

NEW

Fuji Temperature Controllers

CONTROLLERS

- 7 Control Methods including Self Tuning and Fuzzy PID
- Universal Input (T/C, RTD, V, mA)
- High Speed Sampling (50ms)
- Large, Bright LCD Display
- Up to 64 Ramp/Soak Segments in 15 Patterns
- Two Control Outputs Plus Alarm Outputs
- Motorized Valve Control Versions
- Digital Input Option
- Heater Current Monitoring CT
- RS485 Modbus Option
- Setup via USB without External Power
- Compact 58mm Depth
- Multidrop Master Option



PXF5



PXF9



PXF4

Functions

- On/Off control
- PID control with auto tuning
- Fuzzy control with auto tuning
- Self tuning
- 2-degrees-of-freedom PID control with auto tuning
- Open-loop supported PID2 control
- Ramp soak function (simple program control)
- 1 Heating/cooling control with auto tuning
- Motorized SV control

SPECIFICATIONS

| | |
|-----------------------------------|---|
| Process value input: | One |
| Input signal: | T/C: J, K, R, B, S, T, E, L, U, N, PL2. RTD: Pt100. Voltage: 0-5, 1-5, 0-10, 2-10 V DC Current: 0 to 20 mA, 4 to 20 mA DC |
| Indication accuracy: (at 23°C) | TC R (0 to 500°C): ±3°C ±1 digit TC B (0 to 400°C): not specified All other T/C: greater of ±0.3% ±1 digit or ±1°C ±1 digit RTD: greater of ±0.8°C ±1 digit or ±0.2% FS ±1 digit mV input, voltage input, current input: ±0.3%FS ±1 digit |
| Input setting: | Programmable scale |
| All thermocouples: | -200 to -100°C: ±2°C ±1 digit |
| Temperature effect: | ±0.3%FS/10°C |
| Sampling rate: | 50 ms |
| Input impedance: | Thermocouple, mV input: 1 MΩ or more Current input: 150Ω or less (built-in diode) Voltage input: About 1 MΩ |
| Wiring resistance: | RTD: 10Ω max. per wire |
| Allowable input: | DC voltage input: within ±35 V Current input: within ±25 mA Thermocouple, RTD, mV input: within ±5 V |
| Noise reduction ratio: | Normal mode: 40 dB (50/60 Hz) Common mode: 120 dB (50/60 Hz) |
| Remote SV input: | 1 optional |
| Input signal: | Voltage: 0 to 5 V DC/1 to 5 V DC/0 to 10 V DC Current: 0 to 20 mA DC/4 to 20 mA DC |
| Input impedance: | Approx. 1MΩ |
| Sampling rate: | 50 ms |
| CT input: | Optional single phase current transformer, 1 point |
| Range/Resolution: | 1 A to 100A / 0.1A |
| Accuracy: | Setpoint ±5%FS |
| On time: | >300 ms necessary for detection |
| Digital input (DI): | Up to 5 (PXF4: up to 3) |
| Type: | Dry contact or transistor input |
| Contact capacity: | 5 V DC, about 2 mA (per point) |
| Input threshold: | ON voltage: ≤2 V DC, OFF voltage: ≥3 V DC |
| Sampling pulse width: | 50 ms min. |
| Function: | Remote mode selection, SV changeover, control standby, AT startup, timer startup, alarm unlatch, program selection, start/stop/reset, PID switching (normal/reverse), etc. |

| | |
|--------------------------|--|
| Valve position feedback: | Potentiometer input option (PXF5, PXF9 only) |
| Resistance range: | 100Ω to 2.5kΩ (three-wire) |
| Accuracy: | ±1.0%FS; Resolution 0.5%FS |
| Control outputs: | Up to 2 (2 points: Heating/cooling control) |
| Relay contact: | SPST or SPDT, 250 V AC/30 V DC, 3 A resistive |
| SSR/SSC drive output: | ON: 10.7-13.2 V DC, OFF: ≤0.5 V DC; 20 mA DC max.; 600Ω min. |
| Current output: | 0 to 20 mA DC, 4 to 20 mA DC, 600Ω max. load; Accuracy: ±5%FS |
| Voltage output: | 0 to 5 V DC, 1 to 5 V DC, 0 to 10 V DC, 2 to 10 V DC 10kΩ min. load; Accuracy: ±5%FS |
| Motorized valve control: | Uses 2 SPST contacts without interlock circuit |
| Retransmit output: | 1 optional |
| Output level (scalable): | Voltage: 0 to 5 V DC/1 to 5 V DC/0 to 10 V DC Current: 0 to 20 mA DC/4 to 20 mA DC |
| Accuracy: | ±0.2%FS |
| Load resistance: | 500Ω max. (current), 10kΩ min. (voltage) |
| Output contents: | PV, SV, DV, MV |
| Alarm output (DO): | up to 5 relay contacts optional (model dependent) |
| Contact capacity: | 250 V AC/30 V DC, 1A (resistive load) |
| Output cycle: | 100 ms |
| Control parameters: | |
| Proportional band (P): | 0.1% to 999.9% |
| Integration time (I): | 0 to 3200 s (invalidated when I = 0) |
| Differential time (D): | 0.0 to 999.9 s (invalidated when D = 0) |
| Control cycle: | 100 to 900 ms (in 100 ms), 1 to 99 s (in seconds) |
| Anti-reset windup: | 0 to 100% of measurement range |
| Hysteresis band: | 50% of measurement range (at 2-position control only) |
| SV & PID patterns: | up to 8: Changed by any of parameter setting, digital input, communication, user function keying, zone change. |
| Control mode: | Auto/Manual/Remote |
| Mode changeover: | Auto ↔ Manual: Balanceless bumpless Auto/Manual → Remote: Balance bumpless |
| Alarm function: | Up to 5 (depends on the number of DO) |
| Alarm type: | Process value (upper limit/lower limit, absolute/deviation, range), main unit error, etc. (non-excitation, delay, latch, timer function option provided) |
| Heater current alarm: | Detectable range 1 A to 100 A, Hysteresis 0.0 to 100.0 A |

Fuji Temperature Controllers

SPECIFICATIONS, CONTINUED

| | |
|------------------------|---|
| RS-485: | Optional, half-duplex, Modbus-RTU protocol |
| Baud rate: | 9600 bps, 19200 bps, 38.4 kbps, 115.2 kbps |
| Additional functions: | Cooperative operation (master or slave) |
| Password protection: | 3 levels |
| Memory protection: | Non-volatile EEPROM |
| Operating temperature: | -10 to 50°C, <90% RH non condensing |
| Power supply voltage: | 100 (-15%) to 240V (+10%) AC, 50/60Hz; 24V (±10%) AC/DC |

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| Power consumption: | 100 to 240 V AC: 13 VA max. (10VA max. on PXF4), 24 V DC/AC: 8 VA max. (3VA max. on PXF4) |
| Case material: | UL94V-0 ABS, PPO |
| Environmental protection: | IP66, NEMA 4X front |
| Terminals: | M3 screws, terminal strip cover optional |
| Dimensions (HxWxD): | PXF4: 1/16 DIN (48 x 48 x 58 mm). PXF5: 1/8 DIN (96 x 48 x 58 mm). PXF9: 1/4 DIN (96 x 96 x 58 mm) |

ORDERING INFORMATION

TEMPERATURE CONTROLLERS

To Order-Insert Code for Each Letter to Select Catalog Number.

Example: PX4AAA2 - 1VMA1

| | | | | | | |
|----------|----------------------|---|----------|----------|----------|----|
| A | B | C | D | E | F | A1 |
| A | Front Panel Size | | | | | |
| | PXF4A | 1/16 DIN (48x48mm) | | | | |
| | PXF5A | 1/8 DIN (48x96mm) | | | | |
| | PXF9A | 1/4 DIN (96x96mm) | | | | |
| B | Control Output 1 | | | | | |
| | A | Relay contact SPST* | | | | |
| | B | Relay contact SPDT* | | | | |
| | C | SSR drive | | | | |
| | E | Current linear | | | | |
| | P | Voltage linear | | | | |
| C | Control Output 2 | | | | | |
| | Y2 | None | | | | |
| | A2 | Relay contact SPST | | | | |
| | C2 | SSR drive | | | | |
| | E2 | Current linear | | | | |
| | P2 | Voltage linear | | | | |
| | R2 | Retransmit (current) | | | | |
| | S2 | Retransmit (voltage) | | | | |
| D | Alarm Output | | | | | |
| | 0 | None | | | | |
| | 1 | 1 point | | | | |
| | 2 | 2 points | | | | |
| | M | 3 points | | | | |
| | J | 2 points, independent common | | | | |
| E | Power Supply | | | | | |
| | V | Standard (100-240 VAC, 50/60Hz) | | | | |
| | B | 24V AC/DC (50/60Hz) | | | | |
| F | Additional Functions | | | | | |
| | Y | None | | | | |
| | S | 1 Digital input (DI) † | | | | |
| | T | 2 Digital inputs (DI x 2) ‡ | | | | |
| | M | RS485 communication (Modbus) | | | | |
| | G | CT input + DI §‡ | | | | |
| | V | RS485 communications + DI 1 point | | | | |
| | H | Remote SV input + DI #‡ | | | | |
| | J | RS485 communications + CT input §‡ | | | | |
| | C | RS485 communications + DI x 3 + aux alarm out x 2 ‡ | | | | |
| | K | RS485 communications + remote SV input #‡ | | | | |

* not available if Control Output 2 = C, E or P

§ CT input as a heater burnout alarm requires Additional Function C.

Current RSV input requires additional 250ohm resistor.

† PXF4 only.

‡ PXF5, PXF9 only.

ORDERING INFORMATION

MOTORIZED VALVE CONTROLLERS

To order-Insert Code for Each Letter to Select Catalog Number.

Example: PXF4ATY2-1VYA1

| | | | | | |
|----------|----------------------|--|----------|----------|----|
| A | B | C | D | E | A1 |
| A | Front Panel Size | | | | |
| | PXF4A | 1/16 DIN (48x48mm) | | | |
| | PXF5A | 1/8 DIN (48x96mm) | | | |
| | PXF9A | 1/4 DIN (96x96mm) | | | |
| B | Control Output 1 | | | | |
| | TY2 | Motorized valve control (PXF4 only) | | | |
| | SY2 | Motorized valve control (PXF5, PXF9 only) | | | |
| | YV2 | Motorized valve control with FEB input (PXF5, PXF9 only) | | | |
| C | Alarm Output | | | | |
| | 0 | None | | | |
| | 1 | 1 point | | | |
| | 2 | 2 points | | | |
| | M | 3 points | | | |
| | J | 2 points, independent common | | | |
| D | Power Supply | | | | |
| | V | Standard (100-240V AC, 50/60Hz) | | | |
| | B | 24V AC/DC (50/60Hz) | | | |
| E | Additional Functions | | | | |
| | Y | None | | | |
| | D | 3 Digital inputs (DI x 3) (PXF4 only) | | | |
| | V | RS485 communications (PXF4 only) | | | |
| | U | RS485 communications + DI x 3 (PXF5, PXF9 only) | | | |

ACCESSORIES

| | |
|--------------|---------------------------------|
| CTL-6-S-H | Current transformer for 1-30A |
| CTL-12-S36-8 | Current transformer for 20-100A |
| PXR1-A230 | Terminal Cover |
| TQ501923C3 | USB Parameter Loader Cable |
| PXR1-A190 | 250 ohm shunt resistor (±0.1%) |