

EZ-ZONE[®] PM Panel Mount Controller

EZ-ZONE[®] PM Controllers Take the Pain Out of Meeting Your Thermal Loop Requirements

The EZ-ZONE[®] PM panel mount controller from Watlow[®] offers control options to reduce system complexity and the cost of thermal loop ownership. It can be ordered as a PID controller, an over/under limit controller or its functions can be combined into an integrated controller. An option to integrate a high amperage power controller output with a high-performance PID controller and an over/under limit controller in one space-saving, panel mount package is also available. Many communication options are offered to support connectivity needs.

Because the EZ-ZONE PM controller is highly scalable, you pay only for what is needed. This controller is available in $^{1}/_{32}$, $^{1}/_{16}$, $^{1}/_{8}$ and $^{1}/_{4}$ DIN panel mount packages. The EZ-ZONE PM controller is easy to use and is ideal for PID, over/under limit or integrated controller needs.

Features and Benefits

Integrated PID and limit controller

- Reduces wiring time and termination complexity compared with connecting discrete products
- Decreases required panel space
- Lowers installation costs
- Increases user and equipment safety for over/under temperature conditions

High amperage power control output

- Drives 15 ampere resistive loads directly
- Reduces component count
- Decreases cost of ownership

Current monitoring

- Detects heater current flow and provides alarm indication of a failed output device or heater load
- Drives output on open or shorted heater

Serial communication capabilities

- Provides a wide range of protocol choices including Modbus® RTU, EtherNet/IP™, Modbus® TCP, PROFIBUS DP, DeviceNet™ and J1939 CAN bus
- Supports network connectivity to a PC or PLC

Dual-channel controller

• Provides two PID controllers in one space-saving package Enhanced control options

• Easily handles complex process problems such as cascade, ratio, differential, square-root, motorized valve control without slidewire feedback, wet-bulb/dry-bulb, compressor control and peltier loads

Countdown timer option

- Provides batch process control
- Supports set point change during countdown

10-point linearization curve

Improves sensor accuracy



EZ-LINK[™] mobile application for iPhone[®] and Android[™]

- Expedites controller setup with intuitive navigation
 Simplifies setting parameters with plain text names
- and descriptions
- Connects quickly and easily via Bluetooth[®] wireless communications

Configuration communications with software

- Includes Watlow standard bus communications used by COMPOSER® or EZ-ZONE configurator software
- Saves time and improves reliability of controller setup
- Advanced PID control algorithm
- Offers TRU-TUNE[®] + adaptive control to provide tighter control for demanding applications
- Provides auto-tune for fast, efficient start-up
- Built-in sensor compensation curves
- Saves cost of buying compensated sensors
- Includes Vaisala RH and altitude (pressure) curves

Remote set point operation

• Supports convenient set point manipulation from a remote device such as a master control or PLC

Profile capability

- Offers pre-programmed process control
- Allows ramp/soak programming with 40 total steps, battery backup and real time clock

Retransmit output

Supports industry needs for recording

Factory Mutual (FM) approved over/under limit with auxiliary outputs

Increases user and equipment safety for over/under temperature conditions

Memory for saving and restoring parameter settings Decreases service calls and time down

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
- Touch-safe package
- Increases safety for installer/operator
- Complies with IP2X requirements
- EZ-KEY
- Enables simple, one-touch operation of user-defined, repetitive activities

Programmable menu system

- Reduces setup time and increases operator efficiency Three-year warranty
- Provides product support and reliability







Specifications

Controller

- User-selectable heat/cool, on-off, P, PI, PD, PID or alarm action, not valid for limit controllers
- Auto-tune with TRU-TUNE+ adaptive control algorithm
- Control sampling rates: input = 10Hz, outputs = 10Hz
- Profile Ramp/Soak Real Time Clock and Battery Backup
- 4 profiles, 40 total steps
- Accuracy (typical): ±30 PPM at 77°F (25°C)
 +30/-100 PPM at -4 to 149°F (-20 to 65°C)
- Battery type/typical life: lithium, three cumulative years unpowered at 77°F (25°C)

Isolated Serial Communications

- EIA 232/485, Modbus® RTU
- EtherNet/IP[™]/Modbus[®] TCP
- DeviceNet[™]
- PROFIBUS DP
- SAE J1939 CAN bus

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 greater than 20M Ω input impedance, 3µA open sensor detection, 2k Ω source resistance max.
- RTD 2- or 3-wire, platinum, 100 Ω and 1000 Ω @ 32°F (0°C) calibration to DIN curve (0.00385 $\Omega/\Omega/^{\circ}C)$
- Process, 0-20mA @ 100 Ω , or 0-10VDC @ 20k Ω , 0-50mV at 20M Ω , 0-1000 Ω potentionmeter; scalable; inverse scaling

Functional Operating Range

- Type J: -346 to 2192°F (-210 to 1200°C)
- Type K: -454 to 2500°F (-270 to 1371°C)
- Type T: -454 to 750°F (-270 to 400°C)
- Type E: -454 to 1832°F (-270 to 1000°C)
- Type N: -454 to 2372°F (-270 to 1300°C) Type C: 32 to 4200°F (0 to 2315°C)
- Type C: 32 to 4200°F (0 to 2315°C) Type D: 32 to 4200°F (0 to 2315°C)
- Type F: 32 to 2449°F (0 to 1343°C)
- Type R: -58 to 3214°F (-50 to 1767°C)
- Type S: -58 to 3214° F (-50 to 1767° C)
- Type B: 32 to 3300°F (0 to 1816°C)
- RTD (DIN): -328 to 1472°F (-200 to 800°C)
- Process: -1999 to 9999 units

Accuracy

- Calibration accuracy and sensor conformity: $\pm 0.1\%$ of span, $\pm 1^{\circ}$ C @ the calibrated ambient temperature and rated line voltage
- Types R, S, B; 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: $\pm 0.1^{\circ}$ F/°F ($\pm 0.1^{\circ}$ C/°C) rise in ambient max.
- Thermistor Input
- 0 to $40k\Omega$, 0 to $20k\Omega$, 0 to $10k\Omega$, 0 to $5k\Omega$
- 2.252k Ω and 10k Ω base at 77°F (25°C)
- Linearization curves built-in

Current Transformer Input

- Accepts 0-50mA signal (user-programmable range)
 Displayed operating range and resolution can be scales
- Displayed operating range and resolution can be scaled and are user-programmable

Digital Inputs (DC Voltage)

- Max. input: 36V at 3mA
- Logic: min. high state 3V at 0.25mA, max. low state 2V
- Digital Inputs (Dry Contact)
- Logic: min. open resistance $10k\Omega,$ max. closed resistance 50Ω
- Max. short circuit: 20mA

2 Digital I/O (ordered with power supply option)

- Update rate: 10Hz
- Input type: user-selectable, dc voltage or dry contact
- Output type: switched dc
- Output voltage: 24V
- Output 5: 24mA max. or drive one 3-pole DIN-A-MITE®
- Output 6: 10mA max.
- 6 Digital I/O (ordered with communications option)
- Update rate: 10Hz
- Input type: user-selectable, dc voltage or dry contact
- Output type: user-selectable, switched dc or open collector
 Switched dc output voltage: 12 to 24VDC, depending on
- current draw
- Switched dc max. supplied current: 40mA at 20VDC and 80mA at 12VDC
- Switched dc max. low state: 2V
- Open collector max. switched voltage: 32VDC
- Open collector max. switched current: 1.5A per output; 8A total for all 6 outputs

Output Hardware

- Switched dc: 22 to 32VDC @ 30mA max. per single output and 40mA max. total per paired outputs (1 & 2, 3 & 4)
- Open collector: 30VDC max. @ 100mA max.
- SSR, Form A, 24 to 240VAC, 1A at 50°F (10°C) to 0.5A at 149°F (65°C) resistive load, 264VAC max., opto-isolated, without contact suppression, 120/240VAC @ 20VA pilot duty
- Electromechanical relay, Form A, 24 to 240VAC or 30VDC max., 5A resistive load, 100,000 cycles at rated load, 120/240 @ 125VA or 24VAC @ 25VA pilot duty
- Electromechanical relay, Form C, 24 to 240VAC or 30VDC max., 5A resistive load, 100,000 cycles at rated load, 120/240 @ 125VA or 24VAC @ 25VA pilot duty
- NO-ARC relay, Form A, 85 to 264VAC, 15A @ 122°F (50°C), resistive load, no VDC, 2,000,000 cycles at rated load
- Universal process output: range selectable; 0 to 10VDC ±15mV into a min. 1,000Ω load with 2.5mV nominal resolution; 0 to 20mA ±30µA into max. 800Ω load with 5µA nominal resolution; temperature stability 100ppm/°C

Operator Interface

- Dual 4-digit, 7-segment LED displays
- Advance, infinity, up and down keys, plus a maximum of 2 programmable EZ-KEY(s) depending on model size
- Typical display update rate: 1Hz
- RESET key substituted for infinity on all models with limit controller

Line Voltage/Power

- High voltage option: 85 to 264VAC, 47 to 63Hz
- Low voltage option: 20 to 28VAC, +10/-15%; 50/60Hz, $\pm 5\%$ or 12 to 40VDC
- Max. power consumption: 10VA (1/32 and 1/16 DIN); 14VA (1/8 and 1/4 DIN)
- Data retention upon power failure via nonvolatile memory
- Compliant with SEMI F47-0200, Figure R1-1 voltage sag requirements @ 24VAC or higher

Environment

- Operating temperature: 0 to 149°F (-18 to 65°C)
- Storage temperature: -40 to 185°F (-40 to 85°C)
- Relative humidity: 0 to 90% RH, non-condensing

Agency Approvals

cULus[®] UL[®]/EN/CSA C22.2 No 61010-1 Listed, File E185611

EtherNet/IP[™] and DeviceNet[™] ODVA Conformance Tested

- CSA C22.2 No. 24, File 158031 (1/32 and 1/16 DIN sizes)
- UL[®] 50 4X indoor locations, NEMA 4X, UL[®] 50E, Type 4X front seal
- cULus[®] ANSI/ISA 12.12.01-2012, CSA-C22.2 No. 213-1987, Class 1, Div. 2, Groups A, B, C and D, Temperature Code T4A, File E184390 (optional)
- FM Class 3545 (limit controls)
 CE, RoHS by design, W.E.E.E.



Comparison of Available Features

	¹ ⁄₃₂ DIN	¼₀ DIN	¹ ⁄8 DIN	¼ DIN		
PID Loops	1	1	1 to 2	1 to 2		
Profile Ramp/Soak	40 total steps	40 total steps	40 total steps	40 total steps		
Profile Battery Backup and Real Time Clock	None	None	Yes	Yes		
Number of Digital Inputs/Outputs	0 to 2	0 to 2	0 to 8	0 to 8		
Number of Outputs	1 to 4	1 to 6	1 to 12	1 to 12		
Integrated Safety Limits	Limit must be ordered as separate device	1 1		1		
Maximum Power Output	5A mechanical relay	15A NO-ARC 15A NO-ARC		15A NO-ARC		
Current Measurement	None	Accepts 0-50mA signal from external current transformer				
Standard Bus Communications	Yes	Yes	Yes Yes			
Bluetooth [®] Technology (PM6 Only)	No	Yes	No	No		
Field Bus Communications	Modbus® RTU 485	Modbus® RTU 232/485, EtherNet/IP™, Modbus® TC DeviceNet™, PROFIBUS DP, SAE J1939 CAN bus				
10-Point Calibration Offset	Yes	Yes Yes		Yes		
Ratio, Differential and Square-Root	None	Yes	Yes	Yes		
Sensor Compensation Curves - Altitude (Pressure) and Vaisala RH	None	Yes Yes		Yes		
Motorized Valve Control (without Feedback)	None	Yes	Yes	Yes		
Wet Bulb/Dry Bulb	None	Yes	Yes	Yes		
Cascade	None	None	Yes	Yes		
Countdown Timer	Yes	Yes	Yes	Yes		

Compatible Accessories

More information is available on these products at www.watlow.com



Watlow's new EZ-LINK app allows users to easily setup, monitor and adjust Watlow EZ-ZONE PM controllers via Bluetooth®. The app is available free-of-charge from the app store for phones and tablets, and provides access to the controller's parameters with fully spelled out names in plain text with help topics that explain each parameter and option. EZ-LINK mobile application connects quickly and easily via Bluetooth® wireless communications. Download the at

EZ-Link App 💜 for iPhone[®].





SpecView is designed for industrial users with features such as data logging, trending and support for bar code readers and touch screens. Errors are reduced, for any process, by creating application-specific screens. The software provides a

historical replay option, easy-to-use recipe features and remote access options, including LAN, Internet and modem.



COMPOSER with INTUITION® is Watlow's new, easy-to-use software for configuring and customizing controllers. Use it to optimize Watlow's F4T and EZ-ZONE PM and RM controllers for specific applications. Task-specific views simplify all

aspects of commissioning new controllers including managing the inputs and outputs from pluggable flex modules, setting up functions such as control loops and alarms and creating and editing profiles. COMPOSER software is included on the "Watlow Support Tools" DVD and available for download at www.watlow.com.

Silver Series EM touch screen operator interface terminals provide a customizable user interface, email event notifications and log and graph data for Watlow controllers and other devices. A Silver Series EM operator interface terminal paired with Watlow



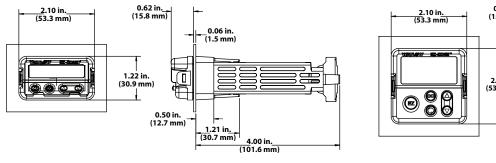
controllers is the perfect solution for your industrial process or machine control application.

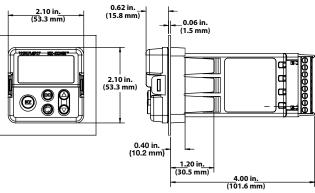


Dimensional Drawings

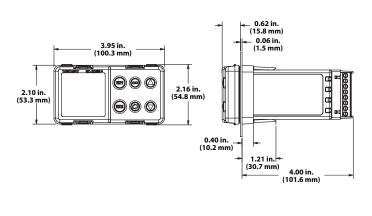
EZ-ZONE PM 1/32 DIN

EZ-ZONE PM 1/16 DIN

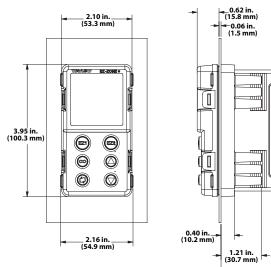


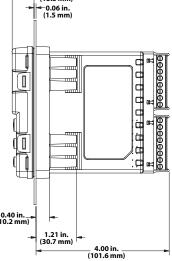


EZ-ZONE PM 1/8 DIN - Horizontal

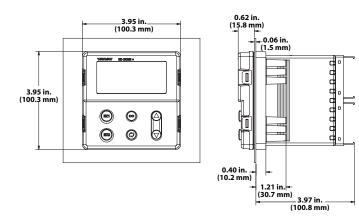


EZ-ZONE PM 1/8 DIN - Vertical





EZ-ZONE PM 1/4 DIN





PID Model Ordering Information Universal Sensor Input, Standard Bus Communications, TRU-TUNE+ Adaptive Tune, Red and Green Seven-Segment Displays Part Number

1 2 PM	3 Package Size	④ Primary Functions	ق Power Supply, Digital I/O	ⓒ ⑦ Output 1 and 2 Hardware Options	8 Comm. Options	(9) (1)FutureOptionsAAA	lso Ir	12 plated nput ption	3 4 Custom Options
3	·	·	Package	Size			67		Ou
$3 = \frac{1}{32}$	DIN						PM3:	CH, EF	l and KH a
$6 = \frac{1}{16}$	DIN						type		
8 = ¹ / ₈ [DIN vertica	ıl							Outp
9 = ¹ / ₈ [DIN horizo	ntal					CA =	Switc	hed dc/op
$4 = \frac{1}{4}$	DIN						CH =	Switc	hed dc/op
(4)		P	rimary Fu	actions			CC =	Switc	hed dc/op
	BandEa			¹ / ₃₂ DIN (PM3)	or 1/16 DIN	J	CJ =	Switc	hed dc/op
(PM6) n		ic not ava		/32 0114 (11413)		•	CK =	Switc	hed dc/op
C = PID	controller	with unive	ersal input						anical relay
				and profiling ra	amp/soak				anical relay
B = PID	controller	with unive	ersal input	and profiling ra					anical relay
bat	tery back-	up with rea	al time cloc	k					anical relay
T = PID	controller	with unive	ersal input	and countdow	n timer				anical relay
			nistor inpu					-	rsal proces
				t and profiling					rsal proces
				t and profiling	ramp/soa	k j	FJ =		rsal proces
			h real time	CIOCK					rsal proces
S = Cus	tom firmw							None	
5			, Digital Ir	nputs/Outputs	s (I/O)			-	orm A, 0.5/
	to 240VA						KK =	SSR F	orm A, 0.5/
2 = 100	to 240VA	C plus 2 di	gital I/O po	oints			8		
3 = 20 1	to 28VAC o	or 12 to 40	VDC				Stand	dard bu	us always i
4 = 20 1	to 28VAC o	or 12 to 40	VDC, plus 2	digital I/O poi	nts		A = N		
							D _ D	luctor	+b® (1/ DI

utput 1 and 2 Hardware Options are not valid options for 1/32 DIN package

	Output 1	Output 2
CA =	Switched dc/open collector	None
CH =	Switched dc/open collector	NO-ARC 15A power control
CC =	Switched dc/open collector	Switched dc
CJ =	Switched dc/open collector	Mechanical relay 5A, Form A
CK =	Switched dc/open collector	SSR Form A, 0.5A
EA =	Mechanical relay 5A, Form C	None
EH =	Mechanical relay 5A, Form C	NO-ARC 15A power control
EC =	Mechanical relay 5A, Form C	Switched dc
EJ =	Mechanical relay 5A, Form C	Mechanical relay 5A, Form A
EK =	Mechanical relay 5A, Form C	SSR Form A, 0.5A
FA =	Universal process	None
FC =	Universal process	Switched dc
FJ =	Universal process	Mechanical relay 5A, Form A
FK =	Universal process	SSR Form A, 0.5A
AK =	None	SSR Form A, 0.5A
KH =	SSR Form A, 0.5A	NO-ARC 15A power control
KK =	SSR Form A, 0.5A	SSR Form A, 0.5A
8	Communica	tion Options

8	Communication Options						
Standard bus always included							
A = None							
B = Bluetooth [®] (1/16 DIN models only)*							
E = EIA 4	85 Modbus® RTU & Bluetooth® (1/16 DIN models only)*						
1 = EIA 4	85 Modbus® RTU						
*Note: Bl	uetooth [®] not available in all countries, contact factory.						
12	Isolated Input Option						
A = None							
D = Isolat	ed input 1						
13 14	Custom Options						
	Custom Options , overlays, parameter settings						
Firmware							
Firmware	, overlays, parameter settings						
$\begin{array}{c} \text{Firmware} \\ \text{AA} = \\ \text{Sta} \\ \text{AB} = \\ \text{EZ-} \end{array}$, overlays, parameter settings ndard EZ-ZONE PM face plate						
Firmware AA = Sta AB = EZ-AC = No	, overlays, parameter settings ndard EZ-ZONE PM face plate ZONE logo and no Watlow name						



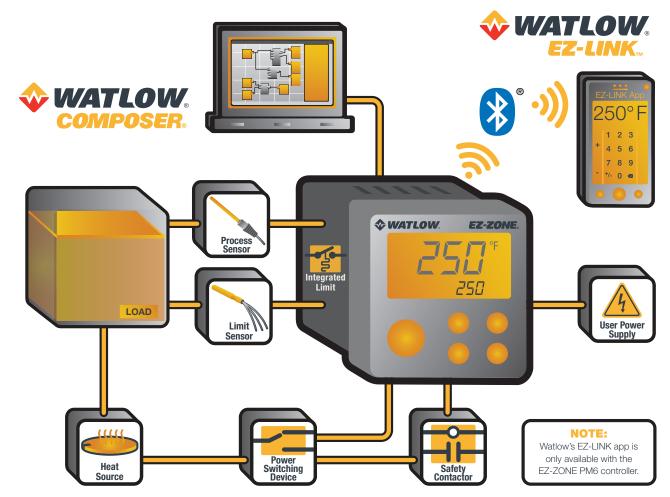
Limit Model Ordering Information Universal Sensor Input, Standard Bus Communications, Red and Green Seven-Segment Displays Davt Numb

> Mechanical relay 5A, Form A

Part Number								
1 2 3 4 5 Powe	6 7 8 Pr Output 1 and	9 10 11	12 Isolated	(B) (B)				
Package Primary Suppl Size Functions Digital	y, 2 Hardware Comm.	Future Options	Input Option	Custom Options				
PM	-	AAA						
3 Packa	ige Size		8	Communication Options				
$3 = \frac{1}{32}$ DIN			Standard bu	us always included				
$6 = \frac{1}{16} DIN$			A = None					
$8 = \frac{1}{8}$ DIN vertical			B = Bluetoc	oth® (1/16 DIN models only)*				
9 = ¹ / ₈ DIN horizontal			E = EIA 485 Modbus [®] RTU & Bluetooth [®] (¹ / ₁₆ DIN models only)*					
$4 = \frac{1}{4} DIN$	1/4 DIN 1 = EIA 485 Modbus® RTU							
Primary	Functions		*Note: Blue	tooth [®] not available in all countries, contact factory.				
L = Limit controller with universal i			12	Isolated Input Option				
M = Limit controller with thermistor	input		A = None					
D = Custom firmware			D = Isolatec	l input 1				
5 Power Supply, Digita	al Inputs/Outputs (I/O)		13 14	Custom Options				
1 = 100 to 240VAC			Firmware, o	verlays, parameter settings				
2 = 100 to 240VAC plus 2 digital I/C) points		AA = Stand	lard EZ-ZONE PM face plate				
3 = 20 to 28VAC or 12 to 40VDC			AB = EZ-ZC	DNE logo and no Watlow name				
4 = 20 to 28VAC or 12 to 40VDC, pl	us 2 digital I/O points		AC = No lo	go and no Watlow name				
6 7 Output 1 and 2	Hardware Options		AG = Confo	ormal coating				
Output 1	Output 2							
AJ = None	Mechanical relay 5A, Form A	4						
CJ = Switched dc/open collector	Mechanical relay 5A, Form A	4						

Typical Block Diagram

EJ = Mechanical relay 5A, Form C





Integrated PID Controller Model Ordering Information Universal Sensor Input, Standard Bus Communications, TRUE-TUNE+ Adaptive Tune, Red and Green Seven-Segment Displays Part Number

Part Nun	nber											
12	3	4	5	67	8	9	10 11	12	13 14			
	<u> </u>	Ŭ	Power	Output 1 and	Comm.	Auxiliary	Output 3 and					
	Package	Primary	Supply,	2 Hardware	Options or Add'l	Control	4 Hardware	Additional	Custom			
	Size	Functions	Digital I/		Digital I/O	Functions	Options	Options	Options			
DAA												
PM					-							
3			Packag	o Sizo		9		Auxiliary C	ontrol Eur	ctions		
$6 = \frac{1}{16}$	DIN		rackay	e Size		A = Nor		лиліпату С	ontror Fun	cuons		
									alinaut a	et eveileble er 1/ DIN		
	DIN vertica							vith univers	ai input - no	ot available on 1/16 DIN		
	DIN horizoi	ntal					dels	uith thormai	torinput	not available on		
$4 = \frac{1}{4} DIN$							DIN models	vith thermis	stor input - i	not available on		
Primary Functions												
	Options B and E are not available with 1/16 DIN (PM6) models						R =Auxiliary 2nd input (universal input)P =Auxiliary 2nd input (thermistor input)					
	C = PID controller with universal input											
							rent transform			put 3 and 4		
R = PID	controller	with unive	ersal inpu	t and profiling r	amp/soak	sele	ections = FA, FC	C, FJ and FK)			
B = PID	tery back-u	with unive	ersai inpu	t and profiling r	amp/soak and					input (only valid		
				t and countdow	n timor	Out	put 3 and 4 se	lections = C	J, EJ and A.	J)		
					numer	M = Inte	grated limit co	ontroller wit	h thermisto	or input (only valid		
J = PID	controller	with therr	nistor inp	ut	/ 1		put 3 and 4 se					
				ut and profiling		1/16 DIN I	Models: If com	munication	options F, C	G, H, J, K or 2 thru 7 is		
				ut and profiling	ramp/soak	ordered	in previous dig	git, then Op	tion A must	t be ordered here.		
	battery ba		n real tim	e clock		All Mode	els: Auxiliarv in	put suppor	ts remote se	et point, backup		
S = Cus	stom firmw	are				sensor ra	atio, differentia	and wet-h	ulb/drv-hu	lb input.		
(5)	Pow	er Supply	. Digital	Inputs/Output	s (I/O)					-		
\sim) to 240VA		, Digitai	inputs/output	5 (1/0)	10 11	Out	tput 3 and	4 Hardwar	e Options		
	to 240VA		aital I/O r	ointe			Outpu	ut 3		Output 4		
				onnis		AA = Nc			None	•		
	to 28VAC o			<u> </u>		AJ = Nc	one		Mechani	ical relay 5A, Form A		
4 = 20 t	to 28VAC o			2 digital I/O poi		AK = Nc				n A, 0.5A		
67		Output 1	and 2 H	ardware Optio	ns		vitched dc/ope	on collector	None	II A, 0.5A		
	0	utput 1		Outp					Switche			
CA = Sv	witched do		ector	Vone			vitched dc/ope					
	witched do			NO-ARC 15A pov	ver control		vitched dc/ope			15A power control		
	witched do			Switched dc	Vercontion		vitched dc/ope			ical relay 5A, Form A		
						CK = Sv	vitched dc/ope	en collector	SSR Forr	n A, 0.5A		
	witched do			Mechanical relay		EA = M	echanical relay	/ 5A, Form C	None			
	witched do			SSR Form A, 0.5A	`		echanical relay			d dc		
	lechanical			lone			echanical relay			15A power control		
EH = M	lechanical	relay 5A, F	orm C 🛛 I	NO-ARC 15A pov	ver control		echanical relay			ical relay 5A, Form A		
EC = M	lechanical	relay 5A, F	orm C	Switched dc			echanical relay			n A, 0.5A		
EJ = M	lechanical	relav 5A, F	orm C	Mechanical relay	5A, Form A					II A, 0.5A		
	lechanical			SR Form A, 0.5A			niversal proces		None	1.1		
	niversal pr			None			niversal proces		Switche			
	niversal pr			Switched dc			niversal proces			ical relay 5A, Form A		
	niversal pr				EA Form A		niversal proces			n A, 0.5A		
				Mechanical relay		KH = SS	R Form A, 0.5A	4	NO-ARC	15A power control		
	niversal pr	ocess		SR Form A, 0.5A		KK = SS	R Form A, 0.5A	A	SSR Forr	n A, 0.5A		
AK = N				SR Form A, 0.5A		¹ /16 DIN I	Models: If com	munication	options F, C	G, H, J, K or 2 thru 7 is		
	SR Form A,			NO-ARC 15A pov		ordered	in previous die	git, then Op	tion AA mu	ist be ordered here.		
KK = SS	SR Form A,	0.5A		SR Form A, 0.5A		1/16 DIN I	Models: Outpu	t options Cl	H, EH and K	H are not valid.		
	Comm	nunicatio	n Option	s or Additional	Digital	(12)	•	م نفناه ۸	nal Optior			
8				puts (I/O)			aloual	Additio		15		
Standar	d bus alwa					A = Star			1			
A = Nor										ressor control, cascade,		
	etooth® (1/	16 DIN mod	dels only)	*				quare-root	and motoriz	zed valve control		
				oth [®] (1/16 DIN m	odels only)*		out feedback.			-		
				ooth [®] (1/16 DIN m		D = Star	iuard with isola	ated input 1	, input 2 is a	always isolated.		
						F = Enh	anced firmwar	e with isolat	ea input 1,	input 2 is always		
				uetooth [®] (¹ / ₁₆ DIN		isola	ueu.	function C	or I roginiz-	d for corcodo control		
				DIN models only			ixiliary control	runction C	or 5 require	d for cascade control.		
J = PRC	DEIROS DA	and Bluet	ooth [®] ('/1	DIN models on	IY)*	13 14		Cust	om Option	S		
			Bluetoot	h® (1/16 DIN mod	els only)*	AA = St	andard EZ-ZOI					
	1 = EIA 485 Modbus [®] RTU											
2 = EIA	2 = EIA 232/485 Modbus® RTU						AB = EZ-ZONE logo and no Watlow name AC = No logo and no Watlow name					
	3 = EtherNet/IP [™] /Modbus [®] TCP											
	viceNet [™]						onformal coati					
	OFIBUS DP									ated limit Option "L"		
	E J1939 CA	Nhuc				or	"M", or with C	ulput types	5 ⊑, Ħ Oľ J)			
			lo c = 1/									
	igitai I/O (ľ			DIN models)								
				RTU (not availa								
	DIN mode		ala : 11		t fa ata							
note: B	nuelootn°	not avallal		ountries, contac	i lacioly.							



Enhanced Limit Model Ordering Information

Universal Sensor Input, Configuration Communications, Red and Green Seven-Segment Displays

Part Number		,		5					
1 2 3 4 5 Pow Package Primary Sup Size Functions Digita	ver Output 1 and bly, 2 Hardware	8 Comm. Options or Add'l Digital I/O	9 Future Option	10 (1) Output 3 and 4 Hardware Options	12 Isolated Input Option	13 14 Custom Options			
PM		-	Α						
3 Pac	kage Size		(1) Output 3 and 4 Hardware Options						
$6 = \frac{1}{16} \text{DIN}$				Outpu		Output 4			
$8 = \frac{1}{8}$ DIN vertical			AA = N	one		None			
$9 = \frac{1}{8}$ DIN horizontal			AJ = N		Mechanical relay 5A, Form A				
$4 = \frac{1}{4}$ DIN			AK = N		SSR Form A, 0.5A				
(4) Primar	y Functions			witched dc/ope		None			
L = Limit controller with universa	l input			witched dc/ope		Switched dc			
M = Limit controller with thermist	or input			witched dc/ope		Mechanical relay 5A, Form A			
D = Custom firmware				witched dc/ope		SSR Form A, 0.5A None			
5 Power Supply, Digi	tal Inputs/Outputs	(1/0)		lechanical relay lechanical relay					
1 = 100 to 240VAC				lechanical relay					
2 = 100 to 240VAC plus 2 digital l/	O points		EK = M						
3 = 20 to 28VAC or 12 to 40VDC	I		FA = U	None					
4 = 20 to 28VAC or 12 to 40VDC, p	olus 2 digital I/O poir	nts	FC = Universal process			Switched dc			
(6) (7) Output 1 and	2 Hardware Optio	25		niversal process	Mechanical relay 5A, Form A				
Output 1	Outpu		FK = Universal process			SSR Form A, 0.5A			
AJ = None	Mechanical relay		KK = SSR Form A, 0.5A SSR Form A, 0.5A						
CJ = Switched dc/open collector	Mechanical relay		1/16 DIN	Models: If comr	nunication	options F, G, H, J or 2 thru 6 is			
EJ = Mechanical relay 5A, Form C			ordered	in previous dig	it, then Opt	ion AA must be ordered here.			
Communication Opt	ions or Additional	Digital	(12)		Isolated	Input Option			
8 Communication Opt	Outputs (I/O)	Digital	A = Nor	ne	Isonateu				
Standard bus always included				ated input 1					
A = None			13 14 Custom Options						
$B = Bluetooth^{\circ}$ (¹ / ₁₆ DIN models of	nly)*		AA = Standard EZ-ZONE PM face plate						
E = EIA 485 Modbus [®] RTU and Blu			AB = EZ-ZONE logo and no Watlow name						
F = Modbus [®] RTU 232/485 and Bl			- AC = No logo and no Watlow name						
G = EtherNet/IP™/ Modbus® TCP a	nd Bluetooth® (1/16 [DIN models	AG = Conformal coating						
only)*	/ DIN we adala a who	×			5				
H = DeviceNet [™] and Bluetooth [®] (¹ J = PROFIBUS DP and Bluetooth [®]									
J = PROFIBOS DP and Bidetooth* 1 = EIA 485 Modbus® RTU		<u>y</u> ,							
2 = EIA 232/485 Modbus® RTU									
$3 = \text{EtherNet/IP}^{Modbus} \text{TCP}$									
5 = DeviceNet [™]									
6 = PROFIBUS DP									
*Note: Bluetooth® not available in	all countries, contact								

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