# *specification sheet* **PM PLUS** Controller



Watlow's PM PLUS™ Enhances the User Experience With an Interface That Enables Easy Set Up



Watlow's PM PLUS<sup>™</sup>, the enhanced EZ-ZONE<sup>®</sup> PM, is now more intuitive and features an enhanced interface for easier programming and readability with a SMOOTH-TOUCH<sup>™</sup> keypad creating an industry leading user experience. The PM PLUS is backwards compatible with legacy EZ-ZONE PM controllers but offers many user upgrades including an intuitive menu flow allowing the controller to be easily configured. It also continues to offer the industry leading Bluetooth<sup>®</sup> connectivity with the EZ-LINK<sup>™</sup> mobile app for remote access capability and full descriptions of parameters and error codes. The PM PLUS improves the user experience by reducing the complexity at the front of the control while eliminating the dependency of cables when configuring the product.

Like the original EZ-ZONE PM, the PM PLUS can be ordered as a PID controller, or an integrated controller with multiple functions combined into one.

Now Watlow's PM PLUS is available through Watlow *SELECT*<sup>®</sup>, a program that enables you to quickly identify, configure and receive your thermal products faster and easier than ever before. With *SELECT*, you use a variety of tools to guide your decision, configure products for an exact fit and quickly receive your order. Visit www.watlow.com/select to learn more.

## **Features and Benefits**

#### Intuitive menu flow

- Reduces menu structure to a list of lists allowing the controller to be easily configured
- Offers easy to read characters and color coding making the display visible from many angles

#### SMOOTH TOUCH keypad

- Eliminates contamination points on the front of the controller
- No mechanical components will wear out
- Creates a better seal on front panel
- Easy to clean

#### Bluetooth<sup>®</sup> compatible with EZ-LINK<sup>™</sup> mobile app

- Provides full descriptions of parameters and error codes
- Allows remote access capabilities without the use of cables or converters
- Provides the ability to configure the product and save parameter sets

#### 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<sup>®</sup> RTU, EtherNet/IP<sup>™</sup>, Modbus<sup>®</sup> TCP, PROFIBUS DP, DeviceNet<sup>™</sup> and J1939 CAN bus
- Supports network connectivity to a PC or PLC

#### **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





# Features and Benefits (cont.)

#### Countdown timer option

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

#### 10-point linearization curve

Improves sensor accuracy

### EZ-LINK<sup>™</sup> mobile application for iPhone<sup>®</sup> and Android<sup>™</sup>

- Expedites controller setup with intuitive navigation
  Simplifies setting parameters with plain text names and descriptions
- Connects quickly and easily via Bluetooth<sup>®</sup> wireless communications

#### Configuration communications with software

 Includes Watlow standard bus communications used by COMPOSER<sup>®</sup>

#### Advanced PID control algorithm

- Offers TRU-TUNE<sup>®</sup> + 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 **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<sup>®</sup> 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

#### Programmable function 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
- Auto-tune with TRU-TUNE+ adaptive control algorithm
- Control sampling rates: input = 10Hz, outputs = 10Hz

#### Profile Ramp/Soak

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)

#### Isolated Serial Communications

- EIA 232/485, Modbus® RTU
- EtherNet/IP<sup>™</sup>/Modbus<sup>®</sup> TCP
- DeviceNet<sup>™</sup>
- 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  $20M\Omega$  input impedance,  $3\mu$ A open sensor detection,  $2k\Omega$  source resistance max.
- RTD 2- or 3-wire, platinum, 100 $\Omega$  and 1000 $\Omega$  @ 32°F (0°C) calibration to DIN curve (0.00385  $\Omega/\Omega/^{\circ}$ C)
- Process, 0-20mA @ 100Ω, or 0-10VDC @ 20kΩ, 0-50mV at 20MΩ, 0-1000Ω potentiometer; 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 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 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: ±0.1°F/°F (±0.1°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 $\Omega$  and 10k $\Omega$  base at 77°F (25°C)
- Linearization curves built-in



# **Specifications (cont.)**

#### **Current Transformer Input**

- Accepts 0-50mA signal (user-programmable range)
- 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  $50\Omega$
- 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<sup>®</sup>
- Output 6: 10mA max.

#### 6 Digital I/O (ordered with communication 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**

- LCD display
- SMOOTH TOUCH keypad
- Programmable function key(s)

#### Line Voltage/Power

- High voltage option: 85 to 264VAC, 47 to 63Hz
- Low voltage option: 20 to 28VAC, +10/-15%; 50/60Hz, ±5% or 12 to 40VDC
- Max. power consumption: 10VA ( $^{1}/_{32}$  and  $^{1}/_{16}$  DIN); 14VA

#### 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<sup>®</sup> UL<sup>®</sup>/EN/CSA C22.2 No 61010-1 Listed, File E185611

- CSA C22.2 No. 24, File 158031 (1/32 and 1/16 DIN sizes)
- IP 67, IP 66 front seal
- UL<sup>®</sup> Type 4X front seal indoor locations
- cULus<sup>®</sup> 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.
- EtherNet/IP<sup>™</sup> and DeviceNet<sup>™</sup> ODVA Conformance Tested displays

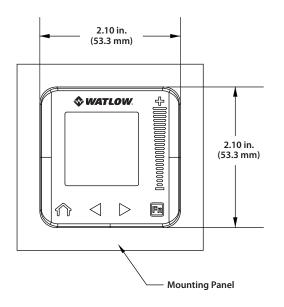
**WATLOW** 

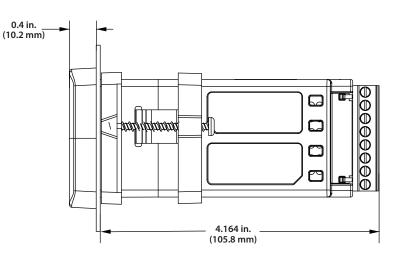
## **Comparison of Available Features**

	EZ-ZONE PM6	PM6 PLUS	EZ-ZONE PM8/9	PM8/9 PLUS
Display Type	7 segment LED	LCD	7 segment LED	LCD
Multi Language (English, German, Spanish)	None	Yes	None	Yes
Keypad Interface Type	Elastomer	SMOOTH-TOUCH™	Elastomer	SMOOTH-TOUCH™
Express Model Available	Yes	None	Yes	None
PID Loops	1	1	2	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 2	0 to 2
Number of Outputs	1 to 6	1 to 6	1 to 6	1 to 6
Integrated Safety Limits	Yes, 1	Yes, 1	Yes, 1	Yes, 1
Independent Safety Limit	Yes	None	Yes	None
Maximum Power Output 5A Mechanical Relay	15A NO-ARC	15A NO-ARC	15A NO-ARC	15A NO-ARC
Current Measurement (Accepts 0-50mA Signal From External Current Transformer)	Yes	Yes	Yes	Yes
Standard Bus Communications	Yes	Yes	Yes	Yes
Bluetooth <sup>®</sup> Technology	Yes	Yes	None	Yes
Field Bus Communications (Modbus® RTU 232/485, EtherNet/ IP™, Modbus® TCP, DeviceNet™, PROFIBUS DP, SAE J1939 CAN bus)	Yes	Yes	Yes	Yes
10-Point Calibration Offset	Yes	Yes	Yes	Yes
Ratio, Differential and Square-Root	Yes	Yes	Yes	Yes
Sensor Compensation Curves-Altitude (Pressure) and Vaisala RH	Yes	Yes	Yes	Yes
Motorized Valve Control (Without Feedback)	Yes	Yes	Yes	Yes
Wet Bulb/Dry Bulb	Yes	Yes	Yes	Yes
Cascade	None	None	Yes	Yes
Countdown Timer	Yes	Yes	Yes	Yes

# **Dimensional Drawings**

PM6

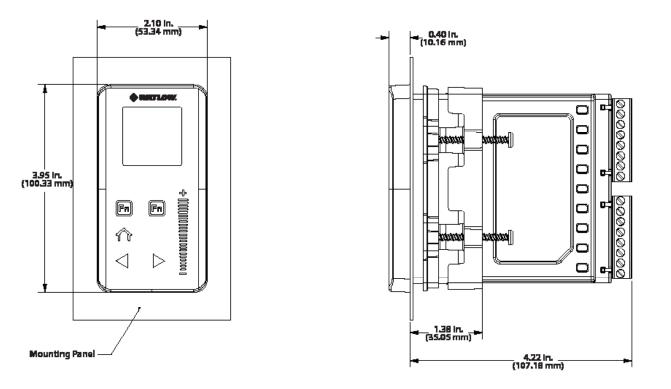




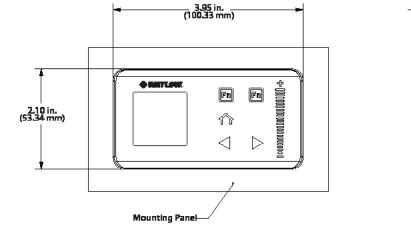


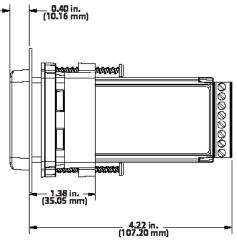
# Dimensional Drawings (cont.)

PM8



PM9







# **Typical Block Diagram**



#### **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 and PM PLUS controllers via Bluetooth<sup>®</sup>. The app is available freeof-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<sup>®</sup> wireless communications. Download th<u>e</u>

EZ-Link App for iPhone<sup>®</sup>.

at Scoogle Play for Android<sup>™</sup> or App Store



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<sup>®</sup> is Watlow's easy-to-use software for configuring and customizing controllers. Use it to optimize Watlow's F4T and EZ-ZONE PM, PM PLUS 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.



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Pow Package Primary Supp Size Functions Digita	oly 2 Hardware	Comm. Options	Future Options	Model Selection	Custom Options			
M			AAA					
Pack	age Size		8			Options or Additional Digital Outputs		
<sup>1</sup> /16 DIN			Sta	andard bus	always in	cluded		
<sup>1</sup> / <sub>8</sub> DIN (Vertical)				None				
<sup>1</sup> / <sub>8</sub> DIN (Horizontal)				Bluetoot				
Primary	Functions					TU and Bluetooth®*		
PID controller with universal in						485 and Bluetooth®*		
PID controller with universal in		nn/soak				us® TCP and Bluetooth®*		
PID controller with universal in				DeviceN				
PID controller with thermistor in		umer		PROFIBU	S DP and E	Bluetooth®*		
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100 to 240VAC			3 :	EtherNet	/IP™/Modk	ous® TCP		
100 to 240VAC plus 2 digital I/C	) points		5 :	= DeviceN	et™			
20 to 28VAC or 12 to 40VDC			6	PROFIBUS DP				
20 to 28VAC or 12 to 40VDC, plu	us 2 digital I/O point	.s	7 :	= SAE J193	9 CAN bus			
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<ul> <li>Switched dc/open collector</li> <li>Mechanical relay 5A, Form C</li> <li>Universal process</li> <li>Universal process</li> <li>Universal process</li> </ul>	NoneNO-ARC 15A poweSwitched dcMechanical relay 5SSR Form A, 0.5ANoneNO-ARC 15A poweSwitched dcMechanical relay 5SSR Form A, 0.5ANoneSwitched dcMechanical relay 5SSR Form A, 0.5ANoneSwitched dcMechanical relay 5MoneSwitched dcMechanical relay 5	er control 5A, Form A er control 5A, Form A	M N *N Q A A V V X	models) = 6 digital available lote: Blueto 0 10 AA = Future PM PLUS = PM PLUS always is	I/O and BI I/O and EI/ on <sup>1</sup> /16 DI oth® not a Coptions PID Versio Enhanced olated)	uetooth® (not available on <sup>1</sup> / <sub>16</sub> DIN models) <sup>a</sup> A 485 Modbus® RTU and Bluetooth® (not N models)* vailable in all countries, contact factory. Future Options Model Selection n (Output 1 and 2 always isolated) firmware (isolated input 1 and input 2 is		
<ul> <li>Switched dc/open collector</li> <li>Mechanical relay 5A, Form C</li> <li>Universal process</li> <li>Universal process</li> <li>Universal process</li> <li>Universal process</li> <li>Universal process</li> </ul>	NoneNO-ARC 15A poweSwitched dcMechanical relay 5SSR Form A, 0.5ANoneNO-ARC 15A poweSwitched dcMechanical relay 5SSR Form A, 0.5ANoneSwitched dcSSR Form A, 0.5ANoneSwitched dcSwitched dc	er control 5A, Form A er control 5A, Form A	M N N A A P : V : X : 3	models) = 6 digital available lote: Blueto () () () AA = Future PM PLUS = PM PLUS always is = Not an or () () ()	I/O and BI I/O and EI/ on <sup>1</sup> /16 DI oth® not a e Options PID Versio Enhanced olated) rder optior	uetooth® (not available on <sup>1</sup> / <sub>16</sub> DIN models) <sup>a</sup> A 485 Modbus® RTU and Bluetooth® (not N models)* vailable in all countries, contact factory. <b>Future Options</b> Model Selection In (Output 1 and 2 always isolated) firmware (isolated input 1 and input 2 is A Appears when Express menu selected. <b>Custom Options</b>		
<ul> <li>Switched dc/open collector</li> <li>Mechanical relay 5A, Form C</li> <li>Universal process</li> <li>Universal process</li> <li>Universal process</li> <li>Universal process</li> <li>None</li> </ul>	NoneNO-ARC 15A poweSwitched dcMechanical relay 5SSR Form A, 0.5ANoneNO-ARC 15A poweSwitched dcMechanical relay 5SSR Form A, 0.5ANoneSwitched dcMechanical relay 5SSR Form A, 0.5ASSR Form A, 0.5A	er control 5A, Form A er control 5A, Form A 5A, Form A	M N N A A A C C C C C C C C C C C C C C C	models) = 6 digital available lote: Blueto () () AA = Future PM PLUS = PM PLUS always is = Not an or () () P = Watlow	I/O and BI I/O and EI/ on 1/16 DI oth® not a Coptions PID Versio Enhanced olated) rder optior	A 485 Modbus® RTU and Bluetooth® (not N models)* vailable in all countries, contact factory. Future Options Model Selection n (Output 1 and 2 always isolated) firmware (isolated input 1 and input 2 is A Appears when Express menu selected. Custom Options e plate		
<ul> <li>Switched dc/open collector</li> <li>Mechanical relay 5A, Form C</li> <li>Universal process</li> <li>Universal process</li> <li>Universal process</li> <li>Universal process</li> <li>Universal process</li> </ul>	NoneNO-ARC 15A poweSwitched dcMechanical relay 5SSR Form A, 0.5ANoneNO-ARC 15A poweSwitched dcMechanical relay 5SSR Form A, 0.5ANoneSwitched dcMechanical relay 5SSR Form A, 0.5ANoneSwitched dcMechanical relay 5SSR Form A, 0.5A	er control 5A, Form A er control 5A, Form A 5A, Form A	M N N A A A C C C C C C C C C C C C C C C	models) = 6 digital available lote: Blueto () () AA = Future PM PLUS = PM PLUS always is = Not an or () () P = Watlow	I/O and Blu i/O and El/ on 1/16 Dlf oth® not a e Options PID Versio Enhanced olated) rder optior w logo face late no log	A 485 Modbus® RTU and Bluetooth® (not N models)* vailable in all countries, contact factory. Future Options Model Selection n (Output 1 and 2 always isolated) firmware (isolated input 1 and input 2 is Appears when Express menu selected. Custom Options e plate jo/no name		

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#### WIN-PMPLUS-7-12

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# PM PLUS Integrated PID Controller Configuration Code

PM PLUS Integrated PI ① ② ③ ④ ④ Pov Package Size Functions Digit	) (6 7 ver Output 1 and 2 ply Hardware	8 Comm.	9 Auxiliary Control	10 11 Output 3 and 4 Hardware	12 Model Selection	(13) (14) Custom			
Size Functions Digita	al I/O Options	Options	Functions	Options	Selection	Options			
3 Pac	:kage Size		9	)	Auxili	ary Con	- trol Functions		
$6 = \frac{1}{16} \text{DIN}$			A	= None					
$3 = \frac{1}{8} DIN (vertical)$ $9 = \frac{1}{8} DIN (horizontal)$			C	C = 2nd PID channel with universal input (not valid on 1/16 DIN					
Primary Functions				models) = 2nd PID channel with thermistor input (not valid on <sup>1</sup> / <sub>16</sub> DIN					
= PID controller with universal				models)		ermistor	Input (not valu on 716 Div		
B = PID controller with universal input and profiling ramp/soak and				R = Auxiliary 2nd input (universal input)					
battery back-up with real time clock				P = Auxiliary 2nd input (thermistor input) T = Current transformer input (not valid Output 3 and 4)					
= PID controller with thermistor input and profiling ramp/soak and battery back-up with real time clock			Т	Selections =	stormer inpl FA. FC. FJ an	ut (not va nd FK)	alid Output 3 and 4)		
= PID controller with universal	input and profiling r		L	Integrated lir	nit controlle	er with u	niversal input (only valid		
= PID controller with universal input and countdown timer				Output 3 and 4 selections = CJ, EJ and AJ)					
<ul> <li>PID controller with thermistor input</li> <li>PID controller with thermistor input and profiling ramp/soak</li> </ul>			M	M = Integrated limit controller with thermistor input (only valid Output 3 and 4 selections = CJ, EJ and AJ)					
ote: Options B and E are not ava							H, J, K or 2 thru 7 is ordered in		
Power Supply, Dig	jital Inputs/Output	ts (I/O)	pr	evious digit, the	en Option A	A must be	e ordered here.		
= 100 to 240VAC			Al	l Models: Auxili tio, differential	ary input su	ipports r	emote set point, backup senso		
= 100 to 240VAC plus 2 digital	/O points								
<ul> <li>20 to 28VAC or 12 to 40VDC</li> <li>20 to 28VAC or 12 to 40VDC,</li> </ul>	nlus 2 digital 1/0 pai	inte		0 (1)		and 4	Hardware Options		
			Δ	A = None	Output 3		Output 4		
	2 Hardware Optic			J = None			Mechanical relay 5A, Form A		
Output 1 CA = Switched dc/open collecto	Outp r None	out 2		K = None			SSR Form A, 0.5A		
H = Switched dc/open collecto		wer control	C	A = Switched c	lc/open coll		None		
C = Switched dc/open collecto	r Switched dc		C	H = Switched d			NO-ARC 15A power control		
J = Switched dc/open collecto				C = Switched c			Switched dc		
K =         Switched dc/open collecto           A =         Mechanical relay 5A, Form		A		J = Switched c			Mechanical relay 5A, Form A		
H = Mechanical relay 5A, Form		wer control		K = Switched c A = Mechanica			SSR Form A, 0.5A None		
C = Mechanical relay 5A, Form				H = Mechanica H = Mechanica			NO-ARC 15A power control		
J = Mechanical relay 5A, Form	C Mechanical relay			C = Mechanica			Switched dc		
K = Mechanical relay 5A, Form		A		J = Mechanica			Mechanical relay 5A, Form A		
A = Universal process C = Universal process	None Switched dc			K = Mechanica			SSR Form A, 0.5A		
FJ = Universal process	Mechanical relay	y 5A, Form		A = Universal p			None		
K = Universal process	SSR Form A, 0.5	A		C = Universal p			Switched dc		
AK = None	SSR Form A, 0.5/			J = Universal p			Mechanical relay 5A, Form A SSR Form A, 0.5A		
KH = SSR Form A, 0.5A KK = SSR Form A, 0.5A	NO-ARC 15A po SSR Form A, 0.5			K = Universal p H = SSR Form A			NO-ARC 15A power control		
				K = SSR Form A			SSR Form A, 0.5A		
Communication Options tandard bus always included	s or Additional Dig	gital Outpu					otions F, G, H, J, K or 2 thru 7 is		
= None			or	dered in previo	us digit, the	en Option	n AA must be ordered here.		
= Bluetooth <sup>®</sup> *			1/	6 DIN Models:	Output opti	ons CH, I	EH and KH are not valid.		
EIA 485 Modbus® RTU and B			(12	)		Model S	election		
= Modbus <sup>®</sup> RTU 232/485 and E = EtherNet/IP <sup>™</sup> / Modbus <sup>®</sup> TCP a							nd 2 always isolated)		
I = DeviceNet <sup>™</sup> and Bluetooth <sup>®</sup>			V			ware (iso	lated input 1 and input 2 is		
J = PROFIBUS DP and Bluetooth	®*			always isolat					
K = SAE J1939 CAN bus and Bluetooth®*				X = Not an order option. Appears when Express menu selected.					
1 = EIA 485 Modbus® RTU 2 = EIA 232/485 Modbus® RTU				Image: The second sec					
2 = EIA 232/485 Modbus® RTU 3 = EtherNet/IP™/Modbus® TCP				WP = Watlow logo face plate					
5 = DeviceNet™				WN = Face plate no logo/no name AG = Conformal coating					
6 = PROFIBUS DP				AG = Conformal Coating 12 = Class 1, Div. 2 (not available with integrated limit Option "L"					
<ul> <li>SAE J1939 CAN bus</li> <li>6 digital I/O (not available or</li> </ul>	1/12 DIN models)		[		with Outpu				
D = 6 digital I/O and EIA 485 Mod models)		able on 1/16	DIN						
M = 6 digital I/O and Bluetooth <sup>®</sup>	(not available on 1/16	DIN model	s)*						
N = 6 digital I/O and EIA 485 Mod available on $^{1}/_{16}$ DIN models)	dbus® RTU and Bluet								
Note: Bluetooth <sup>®</sup> not available ir	n all countries, conta	ct factory.							

\*Note: Bluetooth<sup>®</sup> not available in all countries, contact factory.