

1. Specifications

General Specifications

Item		V812		V810				V808	
		V812xS	V812xSD	V810xS V810xT	V810xC	V810xSD V810xTD	V810xCD	V808xSD	V808xCD
Standards	CE Marking	-	EN61000-6-2 EN61000-6-4	-	-	EN61000-6-2 EN61000-6-4	-	EN61000-6-2 EN61000-6-4	-
	UL/cUL	-	UL508	-	-	UL508	-	UL508	-
Power Supply	Permissible Range of Voltage	100 - 240 VAC $\pm$ 10% (47 to 63 Hz)	24 VDC $\pm$ 10% *1	100 - 240 VAC $\pm$ 10% (47 to 63 Hz)		24 VDC $\pm$ 10% *1		24 VDC $\pm$ 10% *1	
	Permissible Momentary Power Failure	Within 20 ms	For 24 VDC: Within 1 ms	Within 20 ms		For 24 VDC: Within 1 ms		For 24 VDC: Within 1 ms	
	Power Consumption (Maximum Rating)	70 VA or less	30 W or less	70 VA or less	60 VA or less	25 W or less	20 W or less	23 W or less	20 W or less
	Rush Current	For 100 VAC: 20 A, 10 ms or less For 200 VAC: 40 A, 10 ms or less	For 24 VDC: 20 A, 2 ms or less	For 100 VAC: 20 A, 10 ms or less For 200 VAC: 40 A, 10 ms or less	For 100 VAC: 16 A, 6 ms or less For 200 VAC: 32 A, 7 ms or less	For 24 VDC: 20 A, 2 ms or less	For 24 VDC: 20 A, 1 ms or less	For 24 VDC: 20 A, 2 ms or less	For 24 VDC: 20 A, 1 ms or less
	Withstand Voltage	AC external terminals to FG: 1500 VAC, 1 minute DC external terminals to FG: 500 VAC, 1 minute							
Insulation Resistance		500 VDC, 10 M Ω or above							
Physical Environment	Surrounding Air Temperature	0°C to +50°C							
	Storage Surrounding Air Temperature	-10°C to +60°C							
	Surrounding Air Humidity	85% RH or less (without dew condensation, max. wet-bulb temperature: 39°C or less)*2							
	Storage Surrounding Air Humidity	85% RH or less (without dew condensation, max. wet-bulb temperature: 39°C or less)*2							
	Altitude	2000 m or less							
	Atmosphere	No corrosive gas, no excessive dust, and no conductive dust							
Mechanical Working	Vibration Resistance	Vibration frequency: 10 to 150 Hz, acceleration: 9.8 m/s ² (1.0 G), half-amplitude: 0.075 mm, X, Y, Z: 3 directions for one hour							
	Shock Resistance	Pulse shape: sine half wave, peak acceleration: 147 m/s ² (15 G), X, Y, Z: 3 directions six times each							
Electrical Working Condition	Noise Resistance	Noise voltage: 1500 Vp-p, pulse width: 1 μ s, rising time: 1 ns (Measured by using a noise simulator.)							
	Static Electricity Discharge Resistance	Compliant with IEC61000-4-2, contact: 6 kV, air: 8 kV							

Item		V812		V810				V808	
		V812xS	V812xSD	V810xS V810xT	V810xC	V810xSD V810xTD	V810xCD	V808xSD	V808xCD
Mounting Conditions	Weight	Approx. 2.9 kg		Analog resistance film type V810xS/ V810xT: Approx. 2.5 kg V810xC: Approx. 2.2 kg Matrix resistance film type V810xT: Approx. 2.5 kg V810xC: Approx. 2.6 kg				Approx. 1.5 kg	
	Dimensions W × H × D	326.4 × 259.6 × 69.0 mm		303.8 × 231.0 × 69.0 mm				233.0 × 178.0 × 65.8 mm	
	Panel Cut-out Dimensions	313.0 ^{+0.5 -0} × 246.2 ^{+0.5 -0} mm		289.0 ^{+0.5 -0} × 216.2 ^{+0.5 -0} mm				220.5 ^{+0.5 -0} × 165.5 ^{+0.5 -0} mm	
Case Color		Gray							
Material		PC/ABS resin							

- *1 Use the Class 2 power supply for the 24-VDC power unit.
- *2 Use MONITOUCH in the environment whose wet-bulb temperature is 39°C or less. Otherwise, MONITOUCH may be damaged.
- *3 This is an index that expresses the degree of conductive contamination in the environment where MONITOUCH is used.
"Contamination level 2" indicates the condition where only non-conductive contamination occurs. However, due to condensation, temporary conductive contamination may occur.

About UL/cUL Approval

The V8 series (DC power supply type) is UL/cUL-approved.

(File No.: E313548 (UL508))

The V8 series conforms to the following two standards.

- UL 508 Industrial Control Equipment
- CSA-C22.2 No. 142-M1987 Process Control Equipment

UL Listing Application for a System Equipped with the V8 Series

- The back panel of the V8 series is not approved as an enclosure. For UL listing application, build the V8 series in the system, and configure an enclosure so that the entire system will be UL-approved.
- Use the V8 series indoors only.
- Use a UL-approved crimp-style terminal for wiring of the power supply cable.

Model	Terminal Screw			Power Cable
	Screw Size	Tightening Torque	Crimp-style Terminal	
V812 V810	M3.5	0.8 N•m		AWG16 - 18
V808	M3.5	0.8 N•m		AWG14 - 16

- Use the Class 2 power supply for the 24-VDC power unit.

CE Marking

- The V8 series (DC power supply type) complies with the following EMC Directives:
EN61000-6-2, EN61000-6-4
- The V8 series is identified as a class-A product in an industrial environment. In the case of usage in a domestic environment, the V8 series is likely to cause electromagnetic interference. Appropriate preventive measures should be taken.

Installation Specifications

Item		Specifications
Grounding		Less than 100Ω, FG/SG separated
Protection Structure	Front Panel* ¹	Compliant with IP65 (when using waterproof gasket)* ²
	Rear Case	Compliant with IP20
Cooling System		Cooling naturally
Structure		Inserted in a mounting panel
Appropriate Mounting Panel Thickness		1.5 to 5 mm

*1 Protection structure for the front when the V8 series is mounted on the mounting panel

*2 It is recommended to use the mounting panel whose thickness (steel, stainless) is 3.0 mm or more to keep the unit compliant with IP65. The strength differs depending on the material of the mounting panel. Check the environment where the V8 series is used.

Display Specifications

Item	V812xS	V810xS	V810xT/ V810xC	V808xS	V808xC
Display Device	TFT color				
Display Size	12.1-inch	10.4-inch		8.4-inch	
Colors	65,536 colors (without blinks) / 32,768 colors (with blinks)				
Display Resolution (W × H)	800 × 600 dots		640 × 480 dots	800 × 600 dots	640 × 480 dots
Dot Pitch (W × H)	0.3075 × 0.3075 mm	0.264 × 0.264 mm	0.33 × 0.33 mm	0.213 × 0.213 mm	0.267 × 0.267 mm
Backlight	Cold cathode tube				
Backlight Life (average life of backlight only)	Approx. 50,000 hours (at the normal temperature of 25°C)				
Backlight Auto OFF Function	Always ON, random setting				
Brightness Adjustment	Function switch: 3 levels / Macro: 128 levels				
Surface Sheet Material	Polycarbonate, 0.3 mm thick				
POWER Lamp	ON: Normal (green) Blink: Backlight error				

Touch Switch Specifications

Item	Analog Resistance Film Type	Matrix Resistance Film Type
Number of Switches	1024 × 1024	12-inch: 50 × 30 10-inch: 40 × 24
Mechanical Life	One million activations or more	
Surface Treatment	Hard-coated, anti-glare treatment 5%	

Function Switch Specifications

Item	Specifications
Number of Function Switches	8 pcs.
Method	Matrix resistance film type
Mechanical Life	One million activations or more

Interface Specifications

Item			Specifications
D-sub 9-pin (CN1)	Applicable Standards		RS-232C, RS-422/485
	Synchronization		Asynchronous type
	Data Length		7- or 8-bit
	Parity		None, odd, even
	Stop Bit		1- or 2-bit
	Baud Rate		4800, 9600, 19200, 38400, 57600, 76800, 115k bps (187500 bps for MPI connection*)
	Applications		PLC, temperature controller, barcode reader, etc.
Modular Jack 8-pin (MJ1/MJ2)	Applicable Standards		RS-232C, RS-485 (2-wire connection)
	Applications		Screen data transfer (MJ1), PLC, temperature controller, CREC, barcode reader, V-I/O, Multi-link 2, V-Link, etc.
USB Connector (USB-A/B)	USB-A	Applicable Standards	Compliant with USB version 1.1
		Baud Rate	Low speed: 1.5 Mbps, full speed: 12 Mbps
		Applications	Printer (EPSON STYLUS PHOTO series), USB-CFREC, keyboard, mouse, etc.
	USB-B	Applicable Standards	Compliant with USB version 1.1
		Baud Rate	Low speed: 1.5 Mbps, full speed: 12 Mbps
		Applications	Screen data transfer, PictBridge-compatible printer
Ethernet Port 100BASE-TX/10BA SE-T (LAN)	Applicable Standards		Compliant with IEEE802.3u (100BASE-TX), IEEE802.3 (10BASE-T)
	Baud Rate		10 Mbps, 100 Mbps
	Recommended Cable		100Ω UTP (unshielded twist-pair cable), category 5, max. 100 m long
	Applications		PLC connection, etc.
CF Card Interface			Compliant with CompactFlash™
Extensional Communication Port (CN5)			SX Bus, T-Link, Ethernet, CC-Link, PROFIBUS-DP, DeviceNet, etc. (The communication interface unit "CU-xx" is necessary.)
Optional Unit Port (CN7)			RGB input/output, video, sound (The optional unit "GU-xx" is necessary.)

* For details, refer to the V8 Series Connection Manual.

Clock and Backup Memory Specifications

Item	Specifications	
	V812xS/ V810xS/ V810xT/ V810iC/ V808xS/ V808iC	V810C/ V808C
Battery Specification	Coin-type lithium primary cell	
Backup Memory	SRAM 512 kbytes	SRAM 128 kbytes
Backup Period	5 years (ambient temperature at 25°C)	
Battery Voltage Drop Detection	Provided (internal memory of \$s167 allocated)	
Calendar Accuracy	Monthly deviation ±90 sec (ambient temperature at 25°C)*	

* Time loss is approximately 90 seconds a month in an ambient temperature of 25°C in the non-energized state (backup with battery). Depending on the ambient temperature, the calendar may lose 356 seconds or advance 189 seconds in a month at the maximum. Correct the clock periodically.

Drawing Environment

Item	Specifications
Drawing Method	Exclusive configuration software
Drawing Tool	Name of exclusive configuration software: V-SFT-5 Personal computer: Pentium III 800 MHz or above (Pentium IV 2.0 GHz or above recommended) OS: Windows98SE/NT4.0/Me/2000/XP/XP64 Edition/ Vista 32-bit Capacity of hard disk required: Free space of approx. 850 Mbytes or more Display: Resolution 1024 × 800 or above Screen color: 16 bits or more

Display Function Specifications

Item		Specifications				
Interface Language*		Japanese	English/Western Europe	Chinese (Traditional)	Chinese (Simplified)	Korean
Characters	1/4-size, 1-byte	ANK code	Latin 1	ASCII code	ASCII code	ASCII code
	2-byte 16-dot	JIS #1, 2 levels	–	Chinese (traditional)	Chinese (simplified)	Hangul (without Kanji)
	2-byte 32-dot	JIS #1 level	–	–	–	–
Font		Windows font Stroke font				
Character Size	1/4-size	8 × 8 dots				
	1-byte	8 × 16 dots				
	2-byte	16 × 16 dots or 32 × 32 dots				
	Enlargement Factor	X: 1 to 8 times, Y: 1 to 8 times Point*2: 8, 9, 10, 11, 12, 14, 16, 18, 20, 22, 24, 26, 28, 36, 48, 72				
Number of Displayable Characters	Display Resolution	800 × 600			640 × 480	
	1/4-size	100 characters × 75 lines			80 characters × 60 lines	
	1-byte	100 characters × 37 lines			80 characters × 30 lines	
	2-byte	50 characters × 37 lines			40 characters × 30 lines	
Character Properties	Display properties	Normal, reverse, blink, bold, shadow, transparent				
	Colors	65,536 colors (without blinks) / 32,768 colors (with blinks)				
Graphics	Lines	Line, continuous line, box, parallelogram, polygon				
	Circles	Circle, arc, sector, ellipse, elliptical arc				
	Others	Tile patterns				
Graphic Properties	Line types	6 (thin, thick, dot, chain, broken, two-dot chain)				
	Tile patterns	16 (incl. user-definable 8 patterns)				
	Display properties	Normal, reverse, blink				
	Colors	65,536 colors (without blinks) 32,768 colors (with blinks)				
	Color selection	Foreground, background, boundary (line)				

*1 In addition, the following fonts are available.

Gothic, English/Western Europe HK Gothic, English/Western Europe HK Times, Central Europe, Cyrillic, Greek, Turkish

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

*2 Applicable when Gothic font, Windows font or stroke font is used.

Function Performance Specifications

Item		Specifications	
		V812xS/ V810xS/ V810xT/ V810iC/ V808xS/ V808iC	V810C/ V808C
Screens		Max. 1024	
Screen Memory (Flash memory)		Approx. 12.5 Mbytes (varies depending on the font)	Approx. 4.5 Mbytes (varies depending on the font)
Switch		1024 per screen	
Switch Actions		Set, reset, momentary, alternate, to light (Possible to press a function switch and a switch on the display at the same time)	
Lamp		Reverse, blink, exchange of graphics 1024 per screen	
Graph		Pie, bar, panel meter and closed area graph: No limitation Statistics and trend graphs: Max. 256 per layer*2	
Data Setting	Numerical Data Display	No limitation	
	Character Display	No limitation	
	Message Display	Display Resolution: 800 × 600: Max. 100 characters (1-byte) 640 × 480: Max. 80 characters (1-byte) No limitation	
Sampling		Sampling display of buffer data (Constant sampling, bit synchronization, alarm logging, time order alarming, alarm function)	
Graphic Library		Max. 2560	
Overlap Library		Max. 1024	
Data Blocks		Max. 1024	
Messages		Max. 32768 lines	
Patterns		Max. 1024	
Macro Blocks		Max. 1024	
Page Blocks		Max. 1024	
Direct Blocks		Max. 1024	
Screen Blocks		Max. 1024	
Data Sheets		Max. 1024	
Screen Library		Max. 1024	
Comments		Max. 32767	
Device Memory Map		Max. 32 × 8 (PLC1 to PLC8)	
Time Display		Provided	
Hard Copy		Provided	
Buzzer		Provided, 2 sounds (short beep, long beep)	
Auto OFF Function		Always ON, random setting	
Self-diagnostic Function		Switch self-test function Communication parameter setting check function Communication check function	

*1 The number of setting memory locations is limited to 1024 per screen.

*2 Layer: 4 per screen (base + 3 overlap displays)