PHL Videographic Recorder

Record and View Up To 18 Channels of Data with One Powerful Unit

The compact PHL Paperless Recorder displays up to 18 channels of data on a brilliant 5.7" TFT color LCD. A wide variety of display modes allows users to view data as trends (horizontally or vertically), bar graphs, analog meters, digital/numeric output, totalized output, event summaries, and more. Switch between display modes quickly and easily with the 8-key front panel. The adjustable-time screen-saver function extends the life of the display and reduces power consumption.

Key Features

- **Long Term Data Storage**
- **Saved Data Playback**
- **Math and Totalization**
- **Communications Option**
- **Screen Saver**
- **Compact Size**

The PHL comes standard with 9 channels, but can be upgraded to 18. Users can record up to 12 types of thermocouples, 5 types of RTDs, and DC voltage/current input on one unit. The PHL can literally record years of data with the optional 512MB Compact Flash card, and the standard 16MB card is more than adequate. Free PC support software allows you to configure the recorder from a PC, monitor current data (using the RS485 communication option), and view historical data stored on the compact flash card. The PHL comes standard with math and totalizing functions.

The Fuji Paperless Recorder includes 16 megabytes of Compact Flash memory, waterproof gasket for the front face, noise filter for the power supply, PC support software, instruction manual, and panel mounting brackets.

Features

- **Long Term Data Storage** Up to 1.5 years in Compact Flash
- **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.
- **Communications Option** RS485, MODBUS RTU protocol is available.
- **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
- **Compact Size** 160 x 144 x 185mm (6.3" x 5.7" x 7.4") (WxHxD) (Panel mount) 1.5 kg (3 lbs.) compact size
- **9-point and 18-point Recording** 12 types of thermocouples, 5 types of RTDs and voltage/current input are available
- **Wide Variety of Display Modes** Trend recording (horizontal and vertical), bar graph, analog meter, digital display, totalized data, historical trend and event summary.

Specifications

Mounting Method Panel, flush-mounted
Material Molding resin (case, bezel)
External Dimensions and Mass Panel mount: 160 x 144 x 185 mm (6.3" X 5.7" X 7.4") (Wxhxd), about 1.5 Kg (3 lbs.)
Power Supply Voltage 100V to 240v ac, 50/60 hz
Power Consumption About 42va (at 200vac)
External Terminals Screw terminals (m3 thread)

Input

No. of Inputs 9 or 18 points
Measuring Cycles 100ms/9, 18 points
Input Signal Thermocouple: 12 types (B, R, S, K, E, J, T, N, W, L, U, PN). RTD: 5 types (Pt100, JPt100, Ni100, Pt50, Cu50). DC voltage: (0 to 50mV, 0 to 500mV, 0 to 5V or 1 to 5V). DC current: (connecting optional shunt resistor to input terminal)
Input Types Selected from the key panel (the same type should be set for every 2 channels)
Burn-out Function Equipped with thermocouple and RTD inputs as standard
Calculation Function Primary delay filter, scaling, calculation of difference between channels, F value calculation, totalization, and square root extraction
Math Function
  Formula Addition, Subtraction, Multiplication, Division Absolute value, X to the power of Y, Logarithm, Natural logarithm, Exponential function, Humidity, Average value, Maximum value, Minimum value
  Input Signal DI (DI1 to DI10), Totalize (ch1 to ch30), Analog input (ch1 to ch30), Constant (No.1 to No.20), Communication input (No.1 to No.12)

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Display

Display 5.7" TFT color LCD (320 X 240 dots) with backlight, 14 colors

Life of Backlight 50,000 hours

Display Contents Trend display (in vertical and horizontal direction) selected in the refreshment cycles of 1 sec to 12 hours; Scale display/non-display selectable. Bar graph or analog meter display (refresh cycle: 1 second). Digital display (in refreshment cycle of 1 sec). Event summary display (alarm and message summary). Historical trend display (Compact Flash memory data.) Totalized data display. Group setting (4 groups at the maximum)

Recording Function

Recording Medium Compact Flash card (Format as FAT16 or FAT, otherwise recorder can't read and write.)

Memory Capacity 256MB, max.

Recording Method 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

Data Save Cycles Links to refreshment cycle of the trend display

Data Format ASCII About 166 bytes per sampling (for 9 channel inputs). Binary (Data cannot be read directly into Excel, etc.). About 40 bytes per 1 sampling (9-channel input)

Trend Data Maximum value and minimum value are saved from the data that are sampled in measuring cycles

Event Data Alarm data and message data are saved

Totalized Data Stores data totalized during specified period of time

Storage Capacity About 1.5 years at display refresh cycle of 30 seconds (ASCII). About 6 years (Binary). 9-channel recording, 256MB compact flash used

Amount of Memory 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

Alarm Function

No. of Settings Up to 4 alarms are settable for each channel

Type of Alarm High/Low limits

Indication Alarm status is displayed on digital display unit when an alarm occurs. Histories are displayed in the alarm summary

Output 10 points as relay output (option). 18 points as open-collector transister output (option)

Performance

Indication Accuracy ±(0.15%+1 digit) of input range for all inputs, except ±(0.3%+1 digit) for: thermocouple B 752°F to 1112°F (400°C to 600°C); thermocouples R and S 32°F to 572°F (0°C to 300°C); thermocouples K, E, J, T, L, and U -328°F to -148°F (-200°C to -100°C)

Indication Resolution 0.1°F (0.1°C)

Reference Junction Compensation Error 1.0°F (±0.5°C) for K, E, J, T, N, L, U, PN. 2.0°F (±1.0°C) for R, S, B, W

Input Impedance 1MW approximately for thermocouple and DC voltage

Maximum Input Voltage ±10V DC

Ordering Information

| P | H | L | – | A | 1 | B | 1 | 1 | – | E | 1 | B | C | V |

To create a part number fill in the boxes above with the appropriate number and/or letter from the corresponding list below.

Box A: Number of Input Options

1 = 9 input points	$ 1695
2 = 18 input points*	2495

Box B: Alarm (Relay) Output/DI Input

0 = Without	N/C
1 = With*	295

Box C: Communication Alarm (Open Collector) Output/DI Input

Y = Without	N/C
R = With	550

18 Input points option is not available with Alarm Output/DI Input

Accessories and Spare Parts

PHZP0101	Shunt resistor for DC current input (10 ohms)	$ 4.25
PHZH0701	Terminating resistor for communication (100 ohms)	4.25
PHZH0801	D-sub type 25-pin connector with male terminal for alarm output (cable not included)	25
PHL-CFR	PC card adapter (for compact flash card)	100
SDCFB-512-801	512 megabyte Compact Flash Card	200
SDCFB-256-801	256 megabyte Compact Flash Card	175
SDCFB-128-801	128 megabyte Compact Flash Card	150
SDCFB-64-801	64 megabyte Compact Flash Card	125
SDCFB-32-801	32 megabyte Compact Flash Card	100
RSFC24-W	RS485 to RS232 Converter	135

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Others

Clock With calendar function

Memory Backup Parameter settings are saved to the internal non-volatile memory. The clock is backed up by a built-in lithium battery. Trend data is backed up to only 400 sample points

Memory Full Alarm When the amount of recorded data exceeds the capacity of memory card, recorder can energize the alarm output

Low Battery Alarm When the battery for backup of clock and SRAM becomes low, recorder can energize the alarm output

Options

Alarm (relay) output/DI (Cannot be mounted to 18-point input type.) 10 relay outputs and 5 DI are added. Alarm output: SPST Output for each channel or common channel is possible.

DI Input 5 no-voltage contact input points, Recording start/stop, message setting, F value calculation resetting, Totalizing start/stop, Totalizing reset or LCD turning on functions can be performed

Alarm (Open-Collector) Output/DI 18 open-collector outputs and 5 DI can be added as an option.

Alarm Output Open-collector transistor output for each channel or common channel is possible. DI input: 5 no-voltage contact input points, Recording start/stop, message setting, F value calculation resetting, Totalizing start/stop, Totalizing reset or LCD turning on functions can be performed.

Communications (RS485, MODBUS) Baud rate/parity: 9600, 19200bps/none, odd or even. Length/Unit: 500m (total)/32 units max (include master). Recommended Converter: RSFC24-W

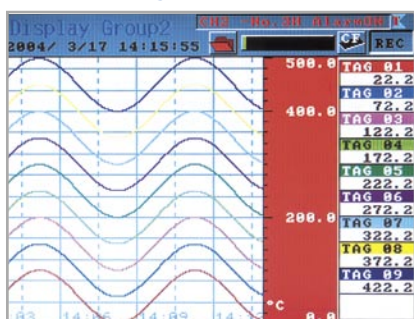## PC Support Software (Standard – Supplied on CD-ROM)

O/S PC/AT-Compatible Machine Windows 98/XP/2000. Operation on PC98-series machines by NEC is not guaranteed. Operation on self-made or shop-brand PCs is not guaranteed.
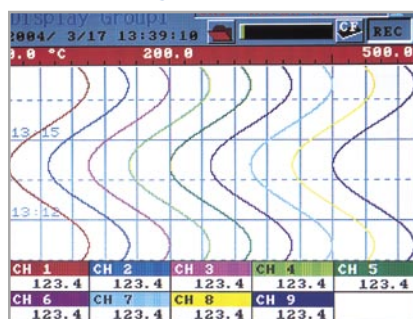
Required Memory Capacity 64 MB or more

Contents The following types are included as standard: 1) Data viewer software allows you to view the past trend recorded data from the data saved to the Compact Flash on PC. Historical trend and event display functions are provided; 2) Parameter loader software allows you to perform setting/change of various parameters on PC; 3) PC loader communication cable – 3m long
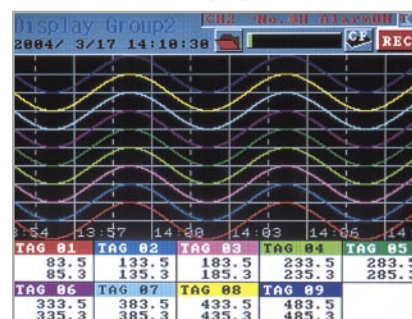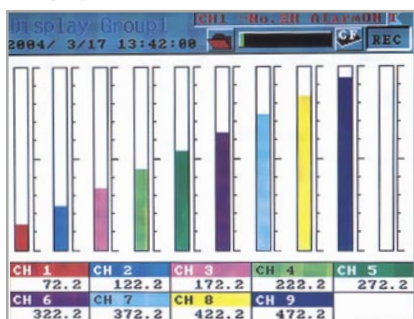
Trend recording (horizontal)

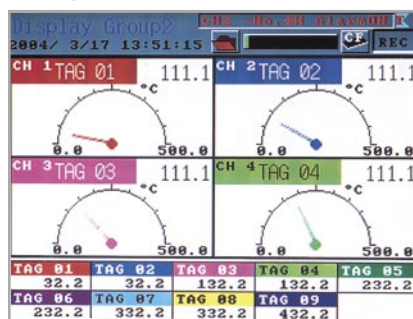### Trend recording (vertical)

Historical Trend Display

Bar graph

Analog meter

Event summary display

Digital display

Totalized Data Display

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