

Instruction Manual

PARAMETER LOADER FOR PAPERLESS RECORDER

TYPE: PHR/PHW

WARNING

- If an error or improper operation occurs in our product, or customer-made programs should be found defective, protection and safety circuits, etc should be provided for safety of the system to be used. In addition, safety measures should be taken against personal injury or fatal accident to the system.
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- This manual is subject to change without previous notice.
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- Be sure to read the Readme.text file included in CD-ROM.
- Depending on the environment to be used and the usage, it may not operate normally.
- Please note that operation except the Personal Computer which made by maker, such as self-assembled PC and so on, cannot be guaranteed.

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1. OUTLINE

1.1 Foreword

This instruction manual describes installation and operation for the parameter loader of the paperless recorder. Read it carefully before use.

1.2 Parameter loader for paperless recorder

Connect the parameter loader (hereafter referred to as loader) to the paperless recorder using commercially available USB cable or LAN cable, and referencing (uploading), editing, and setting (downloading) of each parameter of the paperless recorder can be made. Connect USB miniB type male connector to the paperless recorder.

Note: Optionally available dedicated cable is required to use the loader for program versions V01A to V22A of the paperless recorder PHR main unit.

1.3 Contents of package

The following items are packaged with the product.

- CD-ROM for installation: 1
- Instruction manual which is installed to above CD-ROM

1.4 Recommended operating environment

- Microsoft Windows 2000 or XP or Windows 7 (Home Premium, Professional (Not applicable for 64 bit version)). (Operation by Windows 95/98/Me/NT is not secured.)
- Hard disk with a free capacity of 30MB or more
- RAM with 64MB or more
- USB port
- USB cable [USB(A) male–USB(miniB) male, or Type PHZP1801]
- LAN port (when provided with Ethernet option)
- LAN cable (when provided with Ethernet option)

Note: Hardware requirements of the loader are as follows when it is used for program versions V01A to V22A of the paperless recorder PHR.

- RS-232C serial port (D-sub 9 pin)
- Communication cable dedicated to parameter loader (Option: PHZP0201)



1.5 Installing the parameter loader for paperless recorder

- 1) If other application software programs are open, terminate all of them.
- 2) If the programming loader has been already installed, open "Add/Remove Programs" on Control Panel and delete the parameter loader.
- 3) Set CD-ROM in the personal computer drive.
- 4) Start "Setup. exe" in the CD-ROM.
- 5) Follow the prompts displayed on the screen.
- 6) Please install the main body of the parameter loader.
 A message is displayed, prompting you to verify that "Parameter loader setup is complete".
 Now, the Parameter Loader installation is completed.

1.6 Installing USB communication driver

The driver can be installed on Windows XP as follows for example.

- 1) Connect the USB port of the paperless recorder whose power has been turned on and a running PC with a USB cable.
- 2) The message "Found New Hardware" and then the driver installation wizard appear on the computer. Click the [Next] button.



3) When the dialog box below is displayed, select [Display a list of the known drivers for this device so that I can choose a specific driver] and click the [Next] button.

	Hardware Device Drivers vice driver is a software program that enables a hardware device to work with perating system.
This	wizard will complete the installation for this device:
7) USB Device
need	vice driver is a software program that makes a hardware device work. Windows Is driver files for your new device. To locate driver files and complete the llation click Next.
Wha	t do you want the wizard to do?
0	Search for a suitable driver for my device (recommended)
C	$^\circ$ Display a list of the known drivers for this device so that I can choose a specific driver

4) The dialog box below is displayed. Select [Other Devices] and click the [Next] button.

ardware Type What type of hardware do you want to install?	641
Select a hardware type, and then click Next.	
Hardware types:	
Multi-port serial adapters	
Network adapters	
🛃 NT Apm/Legacy Support	
Operation Panel	
Cher devices	
PCMCIA adapters	
Ports (COM & LPT)	
Printers	
SCSI and RAID controllers	•
	\frown

5) The dialog box below is displayed. Click [Have Disk].

Select a Device Driver Which driver do you want to in	nstall for this device?
	d model of your hardware device and then click Next. If you
 nave a disk that contains the 	ne driver you want to install, click Have Disk.
anufacturers:	Mo <u>d</u> els:
Standard IDE ATA/ATAPI cor Standard Infrared Port) Standard Modem Types) Standard port types) Standard system devices)	Standard Dual Channel PCI IDE Controller Standard IDE / ESDI Hard Disk Controller
	Have Disk
	Have Disk

6) The [Install From Disk] dialog box is displayed. Click the [Browse] button.



7) The USB driver "OP-U.inf" is automatically stored in the "inf" folder within the install folder ("C: ¥ Program Files ¥ ParameterLoader" usually) of the parameter loader. Select the "OP-U.inf" file and then click "Open."

8) The previous dialog box is displayed again. Check the path shown under [Copy Manufacturer's Files From:] and click the [OK] button.



9) The dialog box below is displayed. Check that [Operation Panel USB Driver] is shown under [Models:]. Click the [Next] button.

Found N	ew Hardware Wizard				
	ct a Device Driver Which driver do you want to in:	stall for this de	vice?		D
\diamond	Select the manufacturer and have a disk that contains the				Next. If you
Opera	tion Panel USB Driver				
					Have Disk
		[< <u>B</u> ack	<u>N</u> ext >	Cancel

10) The driver installation starts.



11) The dialog box below is displayed on completion of installation. Click the [Finish] button.



Recognition of USB Driver

When the driver has been installed successfully and the paperless recorder and the computer are connected with a USB cable, the [Device Manager] window shows "Operation Panel - Operation Panel USB Driver."



This will disappear when the paperless recorder and the computer are disconnected.

If [Other Device] or [?] is shown even while their connection via USB is maintained, the USB driver may not be recognized. If this happens, uninstall the USB driver once and reinstall it.

1.7 Uninstalling the parameter loader software for paperless recorder

For un-installation of the parameter loader for the paperless recorder, proceed from Start of Windows \rightarrow Setting \rightarrow Control Panel \rightarrow Add or delete application. And select Recorder Parameter Loader and follow Windows' instructions and cautions to delete it.

When you install a different version, be sure to un-install the software, which is currently installed, in advance in the above procedures. If not un-installed, it might result in malfunctions such as not starting.

1.8 Cautions

When operating the Loader, be careful of the following items:

- 1) The Loader is used for the paperless recorder only.
- 2) Initial values on each Loader screen may be different from those of the paperless recorder main unit.
- 3) For the communication setting for the paperless recorder ("Main Unit Set" → "Communication Setting"), the Front communication function should be set to ON. (After the Front communication function has been switched from OFF to ON, turn OFF the power once, and then turn it ON.)
- 4) Before starting the paperless recorder, be sure to assure that the Loader setting is reflected to the paperless recorder.
- 5) The Loader cannot use more than 1 window at the same time. If more than 1 window is open, leave only a single window open and close all of other windows (this can be checked on the Window menu).
- 6) Whenever you want to write the setting data on parameter loader into paperless recorder, please return the display of paperless recorder to Display Mode such as Real Time Trend Screen. Don't display Parameter Setting Screen, or this loader software may miss to write into the paperless recorder.
- 7) When you use this loader to write into the paperless recorder PHR which the program version is V01A to V05A, and you change the input type to 0 to 5Vdc, paperless recorder receives the input type as 1 to 5Vdc instead of 0 to 5Vdc. And then, this loader's setting is also changed to 1 to 5Vdc. (This is because the main unit does not support 1 to 5Vdc input function.)
- At this loader, some parameters which do not exist on paperless recorder may be displayed. But the parameter which doesn't exist in paperless recorder isn't written.
- 9) During the paperless recorder is recording or totalizing, it is impossible to write into the equipment from this parameter loader.

2. BASIC OPERATION

2.1 Start

Click "Programs" \Rightarrow "Recorder Parameter Loader" \Rightarrow "Recorder Parameter Loader" from the Start menu.



It is displayed such as following screen.

Note) The screen for maximum channels is displayed, regardless of the number of channels of the paperless recorder.

innel s	etting N	/lath setting Ma	iin setting Display s	etting Communic	ation setting E-r	nail setting]3.		······
	Color	Tag No.1	Tag No.2	Input type	Input Channel	Input filter	Input unit	Scaling ON / OF	Measuring range Lower limit value
1CH	000	TAG 01	1 89 140.2	K-Type TC	channel 1		PC	OFF	Lower mild value
2CH		TAG 02		K-Type TC	channel 1		°C	OFF	
3CH		TAG 03		K-Type TC	channel 1		PC	OFF	
4CH		TAG 04		K-Type TC	channel 1		°C	OFF	
5CH		TAG 05		K-Type TC	channel 1		°C	OFF	
6CH		TAG 06		K-Type TC	channel 1		°C	OFF	
7CH		TAG 07		K-Type TC	channel 1		PC	OFF	
8CH		TAG 08		K-Type TC	channel 1		PC	OFF	
9CH		TAG 09		K-Type TC	channel 1		PC	OFF	
10CH		TAG 10		K-Type TC	channel 1	3	°C	OFF	
11CH		TAG 11		K-Type TC	channel 1	3	₽C	OFF	
12CH		TAG 12		K-Type TC	channel 1	3	₽C	OFF	
13CH		TAG 13		K-Type TC	channel 1	3	PC	OFF	
14CH		TAG 14		K-Type TC	channel 1	3	PC	OFF	
15CH		TAG 15		K-Type TC	channel 1	3	9C	OFF	
16CH		TAG 16		K-Type TC	channel 1		₽C	OFF	
17CH		TAG 17		K-Type TC	channel 1		₽C	OFF	
18CH		TAG 18		K-Type TC	channel 1		PC .	OFF	
19CH		TAG 19		K-Type TC	channel 1	-	₽C	OFF	
20CH		TAG 20		K-Type TC	channel 1		PC	OFF	
21CH		TAG 21		K-Type TC	channel 1		°C	OFF	
22CH		TAG 22		K-Type TC	channel 1		PC	OFF	
23CH		TAG 23		K-Type TC	channel 1	3	PC .	OFF	Þ
ease	e doubl	e-click a chai	nnel to edit.						

Table of setting channel display

2.2 Table of setting channel display

			y the setting					,	(1) Seleo	ction of setting
		(2) Communic	ation set	ling				moue	51
	👖 Parameter Loa	ader						/	_ 🗆 ×	
	File(F) Edit(E) C	ommunication(R)	Help(<u>H</u>)							
	🖻 🖻 🛍 🤶									
	Channel comine]	<u></u>		i le la	e e le			PHW	-	
	Channel setting	Math setting Ma	in setting Display set	ang Communic	ation setting E-r	nail setting T				
	Color	Tag No.1	Tag No.2	Input type	Input Channel	Input filter	Input unit		deasuring range 🔺	
	1CH	TAG 01	Tag NU.2	K-Type TC	channel 1	Input litter	3 ºC	OFF		
	2CH	TAG 02		K-Type TC	channel 1		3 °C	OFF		
	3CH	TAG 03		K-Type TC	channel 1		3 ºC	OFF		
	4CH	TAG 04		K-Type TC	channel 1		3 90	OFF		
	5CH	TAG 05		K-Type TC	channel 1		3 ºC	OFF		
	6CH	TAG 06		K-Type TC	channel 1		3 ºC	OFF		
	7CH	TAG 07		K-Type TC	channel 1		3 ºC	OFF		
	8CH	TAG 08		K-Type TC	channel 1		3 ºC	OFF		
	9CH	TAG 09		K-Type TC	channel 1		3 ºC	OFF		
	10CH	TAG 10		K-Type TC	channel 1		3 ºC	OFF		
	11CH	TAG 11		K-Type TC	channel 1		3 ºC	OFF		
	12CH	TAG 12		K-Type TC	channel 1		3 ºC	OFF		
	13CH	TAG 13		K-Type TC	channel 1		3 ºC	OFF		
	14CH	TAG 14		K-Type TC	channel 1		3 ºC	OFF		
	15CH	TAG 15		K-Type TC	channel 1		3 ºC	OFF		
	16CH	TAG 16		K-Type TC	channel 1		3 ºC	OFF		
	17CH	TAG 17		K-Type TC	channel 1		3 ºC	OFF		
	18CH	TAG 18		K-Type TC	channel 1		3 ºC	OFF		
	19CH	TAG 19		K-Type TC	channel 1		3 ºC	OFF		
	20CH	TAG 20		K-Type TC	channel 1		3 90	OFF		
	21CH	TAG 21		K-Type TC	channel 1		3 90	OFF		
	22CH	TAG 22		K-Type TC	channel 1		3 90	OFF		
	23CH	TAG 23		K-Type TC	channel 1		3 ºC	UFF	▼	
		ole-click a char	nnel to edit.							
	Communication st		Upload	Download	Set value re				e setting	
(3) Upload se	tting value f	rom —	/	1	۱	- (5)	Setting of	the	(6)	Time setting to
	ess recorde		/					recorder i		the paperless
the paper		1	/							
			/			:	stored no	n-volatile		recorder
(•	 Downloa 	d setting va	alue to $-$			1	memory			
,		rless recor								
	and habe									

(1) Selection of setting model

Setting model can be selected by the parameter loader.



Display contents or setting range on the setting screen varies with each model.

	PHR	PHW
Channel setting	18 channels (ch1 to 18)	36 channels (ch1 to 36)
Calculation channel setting	12 channels (ch19 to 30)	36 channels (ch37 to 72)
DI setting	10	16
DO setting	28	36
Screen group setting	4 groups	8 groups

(2) Communication setting

The setting on the communication with the paperless recorder can be made.

a) Communication

The communication method with the paperless recorder can be selected from USB, Ethernet, and RS-232C.

Note:

- 1) USB or Ethernet communications cannot be conducted if the program version of the paperless recorder PHR is V01A to V22A. Make sure to set the station No. of the parameter loader to 1.
- 2) RS-232C communications cannot be conducted if the program version of the paperless recorder PHW or PHR is V27A or later. Note that to conduct Ethernet communications, optional Ethernet communication board is necessary. To conduct USB communications, make sure to set the station No. of the parameter loader to 1.

🚹 Parameter Loader								
File(F)	Edi	t(E)	Communication(R) Help(H)					
🗀 🖻	ß	?	- (Communication	►	🗸 USB		
		_	I	P Address		Ethernet		
Chan	nel s	etting	Port(P)		►	RS-232C	setting	
		Colo	r Tag No.1			Tag No.2		
	ICH.		TAG 01					

b) IP Address, Station No.

Setting is necessary to conduct Ethernet communications with the paperless recorder. IP Address and Station No. of the paperless recorder can be set.

🐚 IP Addre	ess Setting	<u>_ D X</u>
IP Address	192 9	200 234
Station No.	1	
	ОК	1

c) Port

Setting is necessary to conduct RS-232C communications with the paperless recorder.

The communication port of the PC used to communicate with the paperless recorder can be set.

This function can change communication port of PC which communicates with paperless recorder. At starting of this loader, COM1 is selected as communication port. Set the port number that you want to use at first.

At the executing screen, click $[Com(R)] \rightarrow [Port(P)]$ and select using port. Normally, COM1 is selected. (Normally COM1 is selected.)

📊 Parame	ter L	.oad	er			
File(F) Edit	:(E)	Communication(R) H			elp(H)	
🗀 🖹 😭 🦿 🛛 Communication				۲		
		I	P Address			
Channel s	etting	F	Port(P)	×	🗸 COM1	ay s
				_	COM2	
	Colo	r	Tag No.1	_	COM3	
1CH			TAG 01		COM4	
2CH			TAG 02		COM5	
200			TAC 00			

(3) Upload setting value from the paperless recorder

It is available to upload all the setting such as channel setting, math channel setting, main setting, display setting and so on from the paperless recorder.

(4) Download setting value to the paperless recorder

It is available to download all the setting such as channel setting, math channel setting, main setting, display setting and so on to the paperless recorder.

Note: 1) Download prohibit during recording or totalizing.

- 2) After the data has been downloaded to the paperless recorder, store non-volatile memory, or the setting value will return to the former value when power is turned OFF.
- (5) The data downloaded to the paperless recorder can be stored non-volatile memory.
- (6) Time setting to the paperless recorder

It is available to change time setting of the paperless recorder. Press [Time setting] button, and screen as shown below appears. Set the time that you want to change. And then press [Change] button.

- Note: 1) This setting prohibit during recording or totalizing.
 - 2) This setting is not necessary to be stored non-volatile memory.

Time setting
Input time by 24 hour form.
20 03 year 5 month 23 day
10 hour 0 minute
SetCancel

Screen of time setting

(7) File menu

This menu, you can use functions as shown below.

in.										
	📊 Parameter Loader									
j	File(F) Edit(E) Communication(R) Help(H)									
	Open(O) Ctrl+O									
	Save in file(S) Ctrl+S									
	Text output(T) Ctrl+T					βÌ	Main se	etting	Display settin	
	Exit(X)									
ŀ						1		TagN	No.2	
		1011			TAC OIL					

a) [Open(O)]

Paperless recorder parameter setting files stored in your PC can be opened. Parameter setting files stored in the paperless recorder can also be opened.

b) [Save in file(S)]

Parameters currently being set can be stored in your PC. For parameter setting file to be created, extensions vary depending on setting model.

In case of PHR: *****PHR

In case of PHW: *****PHW

Parameter setting file to be created: *****.PHR

Substitute ***** with an arbitrary name. Select a file name consisting of alphanumeric characters with 7 uppercase characters or less when a parameter setting file is to be read from a compact flash card to the paperless recorder.

Example:

OK: PARA00.PHR, P123456.PHR NG: Para00.PHR, P1234567.PHR

Note) To write the setting file in the compact flash card, which was created by the parameter loader, to a older version of the paperless recorder (V39A or older), be sure to perform the following settings:

- (1) Set "0" for the password for starting/stopping the recording. If a value other than "0" is set, a password setting screen appears when the recording starts/stops.
- (2) Select "Display only" for all the recording operation settings of the Math channel. If an item other than "Display only" is selected, a measured value of the Math channel is recorded when recording.

However, if you write a setting value via communication, the above problems do not occur. If a password setting screen appears when the recording starts/stops or a measured value of the Math channel is recorded due to the reasons mentioned above, initialize the setting values and perform the settings again. c) [Text output(T)]

Output setting value as text data.

Please refer to attached "Appendix. 1: Example of setting parameters to be printed out."

d) [Exit(X)]

Exit this menu.

- Note: 1) If you change setting value of the paperless recorder, register the setting value before exit this software.
 - 2) If you want to use setting value on another day, it is recommended to save the setting value file of the paperless recorder before exit this software.
- (8) Copy the setting value

Copy the setting value such as channel setting, main setting, display setting and so on.

Click in line of original data and press [Copy]. Click in line that you want to copy, and then press [Paste].

📙 Para	Parameter Loader							
File(F)	File(F) Edit(E) Communication()(H)			
Copy(C) Paste(V)								
Chan	Channel setting M			Main se	etting	Display :		
	Color Tag No.1			Tagl	No.2			
	LCU .		TAC OF					

2.3 Setting channels

Set the parameter regarding to input, calculation, alarm, display and record of each channel. On "Table of setting channel display", double-click the channel you want to change.

easuring channe	1	Display range	Alarm setting	
Channel Tag	TAG 01	Lower limit value 0	Alarm type	OFF 🔻
Channel Tag2		Upper limit value 5000	Alarm set value	
Color 🗧	Red	Recording mode	DO relay No.	None 🔻
Input type	Other channel 💌	Record mode With record		
Input channel	channel 2	Record type Min-Max value 💌	Alarm No.2	
Input filter(s)	3		Alarm type	OFF •
Input unit	Sel	Subtract function	Alarm set value	
	<u> </u>		DO relay No.	None 🔻
Scaling	OFF	channel 1 = channel 1 - setting CH		
Measuring range -		Fvalue calculation setting	Alarm No.3	
Lower limit valu	e 0.0	Fvalue calc. OFF	Alarm type	OFF 💽
Upper limit valu	e 500.0	Totalization	Alarm set value	0
		Totalize tag STAG 01	DO relay No.	None
Engineering unit -		Totalize calculation Totalizer		
Lower limit valu	, .	Totalize type OFF 🗨	Alarm No.4	
Upper limit valu	e 5000	Digital input DI1 💌	Alarm type	OFF 💽
		Base time ∕h ▼	Alarm set value	0
Decimal point position	0 💌	Reset operation ON	DO relay No.	None
Square root	OFF 💌	Totalize unit Sel		
'V shift		Totalize scale		
Shift value	0	value 1		
Gain (%)	100.00	Totalize cut 0		
·····				
		wo channels set. (except, channel 9 and 18.) 15, and 17 depend on that of the previous channe		

And then channel setting display appears.

* Settable number of channels depends on setting model.

In case of PHR, it is available to set till 18ch regardless of number of channels.

In case of PHW, it is available to set till 36ch regardless of number of channels.

- * There are some screens to be able to display up to 7 characters as channel tag in spite of setting is available up to 8 characters. So don't set 8 characters as channel tag.
- * When you set out of the range, message as shown below appears.

ParameterLoader	×
Please input -230.0 to 14	00.0
OK	

Message in recording range

* Press [Apply] after changing channel setting, or your setting isn't registered, so when you turn off and on the paperless recorder, setting value returns before you change.

- * The input type becomes same kind in every two channels set.
- (1) When input type of each channel is changed, setting is subjected to limitations.
 - In case of PHR: The type setting of channel 2, 4, 6, 8, 11, 13, 15 and 17 is available only with the same input category of previous channel. Note that, channel 9 and 18 can select the input type regardless of other channels.
 - In case of PHW: The type setting of channel 2, 4, 6, 8, 11, 13, 15, 17, 20, 22, 24, 26, 29, 31, 33 and 35 is available only with the same input category of previous channel. Note that, channel 9, 18, 27 and 36 can select the input type regardless of other channels.

Input type is shown as follows.

Input category	Input type
Thermocouple, 50mV	K-Type TC, E-Type TC, J-Type TC, T-Type TC, R-Type TC, S-Type
	TC, B-Type TC, N-Type TC, W-Type TC, L-Type TC, U-Type TC,
	PN-Type TC, 50mV
Resistance bulb	Pt100Ω, JPt100Ω
500mV	500mV
5V	1 to 5Vdc, 0 to 5Vdc

For example, when channel 1 is set to 1 to 5V, channel 2 is available to set only 1-5V, 0-5V, or Skip as shown below.

🖬 Channel selection											
Γ	Measuring channel										
	Channel Tag	TAG 02									
	Channel Tag2										
	Color	Blue									
	Input type	0-5V									
	Input channel	Skip 1-5V									
	Input filter(s)	0-5V Other channel									

	Input type	Input type	Explanation			
Channel 1	K-Type TC	Thermocouple, 50mV	It is available to set any type of TC to each			
Channel 2	T-Type TC		channel.			
Channel 3	1 to 5V	5V				
Channel 4	0 to 5V					
Channel 5	Pt100	Resistance bulb	It is available to set any type of resistance			
Channel 6	JPt100		bulb to each channel.			
Channel 7	500mV	500mV				
Channel 8	500mV					
Channel 9	J-Type TC	Thermocouple, 50mV	It is available to set any input type to channel 9.			
Channel 10	K-Type TC	Thermocouple, 50mV	The same input type is basically allocated			
Channel 11	50mV		to 2 channels.			
Channel 12	Skip	5V	It is available to set skip under any input type.			
Channel 13	1 to 5V					
Channel 14	Pt100	Resistance bulb				
Channel 15	Skip					
Channel 16	Skip	500mV				
Channel 17	500mV]				
Channel 18	50mV	Thermocouple, 50mV	It is available to set any input type to channel 18.			

Example: Setting input type of each channel

(2) When the input type of the channel is changed, the initialization of the input type of next channel might be required.

In case of PHR:

When the input type for channels 1, 3, 5, 7, 10, 12, 14 and 16 is changed, the initialization of the next channel might be required.

In case of PHW:

When the input type for channels 1, 3, 5, 7, 10, 12, 14, 16, 19, 21, 23, 25, 27, 30, 32 and 34 is changed, the initialization of the next channel might be required. When the initialization of the next channel is required, when the "Application" button is pressed, the following message screen appears.

Parame	×		
The n	ext channel of	this channel is ch	anged.
r		Cancel	r i

At this screen, if you press [OK] button, the input type of next channel is initialized to the same input type of current displayed channel. In case of 50mV, the next channel becomes K-type TC. In case of resistance bulb, the next becomes Pt100 Ω .

* When you set input unit, set ON the "Scaling" at first. And then press "SELECT" key. In case of Thermocouple or Resistance bulb input, it is available to select either Celsius or Fahrenheit. And the others unit are not displayed.



The Unit Select screen appears. On the screen that is displayed, click a unit and press the [Apply] button. Note that the unit cannot be selected without pressing the [Apply] button.

₽C	₽F	%RH	vol%		
t/d	kg/d	g/d	m3/d	1/d	
t/h	kg/h	g/h	m3/h	l/h	
t/min	kg/min	g/min	m3/min	1/min	
t/s	kg/s	g/s	m3/s	I/s	
mbar	bar	N/mm2	N/m2		
mPa	Pa	kPa	MPa		
mm	cm	m			
ml	L	kl	mm3	cm3	m3
mm2	cm2	m2	g	kg	t
g/cm3	kg/cm3	g/m3	kg/m3		
g/l	kg/l	g/ml			
ppm	ppmNH3	ppmSO2	ppmH2S	ppmCO	ppm02
ppmNOx	ppb	pН	mol	%	%H2
%CO2	%He	%Ar	%02	%NaCl	%CO
mN	Ň	N·m	J	kJ	
mm/s	mm/min	mm/h	m/s	m/min	m/h
rps	rpm	rph	m/s2	rad/s	km/h
us	ms	s	min	h	day
mV	V	kV	uА	mA	A
Hz	dB	W	kW	VA	kVA
Var	kVar	uS/cm	uF	F	C
mH	Н	m ohm	ohm	k ohm	M ohm
lx .	cd	Im	cd/m2		
uSv/h	mSv/h	nGy/h	uGy/h	um	
Pars	mPa [.] s				

Example: At voltage input and scaling ON

2.3.1 Copying the channel set

This screen allows you to copy one or more set values from one channel to another. Move the cursor to CH on the Table of Setting Channel display, and click it (channel selection). Click [Edit] \rightarrow [Copy].

Click "Copy".			py".	Select channel.					
🚹 Para	meter Loa	der							
File(F)	Edit(E) Co	mnanication(R) I	Help(H)		/				
🚅 🖬	Copy(C)	Ctrl+C		/					
	Paste(V)	Ctrl+V					P	łW	•
Chan	nel setting 📋	Math setting Mai	n setting Display s	etting Communica	ation setting E-n	nail setting			
								Scaling	Measuring range 🔺
	Color	Tag No.1	Tag No.2	loput type	Input Channel	Input filter	Input unit	ON / OF	Lower limit value
1	CH	TAG 01		K-Type TC	channel 1	3	PC .	OFF	
2	CH	TAG 02		K-Type TC	channel 1	3	₽C	OFF	
3	ICH	TAG 03		K-Type TC	channel 1	3	°C	OFF	
4	ICH	TAG 04		K-Type TC	channel 1	3	۹C	OFF	
5	ich	TAG 05		K-Type TC	channel 1	3	°C	OFF	
6	ICH .	TAG 06		K-Type TC	channel 1	3	₽C	OFF	
7	гсн	TAG 07		K.Tupe TC	channel 1	2	90	OFF	

Move the cursor to CH where you want to paste channel settings and click it (Channel selection). Click [Edit] \rightarrow [Paste].

Select "Paste".			ste".	Select "CH".						
t h	Parame	ter Loa	der			/				
File(F)_Edir(F)_Communication(R)_Help(H)										
	Copy(C) Ctrl+C Paste(V) Ctrl+V Channel setting Math setting Main setting Display setting Copymunication setting E-mail setting						Pł	łW	•	
ſ									Scaling	Measuring range 🔺
		Color	Tag No.1	Tag No.2	lyput type	Input Channel	Input filter	Input unit	ON / OF	Lower limit value
	1CH		TAG 01		K-Type TC	channel 1	3	1 ºC	OFF	
	2CH		TAG 02		K-Type TC	channel 1	3	: ºC	OFF	
	3CH		TAG 03		K-Type TC	channel 1	3	PC	OFF	
	4CH		TAG 04		K-Type TC	channel 1	3	PC	OFF	
	5CH		TAG 05		K-Type TC	channel 1	3	: ºC	OFF	
	6CH		TAG 06		K-Type TC	channel 1	3	PC	OFF	
	7CH		TAG 07		K-Tupe TC	channel 1		90	OFF	

Next, the following message appears, prompting you to select the option.

Click [OK] when you want to copy the channel setting.

If the input type is different between current type and new one, the paperless recorder works such as below.

- (1) Copying of Channel Setting in PHR
 - When the copy destination is cannels 1 to 8, and 10 to 17: The same input types (*2) are used for their paired channels (*1). (*1: The paired channels are 1ch and 2ch, 3ch and 4ch, 5ch and 6ch, 7ch and 8ch, 10ch and 11ch, 12ch and 13ch, 14ch and 15ch, and 16ch and 17ch.) (*2: The K thermocouple input is used for the thermocouple, and the Pt100Ω input for the resistance thermometer.)
 - When the copy destination is 9ch and 18ch: No channel changes other than 9ch and 18ch.
- (2) Copy of Channel Setting in PHW
 - When the copy destination is channels 1 to 8, 10 to 17,19 to 26, and 28 to 35: The same input types (*2) are used for their paired channels (*1). (*1: The paired channels are 1ch and 2ch, 3ch and 4ch. 5ch and 6ch, 7ch and 8ch, 10ch and 11ch, 12ch and 13ch, 14ch and 15ch, 16ch and 17ch, 19ch and 20ch, 21ch and 22ch, 23ch and 24ch, 25ch and 26ch, 28ch and 29ch, 30ch and 31ch, 32ch and 33ch, and 34ch and 35ch.) (*2: The K thermocouple input is used for the thermocouple, and the Pt100Ω input for the resistance thermometer.)
 - When the copy destination is 9ch, 18ch, 27ch and 36ch: No channel changes other than 9ch, 18ch, 27ch and 36ch.

Channel Copy		×
1CH is copied to	5CH	
OK	Cancel	

2.4 Setting math channels

Set the parameter regarding to formula, input, totalize, alarm, display and record of each math channel. On "Table of setting math channel display", double click the channel you want to change.

athimafical chan formula			Alarm setting	
Formula B01=		Set Del	Alarm type	OFF
Formula B02=		Set Del	Alarm set value	0.0
Formula B03=		Set Del	DO relay No.	None
Formula Result=		Set Del	Alarm No.2	
		Display range	Alarm type	OFF
Channel Tag	TAG 37	Lower limit value 0.0	Alarm set value	0.0
Channel Tag2		Upper limit value 1200.0	DO relay No.	None
Color	Sky blue 📃 💌	Recording mode	Alarm No.3	
Input filter(s)	3	Recording mode Display only	Alarm type	
Input unit	PC Sel	Recording type Min-Max rec.		OFF
mpacanic	j=c	Subtract function	Alarm set value	0.0
Measuring range-		Subtract channel None	DO relay No.	None
Lower limit value	0.0	channel 37 = channel 37 - setting CH	Alaur N.a. 4	
Upper limit value	500.0	Fvalue calculation setting	Alarm No.4	
opper limit value	J 300.0	Fvalue calc. OFF 💌	Alarm type	OFF
Engineering unit—		Totalization	Alarm set value	0.0
Lower limit value	0.0	Totalize tag STAG 37	DO relay No.	None
Upper limit value	500.0	Totalize calculation		
Decimal point position	1	Totalize type OFF		
Square rooter	OFF 💌	External input DI1 🔽 Base time /h		
°V shift				
Shift value	0.0			
Gain(%)	100.00			
		value		
		Totalize cut 0.0		

And then math channel setting display appears.

- * Number of math channels differs according to model setting.
 When PHR is selected : It is available to set till 12 channels between ch19 and ch30.
 When PHW is selected : It is available to set till 36 channels between ch37 and ch72.
- * There are some screen to be able to display up to 7 characters as channel tag in spite of setting is available up to 8 characters. So don't set 8 characters as channel tag.
- * When you set out of the range, message as shown below appears.

ParameterLoader	×
Please input -230.0 to 14	100.0
ОК	

Message in recording range

* Press [Apply] after changing channel setting, or your setting isn't registered, so when you turn off and on the recorder, setting value returns before you change.

2.4.1 Setting of arithmetic expression

Click the "Setting" button in the computing channel setting screen.



The arithmetic expression setting screen appears.

Select an arithmetic function and an input value and click "OK".

Display	Function	Description
No display	No arithmetic operation	No arithmetic operation is performed. The input value is used as it is.
ABS(A)	Absolute value	The absolute value of the value in the input A is found.
POW(A,B)	Exponentiation	The "input B" power of the value in the input A is calculated.
SQR(A)	Square root	The square root of the value in the input A is calculated.
LOG(A)	Log	The common logarithm in the input A is calculated.
LN(A)	LN	The natural logarithm in the input A is calculated.
EXP(A)	EXP	"e exponentiation" of the value in the input A is calculated.
RH(A,B)	Humidity	The relative humidity is calculated when the input A is dry-bulb temperature and the input B is wet-bulb temperature.
MAX(A,B)	Maximum value (between channels)	The inputs A and B are compared to find the bigger value.
MIN(A,B)	Minimum value (between channels)	The inputs A and B are compared to find the smaller value.
H-P(A)	Maximum value (time)	The maximum value in the input A during a specified time is found.
L-P(A)	Minimum value (time)	The minimum value in the input A during a specified time is found.
AVG(A)	Average value	The average value in the input A during a specified time is calculated
SUM(A,B)	Cumulative value	The cumulative value in the input (A/B) during a specified time is calculated. Cumulating calculation is performed every minute.

\langle List of functions usable for arithmetic expression \rangle

\langle List of inputs usable for arithmetic expression \rangle

Display	Content	Display example
Channel	Channel input	C01
Cumulating calculation	Channel cumulative value	T01
DI	DI input	D01
Communication	Communication input	M01
Constant	Constant	K01
Temporary data	Result of the last expression	B01

2.4.2 Copying of math channel

A setting value is copied to other computing channel.

Put the cursor on the channel to be copied in the math channel setting list screen, and click it (channel selection).

Click the "Edit" menu and select "Copy".



Put the cursor on the copy destination and click it (channel selection). Click the "Edit" menu and select "Paste".

Select "Pas	te".	Select "CH".		
/		/		
👖 Parameter Loader				_ 🗆 🗙
File(F) Edit(E) Communication(R) Help	Œ			
Copy(C) Ctrl+C Paste(V) Ctrl+V Characle actives Mith setting	uting) Diaplay onthis	ng Communication setting E-mail setting	PHW -	
Charles Senting Main Senting Main Se	ettirig [Display settir	g communication setting c-mail setting		1
Color Tag No.1	Tag No.2	Formula B01	Formula B02	— <u>1</u>
37CH TAG 37		L		
38CH TAG 38				
39CH TAG 39				

Then the confirmation message appears.

When the "OK" button is pressed, copying is performed.

2.5 Setting the main unit

This screen allows you to set the recorder main unit.

Move the cursor to "Main setting" on the Table of Setting Channel display, and click it.

📑 Parameter Loader			_ 🗆 X
File(<u>F</u>) Edit(<u>E</u>) Communicatio	$n(\underline{R})$ Help(<u>H</u>)		
🖻 🖻 🕄			
Channel setting Main setting Display	setting Ethernet setting E-mail s	setting	
Main setting Display refreshment cycle Alarm hysteresis@ 0.20 Alarm latch OFF Record data format LCD lights-out time 0	Totalize setting Date of record 1 External DII Program version V14A and common totalize setting	Fvalue calculation setting Target temperature Q data Decimal point 1 Reset temperature	DI function No.1 Function invalid No.2 Function invalid No.3 Function invalid No.4 Function invalid
Memory full alarm None DO No. Battery alarm None DO No. Date Format 2006/03/21 File division cycle No division	Totalize cycle 1 hour Program version V14A and common totalize setting Totalize calculation OFF		No.5 Function invalid No.6 Function invalid No.7 Function invalid No.8 Function invalid
Communication setting Modbus station No. 1 Modbus Baud rate 19200 💌 Modbus Parity Odd 💌	Totalize base time /h Start / Stop Manual Start time 0 Stop time 0		No.9 Function invalid No.10 Function invalid
Communication status 📕 🗾 Upl	pad Download Set	value register	Time setting

The Main unit Set screen appears.

* Settable items vary depending on setting model.

(The above screen is displayed when the setting model is PHR.)

* If values are entered over the specified range, the following message appears.



Alarm Hysteresis message

2.5.1 DI function (external control unit) setting (option)

The DI function determines whether ON/OFF input from external devices connected to external terminal is accepted or not.

DI point varies depending on setting model.

PHR: DI1 to DI10 (Max. 10 points)

PHW: DI1 to DI16 (Max. 16 points)

No.1	Function invalid	•
No.2	Function invalid Rec start/stop Fvalue calc, reset	
No.3	Totalize start/stop Totalize reset LCD ON	
No.4	Function invalid	-

Note: Without the DI option, DI function cannot be used.

2.6 Display setting

At this screen, you can see or set regarding to screen setting such as structure of screen, trend display screen and so on. Click "Display setting" tab of Structure of setting channel display.

	Main setting Display									
Group No.	Analog meter/Bar graph	h Channel index	No.1		No.2	No.3	3	No.4	4	No.5
Group No.1		CH No.disp.	channel 1		channel 2		nnel 3 nnel 3		innel 4 innel 4	channel 5
âroup No.2 âroup No.3		CH No.disp. CH No.disp.	channel 1 channel 1		channel 2 channel 2		nnel 3 nnel 3	_	innel 4 innel 4	channel 5 channel 5
Group No.4	Bar graph	CH No.disp.	channel 1		channel 2	cha	nnel 3	cha	nnel 4	channel 5
										<u> </u>
essage/Ur Aessage	nit							[Unit	
	essage			Timing	DI No./Alar	m Ch	Alarm No.	1		Unit name
NO.1 NO.2				None None					NO.1 NO.2	
NO.3				None					N0.3	
NO.4 NO.5				None None					N0.4 N0.5	
NO.6				None					NO.6	
NO.7 NO.8				None None					NO.7 NO.8	
NO.9				None					NO.9	
NO.10				None					NO.10 NO.11	
									NO.12	
nmunication	status 📕 📕 _	Upload	Download		Set value register					Time setting
		Upload	Download		Set value register				_	Time setting
iroup s	etting	Upload	Download		Display ch	anne	l setting-			Time setting
iroup s splay s	etting etting	Upload	Download			anne	cha	nnel	1	Time setting
Froup s splay s Displa∖	etting etting				Display cha No.1 No.2	anne	cha cha	nnel	1 2	Time setting
froup s splay s Display Channe	etting etting , el index	Bar graph	.		Display cha	anne	chai chai chai		1 2 3	Time setting
iroup s splay s Display Channo Display	etting etting , el index	Bar graph Channel No	.		Display cha No.1 No.2 No.3	anne	chai chai chai chai	nnel nnel	1 2 3 4	Time setting
iroup s splay s Display Channi Display Scale d	etting etting , el index , isplay	Bar graph Channel No Display G	.		Display cha No.1 No.2 No.3 No.4	anne	cha cha cha cha cha	nnel nnel nnel	1 2 3 4 5	Time setting
Display Scale d Frend di	etting etting , el index , isplay	Bar graph Channel No Display G Scale OFF	.		Display cha No.1 No.2 No.3 No.4 No.5	anne	chai chai chai chai chai chai	nnel nnel nnel nnel nnel	1 2 3 4 5 6 7	
Splay S Splay S Display Channi Display Scale d Trend d Trend	etting etting el index isplay direction Verti	Bar graph Channel No Display G Scale OFF	p. V proup1		Display cha No.1 No.2 No.3 No.4 No.5 No.6 No.7 No.8	anne	chai chai chai chai chai chai chai	nnel nnel nnel nnel nnel nnel	1 2 3 4 5 6 7 8	Time setting
Group s splay s Display Channu Display Scale d Trend d	etting etting el index isplay direction	Bar graph Channel No Display G Scale OFF	o. V		Display cha No.1 No.2 No.3 No.4 No.5 No.6 No.6 No.7 No.8 No.9	anne	chai chai chai chai chai chai chai	nnel nnel nnel nnel nnel nnel	1 2 3 4 5 6 7 8	
Splay S Splay S Display Channi Display Scale d Trend d Trend	etting etting el index isplay direction Verti	Bar graph Channel No Display G Scale OFF	p. V proup1		Display cha No.1 No.2 No.3 No.4 No.5 No.6 No.7 No.8	anne	chai chai chai chai chai chai chai	nnel nnel nnel nnel nnel nnel	1 2 3 4 5 6 7 8	

Setting screen appears and you can see status about screen setting.

2.6.1 Display setting

At this screen, you can set regarding to screen setting such as structure of screen, trend display screen and so on. Double click the group No. at "Display group" column on Display setting screen.

- * Edit the displayed group on "Selected group No.".
- * Screen name (up to 16 characters) can be set to the recorder.
- * If scale display is ON, trend screen is divided in accordance with the scale, not the setting of "Display divided".

2.6.2 Setting channels

Set the structure of screen.

No.1 at this screen equals to data 1 of "display setting" of the paperless recorder, No.2 equals to data 2. Following is the same as above until No.10.

* In case of the paperless recorder is 9 inputs type, this screen displays until No.10.

2.6.3 Setting message

The screen allows you to set messages to be displayed when an event occurs. Move the cursor to No. of the Message box on the Main Unit Set screen and double-click it.

Message		
Timing	None	
Timing1		
Timing2		
elected No.	1 Top Back Next	

The Message Setting screen appears.

- * Up to 32 characters is available for the message. The characters exceeding 32 cannot be displayed on the recorder main unit.
- * After the input of message set data, be sure to press the "Apply" button, or the message cannot be registered.
- * Message timing is allocated as follows:

Message	setting						×	
Message							-	
Timing	Alarm ON		•					
Timing1	CH.1		$\overline{\cdot} \leftarrow$					— Channel No
Timing2	Alarm No.	1	$\overline{\cdot}$			 		— Set alarm N
Selected No.		Top	Back M	Vext				
		20.0000	- 11					
		Cancel	A	pply	Exit			
		Cancel		.pply	Exit			
		Cancel		oply	Exit			
I Message	e setting	Cancel		.pply	Exit		×	
<mark>I Message</mark> Message	e setting	Cancel		.pply	Exit		×	
18078	e setting	Cancel	A	.pply	Exit		×	
Message				.pply	Exit		×	— DI No.
Message Timing	DI ON			pply	Exit		×	— DI No.
Message Timing Timing1	DI ON DI1			Vext			×	— DI No.

2.6.4 Unit coding

Units can be made in alphanumerical characters. This unit can be registered in the input unit when scaling is set to ON on the Channel Setting screen.

Move the cursor to No. of the Unit box on the Main Unit Set screen and double-click it.

🚹 Unit define			×
Unit name 🛛		_	
Selected 1	Top E	Back Next	
L	Cancel	Apply Exit	

The Unit Setting screen appears.

- * A message (unit) consisting of up to 7 characters is available for the recording main unit.
- * After the input of unit set data, be sure to press the "Apply" button, or the unit cannot be registered.

2.7 Ethernet communication setting

Settings related to Ethernet communications such as IP address, user name, operation setting of each Ethernet communication function of the paperless recorder can be checked or made.

* Ethernet communication function cannot be used unless the paperless recorder main unit is provided with Ethernet communication option.

Parameter Loader File(F) Edit(E) Communication(R) Help(H) Parameter R			PHR	
Ethernet setting PAddress 192 158 1		-mail setting	FTP server setting	
IP Address 192 168 1 Subnet mask 255 255 255 Default gateway 0 0 0	0		FTP access control Web server setting Web server function	
User name 1. SystemTaro 2. Kirokukeiho	Password a19b23 65790	User level administrator guest	E-mail setting E-mail function	
3. 4. 5. 5. 5. 5. 5. 5. 5. 5. 5. 5. 5. 5. 5.		administrator administrator administrator	MODBUS TCP/IP setting MODBUS TCP/IP function	ON 💌
6. 7. 8.	 	administrator administrator administrator	MODBUS station No. MODBUS baud rate(bps) MODBUS Parity	1 19200 •
When you change parameters other than '	"User account", plea	ise re-switch on a power	supply.	,
Communication status	Download	Set value register	Tim	e setting

- * Up to 16 characters can be entered as user name.
- * Up to 8 characters can be entered as password.

2.8 E-mail communication setting

Settings related to E-mail communications such as send/receive address and send trigger can be made.

* E-mail communication function cannot be used unless the paperless recorder main unit is provided with Ethernet communication option.

I Parameter Loader File(F) Edit(E) Communication(R) Help(H)		<u>_</u> _X		
Channel setting Main setting Display setting Communication setting E-mail setting PHR				
SMTP(Mail server) IP address 192 168 0 . Sender's mail address polier035@test.co.jp	1			
Image: Sender's name Boiler035 Receiver's mail address Image: Sender's name 1 System-Taro@test.co.jp 2 Kiroku-Keiko@test.co.jp 3 Image: Sender's name 5 Image: Sender's name 6 Image: Sender's name 7 Image: Sender's name				
Title	Text 1	Text 2		
Manufacture start. Boiler035 a regular report The temperature is abnormal ! 4 5 6 7 •	Manufacture start. a regular report The temperature is abnormal !	Boiler035 Boiler035 Boiler035		
Communication status	Download Set value register	Time setting		

- * Up to 64 characters can be entered as send/receive address.
- * Up to 32 characters can be entered as sender name.

2.8.1 E-mail trigger setting

Other conditions for E-mail transmission can be selected as follows. Move the cursor to "E-mail trigger" on the E-mail setting screen and double-click it.

🚬 E-mail trigger setting	×	
Trigger timing None		
Alarm No.		
Title		
Comment1		
Comment2		
PV value affixation OFF		
Receiver's mail address No.		
Selected No. 1 Top Back Next		
Cancel Apply Exit		

- * Up to 32 characters can be entered as the title of E-mail and comments 1 and 2.
- * Be sure to press the [Apply] button to confirm the E-mail trigger setting data that has been entered.
- * E-mail trigger timing is allocated as shown below.
- When sending E-mail by DI operation

📮 E-mail t	rigger setting	X
Trigger timing	DION	
DI No.		1
Alarm No.		J
Title		
Comment1		
Comment2		
PV value affixa	ation OFF	
Receiver's mai	address No.	
	2	
Selected No. 1 Top Back Next		
	Cancel Apply Exit	

• When sending E-mail by alarm operation

🗅 E-mail tr	rigger setting	×
Trigger timing	Alarm ON	
Alarm CH	channel1 Channel No.	٦
Alarm No.	No.1	f
Title		
Comment1		
Comment2		
PV value affixa	tion OFF	
Receiver's mail	address No.	
	2 3 4 5 6 7 8	
Selected No. 1 Top Back Next		
	Cancel Apply Exit	

• When sending E-mail by alarm operation of • When sending E-mail at fixed intervals the main unit

💼 E-mail tri	gger setting	X
Trigger timing	Warning	
Warning type	Alarm ON(All ch)	
Title		
Text 1		
Text 2		
PV value affixati	on OFF	
Receiver's mail address No.		
Selected No. 4 Top Back Next		
	Cancel Apply Exit	

👬 E-mail trig	gger setting	X	
Trigger timing	Timer cycle		
Time	Transmission internal	1	
Time base(hour)	00:00 Reference time	1	
Title			
Text 1			
Text 2			
PV value affixation OFF			
Receiver's mail ac	ddress No.		
□ 1 □ 2	3 4 5 6 7 8		
Selected No. 4 Top Back Next			
	Cancel Apply Exit		

APPENDIX.1 EXAMPLE OF SETTING PARAMETERS TO BE PRINTED OUT

2008/04/18 16:45:20

PILC : PHR21B14-N10EY Ser.No.: LYT0006T Ver. : V31A

∗∗∗∗ *Channe∣ setti	ng****		0+6	er CH Seeling		Engineering unit
Input type CH1 K-Type TC CH2 T-Type TC CH3 Pt100 CH4 JPt100 CH5 500mV CH6 500mV CH7 Other channel CH8 500mV CH9 O-5V CH10 B-Type TC CH11 500mV CH12 500mV CH12 500mV CH13 500mV CH13 500mV CH13 500mV CH14 JPt100 CH16 Other channel CH17 O-5V CH18 1-5V	Yellow Tag Indigo Tag Dark red Tag Red Tag Blue Tag Violet Tag Purple Tag Deep green Tag	11 Tag 2-01 12 Tag 2-02 13 Tag 2-02 14 Tag 2-02 15 Tag 2-04 16 Tag 2-05 16 Tag 2-07 17 Tag 2-07 18 Tag 2-08 19 Tag 2-09 10 Tag 2-11 12 Tag 2-12 13 Tag 2-12 14 Tag 2-12 15 Tag 2-15 16 Tag 2-16 17 Tag 2-17	Input unit Input C chai F chai C chai mV chai mV chai mV chai W chai V chai mV chai F chai F chai F chai V	er CH Scaling ut ON/OFF unei 1 OFF unei 1 OFF	$\begin{array}{c ccccc} \mbox{Measuring range} & \mbox{Min} & \mbox{Max} & \mbox{Max} & \mbox{Max} & \mbox{Min} & \mbox{Max} & \mbox{Max} & \mbox{Min} & \mbox{Max} & $	$\begin{array}{cccccccccccccccccccccccccccccccccccc$
Square rooterLog rooterCH1OFFOFFCH2OFFOFFCH3OFFOFFCH4OFFOFFCH5OFFOFFCH6OFFOFFCH7OFFOFFCH8OFFOFFCH9ONOFFCH10OFFOFFCH10OFFOFFCH11OFFOFFCH12ONOFFCH13OFFOFFCH14OFFOFFCH15OFFOFFCH16OFFOFFCH16OFFOFFCH17OFFOFFCH18ONOFF	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	t PV gain c 100.01 N 100.02 N 100.03 c 140.00 c 50.00 c 100.00 c 100.00 N 100.00 N 109.00 c 101.00 N 100.00 N 100.00 c 100.00 c 100.00 c 100.00 c 100.00 c	Subtract Fvalue channel calc. None OFF channel2 OFF channel2 OFF channel4 OFF channel5 OFF None OFF None OFF None OFF channel2 ON None OFF channel18 ON channel18 ON channel3 OFF None OFF	Recording mode With record With record With record With record With record With record With record Display only With record With record		$\begin{array}{cccccccccccccccccccccccccccccccccccc$
Tag cag CH1 STAG 01 Tot CH2 STAG 02 Tot CH3 STAG 03 Tot CH4 STAG 04 Tot CH5 STAG 05 Tot CH6 STAG 06 Tot CH7 STAG 07 Tot CH8 STAG 08 Tot CH9 STAG 09 Tot CH10 STAG 10 Tot CH12 STAG 11 Tot CH13 STAG 12 Tot CH14 STAG 13 Tot CH13 STAG 13 Tot CH14 STAG 14 Tot CH15 STAG 15 Tot CH14 STAG 14 Tot CH15 STAG 15 Tot CH15 STAG 16 Tot CH16 STAG 16 Tot CH16 STAG 16 Tot CH17 STAG 17 Tot	ing***** alize Totalize alizer Monthly alizer Monthly alizer Daily alizer Daily alizer Daily alizer Daily alizer Daily alizer OFF alizer Monthly alizer Daily alizer OFF alizer Daily alizer OFF alizer Daily alizer OFF alizer Daily alizer OFF alizer Daily alizer OFF alizer Daily alizer OFF alizer Daily	input Ba DI3 /h Ch1 Alarm2 /m DI1 /h DI1 /h DI3 /m Ch6 Alarm3 /d DI1 /h DI1 /h DI1 /h DI1 /h DI9 /s DI1 /h	n ON nin OFF n ON tay OFF day OFF n ON day ON day ON n ON tay ON tay ON tay ON tay ON tay ON tay ON tay ON tay ON	ion Unit Cut ppmC0 1 rps 2 SEC 0. uGy/h 5 dB 6 %NaC1 0 m/min 0. mo! 37 0 km/h 1. min 1. mm/min -1	lize Totalize value Scale value 0.0 2 0.0 3 0.0 4 010 3600 0.0 9999 0.0 160 .00 32767 0.0 19 0.0 19 0.0 32 00 100 200 54 0.0 3 100 1 0.0 15 000 65 170 17 0 18	
type va CH1 H 10 CH2 H 80 CH3 OFF 60 CH4 H 0. CH5 H 50 CH6 H 50 CH7 OFF 0 CH8 DFF 0. CH9 L 0. CH10 OFF 60 CH11 OFF 1.0 CH12 L 0. CH13 OFF 0. CH14 H 0. CH15 L 4 CH16 OFF 0. CH16 OFF 0.	Alarm Alarm m set D0 relay Alarm ilue No. type i0.0 1 H i0.0 None OFF i0.0 None OFF i0.0 None OFF i0.0 1 OFF i0.0 1 OFF i0.0 1 OFF i0.0 1 OFF i0.0 None OFF i0.0 None OFF i0.0 S H i0.0 S H i0.0 S H i0.0 S H i0.0 None OFF i000 None H 0.0 None H 0.0		Alarm No Prelay Alarm No. type 2 H None OFF 2 L 27 H None OFF None OFF None OFF 5 L None OFF None OFF	Alarm set DO r value N 100.0 N 0.0 N 0.00 N 0.004 Solo 0.00 N 0.00 N 0.00 N 0.00 N 0.900 Solo 600.0 N 0.300 N 0.300 N 0.300 N 0.300 N 0.000 N	o. type 3 H one L 5 OFF 26 L one OFF one OFF one OFF 6 H 22 H	Iarm set D0 relay value No. 100.0 4 200.0 None 0.0 None 4.000 3 50.0 25 0.0 None 0.00 None 0.00 None 0.00 None 0.00 None 0.00 None 0.00 None 1.00E0 None 1.00E0 None 10.00 None 10.00 None 10.00 None 10.00 None 10.00 None 1000 None

water that along a set in such a	
*****Math channel setting***** Formula CH19 B01 = LN(CO1)+SQR(CO6)	Formula CH25 B01 = C25
B02 = C01+C01+C01	B02 =
B03 = C01/C01/D10	B03 =
Result = SUM(K14, K15)	Result =
CH20 B01 = ABS (803) - ABS (C06) * ABS (C07)	CH26 B01 = C26
B02 = C01	B02 = -
B03 = T16*M04-L0G (T08)	B03 =
Result = SUM(CO1,CO6)-MIN(CO1,CO6)+POW(T11,CO7)	Result =
CH21 BO1 = C21	CH27 B01 = C27
BO2 = CO1	B02 =
B03 = C01	803 =
Result = C01	Result =
CH22 B01 = C22	CH28 B01 = C28
BO2 = CO1	B02 =
BO3 = CO1	B03 =
Result = CO1	Result =
CH23 BO1 = C23	CH29 B01 = C29
BO2 =	B02 =
BO3 =	B03 =
Result =	Result =
CH24 BO1 = C24	CH30 B01 = C30
B02 ≕	BO2 =
B03 = .	BO3 =
Result =	Result =
Meas	uring range Engineering unit Square
Color Tag No.1 Tag No.2 Input unit Min	Max Min Max rooter
CH19 Indigo TAG19 Tag 2-19 t/d 1	1.9 501.9 11.9 501.9 ON
CH20 Dark red TAG20 Tag 2-20 0.0	120 0.5200 0.0112 0.5200 OFF
CH22 Blue TAG22 Tag 2-22 ppmH2S 2	2.0 22.0 22.0 22.0 0FF
CH23 Violet TAG23 Tag 2-23 %Ar 0,	123 5.023 0.123 5.023 0FF
CH25 Deep green TAG25 Tag 2-25 m3/h 1 CH26 Purple TAG26 Tag 2-26 %NaCl 1	240 5. 240 0. 240 5. 240 ON 25 50. 25 1. 25 50. 25 ON . 26 50. 26 1. 26 50. 26 OFF
CH28 Yellow TAG28 Tag 2-28 1/min 0.0 CH29 Indigo TAG29 Tag 2-29 pH 0.	290 5. 029 0. 129 5. 029 OFF
CH30 Dark red TAG30 Tag 2-30 rps 3	0.0 300.0 30.0 300.0 OFF
Log Input Subtract	Fvalue Recording Recording Display range
display filter PV shift PV gain channel	calc. mode type Min Max
CH19 OFF 5 101.9 100.19 None	OFF With record Point rec. 19.0 1019.1
CH20 OFF 10 0.0020 100.20 None	OFF With record Average rec. 0.0200 1.0200
CH21 ON 21 32.0 100.00 None CH22 OFF 22 22.0 22.00 channe15 CH23 OFF 10 0.023 100.23 channe124	OFF With record Min-Max rec. 0 5 OFF With record Point rec. 220.0 122.0
CH24 0FF 24 0. 240 124. 00 channel11	ON With record Min-Max rec. 2,400 10.240
CH25 0FF 25 2. 50 25. 00 channel27	OFF With record Point rec. 25.00 101.25
CH28 OFF 28 0. 2800 100. 28 channel 5	ON With record Point rec. 0.270 10.270 ON With record Point rec. 0.280 0.280
CH29 OFF 29 0. 290 100, 29 None	OFF With record Point rec, 2.900 10.290
CH30 OFF 30 30. 0 130. 00 channel 30	OFF With record Min-Max rec, 30.0 1030.1
Tag calc. Type input Bas	alize Reset Totalize Totalize Totalize e time operation Unit Cut value Scale value Reset input
CH19 STAG 19 Totalizer Daily DI1 /da CH20 STAG 20 Totalizer Monthly DI6 /mii CH21 STAG 21 Totalizer OFF DI1 /h	
CH22 STAG 22 Totalizer Annual D11 /h	ON VA 22.0 22 D11
CH23 STAG 23 Totalizer OFF D16 /mi	n ON 0.230 23 None
CH24 STAG 24 Totalizer OFF D16 /s	ON 0.240 24 None
CH25 STAG 25 Totalizer External DI6 /da CH26 STAG 26 Totalizer Daily DI1 /s CH27 STAG 27 Totalizer Daily DI1 /mi	y ON 0.00 1 None ON ohm <u>2.60 26 C</u> h30 Alarm4
CH28 STAG 28 Totalizer Daily DI1 /h	0N Pa•s 0.280 28 None
CH29 STAG 29 Totalizer Daily DI1 /da	y 0N kohm 0.290 29 None
*****Alarm setting*****	
Alarm No.1 Alarm No.2 Alarm Alarm set D0 relay Alarm Alarm set D0 type value No. type value	No, type value No, type value No.
CH19 H 159.0 28 L 319.0	4 H ⁻¹ 219.0 20 H ⁻¹ 189.0 4
CH20 H 0.4200 28 H 0.3200	8 L 0.2200 23 0FF 0.1200 7
CH21 0FF 7.60E-1 None 0FF 7.60E-1 H	None 0FF 7.60E-1 None 0FF 7.60E-1 None
CH22 OFF 22.0 22 OFF 22.0 CH23 H 4.230 27 H 3.123 CH24 H 4.240 None OFF 3.240	22 0FF 22.0 22 0FF 22.0 22 8 L 2.230 22 0FF 1.230 6 1 H 2.240 27 L 1.240 7
CH25 L 25.00 25 L 325.00	10 L 225.00 25 L 125.00 3
CH26 H 41.26 26 0FF 326.00	9 0FF 226.00 19 L 126.00 1
CH27 H 0.270 12 H 3.270	10 H 2.270 26 H 1.270 4
CH28 H 4. 280 28 L 3. 280	4 H 2.280 20 L 1.280 4
CH29 L 4. 290 22 DFF 3. 290	8 L 2.290 26 L 1.290 3
CH30 H 430.0 27 OFF 330.0	28 OFF 230.0 26 OFF 130.0 25

*****Main setting***** Display refreshment cycle 1 sec Alarm hysteresis 1.32 (%) LCD lights-out time 0 min Recording data format Binary Configuration password 1 Trend back color White Display Compression 1/1 Alarm latch OFF Memory full alarm DO No. 5 File division cycle No division CF manager password 2 Historical back color Black Battery alarm DO No. File overwrite OFF 4 REC key password 1 *****Fvalue calculation setting***** Target temperature 100.0 °C Z Reset temperature 10.0 °C Žvalue 200.0 °C Decimal point position 3 ★★★★★Totalize setting★★★★ Daily totalize cycle 12 hour Extrnal input DI1 Annual base day 31 Program version V14A exclusive use totalize setting Totalize calculation OFF Totalize base time /h Totalize recording cycle 12 hour Start/Stop timing Manual Start time-Stop time 23:06 - 22:59 ****Math timer setting***** 2 min AVG operation H-P/L-P operation 4 min SUM operation 2 min *****Display setting**** No. 10 channe110 None None None Bar graph/ Analog meter Bar graph Scale Trend Display Color bar direction division No. display Vertical 20 ON Horizontal 13 ON display selection Tag No. disp. CH No. disp. Unit_disp. Display name Display group1 1.Diplay Group1 Display group2 2.Diplay Group2 Display group3 3.Diplay Group3 Display group4 4.Diplay Group4 Analog meter Bar graph Analog meter 13 OFF Vertical Horizontal 10 OFF Tag No. disp. *****Message setting***** DI NO./ Alarm Channel Alarm NO. DI1 Message Timing1 No. 1 Massage DI1 ON DI ON

 No. 1
 Massage D11 ON
 DI ON

 No. 2
 Massage D15 OFF
 DI OFF

 No. 3
 Massage Channel18 Alarm No. 1 ON
 Alarm ON

 No. 4
 Massage Channel18 Alarm No. 1 OFF
 Alarm OFF

 No. 5
 Massage Channel18 Alarm No. 1 OFF
 Alarm OFF

 No. 5
 Massage Channel18 Alarm No. 3 OFF
 Alarm OFF

 No. 6
 Massage Channel18 Alarm No. 3 OFF
 Alarm OFF

 No. 7
 Massage Channel18 Alarm No. 2 ON
 Alarm ON

 No. 8
 Massage Channel05 Alarm No. 4 OFF
 Alarm OFF

 No. 9
 Massage Channel04 Alarm No. 2 ON
 Alarm OFF

 DIS CH. 18 CH. 18 DI4 Alarm No. 1 Alarm No.1 CH. 18 CH. 18 Alarm No.3 Alarm No. 2 DI4 CH. 5 CH. 4 Alarm No. 4 Alarm No. 2 *****Original Unit definition***** No. 1 No. 2 No. 3 No. 4 No. 5 No. 6 mPa No. 9 Unit SEC No. 7 No. 8 Ňo. 10 No. 11 No. 12 Unit ******DI function setting***** DI-1 Rec start/Rec stop DI-2 Fvalue calc. reset DI-3 Totalize start/stop DI-4 Function invalid DI-5 Rec start/Rec stop DI-6 Rec start/Rec stop DI-7 Rec start/Rec stop DI-8 Fvalue calc, reset DI-9 Totalize start/stop DI-10 Totalize reset *****Constant setting***** Constant1 Constant11 0.002 Constant12 0.0003 Constant2 2 3. Ō Constant13 Constant3 0 4.00 Constant14 Constant15 Constant4 100 120 Constant5 60 700 Constant6 Constant16 Õ Ō Constant7 Constant17 8000 Constant8 Constant18 0 Constant9 0.9 Constant19 99, 3 Constant10 0.01

10

Constant20

★★★★★Ethernet setting★★★★★ Ethernet setting IP Address 192 168 0 . Subnet mask 255 255 255 . Default gateway 0 0 0 0	2 0 0
FTP server setting FTP server function ON Access control ON	
Web Server setting Web server function ON	
E-mail setting E-mail function ON	
MODBUS TCP/IP setting MODBUS TCP/IP function ON	
Communication setting Modbus station No. 1 Modbus baud	rate 19200 bps Modbus parity Odd
2. KirokuKeiko 65790 3. 4. 5. 6. 7.	User level administrator guest administrator administrator administrator administrator administrator administrator
Sender's mail address boi	92 . 198 . 0 . 1 iler035@test.co.jp iler035
Receiver's mail address 1. System-Taro@test.co.jp 2. Kiroku-Keiko@test.co.jp 3. 4. 5. 6. 7. 8.	
E-mail trigger setting	
No.2 Boiler035 report at regular time	Text I Text 2 Product1 manufacturing beginning Boiler035 Report at regular time Boiler035 The temperature is abnormal. Boiler035
No.1 DIÖN D12 – No.2 Timer cycle 12hour 0	Timming2 PV Value No1 No2 No3 No4 No5 No6 No7 No8 - ON ON ON OFF OFF OFF OFF OFF OFF OFF D1:00 ON ON OFF OFF OFF OFF OFF OFF OFF OFF No.4 ON ON ON OFF OFF OFF OFF OFF OFF - OFF OFF OFF OFF OFF OFF OFF OFF OFF OFF - OFF OFF OFF OFF OFF OFF OFF OFF OFF OFF - OFF OFF OFF OFF OFF OFF OFF OFF OFF OFF OFF OFF OFF - OFF OFF OFF OFF OFF OFF OFF OFF OFF OFF OFF OFF OFF OFF OFF OFF OFF - OFF OFF OFF OFF OFF OFF OFF OFF OFF OFF OFF OFF OFF OFF OFF - OFF OFF OFF OFF OFF OFF OFF OFF OFF OFF OFF OFF OFF OFF - OFF OFF OFF OFF OFF OFF OFF OFF OFF OFF OFF - OFF OFF OFF OFF OFF OFF OFF

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