# SERIES PD SINGLE AND DUAL LOOP CONTROLLER

*Precise Temperature Controller and EtherNet/IP™*

## High Performance Temperature and Process Controller with Web Server and EtherNet/IP™

Watlow's SERIES PD controllers utilize embedded Ethernet technology to provide a convenient, economical means for setting up and viewing key process variables such as temperature, pressure and humidity. The units also integrate control of these variables with programmable logic controllers (PLC) and other automation solutions. Available in single or dual loop versions, the DIN-rail mounted SERIES PD controllers offer up to four control/alarm outputs plus up to two digital/current transformer inputs.

These controllers are ideally suited for a wide range of temperature and process controller applications where the operator interface is supported from a remote location or the temperature and process control must be integrated with other automation equipment including PLCs. For remote operation, the SERIES PD serves web pages supporting key functions including operation, alarm monitoring and configuration directly to standard web browsers. The SERIES PD can also generate e-mail messages for remote alarm notification. Support for EtherNet/IP™, Modbus™ TCP and PCCC protocols ensure robust and easy to implement solutions for machine integration with a variety of automation vendor's products.

The SERIES PD controller is backed by a three-year warranty and is UL® 508, C-UL®, CSA and CE approved.

### Features and Benefits

**EtherNet/IP™ with explicit and implicit messages**
- Reads or sets any control parameter from a PLC
- Moves data quickly and efficiently to ensure the best process performance
- Easily obtains and sets the attributes critical to your process with static and dynamic message assemblies

**PCCC protocol messages**
- Integrates with older Allen-Bradley PLCs that support Ethernet but not EtherNet/IP™

**Modbus™ TCP protocol for Ethernet communications**
- Connects to Watlow's WATVIEW software and other HMI software
- Integrates with third-party solutions

### Features and Benefits (con't)

**Embedded web pages for setup, monitoring and trending**
- Provide a convenient, easy-to-use operator interface
- Simplify process monitoring
- Make troubleshooting processes quick and easy

**On-board data logging option**
- Ensures vital data is retained

**E-mail notification of alarms and events**
- Minimizes downtime

**DIN-rail, sub panel mounting**
- Reduces time and cost of installation
- Prevents unauthorized access

**Watlow INFOSENSE™ sensor technology**
- Improves sensor accuracy by a minimum of 50 percent

**Heater burn out detection**
- Improves process yield

**WATLOW**

WIN-PD-1005

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**ISO 9001**
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**EtherNet√IP™**
conformance tested

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**To be automatically connected to the nearest North American Technical and Sales Office call:**

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## Specifications

**Power**
- 24V≈(ac/dc), +10/-15 percent, 50/60Hz, ±5 percent
- 12VA maximum power consumption
- Data retention upon power failure via nonvolatile memory

**Environment**
- 0 to 65°C (32 to 149°F)  operating temperature
- -40 to 85°C (-40 to 185°F) storage temperature
- 0 to 90 percent RH, non-condensing

**Accuracy**
- Calibration accuracy and sensor conformity: ±0.1 percent of span, ±1°C @ the calibrated ambient temperature and rated line voltage
- Calibration ambient temperature = 25°C ±3°C (77°F ±5°F)
- Accuracy span: 540°C (1000°F) minimum
- Temperature stability: ±0.1°C/°C (±0.2°F/°F) rise in ambient maximum

**Agency Approvals**
- UL® 508, C-UL®, CSA and CE
- ODVA: EtherNet/IP**™**

**Controller**
- Microprocessor-based user-selectable control modes
- Single or dual channel universal inputs
- Current transformer inputs/digital inputs
- Up to four programmable outputs
- Update rates, inputs = 10Hz, outputs = 10Hz

**Operator Interface**
- Browser based HMI

**Wiring Termination**
- Touch safe removable terminals
- 14 to 22 AWG

**Universal Inputs (Electrically Isolated)**
- Thermocouple, grounded or ungrounded sensors
- RTD 2 or 3-wire, platinum, 100Ω @ 0°C calibration to DIN curve (0.00385 Ω/Ω/°C)
- Process 0-20mA @ <100Ω, or 0-10V⎓(dc) @ 10kΩ input impedance (50,000 bits @ full scale)

**Digital Inputs**
- Contact or dc voltage
- 10KΩ input impedance

**Current Transformer Inputs**
- 0 to 50mA CT input into 100Ω impedance

**Allowable Input Operating Range**

| Type | | | | | | | |
|---|---|---|---|---|---|---|---|
| Type J: | -200 | to | 1200°C | or | -340 | to | 2192°F |
| Type K: | -270 | to | 1370°C | or | -454 | to | 2500°F |
| Type T: | -270 | to | 400°C | or | -454 | to | 750°F |
| Type N: | -270 | to | 1300°C | or | -454 | to | 2372°F |
| Type E: | -270 | to | 975°C | or | -454 | to | 1790°F |
| Type C: | 0 | to | 2315°C | or | 32 | to | 4200°F |
| Type D: | 0 | to | 2315°C | or | 32 | to | 4200°F |
| Type PTII: | 0 | to | 1395°C | or | 32 | to | 2543°F |
| Type R: | 0 | to | 1760°C | or | 32 | to | 3200°F |
| Type S: | 0 | to | 1760°C | or | 32 | to | 3200°F |
| Type B: | 0 | to | 1815°C | or | 32 | to | 3300°F |
| RTD (DIN): | -200 | to | 800°C | or | -328 | to | 1470°F |

Process V:   0 to 10V⎓(dc)          Process I:     0 to 20mA

**Control/Alarm Outputs (1 - 4)**
- User selectable as: on-off, P, PI, PD, PID, heat, cool, alarm action or retransmit with process output type hardware
- Open collector/switched dc
- Open collector 42V⎓(dc) maximum @ 0.5A
- Switched dc 22 to 28V⎓(dc) limited @30mA
- Solid-state relay, Form A, 0.5A @ 24V~(ac) minimum, 264V~(ac) maximum, opto-isolated, without contact suppression
- User-selectable 0-10V⎓(dc), 1KΩ minimum, scalable, 0-20mA @ 800Ω maximum, scalable
- Electromechanical relay. Form C, rated 5A @ 120V~(ac) or 5A @ 240V~(ac) or 5A @ 30V⎓(dc)

**Communications**
- EtherNet/IP™ with static and dynamic assemblies
- PCCC protocol messages
- TCP/IP/Ethernet
- Modbus™ TCP
- Ethernet RJ 45 connector, 10 base T
- HTTP interface
- DHCP, auto IP or fixed IP address

**Dimensions**
- Width x height x depth, 42 mm x 116 mm x 132 mm (1.64 in. x 4.56 in. x 5.19 in.)
- DIN-rail or chassis mount, DIN-rail spec DIN 5022 35 mm x 7.5 mm (1.38 in. x 0.30 in.)

## Ordering Information

To order, complete the model number on the right with the information below.

P D ⊡⊡ - ⊡⊡⊡⊡ - A ⊡⊡

**Control Type**
S = Single channel
D = Dual channel

**Auxiliary Inputs**
1 = Dual digital inputs
2 = One CT input and one digital input
3 = Dual CT inputs (dual channel only)

**Output 1**
C = Switched dc, open collector
K = SSR, Form A, 0.5A
F = Universal process
J = Mechanical relay, Form A, 2A

**Output 2**
A = None
C = Switched dc, open collector
K = SSR, Form A, 0.5A
E = Mechanical relay, Form C, 2A

**Output 3**
A = None
C = Switched dc, open collector
K = SSR, Form A, 0.5A
F = Universal process (If output 1 is F only)
J = Mechanical relay, Form A, 2A

**Output 4**
A = None
C = Switched dc, open collector
K = SSR, Form A, 0.5A
E = Mechanical relay, Form C, 2A

**On Board Data Logging**
0 = None
1 = On board data logging

**Custom Options**
AA = Watlow logo
BB = No logo

## Your Authorized Watlow Distributor Is: