PYH SERIES

PERFECT FOR CONTROLLING RAPIDLY CHANGING PROCESSES LIKE PRESSURE AND FLOW

While most temperature control systems can be maintained sufficiently with the twice-per-second sampling rate found in other controllers, the PYH reads the process variable ten times per second and makes control decisions at the same rate. That's what makes this controller well-suited to control pressure, flow rates, and temperature of low mass systems like a single metal filament. With a fast sampling rate and full PID control, the PYH minimizes overshoot and oscillation around the setpoint which normally would occur before most controllers would detect them.

The PYH can also handle slower responding processes and offers autotuning capability to optimize control parameters. For remote operation and factory automation, up to 31 separate controllers can be monitored at the same time. Setpoint and other control values can easily be reset at your command with free custom software.

The PYH offers another unique feature called position feedback. This capability lets you know and control the exact position of a valve at any time. To initiate position feedback, the operator simply indicates two valve positions—fully open and fully closed. The controller does the rest, keeping track of the valve position at all times. Knowing the precise position of the valve is critical in boosting system performance and avoiding motor burnout where a controller without position feedback might try to open or close a valve that's already reached its limit.

CE

FEATURES

- **100ms Sampling Rate**
  Handles fast responding processes like flow and pressure

- **Dual Display**
  Shows process value, setpoint or % output simultaneously

- **Offset Adjustments**
  Allows you to synchronize several controllers

- **Auto/Manual Operation**
  Manual override allows you to take control of the process at any time

- **PID Autotuning**
  Automatically calculates PID control settings for you, thereby optimizing system performance

- **Inputs**
  J, K, R, T, S, B, E, W, 1 to 5 VDC, 0 to 10mV DC, 0 to 50mV DC, 4 to 20mA, RTD

- **Outputs**
  Relay, DC voltage pulse, 4 to 20mA, position feedback relay

- **Password Protection**
  Prevent accidental or unauthorized changing of parameters

- **Fault Indication**
  LEDs identify existing system problems

- **Digital Filtering**
  Suppresses noise on input signal of fast-acting systems

- **Sensor Break Protection**
  Protects your process if the input sensor fails

- **User-Selectable Temperature Scale**
  Allows you to choose either °F or °C indication

- **FREE Calibration**
  For the first three years you own your Fuji controller

- **FREE Technical Support**
  From our team of factory-trained engineers

- **Three-Year Warranty**
  Protects against manufacturing defects

- ## Selectable Setpoints
- ## Remote Setpoint
- ## Digital Outputs
- ## Analog Retransmission
- ## Heater-Break Alarm
- ## Position Feedback

  Compatible with systems using a slide wire to indicate valve position

- ## RS-485 Communications

  Allows you to monitor and control your systems remotely

- ## Free Software

  The Fuji PYH is available with an RS-485 communications option. When you buy this option, you get FREE software that enables you to run 31 controllers per port from your PC. This software has been designed with the novice user in mind. It's easy to operate and install using a simple diskette and a standard twisted shielded pair type wiring. The source code for this software is also provided, which allows you to rewrite your system easily and inexpensively. If you've considered automating your plant, but don't want to spend a fortune on distribution control software, this is an ideal solution.

PYH SPECIFICATIONS

GENERAL SPECIFICATIONS

POWER SUPPLY	85 to 264 VAC
POWER CONSUMPTION	15VA at 110 VAC or 30VA at 220 VAC
AUXILIARY OUTPUT (ANALOG RETRANSMISSION)	Optional Retransmission of PV, SV, or MV Output Signal: Linear 1 to 5 VDC Impedance: 500KΩ or more
MEMORY	Non-volatile (EEPROM)

INPUT SELECTION

INPUT SIGNAL	Thermocouple: J, K, R, S, T, E, PR40/20, Tungsten RTD: Pt100 IEC, Pt100 JIS Voltage/Current: 4 to 20mA DC, 1 to 5 VDC, 0 to 10mV DC, 0 to 50mV DC

CONTROL FUNCTION

CONTROL MODE OUTPUT 1	Proportional Band: 0 to 3276% FS Integral Time: 0.1 to 3276 seconds Derivative Time: 0 to 900 seconds Cycle Time: 1 to 255 seconds (for relay, voltage pulse)
CONTROL MODE OUTPUT 2	Proportional Band: 0 to 3276% FS Integral Time: 0.1 to 3276 seconds Derivative Time: 0 to 900 seconds Cycle Time: 1 to 255 seconds (for relay, voltage pulse)
MANUAL CONTROL	Manual Mode: Local – A/M key on the front panel. Remote – digital input Manual Setting: -25 to 125% control output

OUTPUT

RELAY	3A at 220 VAC, SPDT (resistive load)
VOLTAGE (PULSED)	10 to 27 VDC (DC drive for SSR) ON: 10 to 27 VDC typical, 20mA DC max. OFF: 0.5 VDC max.
CURRENT	Linear 4 to 20mA DC resistive load Impedance: 600Ω or less
POSITION FEEDBACK	3A, 220 VAC SPST(two relays)

AUXILIARY INPUT

REMOTE SETPOINT (OPT)	1 to 5 VDC. Input Resistance:1MΩ or greater
SELECTABLE SETPOINT (OPTIONAL)	PYH9–up to 7 setpoint settings, PYH5–up to 3 setpoint settings
REMOTE AUTO/MANUAL	Digital switching
VALVE POSITION POTENTIOMETER	For position feedback control 100 to 1000Ω 3-wire potentiometer. Zero and span adjustment programmable

ALARMS

SETTING TYPE	Deviation and absolute value
ALARM TYPE	High, Low, Low with hold on start-up, High/Low, High/Low with hold on start-up
OUTPUT	2 SPDT relays: 1A, 220 VAC resistive load
HEATER BREAK ALARM (OPTIONAL)	Input: 0 to 30A or 20 to 50A 50/60Hz for current sensing transformer Output: Relay: 1A, 220 VAC, SPST (resistive load) Setting: Voltage and current trip point (programmable)
FAULT ALARM	LLLL: Under-range condition UUUU: Over-range condition EEPROM: Error

COMMUNICATIONS (OPTIONAL)

INTERFACE	RS-485
SYSTEM	Half duplex
SYNCHRONIZING	Start-stop
DATA LENGTH	8 bits
PARITY	None, odd, or even (programmable)
STOP BIT	1 or 2 bits (programmable)
BAUD RATE	9600 or 19200 (programmable)
DISTANCE	1km max.
ADDRESS	31 addressable units max.

OPERATION AND DISPLAY SECTION

MAIN DISPLAYS	Process (PV), Setpoint (SV), % Output (MV) PV is displayed on the top by a red, 4-digit, 7-segment LED. SV or MV are displayed on the bottom, one at a time, by a green, 4-digit, 7-segment LED
STATUS INDICATORS	Control outputs, alarm outputs, heater break alarm, fault alarm, auto/manual, remote setpoint (Programmable to indicate status of other alarm conditions.)
TEMPERATURE STABILITY	5μ V/°C
REPEATABILITY	.83°C
SAMPLING TIME	0.1 to 3276 seconds (programmable)

STRUCTURE

MOUNTING	Panel mount
TERMINATION	Compression type terminal (IEC IP00)
FRONT PANEL	Drip and dust proof plastic(IEC IP55)

OPERATING AND STORAGE CONDITIONS

AMBIENT TEMPERATURE	10 to 50°C
STORAGE TEMPERATURE	-10 to 70°C
AMBIENT HUMIDITY	0 to 90% relative humidity non-condensing

DIGITAL OUTPUT OPTION

DIGITAL OUTPUTS	Optional alarms
SETTING TYPE	Deviation and absolute value
ALARM TYPE	High, Low, High/High, Low/Low, change in PV, change in MV
OUTPUT TYPE	PYH9 up to three 1A, 30 VDC relays (open collectors), PYH5 up to one 1A, 30 VDC (open collector)

PYH ORDERING INFORMATION

P Y H A B C D 2 – E F G H I

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

Box A: Front Panel Size

5	= 1/8 DIN	$ 529
9	= 1/4 DIN	549

Box B: Control Functions

A	= Single output control	N/C
B	= Single output control w/ selectable setpoints	$ 125
C	= Inverter control w/ selectable setpoints (PYH 9 only)	275
D	= Position feedback control	75
E	= Position feedback control w/ selectable setpoints	200
F	= Dual output control	60
G	= Dual output control w/ selectable setpoints	200

Box C: Control Output 1

1	= Relay (SPDT; 3A @ 220 VAC)	N/C
2	= Voltage pulse (10–27 VDC for triggering SSR, SCR)	N/C
3	= 4–20mA DC	N/C
4	= Position feedback output for motor drive valves (2 Relays 3A @ 220 VAC)	N/C

Box D: Control Output 2 *(dual control type only)*

0	= None	N/C
1	= Relay (SPDT; 3A @ 220 VAC)	N/C
2	= Voltage pulse (10–27 VDC for triggering SSR, SCR)	N/C
3	= 4–20mA DC	N/C

Box E: Additional Specifications 1

0	= None	N/C
1	= With heater break alarm	$ 75

(available with relay outputs only)
Heater break option requires current transformers.
Please specify part # (see Accessories).

Box F: Digital Communications Function

Y	= None	N/C
R	= With RS-485*	$ 100

* RS485 to RS232 converter, part no. RSFC24 recommended for direct link to PC.

Box G: Additional Specifications 2

Y	= None	N/C
A	= With remote setpoint	$ 150
	(not available with selectable setpoints)	
B	= With re-transmission output	200
C	= With remote setpoint & re-transmission output	325

Box H: Input Specifications

A	= Thermocouple/RTD/mV	N/C
B	= 4–20mA DC, 1–5 VDC	N/C

Box I: Digital Output

Y	= None	N/C
A	= With 1 digital output	$ 25
B	= With 2 digital outputs *(PYH 9 only)*	50
C	= With 3 digital outputs *(PYH 9 only)*	75

ACCESSORIES

CTL-6-S	1–30A Current Transformer	$ 23
CTL-12	20–50A Current Transformer	40
RSFC24	RS485 to RS232 Signal Converter	135

Information subject to change without notice. Prices in USD.