

aperless Record



Type: PHU

PAPERLESS RECORDER





Saved Data playback
Saved data in Memory card can be easily called out and played back on display

Math and totalization

These functions are available as standard.

Communication

Ethernet (10Base-T) is available. (option)

Screen saver

Period of non-operation exceeds the setting value of parameter, recorder turns off the backlight of LCD.

PC support softwares (Data Viewer/Parameter Loader) Supplied in a CD-ROM as a part of standard accessory

36-point max. recording12 types of thermocouples, 5 types of resistance bulbs and voltage/ current input are available

Memory Card Data Saving

Provides flexibility and variety in the handling of record data.



Status Display

Allows you to display screen name, calendar, alarm information, recording status, writing status of measured data in Compact Flash, and fitting status of the card into the recorder slot.

Time display

Indicates the time and time scale of recorded data.

Trend Display

Allows you to view measured result in waveforms.

Digital Display

Allows you to view measured values in a digital form.

Key panel

Allows you to perform the recording start/stop, selection of display, setting, data display/change.

Power indicator

During power on, LED turns on.
While screen saver is working, it flickers.



About 1.5 years' worth of data can be recorded in Compact Flash (256 MB).

When recorded in ASCII mode, for 9 channels, and with a recording cycle of 30 seconds.

Mathematics function (programming formula) as standard

You can program formula using below operand.

Addition, Subtraction, Multiplication, Division Absolute value, X to the power of Y, Logarithm, Natural logarithm, Exponential function, Humidity, Average value, Maximum value, Minimum value.

Communication

Ethernet (10Base-T) is available. It has FTP, HTTP (Web server), SMTP and MODBUS-TCP protocols.

Calculation function offered as standard

Subtraction

Difference between the values of each channel can be calculated.

F value calculation

Extinction rate of bacteria by heat sterilization can be calculated per channel according to the measured temperature.

Totalization

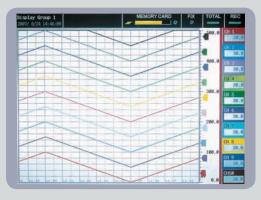
Measured value of each channel can be totalized.

Reference time can be selected from day, hour, minute and second.

Square root extraction

Square root extraction of the input value of each channel can be performed.

Wide variety of display mode



Trend recording (horizontal)

Measured result is horizontally displayed in real time.



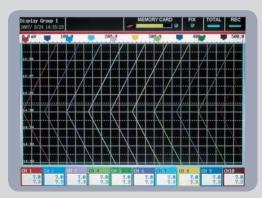
Bar graph

Measured values are displayed in bar graph.



Digital display

Channel No., Tag No. engineering unit, and alarm information are displayed in digital form, in addition to measured values.



Historical trend display

Past data saved to Compact Flash can be viewed. Scroll function is usable.



Trend recording (vertical)

Measured result is vertically displayed in real time.



Analog meter

Measured values are displayed in analog meters.



Totalized data display

Totalized data of each channel is digitally displayed. (If power failure occurs while in totalizing operation and the power is restored later, the data being totalized is cleared.)



Event summary display

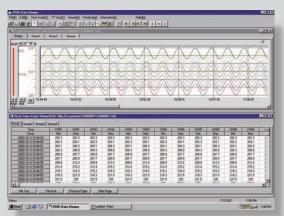
Alarm status and external control input status for each channel are displayed.

Material steel steel steel and mass 300 x Power supply voltage 100V Power consumption About External terminals Screw 0 to 4 is "E" Input unit No. of inputs 9 or 1 Measuring cycles 100m Recording cycle 1sec 1 Input signal Them (B, R, Resis (Pt100 DC voltage) Input types Select (the steel totalize) Burn-out function Equip inputs Calculation function Prima different totalize Mathematics function Formula It can Additit Absol Natural Humic Minim Input signal DI (DI input totalize) Input signal DI (DI input totalize) Display unit Display unit Display unit Display unit Display 12" Times of the steel and the steel	el flush mounted I sheet for case, PC-ABS for bezel nel mount> x 300 x 220.5 mm, about 4.7 kg (9-point input) / to 240 V AC, 50/60 Hz ut 80 VA (at 240 VAC) w terminals (M3 thread) 50°C (in case the 12th digits of code pols is "Y".) 40°C (in case the 12th digits of code symbol ".) 18 or 27 or 36 points ns/9, 18 points 200ms/27, 36 points 10 to 12hours 11 to 12hours 12 types 13 S, K, E, J, T, N, W, L, U, PN) 14 stance bulb: 5 types 15 yes 16 yes 17 yes 18 yes 18 yes 19 yes 19 yes 10 yes 10 yes 11 yes 11 yes 12 yes 13 yes 14 yes 15 yes 16 yes 17 yes 18 yes 18 yes 19 yes 19 yes 10 yes 10 yes 11 yes 12 yes 13 yes 14 yes 15 yes 16 yes 17 yes 18 yes 18 yes 18 yes 18 yes 19 yes 1	Memory capacity Recording method Data save cycles Data format Trend data Event data Totalized data Storage capacity Amount of memory used Alarm function No. of settings Type of alarm Indication Output	Writing starts in fixed cycles by turning ON the REC key on the front panel. Data is recorded in a new file every time the recording starts. Links to refreshment cycle of the trend display *ASCII About 166 bytes per sampling (at 9 channel inputs) *Binary (Data cannot be read directly into Excel, etc.) About 40 bytes per 1 sampling (9-channel input) Maximum value and minimum value are saved from the data that are sampled in measuring cycles. Alarm data and message data are saved. Stores data totalized during specified period of time. *About 1.5 years at display refresh cycle of 30 seconds (ASCII) *About 6 years (Binary) (9-channel recording, 256MB compact flash used) The display unit displays how much the memory card has been used via bar graphs. The recording will stop if the amount of recorded data exceeds the capacity. Up to 4 alarms are settable for each channel. High/Low limits Alarm status is displayed on digital display unit when an alarm occurs. Histories are displayed in the alarm summary.				
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Input types Input	necting optional shunt resistor to input terminal) cted from the key panel same type should be set for every 2 channels) pped with thermocouple and resistance bulb its as standard. ary delay filter, scaling, calculation of rence between channels, F value calculation, zation, and square root extraction	Alarm function No. of settings Type of alarm Indication	recording will stop if the amount of recorded date exceeds the capacity. Up to 4 alarms are settable for each channel. High/Low limits Alarm status is displayed on digital display unit when an alarm occurs. Histories are displayed in				
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Calculation function Prima differe totaliz Mathematics function Formula It can Additi Absol Nature Humic Minim nput signal DI (DI input Comn Display unit Display Due to bright	ary delay filter, scaling, calculation of rence between channels, F value calculation, zation, and square root extraction	Indication	Alarm status is displayed on digital display unit when an alarm occurs. Histories are displayed				
differe totalize Mathematics function Formula It can Additicate Absolution Nature Humide Minime Input signal DI (DI input Common Common Display unit Display unit Display 12" Tile may he Due to bright	rence between channels, F value calculation, zation, and square root extraction		when an alarm occurs. Histories are displayed i				
Mathematics function Formula It can Additi Absol Natura Humic Minim nput signal DI (DI input Comn Display unit Display 12" Ti may h Due to bright	zation, and square root extraction	Output					
Mathematics function Formula It can Additi Absol Natura Humic Minim Input signal DI (DI input o Comn Display unit Display unit Due to bright		Output	the alarm summary.				
Formula It can Additi Absol Natura Humic Minim Input signal DI (DI input Comn Display unit Display unit Due to bright		Output					
Additi Absol Natura Humio Minim Input signal	n be set 1 main formula and 3 temporary one.	Carpar	20 points as relay output (option)				
Absol Natura Humio Minim Input signal Input			16 points as open-collector transister output (option				
Natura Humio Minim Input signal DI (DI input Comn Display unit Display Display Display Display Due to bright	tion, Subtraction, Multiplication, Division	Reference perfori	mance				
Humic Minim Input signal DI (DI input Comn Display unit Display 12" TI may h Due to bright	plute value, X to the power of Y, Logarithm,	Indication accuracy	±(0.15%+1 digit) of input range Accuracy of the next range is ±(0.3%+1 digit). Thermocouple B: 400°C to 600C, thermocouple R and S: 0°C to 300°C, thermocouples K, E, J, T L, and U: -200°C to -100°C 0.1°C ±0.5°C				
Minim Input signal	ral logarithm, Exponential function,						
Input signal Input signal Input of Comm Display unit Display 12" Ti may h Due to bright	idity, Average value, Maximum value,						
input Comm Display unit Display 12" Ti may h Due to bright	mum value.						
Display unit Display 12" Ti may h Due to bright	DI1 to DI16), Totalize (ch1 to ch72), Analog						
Display unit Display 12" TI may h Due to bright	t (ch1 to ch72), Constant (No.1 to No.60),	Indication resolution					
Display 12" TI may h	munication input (No.1 to No.36)	Reference junction					
may h Due to bright		Compensation accuracy	(Thermocouples R, S, B and W: ±1.0°C)				
Due to bright	ΓFT color LCD (800 X 600 dots) (The LCD	Input resistance	About 1MΩ				
bright	have some pixels that do not stay on or off.	Others					
	to the characteristics of liquid crystal, the	Clock	With calendar function				
	ntness may not be uniform, which is not a	Memory backup	Parameter settings are saved to the internal nor				
failure	re.)		volatile memory. The clock is backed up by a				
Life of backlight 50,00	00 hours		built-in lithium battery. Trend data is back up				
Display contents •Trend	nd display		5 Mbyte.				
(in ve	ertical and horizontal direction) selected in	Memory full alarm	When the amount of recorded data exceeds the				
the re	efreshment cycles of 1 sec to 12 hours.		capacity of memory card, recorder can energize				
	e display/non-display selectable		the alarm output.				
	graph or analog meter display (refresh	Low battery alarm	When the battery for backup of clock and SRAM				
	e: 1 second)		becomes low, recorder can energize the alarm				
	tal display (in refreshment cycle of 1 sec)		output.				
	nt summary display (alarm and message	Optional specifica	•				
summ		Alarm relay output	Up to 2 pieces of card, having 10-point relay				
	orical trend display (Compact Flash memory	and the same of th	output, can be mounted (max.20points).				
data.)			Alarm output: 1 a contact				
· · · · · · · · · · · · · · · · · · ·			Alarm setting: individual channel or common				
			output is available.				
Recording function	alized data display		output to available.				
- Carlotte and the Carlotte							
recording medium record	alized data display						

Specifications											
Alarm open-collector	A card, having 16-point open collector output,	PC support software (standard-supplied CD-ROM)									
output	can be mounted.	O/S	Windows XP/2000								
	Alarm output: open collector output	PC/AT-compatible	Operation on PC98-series machines by NEC is								
DI input	A card, having 16-point DI input, can be	machine	not guaranteed.								
	mounted.		Operation on self-made or shop-brand PCs is								
	DI input: no-voltage contact input		not guaranteed.								
	Contents of control: Recording start/stop,	Required memory	64 MB or more								
	Message setting, F value caliculation resetting,	capacity									
	Totalizing start/ stop, Totalizing reset, LCD	Contents	The following types are included as standard.								
	turning.		1) Data viewer software								
Communication	10Base-T		It allows you to view the past trend recorded								
(Ethernet)	FTP server * (Internet Explorer 6. FFFTP or		data from the data saved to the Compact								
	Comand Prompt are available)		Flash on PC.								
	HTTP server * (Web server. Internet Explorer 6 is		Historical trend and event display functions								
	available)		are provided.								
	SMTP (e-mail client)		2) Parameter loader software								
	MODBUS-TCP		It allows you to perform setting/change of								
	* Netscape and Mozilla Firefox are not available		various parameters on PC.								

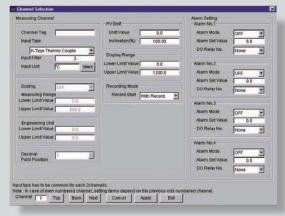
A convenient PC support software package is included as standard

Past data saved to Compact Flash can be viewed on personal computer.



Historical trend data screen

Parameters for the recorder can be easily set and changed from personal computer.



Parameter setting screen



Before use, install PC support software supplied as standard.

- O/S: Windows XP/2000
- Required storage capacity: 64 MB
- Provide PC card adapter separately.

Recomended type: SDAD-38 (SanDisk Co.)

PC/AT-compatible machine

- Operation on PC98-series machines by NEC is not guaranteed.
- Operation on self-made or shop-brand PCs is not guaranteed.



Before use, install PC support software supplied as standard.

- O/S: Windows XP/2000
- Required capacity of memory: 64 MB
- A communication cable between recorder and pc is optional.

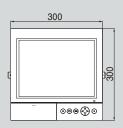
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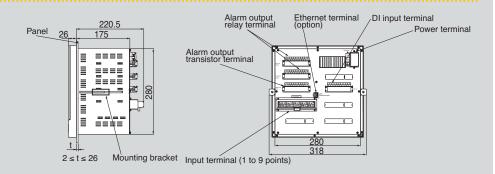
PC/AT-compatible machine

- Operation on PC98-series machines by NEC is not guaranteed.
- Operation on self-made or shop-brand PCs is not guaranteed.

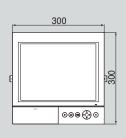
Outline Diagrams (Unit: mm)

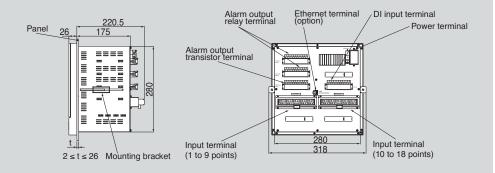
9 input points





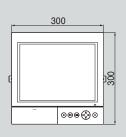
18 input points

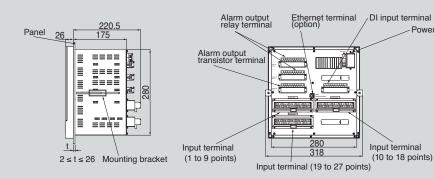




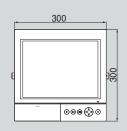
Power terminal

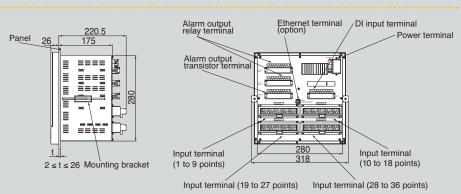
27 input points

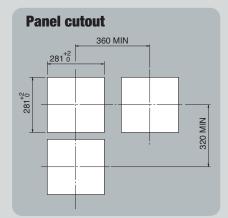




36 input points







External connection diagrams

Alarm output relay terminal

M3 screw



Alarm output relay terminal

M3 screw

	DO	11	DO	12	DO	13	DO	14	DO	15	DO	16	DO	17	DO	18	DO	19	DO:	20	
	21	١١	22	١٩	23	19	24	١٩	25	١٩	26	19	27	١٩	28	١٩	29	١٩	30	١٩	
		ρ		ρ		ρ		ρ		ρ		_o		ρ		ρ		ρ		ρ	
Į		1	31	· 1	32	1	33		34	· I	35	1	36	· I	37	. 1	38	1	39	1	40

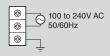
Alarm output transistor terminal

M3 screw

VP	D	DO	21	DO	22 D	O23	DO	24	DO	25	DO	26	DO	27	DO	28	PCI	>	
41		42		43	4	4	45		46		47		48		49		50		
	24V	DC+	DO	29	DO30	DO	31	DO	32	DO	33	DO:	34	DO:	35	DO:	36	0٧	/
		51		52	5	3	54		55		56		57		58		59		60

Power terminal

M4 screw



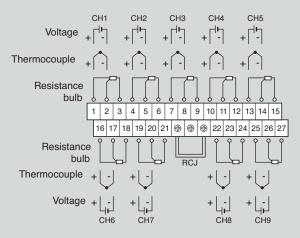
DI input terminal

M3 screw

г					_										_	_			_		_
	DI (V	DI1		DI2	!	DI3		DI4	.	DI5	,	DI6	i	DI7		DI8	i	DI (VC	
	61		62		63		64		65		66		67		68		69		70		
				DI9		DI1	0	DI1	1	DI1	2	DI1	3	DI1	4	DI1	5	DI1	6		
			71		72		73		74		75		76		77		78		79		80

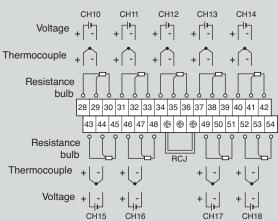
Input terminal

Number of input points = 1 to 9 points

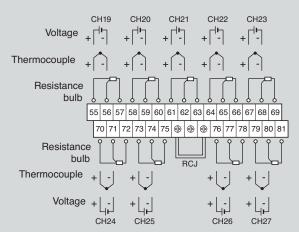


M3 screw

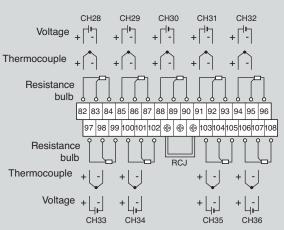
Number of input points = 10 to 18 points



Number of input points = 19 to 27 points



Number of input points = 28 to 36 points



Note) For current input, connect an optional shunt resistance to a voltage input terminal.

Code Symbols

4 5 6 7 8 9 10 11 12 13

		PHU	0 0	1 -	1	11 12 13 V
Digit	Specifications	Note	1			
4	<number input="" of="" points=""></number>	INOLE	1			
'	9 points		1			
	18 points		2			
	27 points		3			
	36 points		4			
7	<di input=""></di>		,			
	Without		(5		
	With (16 points)			1 🗼		
8	<modification no.(fixed)=""></modification>			1		
9	<display (instruction="" manual)=""></display>				↓	
	English				Е	
11	<alarm output=""></alarm>					↓
	Without				(0
	10 relay points					1
	20 relay points					2
	Transistor (open collector) 16 points				;	3
	10 relay points + transistor					4
	(open collector) 16 points					
	20 relay points + transistor					5
	(open collector) 16 points					
12	<ethernet></ethernet>					\
	Without					Υ
	With					Е

Note: Input signals are classified into the following 4 groups. Make the setting so that the consecutive 2 channels (1ch and 2ch for example) are assigned the input signal categorized in the same group.

Group 1: Thermocouple (12 kinds), 50mV Group 2: Pt100. JPt100, Ni100, Cu50, Pt50

Group 3: 500mV Group 4: 1-5V, 0-5V

Input signals can be arbitrarily selected for channels 9 and 18 and 27 and 36.

	Scope of supply	
ltem	Quantity	
Main unit	1	
Panel mounting bracket	1	
CD-ROM (PC software and Instruction manual)	1	
Noise filter for power cable	1	

Option

Item	Туре	Specifications
Shunt resistor for DC current input	PHZP0101	10Ω±0.1%
PC loader communication cable	PHZP1801	With USB A and USB miniB Connector
CD-ROM (PC software and instruction manual)	PHZP2501	
PC card adapter (SanDisk)	PHZP0501	For compact flash
Compact flash (SanDisk)	PHZP1301-256	256MB

Note 1: Windows, Excel and Internet Explorer are registered trademarks of Microsoft Corporation.

Note 2: SanDisk compact flash is a trademark of SanDisk.

Note 3: PC98 series are registered trademarks of NEC Corp.

Note 4: MODBUS® is the registered trademark of AEG Schneider Autmation International.

Note 5: Netscape is the registered trademark of Netscape Communication Corp.

Note 6: Mozilla Firefox is the registered trademark of Mozilla Foundation.

Fuji Electric

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