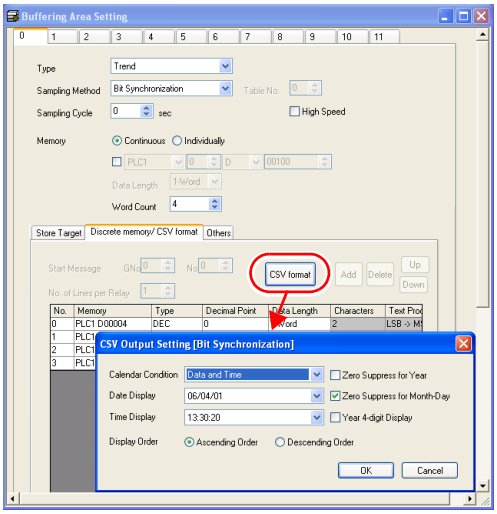


In the case of [Primary storage target: SRAM] and [Secondary storage target: CF Card]:



Supplementary information

- When the CF card or the memory card is selected as the secondary storage target, the data saved to the primary storage target is output first and then saved as a CSV file.
- The [CSV format] setting must be made for each buffer number.



- If the specified file already exists, it will be overwritten.
- If there is no buffer data, no CSV file will be created.
- The result of macro execution is stored in memory at $s1062.
  When the execution of the macro is normally complete, the value at the address is not updated.
  Therefore, before macro execution, resetting the value at the address to zero is recommended.

Code (DEC)	Description
–1	Execution error

Limitations

- These symbols, [\], [/], [:], [*], [?], ["], [<], [>] and [|], are not usable for a file name.

SMPL_CSVBAK2

Function: CSV file backup creation (file name designation)

This macro command is used to convert the sampling data in buffering area No. [F0] into the CSV file format under the name [F1] and saves the file in the year/month/day folder in the SAMPLE folder saved to the CF card.

Available memory

	Internal Memory	PLC1 - PLC8 Memory	Memory Card	Constant
F0	◎			○
F1	◎			

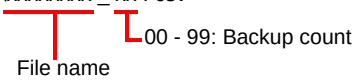
○: Setting enabled (indirect designation disabled)
◎: Setting enabled (indirect designation enabled)

Range

	Value
F0	0 to 11: Buffering area number
F1	ASCII code (64 one-byte uppercase alphanumerics at the maximum): CSV file name

File

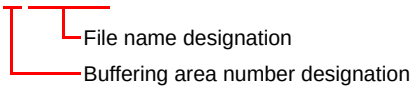
Storage target: \access folder\SAMPLE\year/month folder\year/month/day folder
File name: \xxxxxxxx _ xx . csv



Example

- A CSV file is created for buffering area No. 1 backup.
  February 14, 2009, file name “SEISAN.CSV”

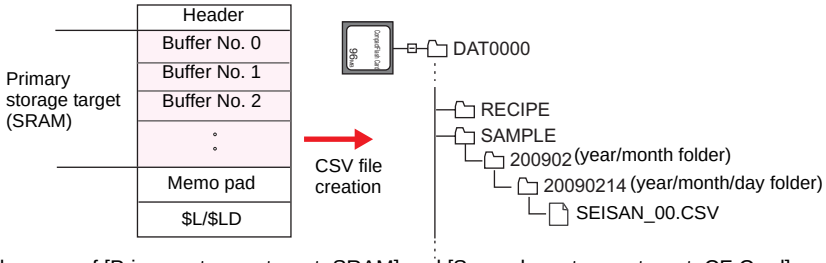
```
$u00100   = 'SEISAN' (STRING)
SMPL_CSVBAK2 1 $u00100
```



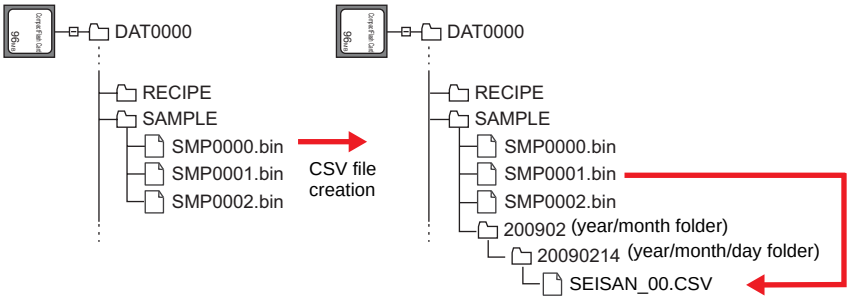
If [☐ Insert/Overwrite together with STRING Command] is checked in the [Memory Setting] or [Macro Editing Support] dialog, the macro command STRING can also be registered.

For more information on the STRING command, refer to the Macro Reference Manual.

In the case of [Primary storage target: SRAM] and [Secondary storage target: None]:

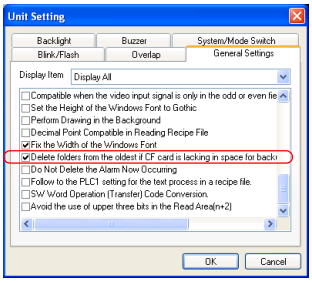


In the case of [Primary storage target: SRAM] and [Secondary storage target: CF Card]:



Supplementary information

- When the CF card or the memory card is selected as the secondary storage target, the data saved to the primary storage target is output first and then saved as a CSV file.
- The [CSV format] setting must be made for each buffer number. (page 23-28)
- If backup is repeated more than 100 times for a file given the same date, the final 99th backup file will be overwritten.
- If there is no buffer data, no CSV file will be created.
- The action to be taken associated with an insufficient available space in the CF card is selectable in the [General Settings] tab window in the [Unit Setting] dialog provided under [System Setting].



- The result of macro execution is stored in memory at $s1062.
  When the execution of the macro is normally complete, the value at the address is not updated. Therefore, before macro execution, resetting the value at the address to zero is recommended.

Code (DEC)	Description
–1	Execution error

Limitations

- These symbols, [\], [/], [:], [*], [?], [“] [<], [>] and [|], are not usable for a file name.

CF Card (Others)

HDCOPY3

Function: Hardcopy (file name designation)

This macro command is used to save the screen image (JPEG) displayed at the time of the macro execution, under the file name [F0], to the CF card.

Available memory

	Internal Memory	PLC1 - PLC8 Memory	Memory Card	Constant
F0	◎			

○: Setting enabled (indirect designation disabled)
◎: Setting enabled (indirect designation enabled)

Range

	Value
F0	ASCII code (64 one-byte uppercase alphanumerics at the maximum): CSV file name

File

Storage target: \access folder\HDCOPY
File name: \xxxxxxxx.JPG (64K-/32K-/128-color display)
: \xxxxxxxx.BIN (128-color display)

File name

Example

- The file named “SCREEN10.JPG” is created.

```
$u00100 = 'SCREEN10' (STRING)
HDCOPY3 $u00100
```

File name designation

If [☐ Insert/Overwrite together with STRING Command] is checked in the [Memory Setting] or [Macro Editing Support] dialog, the macro command STRING can also be registered.
For more information on the STRING command, refer to the Macro Reference Manual.

Supplementary information

- One file saves one screen. If a file name you designated already exists in the CF card, the file will be overwritten.
- If 128-color display is selected for the V8 series, the format of the file to be stored can be selected.
  When selecting a file format, click [System Setting] → [CF Card Setting] and go to [☐ Store HDCOPY Macro in JPEG Format]*.
  * If this option is unchecked, the BIN format is adopted for file saving.
    When using a BIN file as image data, conversion into bitmap by the CF Card Manager is required.
- The result of macro execution is stored in memory at $s1062.
  When the execution of the macro is normally complete, the value at the address is not updated. Therefore, before macro execution, resetting the value at the address to zero is recommended.

Code (DEC)	Description
–1	Execution error

Limitations

- These symbols, [\], [/], [:], [*], [?], [“], [<], [>] and [|], are not usable for a file name.

MOVE_FILE F0 F1 F2

Function: File movement

This macro command is used to move the file or folder [F0] to the path [F1].
File renaming is also possible.

Available memory

	Internal Memory	PLC1 - PLC8 Memory	Memory Card	Constant
F0	○			
F1	○			
F2	○			

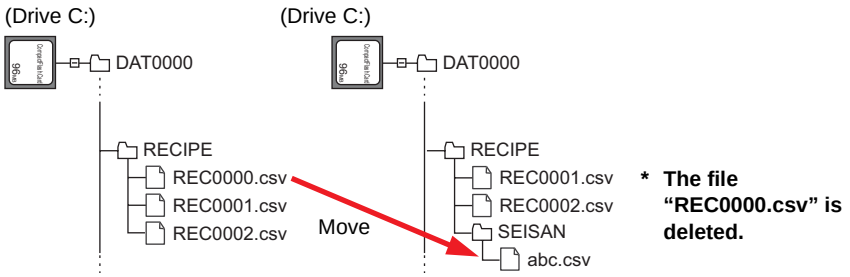
○: Setting enabled (indirect designation disabled)
◎: Setting enabled (indirect designation enabled)

Range

	Value	Remarks
F0	Source full pathname (within 255 alphanumerics)	Drive designation A: USB-FDD drive B: (not used) C: Built-in CF card drive D: Memory connected to USB port
F1	Target full pathname (within 255 alphanumerics)	
F2	0 fixed	

Example

- Movement from “C:\DAT0000\RECIPE\REC0000.csv” to “C:\DAT0000\RECIPE\SEISAN\abc.csv”:
  $u00100 = 'C:\DAT0000\RECIPE\REC0000.csv'
  $u00200 = 'C:\DAT0000\RECIPE\SEISAN\abc.csv'
  MOVE_FILE $u00100 $u00200



Supplementary information

- If an illegal full pathname is specified, this macro command does not work. An error will result.
- For the V8 series, the result of macro execution is stored in $s1062.
  When the execution of the macro is normally complete, the value at the address is not updated. Therefore, before macro execution, resetting the value at the address to zero is recommended.

Code (DEC)	Description
−1	Execution error

- In the case of a read-only file movement between drives, the file is copied to the target location, and the file at the original location is not deleted.
- A folder to be moved is allowed to contain a maximum of 5 hierarchical levels under the folder. If files or folders at further lower levels exist under the folder, the folder and the files/folders placed under it are copied to the target location, but those at the original location are not deleted.

Restrictions

- Use alphanumerics to specify full pathnames as the source and the target. If any characters other than alphanumerics are used, the function of this macro command is not assured.
- Wildcard characters (such as “*” and “?”) cannot be used for full pathnames as the source and the target.

READ_FILE F0 F1 F2 F3

Function: Read universal file

This macro command is used to read the file [F0] in binary format and to store the obtained data in memory [F1] and after.
It is also possible to acquire the size of the file [F0].

Available memory

	Internal Memory	PLC1 - PLC8 Memory	Memory Card	Constant
F0	○			
F1	◎			
F2	○			
F3	○			

○: Setting enabled (indirect designation disabled)
◎: Setting enabled (indirect designation enabled)

Range

	Value		Remarks
	File read	File size acquisition	
F0	Source full pathname (within 255 alphanumerics)		Drive designation A: USB-FDD drive B: (not used) C: Built-in CF card drive D: Memory connected to USB port
F1	Target memory	0 fixed	
F2	0 to 10485760 bytes: Size	0 fixed	DEC
F2 + 1			
F2 + 2	0 to 10485760 bytes: Offset from the beginning of the file	0 fixed	DEC
F2 + 3			
F2 + 4	0 fixed		
F3	Read data size storage memory (Data size successfully read)	File size storage memory	
F3 + 1			

: ← V series (Return data)

Example

- File read

  The file “ABC.DAT” is read from its 11th byte by 512 bytes into $u1000 to $u1255.

```
$u00100 = 'C:\DAT0000\ABC\ABC.DAT'   [Source full pathname]
$u00200 = 512 (D)                    [Size]
$u00202 = 10 (D)                     [Offset]
$u00204 = 0 (W)                      [0 fixed]
READ_FILE $u00100 $u01000 $u00200 $u00300
```

- File size acquisition

  The size of the file “ABC.DAT” is read into $u300.

```
$u00100 = 'C:\DAT0000\ABC\ABC.DAT'   [Source full pathname]
$u00200 = 0 (W)                      [0 fixed]
$u00202 = 0 (W)                      [0 fixed]
$u00204 = 0 (W)                      [0 fixed]
READ_FILE $u00100 $u01000 $u00200 $u00300
```

Supplementary information

- If any characters other than alphanumerics are used to specify a source full pathname, this macro command may not work normally. Be sure to use alphanumerics.
- Wildcard characters (such as “*” and “?”) cannot be used for a full pathname as the source.
- If the file specified as the source does not exist, an error will result.
- If an illegal full pathname is specified, this macro command does not work. An error will result.
- In the event of an error during file reading, the data having been read is stored in memory. However, the size of the data does not affect the successfully read data size in [F3] and [F3 + 1].
- For the V8 series, the result of macro execution is stored in $s1062.
  When the execution of the macro is normally complete, the value at the address is not updated. Therefore, before macro execution, resetting the value at the address to zero is recommended.

Code (DEC)	Description
−1	Execution error

WRITE_FILE F0 F1 F2

Function: Write to universal file

This macro command is used to write the data from memory [F1] and after in binary format to the file [F0].

Available memory

	Internal Memory	PLC1 - PLC8 Memory	Memory Card	Constant
F0	○			
F1	◎			
F2	○			

○: Setting enabled (indirect designation disabled)
◎: Setting enabled (indirect designation enabled)

Range

	Value			Remarks
	New file creation	Overwriting	Addition	
F0	Target full pathname			Drive designation A: USB-FDD drive B: (not used) C: Built-in CF card drive D: Memory connected to USB port
F1	Source memory			
F2	0 fixed	1 fixed	2 fixed	
F2 + 1	0 to 10485760 bytes: Size			DEC
F2 + 2				
F2 + 3	0 fixed	0 to 10485760 bytes: Offset from the beginning of the file	0 fixed	
F2 + 4				
F2 + 5	0 fixed			

Example

- New file creation

  The 512 bytes of data in $u1000 to $u1255 is written to the new file “ABC.DAT” created in the folder “ABC”.

```
$u00100 = 'C:\DAT0000\ABC\ABC.DAT'   [Target full pathname]
$u00200 = 0 (W)                      [0: New creation]
$u00201 = 512 (D)                    [Size]
$u00203 = 0 (W)                      [0 fixed]
$u00205 = 0 (W)                      [0 fixed]
WRITE_FILE $u00100 $u01000 $u00200
```

- Overwriting

  The 33rd byte and after in the existing file “ABC.DAT” is overwritten with the 16 bytes of data in $u1000 to $u1007.

```
$u00100 = 'C:\DAT0000\ABC\ABC.DAT'   [Target full pathname]
$u00200 = 1 (W)                      [1: Overwrite]
$u00201 = 16 (D)                     [Size]
$u00203 = 32 (D)                     [Offset]
$u00205 = 0 (W)                      [0 fixed]
WRITE_FILE $u00100 $u01000 $u00200
```

- Addition

  The 512 bytes of data in $u1000 to $u1255 is added to the existing file “ABC.DAT”.

```
$u00100 = 'C:\DAT0000\ABC\ABC.DAT'   [Target full pathname]
$u00200 = 2 (W)                      [2: Add]
$u00201 = 512 (D)                    [Size]
$u00203 = 0 (W)                      [0 fixed]
$u00205 = 0 (W)                      [0 fixed]
WRITE_FILE $u00100 $u01000 $u00200
```

Supplementary information

- If the name of a new file you intend to create is already used, delete the existing file first and create a new file.
- If the size specified with [F2 + 1] and [F2 + 2] is zero for a new file, an empty file will be created.
- If the file you specified for overwriting or data addition does not exist, an error will result.
- Wildcard characters (such as “*” and “?”) cannot be used for a full pathname as the target, to which data is written.
- If an illegal full pathname is specified, this macro command does not work. An error will result.
- In the event of an error during writing to a file, the data having been written remains in the file.
- For the V8 series, the result of macro execution is stored in $s1062.
  When the execution of the macro is normally complete, the value at the address is not updated. Therefore, before macro execution, resetting the value at the address to zero is recommended.

Code (DEC)	Description
−1	Execution error

24 Tag

24.1 Overview

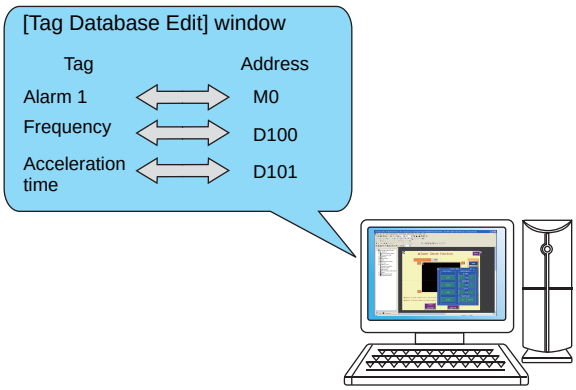
"Tag editing" is a function used to give names (tags) to addresses of PLC memory or internal memory ($u, $L, etc.) and use these names for screen data creation.

There are two methods for tag designation: address designation and variable designation.

Address Designation

Give a tag name to the address of PLC memory or internal memory, and set the memory address for the part or item with the given name.

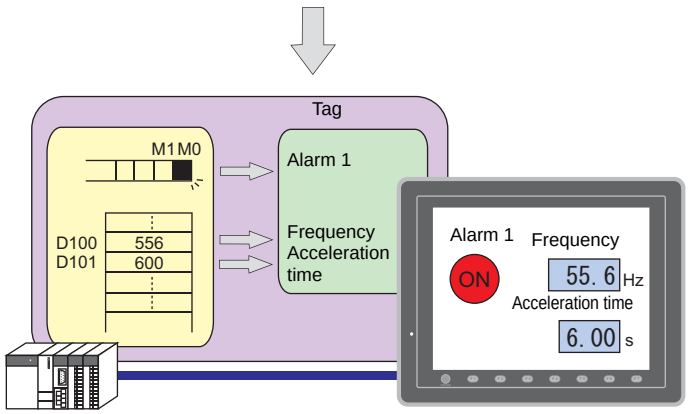
Example: On the [Tag Database Edit] window, register PLC memory addresses "M0", "D100" and "D101" with names "Alarm 1", "Frequency" and "Acceleration Time", respectively.



Set memory addresses for parts by using tags.

Lamp memory: "Alarm 1" (M0)

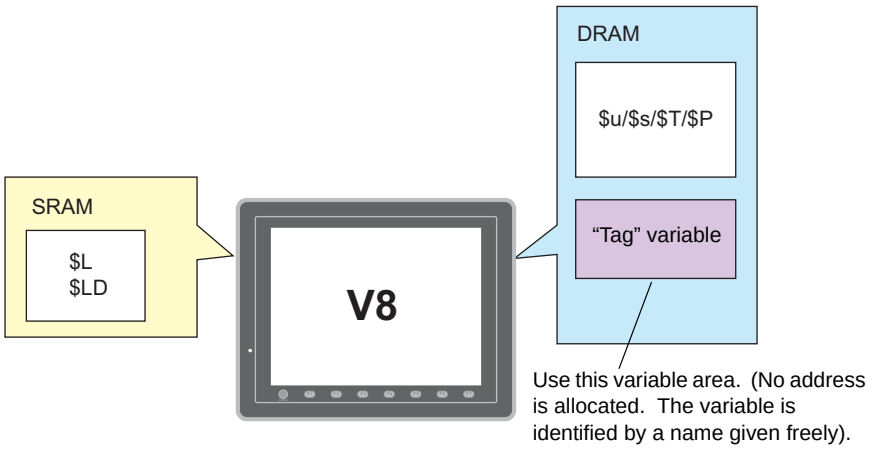
Numerical data memory: "Frequency" (D100), "Acceleration time" (D101)



Variable Designation

Give a tag name to the variable in the V8 variable area, and set the variable in memory for parts and items with given names. This is useful for specifying a working area of the V8 internal processing, such as macro, password, etc.

(Example) Variable area in the V8



What is “variable”?
“Variable” is an area that stores data temporarily. This area is used for temporarily storing data, such as a default value, calculated value.
The capacity of the variable area is 4096 words for single word and double word, respectively. For more information, refer to ““Tag” Variable Capacity” (page 24-19).

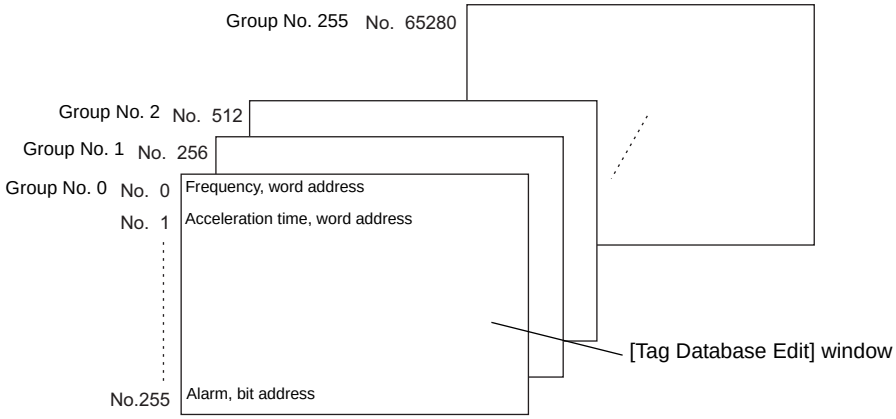
Array

The array format can be specified for the tag. If there are multiple data of the same type, they can be registered at one time. It makes your data management or maintenance easier.
For more information, refer to “Array” (page 24-11).

24.2 Tag Editing

Structure of [Tag Database Edit] Window

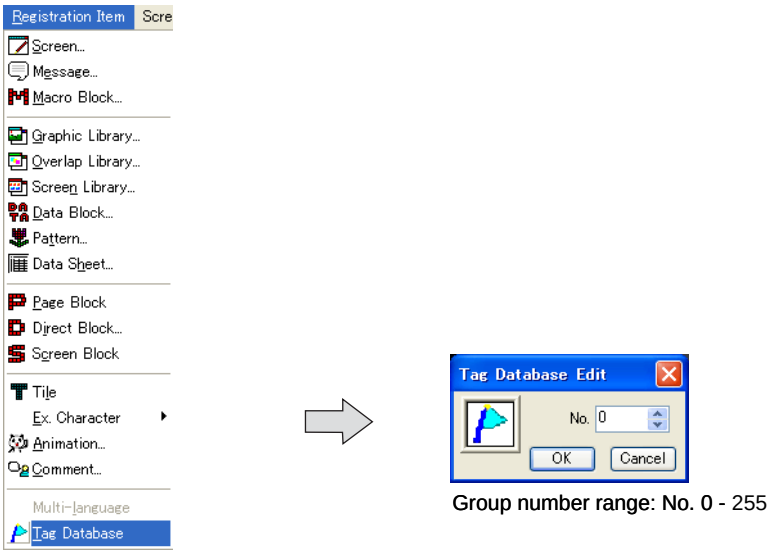
The [Tag Database Edit] window consists of 256 groups, and 256 lines can registered per one group. Accordingly, a maximum of 65,536 lines can be registered in total.



*** The capacity of the variable area is 4096 words for single word and double word, respectively.**
For more information, refer to ""Tag" Variable Capacity" (page 24-19).

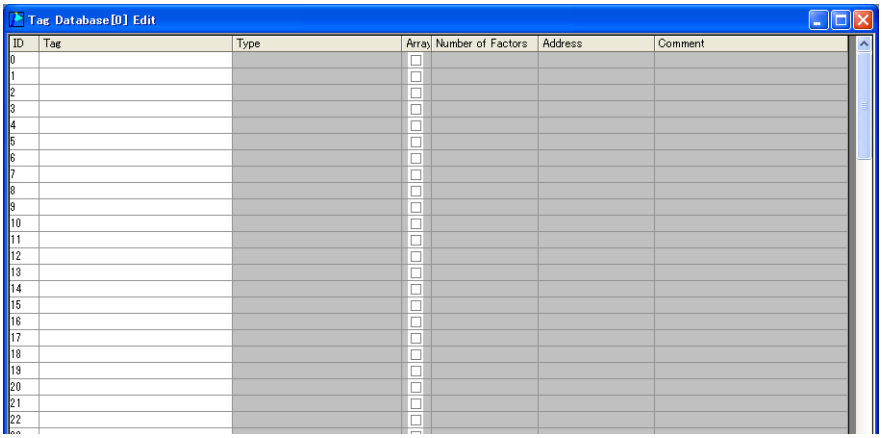
Displaying the [Tag Database Edit] Window

Click [Registration Item] → [Tag Database].
Specify the group number and click [OK]. The [Tag Database Edit] window is displayed.



Group number range: No. 0 - 255

Configuration of the [Tag Database Edit] Window

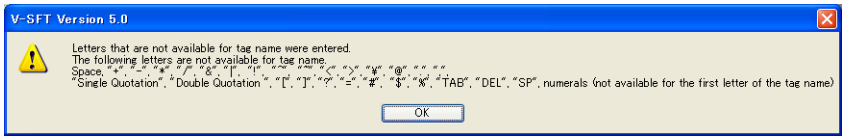


ID	Line number
Tag	Specify a tag name. Max. 70 one-byte alphanumeric characters* (Two-byte characters allowed. Sensitive to two-byte and one-byte characters, or upper case and lower case characters.)
Type Address	Specify the data type for the tag.

Address	Type	Data Type
PLC Memory Internal Memory Memory Card I/O Memory Common Memory	Bit Address	1-bit data
	Word Address	1-word data
	Double-Word Address	Double-Word Data
	Actual Number Address	32-bit single precision real number format
Variable	Bit Variable	1-bit data
	Integer Variable	1-word data
	Double-Word Integer Variable	Double-Word Data
	Actual Number Variable	32-bit single prevision real number format

☐Array	Check this box when using the array format. For more information, refer to “Array” (page 24-11).
Number of Elements	When [☐Array] is checked, specify the number of elements to be used for the array. Max. 4096
Comment	Specify the detail information as necessary. Max. 130 one-byte alphanumeric characters. (Two-byte characters allowed. Sensitive to two-byte and one-byte characters, or upper case and lower case alphabetic characters.)

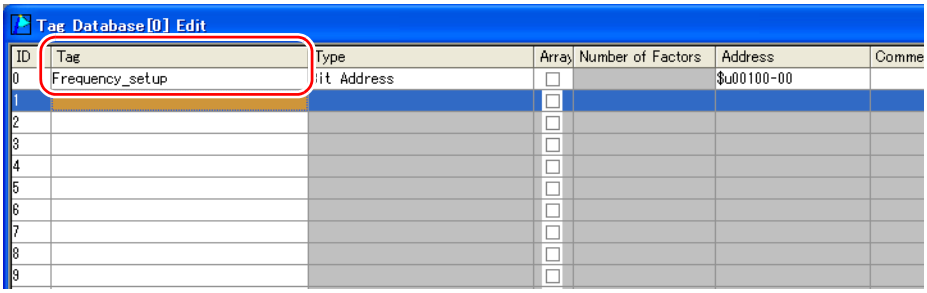
*** If an unavailable character is used, the following message box will appear. In such a case, reset the name again.**



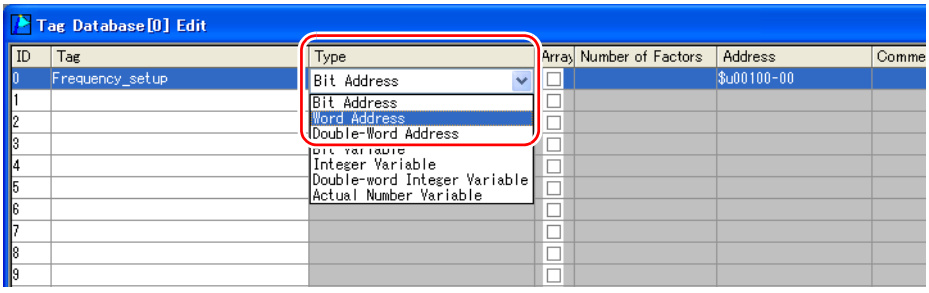
Registering a Tag

This section describes the procedure for registering “D100” and “D101” (word addresses) and “M0” (bit address) of PLC1 memory by using tags.

1. Enter a desired name in the [Tag] field.



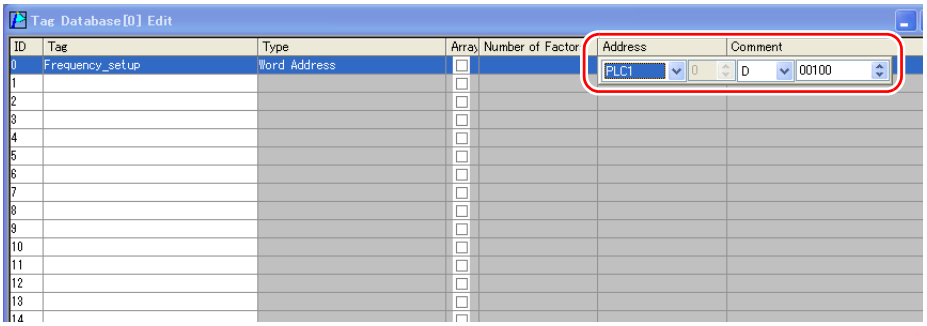
2. Click the [Type] field, and select a data type from the list.



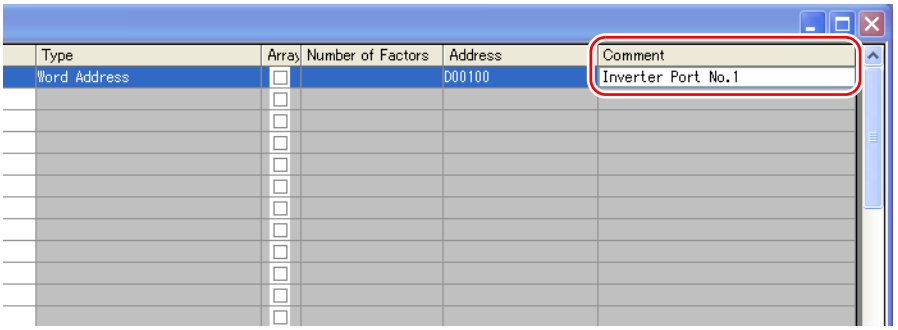
3. If you want to register the same type of data at one time, use the array format.
   Check the box for [Array] and specify the number for the [Number of Elements] field.

For more information on [Array], refer to “Array” (page 24-11).

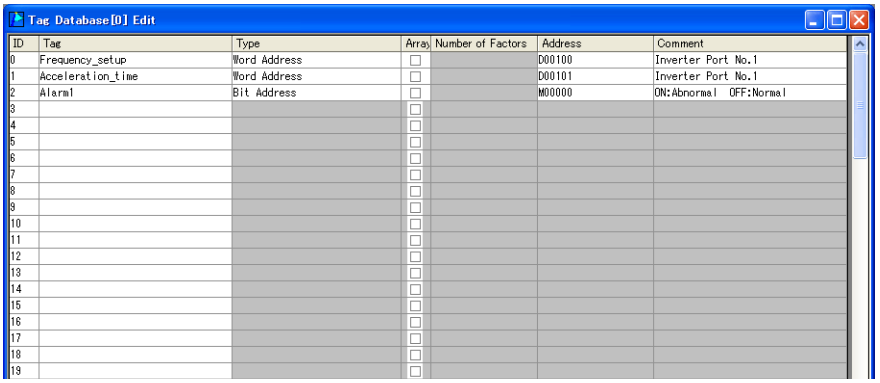
4. Click the [Address] field and select a memory address to be registered for the tag.



5. Click the [Comment] field and enter a comment as desired.



6. To register a new address using a tag, select another ID number and repeat steps 1. to 5.



The necessary settings have been completed.

Editing in a CSV File

The [Tag Database Edit] window data registered with the screen data in the V-SFT software can be exported to a CSV-format file. The CSV-format file can be edited on the computer and then imported to the screen data.

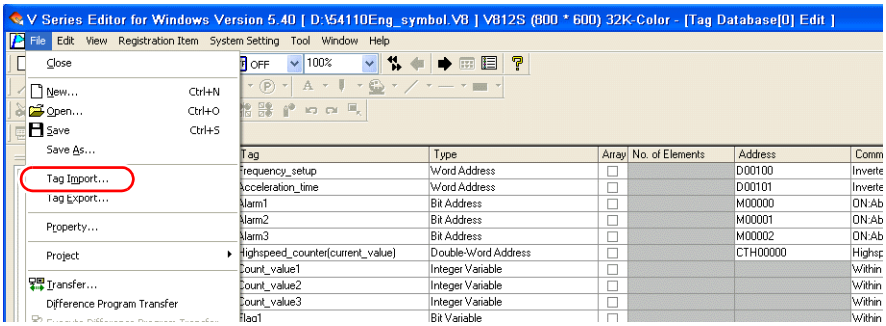
*** CSV-format files created in PLC software can also be imported to screen data. For more information, refer to "Import of Tags" (page 24-21).**

CSV File Editing

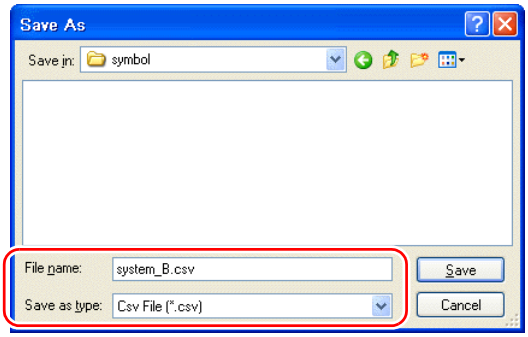
In the example below, changes are made to the data registered with ID No. 0 in the [Tag Database Edit] window, by using Excel.

Tag: Frequency_setup	→ Run_status
Address: D100	→ D105
Comment: Inverter Port No. 1	→ ON: RUN, OFF: STOP

1. Open the [Tag Database Edit] window. Click [File] → [Tag Export].

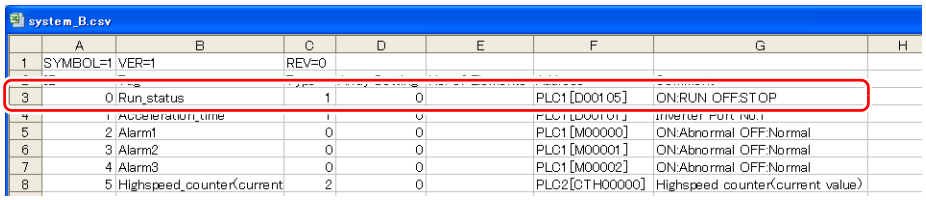


2. The [Save As] dialog is displayed.
   Enter an arbitrary file name in the dialog. In the [Save as type] field, select [Csv File (*.csv)]. Click [Save].



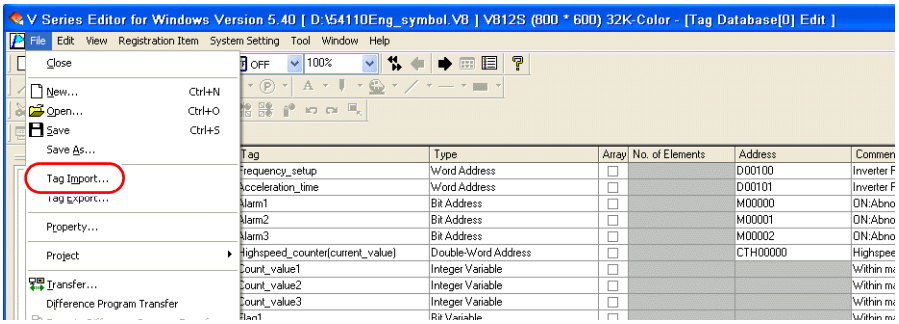
3. The above step completes the export from the [Tag Database Edit] window to a CSV file. Open the CSV file in Excel.

4. Make changes to the data of ID No. 0 and save the CSV file.

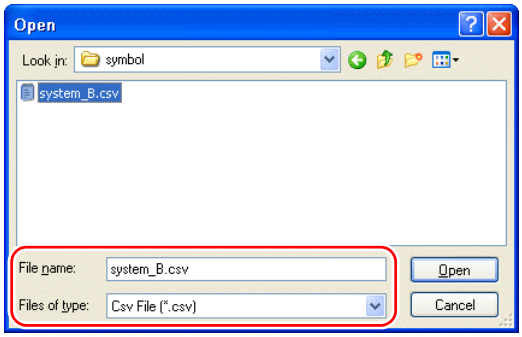


*** For more information on a CSV file, refer to "CSV File Configuration" (page 24-9).**

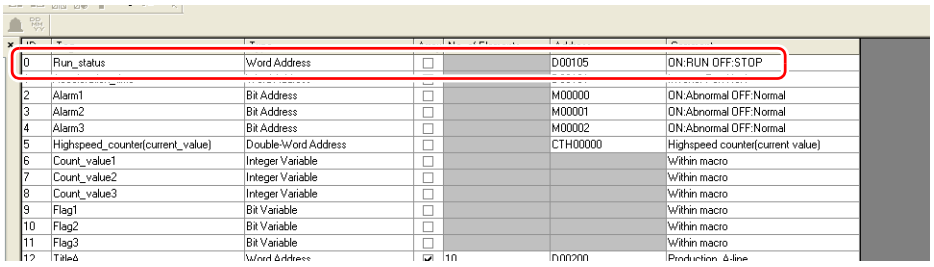
5. Open the [Tag Database Edit] window. Click [File] → [Tag Import].



6. The [Open] dialog is displayed.
Select the CSV file saved in step 4. In the [Files of type] field, select [Csv File (*csv)].
Click [Open].



The data of ID No. 0 is overwritten.
The necessary settings have been completed.

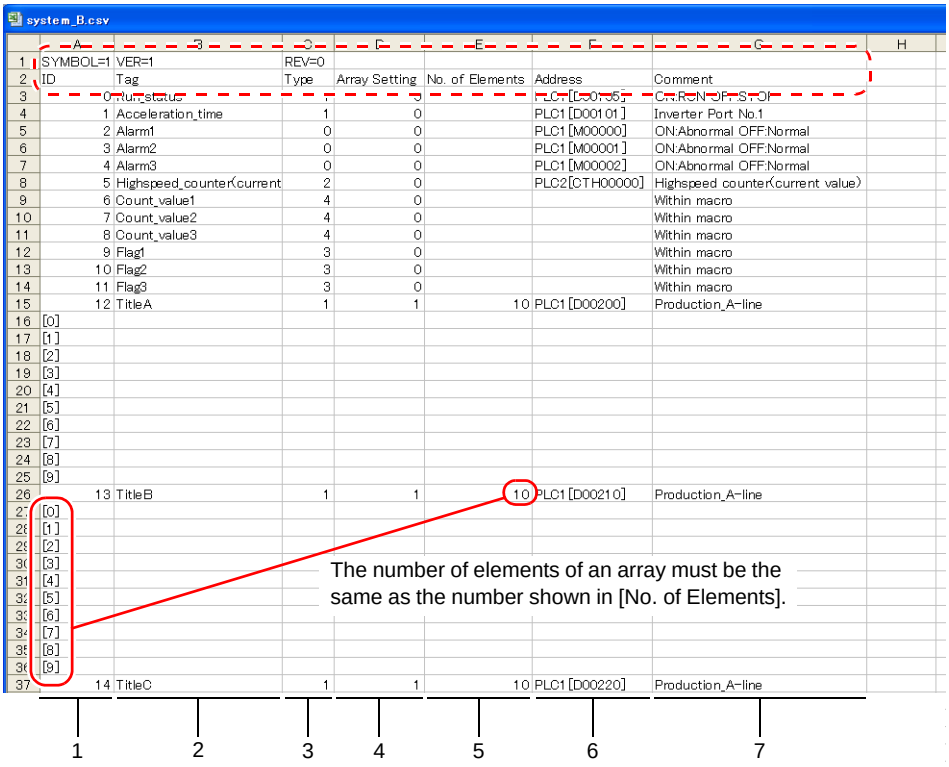


*** IDs that are already with tags are overwritten with the imported data.**

CSV File Configuration

A CSV file opened in Excel is formatted as shown below.

[Tag Database Edit] data exported to a CSV file



*** Do not change the header information enclosed in the red dotted frame. Otherwise, the data in the CSV file cannot be imported to the screen data normally.**

No.	Item	Description	Remarks
1	ID	0 - 65535 *** Numbers within square brackets [ ]: Element No. 0 - 4095 with the use of arrays**	1-byte
2	Tag[*1]	Within 70 one-byte characters	1-byte / 2-byte
3	Type	0: Bit address 1: Word address 2: Double-word address 3: Bit variable 4: Integer variable 5: Double-word integer variable 6: Real number variable 7: Real number address	1-byte
4	Array Setting	0: Not used 1: Used	1-byte
5	No. of Elements	Setting in this column is enabled only when “1” is specified for [Array Setting]. 1 - 4096	1-byte

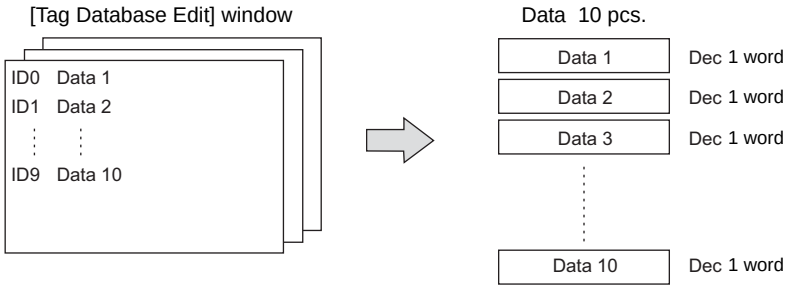
No.	Item	Description	Remarks
6	Address	PLC memory PLCx[xxxxx] Device + memory address PLC No. 1 - 8 Example: PLC1 MITSUBISHI ELECTRIC D100 • 1:1 connection Word designation: PLC1 [D00100] Bit designation: PLC1 [D00100-00] • 1:n connection (port No. 0) Word designation: PLC1 [0: D00100] Bit designation: PLC1 [0: D00100-00]	1-byte
		Internal memory: $u/$T/$s/$L/$LD xxxxx Device + memory address Example: Internal memory $u100 Word designation: $u00100 Bit designation: $u00100-00	
		Memory card memory [xx:xxxx]#xxxx Data No. 0 - 4096 Record No. 0 - 4095 File No. 0 - 15 Example: File No. 0, Record No. 0, and Data No. 100 Word designation: [0:0] #0100 Bit designation: [0:0] #0100-00	
		I/O memory PLCx[xxxxx] Device + memory address PLC No. 1 - 8 Example: PLC1 Fuji Electric T-link TI00 Word designation: PLC1 [TI00] Bit designation: PLC1 [TI00-00]	
		The following settings are enabled only when the general-purpose FL-Net is designated as PLC1. Common memory: CW/CB/MW/MB/VW PLCx[xxxxx] Device + memory address PLC No. 1 - 8 Example: • Specifying CW100 Word designation: PLC1 [CW0100] Bit designation: PLC1 [CW0100-00] • Specifying MW100 (port No. 1) Word designation: PLC1 [1: MW0100] Bit designation: PLC1 [1: MW0100-00]	
7	Comment	Within 130 one-byte characters	1-byte / 2-byte

*1 Data including unusable characters cannot be imported.
For more information on characters to be used, refer to “Configuration of the [Tag Database Edit] Window” (page 24-4).

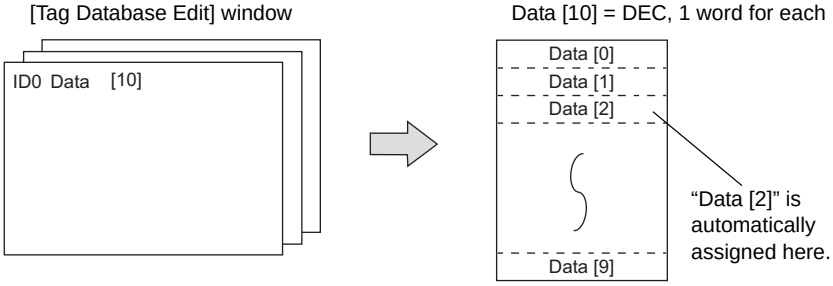
Array

Tags can be registered in the array format.

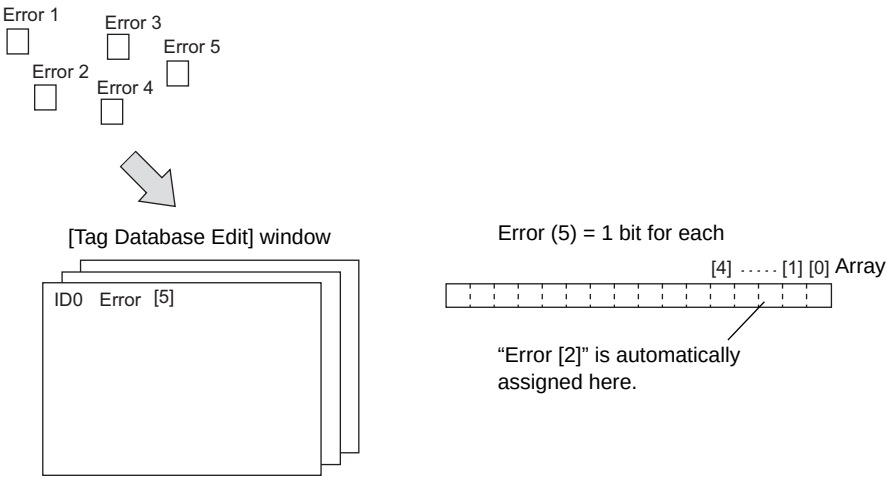
For example, when allocating 10 variables which have the same properties (DEC, 1 word) without using the array format, 10 variables must be registered individually as shown below.



When registering one tag with 10 elements in the array format, you can secure 10 variables in the same way as shown above. If there are multiple data of the same type, you can use the array format to make settings easier.



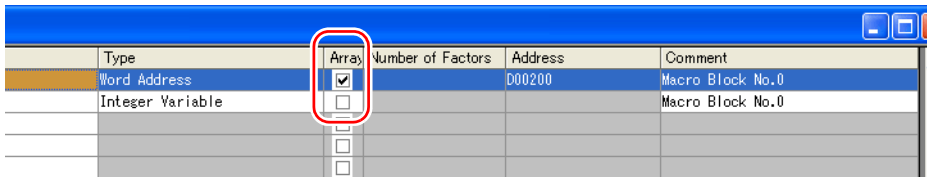
In the case of the bit variable:



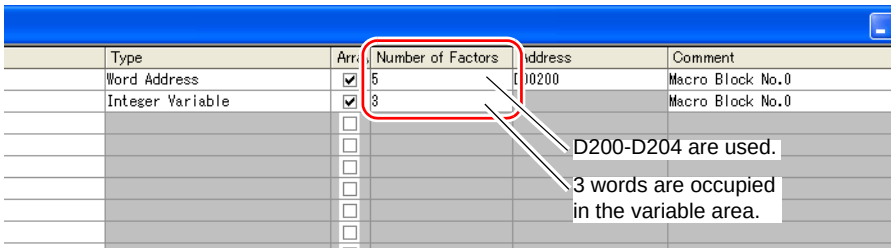
Setting Procedure

This section describes the procedure to specify “5” for [Number of Elements] for the PLC1 memory “D200”, and “3” for the integer variable in the array format.

1. Check the box for [Array].

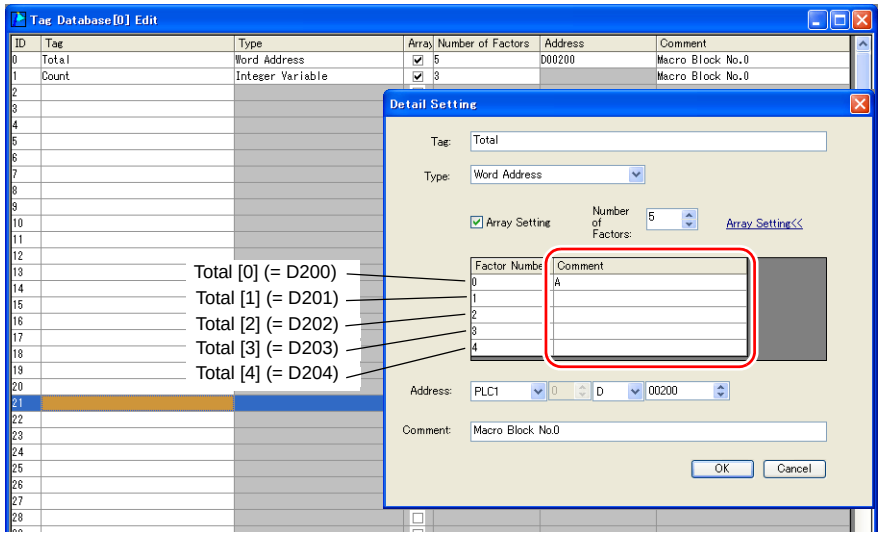


2. Specify the number of elements for [Number of Elements].



- A maximum of 4096 elements can be set.
- If the bit variable is specified in the array format, 1 word is occupied in the variable area even if “16” or smaller number is specified for the number of elements.
  For more information, refer to ““Tag” Variable Capacity” (page 24-19).

3. Enter a comment for each element as desired.
   Move the cursor to the corresponding ID number, click [Edit] → [Detail Setting], and enter a comment in the [Comment] field on the [Detail Setting] dialog.



The [Detail Setting] dialog can also be displayed by the procedure shown below.

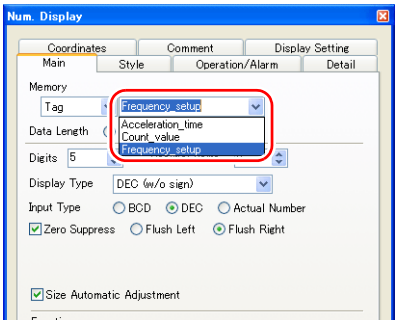
- Right-click the mouse and click [Detail Setting].
- Double-click the ID number.

24.3 How to Use the Tag

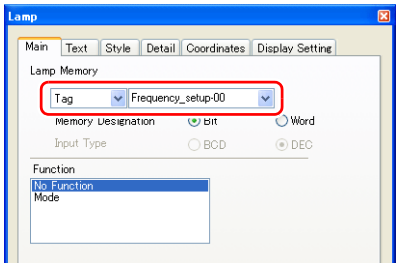
Setting Procedure

Select a tag for [Memory] on the item dialog of each part.

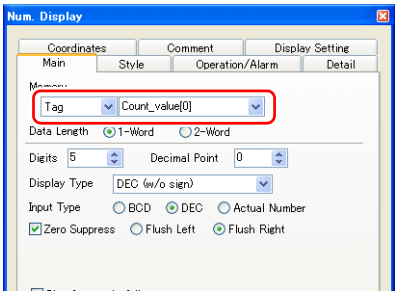
- Word designation:



- Bit designation: Tag-xx (xx: 00 - 15, 00 - 31)



- Array format: Tag [n] (n: number of elements for array)



Notes

No tag can be specified for the following items.

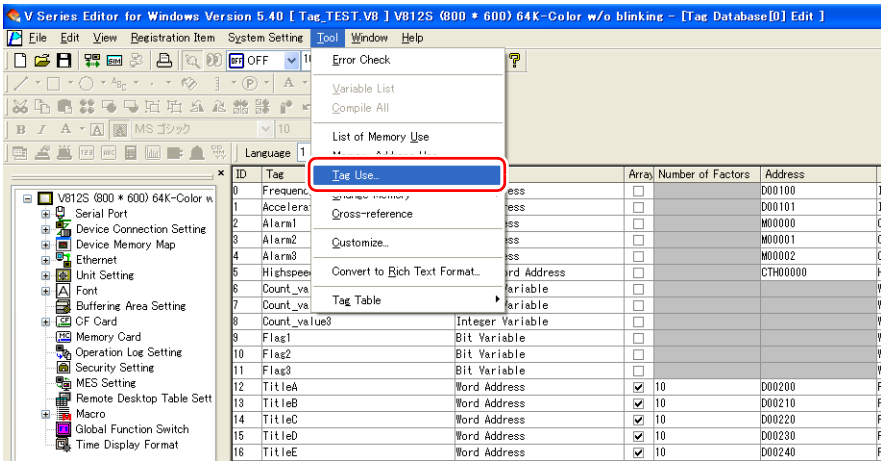
- Screen setting (transfer source PLC memory, transfer target PLC memory)
- Device memory map (transfer source memory, transfer target memory 1, transfer target memory 2, control memory)
- Modbus memory table

24.4 Tag Status List

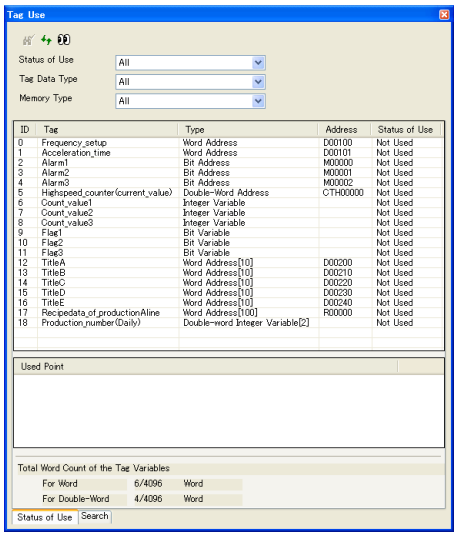
You can search the whole screen data and bring up the tag status list. You can also check the total word count registered on the [Tag Database Edit] window.

Displaying the [Tag Use] Window

1. Click [Tool] → [Tag Use].

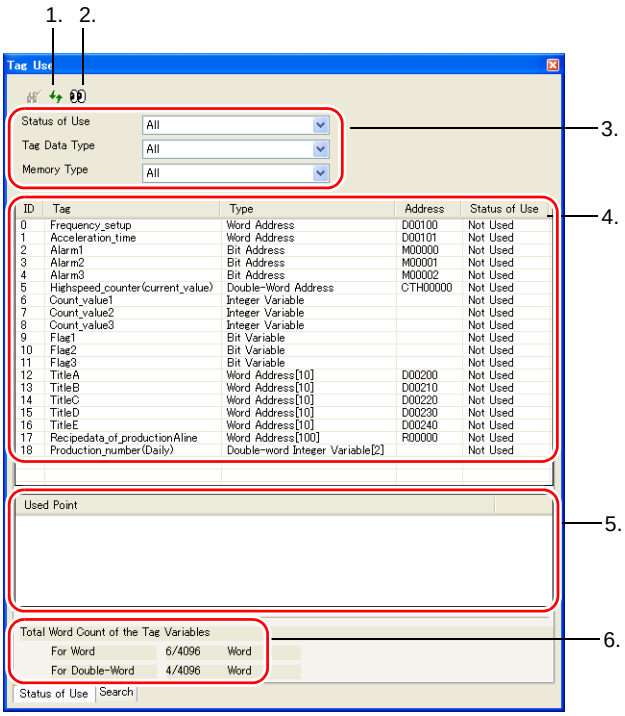


2. The [Tag Use] dialog is displayed.



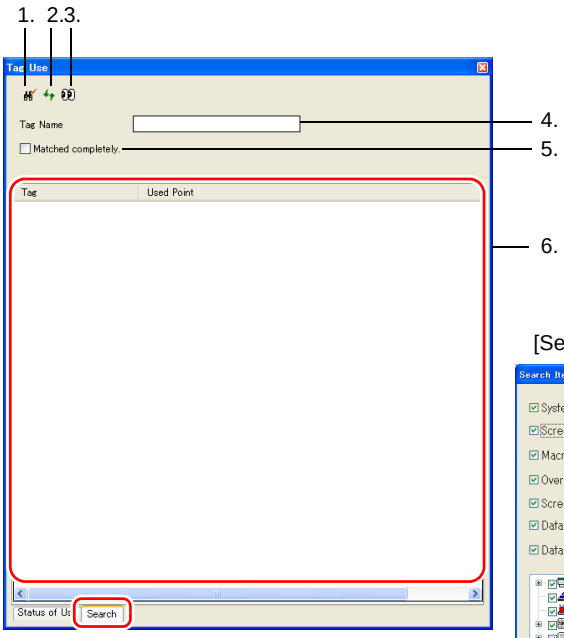
[Tag Use] Dialog

[Status of Use] Tab Window

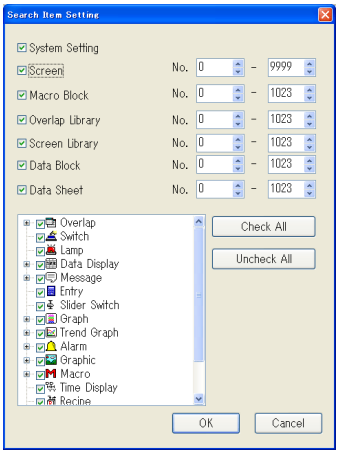


1		The display is updated. Specify the search criteria for “3.” and click this icon.
2		By pressing this icon, the [Tag Database Edit] window is displayed when the cursor is placed in the status list (4.), and the corresponding screen or item dialog is displayed when the cursor is placed in the [Used Point] field.
3	Search criteria	Specify criteria for searching the status of tags on the screen data.
4	Status list	Displays the search result.
5	Used Point	Displays the position where the tag selected in the status list (4.) is used.
6	Total Word Count of the Tag Variables	Displays the status of variable area. Max. 4096 words for single and double words *** If the occupied word count exceeds the maximum value, the value is displayed in red. Set a value smaller than the maximum. For more information, refer to ““Tag” Variable Capacity” (page 24-19).**

[Search] Tab Window



[Search Item Setting] dialog (1.)



1		Specify the search range for the screen data. Items with check marks are set as a search target.
2		The display is updated. After entering a name for [Tag Name], click this icon.
3		Displays the screen or the item dialog of the tag selected in the status list (6.).
4	Tag Name	Enter a tag name to search. If this field is left blank, a search will be performed for all tags used on the screen data. *** Discriminating between one-byte and two-byte characters, or uppercase and lowercase characters**
5	☐ Matched completely.	Checked: Searches for a tag name exactly the same as the one specified for [Tag Name]. Unchecked: Searches for all tags including characters specified for [Tag Name].
6	Status list	Displays the search result.

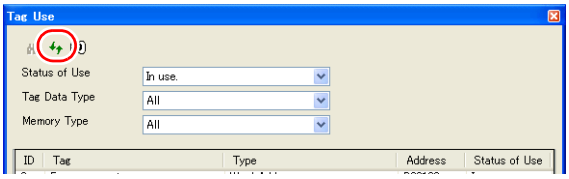
Operation

To Check the Status of Use:

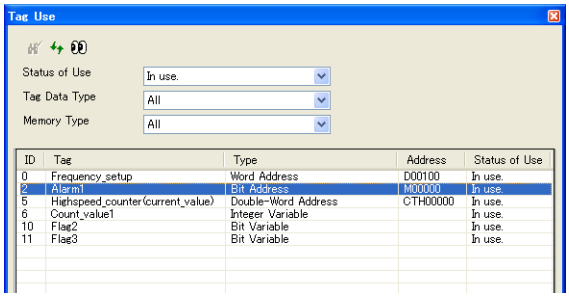
This section describes the procedure to search for tags used on the screen data.

1. Select the [Status of Use] tab window on the [Tag Use] dialog.

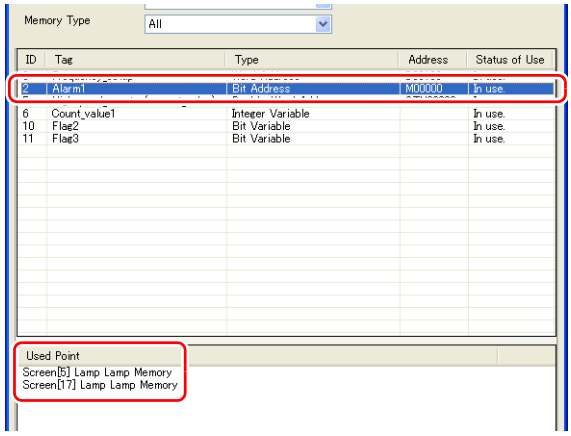
2. Select [In use] for [Status of Use], [All] for [Tag Data Type] and [All] for [Memory Type], and click the [Update] icon.



3. The list of the search result is displayed.



4. When “2” under [ID] is selected, the position where the tag is used is displayed in the [Used Position] field.



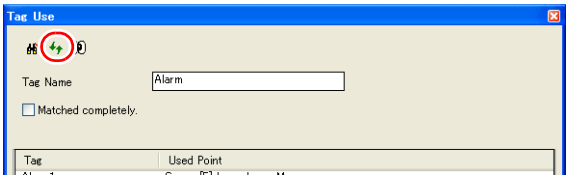
You can jump to the position where the tag is used by double-clicking the item shown in the [Used Position] field or clicking [VIEW] in the right-click menu.

To Search for the Position Where the Tag is Used:

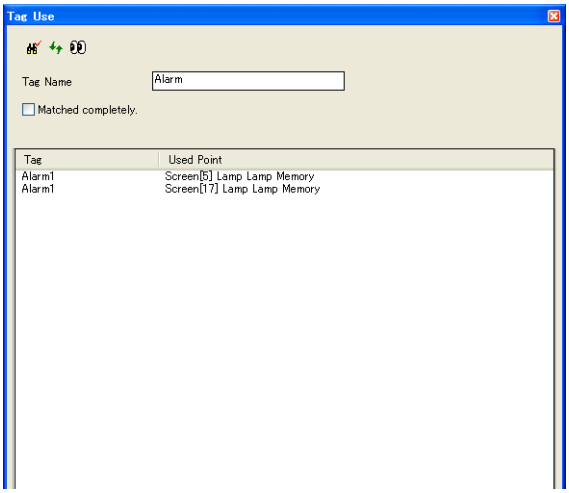
This section describes the procedure to search for the tag “Alarm 1” used on the screen data.

1. Select the [Search] tab window on the [Tag Use] dialog.

2. Enter “Alarm” into [Tag Name] and click the [Update] icon.



3. All tags that include “Alarm” are displayed as a search result.



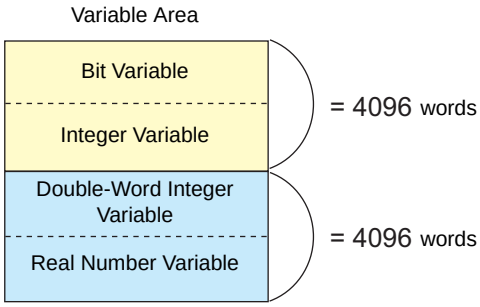
You can jump to the position where the tag is used by double-clicking the item shown in the [Used Position] field or clicking [VIEW] in the right-click menu.

24.5 “Tag” Variable Capacity

When “tag” variables are registered on the [Tag Database Edit] window, the variable area inside the MONITOUCH is used.

Since the capacity of the variable area is limited, check the word count currently used, and be careful not to exceed the capacity.

Capacity of Variable Area

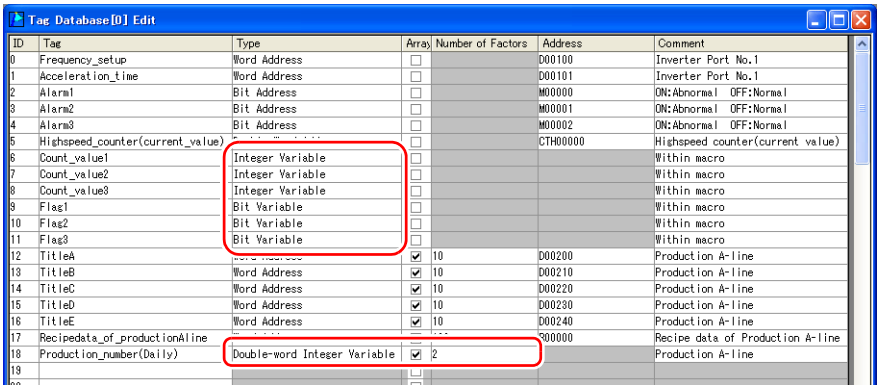


Variable Type	Data Type	Capacity
Bit Variable *	1-bit data	4096 words
Integer Variable	1-word data	
Double-Word Integer Variable	Double-word data	4096 words
Real Number Variable	32-bit single prevision real number format	

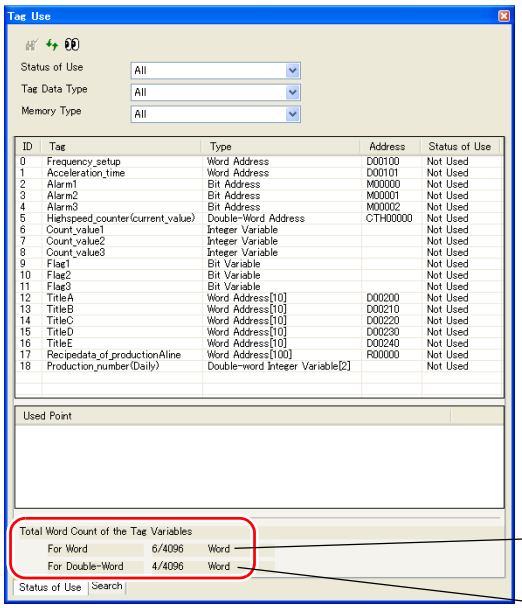
*** If the bit variable is specified in the array format, 1 word is occupied in the variable area even if “16” or smaller number is specified for the number of elements.**

Checking the Capacity of “Tag” Variable

You can check the capacity when the “tag” variables are registered as shown below.



In this case, 6 words of word area and 4 words of double-word area are occupied.



Integer variable “3” + bit variable “3”

Double-word integer variable in the array format “2”

*** The value is indicated in red when it exceeds the maximum value of 4096. If the tag indicated in red is used on the screen, the message “Error: 46” appears and you cannot run MONITOUCH. Set a value smaller than the maximum.**

24.6 Import of Tags

Tags or system labels registered in PLC software can be imported to V-SFT and used as tags.

Manufacturers of Applicable PLCs

- MITSUBISHI ELECTRIC → page 24-21
- Siemens

  Model S7 → page 24-26
  Model S7-200 → page 24-31

MITSUBISHI ELECTRIC

Global labels registered in Simple Project (with labels) or Structured Project in MITSUBISHI ELECTRIC's software GX Works2 can be registered as system labels in the software MELSOFT Navigator. These system labels can be exported in CSV file format. When such CSV files are imported to V-SFT, system labels in the files can be used as tags in V-SFT.

*** For PLC software usage, refer to the manual for the PLC.**

When whole program compiling is executed in GX Works2, devices registered with global labels will be reassigned to global labels. If there are global labels with no PLC memory address assigned, devices of such labels will be assigned according to the automatic assignment device setting made in GX Works2.
Therefore, assigning PLC memory addresses to global labels is recommended.

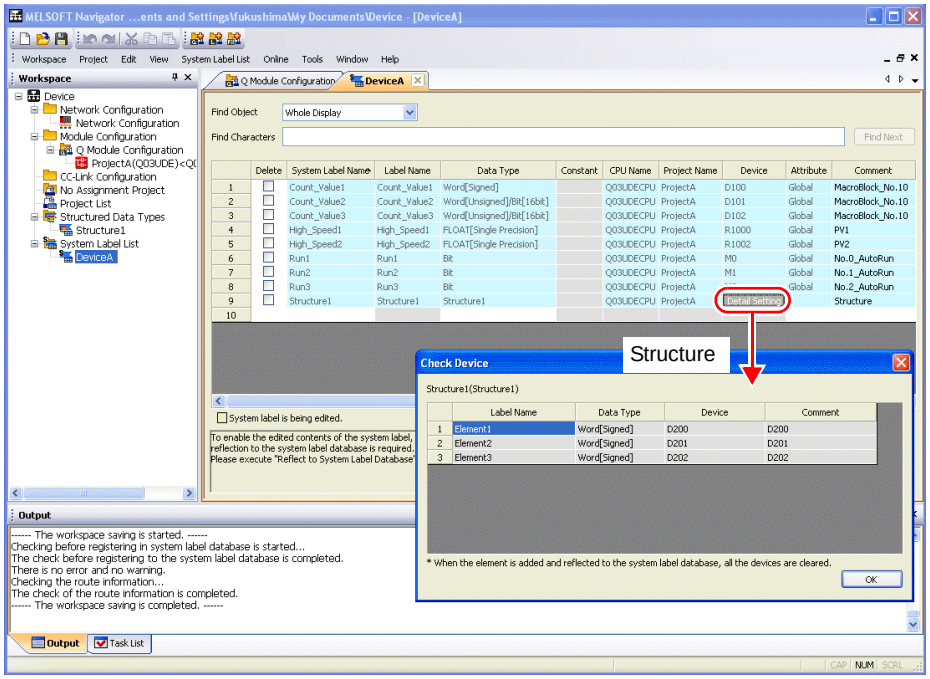
Applicable PLC Models

Maker	Model
MITSUBISHI ELECTRIC	QnH (Q) series link
	QnH (Q) series CPU
	QnU series CPU
	Q00J/00/01 CPU
	QnH (Q) series (Ethernet)
	QnH (Q) series (Ethernet ASCII)
	QnU series (built-in Ethernet)
	QnH (Q) series (CC-LINK)
	L series link
	L series (built-in Ethernet)
	FX3U/3UC/3G series CPU
	FX3U/3UC/3G series link (A protocol)

*** Import to V-SFT is allowed, provided that [PLC1] and [Connection Mode: 1:1] are set in the [Device Connection Setting] dialog ([System Setting] → [Device Connection Setting]). Import is not possible for [PLC2] and after.**

Procedure

This section describes the steps to import the [Device A] data registered in the system label list to screen data.



*** This table lists the types of data that can be imported to V-SFT and the data types after import.**

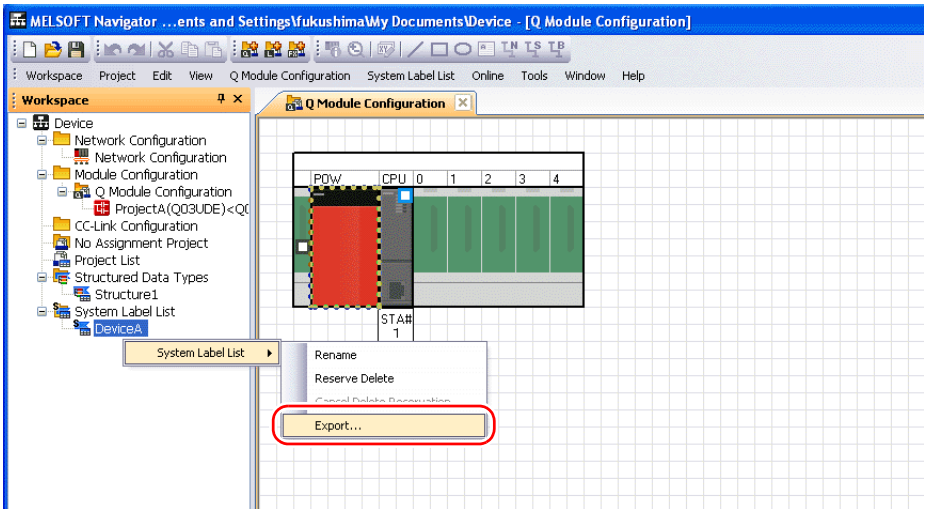
MITSUBISHI ELECTRIC System Label		Data Type for Tags in V-SFT
Data Type *1	Data Length	
Bit	1 bit	Bit address
Word [Signed]	1 word	Word address
Word [Unsigned]	1 word	
Timer	1 word	
Counter	1 word	
Retentive Timer*2	1 word	
Double Word [Signed]	2 words	Double-word address
Double Word [Unsigned]	2 words	
Time	2 words	
FLOAT [Single Precision]	2 words	Real number address

*1 No other types of data can be imported to V-SFT.

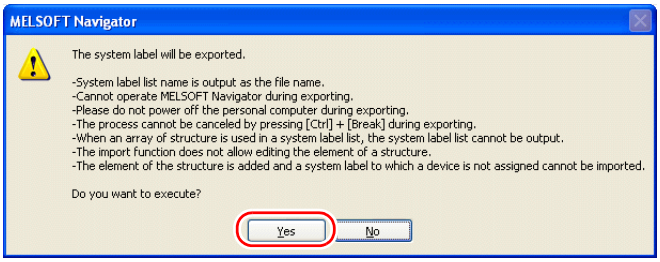
*2 With the PLC model QnH (Q) series (CC-LINK), data of the type: Retentive Timer cannot be imported.

1. Start MELSOFT Navigator.

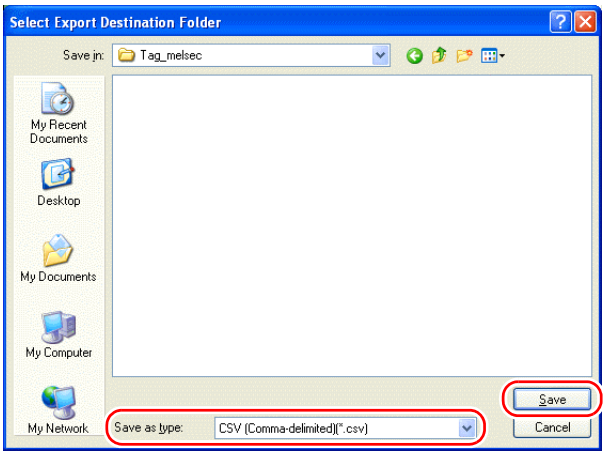
2. Right-click [DeviceA] under [System Label List]. Click [System Label List] → [Export].



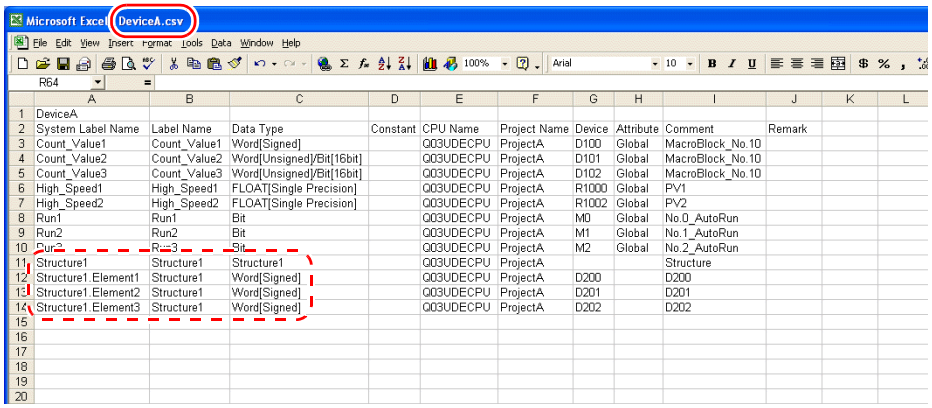
3. The message dialog is displayed. Click the [Yes] button.



4. The [Select Export Destination Folder] dialog is displayed.
Select “CSV” for [Save as type] and click [Save].

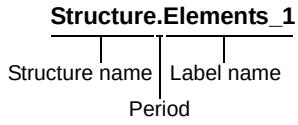


5. Open the destination folder. Check that the CSV file under the same name in the system label list is created. (Example: DeviceA.csv)



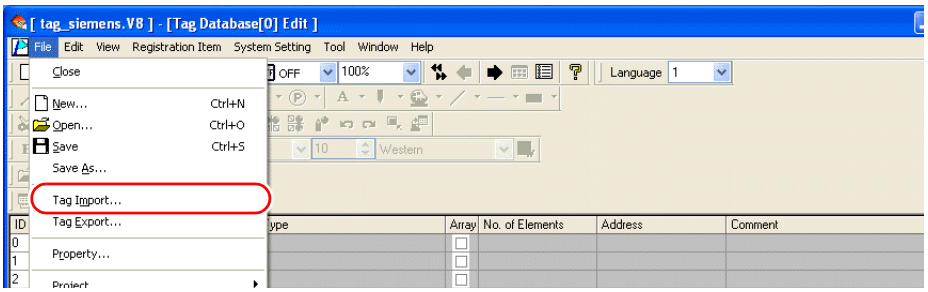
	A	B	C	D	E	F	G	H	I	J	K	L
1	DeviceA											
2	System Label Name	Label Name	Data Type	Constant	CPU Name	Project Name	Device	Attribute	Comment	Remark		
3	Count_Value1	Count_Value1	Word[Signed]		Q03UDECPU	ProjectA	D100	Global	MacroBlock_No.10			
4	Count_Value2	Count_Value2	Word[Unsigned]/Bit[16bit]		Q03UDECPU	ProjectA	D101	Global	MacroBlock_No.10			
5	Count_Value3	Count_Value3	Word[Unsigned]/Bit[16bit]		Q03UDECPU	ProjectA	D102	Global	MacroBlock_No.10			
6	High_Speed1	High_Speed1	FLOAT[Single Precision]		Q03UDECPU	ProjectA	R1000	Global	PV1			
7	High_Speed2	High_Speed2	FLOAT[Single Precision]		Q03UDECPU	ProjectA	R1002	Global	PV2			
8	Run1	Run1	Bit		Q03UDECPU	ProjectA	M0	Global	No.0_AutoRun			
9	Run2	Run2	Bit		Q03UDECPU	ProjectA	M1	Global	No.1_AutoRun			
10	Run3	Run3	Bit		Q03UDECPU	ProjectA	M2	Global	No.2_AutoRun			
11	Structure1	Structure1	Structure1		Q03UDECPU	ProjectA			Structure			
12	Structure1.Element1	Structure1	Word[Signed]		Q03UDECPU	ProjectA	D200		D200			
13	Structure1.Element2	Structure1	Word[Signed]		Q03UDECPU	ProjectA	D201		D201			
14	Structure1.Element3	Structure1	Word[Signed]		Q03UDECPU	ProjectA	D202		D202			
15												
16												
17												
18												
19												
20												

*** The data in the dotted frame specifies the structure. A structure name with a period is added to the top of each label name.**

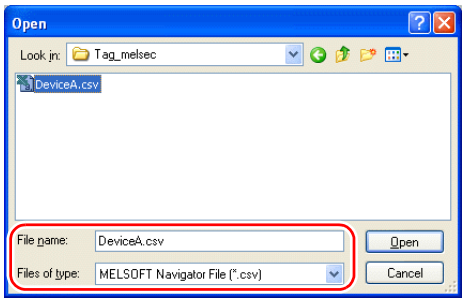


6. Start V-SFT and open screen data.
Click [Registration Item] → [Tag Database]. The [Tag Database Edit] window opens.

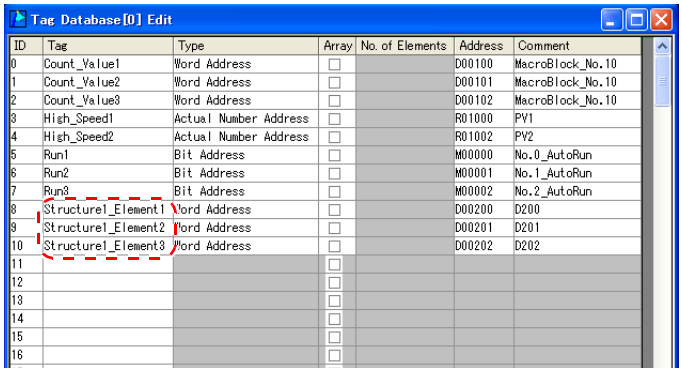
7. Click [File] → [Tag Import].



8. The [Open] dialog is displayed.
Select “MELSOFT Navigator File (*.csv)” for [Files of type].
Select the desired CSV file name (e.g., “DeviceA.csv”) and click [Open].



The contents in the file are registered as tags in the [Tag Database Edit] window. Types ([Type]) are specified for individual addresses.
The import procedure is complete.



ID	Tag	Type	Array	No. of Elements	Address	Comment
0	Count_Value1	Word Address			D00100	MacroBlock_No.10
1	Count_Value2	Word Address			D00101	MacroBlock_No.10
2	Count_Value3	Word Address			D00102	MacroBlock_No.10
3	High_Speed1	Actual Number Address			R01000	PV1
4	High_Speed2	Actual Number Address			R01002	PV2
5	Run1	Bit Address			M00000	No.0_AutoRun
6	Run2	Bit Address			M00001	No.1_AutoRun
7	Run3	Bit Address			M00002	No.2_AutoRun
8	Structure1_Element1	Word Address			D00200	D200
9	Structure1_Element2	Word Address			D00201	D201
10	Structure1_Element3	Word Address			D00202	D202
11						
12						
13						
14						
15						
16						

*** Periods "." cannot be used with tags. If any system label exported from MELSOFT Navigator includes a period, the period is converted to an underscore "_".**

Notes

Note the following for importing CSV files.

- If a file to be imported includes a tag that is already registered in V-SFT, the tag in V-SFT is overwritten. Unregistered tags are registered with ID numbers in blank rows (in the [Tag Database Edit] window).
- Only memory addresses available with V8 can be imported to V-SFT. For more information, refer to the V8 Series Connection Manual.

Siemens

Applicable PLC Models

Maker	Model	Page
Siemens	S7	page 24-26
	S7-300/400 MPI	
	S7-300/400 (Ethernet ISOTCP)	
	S7-300/400 (Ethernet TCP/IP PG protocol)	
	S7 PROFIBUS-DP	
	S7-200 PPI	page 24-31

*** Tags can be imported, provided that [PLC1] and [Connection Mode: 1:1] are set in the [Device Connection Setting] dialog ([System Setting] → [Device Connection Setting]). Tag import is not possible for [PLC2] and after.**

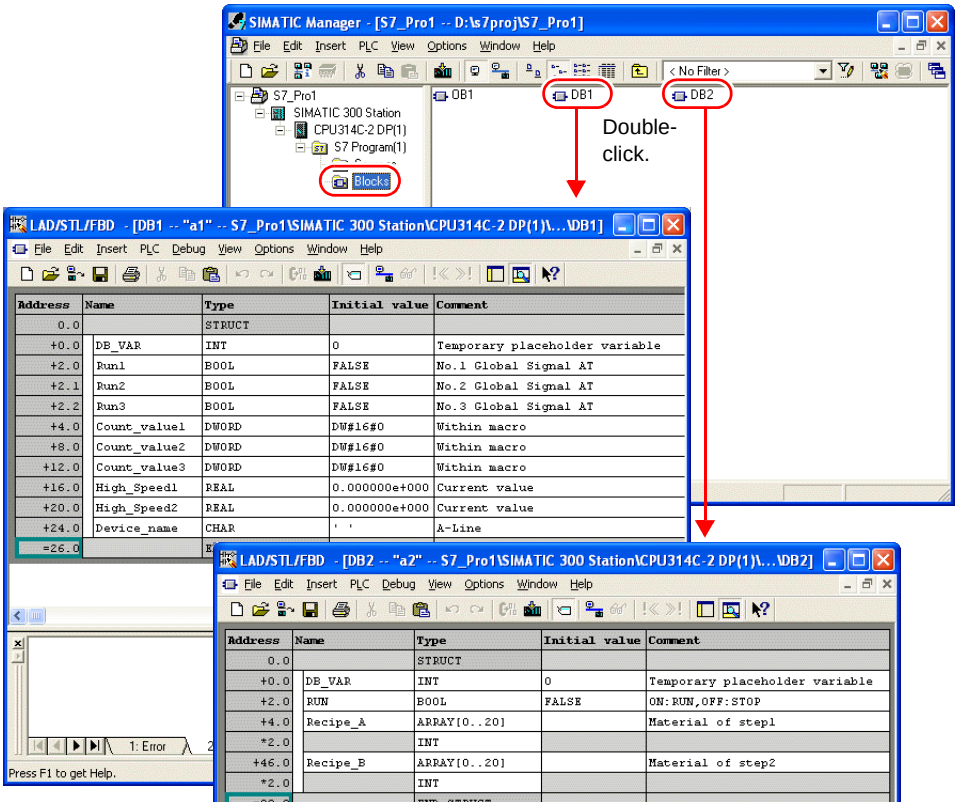
Model S7

When a project file (*.s7p) created in Siemens software “SIMATIC Manager (version 5.5 or 5.4)” is imported to V-SFT, names registered in data blocks “DBx” can be used as tags in V-SFT.

*** For PLC software usage, refer to the manual for the PLC.**

Procedure

This section describes the steps to import a project file (e.g., “test.s7p”), in which data blocks DB1 and DB2 are registered, to screen data.



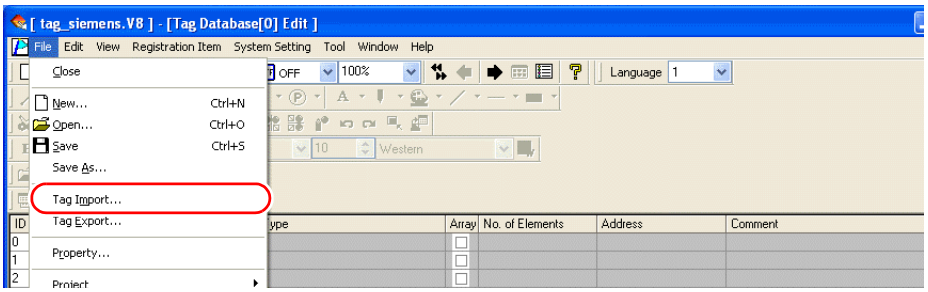
*** This table lists the types of data that can be imported to V-SFT and also the data types after import.**

Siemens “DBxx”		Data Type for Tags in V-SFT
Data Type	Data Length	
BOOL	1 bit	Bit address
BYTE*	1 byte	Word address
CHAR*	1 byte	
WORD	1 word	
S5TIME	1 word	
DATE	1 word	
INT	1 word	
DWORD	2 words	Double-word address
DINT	2 words	
TIME	2 words	
TIME_OF_DAY	2 words	
REAL	2 words	Real number address

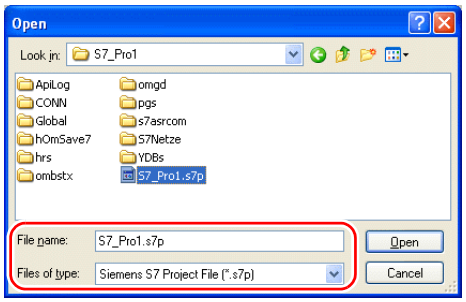
*** No other types of data can be imported to V-SFT.**
Data types BYTE and CHAR (bytes) are imported as word addresses.
If any odd bytes are registered ([Address]) in PLC software, the data cannot be imported to V-SFT.

1. Start V-SFT and open screen data.
   Click [Registration Item] → [Tag Database]. The [Tag Database Edit] window opens.

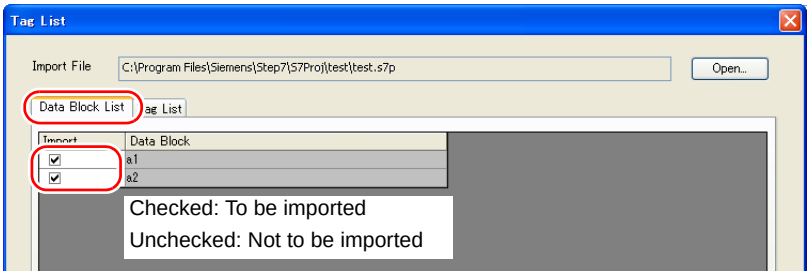
2. Click [File] → [Tag Import].



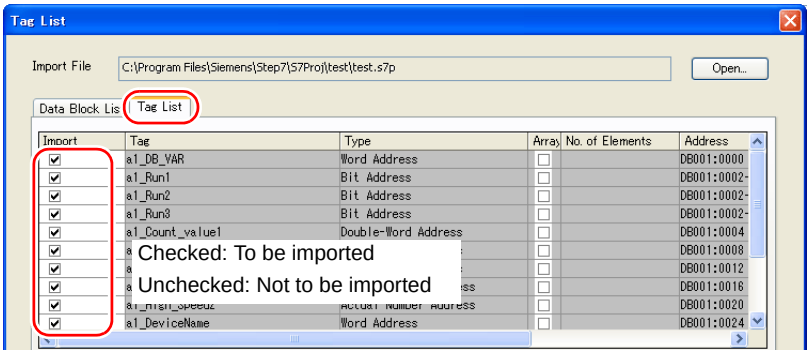
3. The [Open] dialog is displayed.
   Specify “Siemens S7 Project File (*.s7p)” for [Files of type].
   Select the desired project file (e.g., “test.s7p”) and click [Open].



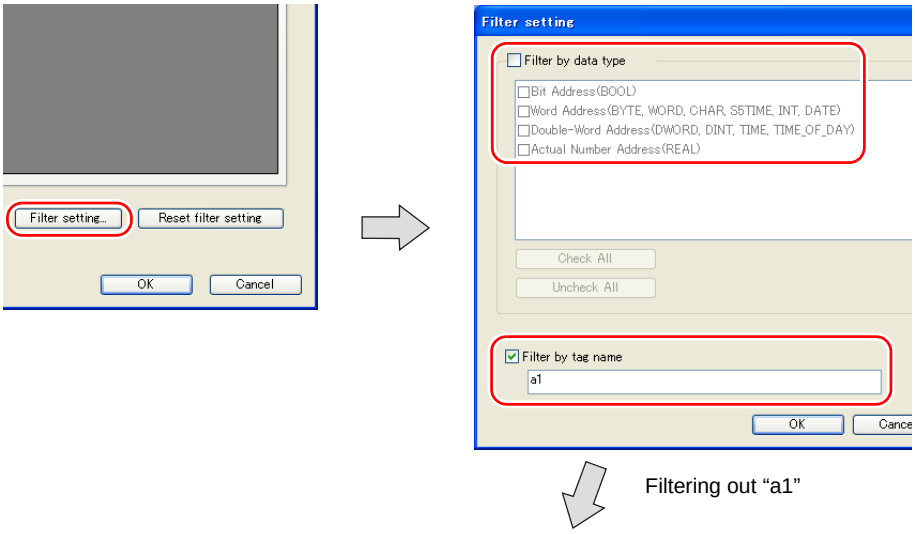
4. The [Tag List] dialog is displayed. Check the tags to import.
   - [Data Block List]: Displayed block by block (data block “DBx”)



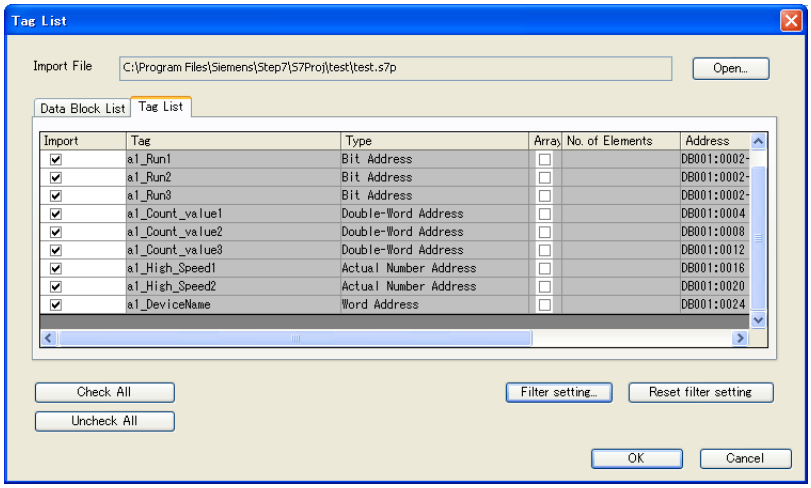
   - [Tag List]: All tags displayed



When specifying further search criteria, go to [Filter setting]. Only tags that match the specified data type, data block name, or tag name will be displayed in the [Tag List] dialog.



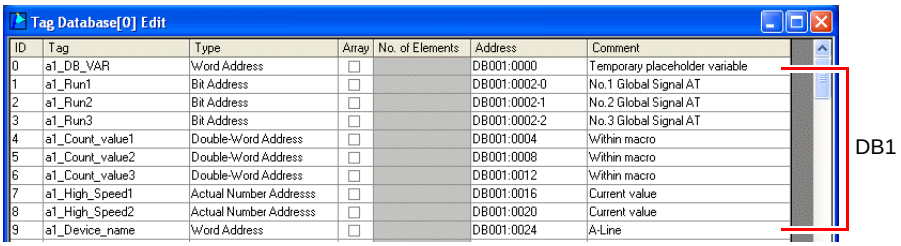
Filtering out “a1”



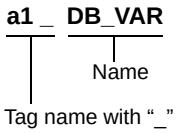
5. Click [OK].

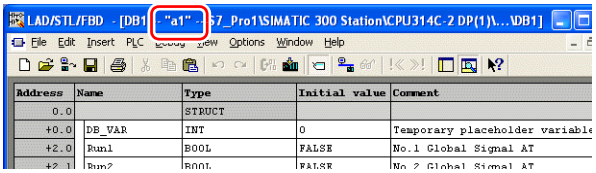
The contents in the file are registered as tags in the [Tag Database Edit] window. Types ([Type]) are specified for individual addresses.
The import procedure is complete.

Example: Only DB1 imported



*1 A tag name with an underscore "_" registered in a SIMATIC Manager data block (DBxx) is added to the top of each tag in V-SFT.





*2 No period "." can be used with tags. If a period is added to a tag, it is converted to an underscore "_".

Notes

Note the following for importing CSV files.

- File import is impossible if the OS of the computer is Windows 98SE, Windows NT 4.0, or Windows Me.
- If a file to be imported includes a tag that is already registered in V-SFT, the tag in V-SFT is overwritten. Unregistered tags are registered with ID numbers in blank rows (in the [Tag Database Edit] window).
- Memory addresses unavailable with V8 cannot be imported.
  For more information on memory addresses available with V8, refer to the V8 Series Connection Manual. Data types BYTE and CHAR (bytes) are imported as word addresses. If any odd bytes are registered ([Address]) in PLC software, the data cannot be imported to V-SFT.

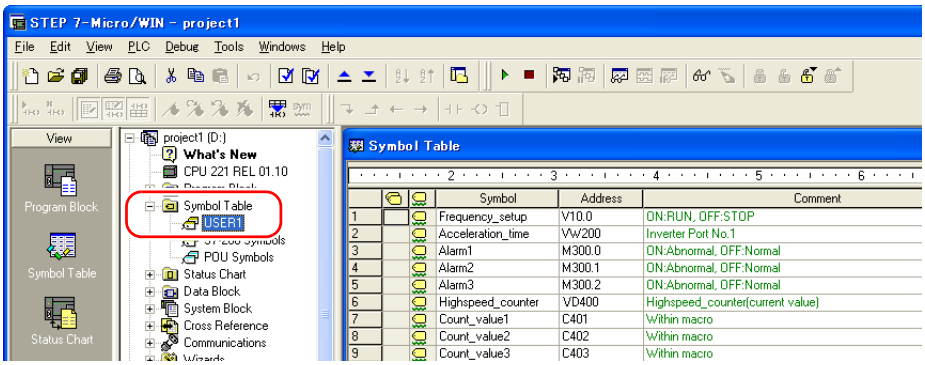
Model S7-200

When a CSV file copied from the Symbol Table in the software “SIMATIC STEP 7-Micro/WIN” for Siemens S7-200 is imported to V-SFT, the contents in the file can be used as tags.

*** For PLC software usage, refer to the manual for the PLC.**

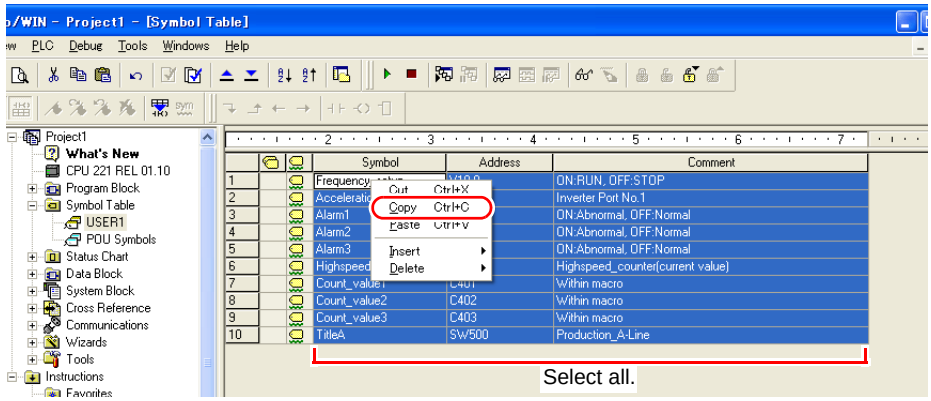
Procedure

1. Start the software “SIMATIC STEP 7-Micro/WIN” for Siemens S7-200.
2. Open [Symbol Table].

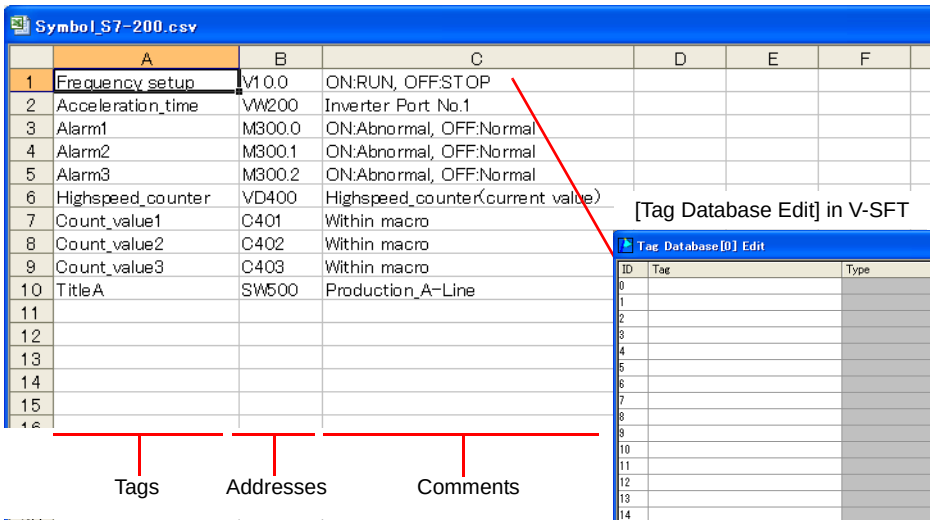


*** Only memory addresses available with V8 can be imported to V-SFT. For more information, refer to the V8 Series Connection Manual. Double-word addresses are imported as one-word addresses.**
Addresses: VD → VW, ID → IW, QD → QW, MD → MW, SMD → SMW, SD → SW

3. Select all columns under [Symbol], [Address], and [Comment]. Right-click and select [Copy] from the right-click menu.



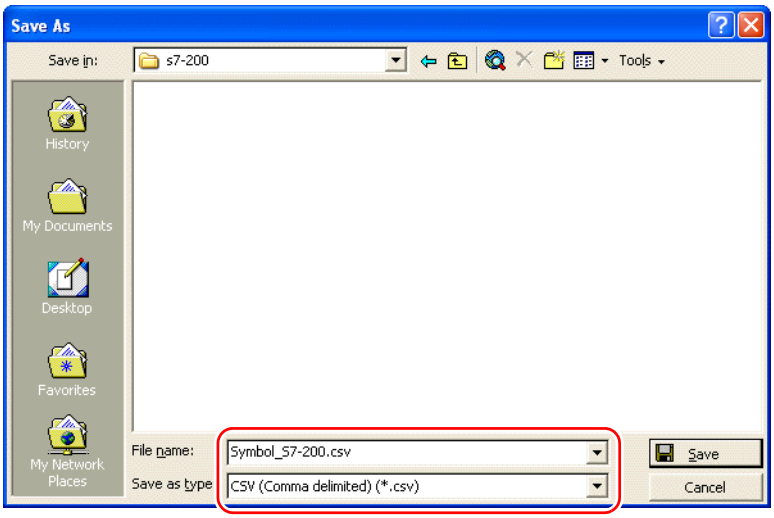
4. Start Excel. Paste the copied data to the worksheet from cell A1.



*** The first row on the Excel sheet corresponds to tag ID No. 0. The data on worksheets will be imported from the first row to the [Tag Database Edit] window (65536 maximum).**

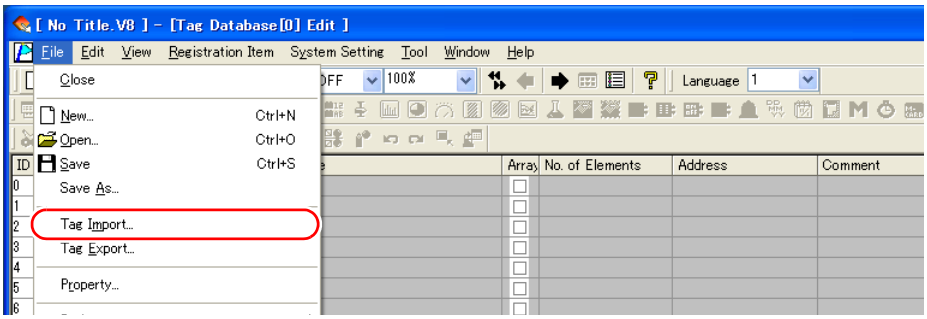
5. Click [File] → [Save As]. The [Save As] dialog is displayed.

6. Enter a file name. Select “CSV” for [Save as type] and click [Save].

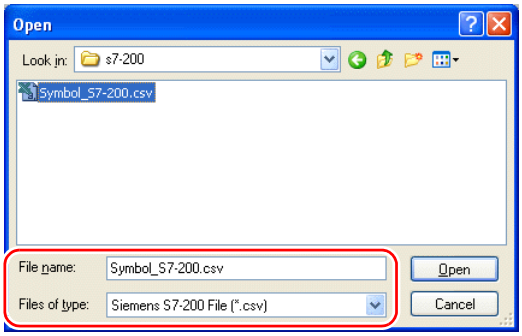


7. Open screen data.
Click [Registration Item] → [Tag Database]. The [Tag Database Edit] window opens.

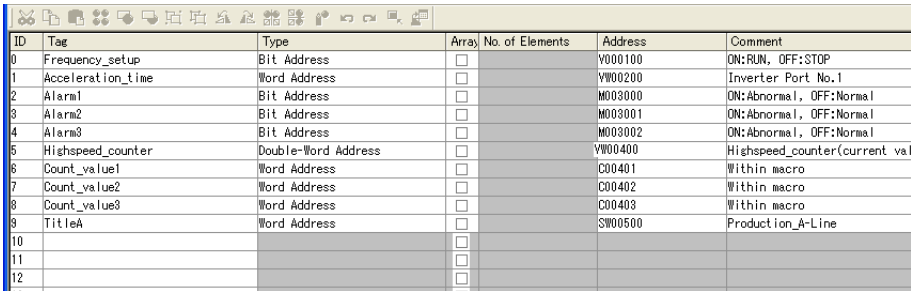
8. Click [File] → [Tag Import].



9. The [Open] dialog is displayed.
Select the CSV file saved in step 6. Specify “Siemens S7-200 File (*.csv)” for [Files of type] and click [Open].



The contents in the file are registered as tags in the [Tag Database Edit] window. Types ([Type]) are specified for individual addresses.
The import procedure is complete.



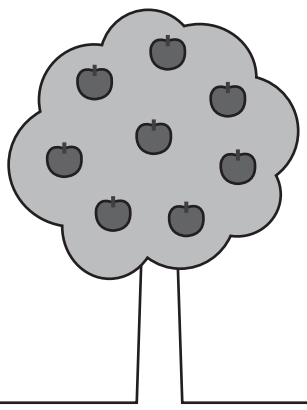
ID	Tag	Type	Array	No. of Elements	Address	Comment
0	Frequency_setup	Bit Address			V000100	ON:RUN, OFF:STOP
1	Acceleration_time	Word Address			VW00200	Inverter Port No.1
2	Alarm1	Bit Address			M003000	ON:Abnormal, OFF:Normal
3	Alarm2	Bit Address			M003001	ON:Abnormal, OFF:Normal
4	Alarm3	Bit Address			M003002	ON:Abnormal, OFF:Normal
5	Highspeed_counter	Double-Word Address			VW00400	Highspeed_counter(current val
6	Count_value1	Word Address			C00401	Within macro
7	Count_value2	Word Address			C00402	Within macro
8	Count_value3	Word Address			C00403	Within macro
9	TitleA	Word Address			SW00500	Production_A-Line
10						
11						
12						

Notes

Note the following for importing CSV files.

- IDs that already have tags are overwritten with the imported data.
- Memory addresses unavailable with V8 cannot be imported. If such a memory address is included, the row is displayed as a blank space.
For more information on memory addresses available with V8, refer to the V8 Series Connection Manual. Double-word addresses are imported as one-word addresses.
Addresses: VD → VW, ID → IW, QD → QW, MD → MW, SMD→ SMW, SD → SW

MEMO



Please use this page freely.

25 Edit Tool

25.1 Jump to the Target Screen

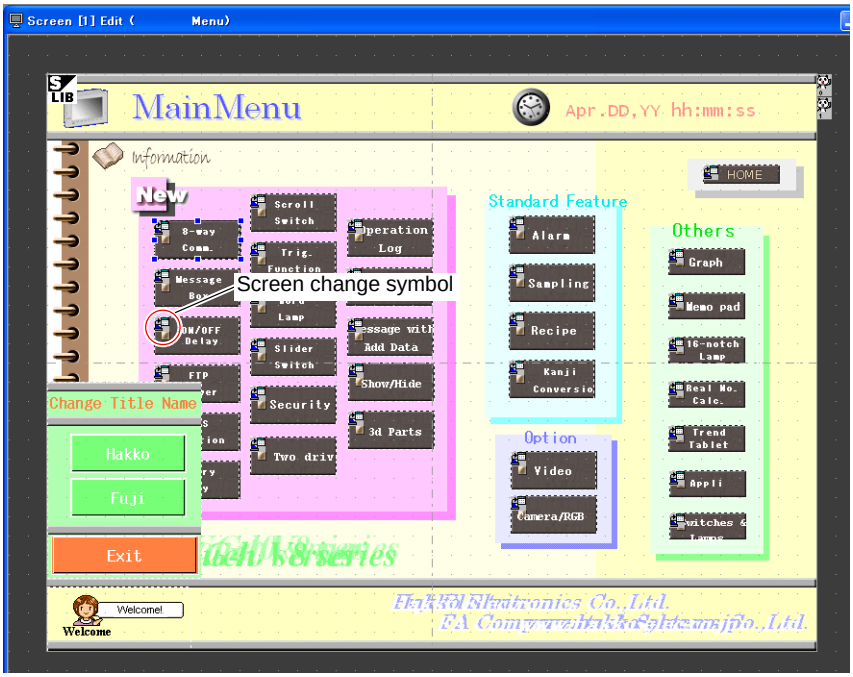
Overview

When [Function: Screen] is specified for a switch you create, you need to open the target screen of the switch in the editor software for confirmation.
With the jump function discussed below, you can open the target screen easily using the icon in the [Switch] dialog or on the toolbar. Moreover, such a switch is marked with the screen change symbol for you to recognize it at a glance.

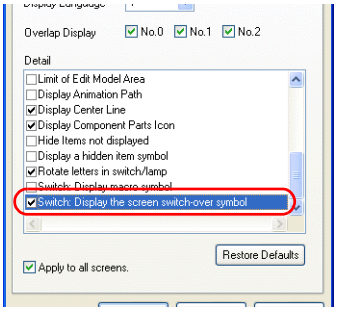
Procedure

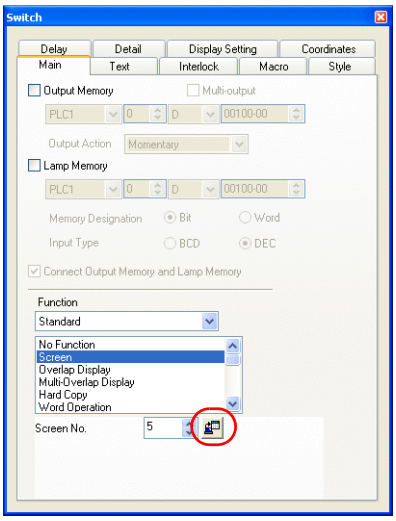
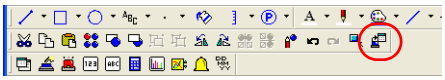
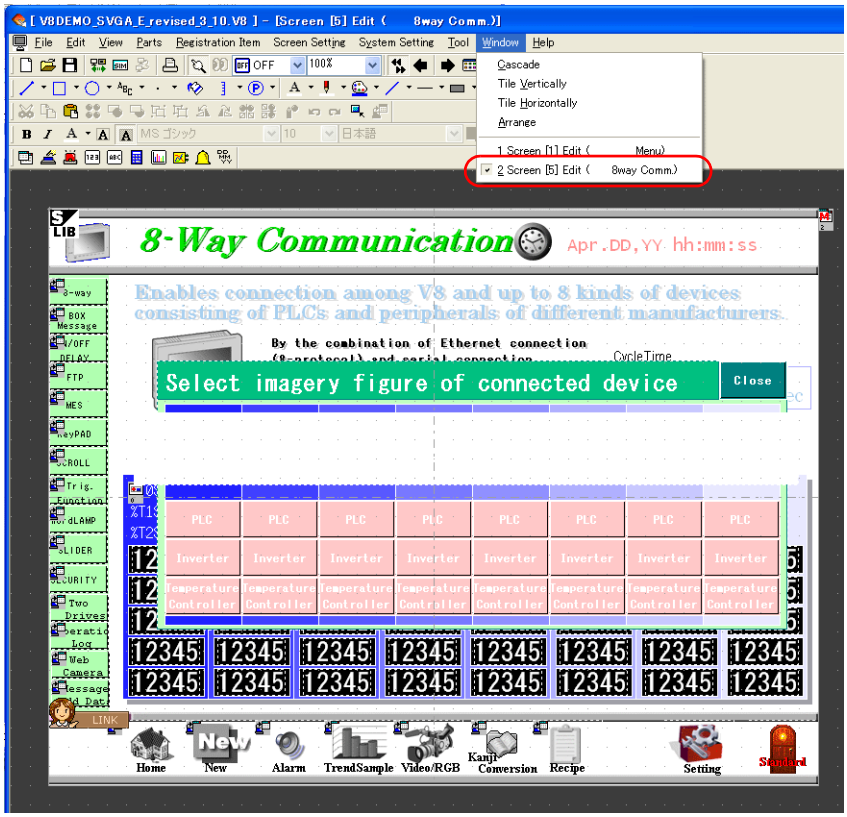
This section describes the procedure for using a switch placed on screen No. 1 to bring up its target screen No. 5.

Step 1	Select the appropriate switch ([Function: Screen]).



* **Display of the screen change symbol**
Click [View] → [Display Environment]. In the [Display] tab window, click [☑Switch: Display the screen switch-over symbol]. As a result, only the [Function: Screen] switches are marked with the symbol.



Step 2	Click the icon to jump to the target screen. [Switch] dialog  or Edit toolbar  *** If the toolbar does not include the icon, go to [Tool] → [Customize] → [Edit] and add the icon. For how to add an icon, refer to the V8 Series Operation Manual.**
Step 3	Screen No. 5 is opened. (Screen No. 1 is also still open.) 

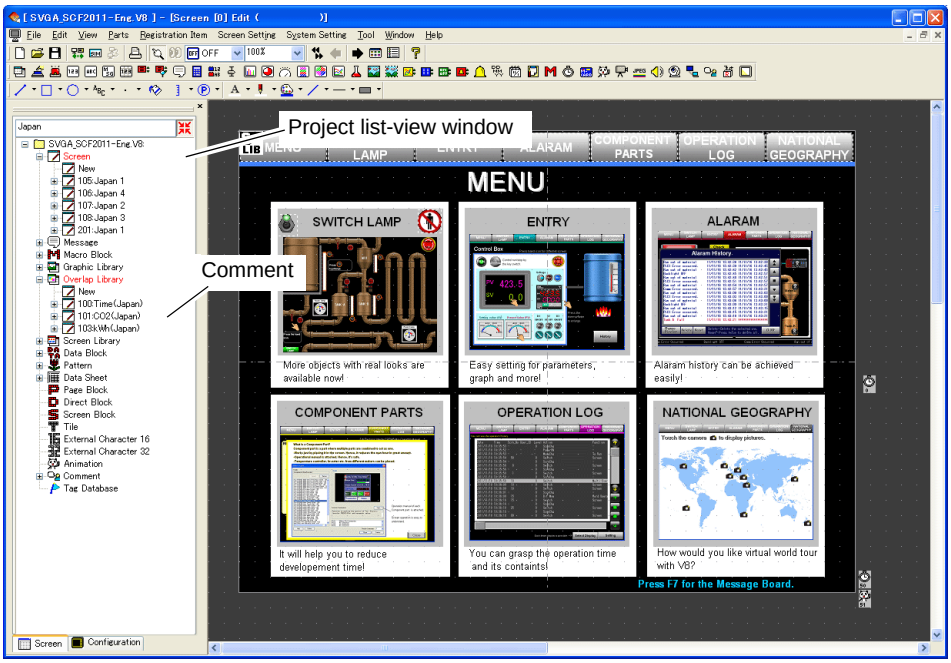
25.2 Refined Search Filter for Project List-view Window

Overview

On the project list-view window, the displayed items can be narrowed down by specifying a comment as a filter.

Since partial match retrieval is possible, the desired item can easily be retrieved even if a large number of items are registered.

Example: When “Japan” is specified:



Target Items

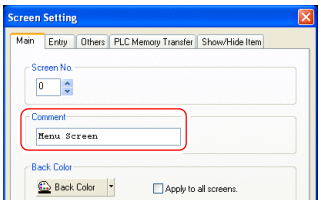
- Screen
- Macro block
- Graphic library
- Overlap library
- Screen library
- Data block
- Pattern
- Data sheet

Comments can be set as shown below.

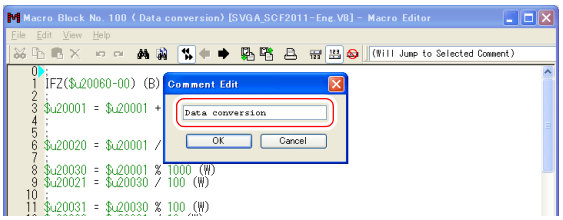
- Screen*, graphic library, overlap library, screen library, data block, pattern and data sheet
  Setting position: [View] → [Screen List]

For screen

* A comment can also be set on the [Main] tab window displayed by selecting [Screen Setting] → [Screen Setting].



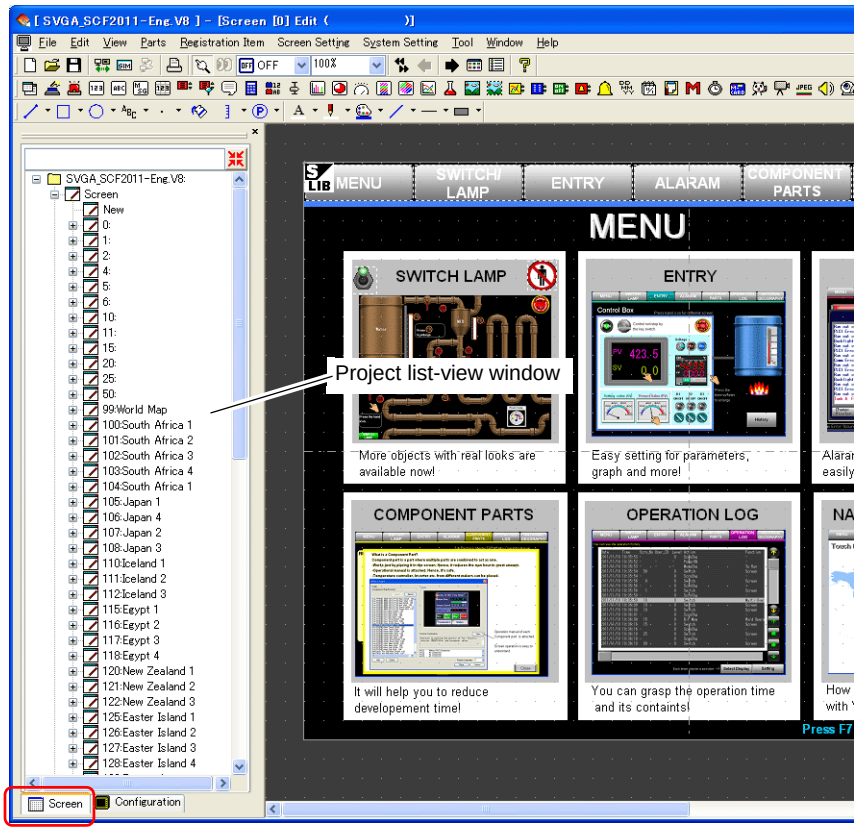
- Macro block
  Setting position: [Edit] → [Edit Comment]

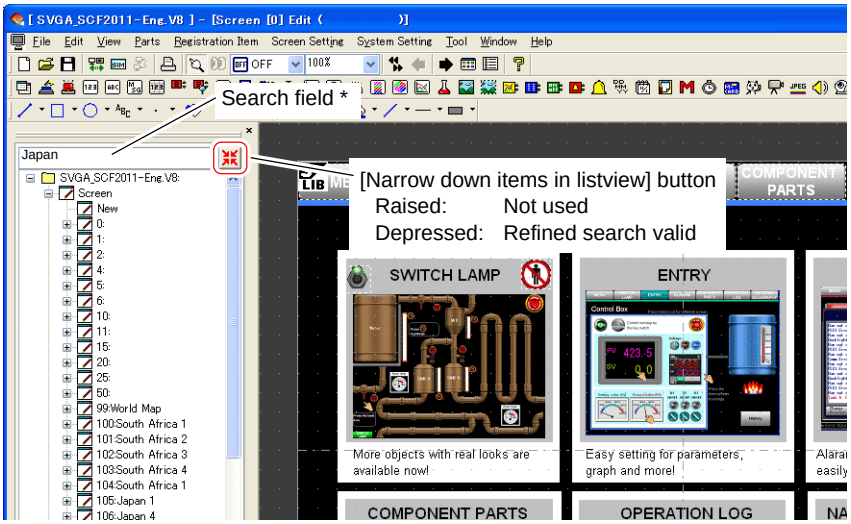
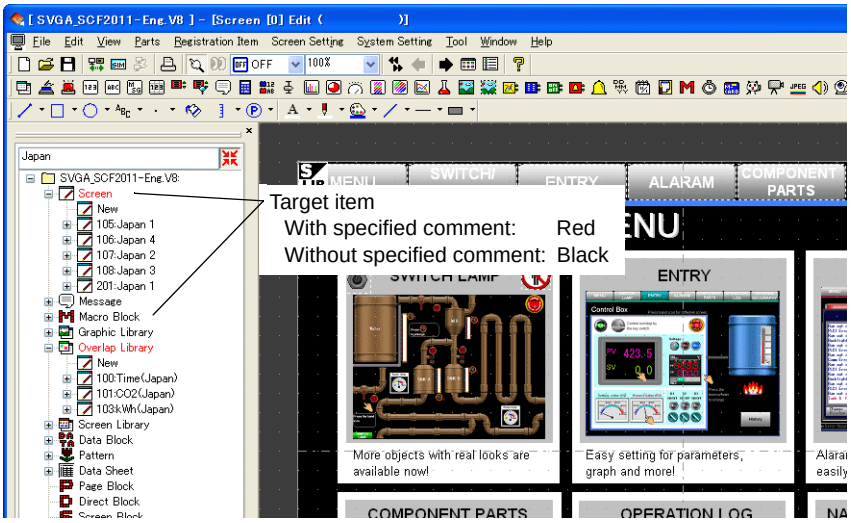


Procedure

This section describes the procedure for narrowing down the displayed part items to those which include “Japan” as their comments.

*** The project list-view window can be displayed by clicking [View] → [View] → [Project View]. For more information, refer to the V8 Series Operation Manual.**

Step 1	Open the [Screen] tab window on the project list-view window. The number of registered screens and the relevant comments can be viewed in a tree-structured list. 

Step 2	Enter “Japan” in the search field and press the [Narrow down items in listview] button.  *** A maximum of 16 one-byte characters (8 two-byte characters) can be set. Characters are distinguished between one-byte and two-byte. If no word is specified in the search field, part items with no comment registered are retrieved.**
Step 3	Parts to which the refined search filter is applied* are displayed in red, and part items are narrowed down to those which include “Japan” as their comments.  *** To display all the registered part items, click the [+] mark at the left.**

25.3 Memory Batch Change

Overview

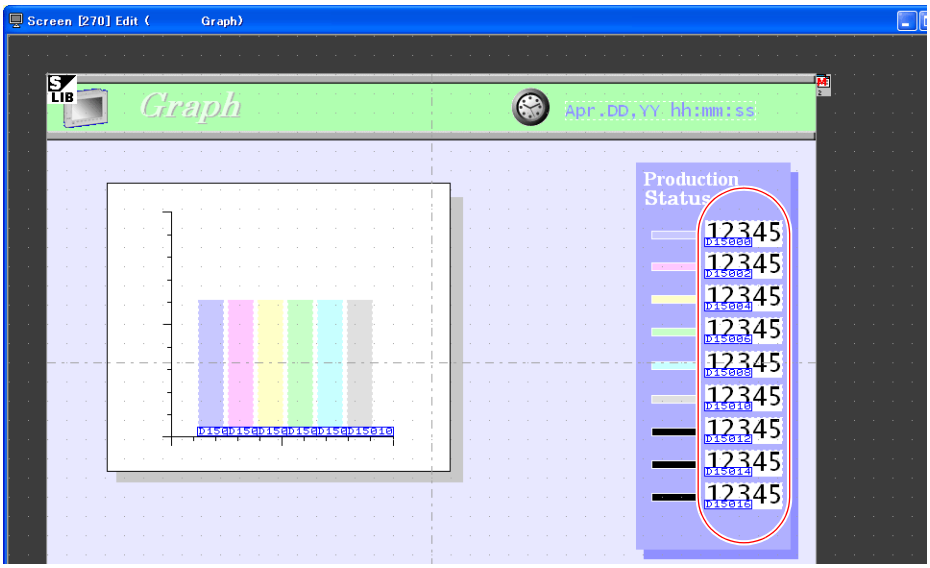
As for memory addresses assigned to a screen you are editing, they are changeable to different memory locations in a batch.
In addition to [Memory Designation], the option [Memory Count Designation] is now available to designate memory locations.

Procedure

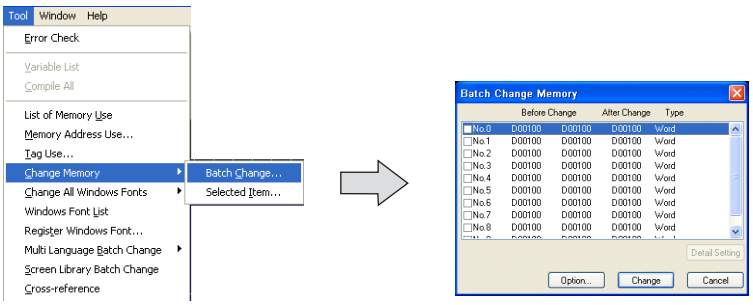
The procedure is explained with an example shown below.

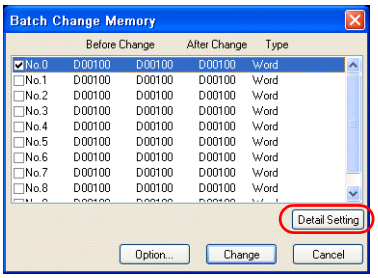
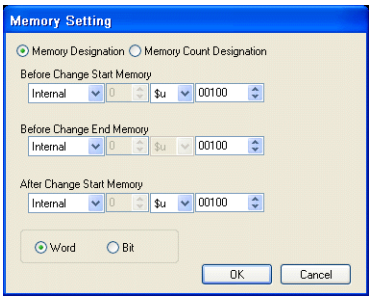
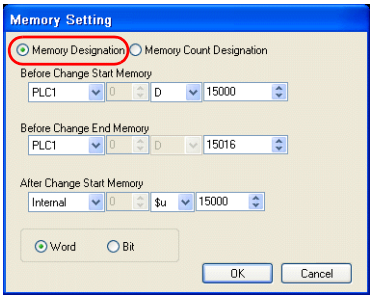
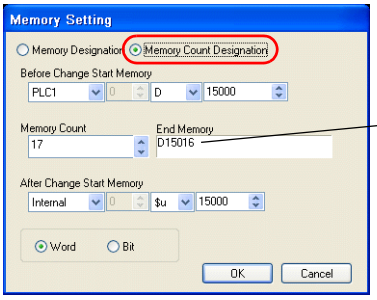
Numerical data display

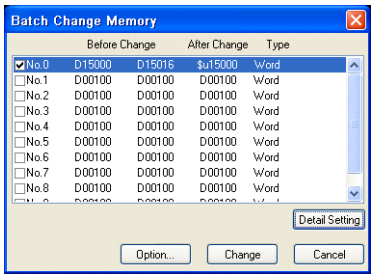
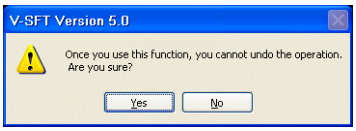
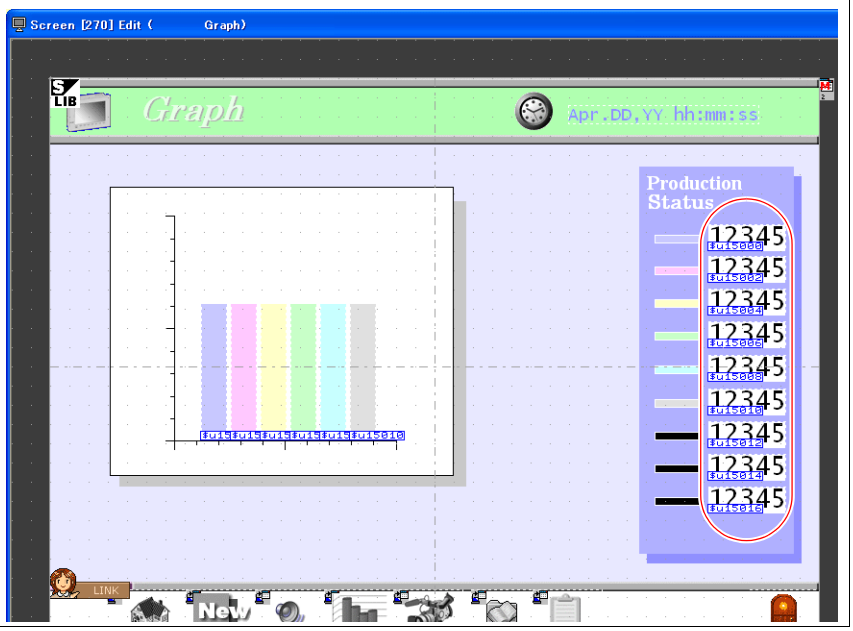
PLC1 memory		Internal memory
D15000 - D15016	→	$u15000 - $u15016



Step 1	Click [Tool] → [Change Memory] → [Batch Change]. The [Batch Change Memory] dialog is displayed.



Step 2	Check [No. 0] and click the [Detail Setting] button.  *** For more information on the [Option] button, refer to the V8 Series Operation Manual.**
Step 3	The [Memory Setting] dialog is displayed. 
Step 4	Check either [Memory Designation] or [Memory Count Designation] as desired. Specify memory locations in the following fields of [Before Change] and [After Change]. • [Memory Designation] checked:  • [Memory Count Designation] checked:  The [End Memory] location is displayed according to the value of [Memory Count] you set.
Step 5	Click [OK].

Step 6	Review the memory locations of [Before Change] and [After Change] at No. 0. Click the [Change] button. 
Step 7	The message dialog is displayed. Click the [Yes] button. 
Step 8	According your change, memory addresses $u15000 - $u15016 are now used on the screen. 

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25.4 Selection Order Batch Change

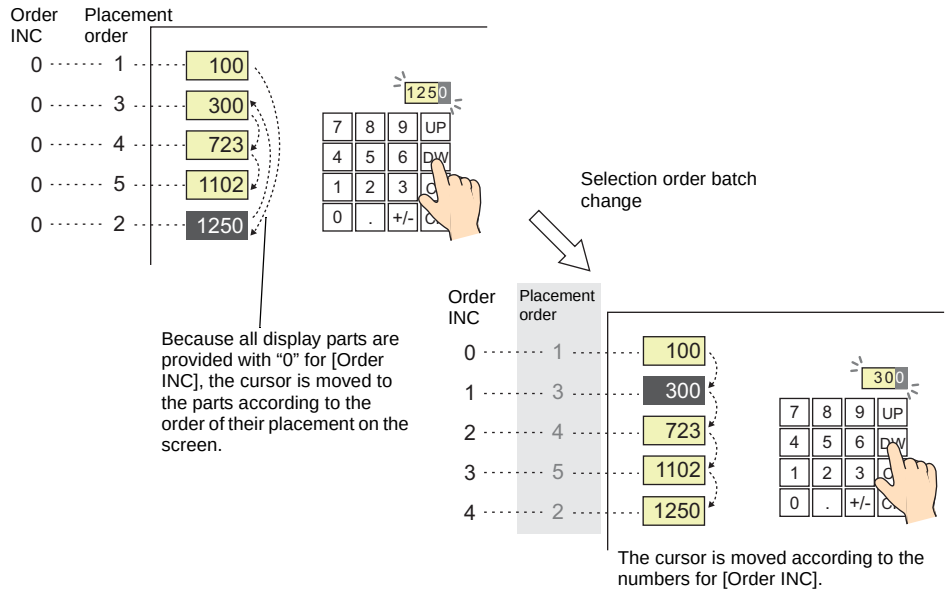
Overview

When numerical data or character display parts in the entry mode are placed on the screen, the cursor will be moved to these parts according to the selection order numbers ([Order INC]) allocated to the parts. If these display parts are the same in [Order INC], the cursor movement order depends on the sequence of part placement during screen creation.

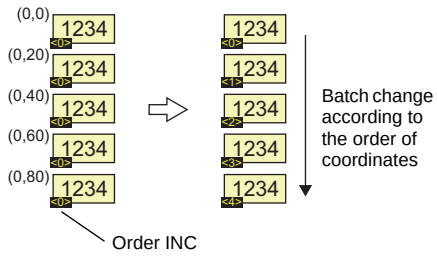
With the function of selection order batch change explained in this section, the selection orders of display parts can be changed in a batch according to the order of coordinates (or placement).

Selection order batch change is also possible according to the order of mouse clicking.

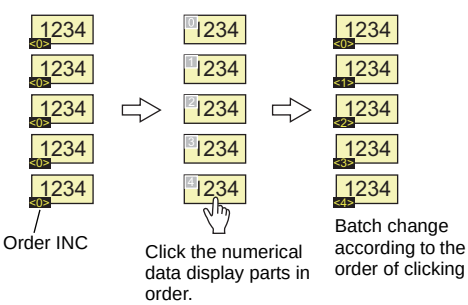
Example: Change the cursor movement out of order to descending order.



- Order of coordinates "↓"



- Order specified with mouse



*** [Order INC] can be set to the order of placement. For more information on the procedure, refer to "Automatic Allocation: Placement Order" (page 25-16).**

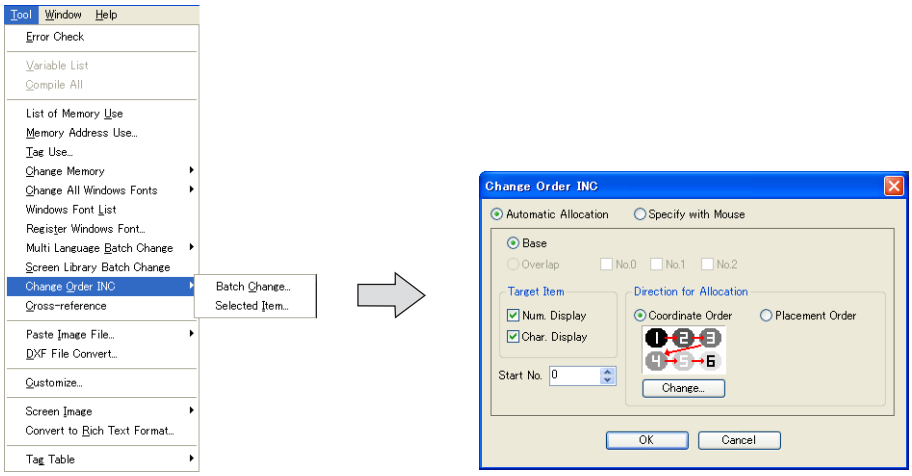
Applicable Items

- Numerical data display (Function: Entry Target)
- Character display (Function: Entry Target)

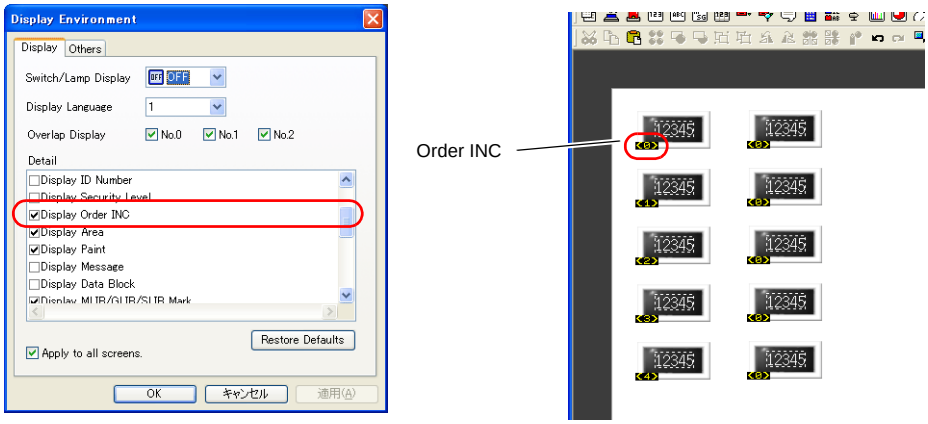
Setting

Location for Setting

Click [Tool] → [Change Order INC] → [Batch Change] or [Selected Item].
If there is no numerical data or character display part ([Function: Entry Target]), the message “Target item is not registered.” appears.

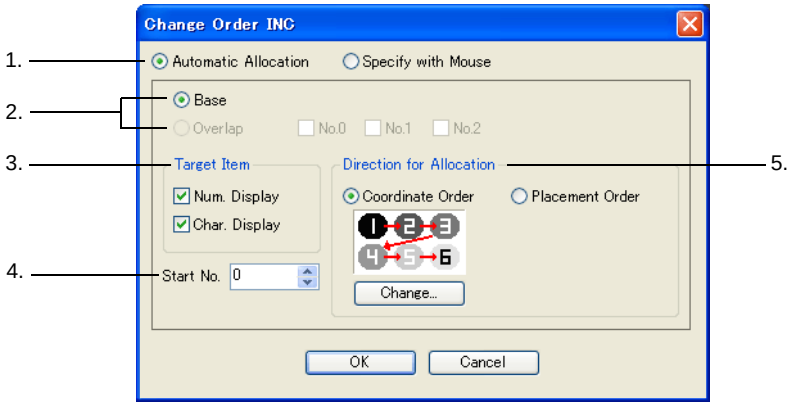


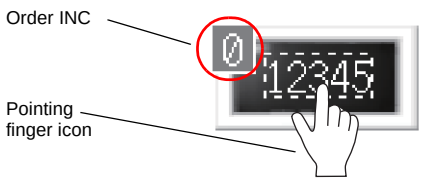
*** To see the selection order currently set for the display parts, click [View] → [Display Environment] → [Display]. In the [Display] tab window, check [☑ Display Order INC]. Order numbers are displayed in yellow at the bottom-left corners of the individual display parts.**

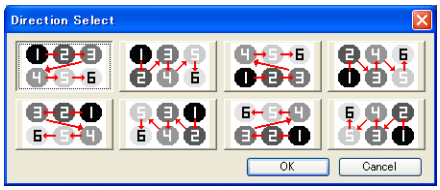
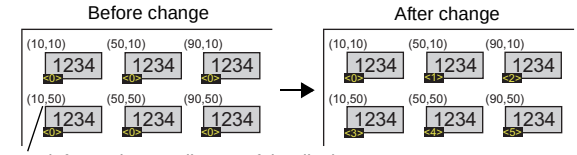


Setting Items

[Change Order INC] dialog



1. Automatic Allocation/ Specify with Mouse	Automatic Allocation Check this option when changing the selection order numbers in a batch according to [Direction for Allocation] explained in “5.” Specify with Mouse Check this option when changing the selection order numbers according to the order in which you click the display parts. The window for order setting is to be displayed for [Specify with Mouse]. In the window, pointing a numerical data or character display part ([Function: Entry Target]) with a mouse changes the cursor pointer to a pointing finger icon. 
2. Base/Overlap	Base Display parts placed on the screen being edited are targeted for selection order change. Overlap Display parts placed on the overlap of the checked ID are targeted for selection order change.
3. Target Item ☐Num. Display ☐Char. Display	Check your desired option.
4. Start No.	Specify the first number of the selection order. Order numbers starting from the number specified here will be allocated.

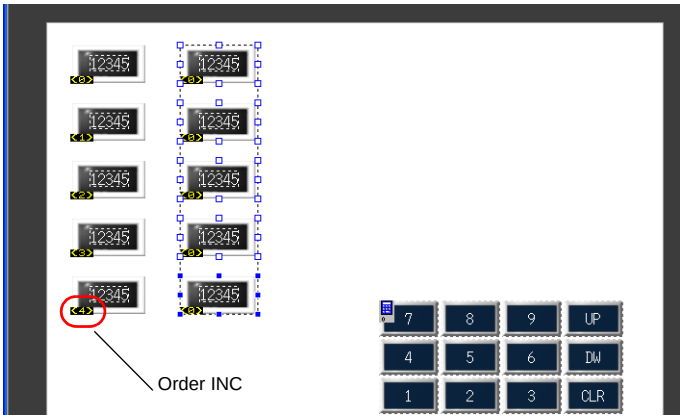
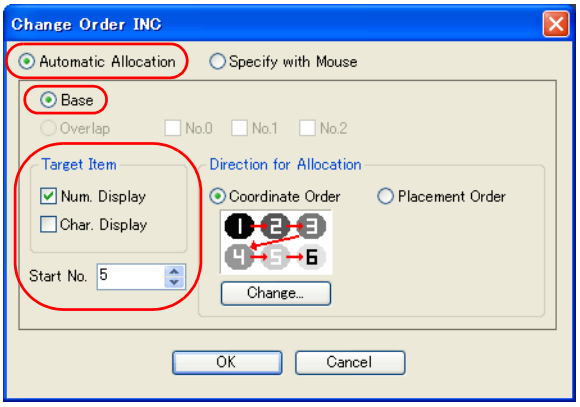
5. Direction for Allocation	This setting is valid when [Automatic Allocation] (“1”) is selected. Coordinate Order Selection order is determined based on the top-left coordinates of the display parts. You may select a different direction through the [Change] button.  Example: Start No. 0, Direction → (to the right)  Top-left x and y coordinates of the display part Placement Order Selection order is determined based on the order in which display parts were placed on the screen.

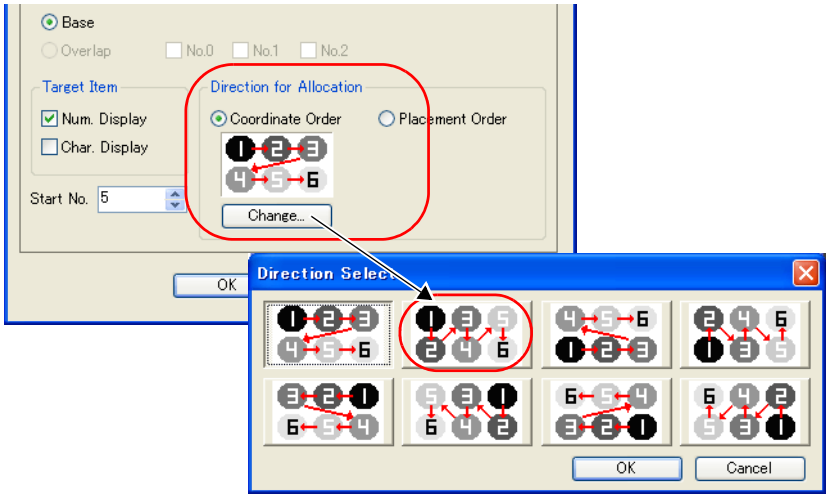
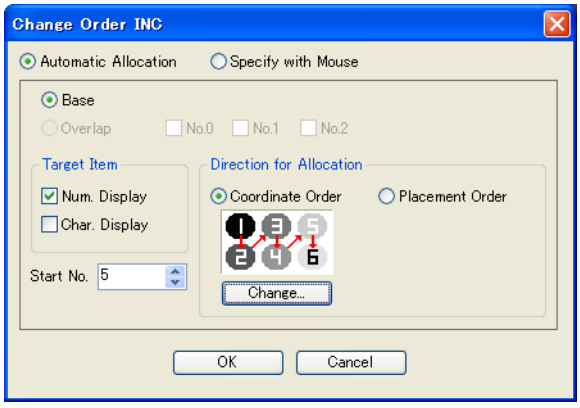
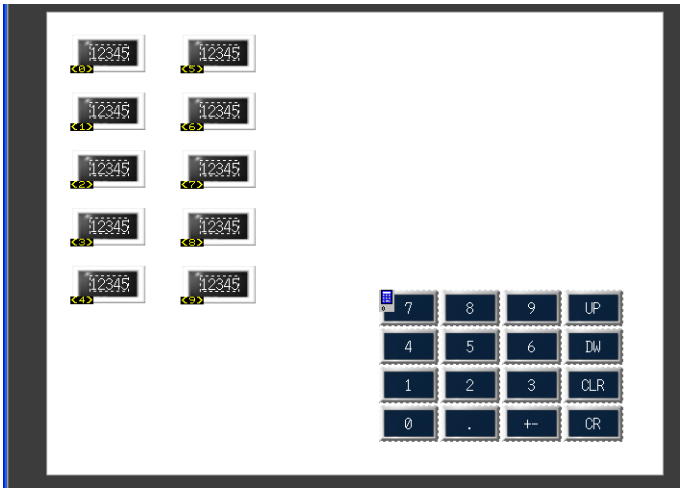
Order Change Procedure

Automatic Allocation: Coordinate Order

The procedure is explained with an example shown below.

- Target Item: Num. Display
- Direction for Allocation: Downward "↓"
- Start No.: 5

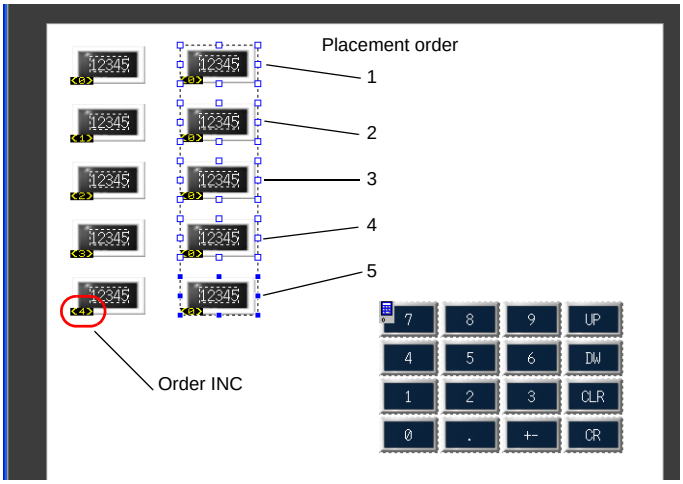
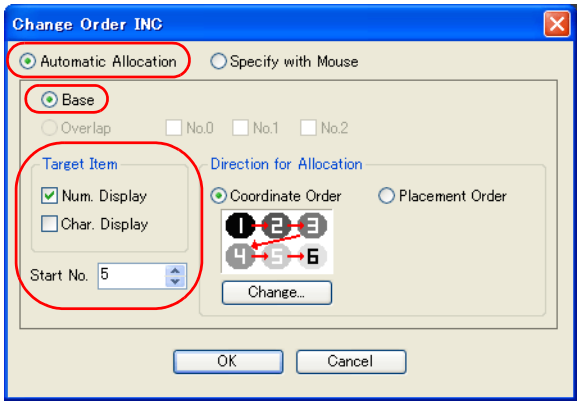
Step 1	Select five numerical data display parts for selection order change. 
Step 2	Click [Tool] → [Change Order INC].
Step 3	Click [Selected Item].
Step 4	The [Change Order INC] dialog is displayed. Set as shown below: 

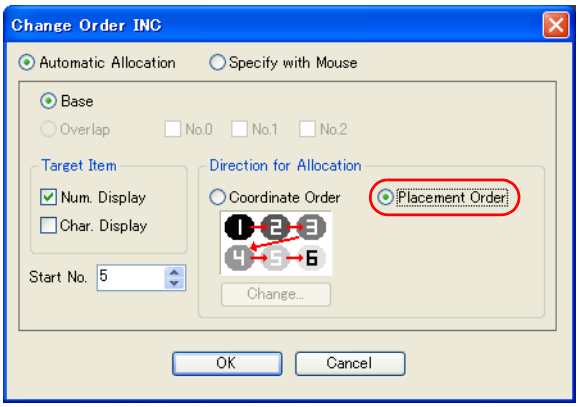
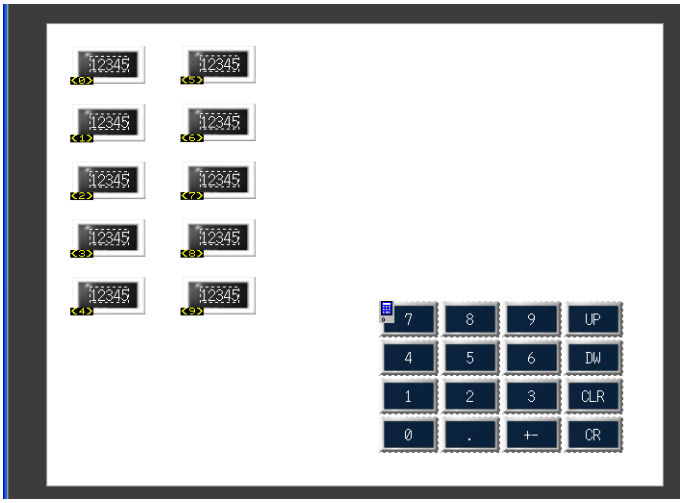
Step 5	Select [Coordinate Order] for [Direction for Allocation]. Go to the [Direction Select] dialog through the [Change] button. Select the downward direction "↓". 
Step 6	Review the settings made in the previous steps, and click [OK]. 
Step 7	Order numbers are allocated to the display parts based on the order of coordinates.  The necessary settings have been completed.

Automatic Allocation: Placement Order

The procedure is explained with an example shown below.

- Target Item: Num. Display
- Start No.: 5

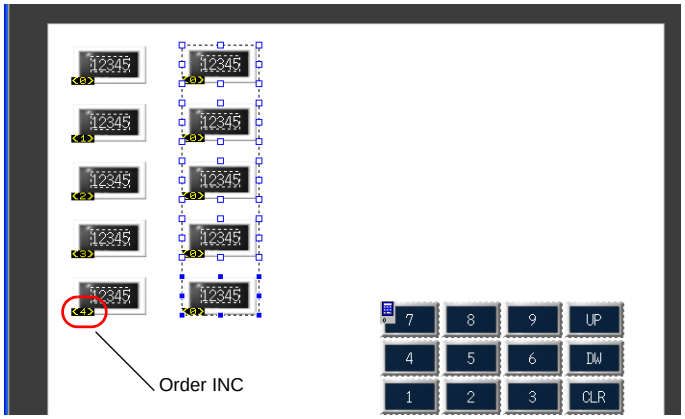
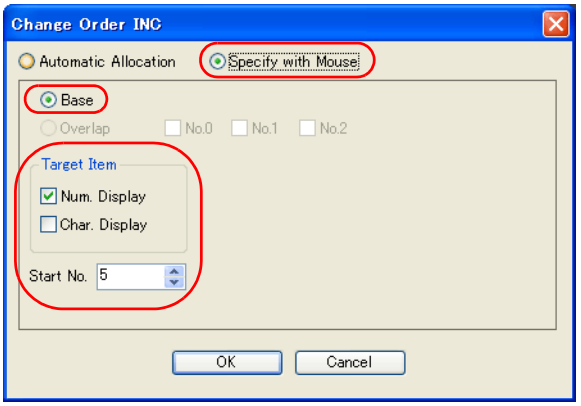
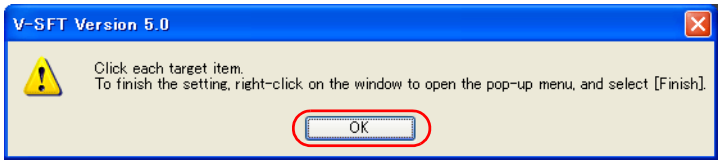
Step 1	Select five numerical data display parts for selection order change. 
Step 2	Click [Tool] → [Change Order INC].
Step 3	Click [Selected Item].
Step 4	The [Change Order INC] dialog is displayed. Set as shown below: 

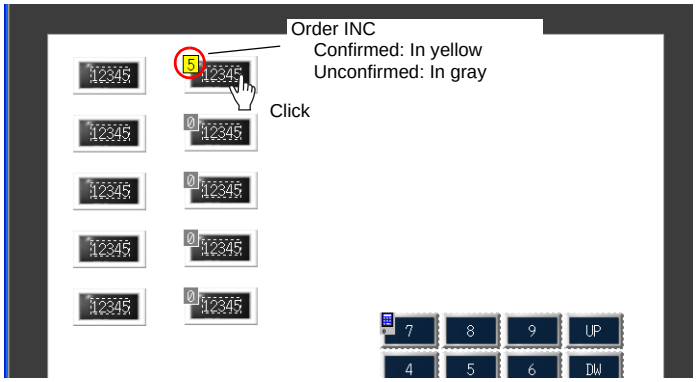
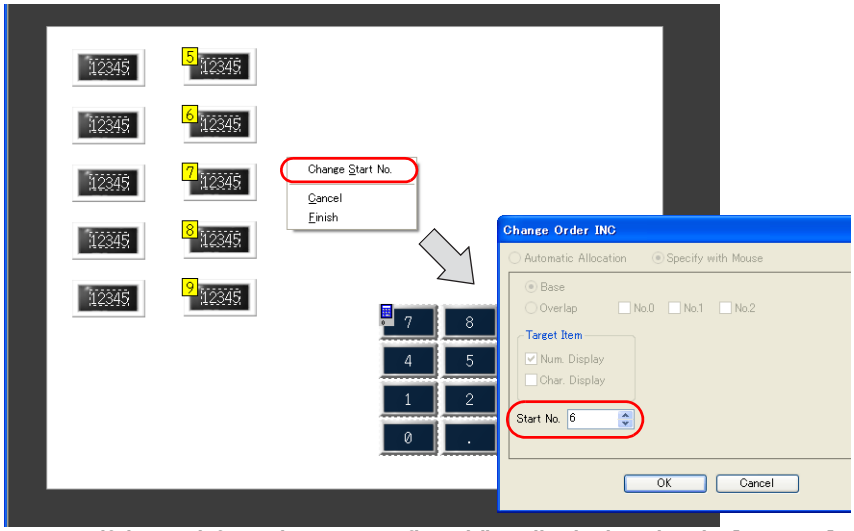
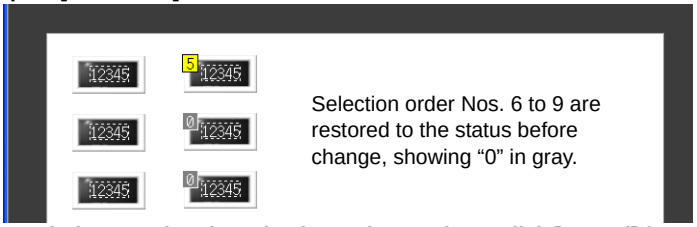
Step 5	Select [Placement Order] for [Direction for Allocation]. 
Step 6	Review the settings made in the previous steps, and click [OK].
Step 7	Order numbers are allocated to the display parts based on the order of placement.  The necessary settings have been completed.

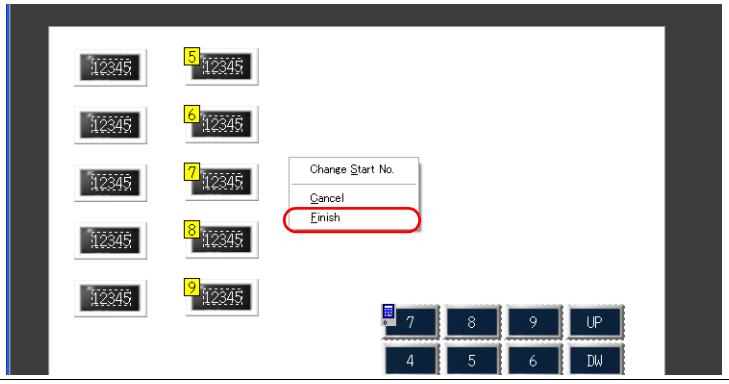
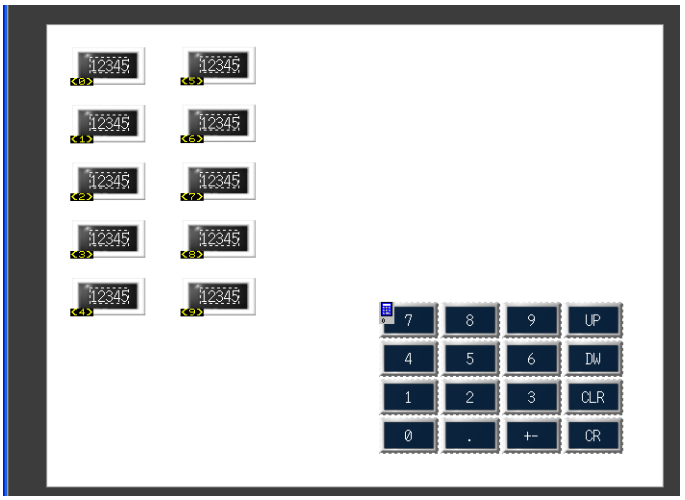
Specify with Mouse

The procedure is explained with an example shown below.

- Target Item: Num. Display
- Start No.: 5

Step 1	Select five numerical data display parts for selection order change. 
Step 2	Click [Tool] → [Change Order INC].
Step 3	Click [Selected Item].
Step 4	The [Change Order INC] dialog is displayed. Set as shown below: 
Step 5	Review the settings made in the previous step, and click [OK].
Step 6	The message dialog is displayed. Click [OK]. 

Step 7	The following window is displayed.* Selection order numbers appear at the top-left corners of the numerical data display parts ([Function: Entry Target]). Click the numerical data display parts one by one to set their order numbers. Once an order number has been set at the top-left corner of a data display part, the number turns yellow.  *** This window is provided solely for setting selection order numbers of display parts. To exit, select [Finish] or [Cancel] from the right-click menu.**
Step 8	When changing the start number of selection order, select [Change Start No.] from the right-click menu. Select your desired number for [Start No.] and click [OK]. Now order numbers starting from the newly specified number are allocated.*  *** Even if the top-left numbers are confirmed (in yellow), changing the [Start No.] restores the numbers starting from [Star No.] to the unconfirmed status (in gray).** **Example: [Start No. 6]**  **When entirely re-setting the selection order numbers, click [Cancel] from the right-click menu. Perform the previous steps again from step 1.**

Step 9	When the selection order setting you have made is OK, click [Finish] from the right-click menu. (To cancel the changes to the selection order, click [Cancel].) 
Step 10	Order numbers are allocated to the display parts according to the settings you made.  The necessary settings have been completed.

25.5 Cross-reference and Macro Command Search

Overview

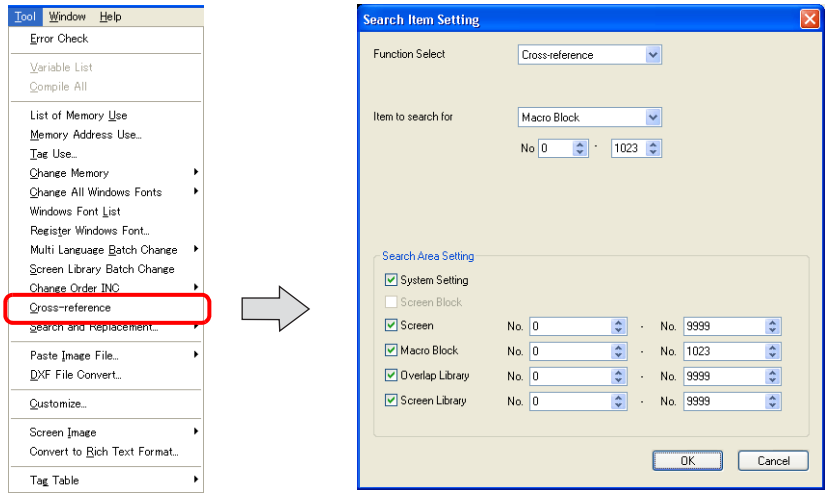
- Cross-reference
  In a case where there is an attempt to edit the screen data created by another operator, it is important to first understand the configuration of the screen data.
  For dealing with screen data including macro blocks, for example, it would be time-consuming to find where these macro blocks exist one by one because macro blocks may be set in areas other than those on the screen.
  Cross-referencing, however, will make it easy to find where the target macro block number is set and to call up the area to the screen.
- Macro command search
  Search for specified macro commands is also possible. The ability to search for multiple macro commands at a time will save time for editing.

Setting

Location for Setting

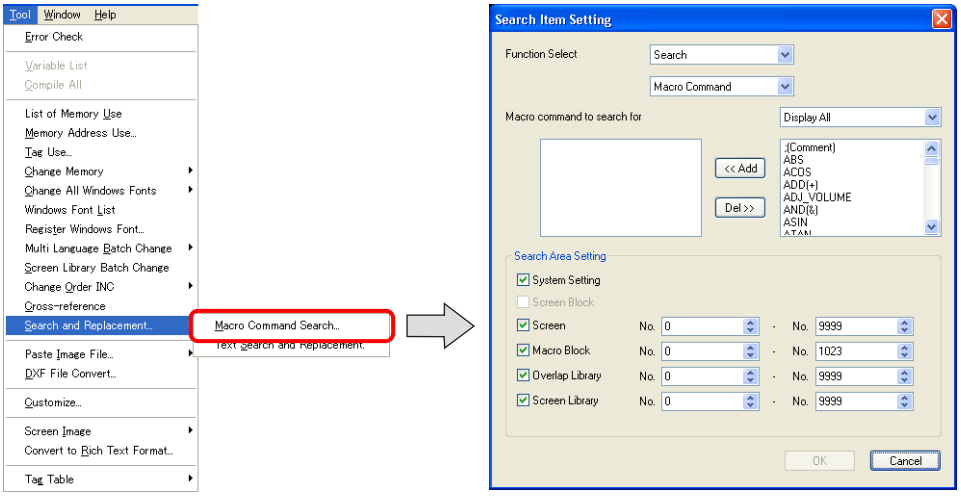
Cross-reference

Click [Tool] → [Cross-reference].



Macro command search

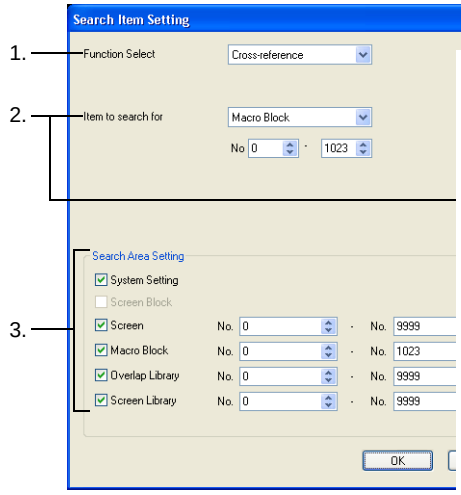
Click [Tool] → [Search and Replacement] → [Macro Command Search].



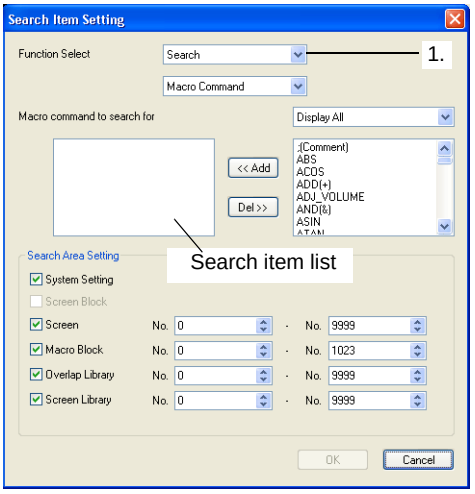
Setting Items

[Search Item Setting] dialog

[Function Select: Cross-reference]



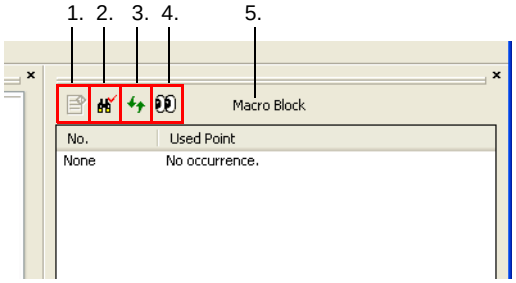
[Function Select: Search]



1. Function Select	[Cross-reference] The screen data is searched for the item specified as [Item to search for] and the result is displayed in a list form. [Search] The screen data is searched for the specified macro command and the result is displayed in a list form.

<table>
<tr><td>2. Item to search for/Macro command to search for</td><td>• [Function Select: Cross-reference]
Specify the item and its range being searched.
• Macro block
• Screen
• Overlap library
• Screen library
• [Function Select: Search]
Specify the macro command(s) you wish to search for.<table><tr><td>Add</td><td>Use this button to add macro command(s) selected from the list to the search item list.</td></tr><tr><td>Del</td><td>Use this button to delete macro command(s) from the search item list.</td></tr></table></td></tr>
<tr><td>3. Search Area Setting</td><td>The areas you specified will be searched for target items.</td></tr>
</table>

Search result list: [Cross-reference] view or [Macro Command Search] view

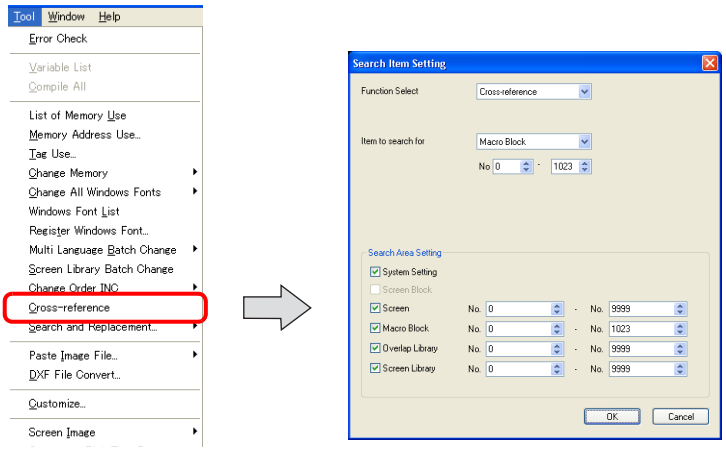
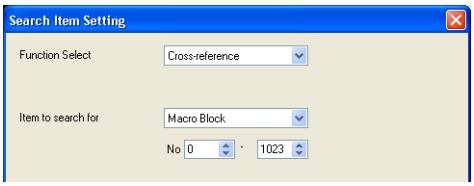
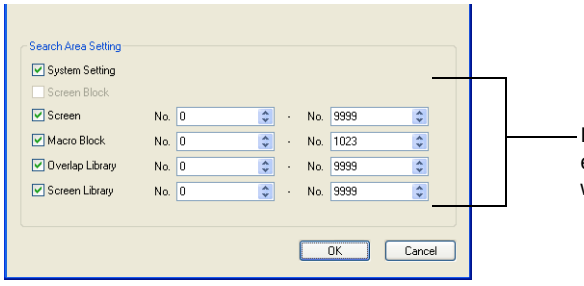


1. Display Only Top	When an item targeted for search is used in multiple areas, only the first area is displayed.
2. Search Item Setting	The [Search Item Setting] dialog is displayed. Another search may be performed through the icon.
3. Update	The display is updated.
4. VIEW JUMP	A jump is made to the area where the selected item is included.
5. Item for search	The item being searched for is displayed. Nothing is displayed during search for macro commands.

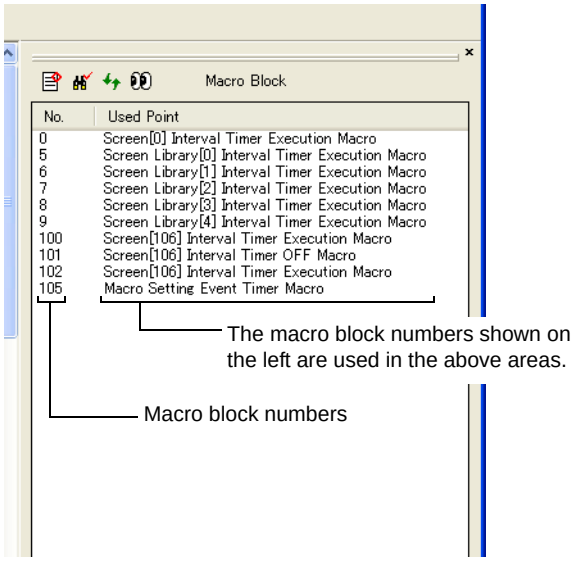
Procedure

Cross-reference

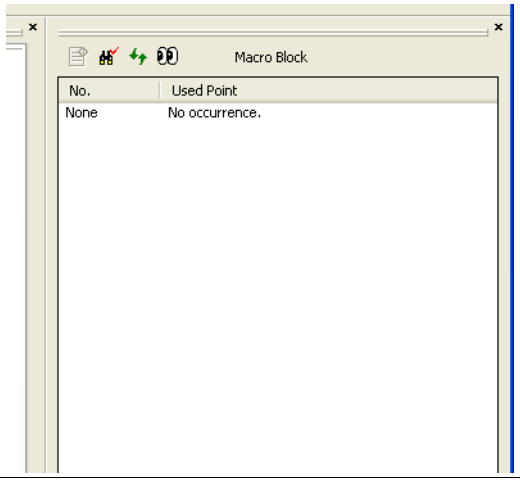
This section explains how to locate the areas where certain macro blocks are used.

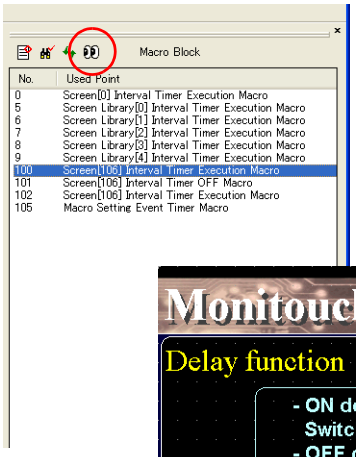
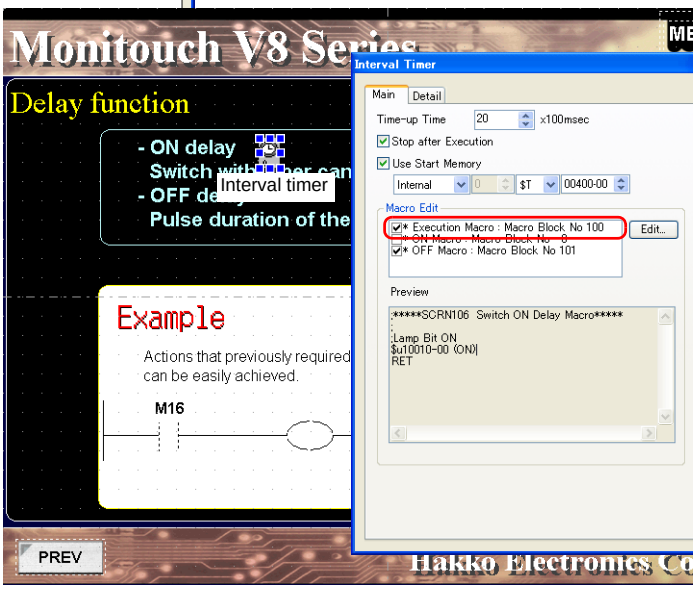
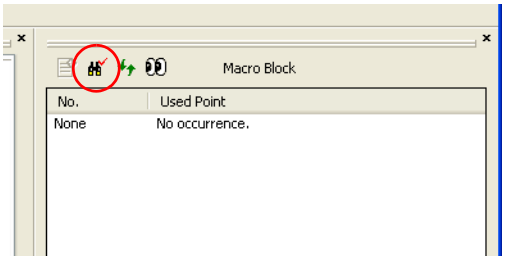
Step 1	Click [Tool] → [Cross-reference]. The [Search Item Setting] dialog is displayed. 
Step 2	Select options as [Function Select: Cross-reference] and [Item to search for: Macro Block]. Example: Searching for the areas where macro block Nos. 0 to 1023 are set 
Step 3	Check all the checkboxes under [Search Area Setting], and enter numbers to designate the ranges where the search takes place. Review the settings made, and click [OK]. 

Step 4	The [Cross-reference] view lists the macro block numbers that fit the search criteria and the areas where the macro blocks are used.



* When nothing is found, “None / No occurrence.” appears.

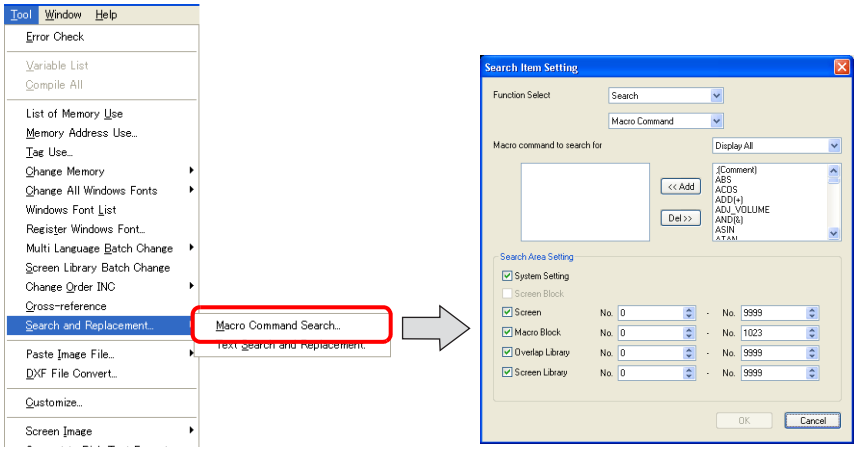


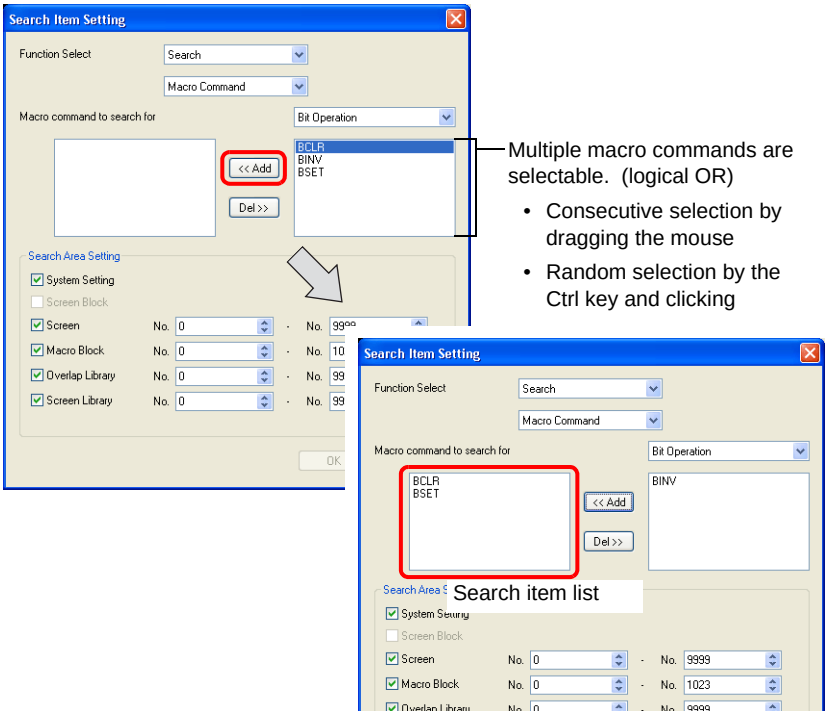
Step 5	In the [Cross-reference] view, double-click the desired item, or select an item and click the [VIEW JUMP] icon. A jump is made to the area where the above-selected item is included. The dialog of the item is also displayed.*  Double-click or click the [VIEW JUMP] icon. A jump to screen No. 106 is made. The [Interval Timer] dialog is displayed.*  * The item dialog is not displayed when [Prohibit Item View Display by Single Click] is selected in the [General] tab window that is displayed by selecting [File] → [Property].
Step 6	The necessary settings have been completed. For re-search, click the [Search Item Setting] icon and follow steps 2 through 4. 

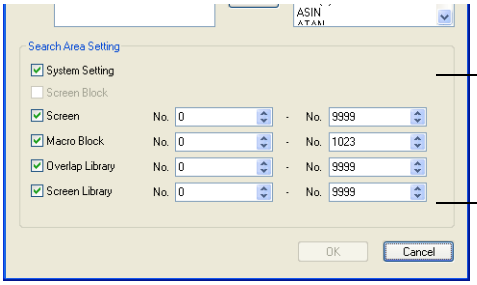
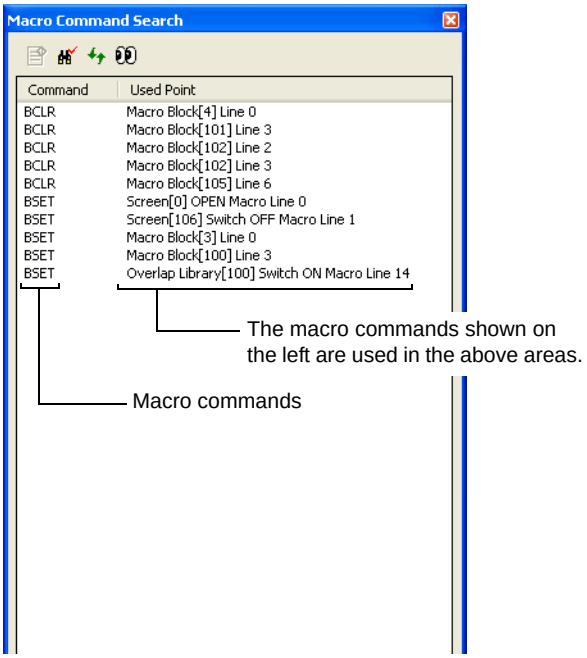
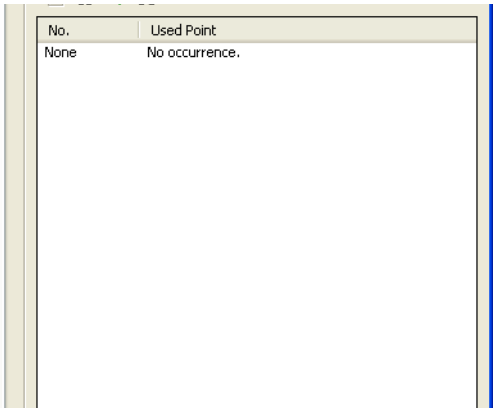
Macro command search

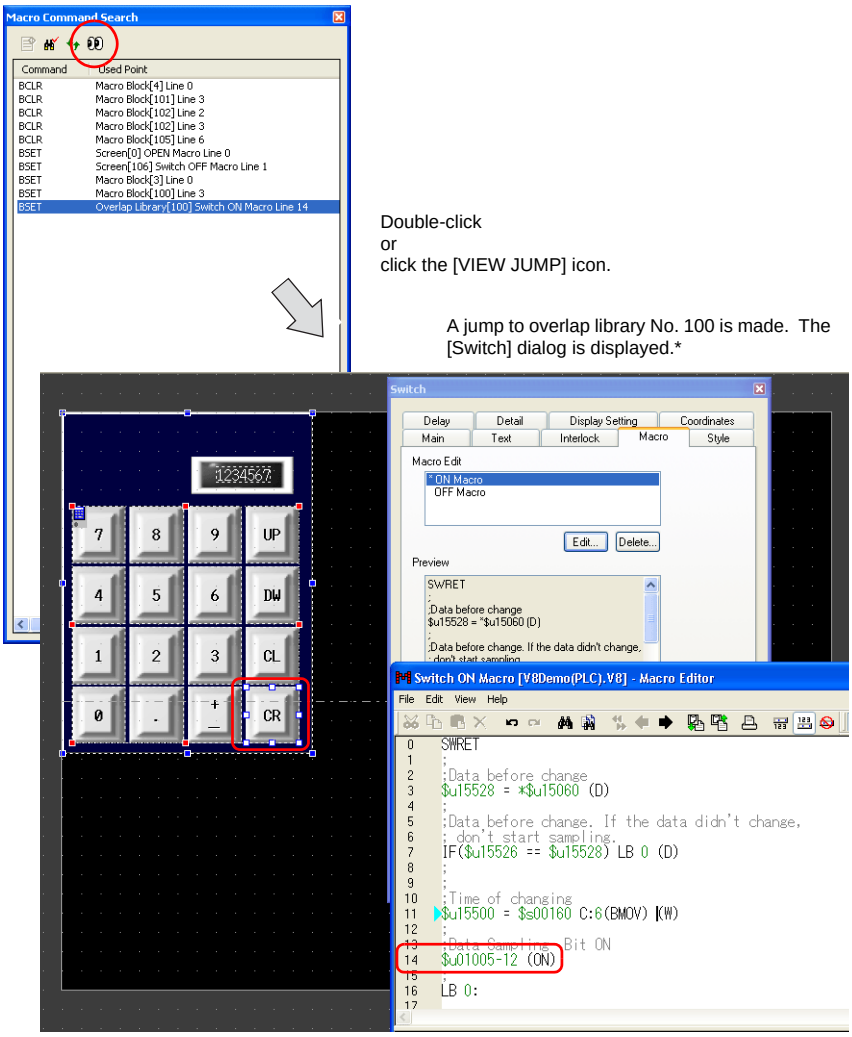
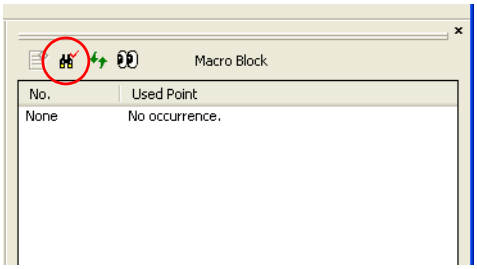
This section explains how to locate the areas where the macro commands “BSET” and “BCLR” (bit setting and resetting) are used.

Step 1	Click [Tool] → [Search and Replacement] → [Macro Command Search]. The [Search Item Setting] dialog is displayed.
Step 2	Select [Bit Operation]. In the category of [Bit Operation], select [BCLR] and [BSET] and click the [Add] button. These commands are added to the search item list (up to 20 pcs).





Step 3	Check all the checkboxes under [Search Area Setting], and enter numbers to designate the ranges where the search takes place. Review the settings made, and click [OK]. 
Step 4	The [Macro Command Search] view lists the areas where the macro commands “BSET” and “BCLR” are used.  * When nothing is found, “None / No occurrence.” appears. 

Step 5	In the [Macro Command Search] view, double-click the desired item, or select an item and click the [VIEW JUMP] icon. A jump is made to the area where the above-selected item is included. The dialog of the item is also displayed.*  * The item dialog is not displayed when [Prohibit Item View Display by Single Click] is selected in the [General] tab window that is displayed by selecting [File] → [Property].
Step 6	The necessary settings have been completed. For re-search, click the [Search Item Setting] icon and follow steps 2 through 4. 

25.6 Text Search and Replacement

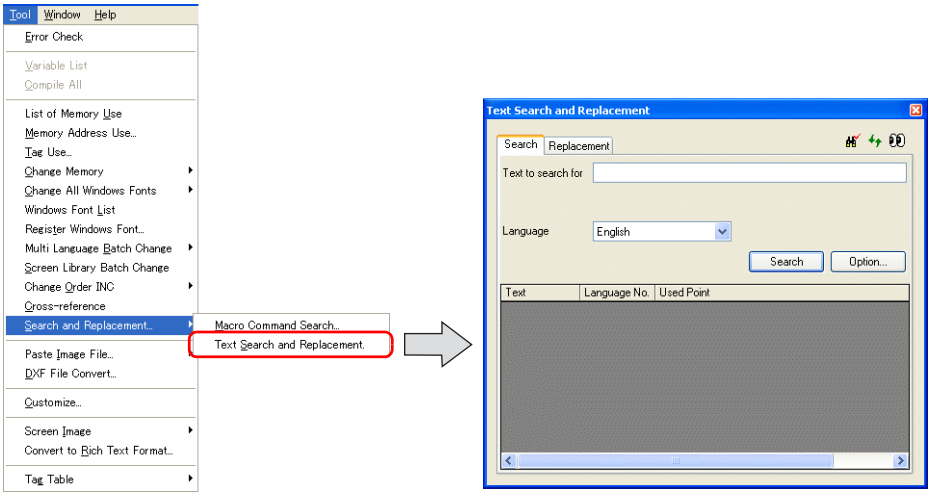
Overview

- The search and replacement functions explained in this section enable you to find the location of your target text, a switch, or a lamp, and to change the text or its name.
- Case-sensitive search and condition settings such as a search range designation are allowed for the search and replacement functions.
  These functions should help improve your work efficiency and avoid correction omissions.

Setting

Location for Setting

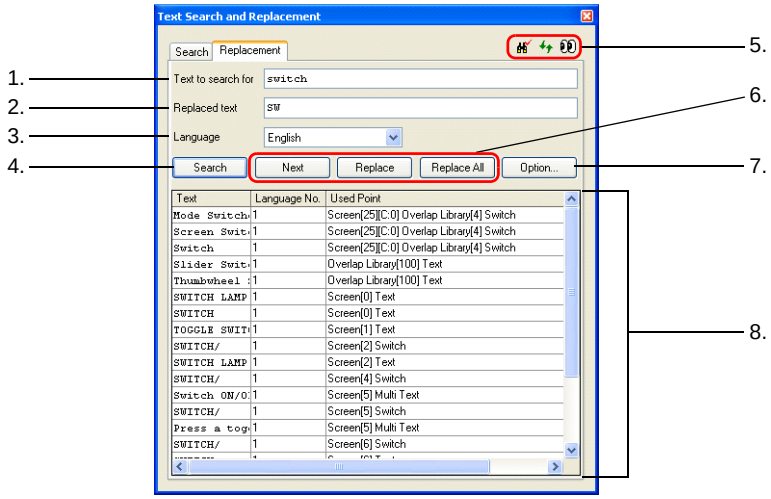
Click [Tool] → [Search and Replacement] → [Text Search and Replacement].



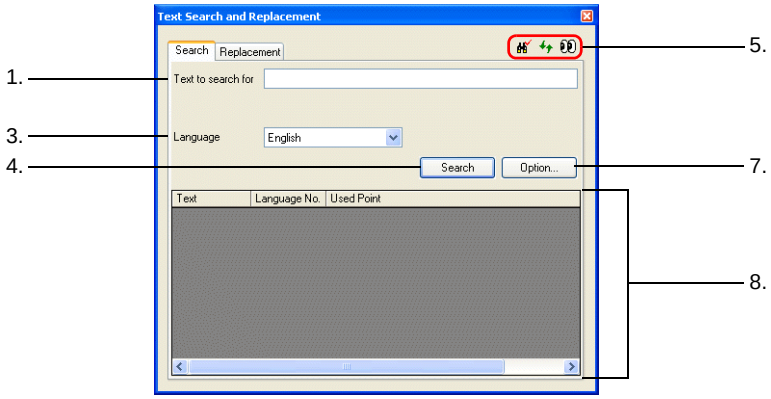
Setting Items

[Search] and [Replacement] tab windows

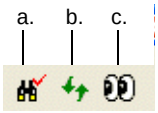
[Replacement]



[Search]



1. Text to search for	Specify the text to search for. Within 256 one-byte characters
2. Replaced text	Specify the replacement text. Within 256 one-byte characters * When replacing text, execute search for the text beforehand.
3. Language	Select a language according to the entry for [Text to search for] and [Replaced text].
4. Search	This button executes searching for the specified text.

<table>
<tr><td rowspan="3">5. Icons
 
</td><td>a. Option</td><td>This icon opens the [Option Setting] dialog for search range and conditions setting.
For more information, refer to [Option Setting] dialog (page 25-33).
(The same as “7. [Option]”)</td></tr>
<tr><td>b. Update</td><td>This icon updates the display.</td></tr>
<tr><td>c. VIEW JUMP</td><td>This icon makes a jump to the area where the selected item exists.</td></tr>
<tr><td>6. Next
Replace
Replace All</td><td colspan="2">These buttons are provided for the replacement function. The buttons become active after a search execution with the [Search] button.

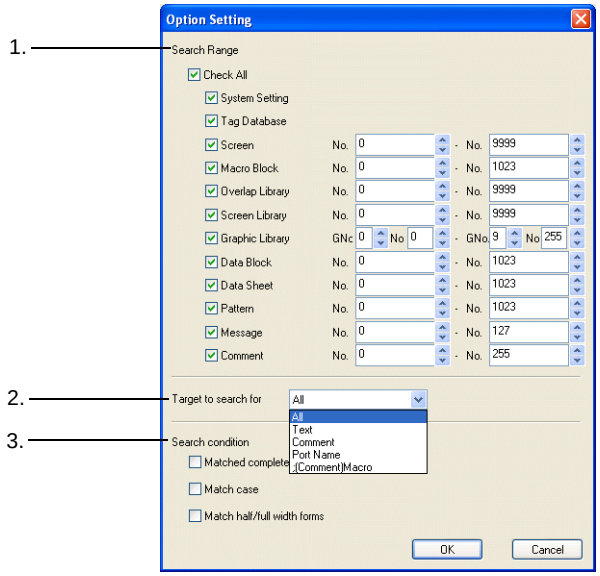
Next
This button executes no replacement and moves the line selection to the next line.
(Lines where text has been replaced (cyan colored) are skipped.)

Replace
This button replaces the text in the selected line and then moves the line selection to the next line.
Lines where text has been replaced turns cyan.

Replace All
This button replaces all text in the search result list.
The following dialog is displayed on completion of replacement:

</td></tr>
<tr><td>7. Option</td><td colspan="2">This button opens the [Option Setting] dialog.
The dialog is available to specify a search range or other conditions.
For more information, refer to [Option Setting] dialog (page 25-33).
(The same as “a. [Option]”)</td></tr>
<tr><td>8. Search result list</td><td colspan="2">A search/replacement result is displayed in a list form.
Any line where text has been replaced turns cyan.
By double-clicking the selected line, a jump is made to the area where the selected item exists.
(The same as “5. c. [VIEW JUMP]”)</td></tr>
</table>

[Option Setting] dialog



1. Search Range	Specify the range of search for text. [☑ Check All] selected as default
2. Target to search for	Select a target item to search for. All All text registered in the file Text Text registered with text in drawing/multi-text, switch/lamp, or message edit* Comment Text registered with comments on screens or in macro blocks* Port Name Text registered with port names in Ethernet network table or Modbus extended format ;(Comment) Macro Text registered with ";" in the macro editor

3. Search condition	[☐ Matched completely] • Checked Only text perfectly matching the target is searched for. • Unchecked Text perfectly matching or partially matching the target is searched for.
	[☐ Match case] • Checked Search is executed case-sensitive. • Unchecked Search is executed not case-sensitive.
	[☐ Match half/full width forms] • Checked Search is executed with distinction between one-byte and two-byte characters. • Unchecked Search is executed without distinguishing between one-byte or two-byte characters.

* The following details the targets for search.

• [Target to search for: Text]

Item	Text; multi-text; text on switch/lamp; comment on numerical data/character display; text on table data display; [Day-Week Message Setting] for calendar
Macro	Quoted (“ ”) text specified with macro commands CHAR or STRING
[Registration Item] menu	Text in [Message Edit]/[Comment Edit]; comment in [Tag Database Edit]
[System Setting] menu	Comment, table name, and line name in [Write]/[Read]/[Search condition] in [MES Setting]; computer name in [Remote Desktop Table Setting]
Relevant to folder and file names	Access folder name in [System Setting] → [CF Card Setting]; folder name/file name for switch provided with [Function: Folder Select]/[Function: File Select]; file name for sound/JPEG parts; JPEG file name in [Screen Setting] → [Screen Setting] → [Others]

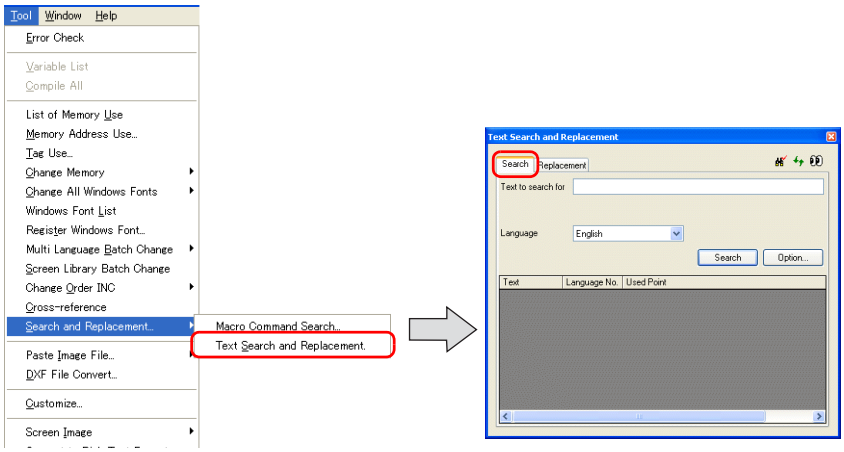
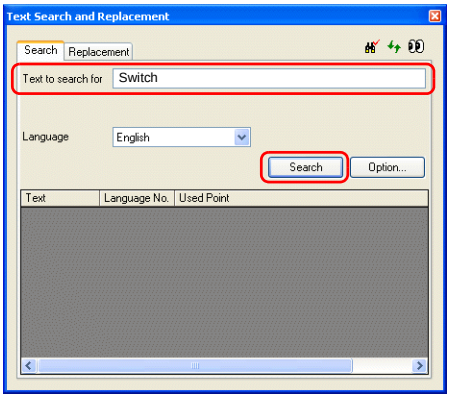
• [Target to search for: Comment]

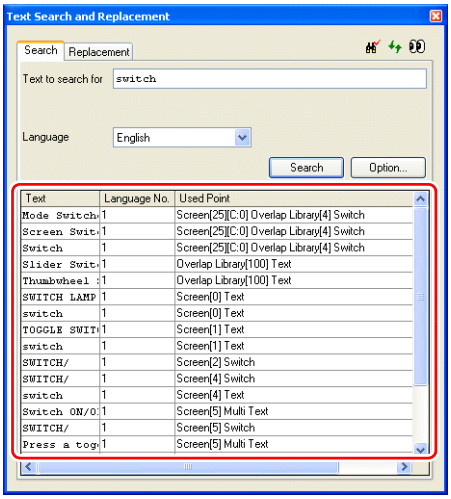
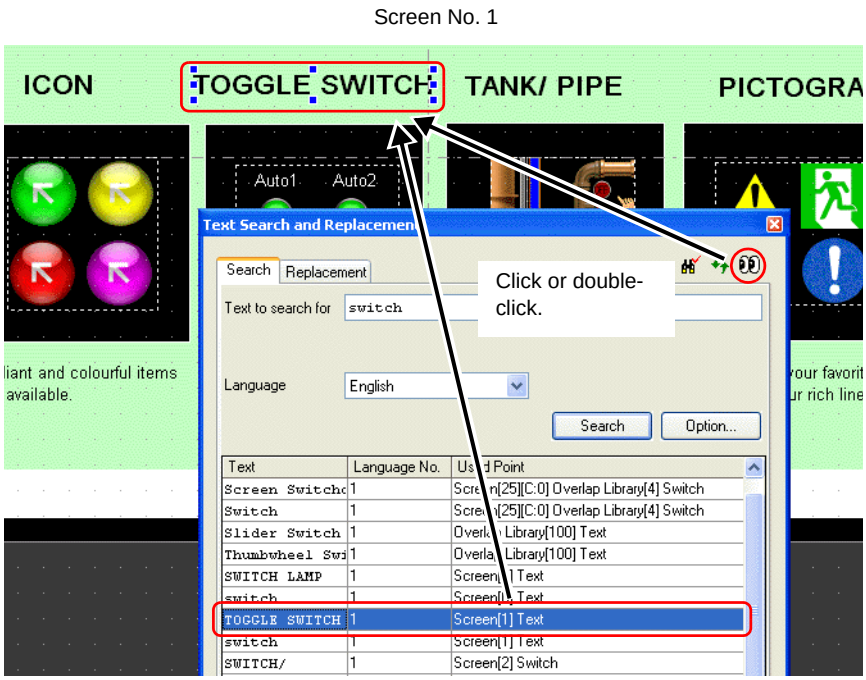
Screen, graphic library, overlap library, screen library, data block, pattern, data sheet (expanded data sheet included) Setting location: [View] → [Screen List]
Macro block, device memory map (V8 series), temperature control network/PLC2Way table (V6/V7 series) Setting location: [Edit] → [Comment]

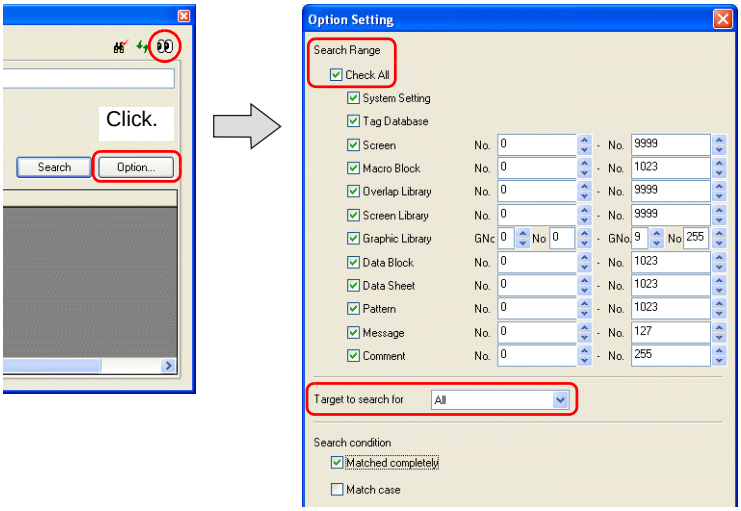
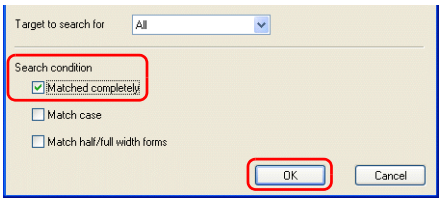
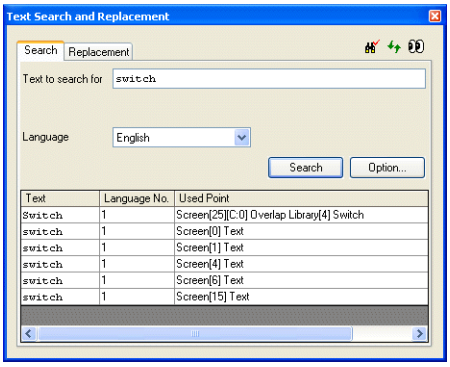
Procedure

Search

This section explains how to locate the areas including the text “switch”.

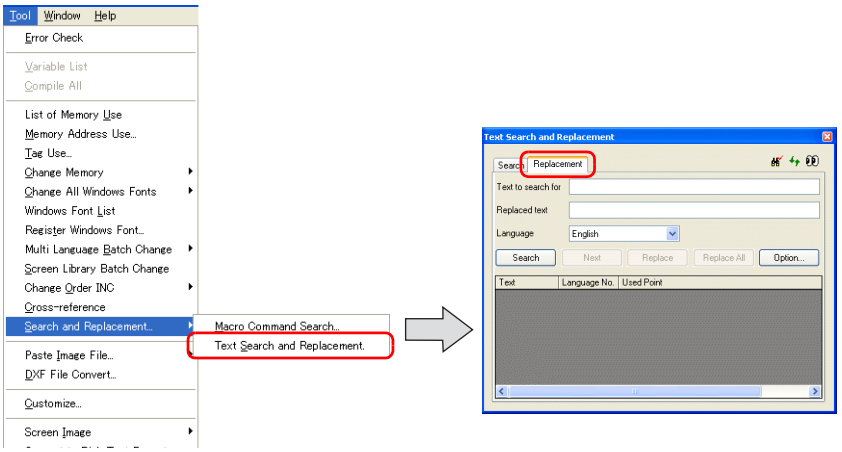
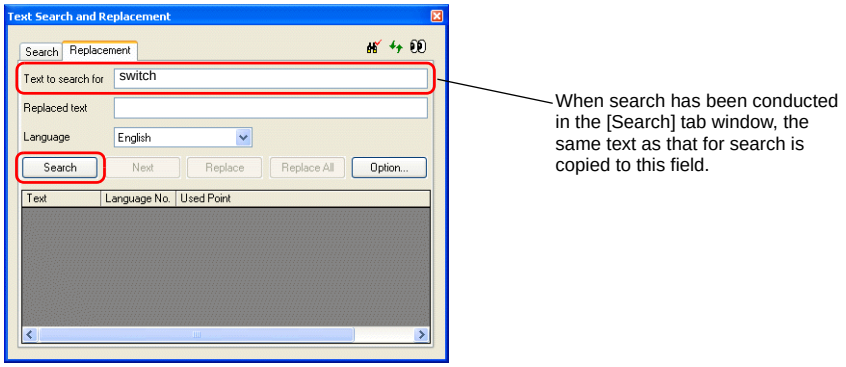
Step 1	Click [Tool] → [Search and Replacement] → [Text Search and Replacement]. Open the [Search] tab window. 
Step 2	Key in “switch” in the [Text to search for] field. Click [Search]. 

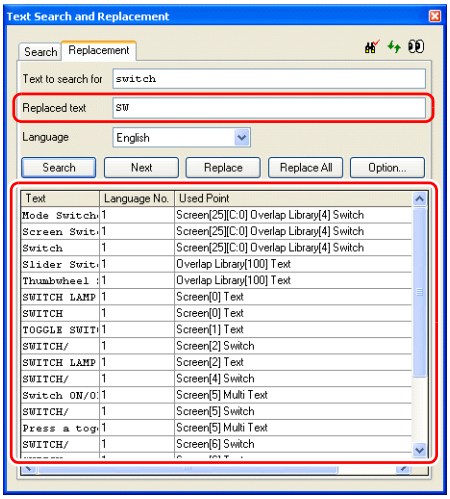
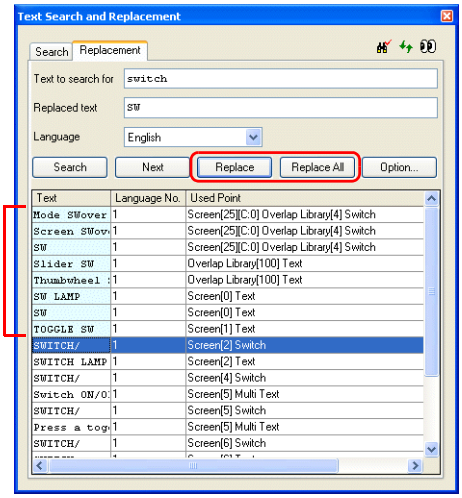
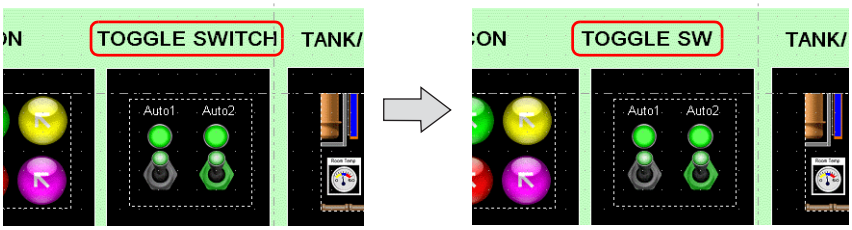
Step 3	The search result list shows the areas including the text “switch”.*  * When nothing matching the target is found, the message “None / No occurrence.” appears.
Step 4	Move the cursor to your desired line in the list. Double-click the line or click the [VIEW JUMP] icon. A jump is made to the area where the above-selected item is present. The dialog of the item is also displayed.* To narrow down the search, go to step 5.  * The item dialog is not displayed when [Prohibit Item View Display by Single Click] is selected in the [General] tab window that is displayed by selecting [File] → [Property].

Step 5	This step and after are explained on the condition that [☑ Matched completely] is checked for [Search condition]. Click [Option] (or the [Option] icon) to open the [Option Setting] dialog. Set the dialog as shown below: • [Search Range: ☑ Check All] checked • [Target to search for: All] 
Step 6	Check [☑ Matched completely] for [Search condition]. Click [OK]. 
Step 7	The search result list shows only the areas including the text “switch”.  This step completes the search procedure.

Replacement

This section explains how to replace all occurences of the text “switch” with “SW”.

Step 1	Click [Tool] → [Search and Replacement] → [Text Search and Replacement]. Open the [Replacement] tab window. 
Step 2	Key in “switch” in the [Text to search for] field. Click [Search].  * Search is required before replacement. When setting search conditions, click [Option] (or the [Option] icon) to open the [Option Setting] dialog and make necessary settings. When you wish to include all options in search conditions, set as the following: • [Search Range: Check All] checked • [Target to search for: All] • [Search condition]: Nothing checked

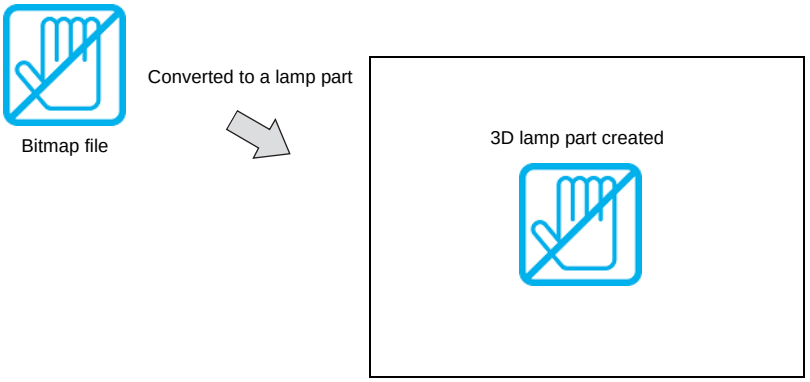
Step 3	The search result list shows the occurences of the text “switch”.* Key in “SW” in the [Replaced text] field.  * When nothing matching the target is found, the message “None / No occurrence.” appears.
Step 4	Click [Replace] or [Replace All] to execute text replacement. Lines turn cyan after text replacement.  Screen No. 1 before text replacement Screen No. 1 after text replacement  This step completes the replacement procedure.

25.7 Image File 3D Part Conversion

Overview

- 3D parts using bitmap files can be created easily.
  With versions earlier than V-SFT version 5.1.0.0, it is necessary to place a part, select [Style] → [Customize] → [☐ Use Custom Bitmap], and select the required bitmap file.

  From V-SFT version 5.1.0.0, a 3D part can be created by pasting a bitmap image from the [Tool] menu. An image can be imported and 3D part creation can be started.



- In the same way as pasting a bitmap image, it is possible to start 3D part creation by copying & pasting a bitmap file.

Applicable Items

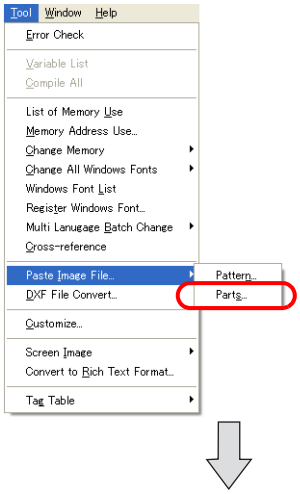
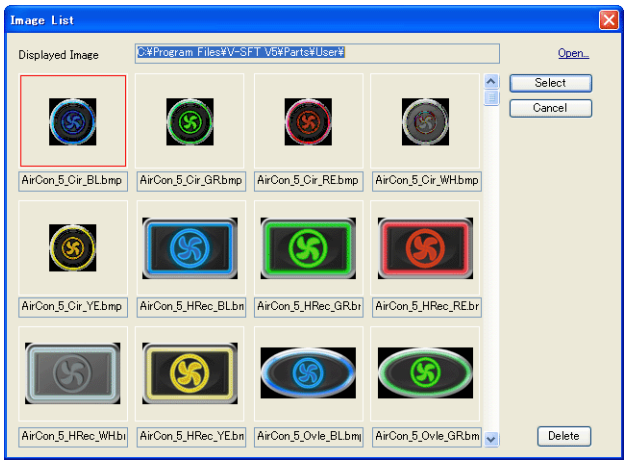
3D part conversion is available with the following items:

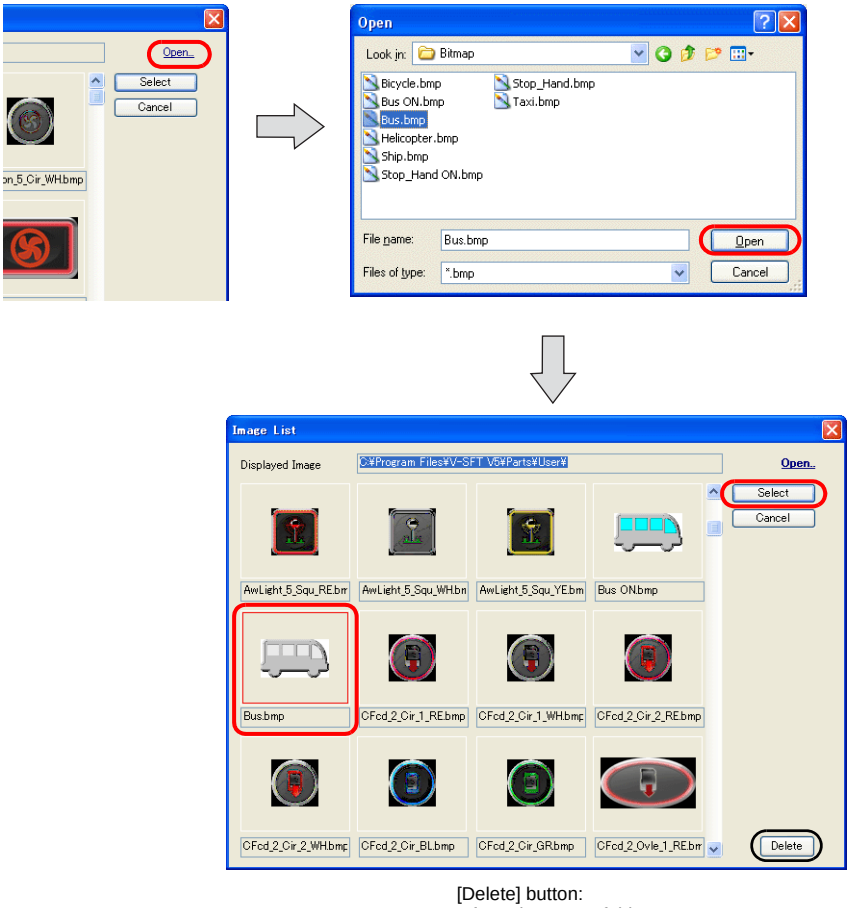
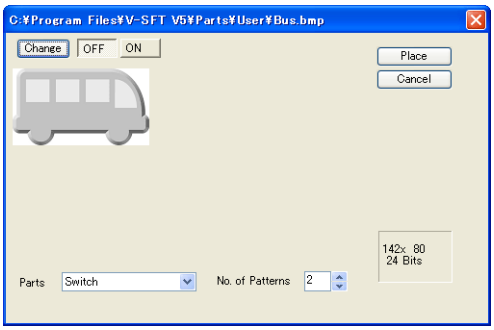
Switch
Lamp
Numerical data display
Character display
Message display
Graph
Statistic graph
Closed area graph
Calendar

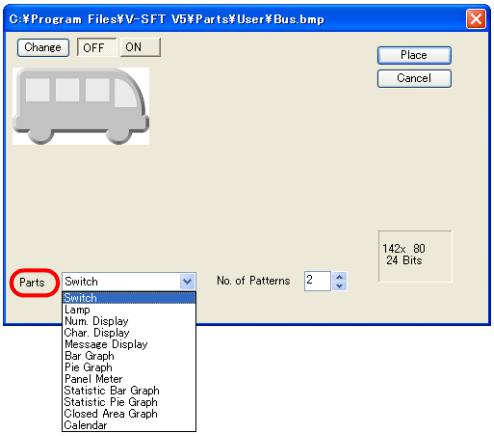
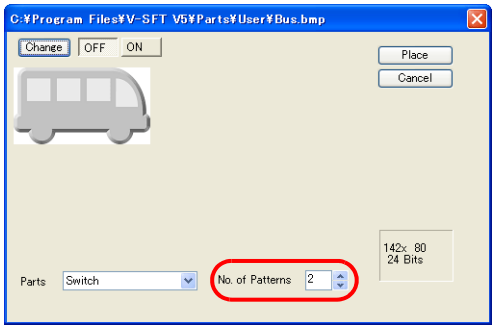
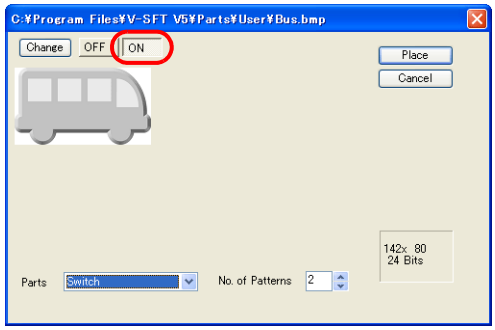
Setting Procedure

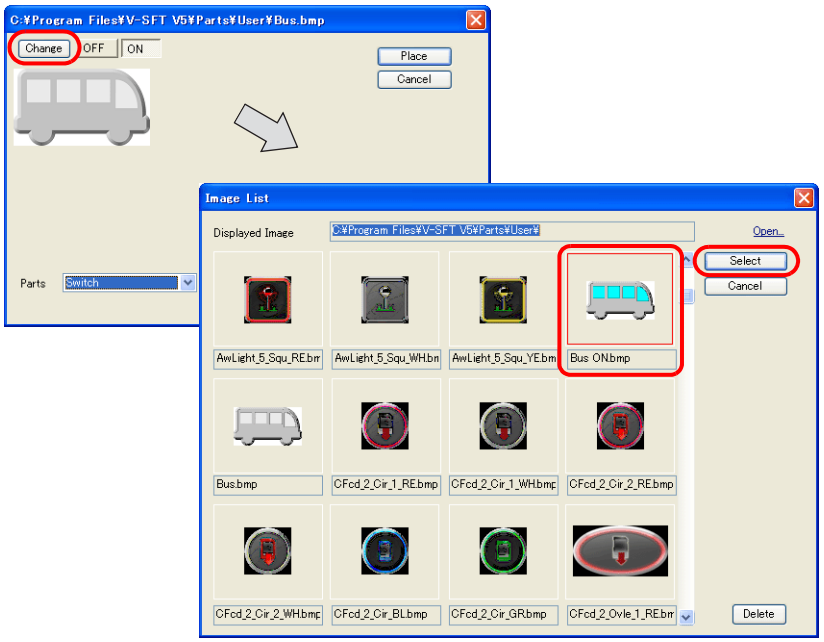
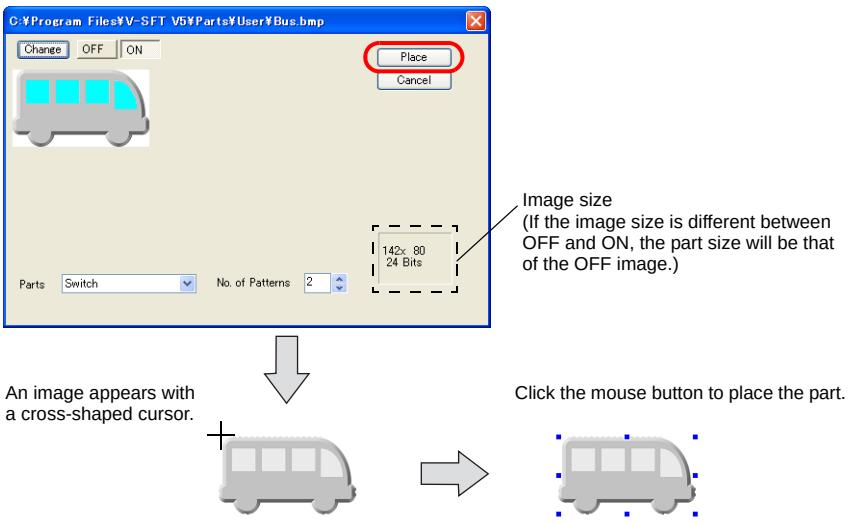
There are two kinds of setting procedures available.

Placing Parts from the [Tool] Menu

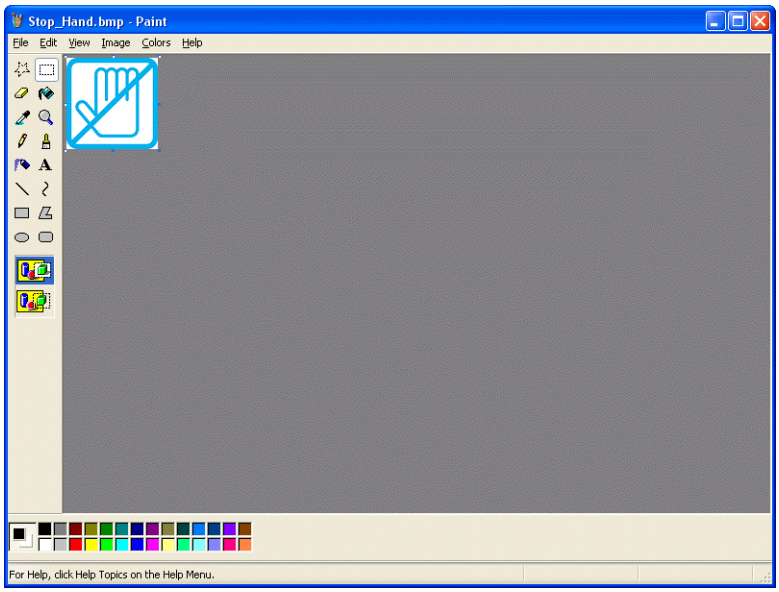
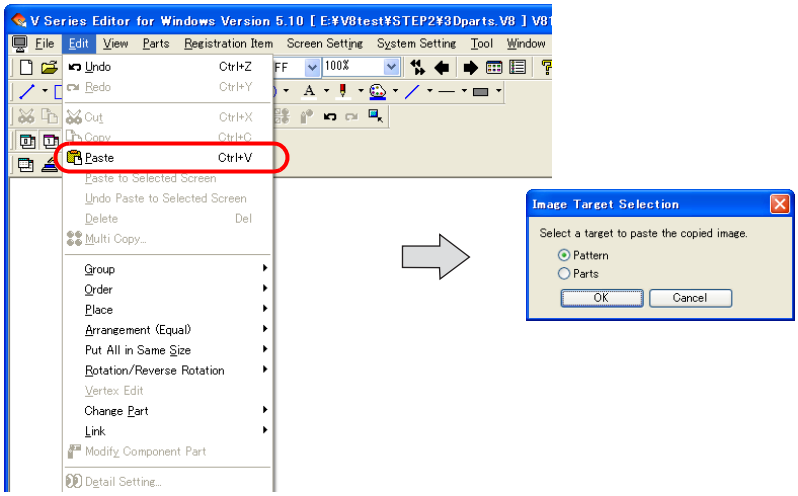
Step 1	Select [Tool] → [Paste Image File] → [Parts]. (When [Pattern] is selected, the same image pasting method as before must be used.)  The [Image List] dialog is displayed.  The [Displayed Image] directory indicates the path to the “User” folder under the “Parts” folder where bitmap files for 3D parts are stored.

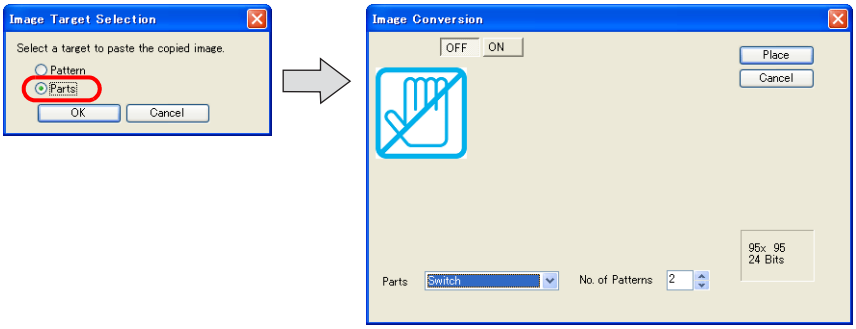
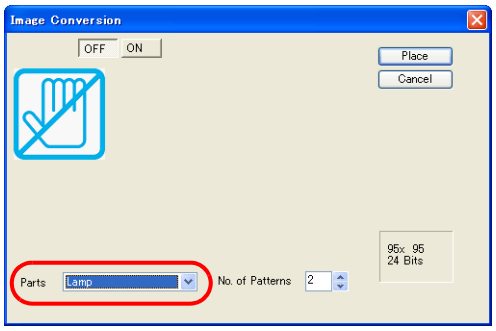
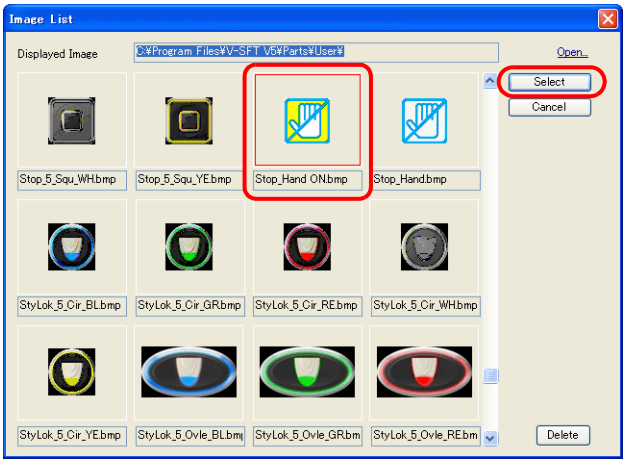
Step 2	Choose the desired bitmap image. If the desired bitmap image is not displayed in the list, click [Open] and select the desired folder where the bitmap file you need is contained.  [Delete] button: from the “User” folder
Step 3	Click [Select]. The dialog shown below is displayed. 

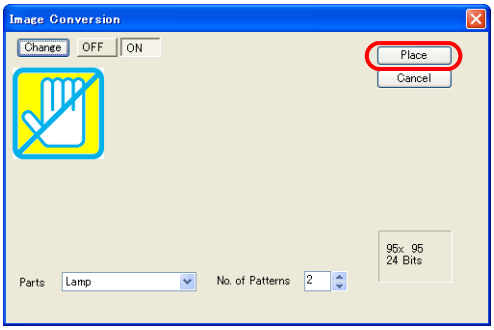
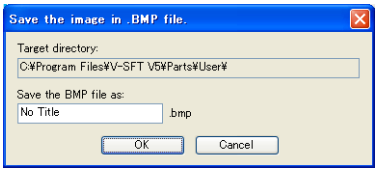
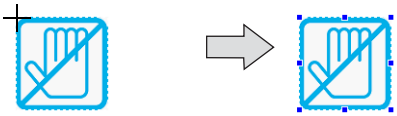
Step 4	Choose the part type. Choose [Switch] here. 
Step 5	Specify the number for [No. of Patterns]. Select “2” here.  In the case of [Switch] or [Lamp] parts, select as many bitmap images as the number set for [No. of Patterns]. This is not only for bitmap images for [OFF] but also those for [ON] must be selected. (If not selected, the same bitmap images as those selected for [OFF] are also used for [ON].)
Step 6	Click the [ON] button. 

Step 7	Click the [Change] button. The [Image List] dialog for bitmap image selection is displayed again.  Select a bitmap image for [ON] and click [Select].
Step 8	When you have selected bitmap images for [OFF] and [ON], click [Place]. The selected bitmap image converted to a switch part appears together with a cross-shaped cursor. Click the mouse button at the desired position to place the switch part on the screen. 

Placing Parts with Copy & Paste

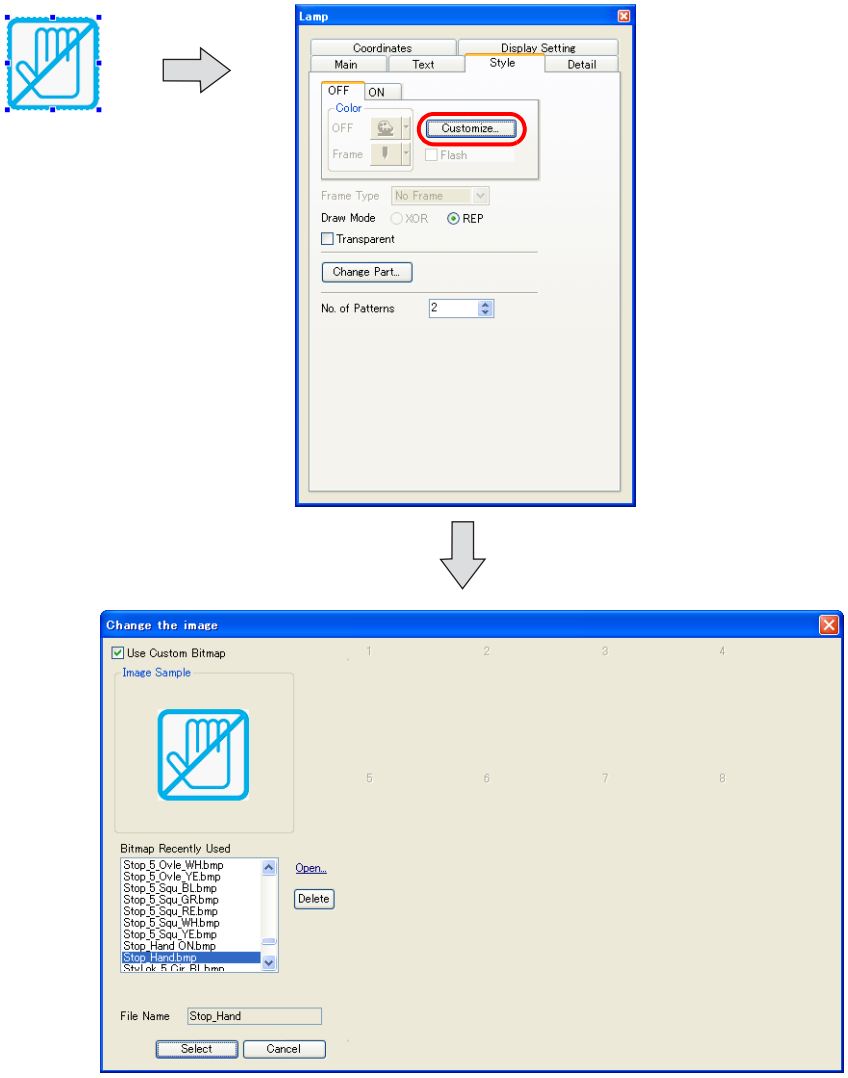
Step 1	Select and copy the image you have prepared using a Windows image processing software. (In this example, Paint is used for copying.) 
Step 2	Select [Edit] → [Paste] on the editor. The [Image Target Selection] dialog is displayed. 

Step 3	Select [Parts] and click [OK]. The [Image Conversion] dialog is displayed. 
Step 4	Choose the part type. Choose [Lamp] here. 
Step 5	In the case of a switch or lamp part, specify the number for [No. of Patterns]. Select “2” here. The pasted image is regarded as the OFF image. (The ON image must be set later.)
Step 6	Click the [ON] button. Click the [Change] button. The [Image List] dialog for bitmap image selection is displayed. If the desired bitmap image is not displayed in the list, click [Open] and select the bitmap image you created.  Select a bitmap image for [ON] and click [Select].

Step 7	When you have selected bitmap images for [OFF] and [ON], click [Place]. 
Step 8	The dialog shown below is displayed.  Save the OFF image you pasted in step 5. The image is saved in the “User” folder. Enter a name for [Save the image in .BMP file] and click [OK].
Step 9	The selected bitmap image converted to a switch part appears together with a cross-shaped cursor. Click the mouse button at the desired position to place the switch part on the screen. An image appears with a cross-shaped cursor. Click the mouse button to place the part. 

Note

- If you want to change the image of a part that is placed in this way, handle it as an ordinary 3D part. Select [Customize] in the [Style] tab window and change the bitmap file.



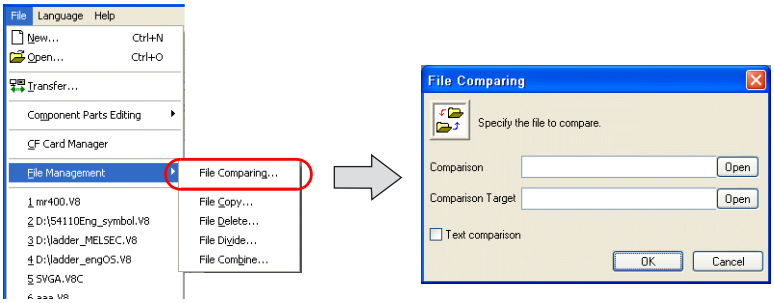
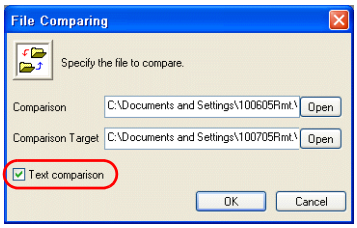
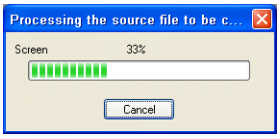
25.8 Text Comparison

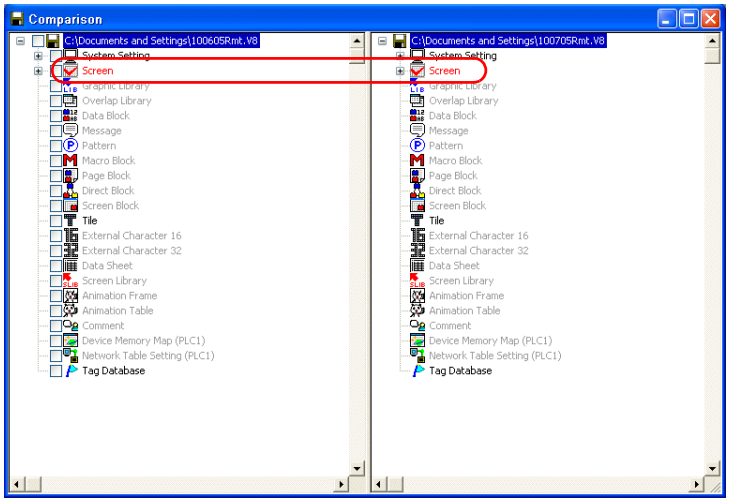
Overview

This text comparison function enables you to compare two files in the computer or a file in the computer with the data in the V8 unit. You will be notified of the result after comparison.
Compared to file comparison in the previous manner, mismatches found as the result of comparison are shown in detail. You can view a comparison result in text format, and store the information as a report or a CSV file.
Furthermore, you may copy those mismatches item by item. For more information on the copy procedure, refer to the V8 Series Operation Manual.

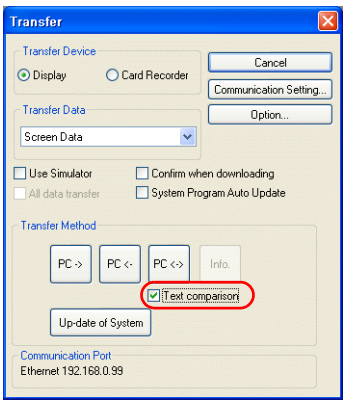
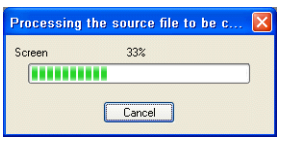
Procedure

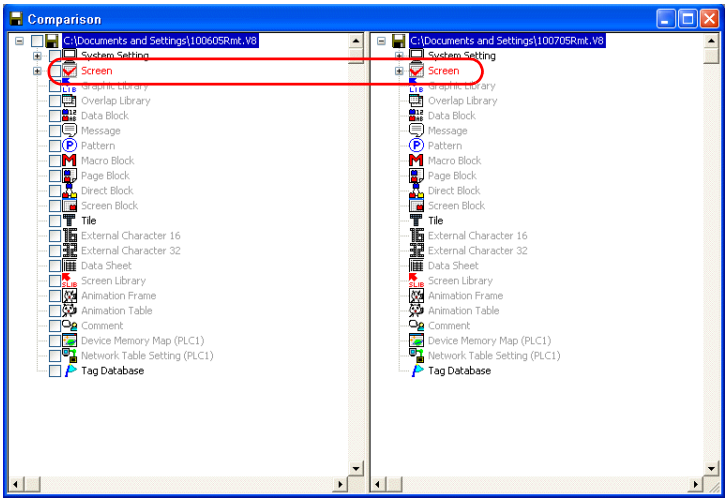
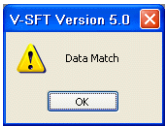
Comparison on the Computer

Step 1	Click [File] → [File Management] → [File Comparing]. 
Step 2	Enter your desired files in the [Comparison] (source) and [Comparison Target] fields. Check [☑Text comparison]. 
Step 3	Click the [OK] button. Comparison starts. 

Step 4	Upon completion of comparison, the [Comparison] window appears to show the result. The locations where mismatches are found are highlighted in red. For how to check those mismatches in detail, refer to “Check in Detail” (page 25-51).  *** In the case of perfect matching, the message “Data Match” appears. Clicking [OK] brings up the [Comparison] window.**

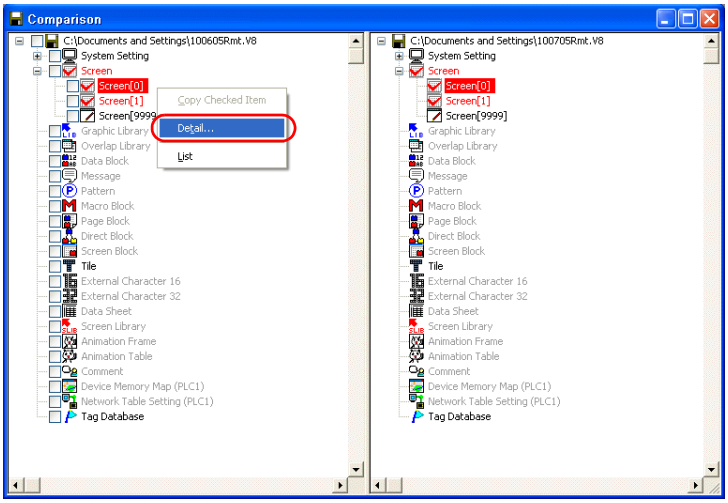
Comparison between Computer and V8

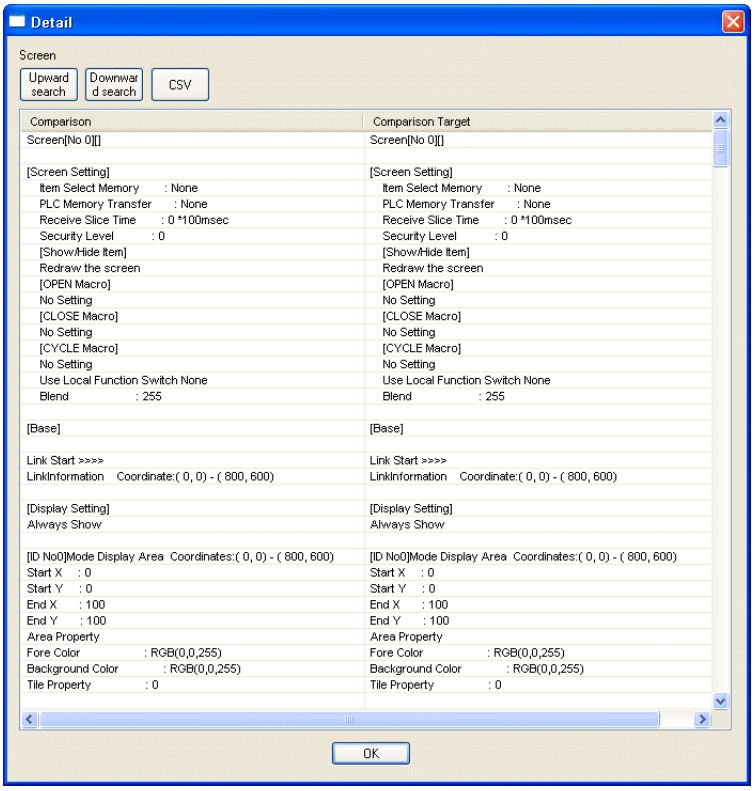
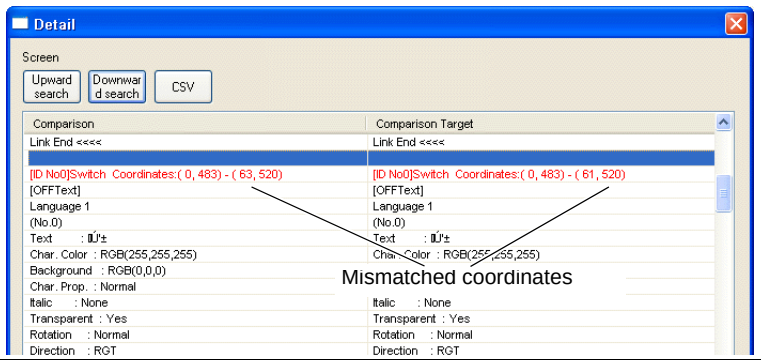
Step 1	Open the file you wish to compare in the V-SFT software. Click [File] → [Transfer]. The [Transfer] dialog is displayed.
Step 2	Check [☑Text comparison]. 
Step 3	Click [PC <->]. Comparison starts. 

Step 4	Upon completion of comparison, the [Comparison] window appears to show the result. The locations where mismatches are found are highlighted in red. For how to check those mismatches in detail, refer to “Check in Detail” (page 25-51).  *** In the case of perfect matching, the message “Data Match” appears. Clicking [OK] brings up the [Comparison] window.** 

Check in Detail

This section explains how to check the mismatches found on screen No. 0, for example.

Step 1	Right-click [Screen [0]] (highlighted in red) and select [Detail].  *** Clicking [Detail] on the right-click menu of [System Setting] shows all contents of the [System Setting] menu.**

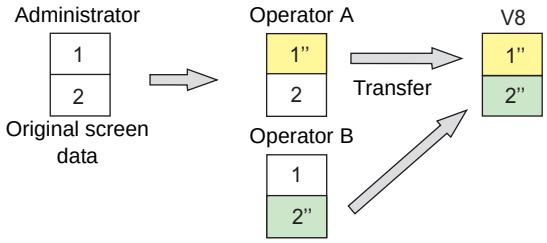
Step 2	The [Detail] window is displayed. Matches are shown in black, and mismatches are highlighted in red. 
Step 3	[Upward search]/[Downward search]: These buttons are used to search for mismatches upward or downward. [CSV]: This button is used when you output the contents currently displayed to a CSV file. (The CSV file shows even the mismatches in black.) 

25.9 Selective Transfer

Overview

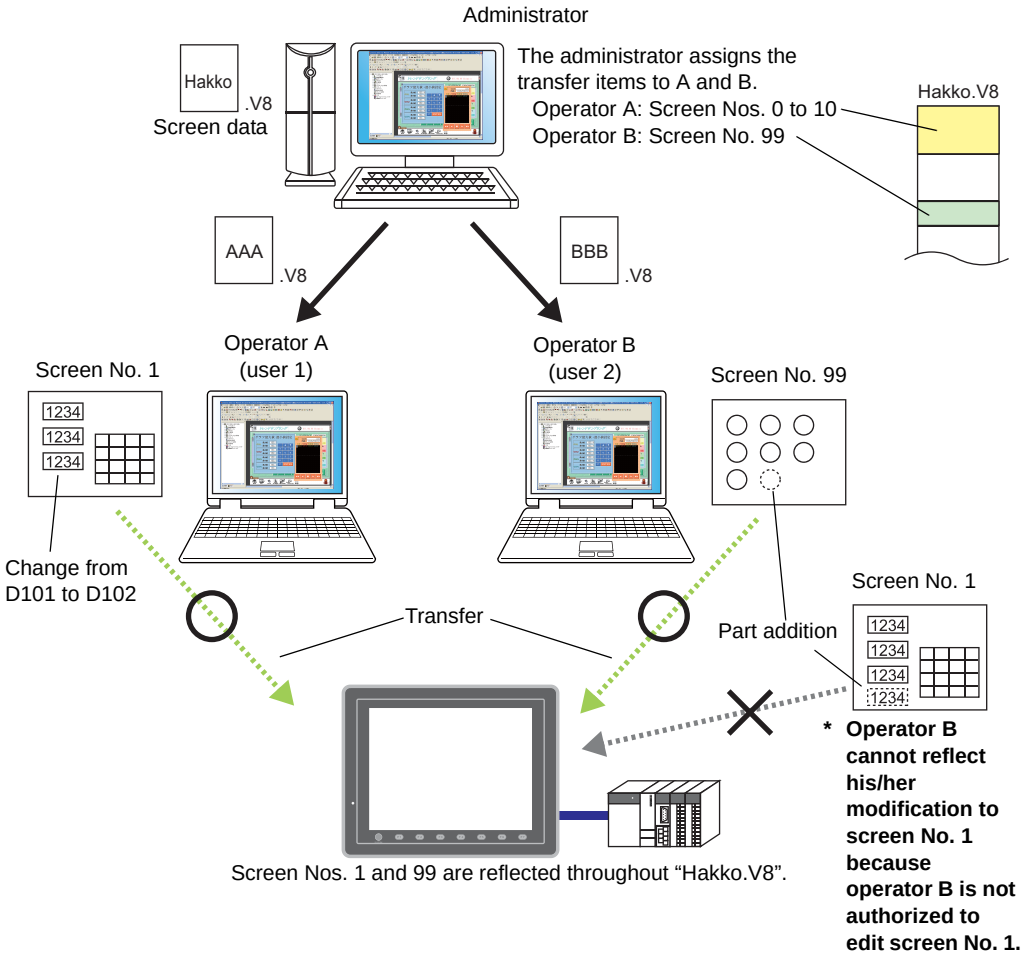
If multiple operators edit one set of screen data, it is not possible to independently manage the screen data edited by, for instance, operator A and operator B. In this event, an operator may mistakenly edit any portion of the screen data that belongs to someone else and may transfer the screen data to the V8 unit.
With the selective transfer function, one set of screen data can be divided into sections under the management of the administrator, and those sections can be assigned separately to target operators. Each operator then will edit only his/her assignment and transfer the data to the V8 unit. Improved work efficiency will consequently be expected because they have no need to bother the sections undertaken by other operators.

1. Screen data for operator A
2. Screen data for operator B



Example

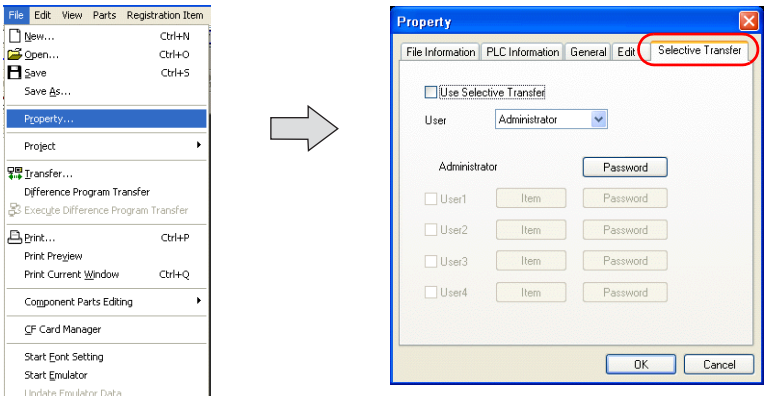
Original screen data: Hakko.V8
Screen data for operator A: AAA.V8 (transfer items assigned to A: screen Nos. 0 to 10)
Screen data for operator B: BBB.V8 (transfer item assigned to B: screen No. 99)



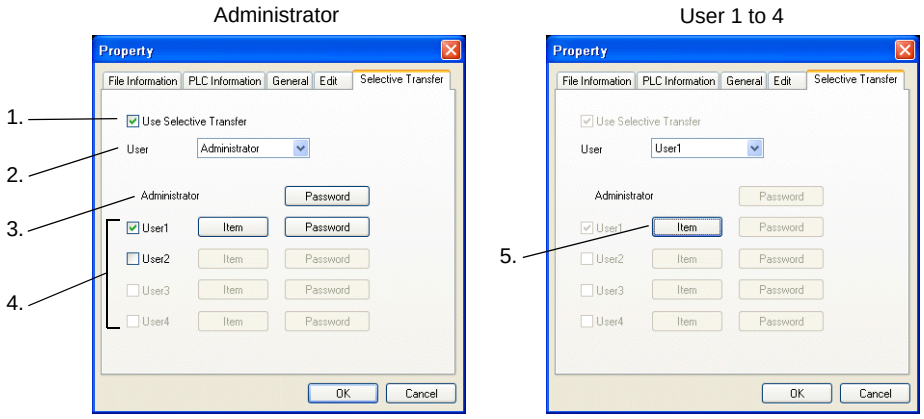
Setting

Location for Setting

Click [File] → [Property]. Open the [Selective Transfer] tab window.

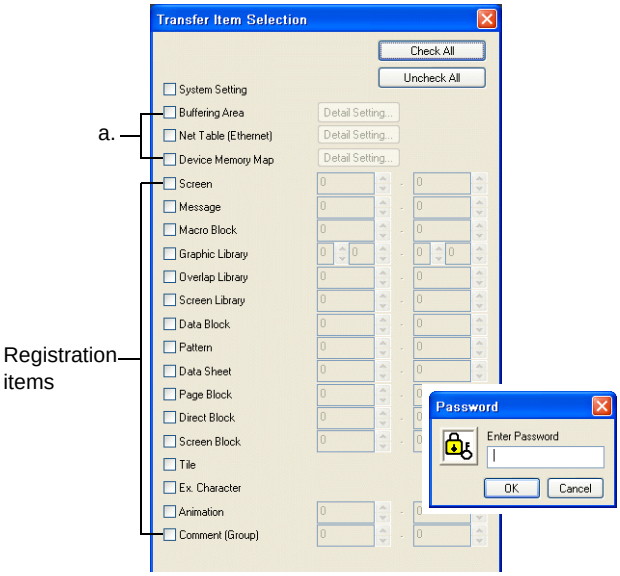


Setting Items



1. ☐Use Selective Transfer	Checked: Selective transfer is available.
2. User	Select a user who undertakes screen editing in this field. • Administrator The administrator assigns transfer items to users 1 to 4 and determines their passwords. The administrator transfers the whole screen data to the V8 unit. • User 1 to 4 Users are not permitted to change the assignment of transfer items and the passwords. Each user may transfer only the item(s) that is/are shown with the [Item] button.

<table>
<tr>
<td>3. Administrator [Password] (within 6 alphanumerics)</td>
<td>
An administrator-level password * can be set through this button. Switching in the [User] field can be password-protected. (No password protection is provided for switching from “Administrator” to “User” in the [User] field as detailed in the table below.) Password protection will prohibit users to change the assignment of transfer items on their own.
Also when a user attempts to export screen data from the V8 unit, he or she will be prompted to enter the password for authentication.

<table>
<tr><th>Before change</th><th colspan="2">After change</th><th>Password</th></tr>
<tr><td rowspan="2">Administrator</td><td rowspan="2">User 1 to 4</td><td>No password</td><td>Not required</td></tr>
<tr><td>Password-protected</td><td>Not required</td></tr>
<tr><td rowspan="4">User 1 to 4</td><td rowspan="2">Administrator</td><td>No password</td><td>Not required</td></tr>
<tr><td>Password-protected</td><td>Required</td></tr>
<tr><td rowspan="2">User 1 to 4</td><td>No password</td><td>Not required</td></tr>
<tr><td>Password-protected</td><td>Required</td></tr>
</table>
* For the assurance of data security, password setting is recommended.
A password once set cannot be reviewed. Great care should be taken in password management.
</td>
</tr>
<tr>
<td>4. ☐User 1 to 4 [Item] and [Password]</td>
<td>
Through the individual buttons, transfer items and a password can be assigned to each user. (See section 3 (above) for more information on password.)
A maximum of four users can be set.


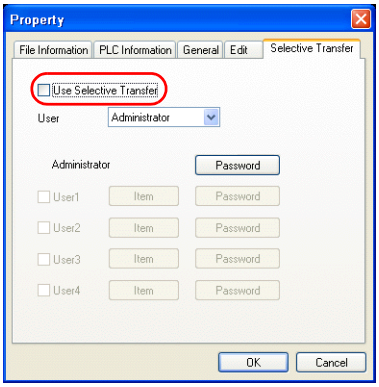
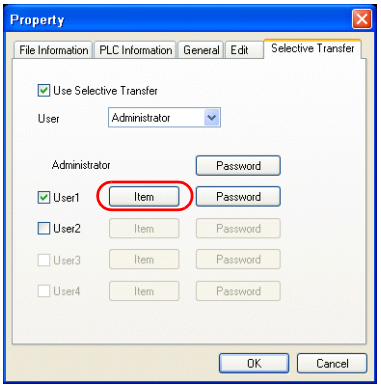
* All items other than the registration items belong to [System Setting].
The items “a.” are also included in [System Setting]. Check an item in “a.” if you wish to transfer it independently.
</td>
</tr>
</table>

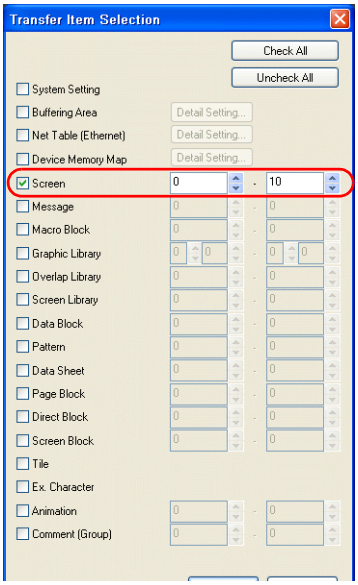
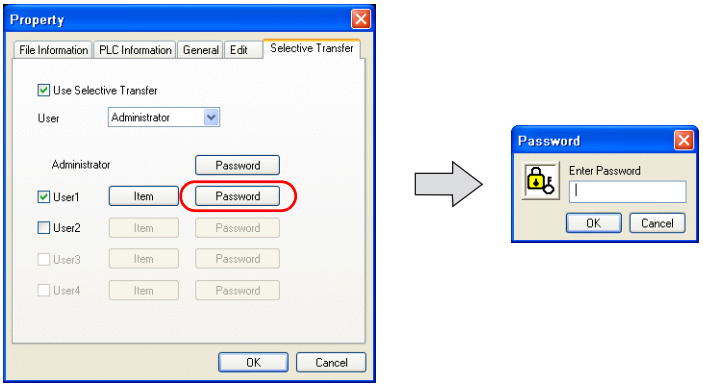
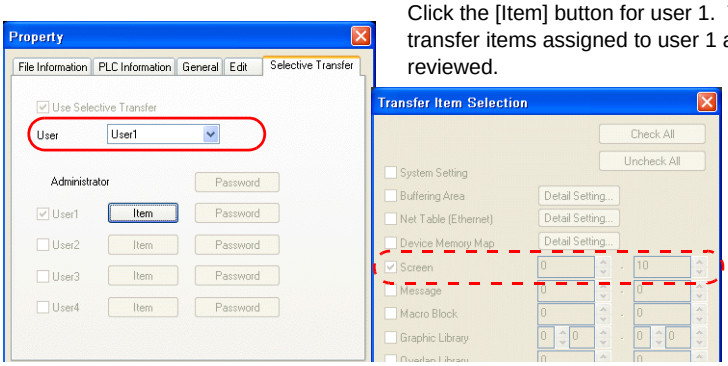
Procedure

This section describes the usage of the selective transfer function, taking the following case for example.

- Transfer items assigned to user 1: Screen Nos. 0 to 10
- Transfer items assigned to user 2: Screen No. 99

Administrator

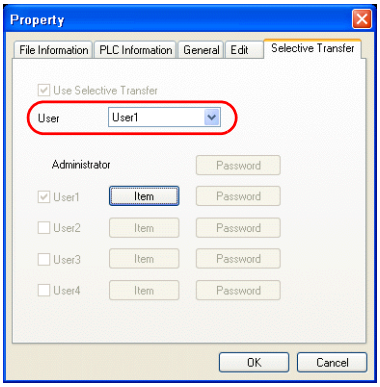
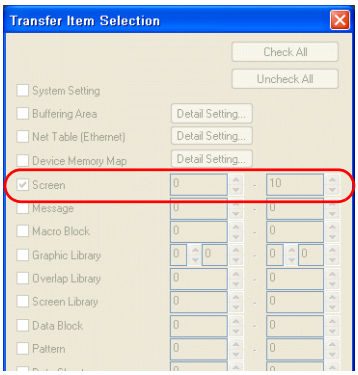
Step 1	Check [☑ Use Selective Transfer]. 
Step 2	Check [☑ User 1]. Click the [Item] button. 

Step 3	In the [Transfer Item Selection] dialog, check [Screen] and specify screen Nos. 1 to 10. Click the [OK] button. 
Step 4	In the [Selective Transfer] tab window, click the [Password] button for [User 1]. Set a password for user 1 (within six alphanumerics). 
Step 5	In the [User] field, select “User 1”. Click the [OK] button.  Click the [Item] button for user 1. The transfer items assigned to user 1 are reviewed.
Step 6	Name and save the screen data file for user 1. This step completes the user 1 settings.

Step 7	Proceed to user 2 settings. In the [User] field, select “Administrator”. Check [☑User 2]. Follow steps 2 through 6 for user 2.
Step 8	Two screen data files for users 1 and 2 are now prepared. The necessary settings have been completed. Pass these files to the individual users.

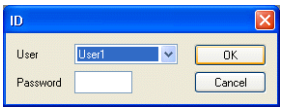
User 1 to 4

This section describes how user 1, for example, performs a selective transfer.

Step 1	Open the screen data file for user 1. Click [File] → [Property]. Open the [Selective Transfer] tab window. Review the user number selected in the [User] field. (Example: “User 1”) 
Step 2	Press the [Item] button. The [Transfer Item Selection] dialog is displayed. Review the transfer items assigned to user 1. (Example: Screen Nos. 0 to 10) 
Step 3	Edit these screens and transfer the data to the V8 unit. *** Even if modifications are made to any item outside the range assigned, the modified data will not be transferred to the V8 unit.**

Export from V8 to Computer

When password protection is set, the following confirmation dialog is displayed before screen data export from the V8 unit.



User	Screen data is exported from the V8 unit under the name of the user selected in this field. The default shown in this field is the user who performed data transfer to the V8 most recently.
Password	Enter the password assigned to the user selected in the [User] field.

Notes

- The administrator should take care not to assign the same item repeatedly to multiple users in the [Transfer Item Selection] dialog.
- Only the administrator is allowed to edit the Windows fonts registered with text.
- Tags cannot be transferred by the selective transfer function.
- Only the user, for whom [☑ System Setting] is checked in the [Transfer Item Selection] dialog, is allowed to change the number of interface languages in the [Font Setting] dialog and to transfer the I/F driver data for the simulator.
- If a screen includes a component part, the relevant memory table and text table will be transferred together with the screen to the V8 unit. In the [Transfer Item Selection] dialog, it is recommended that the item [Buffering Area] or [Device Memory Map] be checked if either one is used.
- Screen data transfer is executable via a serial port, a USB port, or an Ethernet port. However, transfer via a CF card is not supported.
  Data transfer from the V8 unit to the CF card is possible. Note that the [ID] dialog that appears before the export of data from the V8 unit shows the user who transferred data to the V8 unit most recently. Therefore, change the [User] field in the [ID] dialog to the name who attempts to export data from the V8 unit.
  (If you wish to prohibit data export from the V8 unit to the CF card, go to the [CF Card] dialog from the [System Setting] menu, and set a password at [Password]. For more information, refer to the V8 Series Reference Manual.)
- If passwords are set in both the [File Information] tab window and the [Selective Transfer] tab window ([File] → [Property]), you will be requested to enter the password set in the [File Information] tab window first and then will be prompted to enter the password set in the [Selective Transfer] tab window.
- At the time of the initial transfer, the administrator must transfer the whole screen data to the V8 unit. If the V8 unit includes screen data, which is not provided with selective transfer settings, and then if a user transfers his/her screen data assigned by the selected transfer function to the V8 unit, the security of the data in the V8 will not be assured.

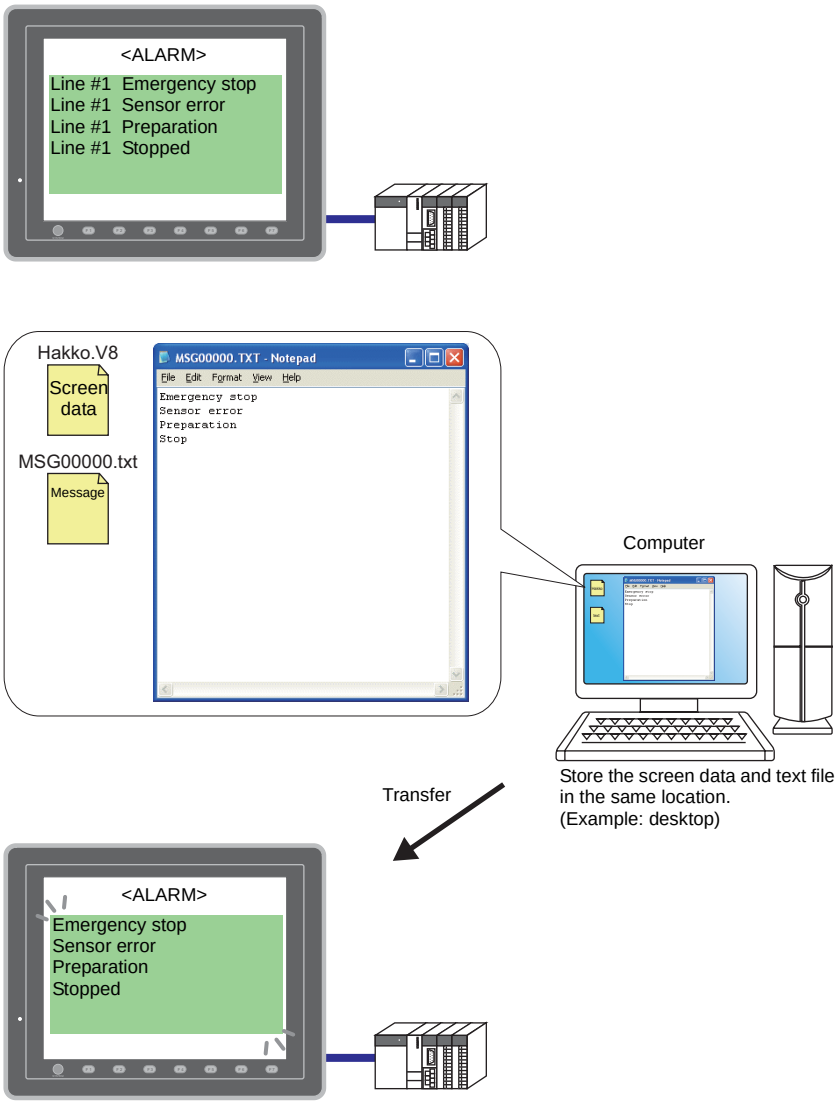
25.10 Message/Comment Transfer

Overview

If it is necessary to display, for example, different unit names on alarm messages depending on the situation while using the same screen data, the message/comment transfer function can be used to transfer a text file for messages only.
Messages can easily be edited in text format.

Example

When changing alarm messages in message GNo. 0:
Original screen data: Hakko.V8
Text file: MSG00000.txt (Language 1, message GNo. 0)



*** Messages can also be changed by saving them in text format on the CF card. For more information, refer to "14.2 Storing Message Data".**
(Comments cannot be changed in this way.)

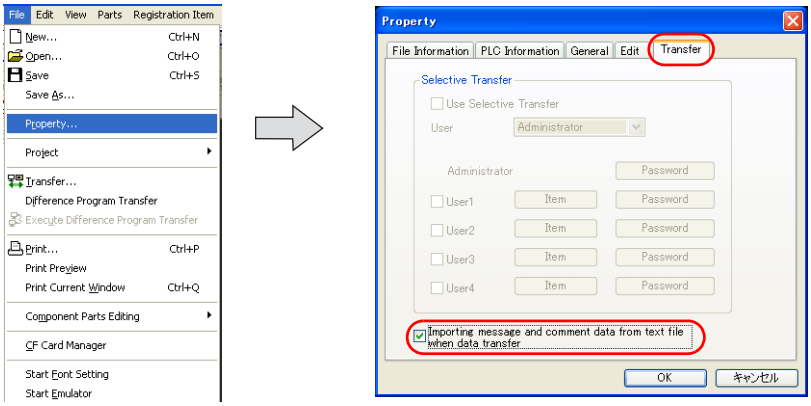
Target Items

- [Registration Item] → [Message]
- [Registration Item] → [Comment]

Setting

Location for Setting

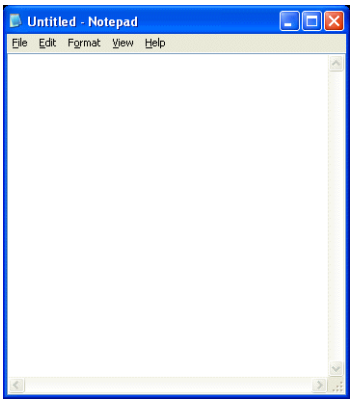
Check [☑ Importing message and comment data from text file when data transfer].
([File] → [Property] → [Transfer])

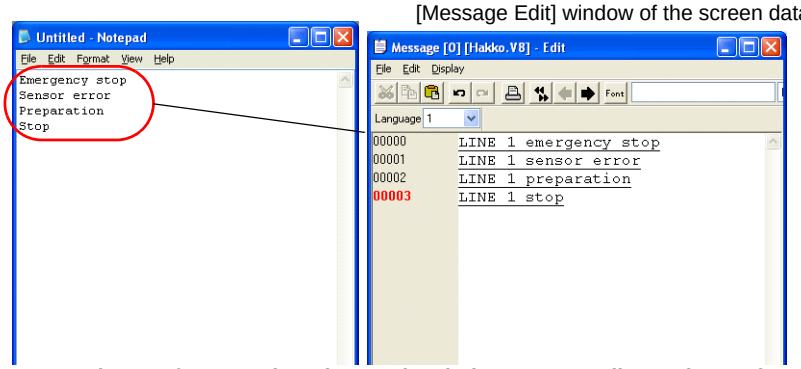
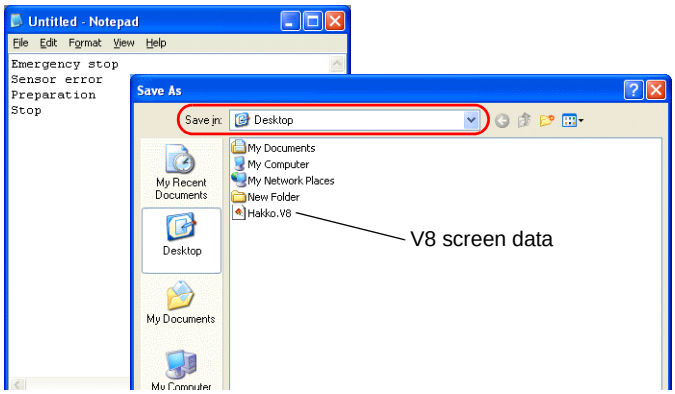
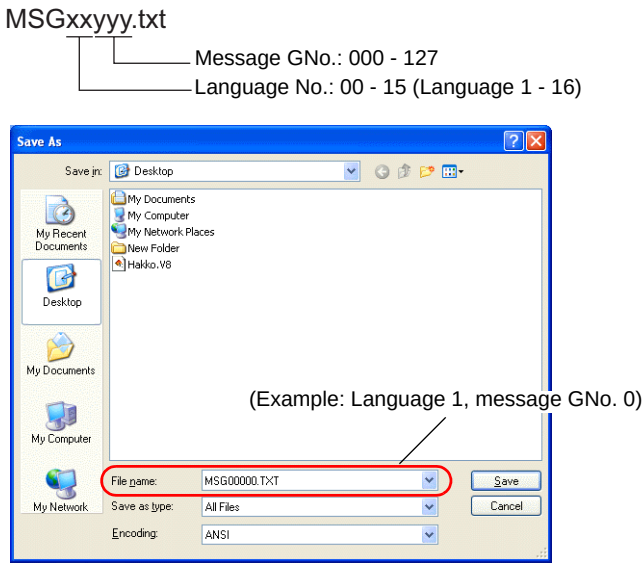


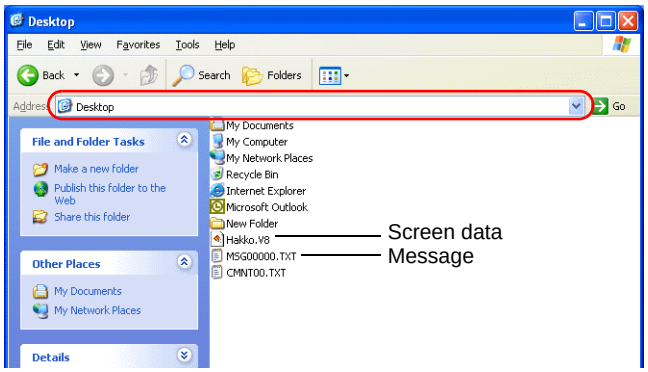
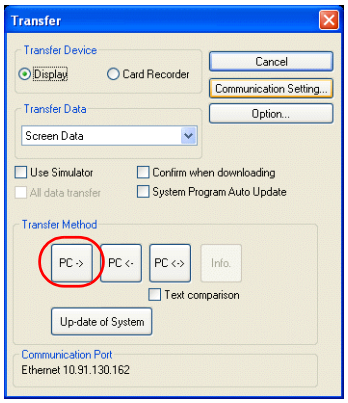
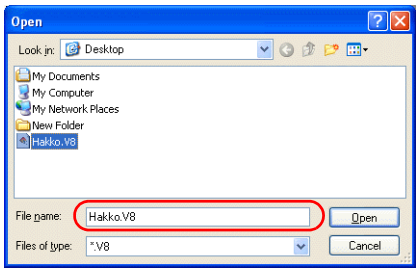
Procedure

Message

The section explains the case where messages in message GNo. 0 of Language 1 are changed.

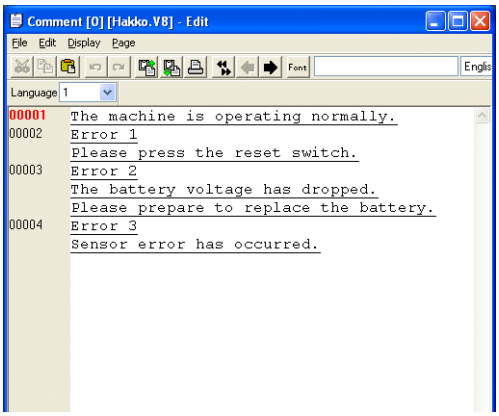
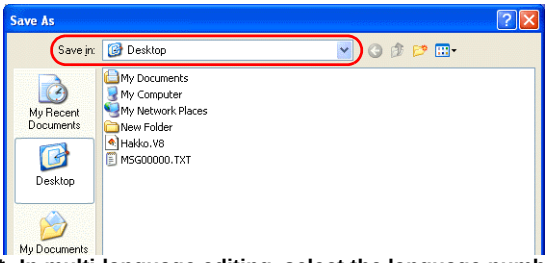
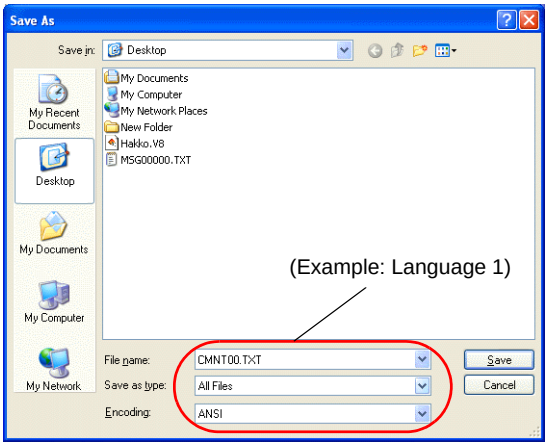
Step 1	Start up Notepad. 

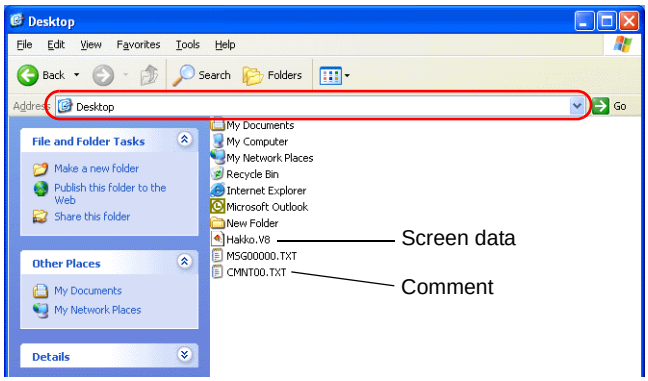
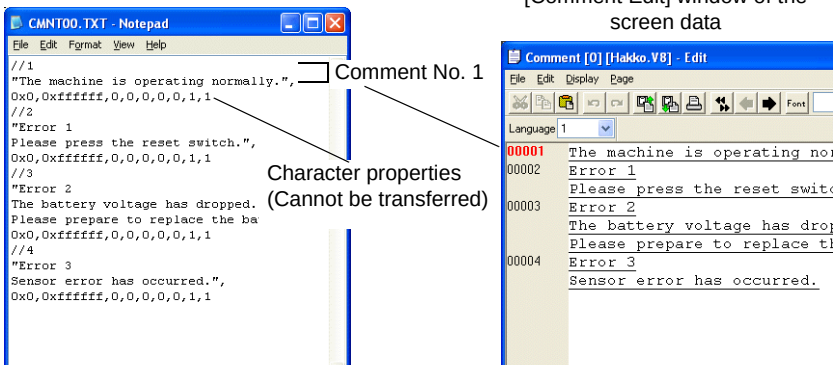
Step 2	Register messages in order from the top. [Message Edit] window of the screen data  *** A maximum of 127 one-byte (63 two-byte) characters per line and a maximum of 256 lines can be registered. All of the 256 lines are transferred. Note that character properties are not transferred.**
Step 3	Click [File] → [Save As]. Be sure to select the same location where the screen data "*.V8" is saved. (Example: desktop) 
Step 4	Name the file in the format shown below and save it. 

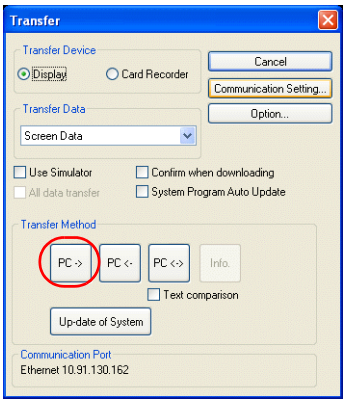
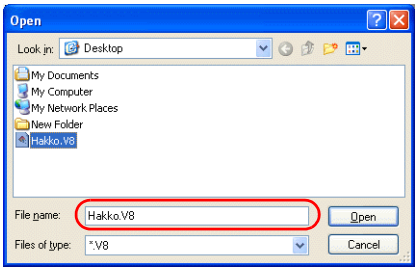
Step 5	Check that the screen data and the text file are saved in the same location. (Example: desktop) 
Step 6	Start V-SFT and open the [Transfer] dialog ([File] → [Transfer]). Click [PC ->]. 
Step 7	Select screen data. (Example: Hakko.V8) 
Step 8	Transfer of the screen data and text file starts. Transfer has been completed.

Comment

The section explains the case where comments of Language 1 are changed.

Step 1	Open the screen data. (Example: Hakko.V8)
Step 2	Open the [Commend Edit] window ([Registration Item] → [Comment]). 
Step 3	Click [File] → [Export]. The [Save As] dialog is displayed. Be sure to select the same location where the screen data "*.V8" is saved. (Example: desktop)  *** In multi-language editing, select the language number currently edited.**
Step 4	Select [All Files] for [Save as type]. Name the file in the format shown below and save it. CMNTxx.txt └ Language No.: 00 - 15 (Language 1 - 16) 

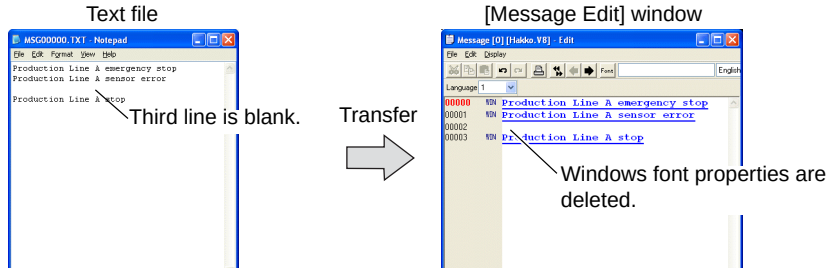
Step 5	Check that the screen data and the text file are saved in the same location. (Example: desktop) 
Step 6	Open the text file on Notepad. (Example: CMNT00.txt) Edit a comment in double-quotation marks. Comment No.: //1 - 32767 Contents: "(comment)" Multiple lines: Insert a line break.  *** A maximum of 127 one-byte (63 two-byte) characters can be registered per line.** **A maximum of 32767 comments (32 lines, 1024 one-byte characters per comment) can be registered.** **Note that character properties are not transferred.**
Step 7	Click [File] → [Save].

Step 8	Start V-SFT and open the [Transfer] dialog ([File] → [Transfer]). Click [PC ->]. 
Step 9	Select screen data. (Example: Hakko.V8) 
Step 10	Transfer of the screen data and comment file starts. Transfer has been completed.

Notes

- When a text file is transferred with the screen data that includes a blank line or comment for which Windows font properties are set, properties set for the blank line or comment will be deleted.

  Example: Message



- Unicode text cannot be used. Accordingly, when a file saved in Unicode text format is transferred, text will not be displayed correctly.
- When the message/comment transfer function is used, the message storing function with a CF card is disabled. ([☐ Range of Messages to be Saved to CF Card] ([System Setting] → [CF Card Setting]) becomes inactive.)

  To use the message storing function with a CF card, uncheck [☐ Importing message and comment data from text file when data transfer].
  (For more information on the message storing function, refer to “14.2 Storing Message Data”.)
- The selective transfer function cannot be used when the message/comment transfer function is used.
- After transfer with the message/comment transfer function from the computer to the V8, the screen data in the computer remains the same as before. The screen data to which changes are reflected must be exported from the V8 to the computer.

26 USB Connection

This section describes the equipment that can be connected at the USB-A port.

- USB barcode reader
  (Refer to “26.3 USB Barcode Reader”.)
- USB keyboard
  (Refer to “26.4 USB Keyboard”.)
- USB mouse
  (Refer to “26.5 USB Mouse”.)
- USB FDD
  (Refer to “26.6 USB FDD (Floppy Disk Drive)”.)

26.1 Applicable Models

Depending on the USB equipment, the applicable models vary. Check the availability of each USB equipment.

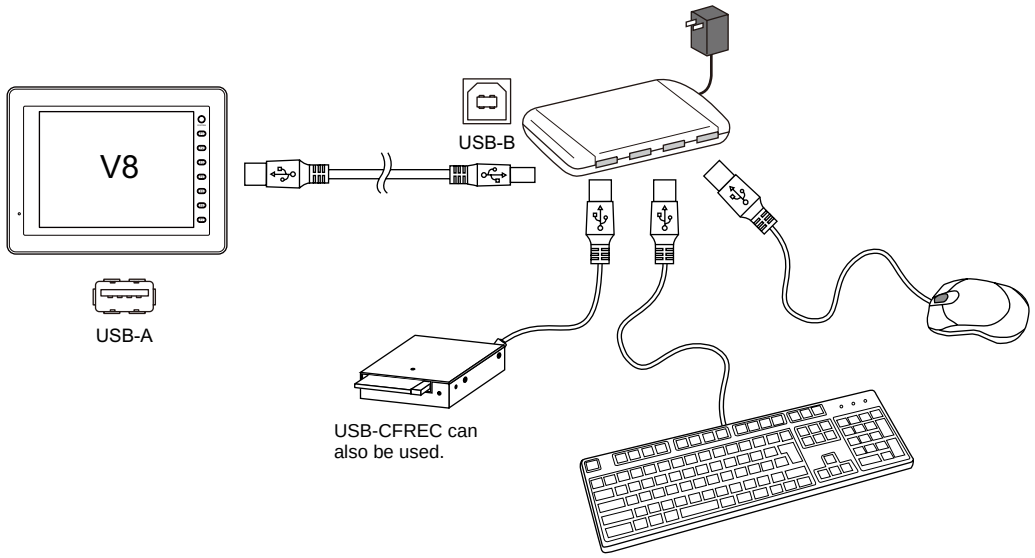
USB Equipment	V815iX V812(i)S V810(i)T/(i)S V808(i)S	V810(i)C V808(i)C	V806(i)T V806(i)C V806(i)M
USB barcode reader	○	○	○
USB keyboard	○	○	○
USB mouse	○	○ *	○ *
USB FDD	○	×	×

*** Except for portrait-oriented V808C or V806**

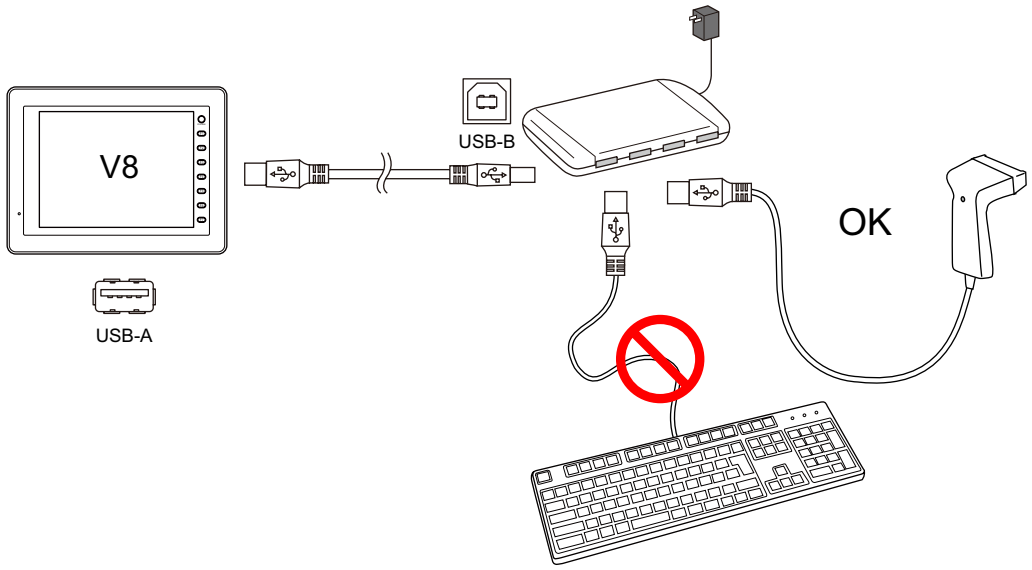
26.2 Notes on USB Connection

Limitations on Connection Devices

- It is not possible to connect multiple USB devices of the same kind at the same time.
  (Example: Two USB barcode readers = × (not connectable), Two USB keyboards = × (not connectable))
  Using a USB hub, one device of each kind can be connected.



- A USB barcode reader and a USB keyboard cannot be used at the same time.
  If both are connected, only the USB barcode reader will be recognized.



Device Combinations

Combination of devices usable at the same time: ○
Combination of devices not usable at the same time: ×

	USB barcode reader	USB keyboard	USB mouse	USB-FDD
USB barcode reader	–	×	○	○
USB keyboard	×	–	○	○
USB mouse	○	○	–	○
USB FDD	○	○	○	–

Notes on Use of USB Hubs

- A maximum of two USB hubs (= max. 2 tiers) can be connected to the V8 series.
  Note that, however, the system's performance may slow down when two hubs are used.

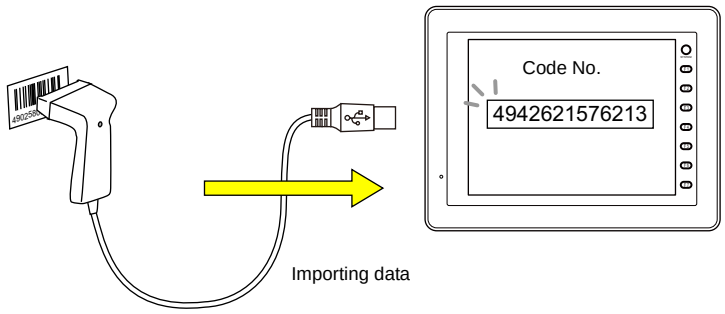
- If you connect a USB hub to the V8 series while using a power adaptor at the USB hub, do not turn the power adaptor OFF or remove the connector between the power adaptor and the USB hub.
  If the power adaptor is turned OFF or disconnected, the power supply to the V8 series will become insufficient and the V series may become unstable such as restarting repeatedly.

- If two USB hubs are connected to the V8 series, supply the power to the USB hub using the power adaptor provided to these USB hubs.
  When connecting one USB hub, if a power adaptor is provided to the USB hub, supply the power to the USB hub using that power adaptor.

26.3 USB Barcode Reader

Overview

- The USB HID class barcode reader can be connected.



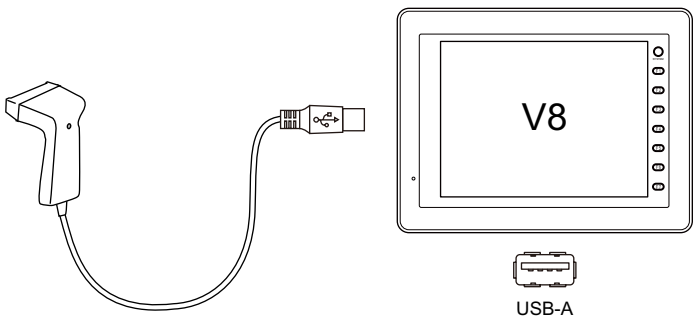
- A variety of barcodes can be read in the same way as the case of RS-232C connection.

Operation Verified Readers

- The USB HID class barcode reader is supported.
- For a list of USB barcode readers of which operations have been verified, visit our website (http://www.monitouch.com).

Connection

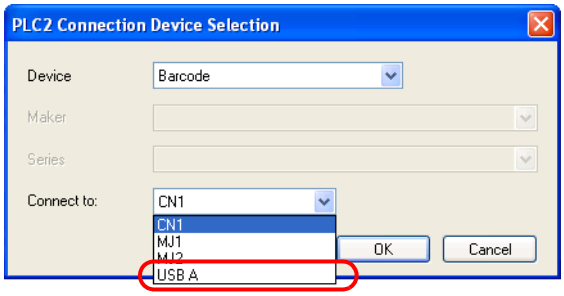
Use the USB-A port on the V8.



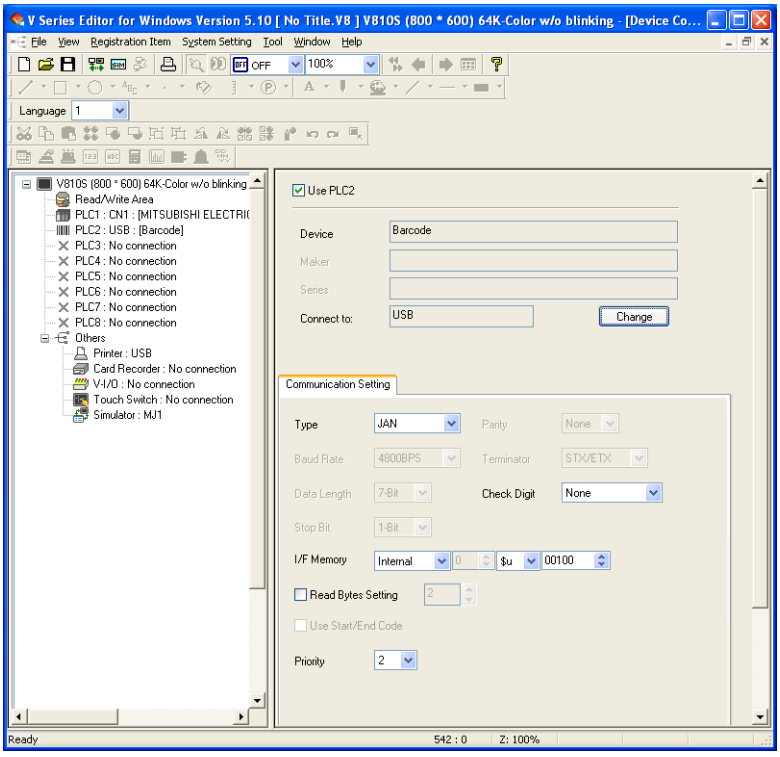
* Only one USB barcode reader can be connected to the V8.

Setting Procedure

Select [System Setting] → [Device Connection Setting], and select [Barcode]. In addition to [CN1], [MJ1] and [MJ2], [USB A] is added and becomes selectable for [Connect to:].
For USB connection, select [USB A].



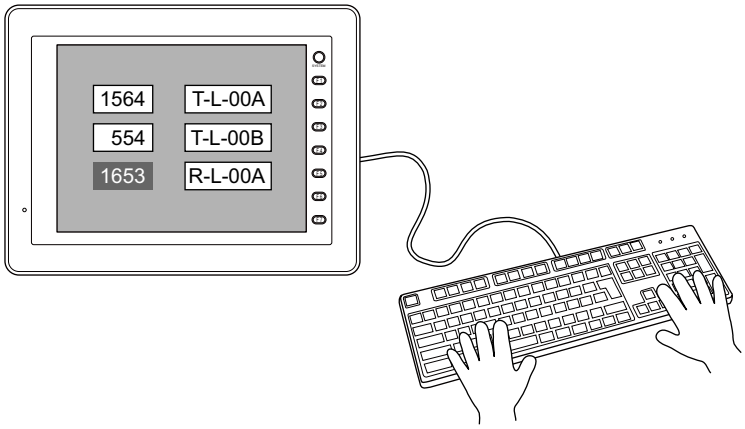
The items that require setting are the same as those with [CN1], [MJ1] or [MJ2].
For more information, refer to “17 Barcode” in the V8 Series Reference Manual.



26.4 USB Keyboard

Overview

- In place of a keypad or character entry keys, a USB keyboard can be used in entry mode.

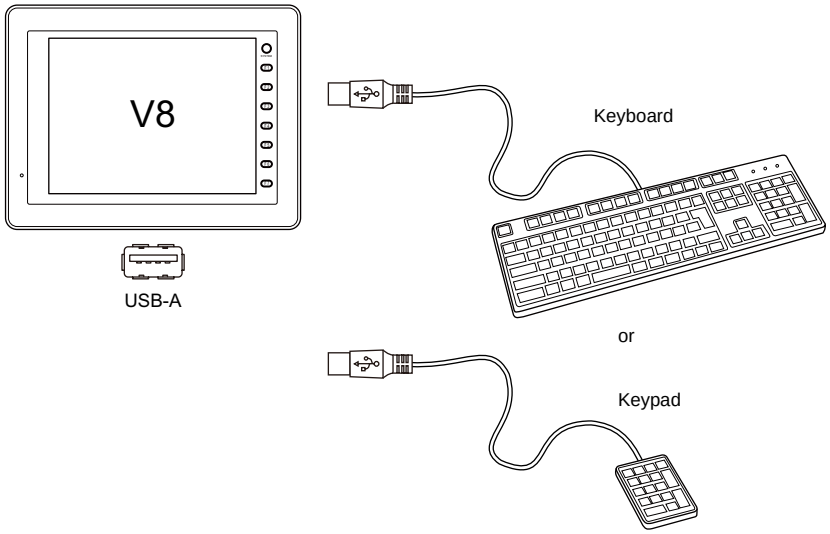


Applicable USB Keyboards

- Japanese keyboard (106 keyboard, 109 keyboard, etc.)
- US keyboard (101 keyboard, 104 keyboard, etc.)
- Keypad

Connection

Use the USB-A port on the V8.



* Only one USB keyboard can be connected.

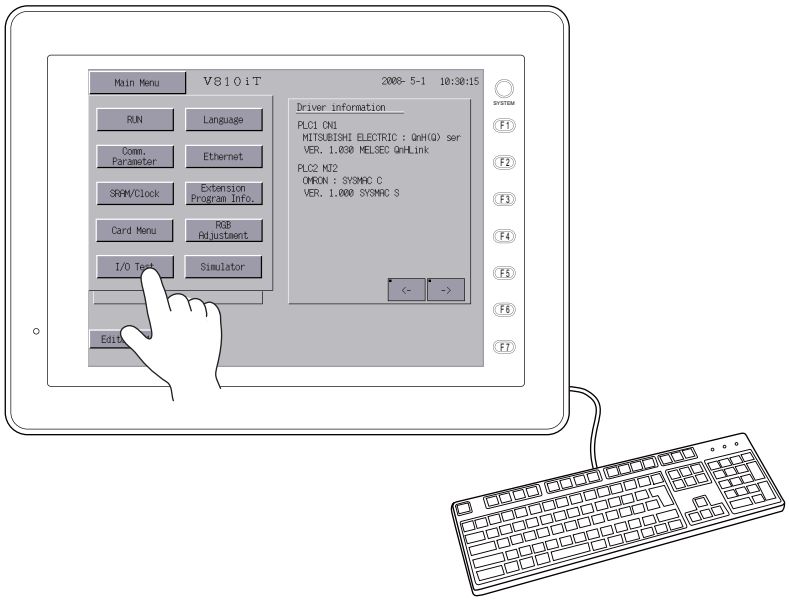
Setting Procedure

To enable the USB keyboard, settings are required on the editor and the MONITOUCH.

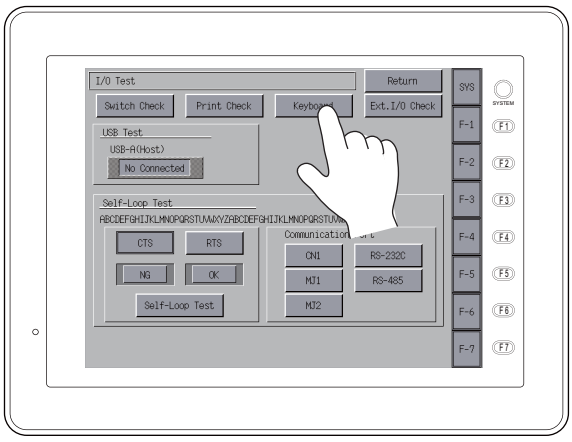
Settings on MONITOUCH

Select the language for the keyboard on the Main Menu screen.
(When using a keypad, this setting is not necessary.)

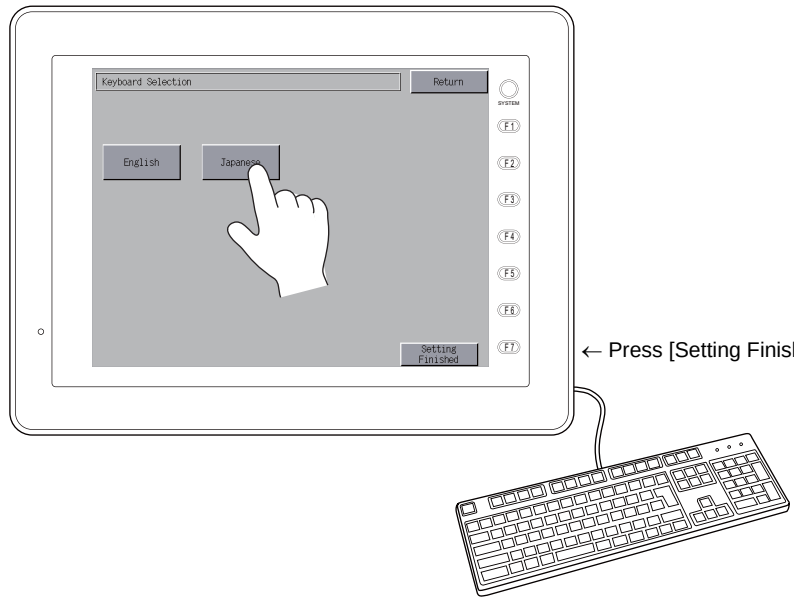
1. Press the [Main Menu] switch and press [I/O Test].



2. The I/O Test screen is displayed.
   Press the [Keyboard] switch.



3. The Keyboard Selection screen is displayed.
   Select the language to be used for the keyboard, and press the [Setting Finished] switch.



4. The I/O Test screen is displayed again.
   Press the [Return] switch to move back to the Main Menu screen.

The settings on the MONITOUCH have been completed.

Settings on the Editor

Setting Item	Mandatory / As Required	Setting Procedure
[Entry] icon	Mandatory	Place an [Entry] icon on the screen where the keyboard is to be used.
Entry Target	Mandatory	When entering characters through the keyboard, register [Entry Target] for character display; when entering numerical data through the keyboard, register [Entry Target] for numerical data display.

An [Entry] icon must be registered on the screen where the USB keyboard is to be used.
In addition, numerical data or character display parts of [Display Function: Entry Target] are required.

Keyboard Key Functions

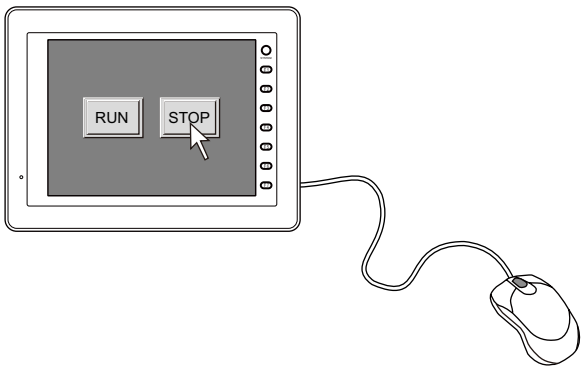
The V8 functions assigned to the keys on the keyboard are listed below:

USB Keyboard	Switch Function	Remarks
Character keys	Character input	
Enter	Write	
	Clear	
– (minus)	Toggle sign	
Space	Space	
Back Space	Backspace	
Delete	DELETE	
	+1	
	–1	
	Addition	
	Subtraction	
Esc	Cancel	
←	←	
→	→	
↑	↑	
↓	↓	
Page Up	>>	
Page Down	<<	
	Graphic library	
	80 compatible HEX key	
	80 compatible HEX key change	
	Maximum value entry	
	Minimum value entry	
	Multi-character input	
Shift + Caps Lock	Switching (Caps Lock)	
	Word edit	
	Word registration	
	Character switching (+)	
	Character switching (–)	

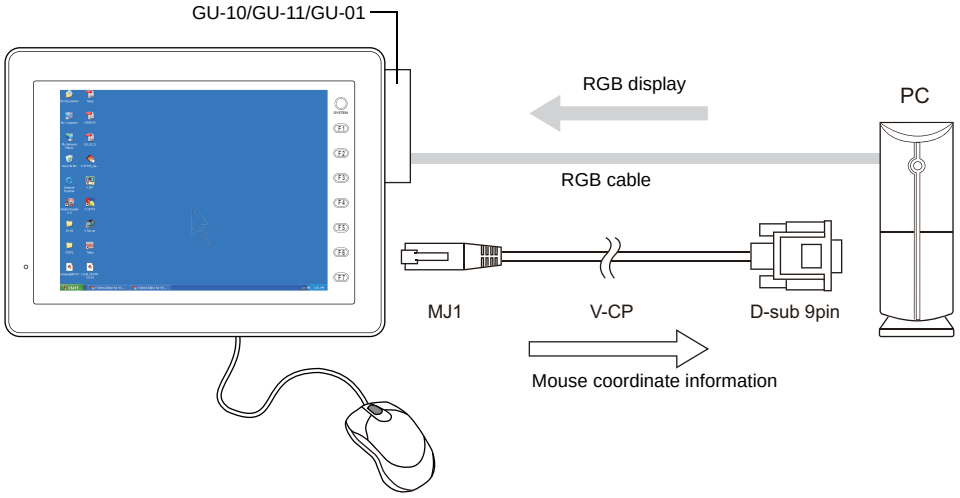
26.5 USB Mouse

Overview

- A USB mouse can be connected.
  Instead of pressing on the screen, the mouse can be used for switch operation.

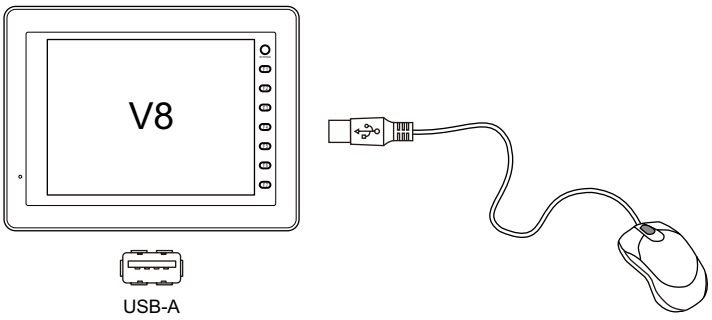


- When the touch switch driver is installed on the computer and the computer is connected with the V8 series via the transfer cable (V-CP), operations on the RGB input screen can be performed using a USB mouse.



Connection

Use the USB-A port on the V8.



* Only one USB mouse can be connected.

Setting Procedure

There is no special setting required for using a USB mouse.

Mouse Operation

Mouse Pointer Shape

The mouse pointer displayed on the MONITOUCH is shown below:

Mouse Operation

The mouse operations available with the MONITOUCH are listed below:

Mouse Operation	Action
Move	Moving the mouse pointer
Left-click	Pressing the button

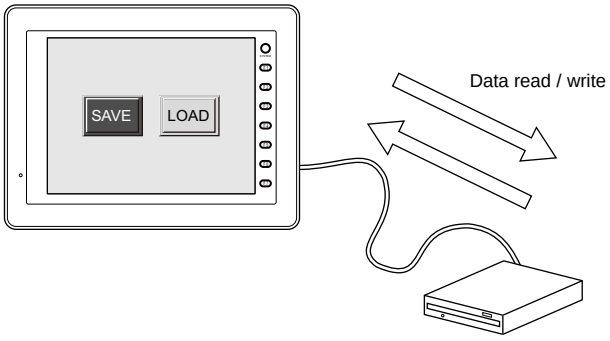
Limitations

- When the touch switch emulation of the RGB display function and the remote desktop window display function are used at the same time, a USB mouse cannot be used for the remote desktop window.

26.6 USB FDD (Floppy Disk Drive)

Overview

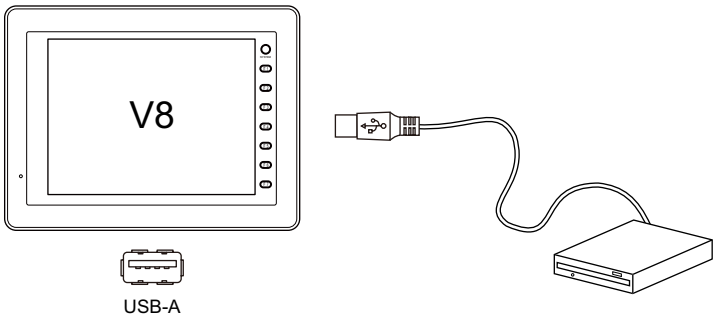
- A USB FDD can be connected.



- Memory media available with the V8 are: CF card in the built-in FC card slot; CF card in the CF card reader/writer that is USB connected, floppy disk inserted in the USB FDD.

Connection

Use the USB-A port on the V8.



* Only one USB FDD can be connected.

Setting Procedure

There is no special setting required for using a USB FDD.

Applicable Media

- 2HD type (1.44 MB, PC/AT format)
- 2DD type (640 kB, MS-DOS format)

Available Functions

Macro Command

- COPY_FILE

System Memory

The system memory addresses relating to the USB FDD are shown below.

Address ($s)	Description		Memory Type
1025	USB FDD (drive: A)	FDD error state	← V
1026	USB FDD (drive: A)	FDD free capacity (low-order) Unit: kB	
1027	USB FDD (drive: A)	FDD free capacity (high-order)	
1028	USB FDD (drive: A)	[CF Card Removal] switch status	

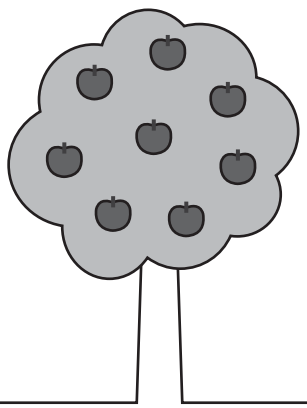
- Address $s1025
  The result of access to the USB FDD port (drive: A) is output.

4	Floppy disk not mounted
6	Too small floppy disk size
7	Different floppy disk type
12	Floppy disk write error
15	Disk error (open failure)
16	Floppy disk read error

- Address $s1026 - 1027
  Stores the free capacity on the USB-FDD port (drive: A) in kB.

- Address $s1028
  Stores the status of the [Function: CF Card Removal] switch.
  [0]: Switch OFF (CF card removal disabled)
  [Other than 0]: Switch ON (CF card removal enabled)

MEMO



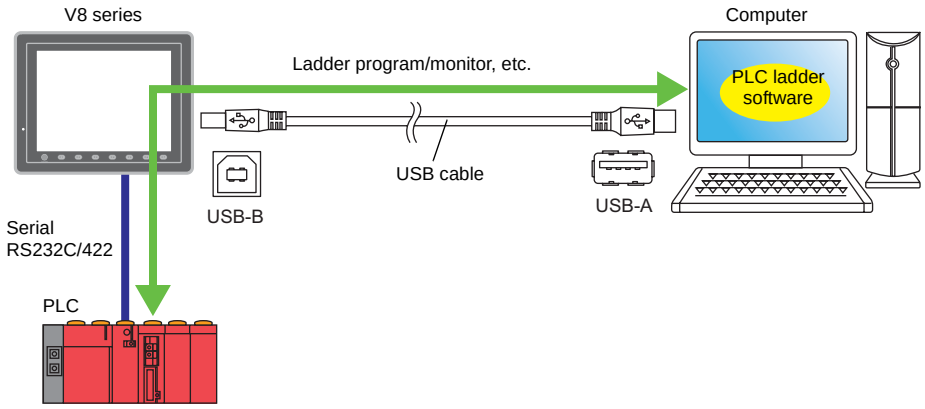
Please use this page freely.

27 Ladder Transfer via USB or Ethernet

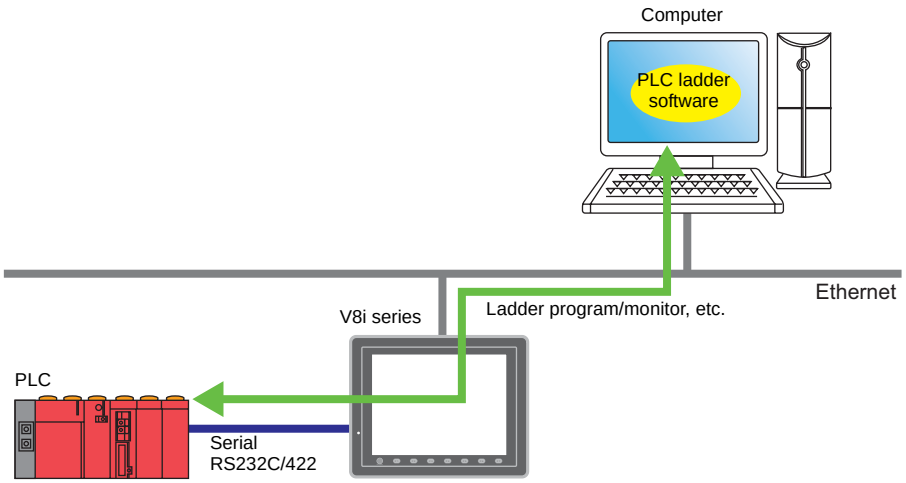
Overview

You can write or monitor PLC ladder programs via the V8i or V8 series using the USB port or Ethernet.

- Ladder transfer via USB



- Ladder transfer via Ethernet



*** For information on the available PLC models, refer to “Available PLC Models” (page 27-2). The ladder transfer function is enabled, provided that [PLC1] is selected as the connection target PLC and [1:1] is selected for [Connection Mode] in the [Device Connection Setting] dialog in V-SFT.**

Operating Environment

Available V8 Models

MONITOUCH Model	Port
V815iX/V812iS/V810iS/V810iT/V810iC V808iS/V808iC/V808iCH/V806iT/V806iC/V806iM	Built-in LAN or USB-B
V812S/V810S/V810T/V810C V808S/V808C/V808CH/V806T/V806C/V806M	USB-B

Applicable OS for Computer

Applicable OS varies depending on the version of our ladder tool software LadderComOp.

LadderComOp Version*	Applicable OS	Remarks
Version 2	Microsoft Windows 2000/XP/Vista/7/8	
Version 1	Microsoft Windows 2000/XP	Windows 2000 is not compatible with the following PLCs: Maker: MITSUBISHI ELECTRIC — Model Setting in V-SFT: A series CPU, FX2N/1N series CPU Maker: Panasonic — Model Setting in V-SFT: FP Series (RS232C/422)

* For more information on the versions, refer to “LadderComOp Setting” (page 27-3).

Available PLC Models

Maker	Model Setting in V-SFT *1	Remarks
MITSUBISHI ELECTRIC	A series CPU	Ladder transfer is enabled only with PLCs (CPUs) connected to V8. For more information on the available PLC models, refer to the V8 Series Connection Manual.
	QnH (Q) series CPU	
	Q00J/Q00/Q01 series CPU	
	QnH (Q) series CPU (multi-CPU)	
	QnU series CPU	
	FX series CPU	
	FX2N/1N series CPU	
	FX1S series CPU	
	FX3U/3UC/3G series CPU	
OMRON	SYSMAC CS1/CJ1	
Panasonic	FP series (RS232C/422)	
Yokogawa Electric	FA-M3	
	FA-M3R	
Fuji Electric	MICREX-SX SPH/SPB CPU	
Siemens	S7-200 PPI *2	

*1 The ladder transfer function via USB or Ethernet is enabled, provided that [PLC1] is selected as the connection target PLC and [1 : 1] is selected for [Connection Mode] in the [Device Connection Setting] dialog in V-SFT.

*2 Only LadderComOP version 2 is supported.

Setting Items

V-SFT Setting

- [Device Connection Setting] → page 27-4

LadderComOp Setting

- Installation → page 27-7
- [Ladder Transfer Setting] → page 27-18

About LadderComOp
This is an application required for ladder transfer via USB/Ethernet.
“LadderComOp.exe” can be installed at the time of installing (updating) V-SFT-5, or can be downloaded from the Hakko Electronics website at http://www.hakko-elec.co.jp/en/download/05other/index.php.

PLC Programming Software Setting

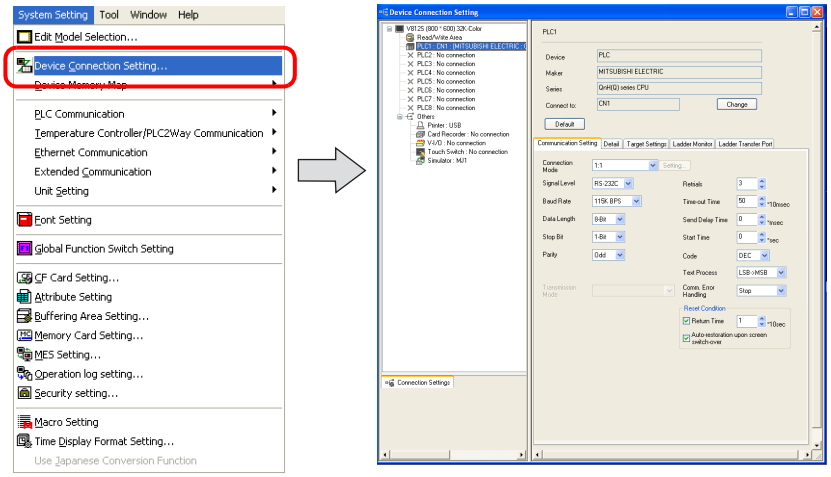
- COM port setting → page 27-22

V-SFT Setting

This section explains the settings for ladder transfer using the QnH (Q) series (MITSUBISHI ELECTRIC) as an example.

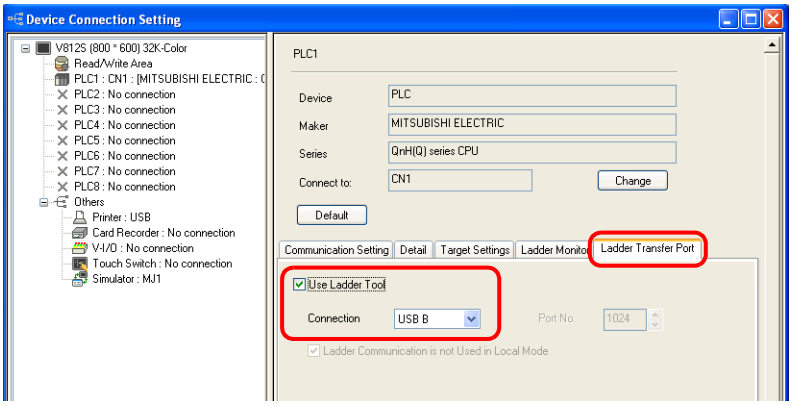
[Device Connection Setting]

1. Click [System Setting] → [Device Connection Setting]. The [Device Connection Setting] dialog is displayed.

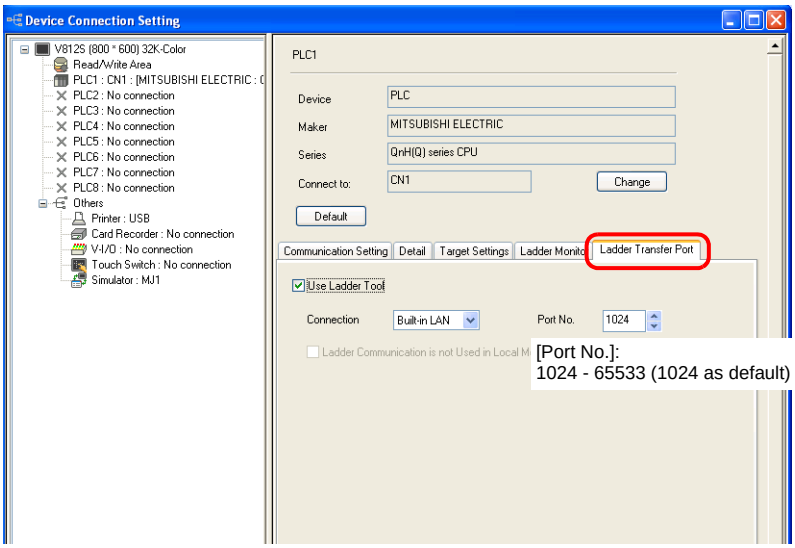


2. Open the [Ladder Transfer Port] tab window.
   Check [☑ Use Ladder Tool] and select an option for [Connection].

   - For ladder transfer via USB: [Connection: USB B]



- For ladder transfer via Ethernet: [Connection: Built-in LAN], [Port No.: 1024] (as default)



About [Port No.]
The [Port No.] selected above will be used as the receiving port on the V8i series during ladder transfer between the V8i unit and a computer. Also, the port of [Port No.] plus 1 will be used as the sending port on the V8i series for transmission to a computer. Therefore, check that the same port number is not already assigned to a different function in the screen data.

Example: [Port No.] set to “1024”
Receiving port on the V8i series: 1024
Sending port on the V8i series: 1025

* The port number assigned here is used for the LadderComOp setting.
Go to the sections below for more information:

- LadderComOp version 2 setting → page 27-19
- LadderComOp version 1 setting → page 27-21

3. The necessary settings have been completed. Transfer the screen data to the V8 series.

Notes on ladder transfer via USB

Observe the following when transferring screen data via a USB cable.

- Switch to the Main Menu screen on the V8 series.
  (Ladder communication is enabled on the RUN screen only.)
- Place LadderComOp version 2 offline.
  (For more information on this setting, refer to [Ladder Transfer Setting] (page 27-18).)

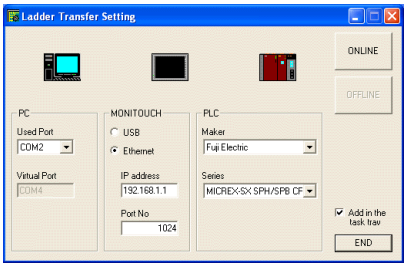
LadderComOp Setting

Ladder transfer via USB/Ethernet is available, provided that the dedicated tool, LadderComOp, is installed on the computer. If LadderComOp has already been installed, go to [Ladder Transfer Setting] (page 27-18).

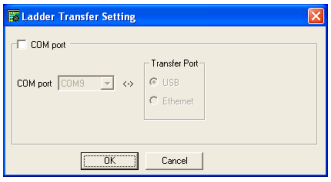
There are LadderComOp version 1 and version 2. When the OS in your computer is Windows Vista, 7 or 8, install LadderComOp version 2.
LadderComOp version 2 is obtainable in either of the two below ways:

- A CD of V-SFT version 5.4.23.0 or higher, or V-SFT updated version offered at Hakko Electronics website
  Downloading from: http://www.hakko-elec.co.jp/en/download/09vsft5/index.php
- "LadderComOp.exe" at Hakko Electronics website
  Downloading from: http://www.hakko-elec.co.jp/en/download/05other/index.php

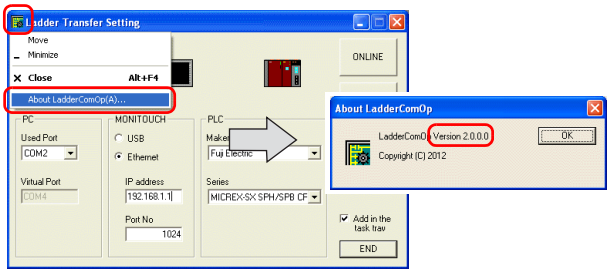
Version 2



Version 1



* How to review the version of LadderComOp
Click the mark at the top left corner of the [Ladder Transfer Setting] dialog and select [About LadderComOp] to see the software version.



Example: Version 2

Installation

Perform the steps below to install LadderComOp.

- New installation of version 2 → page 27-7
- Update from version 1 to version 2 → page 27-11
- New installation of version 1 → page 27-16

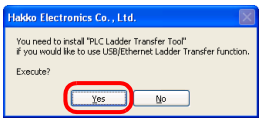
New installation of version 2

This section explains how to install LadderComOp version 2 on Windows XP as an example. If you download “LadderComOp.exe” from the website and install it, start from step 2.

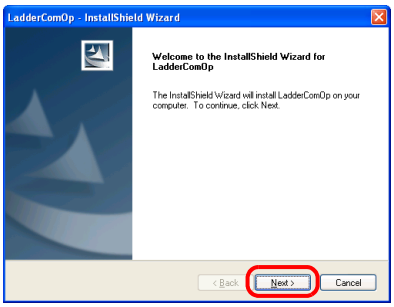
LadderComOp version 2 is obtainable in either way below:

- A CD of V-SFT version 5.4.23.0 or higher, or V-SFT updated version offered at Hakko Electronics website
  Downloading from: http://www.hakko-elec.co.jp/en/download/09vsft5/index.php
- “LadderComOp.exe” at Hakko Electronics website
  Downloading from: http://www.hakko-elec.co.jp/en/download/05other/index.php

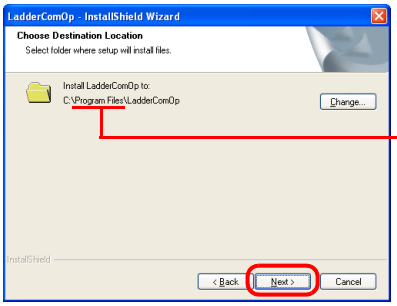
1. When V-SFT-5 has been installed or updated, the following dialog is displayed.
   Click [Yes].



2. Click [Next].

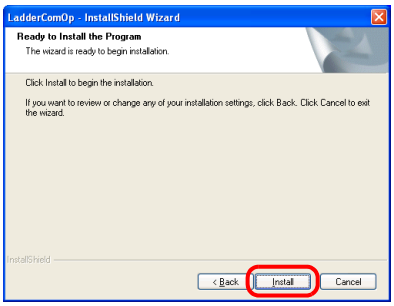


3. Select the destination of where to install the software and click [Next].

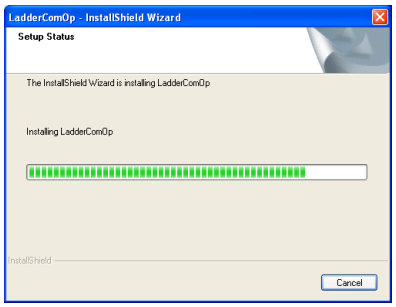


Destination for installation (default):
Windows 2000 / XP: Program Files
Windows Vista / 7 / 8: MONITOUCH

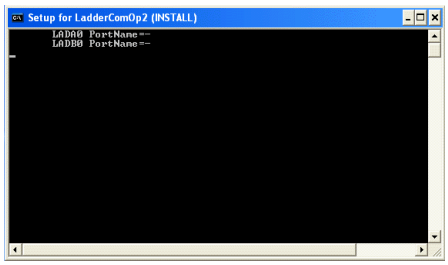
4. Click [Install].



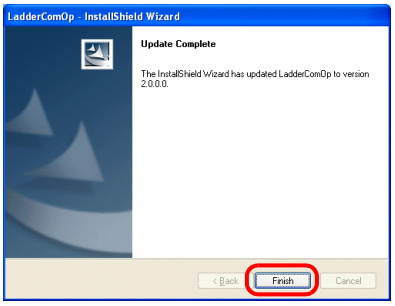
5. Installation starts.



The window below appears during installation.

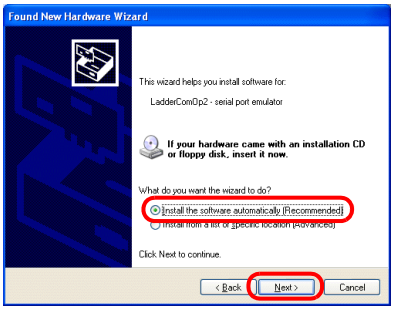


6. The dialog indicating the completion of installation is displayed. Click [Finish].

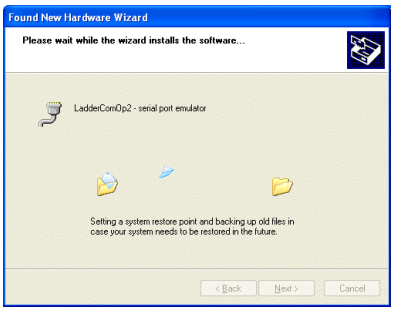


7. The message “Found New Hardware” is displayed and then the installation wizard is displayed on the computer. Check [No, not this time] and click [Next].

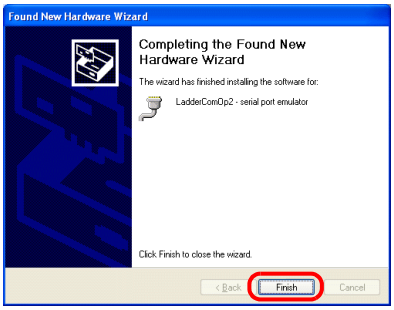
8. When the dialog below is displayed, check [Install the software automatically (Recommended)] and click [Next].



9. Installation starts.

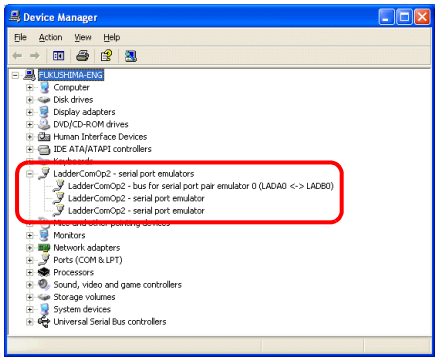


10. The dialog indicating the completion of installation is displayed. Click [Finish].

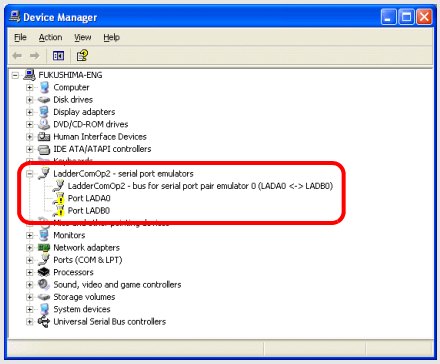


11. Repeat steps 7. through 10. for installation.

12. Open the [Device Manager] of the computer.
    When installation has been successful, “LadderComOp2” appears in the [Device Manager] window.



If installation has failed, a yellow exclamation mark “!” is present at “LadderComOp2” in the [Device Manager] window.
In such a case, uninstall and reinstall LadderComOp.



This step completes the installation of LadderComOp version 2.

Update from version 1 to version 2

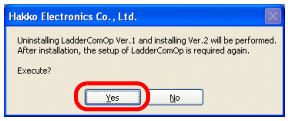
This section explains how to update LadderComOp from version 1 to version 2 on Windows XP as an example.

LadderComOp version 2 is obtainable in either way below:

- A CD of V-SFT version 5.4.23.0 or higher, or V-SFT updated version offered at Hakko Electronics website
  Downloading from: http://www.hakko-elec.co.jp/en/download/09vsft5/index.php
- “LadderComOp.exe” at Hakko Electronics website
  Downloading from: http://www.hakko-elec.co.jp/en/download/05other/index.php

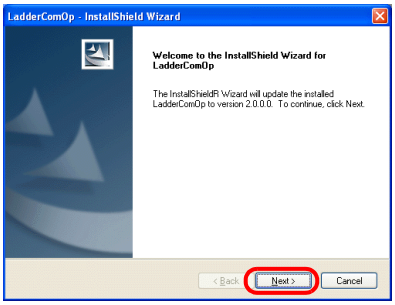
Following the uninstallation of LadderComOp version 1, the installation of version 2 starts.
Be sure to reboot the computer after installing LadderComOp version 2.
Also re-setting LadderComOp is required.
For more information on the setting, refer to [Ladder Transfer Setting](page 27-18).

1. When V-SFT-5 has been installed (updated)* or “LadderComOp.exe” downloaded from the website is executed, the following dialog is displayed.
   Click [Yes].

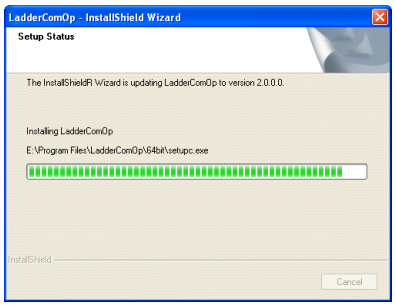


* V-SFT-5 version 5.4.23.0 or higher supported

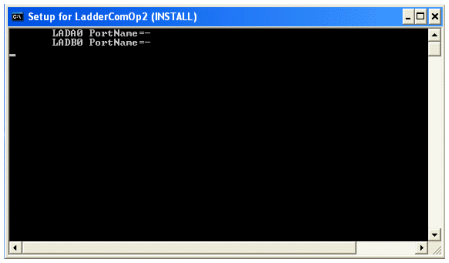
2. Click [Next].



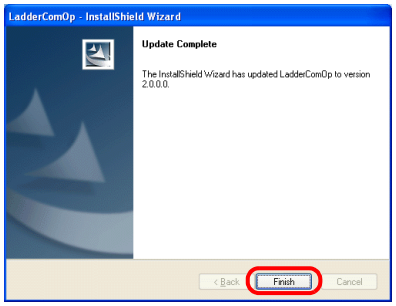
3. A LadderComOp update starts.



The window below appears during installation.



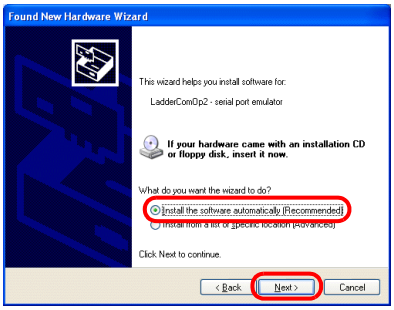
4. Click [Finish].



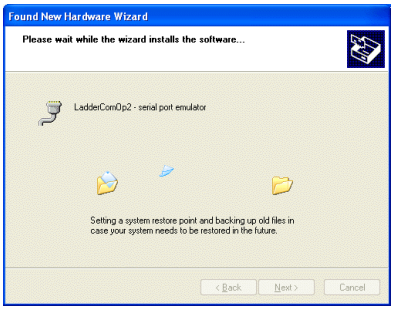
The dialog for rebooting the computer is displayed.
Do not reboot the computer yet. Go to step 5.

5. The message “Found New Hardware” is displayed and then the installation wizard is displayed on the computer. Check [No, not this time] and click [Next].

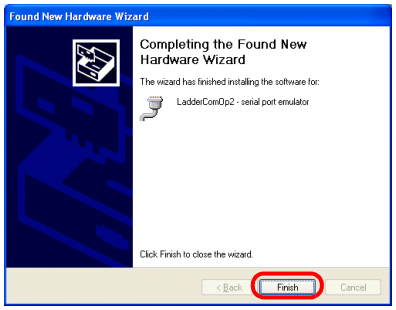
6. When the dialog below is displayed, check [Install the software automatically (Recommended)] and click [Next].



7. Installation starts.

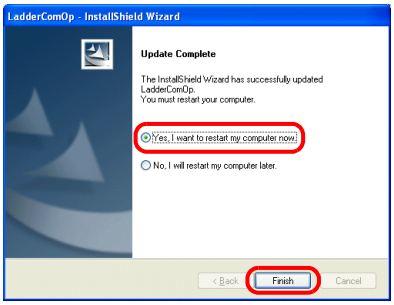


8. The dialog indicating the completion of installation is displayed. Click [Finish].



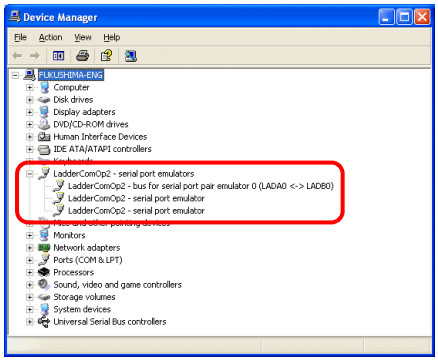
9. Repeat steps 5 through 8 for installation.

10. The dialog indicating the completion of update is displayed. Click [Finish]. Reboot the computer.

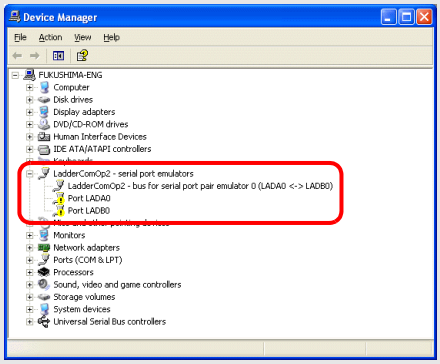


Be sure to reboot your computer. Failure to reboot your computer may cause a malfunction.

11. Open the [Device Manager] of the computer.
When installation has been successful, “LadderComOp2” appears in the [Device Manager] window.



If installation has failed, a yellow exclamation mark “!” is present at “LadderComOp2” in the [Device Manager] window.
In such a case, uninstall and reinstall LadderComOp.



This step completes updating LadderComOp from version 1 to version 2.

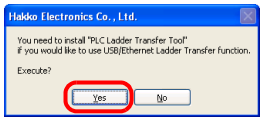
New installation of version 1

This section explains how to install LadderComOp version 1 on Windows XP as an example. If the OS in your computer is Windows Vista or Windows 7, install LadderComOp version 2. For installation procedure, refer to New installation of version 2 (page 27-7).

LadderComOp version 1 is obtainable from the following:

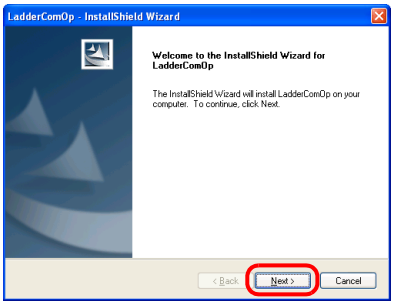
- A CD of V-SFT version 5.3.0.0 to version 5.4.22.0

1. When V-SFT-5 has been installed or updated, the following dialog is displayed*. Click [Yes].

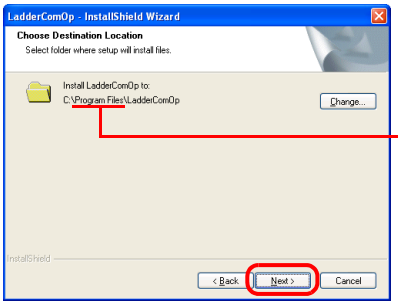


* V-SFT version 5.3.0.0 or higher supported

2. Click [Next].

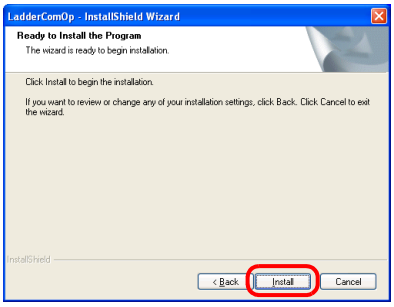


3. Select the destination of where to install the software and click [Next].

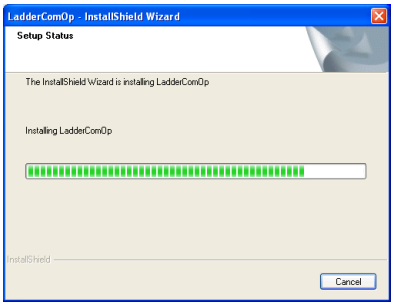


Destination for installation (default):
Windows 2000 or Windows XP: Program Files

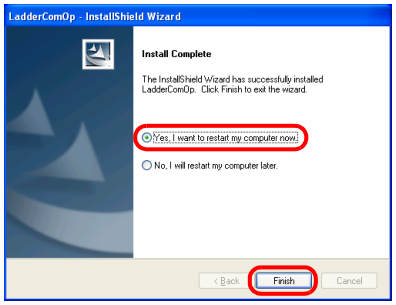
4. Click [Install].



5. Installation starts.



6. The dialog indicating the completion of installation is displayed. Click [Finish]. Reboot the computer.



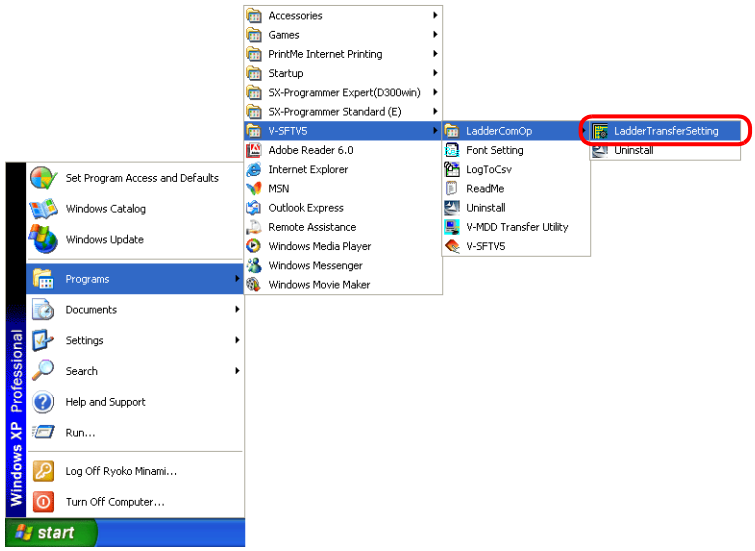
Whenever you have installed or uninstalled LadderComOp version 1, reboot your computer. Failure to reboot your computer may cause a malfunction.

This step completes the installation of LadderComOp version 1.

[Ladder Transfer Setting]

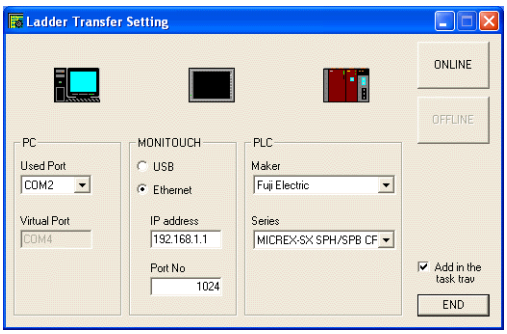
Start

1. From the [Start] menu of your computer, click [Programs] → [V-SFTV5] → [LadderComOp] → [Ladder Transfer Setting].

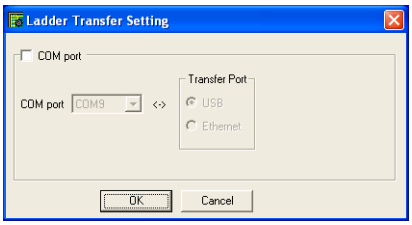


2. The [Ladder Transfer Setting] dialog is displayed.

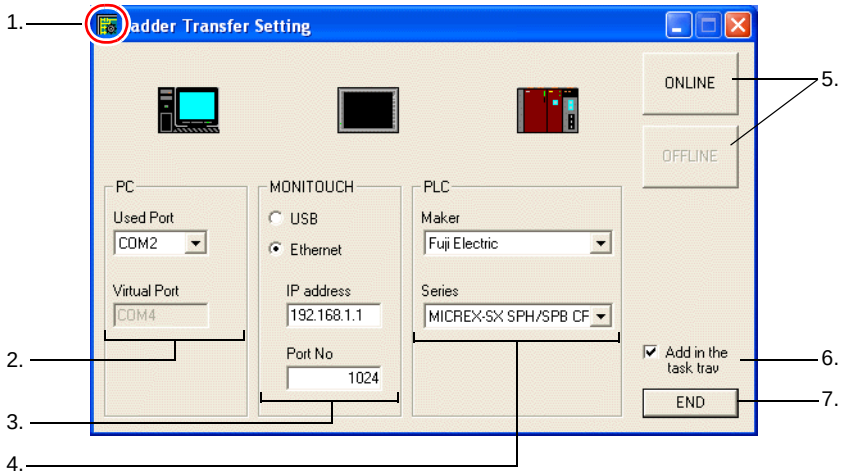
Version 2



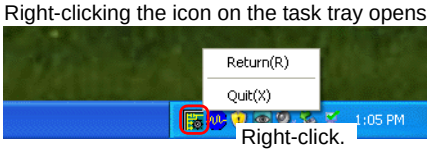
Version 1



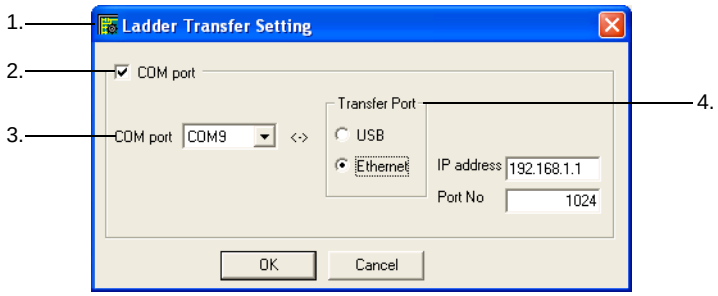
LadderComOp version 2 setting



1. Icon	Clicking this icon and selecting [About LadderComOp] opens the dialog that displays the version of LadderComOp.
2. PC	Two COM ports on the computer are used. Used Port Select a COM port for ladder transfer from the list. Range: COM1 to COM256 (COM ports already assigned to other purposes on the computer are not listed.) The COM port number selected in this field is to be set in the PLC programming software*. * The range of COM port numbers is limited, depending on the PLC programming software. For more information, refer to the manual for your PLC. Example: COM 1 to COM 15 for FPWIN GR (Panasonic) (COM 1 to COM 5 for version 2.2 or lower) Virtual Port A COM port number not in use is to be automatically assigned.
3. MONITOUCH	Select a method of connecting the computer and the V8 series. USB No special setting required Ethernet • IP address Specify the local IP address of the V8i series (with built-in LAN port). • Port No. Specify the port number of the V8i series. Set the same port number as set in [Ladder Transfer Port] under [PLC1] ([System Setting] → [Device Connection Setting] → [PLC1]). Range: 1024 to 65533 (1024 as default)
4. PLC	Select the maker and the model of the PLC.

5. ONLINE and OFFLINE	Each button places the ladder transfer online or offline between the computer and the V8 series. ONLINE This button establishes connection between the computer and the V8 series to activate the ladder transfer mode. OFFLINE This button disconnects the computer from the V8 series. This button causes a forced disconnection even during ladder transfer.
6. ☐ Add in the task tray	Select whether LadderComOp resides on the task tray. • Checked While ladder transfer is online or the [Ladder Transfer Setting] dialog is minimized, the icon of the dialog resides on the task tray. While ladder transfer is online, the message “Transferring” appears in the tooltip displayed at the task tray. Right-clicking the icon on the task tray opens the menu.  Right-click. Return This option opens the [Ladder Transfer Setting] dialog. Quit This option disconnects the computer from the V8 series. This option causes a forced disconnection even during ladder transfer. • Unchecked (default) The [Ladder Transfer Setting] dialog is left open. The dialog can be minimized to be placed on the taskbar.
7. END	This button disconnects the computer from the V8 series and closes the [Ladder Transfer Setting] dialog.

LadderComOp version 1 setting



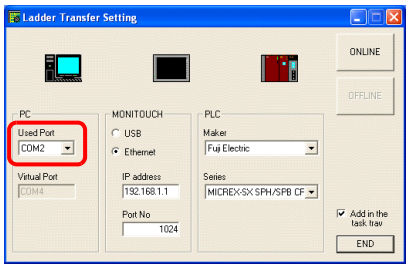
1. Icon	Clicking this icon and selecting [About LadderComOp] opens the dialog that displays the version of LadderComOp.
2. ☐COM port	• Checked Checking this item selects the use of ladder transfer. Also every serial communication that uses the COM port specified in this dialog is converted to communication via USB or Ethernet. • Unchecked Unchecking this item deselects the use of ladder transfer. Whenever the ladder transfer function is not used, uncheck this box.
3. COM port	Select a COM port from the list. Be sure that the COM port you select is not already used for any software or tool on the computer. The COM port number selected in this field is to be set in the PLC programming software. Range: COM1 to COM256 (COM9 as default) * Do not select any COM port number already used for another serial communication. The range of COM port numbers is limited, depending on the PLC programming software. For more information, refer to the manual for your PLC. Example: COM 1 to COM 15 for FPWIN GR (Panasonic) (COM 1 to COM 5 for version 2.2 or lower)
4. Transfer Port	Select a method of connecting the computer and the V8 series. USB No special setting required Ethernet • IP address Specify the local IP address of the V8i series (with built-in LAN port). • Port No. Specify the port number of the V8i series. Set the same port number as set in [Ladder Transfer Port] under [PLC1] ([System Setting] → [Device Connection Setting] → [PLC1]). Range: 1024 to 65533 (1024 as default)

PLC Programming Software Setting

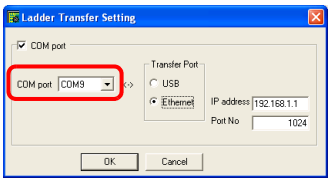
Once you have specified a COM port in the [Ladder Transfer Setting] dialog in LadderComOp, set the COM port in the dialog shown below in the programming software for your PLC.

Example: COM port No. 9 in the [Ladder Transfer Setting] dialog

Version 2



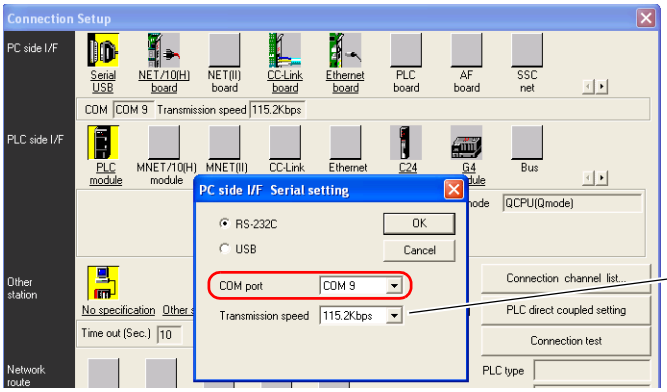
Version 1



Notes on the use of LadderComOp version 1

- If your computer has no serial port, selecting a COM port may be disabled, depending on the PLC programming software. Proceed to the LadderComOp settings beforehand.
  For setting procedure, refer to [Ladder Transfer Setting] (page 27-18).
- In the case of ladder transfer via USB, turn on the V8 unit and establish its connection with the computer via a USB cable before proceeding to the COM port setting. Otherwise, the COM port specified in LadderComOp cannot be identified.

MITSUBISHI ELECTRIC “GX Developer/Gx Works2”



For [Transmission speed], specify the same value as the baud rate between the V8 unit and the PLC.

OMRON CX-Programmer

Be sure to select “SYSMAC WAY” for [Network Type].

[Network Settings] dialog → [Driver] → [Port Name]

For [Baud Rate], specify the same value between the V8 unit and the PLC.

Panasonic “FPWIN GR”

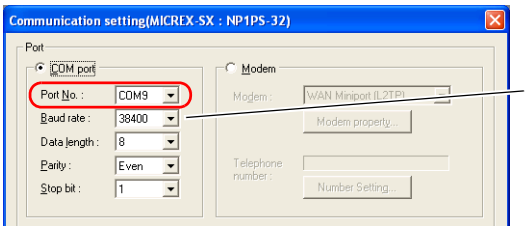
[Communication Settings] dialog → [Port No.]

For [Baud Rate], specify the same value between the V8 unit and the PLC.

Yokogawa Electric “Wide Field2”

[Environmental Settings] dialog → [Communication Settings] → [COM Port No.]

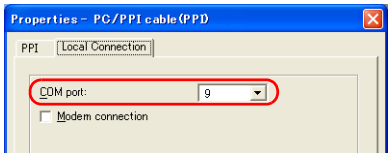
Fuji Electric “SX-Programmer Expert (D300win)”



Specify the same value as the baud rate between the V8 unit and the PLC.

Siemens “STEP 7-Micro/WIN”

[Set PG/PC Interface] dialog → [PC/PPI cable (PPI)] → [Properties].



The baud rate between the V8 unit and the PC is fixed to 115 Kbps.

Notes

Transferring Screen Data

- Observe the following when transferring ladder and screen data via a USB cable.
  - Switch to the Main Menu screen on the V8 series.
    (Ladder communication is enabled on the RUN screen only.)
  - Place LadderComOp version 2 offline.
    (For more information on this setting, refer to [Ladder Transfer Setting] (page 27-18).)
- To use ladder transfer function via USB/Ethernet with Siemens S7-200 PPI, please make sure to switch to the Main Menu screen before transferring screen data.
  (Ladder communication is enabled on the RUN screen only.)

When Using LadderComOp Version 1

- Whenever you have made changes to the LadderComOp settings, restart the PLC programming software. With a Fuji Electric PLC, terminate the message manager in the task manager before restarting the PLC programming software.

Others

- To use PC as users, the following configurations need to be done beforehand.
  1) Log on as Administrator.
  2) Start [LadderComOp] and make settings for [Used Port] (for version 1, [COM port]).

  * It may take time to close [LadderComOp] after initial settings. Please also note that if you start the software without administrator authorization, the message, “Please start from the set of COM port with administrator.” will be displayed.

- The following messages will be displayed in the top left of V series while accessing Siemens S7-200 PPI by using ladder transfer function via USB/Ethernet, especially for transferring large files such as programs.
  V series will restore automatically after the access is completed.
  - PLC1 Access denied by Loader
  - PLC1 In Reset Service

Appendix 1 System Memory

Addition to System Memory

The following system memory addresses ($s) have been added.
For description of the other system memory addresses ($s), refer to the V8 Series Reference Manual.

$s	Description	Memory Type
75	Overlap: Buzzer sound This address is used to activate or deactivate the buzzer that is issued when an overlap display appears. (For an overlap display with [☑ Superimpose] set, the buzzer does not sound regardless of the setting for $s75.) 0: Buzzer ON 1: Buzzer OFF	→ V
512	Two Ethernet ports selection For more information, refer to “17.2 Two Ethernet Ports”.	→ V
519	Ethernet status (for Ethernet unit) For more information, refer to “17.2 Two Ethernet Ports”.	← V
1006	E-mail transmission error information For more information, refer to “17.1 E-mail”.	← V
1009 *	Data sheet (STA_LIST): Consecutive print 0: Consecutive print prohibition 1: Consecutive print permission	→ V
1010 *	Data sheet: Count in the printing queue A value placed at this memory address is valid on the condition of $s1009 = 1. The number of data sheets (8 maximum) waiting to be printed is stored. If the macro command STA_LIST is executed while eight data sheets are already in the queue, a macro execution error arises.	← V
1011 *	Data sheet: Cancel A value placed at this memory address is valid on the condition of $s1009 = 1. When canceling the data sheets in the printing queue, place “1” at $s1011. The value is automatically reset to “0” upon cancellation.	→ V ← V
1025	USB-FDD (drive: A): FDD error status For more information, refer to “26.6 USB FDD (Floppy Disk Drive)”.	← V
1026	USB-FDD (drive: A): FDD free capacity (low-order) For more information, refer to “26.6 USB FDD (Floppy Disk Drive)”.	← V
1027	USB-FDD (drive: A): FDD free capacity (high-order) For more information, refer to “26.6 USB FDD (Floppy Disk Drive)”.	← V
1028	USB-FDD (drive: A): [CF Card Removal] switch status For more information, refer to “26.6 USB FDD (Floppy Disk Drive)”.	← V
1050	Operation log: CF card in processing flag For more information, refer to “21 Operation Logs”.	← V
1051	Operation log: CF card completion flag For more information, refer to “21 Operation Logs”.	← V
1052	Operation log: CF card processing error flag For more information, refer to “21 Operation Logs”.	← V
1056	Macro execution result: Arithmetic operation For more information, refer to “23 Macro”.	← V
1057	Macro execution result: Conversion, transfer For more information, refer to “23 Macro”.	← V

$s	Description	Memory Type
1059	Macro execution result: Macro operation control For more information, refer to “23 Macro”.	← V
1062	Macro execution result: CF card For more information, refer to “23 Macro”.	← V
1063	Macro execution result: Others For more information, refer to “23 Macro”.	← V
1070	FTP server: FTP information storage For more information, refer to “16 FTP Server”.	← V
1071	FTP server: Number of FTP clients that log in to the server (3 sets maximum) For more information, refer to “16 FTP Server”.	← V
1072	FTP server: FTP line forced disconnection For more information, refer to “16 FTP Server”.	→ V
1075	Storage of source voltage status at start-up If the source voltage does not meet specifications at start-up, 1 is stored in $s1075 and “Warning 207” is displayed on MONITOUCH. For more information on “Warning”, refer to “Appendix 2 Error”. 0 : Normal 1 : Low	← V
1085	SRAM forced formatting After the execution of a forced SRAM formatting, “1” is placed automatically. The value at this address becomes “0” at the time of switching between the RUN and Main Menu screens For more information on the SRAM forced formatting, refer to Chapter 1, “1.3 General Settings”.	← V
1349	Backlight information storage The type of the backlight of the V8 unit is stored. 0: CCFL (cold cathode fluorescent lamp) 1: LED	← V
1360	Security: Security level of the current login For more information, refer to “22 Security Function”.	← V
1361 to 1364	Security: Current login user ID For more information, refer to “22 Security Function”.	← V
1365	Operation log viewer: Log file number being displayed For more information, refer to “21.2 Operation Log Viewer”.	← V
1366	Operation log viewer: Log folder number being displayed For more information, refer to “21.2 Operation Log Viewer”.	← V
1380	Remote desktop window start-up status For more information, refer to “19 Remote Desktop Window Display”.	← V
1381	Remote desktop window connection status For more information, refer to “19 Remote Desktop Window Display”.	← V
1560	Global overlap: Registration/display status For more information, refer to “2 Global Overlap”.	← V
1561	Global overlap: Display position (X coordinate) For more information, refer to “2 Global Overlap”.	← V
1562	Global overlap: Display position (Y coordinate) For more information, refer to “2 Global Overlap”.	← V
1563	Global overlap: Overlap library No. For more information, refer to “2 Global Overlap”.	← V

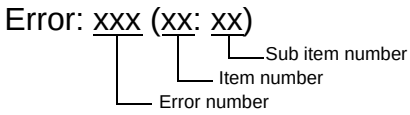
*** Available with the macro command STA_LIST.**
For more information on macro commands, refer to the Macro Reference Manual.

Appendix 2 Error

Additional Errors

The following errors are added.

For details on other error numbers, item numbers, and sub item numbers, refer to the V8 Series Reference Manual provided separately.



Error No.

Error No.	Problem	Solution
127	MONITOUCH does not support the remote desktop function.	Check whether MONITOUCH is a model on which the remote desktop function can be used. If not, remove the setting.
128 *1	A key code is not registered on MONITOUCH.	Register the license key code for remote desktop on the Main Menu screen.
129	The remote desktop program is not registered in MONITOUCH.	Update the V-SFT version and resend the screen data to MONITOUCH. For data transfer to a CF card, you need to write the data to the CF card via the CF card manager.
138	The remote desktop table is not registered.	Register the remote desktop table with the specified number.
139	The setting value for the remote desktop table is incorrect.	Check the remote desktop setting again (whether an unregistered remote desktop table number is specified, etc.).
166	The function set for the serial port is duplicated.	Error: 166 (0: x) Sub item number The sub item number shows; 0: CN1 1: MJ1 2: MJ2 Specify a unique function (Simulator, etc.) for each port.
185	(V806 only) No optional unit is installed.	Select [System Setting] → [Edit Model Selection] → [Option Unit], check the setting and then install option unit “DU-10”.
186	(V806 only) No optional unit is installed.	Remove the option unit “DU-10” once and install it again.
196	The data stored on the CF card is not correct.	This error may occur when the data (screen, 3D part, etc.) storing function is used for a CF card. Insert a CF card on which data is correctly stored using the CF card manager.
199	The function set for the USB port is duplicated.	Select one of the following setting for the USB B port and perform data transfer again. • USB simulator • PictBridge printer • Ladder transfer via USB
214 *2	A key code for the remote desktop is not registered on MONITOUCH.	Register the license key code for remote desktop on the Main Menu screen.
216	A data sheet includes an item that cannot be printed.	Recheck the data sheet screen. Remove the unusable item.

Error No.	Problem	Solution
217	The source voltage of the touch panel does not conform to the specifications.	Check the source voltage. For more information on the power source specifications, refer to the V8 Series Hardware Specifications.

*1 Version 5.4.13.0 (system program version 1.560 or earlier)
*2 Version 5.4.14.0 (system program version 1.570 or later)

Item number

The item number shows the editing screen or other place where the error is detected.

52: Remote desktop table setting

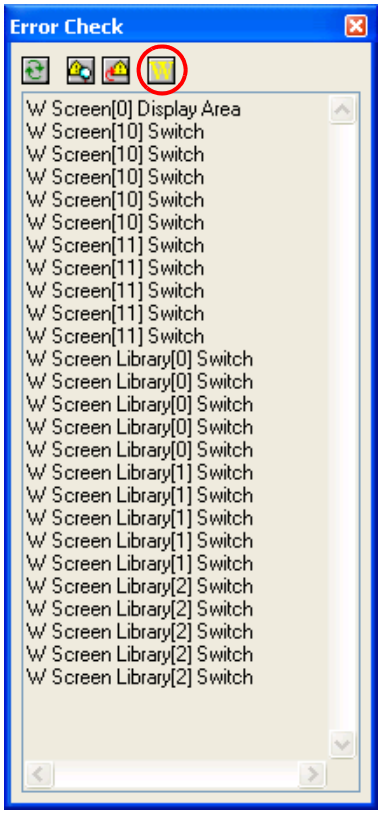
Sub item number

The sub item number shows the number allocated for items regarding the detected error.
(If it is blank, it means that no sub item number is allocated.)

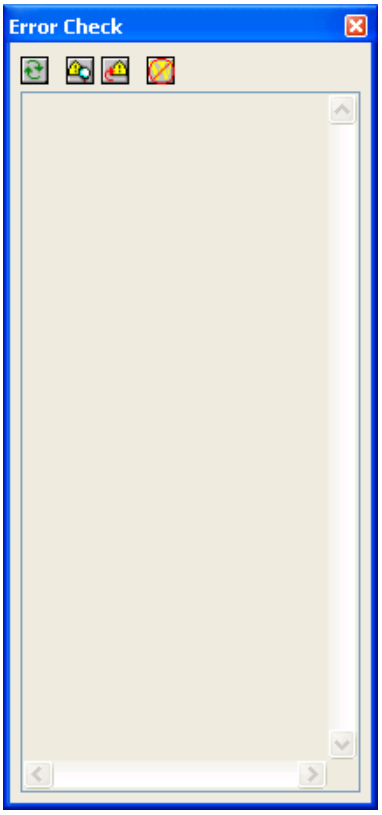
Hiding Warning Error

When an error check is performed on the editor, all errors (E) and warnings (W) are displayed at one time.
“Warning (W)” items can be hidden when you click the [Show/Hide Warning] icon on the [Error Check] window.

Click the [Show/Hide Warning] icon.



“Warning (W)” errors are hidden.



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