

# Temperature PID Controllers

**Fuzzy Logic PID, Auto Tuning, and Soft Start features combine for uncompromising, state-of-the-art control**

Extech controllers now offer Fuzzy Logic enhanced PID and a Soft-Start feature that protects heaters from cold-starts. PID plus Fuzzy Logic tackles even the most demanding applications, eliminating over-shoot, unwanted process fluctuations, and drift. The Soft Start feature is ideally suited for processes, such as those employed in the Thermo-Plastics industry, where careful, exact, and slow heating of product is required.

## Features:

- Dual 4-digit LED displays for process and setpoint values
- 1/16 DIN (48VFL) and 1/4 DIN (96VFL) model dimensions available
- Easy programming & navigation with user-friendly menus and tactile keypad
- Fuzzy Logic PID offers intuitive control simulating human control logic
- Manual mode allows the user to override automatic control and drive the controller output higher or lower with the touch of a button
- One-touch Auto Tuning for quick setup and stable, precise control
- Two 'Latching' Alarm relays standard with 8 Alarm modes plus advanced Timer modes
- Single stage Ramp and Soak program with Ramp-to-Setpoint Limit that can be combined with the Soft Start feature for critical process demands
- Accepts thermocouple and RTD inputs
- Select desired temperature display units (°F or °C) from setup menu
- Select thermocouple input type (9 selections) or RTD input (2 selections) from the display menu without the need for hardware modification
- Complete with mounting bracket hardware and screw terminals for easy wiring



## Specifications

|                     |                                                                                                                                                                                                                                                                                                                      |                                |
|---------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|
| Thermocouple Inputs |                                                                                                                                                                                                                                                                                                                      |                                |
| Type K              |                                                                                                                                                                                                                                                                                                                      | -58 to 2498°F (-50 to 1370°C)  |
| Type J              |                                                                                                                                                                                                                                                                                                                      | -58 to 1832°F (-50 to 1000°C)  |
| Type B              |                                                                                                                                                                                                                                                                                                                      | 32 to 3272°F (0 to 1800°C)     |
| Type T              |                                                                                                                                                                                                                                                                                                                      | -454 to 752°F (-270 to 400°C)  |
| Type E              |                                                                                                                                                                                                                                                                                                                      | -58 to 1382°F (-50 to 750°C)   |
| Type R or S         |                                                                                                                                                                                                                                                                                                                      | 32 to 3182°F (0 to 1750°C)     |
| Type N              |                                                                                                                                                                                                                                                                                                                      | -58 to 2372°F (-50 to 1300°C)  |
| Type C              |                                                                                                                                                                                                                                                                                                                      | -58 to 3272°F (-50 to 1800°C)  |
| PT100Ω RTD (DIN)    |                                                                                                                                                                                                                                                                                                                      | -328 to 1652°F (-200 to 850°C) |
| PT100Ω RTD (JIS)    |                                                                                                                                                                                                                                                                                                                      | -328 to 1202°F (-200 to 650°C) |
| Control/Alarm Relay | 5 Amp @ 110V, SPST (resistive load)                                                                                                                                                                                                                                                                                  |                                |
| DC Current Output   | 4-20mA (resistive); Impedance < 600 ohms                                                                                                                                                                                                                                                                             |                                |
| Accuracy            | Thermocouple: ±1.8°F (1°C); RTD: ±0.36°F (0.2°C)                                                                                                                                                                                                                                                                     |                                |
| Sampling Time       | Four (4) samples per second                                                                                                                                                                                                                                                                                          |                                |
| LED Display         | Two 4-digit displays for Process Value, Setpoint, and programming modes                                                                                                                                                                                                                                              |                                |
| LED Status          | Alarm and Control output status                                                                                                                                                                                                                                                                                      |                                |
| Control Modes       | Fuzzy Logic enhanced three-term PID with Auto Tune <ul style="list-style-type: none"> <li>• Proportional Band 0 to 300.0%</li> <li>• Integral time 0 to 3600 seconds</li> <li>• Derivative time 0 to 900 seconds</li> <li>• Hysteresis 0.0 to 200.0 or 0.0 to 2000</li> <li>• Cycle time 1 to 100 seconds</li> </ul> |                                |
| Front Panel         | Lexan construction, Drip/Dust proof; IR rating: IEC IP63                                                                                                                                                                                                                                                             |                                |
| Power Supply        | 90 to 264 VAC; 50/60 Hz (< 5VA power consumption)                                                                                                                                                                                                                                                                    |                                |

## Ordering Information:

- 48VFL11 ....1/16 DIN Temperature PID Controller with one relay output  
48VFL13 ....1/16 DIN Temperature PID Controller with 4-20mA output  
96VFL11 ....1/4 DIN Temperature PID Controller with two relay outputs  
96VFL13 ....1/4 DIN Temperature PID Controller with 4-20mA output

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