# PX SERIES

FUJI ELECTRIC

## FUJI ELECTRIC FUZZY LOGIC CONTROLLERS ARE THE LEADERS IN PRECISION CONTROL

Breakthrough technology. That's what the Fuji PX series fuzzy logic controllers are all about. Faster. Smarter. Tougher. More Versatile. More Features. Redesigned from the ground up. Redeveloped from the inside out. Welcome to the 21st century, and meet the leaders in control technology.

The NEMA 4X protection makes them tough enough to withstand the harshest of environments. Fuji's fuzzy logic algorithm makes them smart enough to learn your process and make rapid, accurate adjustments. A variety of choices for number of buttons, DIN size, configuration, and options make them versatile enough to match your individual needs.

All of the PX controllers employ Fuji's patented fuzzy logic algorithm with PID Autotune. These controllers "learn" your process, using the PID parameters as a starting point for all decisions made by the controller. This intelligence allows your process to reach its setpoint in the shortest time possible while virtually eliminating overshoot. The end result is that your process maintains a steady setpoint.

Eight-segment ramp/soak programming. Advanced security options. Versatile programming. Fuzzy logic intelligence. NEMA 4X protection. All of these features come STANDARD in a PX controller.



### FEATURES

- **Choose Among 1/4 DIN, 1/8 DIN, 72mm, and 1/16 DIN Sizes**
  There's a size available to accommodate your space needs
- **Front Panel Key Choices**
  Choose between eight-button or three-button operation
- **Fuzzy Logic Control with PID Autotune**
  The controller uses artificial intelligence to learn your process
- **NEMA 4X Protection**
  It's tough enough for the harshest of environments
- **All Parameters Are Display Maskable**
  Hide unused parameters
- **8-Segment Ramp/Soak Programming is a Standard Feature**
  Set four setpoints, four ramp rates, and four soak periods
- **Program Loader Interface**
  Download programs from your PC
- **Wide Input Selection**
  A variety of choices for your input needs
- **Low-Voltage Power Supply Option**
  24V AC/DC option
- **Lower Prices than Other PID Controllers**
  You get more standard features for less money
- **Three-Year Warranty**
  Protects against manufacturing defects

## PX SERIES SPECIFICATIONS

### GENERAL SPECIFICATIONS

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|---|---|
| **RATED VOLTAGE** | 85 to 264 VAC or 24V AC/DC ±10% |
| **POWER CONSUMPTION** | 10VA or less (100 VAC), 15VA or less (240 VAC) |

### INPUT SIGNAL

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|---|---|
| **INPUT SIGNAL** | Thermocouples: J, K, R, B, S, T, E, N and PL2<br>RTDs: Pt100<br>DC Voltage/Current: 1 to 5 VDC, 0 to 5 VDC, 4 to 20mA DC, and 0 to 20mA DC |
| **INPUT FILTER** | 0 to 900.0 sec, setting in 0.1 sec steps |

### CONTROL FUNCTION

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|---|---|
| **CONTROL ACTION** | PID control with auto-tuning; Fuzzy control with auto-tuning |
| **PROPORTIONAL BAND (P)** | 0 to 999.9% of full scale (FS), setting in 0.1% steps |
| **INTEGRAL TIME (I)** | 0 to 3200 seconds, setting in 1 second steps |
| **DIFFERENTIAL TIME (D)** | 0 to 999.9 seconds, setting in 0.1 second steps |
| **PROPORTIONAL CYCLE** | 1 to 150 seconds, setting in 1 second steps |
| **HYSTERESIS WIDTH** | 0 to 50% FS, setting in 1 E.U. steps, On/Off action only |
| **INPUT SAMPLING CYCLE** | 0.5 seconds |

### OUTPUT

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|---|---|
| **STANDARD OUTPUT TYPE** | One of the following control output types is selected:<br>1. Relay Contact (SPDT): 220 VAC/30 VDC, 3A (resistive load)<br>2. SSR/SSC Drive (voltage pulse): 15 to 30 VDC at ON/0.5 VDC or less at OFF, Current 60mA or less<br>3. 4 to 20mA DC: Allowable load resistance: 600Ω or less<br>4. 0 to 10 VDC: Allowable load resistance: 500kΩ or more<br>5. Triac: 1A, 250 VAC |
| **DUAL-OUTPUT TYPE (HEAT/COOL)** | For dual output type, one of the following five control output types is selected on both heating and cooling types (not available on PXW/Z-4 type)<br>1. Relay Contact SPDT 220 VAC/30 VDC, 3A (resistive load)<br>2. SSR/SSC Drive (Voltage Pulse). ON: 15 to 30 VDC. OFF: 0.5 VDC or less. Current: 60mA or less<br>3. 4 to 20mA DC: Allowable load resistance: 600Ω or less<br>4. 0 to 10 VDC: Allowable load resistance: 500kΩ or more<br>5. Triac: 1A, 250 VAC |

### OPERATION AND DISPLAY SECTION

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|---|---|
| **PARAMETER SETTING METHOD** | PXW: Digital setting with 3 keys<br>PXZ: Digital setting with 8 keys |
| **PV/SV DISPLAY METHOD** | PXZ-4: PV/SV Red LED display, 4-digit<br>PXW, PXZ-5, 7, 9: Dual PV/SV LED display, 4 digits each, PV= Red, SV=Green |
| **STATUS DISPLAY** | Control output, alarm output, heater burnout alarm output |
| **INDICATION ACCURACY (at 23°C)** | Thermocouple: ±0.5% FS ±1 digit ±1°C<br>R Thermocouple: 0 to 400°C; ±1% FS ±1 digit ± 1°C<br>B Thermocouple: 0 to 500°C; ±5% FS ±1 digit ± 1°C<br>RTD, Voltage, Current: ±0.5% FS ±1 digit |

### ALARM

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|---|---|
| **ALARM OUTPUT** | Relay contact (SPST), 220 VAC/30 VDC, 1A (resistive load)<br>PXW/Z-4 type: 1 point; Other types: 2 points (Configurable as absolute, deviation, zone, or combination alarms with or without the hold features) |
| **HEATER BURNOUT ALARM OUTPUT** | Relay contact (SPST), 220 VAC/30 VDC, 1A (resistive load), PXW/Z-4 type: not available |

### FUNCTIONS

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| **PARAMETER MASK FUNCTION** | Parameter display is disabled by software |
| **RAMP/SOAK FUNCTION** | 4-ramp/4-soak |

### STRUCTURE

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|---|---|
| **MOUNTING METHOD** | Panel mounting or surface mounting.<br>Surface mounting: PXW/Z-4 type only |
| **EXTERNAL TERMINAL** | PXW/Z-4 Type: 8-pin or 11-pin socket.<br>Other Types: Screw terminal (M3.5 screw) |
| **DIMENSIONS (WxHxD)** | PXW/Z-4: 1⁄16 DIN<br>1.89 x 1.89 x 3.37 in (48 x 48 x 85.7mm)<br>PXW/Z-5: 1⁄8 DIN<br>2.07 x 3.96 x 3.77 in (52.5 x 100.5 x 95.8mm)<br>PXW/Z-7: 72 mm<br>3.01 x 3.01 x 3.77 in (76.5 x 76.5 x 95.8mm)<br>PXW/Z-9: 1⁄4 DIN<br>3.96 x 3.96 x 3.77 in (100.5 x 100.5 x 95.8mm) |
| **PROTECTIVE STRUCTURE** | Front Panel: NEMA 4X (equivalent to IEC standards IP66); protection against corrosion, windblown dust and rain, and hose directed water<br>Rear Case: IEC IP20; protection against solid object up to 12 mm |
| **INSTALLATION CATEGORY** | Category II |
| **POLLUTION DEGREE** | 2 |
| **UL FILE NO.** | E131280S |

SKYLARK CONTROLS

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