The new PXR series controllers are the newest additions to Fuji Electric’s trusted line of temperature and process controllers. They are now packed with more features and options than before, and the new low price is unbeatable.

Key Features
- PID with fuzzy control of self-tuning
- 16 Ramp/soak segments
- Large LED display
- Digital input
- Auto-tune
- Timer function
- Heater burnout alarm
- Replaces most other controllers in market
- Excellent for after-market support

Features
- Advanced control functions: PID Plus Self Tuning; PID Plus Fuzzy Control; Auto-tuning
- NEMA 4X faceplate with large LED display: 4-digit, red and green display; Waterproof faceplate conforms to NEMA-4X/IP66
- Multiple inputs: Choose between thermocouple/RTD and 4-20mA/0-5V inputs
- Single or dual control outputs: Relay, SSR driver or 4-20mA
- Ramp/soak function: Up to 16 ramp/soak segments or two 8-segment patterns, a standard feature
- Programmable alarms option: 2 programmable SPST relays with On/Off delay function
- Remote setpoint option: Change setpoint with a 1-5V signal
- Analog retransmission option: 4-20mA retransmission of PV, SV, MV, DV
- Digital input option: Change between 2 setpoints; Change between ramp/soak and standby; Start/reset the ramp/soak; Start/stop the auto tuning; Cancel the alarm latch; Start the incorporated timer
- Timer function: On-delay or off-delay timer activated with digital input; Up to 2 timer outputs can be obtained
- Heater burnout alarm option: If heater burns out, alarm goes off
- Communications option: RS485 ModbusTM protocol interface permits remote monitoring of up to 31 units from a PC. Comes with free Windows®-based software, PXR-LITE™
- Warranty: Manufactured in a ISO 9001 facility and backed by a 3-year warranty

They come in several sizes — 1/32 DIN, 1/16 DIN, 1/8 DIN and 1/4 DIN. These controllers have all the standard features that you expect from Fuji Electric’s superior controllers, and more. In addition to auto-tuning and fuzzy control, it now comes with self-tuning — an innovation in the control field. It automatically retunes the controller under certain conditions, without the need to revert to auto-tuning. The standard 8-segment ramp/soak feature has been expanded to include two patterns that can be linked to create a 16-step profile. The PXR accepts temperature and process inputs and offers a choice of three kinds of outputs to meet a wide variety of needs in the process industries. Low-cost options include dual outputs, programmable alarms, remote setpoint, RS485 communications, analog retransmission, digital input, timer function, heater burnout alarm and 24V AC/DC supply voltage.

One of the most impressive features is the large LED display. The faceplate, designed for NEMA 4X (IP66 equivalent) is watertight and corrosion-resistant. The easy-to-use 3-button keypad allows for programming similar to the popular PXW controller. The screw-terminal on the back further reduces the cost by eliminating the need for sockets. The PXR3 can be DIN-rail mounted with the optional adapter.

Remote monitoring of up to 31 controllers at a time is possible with the RS485 option that uses the industry-standard Modbus™ protocol. The communications option comes with our free Windows®-based software, PXR-LITE™. The software allows you to program the controller from the PC and view real-time data and trend graph while logging the data into a text file.
Specifications

General Specifications
- **Power supply voltage**: 100 (-15%) to 240V (+10%) AC, 50/60Hz; 24V (±10%) AC/DC
- **Power consumption**: PXR3: 6VA (100V AC), 8VA (220V, 24V). PXR4: 8VA (100V), 10VA (220V), 12VA (24V). PXR5, 9: 10VA (100V), 12VA (220V, 24V)
- **Reference junction compensation accuracy**: ±1°C at 23°C

Input
- **Input signal**: Thermocouple: J, K, R, B, S, T, E, N, Pt2. RTD: Pt100. Voltage, current. For 1 to 5V/4 to 20 mA DC, 0 to 5V/0 to 20 mA DC, use 250 ohm shunt resistor included
- **Input filter**: 0 to 900.0 sec set in 0.5 sec steps
- **Burnout**: For thermocouple or RTD input, control output direction (upper or lower) is selectable

Control Function
- **Control action**: On/Off; PID control (with auto-tuning, self-tuning); Fuzzy Control (with auto-tuning)
- **Proportional band (P)**: 0 to 999.9% of measuring range set in 0.1% steps
- **Integral time (I)**: 0 to 3200 sec set in 1 sec steps
- **Differential time (D)**: 0 to 999.9 sec set in 1 sec steps
- **Proportional cycle**: 1 to 150 sec set in 1 sec steps
- **Hysteresis width**: 0 to 50% of measuring range; For on/off action only
- **Input sampling cycle**: 0.5 sec

Control Output 1 (select one)
- **Relay contact**: PXR4, 5, 9: SPDT, 220 V AC/30 V DC, 3A (resistive load). PXR3: SPST contact, 220 V AC/30 V DC, 3A (resistive load)
- **SSR**: PXR4, 5, 9: ON–17 to 25 V DC; OFF–0.5 V DC or less. PXR3: 12 to 16 V DC. Max. current: 20mA or less
- **4 to 20 mA DC**: PXR4, 5, 9: Allowable load resistance 600 ohms or less. PXR3: 100 to 500 ohms

Control Output 2 (Heating/ Cooling Control) (select one)
- **Relay contact**: SPST, 220 V AC/30 V DC, 3A (resistive load)
- **SSR**: PXR4, 5, 9: ON–17 to 25 V DC; OFF–0.5 V DC or less. PXR3: 12 to 16 V DC. Max. current: 20mA or less
- **4 to 20 mA DC**: PXR4, 5, 9: Allowable load resistance 600 ohms or less. PXR3: 100 to 500 ohms

Program Loader Interface

The Program Loader for Fuji Electric’s PX and PXR series controllers is a powerful tool for the OEM customer. Using the PXR4 Loader Assembly, the controller can be configured from a PC running on Windows environment.

Features
- Retrieve or store controller data
- Selectively mask or unmask parameters for viewing on the controller
- Clone settings to other controllers from saved files
- Print data report

PXR LITE Communications Software

PXR-LITE™ is free Windows®-based software that is supplied with the communications option on a PXR controller. It is the latest in control and monitoring of Fuji Electric’s PX series controllers. It provides continuous remote monitoring of single or multiple controllers using a single half-duplex RS485 line.

Features
- Monitor and control up to 31 controllers from a PC via RS485-RS232 signal converter
- Real-time charting and data-logging
- Remote setpoint adjustment
- Set control modes, alarms and other control parameters
- Remote auto-tuning and ramp-soak programming
- Live display of process and setpoint values, alarm annunciators
- View single-station or multi-station data
- Comprehensive help file included
- Runs on Windows environment, version 3.1 or later
Operation and Display Section
Parameter setting method  Digital setting by 3 keys; Key lock function provided
Display unit  Process value/set value displayed individually 4 digits, 7-segment LED
Status display LED  Control output, process alarm output, heater burnout alarm output
Indication accuracy (at 23°C)  Thermocouple: ± (0.5% of measuring range) ± 1 digit ±1°C. For thermocouple R at 0 to 500°C: ± (1% of measuring range) ±1 digit ±1°C. For thermocouple B at 0 to 400°C: ± (5% of measuring range) ±1 digit ±1°C. RTD, voltage/current: ±(0.5% of measuring range) ±1 digit
Alarm (option)
Alarm type  Absolute alarm, deviation alarm, zone alarm with upper and lower limits for each; hold function available; alarm latch function provided
Alarm ON-delay  Delay setting 0 to 9999 sec set in 1 sec steps
Process alarm output  Relay contact: SPST, 220 V AC/30 V DC, 1A (resistive load); Max. 2 points (PXR3), max. 3 points (PXR4, 5, 9)
Heater burnout option  (not available on PXR3) Alarm setting range: 1 to 50A. Available only when control output is relay or SSR drive.
Heater burnout alarm output  Relay contact: SPST, 220 V AC/30 V DC, 1A (resistive load); 1 output point
Current detector  CTL-6-S for 1 to 30 A; CTL-12 for 20 to 50 A
Digital Input (option)
Points  1 or 2; contact closure. 5 V DC, approx. 2mA
Function (select one)  Set value (SV, SV1 to 3) changeover, start/stop control action, start/stop ramp/soak action, start/stop auto-tuning, cancel alarm latch, start incorporated timer
Retransmission Output (option)
Output signal  4-20 mA DC
Load resistance  500 ohms or less
Output accuracy  ±0.3% FS
Output selection  PV, SV, MV, DV (SV-PV)
Timer Function (option)
Start  By digital input option
Setting  0 to 9999 sec set in 1 sec steps
Action  Event ON-delay or OFF-delay
Signal output  Alarm output relays used; 2 points are available
Communication Function (option)
Physical specifications  EIA RS485
Communication protocol  Modbus (RTU), Free Windows®-based software, PXR-LITE™
Communication method  2-wire method; half-duplex, bit serial, start-stop sync type
Data type  8 bits. Parity: odd/even/none
Communication rate  9600 bps
Connection aspect  Multi-drop up to 31 controllers
Communication distance  Total extension 500m or less
RS232C/RS485 signal converter  RSFC24 (recommended, see ordering information)
Remote Setpoint Option
Input signal  1 to 5 V DC, 1 point
Accuracy  ±0.5% ±1 digit
Input sample timing  0.5 sec
Display of remote mode  LED on front panel
Input impedance  1M ohms or more
Other Functions
Parameter mask function  Parameter display can be disabled from keypad
Ramp/soak function  8 ramps and 8 soaks; 1 or 2 program patterns; digital input allows start/reset of the action
Operating and Storage Conditions
Ambient operating temperature  14 to 122°F (-10 to 50°C)
Ambient operating humidity  Less than 90% RH (no condensation)
Storage temperature  -4 to 140°F (-20 to 60°C)
Structure
Mounting method  Panel flush mounting. PXR3 can be DIN-rail mounted using the optional adapter
External terminal  Screw terminal
Dimensions  PXR3: 1 x 2 x 4 in. (24 x 48 x 98mm). PXR4: 1.89 x 1.89 x 3.37 in. (48 x 48 x 79.8 mm). PXR5: 2.07 x 3.96 x 3.77 in. (52.5 x 100.5 x 95.8 mm). PXR9: 3.96 x 3.96 x 3.77 in (100.5 x 100.5 x 95.8 mm)
Protective structure  Front panel NEMA4X (IEC standard IP66 equivalent) (when mounted on panel with supplied gasket). Rear case: IEC IP20
Outer color  Black (front panel, case)
Agency approvals  UL, c-UL recognized (UL873), CSA (C22.2 No.24-93), CE certified (LVD:EN61010-1, EMC:1326-1)
Optional Items
Current transformer  For 1 to 30 A: CTL-6-S. For 20 to 50 A: CTL-12
Signal converter for communication function  RSFC24
DIN Rail adapter  For PXR3 only
Terminal cover  For PXR4 only
### Ordering Information (PXR3)

<table>
<thead>
<tr>
<th>Box A: Front Panel Size</th>
<th>Box B: Input Signal</th>
<th>Box C: Control Output 1</th>
<th>Box D: Control Output 2</th>
<th>Box E: Alarm Options</th>
<th>Box F: Power Supply</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>T = Thermocouple (°C)</td>
<td>A = Relay contact output</td>
<td>Y = None</td>
<td>4 = None</td>
<td>V = Standard (100-240 VAC, 50/60Hz)</td>
</tr>
<tr>
<td></td>
<td>R = Thermocouple (°F)</td>
<td>C = SSR or SSC drive output</td>
<td>A = None</td>
<td>5 = High/low alarm 1 point</td>
<td>B = 24V AC/DC (50/60Hz)</td>
</tr>
<tr>
<td></td>
<td>N = RTD, Pt100 ohm, 3-wire type (°C)</td>
<td>E = 4-20mA DC output</td>
<td>C = None</td>
<td>G = High/low alarm 2 points</td>
<td></td>
</tr>
<tr>
<td></td>
<td>S = RTD, Pt100 ohm, 3-wire type (°F)</td>
<td></td>
<td>D = None</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>B = 4-20mA DC, 1-5V DC</td>
<td></td>
<td>E = None</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>A = 0-20mA DC, 0-5V DC</td>
<td></td>
<td>F = None</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: RS485 option comes with Free software, PXR-LITE. RS485 requires signal converter to connect to PC, P/N RSFC24 recommended.

### Ordering Information (PXR4, PXR5, PXR7, PXR9)

<table>
<thead>
<tr>
<th>Box A: Front Panel Size</th>
<th>Box B: Input Signal</th>
<th>Box C: Control Output 1</th>
<th>Box D: Control Output 2</th>
<th>Box E: Alarm Options</th>
<th>Box F: Power Supply</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>T = Thermocouple (°C)</td>
<td>A = Relay contact output</td>
<td>Y = None</td>
<td>4 = None</td>
<td>V = Standard (100-240V AC, 50/60Hz)</td>
</tr>
<tr>
<td></td>
<td>R = Thermocouple (°F)</td>
<td>C = SSR or SSC drive output</td>
<td>A = None</td>
<td>5 = High/low alarm 1 point</td>
<td>B = 24V AC/DC (50/60Hz)</td>
</tr>
<tr>
<td></td>
<td>N = RTD, Pt100 ohm, 3-wire type (°C)</td>
<td>E = 4-20mA DC output</td>
<td>C = None</td>
<td>G = High/low alarm 2 points</td>
<td></td>
</tr>
<tr>
<td></td>
<td>S = RTD, Pt100 ohm, 3-wire type (°F)</td>
<td></td>
<td>D = None</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>B = 4-20mA DC, 1-5V DC</td>
<td></td>
<td>E = None</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>A = 0-20mA DC, 0-5V DC</td>
<td></td>
<td>F = None</td>
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</tr>
</tbody>
</table>

Note: RS485 option comes with Free software, PXR-LITE. RS485 requires signal converter to connect to PC, P/N RSFC24 recommended.

### Accessories

- **CTL-6-S**: Current transformer for 1-30A
- **CTL-12**: Current transformer for 20-50A
- **RSFC24**: RS485 to RS232 signal converter
- **PXR4 Loader Assembly**: Program loader for PXR4 (can be used for PX series also)
- **PXR3 Rail Adapter**: Mounting adapter for DIN rail installation
- **PXR4 Terminal Cover**: Terminal block protective cover

Information subject to change without notice. Prices in USD.
Ordering Information (PXR4 Socket Version)

![Part Number Diagram]

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

**Front Panel Size**
4 = 1/16 DIN (48x48mm)

**Box A: Input Signal**
- T = Thermocouple (°C)
- R = Thermocouple (°F)
- N = RTD, Pt100 ohm, 3-wire type (°C)
- S = RTD, Pt100 ohm, 3-wire type (°F)
- B = 4-20mA DC, 1-5V DC
- A = 0-20mA DC, 0-5V DC

**Box B: Control Output 1**
- A = Relay contact output
- C = SSR or SSC drive output
- E = 4-20mA DC output
- G = Triac 1A, 250 VAC

**Box C: Alarm Options**
4 = None
5 = High/low alarm 1 point
G = High/low alarm 2 points

**Box D: Power Supply**
- V = Standard (100-240V AC, 50/60Hz)
- B = 24V AC/DC (50/60Hz)

**Accessories**
- PXR4 Loader Assembly: Program loader for PXR4
- PXR4 Terminal Cover: Terminal block protective cover

Information subject to change without notice. Prices in USD.
**Furnace Heat Pattern Control**

**Heat Pattern Control — Ramp/Soak Function**

Digital input
Ramp/Soak command

- Control temperature according to "Heat pattern with ramp"
- Keep temperature stable for a certain period with "Heat pattern" and then cool down
- "Heat pattern" can be Started (RUN) /Reset by an external digital input.

**Ramp/Soak Function**

- Control temperature according to "Heat pattern with ramp"
- Keep temperature stable for a certain period with "Heat pattern" and then cool down
- "Heat pattern" can be Started (RUN) /Reset by an external digital input.

**Plastic Molding Machine**

**Stable temperature control required — Fuzzy + PID Control**

Digital input
Autotuning command

- Control temperature according to "Heat pattern with ramp"
- Keep temperature stable for a certain period with "Heat pattern" and then cool down
- "Heat pattern" can be Started (RUN) /Reset by an external digital input.

**Oven**

To change SV easily

Set Value (SV) can be selected/changed externally.
<main SV, SV1-3 change over>

**Fryer**

To keep oil temperature stable

Control RUN/Stand-by selectable through external digital input

**Cooling & Heating Control**

Cooling output and Heating output can be overlapped or a "Dead-band" set between them.