Simple to Use, Ideally Suited for Basic Applications or Usage Levels

The Watlow® EZ-ZONE® PM Express panel mount controller is an industry leading PID controller that allows for optimal performance utilizing simple control and menu functionality without complex features. The EZ-ZONE PM Express is ideally suited for basic applications and usage levels.

The EZ-ZONE PM Express is the next generation of controllers leveraging the strong legacy of Watlow’s SERIES 93, SERIES 935 and SERIES SD controllers where easy-to-use features are needed for basic applications. It includes one universal input and the option for up to two outputs and is available in 1/32 or 1/16 DIN panel mount packages. The EZ-ZONE PM Express can be ordered as a PID process controller or a dedicated over and under-temperature limit controller.

The EZ-ZONE PM Express is a great addition to the EZ-ZONE PM family of controllers which include two other controller versions, the EZ-ZONE PM integrated controller and the EZ-ZONE PM standard version. This family provides an ideal platform to perform many applications.

If you are looking for a simple and easy-to-use basic PID controller or an over and under-limit controller, the EZ-ZONE PM Express controller will be the ideal controller to use.

Features and Benefits

Simplified menu
- Fits basic applications with a user-friendly interface supported by two menus and a streamlined list of parameters
- Eliminates user complexity often encountered when having to deal with more advanced controllers and unnecessary features
- Reduces user training costs and user programming errors

PID auto-tune
- Provides auto-tune for fast, efficient start-up

Standard bus communications
- Allows easy product configuration via PC communications protocol and free software
- Saves time, simplifies programming process and improves reliability of controller setup

Factory Mutual (FM) approved over and under limit with auxiliary outputs
- Increases user and equipment safety for over and under-temperature conditions

Agency approvals: UL® listed, CSA, CE, RoHS, W.E.E.E. FM, SEMI F47-0200, Class 1, Div. 2 rating on selected models
- Assures prompt product acceptance
- Reduces end product documentation costs

Front panel removable
- Saves time and labor with replacements and troubleshooting

P3T armor sealing system
- Complies to NEMA 4X, IP66
- Allows controller to be cleaned and washed down
- Certified UL® 50 independent to NEMA 4X specification

Touch-safe package
- Increases safety for installer and operator
- Complies with IP2X requirements

Consistent Termination Labeling (CTL) connection system
- Allows removal of cage clamp connectors
- Provides consistent termination labeling

Three-year warranty
- Demonstrates Watlow’s reliability and product support

High-amperage power control output
- Drives 15 ampere resistive loads direct
- Reduces component count
- Saves panel space and simplifies wiring
- Reduces cost of ownership

Class 1, Div. 2
- Rated UL® 1604 for use in hazardous locations
- Saves agency and component costs
Specifications

Line Voltage/Power
- 85 to 264VAC, 47 to 63Hz
- 20 to 28VAC, +10/-15%; 50/60Hz, ±5%
- 12 to 40VDC
- 10VA max. power consumption
- Data retention upon power failure via non-volatile memory
- Compliant with SEMI F47-0200, Figure R1-1 voltage sag requirements @ 24VAC or higher

Environment
- 0 to 149°F (-18 to 65°C) operating temperature
- -40 to 185°F (-40 to 85°C) storage temperature
- 0 to 90% RH, non-condensing

Accuracy
- Calibration accuracy and sensor conformity: ±0.1% of span, ±1°C @ the calibrated ambient temperature and rated line voltage
- Type S; 0.2%
- Type T below -50°C; 0.2%
- Calibration ambient temperature @ 77°F ±5°F (25°C ±3°C)
- Accuracy span: 1000°F (540°C) min.
- Temperature stability: ±0.1°F/°F (±0.1°C/°C) rise in ambient max.

Agency Approvals
- UL® /EN 61010 listed
- ANSI/ISA 12.12.01-2007 Class 1, Div. 2 Groups A, B, C, D, Temperature Code T4A
- UL® 50, NEMA 4X, EN 60529 IP66
- CSA C22.2 No. 24 File 158031
- RoHS, W.E.E.E.
- CSA 610110 CE

Controller
- User selectable heat/cool, on-off, P, PI, PD, PID or alarm action, not valid for limit controllers
- Auto-tune with control algorithm
- Control sampling rates: input = 10Hz, outputs = 10Hz
- Input and output capacity per controller type ordering information

Serial Communications
- Isolated communications
- Standard bus configuration protocol

Wiring Termination—Touch-Safe Terminals
- Input, power and controller output terminals are touch safe removable 12 to 22 AWG

Universal Input
- Thermocouple, grounded or ungrounded sensors
  - >20MΩ input impedance
  - Max. of 2kΩ source resistance
- RTD 2- or 3-wire, platinum, 100Ω @ 0°C calibration to DIN curve (0.00385 Ω/°C)
- Process, 4-20mA @ 100Ω, or 0-10VDC @ 20kΩ input impedance; scalable

Functional Operating Range
Type J: -346 to 2192°F (-210 to 1200°C)
Type K: -328 to 2500°F (-200 to 1370°C)
Type T: -328 to 750°F (-200 to 400°C)
Type N: -328 to 2372°F (-200 to 1300°C)
Type S: -58 to 3214°F (-50 to 1767°C)
RTD (DIN): -328 to 1472°F (-200 to 800°C)
Process: -1999 to 9999 units

Output Hardware
- Switched dc = 22 to 32VDC @ 30mA
- Switched dc/open collector = 30VDC max. @ 100mA max. current sink
- Solid state relay (SSR), Form A, 0.5A @ 24VAC min., 264VAC max., opto-isolated, without contact suppression
- Electromechanical relay, Form C, 5A, 24 to 240VAC or 30VDC max., resistive load, 100,000 cycles at rated load
- Electromechanical relay, Form A, 5A, 24 to 240VAC or 30VDC max., resistive load, 100,000 cycles at rated load
- NO-ARC relay, Form A, 15A, 24 to 240VAC, no VDC, resistive load, 2 million cycles at rated load
- Universal process, Output range selectable: 0 to 10VDC into a min. 1,000Ω load 4 to 20mA into max. 800Ω load

Operator Interface
- Dual 4 digit, 7 segment LED displays
- Typical display update rate 1Hz
- Advance, infinity (RESET), up and down keys plus an EZ-KEY (not available in 1⁄32 DIN)
- Infinity key is also labeled RESET on limit control models
- EZ-KEY automatically programmed as an auto/manual transfer mode function on PID models.
Typical Block Diagrams

EZ-ZONE PM EXPRESS PID Model

EZ-ZONE PM EXPRESS LIMIT Model

Dimensional Drawings

EZ-ZONE PM 1⁄2 DIN Dimensional Drawing

EZ-ZONE PM 1⁄8 DIN Dimensional Drawing
## Ordering Information

All models include:

- Universal sensor input, standard bus configuration communications
- Dual line red over green seven segment displays

### Code Number

PM = EZ-ZONE PM controller

### Package Size

<table>
<thead>
<tr>
<th>Number</th>
<th>Description</th>
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<tbody>
<tr>
<td>3</td>
<td>⅓ DIN</td>
</tr>
<tr>
<td>6</td>
<td>⅓ DIN</td>
</tr>
<tr>
<td>8</td>
<td>⅓ DIN vertical (future option)</td>
</tr>
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</table>

### Primary Function

- C = PID controller with universal input
- L = Limit controller with universal input (only valid Output 1 and 2 selections = AJ, CJ or EJ)

### Power Supply

<table>
<thead>
<tr>
<th>Number</th>
<th>Description</th>
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<tbody>
<tr>
<td>1</td>
<td>100 to 240VAC</td>
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<tr>
<td>3</td>
<td>20 to 28VAC or 12 to 40VDC</td>
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### Output 1 and 2 Hardware Options

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<tr>
<th>Output 1</th>
<th>Output 2</th>
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<tbody>
<tr>
<td>AJ</td>
<td>None</td>
</tr>
<tr>
<td>CA</td>
<td>Switched dc/open collector</td>
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<tr>
<td>CH</td>
<td>Switched dc/open collector</td>
</tr>
<tr>
<td>CJ</td>
<td>Switched dc/open collector</td>
</tr>
<tr>
<td>CK</td>
<td>Switched dc/open collector</td>
</tr>
<tr>
<td>EA</td>
<td>Mechanical relay 5A, Form C</td>
</tr>
<tr>
<td>EH</td>
<td>Mechanical relay 5A, Form C</td>
</tr>
<tr>
<td>EC</td>
<td>Mechanical relay 5A, Form C</td>
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<tr>
<td>EJ</td>
<td>Mechanical relay 5A, Form C</td>
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<td>EK</td>
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<td>FA</td>
<td>Universal process</td>
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<tr>
<td>FC</td>
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<tr>
<td>FJ</td>
<td>Universal process</td>
</tr>
<tr>
<td>FK</td>
<td>Universal process</td>
</tr>
<tr>
<td>AK</td>
<td>None</td>
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<tr>
<td>KK</td>
<td>SSR Form A, 0.5A</td>
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</table>

### Future Options

<table>
<thead>
<tr>
<th>Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AAA</td>
<td>None</td>
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<tr>
<td>B</td>
<td>PM EXPRESS with English manual</td>
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### Menu Type

<table>
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<tr>
<th>Number</th>
<th>Description</th>
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<tbody>
<tr>
<td>AA</td>
<td>Standard EZ-ZONE PM face plate</td>
</tr>
<tr>
<td>AB</td>
<td>EZ-ZONE logo, no Watlow name</td>
</tr>
<tr>
<td>AC</td>
<td>No logo, no Watlow name</td>
</tr>
<tr>
<td>12</td>
<td>Class 1, Div. 2 (not available with output types E, H or J)</td>
</tr>
</tbody>
</table>

### Additional Options

- PID Manuals
  - 0600-0065-0000 English
  - 0600-0065-0001 Simplified Chinese
  - 0600-0065-0002 Japanese
  - 0600-0065-0003 Korean
  - 0600-0065-0004 German
  - 0600-0065-0005 French
  - 0600-0065-0006 Italian
  - 0600-0065-0007 Spanish

- Limit Manuals
  - 0600-0066-0000 English

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