

## 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



### Features and Benefits

**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



**ISO 9001**



Registered Company  
Winona, Minnesota USA

WIN-EZPMXP-0509

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## Specifications

### Line Voltage/Power

- 85 to 264VAC, 47 to 63Hz
- 20 to 28VAC, +10/-15%; 50/60Hz,  $\pm 5\%$
- 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:  $\pm 0.1\%$  of span,  $\pm 1^\circ\text{C}$  @ the calibrated ambient temperature and rated line voltage
  - Type S; 0.2%
  - Type T below  $-50^\circ\text{C}$ ; 0.2%
- Calibration ambient temperature @ 77°F  $\pm 5^\circ\text{F}$  ( $25^\circ\text{C} \pm 3^\circ\text{C}$ )
- Accuracy span: 1000°F (540°C) min.
- Temperature stability:  $\pm 0.1^\circ\text{F}/^\circ\text{F}$  ( $\pm 0.1^\circ\text{C}/^\circ\text{C}$ ) 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
  - $>20\text{M}\Omega$  input impedance
  - Max. of 2k $\Omega$  source resistance
- RTD 2- or 3-wire, platinum, 100 $\Omega$  @ 0°C calibration to DIN curve (0.00385  $\Omega/\Omega/^\circ\text{C}$ )
- Process, 4-20mA @ 100 $\Omega$ , or 0-10VDC @ 20k $\Omega$  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

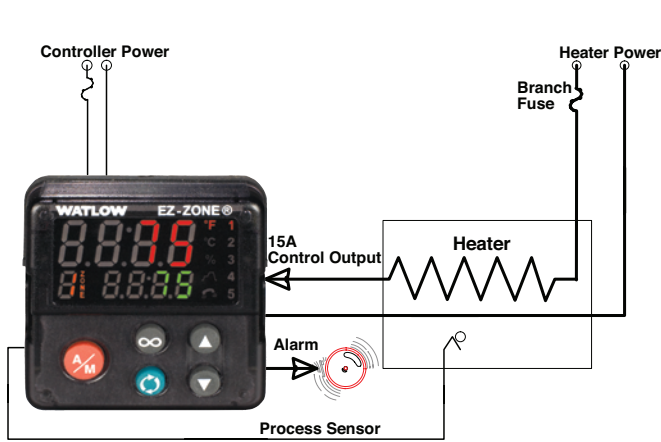
- Switched dc = 22 to 32VDC @ 30mA
- Switched dc/open collector = 30VDC max. @ 100mA max. current sink
- Solid state relay (SSR), Form A, 0.5A @ 24VAC min., 264VAC max., opto-isolated, without contact suppression
- Electromechanical relay, Form C, 5A, 24 to 240VAC or 30VDC max., resistive load, 100,000 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. 1,000 $\Omega$  load
  - 4 to 20mA into max. 800 $\Omega$  load

### Operator Interface

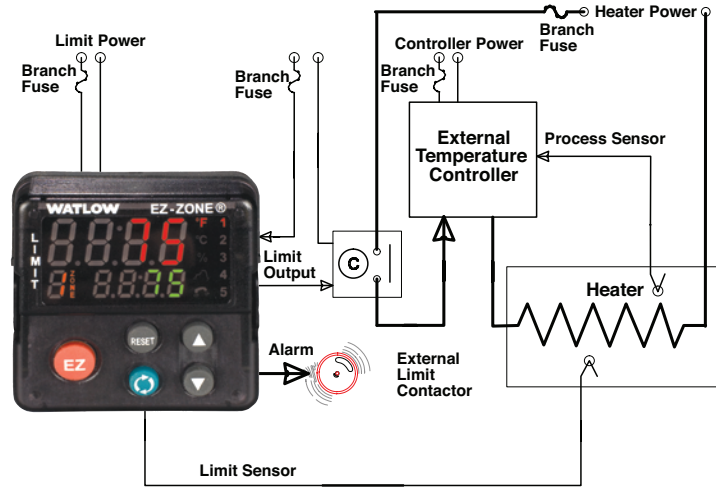
- Dual 4 digit, 7 segment LED displays
- Typical display update rate 1Hz
- Advance, infinity (RESET), up and down keys plus an EZ-KEY (not available in 1/2 DIN)
- Infinity key is also labeled RESET on limit control models
- EZ-KEY automatically programmed as an auto/manual transfer mode function on PID models.

## Typical Block Diagrams

### EZ-ZONE PM EXPRESS PID Model

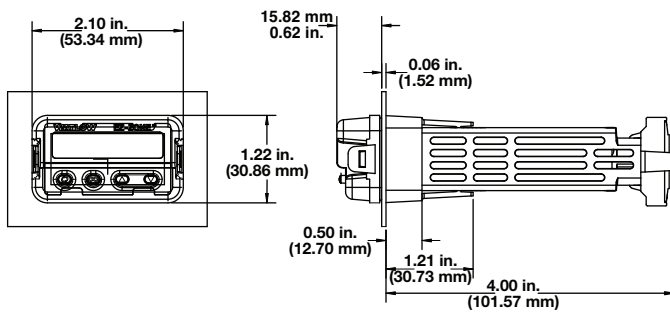


### EZ-ZONE PM EXPRESS LIMIT Model

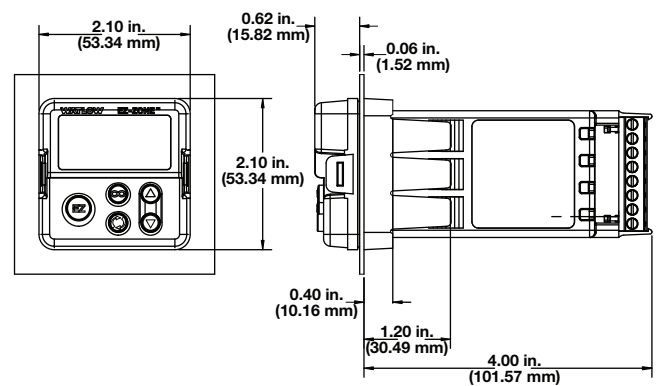


## Dimensional Drawings

### EZ-ZONE PM 1/32 DIN Dimensional Drawing



### EZ-ZONE PM 1/16 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

- |                                      |  |
|--------------------------------------|--|
| 3 = 1/2 DIN                          | 9 = 1/2 DIN horizontal (future option) |
| 6 = 1/8 DIN                          | 4 = 1/4 DIN (future option)            |
| 8 = 1/8 DIN vertical (future option) |  |

### 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

- 1 = 100 to 240VAC  
 3 = 20 to 28VAC or 12 to 40VDC

### Output 1 and 2 Hardware Options

#### Output 1

- AJ = None  
 CA = Switched dc/open collector  
 CH = Switched dc/open collector  
 CC = Switched dc/open collector  
 CJ = Switched dc/open collector  
 CK = Switched dc/open collector  
 EA = Mechanical relay 5A, Form C  
 EH = Mechanical relay 5A, Form C  
 EC = Mechanical relay 5A, Form C  
 EJ = Mechanical relay 5A, Form C  
 EK = Mechanical relay 5A, Form C  
 FA = Universal process  
 FC = Universal process  
 FJ = Universal process  
 FK = Universal process  
 AK = None  
 KK = SSR Form A, 0.5A

#### Output 2

- Mechanical relay 5A, Form A  
 None  
 NO-ARC 15A power control  
 Switched dc  
 Mechanical relay 5A, Form A  
 SSR Form A, 0.5A  
 None  
 NO-ARC 15A power control  
 Switched dc  
 Mechanical relay 5A, Form A  
 SSR Form A, 0.5A  
 None  
 Switched dc  
 Mechanical relay 5A, Form A  
 SSR Form A, 0.5A  
 SSR Form A, 0.5A  
 SSR Form A, 0.5A

### Future Options

- AAAA = None

### Menu Type

- B = PM EXPRESS with English manual

### Additional Options

- AA = Standard EZ-ZONE PM face plate  
 AB = EZ-ZONE logo, no Watlow name  
 AC = No logo, no Watlow name  
 12 = Class 1, Div. 2 (not available with output types E, H or J)

PM - A A A A B

## Replacement Parts/Accessories

### 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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To be automatically connected to the nearest North American Technical Sales Office:

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