PM LEGACY™

Express PID Controller

User Guide

PM3 **PM6**

For Configurations:
PM(3,6)C _ _ _ -_ AAAH_ _

TOTAL CUSTOMER SATISFACTION!
3 Year Warranty

WATLOW®
Powered by Possibility

ISO 9001
Registered Company
Winona, Minnesota USA

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Warranty

The PM3/PM6 LEGACY™ Express Controller is manufactured by ISO 9001 registered processes and is backed by a three year warranty to the first purchaser for use, providing that the units have not been misapplied. Watlow's obligations hereunder, at Watlow's option, are limited to replacement, repair or refund of purchase price, and parts which upon examination prove to be defective within the warranty period specified. This warranty does not apply to damage resulting from transportation, alteration, misuse or abuse. The purchaser must use Watlow parts to maintain all listed ratings.

Technical Assistance

If you encounter a problem with your Watlow® controller, review your configuration information to verify that your selections are consistent with your application: inputs, outputs, alarms, limits, etc. If the problem persists, you can get technical assistance from your local Watlow representative, by e-mailing your questions to wintechsupport@watlow.com or by dialing +1 (507) 494-5656 between 7 AM and 5 PM. Central Time USA & Canada. Ask for an
Applications Engineer. Please have the complete model number available when calling. Please have the following information available when calling:

- Complete model number
- All configuration information
- User's Guide
- Factory Page

Copyrights

Return Material Authorization (RMA)

1. If you are an End User, and this PM is installed in an OEM System, please contact the OEM to get the PM repaired. If you are an OEM or Watlow Distributor, please go to www.watlow.com/rma to start the RMA process. Watlow Customer Service will then respond back with the RMA number via an email.

2. A Return Merchandise Authorization Number (RMA) from the Customer Service Department is required when returning any product for credit, repair or evaluation. Make sure the Return Merchandise Authorization number is on the outside of the carton and on all paperwork returned. Ship on a Freight Prepaid basis.

3. After we receive your return, we will examine it and try to verify the reason for returning it.

4. In cases of manufacturing defect, we will enter a repair order, replacement order or issue credit for material returned. In cases of customer misuse, we will provide repair costs and request a pur-chase order to proceed with the repair work.

5. To return products that are not defective, goods must be in new condition, in the original boxes and they must be returned within 120 days of receipt. A 20 percent restocking charge is applied for all returned stock controls and accessories.

6. If the unit cannot be repaired, you will receive a letter of explanation and be given the option to have the unit returned to you at your expense or to have us scrap the unit.

7. Watlow reserves the right to charge for no trouble found (NTF) returns.

Table of Contents

Available PM LEGACY™ Series Literature and Resources	
Contact Watlow Directly:	For technical assistance contact Watlow at: www.watlow.com Or call at: 1-800-WATLOW2 Or (1-800-928-5692) Or email at: wintechsupport@watlow.com
PM LEGACY™ Express PID Controller Quick Start Guide Document No. 10-41691 - Part No. 2126-4397	A Quick Start Guide to help you get your controller set up is available for download at https://www.watlow.com/resources-and-support/Technical-Library/.
PM LEGACY™ Series Panel Mount Controller Specification Sheet	This Specifications Sheet describes the PM LEGACY™ Series hardware options, features, benefits and technical specifications. Available at: https://www.watlow.com/resources-and-support/Technical-Library/

Safety Information

We use note, caution and warning symbols throughout this book to draw your attention to important operational and safety information.

A "NOTE" marks a short message to alert you to an important detail.

A "CAUTION" safety alert appears with information that is important for protecting your equipment and performance. Be especially careful to read and follow all cautions that apply to your application.

A "WARNING" safety alert appears with information that is important for protecting you, others and equipment from damage. Pay very close attention to all warnings that apply to your application.

The electrical hazard symbol, precedes an electric shock hazard CAUTION or WARNING safety statement. Further explanations follow:

Symbol	Explanation
	CAUTION – Warning or Hazard that needs further explanation than label on unit can provide. Consult users manual for further information.
	ESD Sensitive product, use proper grounding and handling techniques when installing or servicing product.
	Unit protected by double/reinforced insulation for shock hazard prevention.
	Do not throw in trash, use proper recycling techniques or consult manufacturer for proper disposal.
	Unit can be powered with either alternating current (ac) voltage or direct current (dc) voltage.
	Unit is a Listed device per Underwriters Laboratories®. It has been evaluated to United States and Canadian requirements for Process Control Equipment. UL 61010 and CSA C22.2 No. 61010. File E185611 QUYX, QUYX7. See: www.ul.com
	Unit is a Listed device per Underwriters Laboratories®. It has been evaluated to United States and Canadian requirements for Hazardous Locations Class 1 Division II Groups A, B, C and D. ANSI/ISA 12.12.01-2007. File E184390 QUZW, QUZW7. See: www.ul.com
	Unit is compliant with European Union directives. See Declaration of Conformity for further details on Directives and Standards used for Compliance.
	Unit has been reviewed and approved by Factory Mutual as a Temperature Limit Device per FM Class 3545 standard. See: www.fmglobal.com
	Unit has been reviewed and approved by CSA International for use as Temperature Indicating-Regulating Equipment per CSA C22.2 No. 24. See: www.csa-international.org

Overview

A Conceptual View of the PM

The flexibility of the PM software and hardware allows for a large range of configurations. Acquiring a better understanding of the controller's overall functionality and capabilities while at the same time planning out how the controller can be used will deliver maximum effectiveness in your application.

It is useful to think of the controller in terms of functions; there are internal and external functions. An input and an output would be considered external functions where the limit, PID or alarm function would be an internal function. Information flows from an input function to an internal function to an output function when the controller is properly configured. A single PM controller can carry out several functions at the same time, for instance (but not limited to), PID control, checking for a limit condition, monitoring for several different alarm situations, etc... To ensure that the application requirements are being met, it is important to first give thought to each external process and then configuring the controller's internal functions to properly accommodate the application requirements.

Inputs

The inputs terminal connections are located on the back side of the controller. See Figure 2. The controller, properly wired and configured will provide the information that any given programmed procedure can act upon. In a simple form, this information may come from an operator pushing a button or from a sensor monitoring the temperature of a part being heated or cooled.

Each analog input typically uses a thermocouple or RTD to read the process temperature. It can also read volts, current or resistance, allowing it to use various devices to read a wide array of values. The settings in the Analog Input Menu (Setup Page) for each analog input must be configured to match the device connected to that input.

Figure 1: PM6 Controller Shown Here

A PM with digital input/output (DIO) hardware includes two sets of terminals where each of which can be used as either an input or an output. Each pair of terminals must be configured to function as either an input or output with the direction parameter in the Digital Input/Output Menu (Setup Page). Each digital input reads whether a device is active or inactive.

The Function Key on the front panel of the PM also operates as a digital input by toggling the function assigned to it in the Digital Input Function parameter in the Function Key Menu (Set-up Page).

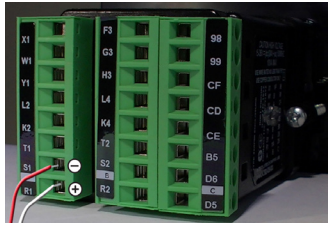


Figure 2: Thermocouple Input Wiring Example

(Overview Continued)

Internal Functions

The controller will use input signals to calculate a value and then perform an operation. A sample of some functions may be as simple as:

- Detect a failure of the primary sensing device and trip a contactor to remove power from the heating element.
- Reading a digital input to set a state to true or false.
- Evaluate an incoming temperature to determine an alarm state (on or off).
- Compare an input value to the set point and calculate the optimal power for a heater.

To set up a function, it's important to define the source, or instance, to use. For example, if the control is equipped with DIO they can be configured to respond to an alarm. If configured as such, the digital output must be tied to the desired alarm instance (1 to 4). Using this as an example, the Function for the digital output would be defined as an Alarm where the Instance would be selected as 1, 2, 3, or 4 corresponding to the alarm instance that will drive the output.

Keep in mind that a function is a user-programmed internal process that does not execute any action outside of the controller. To have any effect outside of the controller, an output must be configured to respond to a function.

Outputs

The Output Wire Terminals are located on the back side of the controller. See Figure 3. The Outputs properly wired and configured can perform various functions or actions in response to information provided by a function such as, removal of the control voltage to a contactor; operating a heater, turning a light on or off, unlocking a door, etc.

Assign a Function to any available output on the Setup Page within the Output Menu or Digital Input/Output Menu. Then select which instance of that function will drive the selected output. For example, you might assign an output to respond to alarm 4 (instance 4). You can assign more than one output to respond to a single instance of a function. For example, alarm 2 could be used to trigger a light connected to output 1 and a siren connected to digital output 5.

Figure 3: Output Wiring Example

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 experienced 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

Function Key

• Enables simple, one-touch operation of user-defined, repetitive activities

Touch-Safe Package

• Increases installer and operator safety

• Complies with IP2X requirements

EZ-LINK™ Mobile Application for iPhone® and Android™ (When Bluetooth option is ordered)

• Expedites controller setup with intuitive navigation

• Simplifies setting parameters with plain text names and descriptions

• Connects quickly and easily via Bluetooth® wireless communications

SMOOTH TOUCH™ Keypad

• Eliminates contamination points on the front of the controller.

• Prevents premature failure of mechanical components

• Creates a better seal on front panel.

• Ensures an easy to clean surface.

Agency approvals: UL® listed, CSA, CE, RoHS, W.E.E.E., SEMI F47-0200, Class 1, Div. 2 rating on selected models

• Assures prompt product acceptance

• Reduces end product documentation costs

P3T Armor Sealing System

• Compiles to NEMA 4X, IP66 and IP67 specifications

• Allows controller to be cleaned and washed

• Certified UL® 50 independent to NEMA 4X specification

Consistent Termination Labeling (CTL) Connection System

• Simplifies switching between products
• Speeds up user's system documentation

Three-Year Warranty

• Demonstrates Watlow's reliability and product support

High-Amperage Power Control Output (1/16 DIN only)

• Drives 15 ampere resistive loads direct

• Reduces component count

• Saves panel space and simplifies wiring

• Reduces cost of ownership

Installation

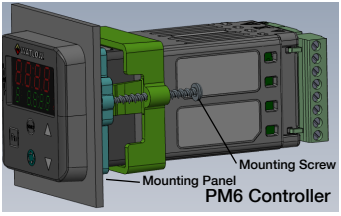


Figure 1: PM6 Installation

1. For a PM3 Controller, make the panel cutout using the measurements shown on page 9.
2. For a PM6 Controller, make the panel cutout using the measurements shown on page 10.
3. Remove the green terminal connectors and the mounting collar assembly.
4. Insert the controller into the panel cutout from the front. See Figure 2. The controller shown is a PM6 Controller.
5. Orient the collar base so the flat side faces front and the screw openings are on the sides (see figure 2), then slide the base over the back of the controller..
6. Slide the mounting bracket over the controller with the screws aligned to the collar base. See Figure 2. Push the bracket gently but firmly until the hooks snap into the slots in the case.
7. Tighten the two #6-19 x 1.5 in. screws with a phillips screwdriver until the device is flush to the panel (3 to 4 in-lbs torque). See Figure 3.
8. Reinstall the terminal connectors to their original locations.

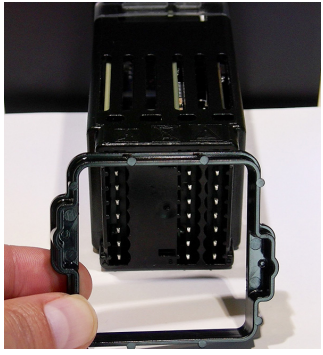
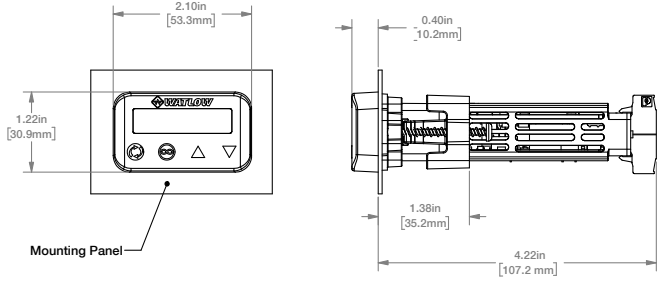


Figure 2: Slide Mounting Bracket over Controller

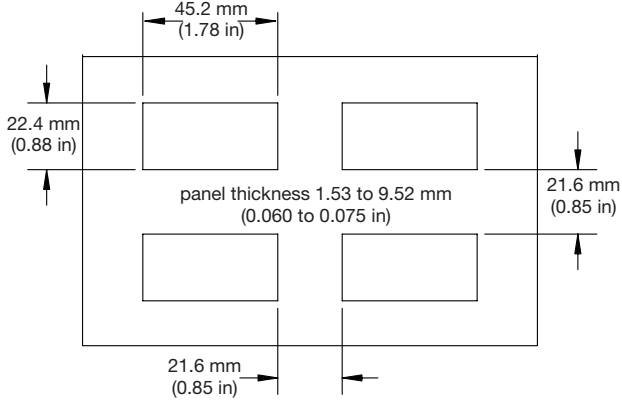
Figure 3: Tighten the Mounting Screws

Installation and Wiring

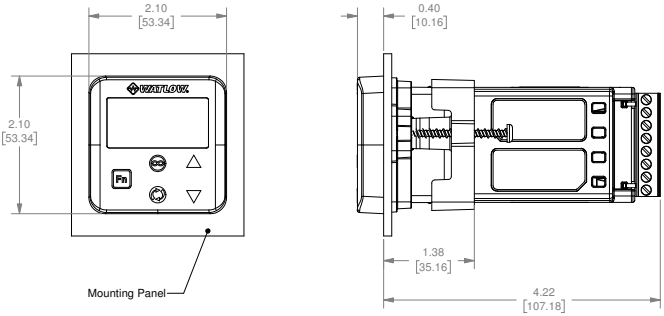
1/32 DIN (PM3) Dimensions



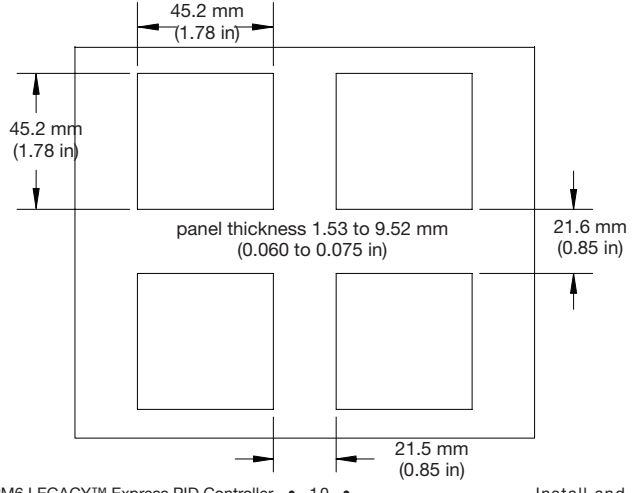
1/32 DIN (PM3) Recommended Panel Spacing



1/16 DIN (PM6) Dimensions



1/16 DIN (PM6) Recommended Panel Spacing



Terminal Definitions

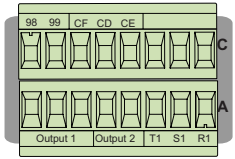
Slot C	Terminal Function	Model
98 99	power input: ac or dc+ power input: ac or dc-	PM6C_ _ _ - _AAAH _ _
CF CD CE	Standard Bus EIA-485 common Standard Bus EIA-485 T-/R- Standard Bus EIA-485 T+/R+	PM6C_ _ _ - _AAAH _ _
Slot A		
Input 1		
T1 S1 R1	(RTD) or current +, (RTD), thermocouple -, current - or volts -, thermistor S1 (RTD), thermocouple + or volts +, thermistor	Universal Sensor input 1: all configurations

Outputs		Terminal Function	Configuration
1	2		
X1 W1 Y1		common (Any switched dc output can use.) dc- (open collector) dc+	Switched dc/open collector, output 1: PM6_ _ C _ - _ _ _ _ H _ _
	W2 Y2	dc- dc+	Switched dc, output 2: PM6_ _ _ C - _ _ _ _H_ _
F1 G1 H1		voltage or current - voltage + current +	Universal Process, output 1: PM6_ _ F _ - _ _ _ _ H_ _
L1 K1 J1		normally open common normally closed	Mechanical Relay 5 A, Form C, output 1: PM6_ _ E _ - _ _ _ _ H _ _
	L2 K2	normally open common	NO-ARC 15 A, Form A, output 2: PM6_ _ _ H - _ _ _ _H_ _
	L2 K2	normally open common	Mechanical Relay 5 A, Form A, output 2: PM6_ _ _ J - _ _ _ _ H _ _
L1 K1	L2 K2	normally open common	Solid-State Relay 0.5 A, Form A output 1: PM6_ _ K _ - _ _ _ _ H _ _ output 2: PM6_ _ _ K - _ _ _ _ H _ _

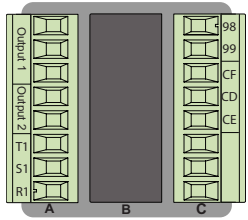
Note:

In the graphics below notice that the Slot A connector does not show labeling for the outputs. Labeling for Slot A outputs is based on the controller part number.

PM3



PM6



⚠ Warning:

Use National Electric (NEC) or other country-specific standard wiring and safety practices when wiring and connecting this controller to a power source and to electrical sensors or peripheral devices. Failure to do so may result in damage to equipment and property, and/or injury or loss of life.

Note:

Maximum wire size termination and torque rating:

- 0.0507 to 3.30 mm^2 (30 to 12 AWG) single- wire termination or two 1.31 mm^2 (16 AWG)
- 0.8 Nm (7.0 lb.-in.) torque

Note:

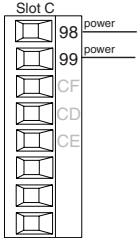
Adjacent terminals may be labeled differently, depending on the model number.

Note:

To prevent damage to the controller, do not connect wires to unused terminals.

Note:

Maintain electrical isolation between analog input 1 and switched dc/open collector outputs.



Power

- 47 to 63 Hz
- 10VA maximum power consumption (PM3 and PM6)

Low Power

- 12 to 40V⎓ (dc)
- 20 to 28V ~(ac) Semi Sig F47

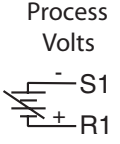
High Power

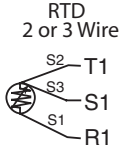
- 85 to 264V ~(ac)
- 100 to 240V ~ (ac) Semi Sig F47

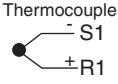
Note:
In the drawings below for each input notice that the Slot A connector labeling is identified.

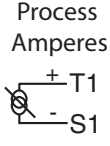
Note:
When using a 2 wire RTD, jumper S1 and T1 together.

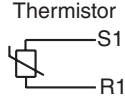
Inputs
All inputs shown below represent input 1 (the only input) and are to be connected to slot A of the PID Control.











Process Volts and Amperes
- 4 to 20 mA @ 100 Ω input impedance
- 0 to 10V ⎓ (dc) @ 20 kΩ input impedance
- Scalable

Resistance Temperature Detector (RTD)
- Platinum, 100 Ω @ 0°C
- Calibration to DIN curve (0.00385 Ω/Ω/°C)
- 20 Ω total lead resistance
- RTD excitation current of 0.09 mA typical. Each ohm of lead resistance may affect the reading by 0.03°C.
- For 3-wire RTDs, the S1 lead must be connected to R1.
- For best accuracy use a 3-wire RTD to compensate for lead-length resistance. All three lead wires must have the same resistance.

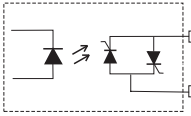
Thermocouple
- 2 KΩ maximum source resistance
- >20 MΩ input impedance
- 3 microampere open-sensor detection
- Thermocouples are polarity sensitive. The negative lead must be connected to S1.
- The extension wire for thermocouples must be of the same alloy as the thermocouple.

Thermistor
- >20 MΩ input impedance
- 3 microampere open-sensor detection

Power Supply Note:
Switched dc and Process outputs use a common power supply with a maximum current output of 40mA. As an example, supplied current (mA) from output 1 and 2 can be 20/20, 30/10, 30/0, 10/30, etc...

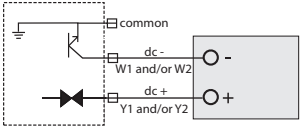
Outputs
Please note all outputs are connected exclusively to slot A. Output availability is based on the part number of your PID Control.

Solid-State Relay
Form A



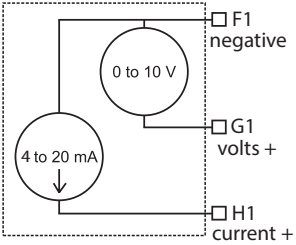
PM6_ _ _ J - _ _ _ _ H _ _

Switched DC



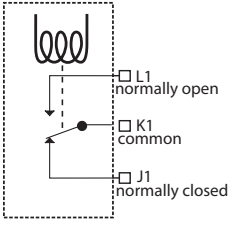
PM6_ _ _ C - _ _ _ _ _H_ _

Universal Process



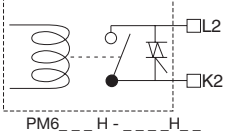
PM6_ _ F _ - _ _ _ _ H_ _

Mechanical Relay
Form C



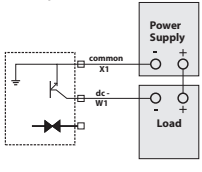
PM6_ _ E _ - _ _ _ _ H _ _

NO-ARC Relay Form A



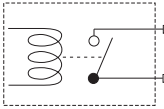
PM6_ _ _ H - _ _ _ _H_ _

Open Collector



PM6_ _ C _ - _ _ _ _H _ _

Mechanical Relay Form A



PM6_ _ _ J - _ _ _ _H _ _

Quencharc Note:
Switching pilot duty inductive loads (relay coils, solenoids, etc.) with the mechanical relay, solid state relay or open collector output options requires use of an R.C. suppressor.

Switched DC

- Supplied current up to a maximum of 30 mA. See Power Supply note above.
- Short circuit limited to <50 mA
- 22 to 32V (dc) open circuit voltage
- Use dc- and dc+ to drive external solid-state relay
- DIN-A-MITE compatible
  - Single-pole: up to 4 in parallel or 4 in series
  - 2-pole: up to 2 in parallel or 2 in series
  - 3-pole: up to 2 in series

Open Collector

- 100 mA maximum output current sink
- 30V⎓(dc) maximum supply voltage
- Any switched dc output can use the common terminal.
- Use an external power supply to control a dc load, with the load positive to the positive of the power supply, the load negative to the open collector and common to the power supply negative.

See Quencharc note.

Mechanical Relay Form C

- 5 A at 240V ~(ac)) or 30V⎓(dc) maximum resistive load
- 20 mA at 24V minimum load
- 125 V ~ (ac) pilot duty at 120/240V ~(ac), 25 V ~ (ac) at 24V ~(ac)
- 100,000 cycles at rated load
- Output does not supply power.
- For use with ac or dc

See Quencharc note.

Mechanical Relay Form A

- 5 A at 240V ~(ac) or 30V⎓(dc) maximum resistive load
- 20 mV at 24V minimum load
- 125 V ~ (ac) pilot duty @ 120/240V ~ (ac), 25 V ~ (ac) at 24V ~(ac)
- 100,000 cycles at rated load
- Output does not supply power
- For use with ac or dc

See Quencharc note.

NO-ARC Relay Form A

- 15 A at 85 to 264V ~ (ac) resistive load only
- 1/16 DIN models only
- 2,000,000 cycle rating for NO-ARC circuit
- 100 mA minimum load
- 2 mA maximum off state leakage
- Do not use on dc loads.
- Output does not supply power.

Solid-State Relay Form A

- 0.5 A at 20 to 264V ~(ac) maximum resistive load
- 20 VA 120/240V ~(ac) pilot duty
- Opto-isolated, without contact suppression
- Maximum off state leakage of 105 microamperes
- Output does not supply power
- Do not use on dc loads.
- See Quencharc note.

Universal Process

- 4 to 20 mA into 800 Ω maximum load
- 0 to 10V⎓(dc) into voltage 1 kΩ minimum load
- Scalable
- Output supplies power (See Power Supply note previous page).
- Cannot use voltage & current outputs at same time

Keys & Displays PM6 PID Controller

Zone Display:
Indicates the controller address when using communications.
[1] to [9] = zones 1 to 9

[A] = zone 10

[b] = zone 11

[C] = zone 12

[d] = zone 13

[E] = zone 14

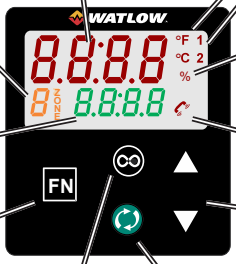
[F] = zone 15

[h] = zone 16

Lower Display:
Indicates the set point or output power value during operation or the parameter whose value appears in the upper display.

Function Key:
This key will toggle the Control Mode between Manual and Auto, (or vice versa depending on what state it was initially at); when the FN key is pushed and held for 3 seconds. .

Upper Display:
In the Operations Menu, displays the process value, otherwise displays the value of the parameter in the lower display.



Temperature Units Indicator Lights:
Indicates whether the temperature is displayed in Fahrenheit or Celsius.

Output Activity:
Number lights indicate activity of outputs 1 and 2.

Percent Units Indicator:
Lights when the controller is displaying values as a percentage or when the open-loop set point is displayed.

Communications Activity:
Flashes when another device is communicating with this controller.

Up and Down Keys:
In the Operations Menu, adjusts the set point in the lower display. In other pages, changes the upper display to a higher or lower value, or changes a parameter selection.

Infinity Key
Clears and silences alarms, press to back up one level, or press and hold for two seconds to return to the Operations Menu.

Advance Key:
Advances through parameter prompts.

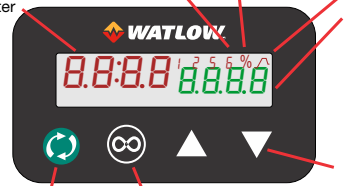
Keys & Display PM3 PID Controller

Left Display:
Home at beginning displays process value (PV). Entering into menus displays the value or setting of parameter

Output Activity:
Indicate activity of outputs 1 & 2, dio 5 & 6

Manual Power:
Indicates the set point is in % manual mode

Profile Activity:
Indicates a profile is running



Right Display: Home at beginning displays set point (SP). Displays page name when entering pages. Entering into menus displays the parameter name

Up and Down Keys:
At Home adjust the set point in right display. Changes menu inside pages. Inside menus, changes the selected setting in left display

Advance Key:
Advances through menu prompts.

Infinity Key:
Clears or silence alarm when active else return home

Menu and Keypad Basics

NOTE: You must read and understand the role of each key on your controller keypad before proceeding. Refer to the drawing and callouts on the previous page. It is recommended to stop and spend some time and practice the steps of navigating the Operators and Set Up Menus on your controller before proceeding with the instructions.

The instructions below will introduce you how to navigate to frequently used areas of your controller. Refer to the Operating and Set Up Menus listed on the following pages for more detailed instructions. NOTE: These diagrams might vary depending on the Controller programming.

Introduction to the Set Up & Operating Menus

Upon power up, the display will default to the home page in the Operations Menu. The upper red row displays the process value (PV). The lower green row displays the set point (SP).

Operations Menu

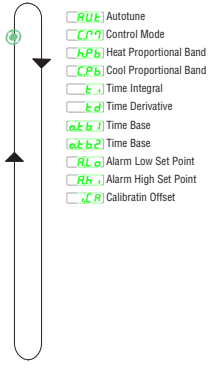
To enter the Operations Menu, press the Infinity Key to return to the Home Page. Press the green Advance Key to scroll through the various prompts found in the Operations Menu. Press the Infinity Key at any point within the Operations Menu to return to the Home Page. Use the Up and Down Arrow Keys to increment or decrement settings or change selection.

Set Up Menu

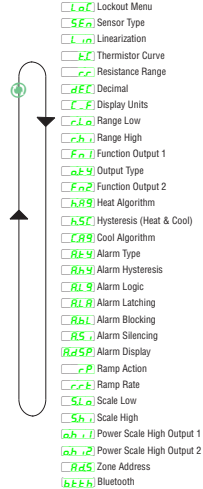
To enter the Setup Menu press the Infinity Key to return to Home Page. Then press both Arrow Keys for 6 seconds to enter the Set Up Menu.
Press the green Advance Key to scroll to the prompt of choice.
Use Arrow Keys to increment or decrement settings or change selection.
At any point within the Setup Menu, push the Infinity Key to return to the Home Page.

The Operations Menu and the Set Up Menu are further explained in detail on the following pages.

Operations Menu



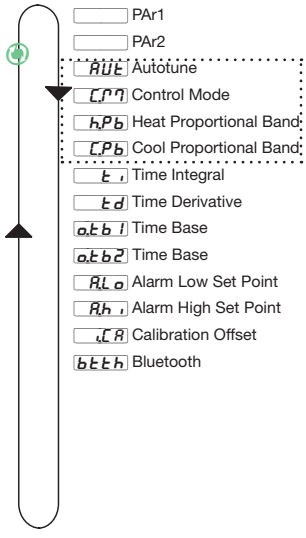
Set Up Menu



OPERATION MENU

Upon power up of the control, using the advance key will scroll through the various prompts found in the Operations Menu. At any point within the Operations menu to return to the default display push the Infinity ^ key.

Operations Menu

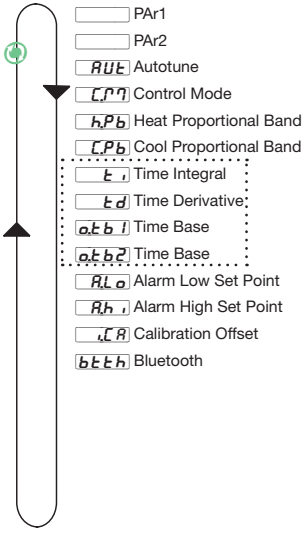


Display	Parameter Name Description
AUt [AUt]	**Autotune** Start an autotune. While active the upper or left and lower or right display will flash [tUn1] and [Attn]. Appears if: Heat or cool algorithm set to PID Range: Defaults are shown below in bold no **No** YES Yes
C.M [C.M]	**Control Mode Active** View the current control mode. Appears if: Always Range: (Defaults are shown in bold) oFF Off AUto **Auto** MAn Manual
h.Pb [h.Pb]	**Heat Proportional Band** Set the PID proportional band for the heat outputs. Appears if: Heat algorithm set to PID Range: (Defaults are shown in bold) 0 to 9,999.000°F or units 0 to 5,555.000°C **Units, 25.0°F or 14.0°C**
C.Pb [C.Pb]	**Cool Proportional Band** Set the PID proportional band for the cool outputs. Appears if: Cool algorithm set to PID- Range (Defaults are shown in bold) 0 to 9,999.000°F or units 0 to 5,555.000°C **Units, 25.0°F or 14.0°C**

OPERATION MENU (Continued)

Upon power up of the control, using the advance key will scroll through the various prompts found in the Operations Menu. At any point within the Operations menu to return to the default display push the Infinity ^ key.

Operations Menu

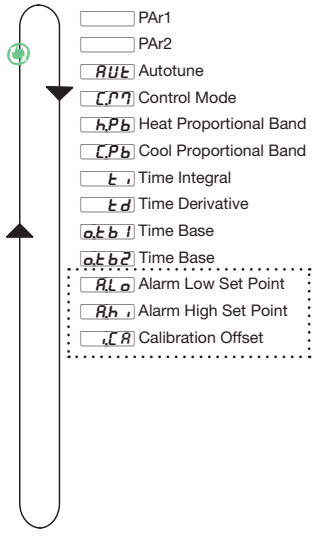


ti [ti]	**Time Integral** Set the PID integral for the outputs. Appears if: Heat or cool algorithm set to PID Range (Defaults are shown in bold) 0 to 9,999 seconds per repeat **180**
td [td]	**Time Derivative** Set the PID derivative time for the outputs. Appears if: Heat or cool algorithm set to PID Range (Defaults are shown in bold) 0 to 9,999 seconds **0 seconds**
otb1 [o.tb1]	**Time Base Output 1** Set the time base for fixed-time-base control. Appears if: Output 1 set to heat or cool with control algorithm set to PID. Range (Defaults are shown in bold) 0.1 to 60.0 seconds (solid-state relay or switched dc) 5.0 to 60.0 seconds (mechanical relay & NO-ARC power control) **1 sec. [SSR & sw dc], 20.0 sec. [mech. relay & NO-ARC]**
otb2 [o.tb2]	**Time Base Output 2** Set the time base for fixed-time-base control. Appears if: Output 2 set to heat or cool with control algorithm set to PID. Range (Defaults are shown in bold) 0.1 to 60.0 seconds (solid-state relay or switched dc) 5.0 to 60.0 seconds (mechanical relay & NO-ARC power control) **1 sec. [SSR & sw dc], 20.0 sec. [mech. relay & NO-ARC]**

OPERATION MENU (Continued)

Upon power up of the control, using the advance key will scroll through the various prompts found in the Operations Menu. At any point within the Operations menu to return to the default display push the Infinity ^ key.

Operations Menu

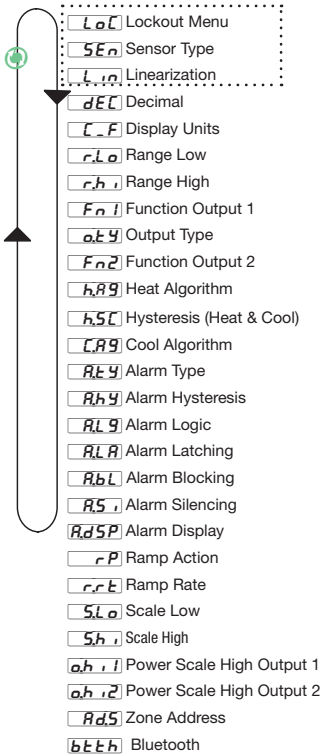


ALo [A.Lo]	**Alarm Low Set Point** Process - set the process value that will trigger a low alarm. Deviation - set the span of units (Must be negative number) from the closed loop set point that will trigger a low alarm. Appears if: If Alarm Type [A;ty] is set to Process or Deviation Alarm Range (Defaults are shown in bold) -1,999.000 to 9,999.000°F or units -1,128.000 to 5,537.000°C **Units, 32.0°F or 0.0°C**
Ah i [A.hi]	**Alarm High Set Point** Process - set the process value that will trigger a high alarm. Deviation - set the span of units from the closed loop set point that will trigger a high alarm. Appears if: If Alarm Type (A.ty) is set to Process or Deviation Alarm Range (Defaults are shown in bold) -1,999.000 to 9,999.000°F or units -1,128.000 to 5,537.000°C **Units, 300.0°F or 150.0°C**
iCA [i.CA]	**Calibration Offset** Set an offset value for a process output. Appears if: Always Range (Defaults are shown in bold) -1,999.000 to 9,999.000°F or units, -1,110.555 to 5,555.000°C, **0.0**

SET UP MENU

To enter the Setup Menu push and hold the up and down arrow keys for approximately 3 seconds. Push the green advance key to scroll through to the prompt of choice. Use the up and down arrow keys to change the range.

Setup Menu



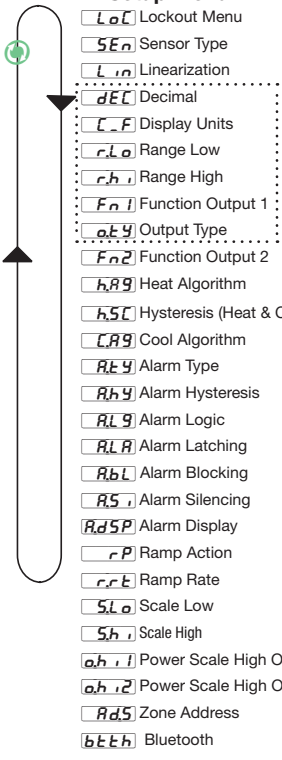
Setup Menu

Display	Parameter Name Description
LoC [LoC]	**Lockout Menu** Set the security clearance level. The user can access the selected level and all lower levels. Appears if: Always Range (Defaults are shown in bold) **1 to 5 Operations Menu and Setup Menu full access** You can change the security level at any level. 1. Operations Menu (read only)* 2. Operations Menu (Set point R/W)* 3. Operations Menu (Set point R/W, Control Mode R/W)* 4. Operations Menu R/W access)* 5. Operations Menu and Setup Menu full R/W access
SEn [SEn]	**Sensor Type** Set the analog sensor type to match the device wired to this input. Appears if: Always Range (Defaults are shown in bold) **tC** **Thermocouple**, volt Volts dc, mAmp Milliamps dc r0.1K RTD 100 Ω, thEr Thermistor
Lin [Lin]	**Linearization** Set the linearization to match the thermocouple type wired to this input. For example, select [``H] for a type K Thermocouple. Appears if: Sensor Type is set to Thermocouple. Range (Defaults are shown in bold) b B · F F · r R · c C · J **J** · S S · d D · H K · t T · E E · n N

SET UP MENU (Continued)

To enter the Setup Menu, push and hold the up and down arrow keys for approximately 3 seconds. Push the green advance key to scroll through to the prompt of choice. Use the up and down arrow keys to change the range.

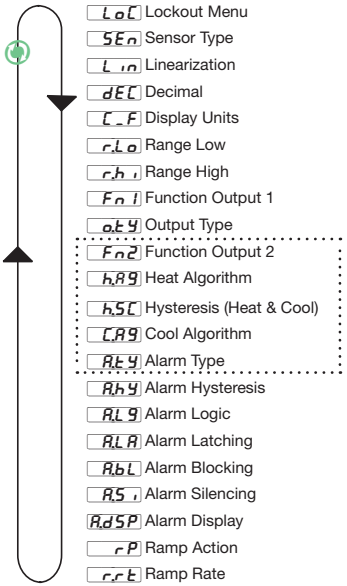
Setup Menu



Setup Menu (cont.)	
Display	**Parameter Name Description**
dEC [dEC]	**Decimal** Set the precision of the displayed value. Appears if: Always Range (Defaults are shown in bold) 0 **Whole**, 0.0 Tenths, 0.00 Hundredths
C_F [C_F]	**Display Units** Select which units will be displayed. Appears if: Always Range (Defaults are shown in bold) F **°F** C °C
r.Lo [r.Lo]	**Range Low** For process signals, this value scales the units to minimum electrical units (0 volts or 4 mA). For TC, RTD or Thermistor, this value is the parameter for setting the minimum allowable setpoint . Appears if: Always Range (Defaults are shown in bold) -1,999.000 to 9,999.000 **0.0**
r.hi [r.hi]	**Range High** For process signals, this value scales theunits to maximum electrical units (10 volts or 20 mA). For TC, RTD or Thermistor, this value is the parameter for setting the maximum allowable setpoint . Appears if: Always Range (Defaults are shown in bold) **-1,999.000 to 9,999.000**
Fn1 [fn1]	**Function of Output 1** Select which function will drive this output. Appears if: If output 1 is ordered Range (Defaults are shown in bold) oFF Off, CooL Cool, hEAt **Heat,** ALM1 Alarm
oty [o.ty]	**Output Type** Select whether the process output will operate in volts or milliamps. Appears if: A process output (PM _ C _ F _-_ AAA_ _ _) Range (Defaults are shown in bold) uoLt **Volts** mA Milliamps

SET UP MENU (Continued)
To enter the Setup Menu push and hold the up and down arrow keys for approximately 3 seconds. Push the green advance key to scroll through to the prompt of choice. Use the up and down arrow keys to change the range.

Setup Menu



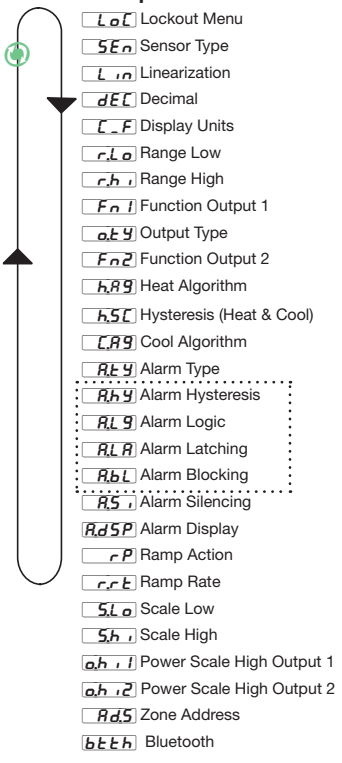
Setup Menu (cont.)

Display	Parameter Name Description
Fn2 [fn2]	**Function of Output 2** Select which function will drive this output. Appears if: If output 2 is ordered Range (Defaults are shown in bold) oFF **Off,** CooL Cool, hEAt Heat, ALrM Alarm
h.Ag [h.Ag]	**Heat Algorithm** Set the heat control method. Appears if: Output 1 or 2 set to heat Range (Defaults are shown in bold) oFF Off, P id **PID** on.oF On-Off
h.SC [hSC]	**Hysteresis (Heat & Cool)** Set the control switching hysteresis for on-off control. This determines how far into the "on" region the process value needs to move before the output turns on. Appears if: Heat or Cool Algorithm is set to On-Off. Range (Defaults are shown in bold) 0 to 9,999.000°F or units 0 to 5,555.000°C **Units, 3.0°F or 2.0°C**
C.Ag [C.Ag]	**Cool Algorithm** Set the cool control method. Appears if: If Output 1 or 2 is set to cool Range (Defaults are shown in bold) oFF **Off,** P id PID on.oF On-Off
A.tY [A.ty]	**Alarm Type** Selects whether the Alarm will be a Process Alarm/Absolute Temperature; or a Deviation Alarm/Temperature with respect to Setpoint. Appears if: Always Range (Defaults are shown in bold) oFF **Off,** Pr.AL Process Alarm dE.AL Deviation Alarm

SET UP MENU (Continued)

To enter the Setup Menu push and hold the up and down arrow keys for approximately 3 seconds. Once there, push the green advance key to scroll through to the prompt of choice and then use the up and down arrow keys to change the range.

Setup Menu

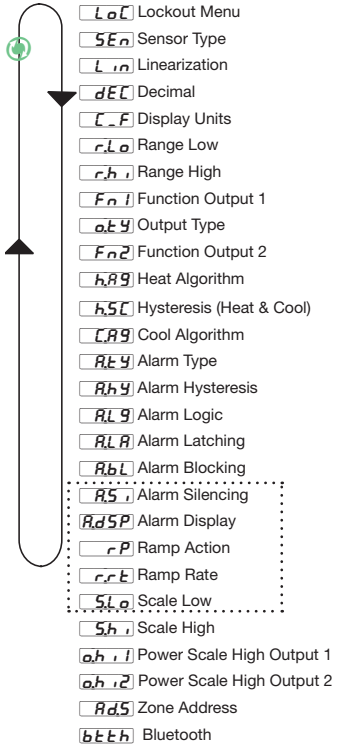


Setup Menu (cont.)	
Display	**Parameter Name Description**
AHy [A.hy]	**Alarm Hysteresis** Set the hysteresis for an alarm. This determines how far into the safe region the process value needs to move before the alarm can be cleared. Appears if: When alarm type is set to process or deviation alarm Range (Defaults are shown in bold) 0.001 to 9,999.000°F or units 0.001 to 5,555.000°C **Units, 1.0°F or 1.0°C**
ALG [A.Lg}	**Alarm Logic** Select what the output condition will be during the alarm state. Appears if: Always Range (Defaults are shown in bold) ALC **Close on Alarm** ALo Open on alarm
ALA [A.LA]	**Alarm Latching** Turn alarm latching on or off. A latched alarm has to be turned off by the user. Appears if: When alarm type is set to process or deviation alarm Range (Defaults are shown in bold) nLAt **Non-Latching** LAt Latching
AbL [A.bL]	**Alarm Blocking** Select when an alarm will be blocked. After startup and/or after the set point changes, the alarm will be blocked until the process value enters the normal range. Appears if: When alarm type is set to process or deviation alarm Range (Defaults are shown in bold) oFF **Off** Str Startup StPt Set Point both Both

SET UP MENU (Continued)

To enter the Setup Menu push and hold the up and down arrow keys for approximately 3 seconds. Once there, push the green advance key to scroll through to the prompt of choice and then use the up and down arrow keys to change the range.

Setup Menu



Setup Menu (cont.)	
Display	**Parameter Name Description**
AS i [A.Si]	**Alarm Silencing** Turn alarm silencing on to allow the user to disable the output tied (configured) to this alarm Appears if: When alarm type is set to process or deviation alarm Range (Defaults are shown in bold) oFF **Off** on On
AdSP [A.dSP]	**Alarm Display** Display an alarm message when an alarm is active. Appears if: When alarm type is set to process or deviation alarm Range (Defaults are shown in bold) oFF Off on **On**
rP [rP]	**Ramp Action** Select when the controller's set point will ramp to the defined end set point. Appears if: Always Range (Defaults are shown in bold) oFF **Off**, Str Startup StPt Set Point Change, both Both
rrt [r.rt]	**Ramp Rate** Set the rate for the set point ramp. Set the time units for the rate with the Ramp Scale parameter. Appears if: Ramp Action is set to Startup, Set Point or Both Range Range is 0.0 to 9,999 deg F, or 0.0 to 5.555 deg. C per hour. (Defaults are shown in bold) **1.0°F degrees or units per hr.**
SLo [S.Lo]	**Scale Low Output 1** Set the scale low for process output in electrical units. This value; in volts or milliamps, will correspond to 0% PID power output. Appears if: Output 1 is a Process set to heat or cool Range (Defaults are shown in bold) -100.0 to 100.0, **0.0**

SET UP MENU (Continued)

To enter the Setup Menu, push and hold the up and down arrow keys for approximately 3 seconds. Once there, push the green advance key to scroll through to the prompt of choice and then use the up and down arrow keys to change the range.

Setup Menu

- LoC Lockout Menu
- SEn Sensor Type
- L in Linearization
- dEC Decimal
- C_F Display Units
- r.Lo Range Low
- r.h i Range High
- Fn1 Function Output 1
- oty Output Type
- Fn2 Function Output 2
- h.Ag Heat Algorithm
- h.SC Hysteresis (Heat & Cool)
- C.Ag Cool Algorithm
- A.ty Alarm Type
- A.hy Alarm Hysteresis
- A.L g Alarm Logic
- A.LA Alarm Latching
- A.bL Alarm Blocking
- A.S i Alarm Silencing
- A.dSP Alarm Display
- rP Ramp Action
- r.rt Ramp Rate
- S.Lo Scale Low
- S.h i Scale High
- o.h i1 Power Scale High Output 1
- o.h i2 Power Scale High Output 2
- Ad.S Zone Address
- btth Bluetooth

Setup Menu (cont.)

Display	Parameter Name Description
S.h i [S.hi]	**Scale High Output 1** Set the scale high for process output in electrical units. This value; in volts or milliamps, will correspond to 100% PID power output. Appears if: Output 1 is a Process set to heat or cool Range (Defaults are shown in bold) -100.0 to 100.0, **10.0**
o.h i1 [o.hi1]	**Power Scale High Output 1** Set maximum value of output 1 range. Appears if: Output 1 is Switched and set to heat or cool Range (Defaults are shown in bold) 0.0 to 100%, **100.0**
o.h i2 [o.hi2]	**Power Scale High Output 2** Set maximum value of output 2 range. Appears if: Output 2 is Switched and set to heat or cool Range (Defaults are shown in bold) 0.0 to 100% **100.0**
PAr1 [PAr1]	**Upper or Left Display** Select parameter to display. Appears if: Always Range (Defaults are shown in bold) ACPU **Active Process Value,** Ah i Alarm High Set Point ALo Alarm Low Set Point, nonE None
PAr2 [PAr2]	**Lower or Right Display** Select parameter to display. Appears if: Always Range (Defaults are shown in bold) ACSP **Active Set Point,** Ah i Alarm High Set Point ALo Alarm Low Set Point, nonE None
Ad.S [Ad.S]	**Zone Address - Standard Bus Communication** Set zone address from 1-16. Appears if: Always Range (Defaults are shown in bold) 1-16, **1**
btth [btth]	**Bluetooth** Sets the power to the Bluetooth® module to on or off. Appears if: Always. Range (Defaults are shown bold) **On,** Off The Bluetooth radio can only be turned on via the front panel once turned off.

Specifications

Line Voltage/Power
- 85 to 264VAC, 47 to 63Hz
- 20 to 28VAC, +10/-15%; 50/60Hz, ±5%
- 12 to 40VDC
- 10VA (1/32 and 1/16 DIN)
- 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
- cULus® UL/EN/CSA C22.2 No 61010-1 Listed, File E185611
- CSA C22.2 No. 24, File 158031
- UL® 50 4X indoor locations, NEMA 4X, IP66, IP67 front seal
- cULus® ANSI/ISA 12.12.01-2007, CSA-C22.2 No. 213-1987,

Class 1, Div. 2, Groups A, B, C and D, temperature code T4A, File E184390 (optional)
- CE, RoHS by design, W.E.E.E.

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, greater than 20MΩ input impedance, 2kΩ source resistance max.
- Universal Inputs are always isolated from the outputs
- RTD 2- or 3-wire, platinum, 100Ω @ 0°C calibration to DIN curve (0.00385 Ω/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: -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 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

Specifications (Continued)

Output Hardware

- Switched dc = 22 to 32VDC @ 30mA
- 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, 24 to 240VAC or 30VDC max., 5A resistive load, 100,000 cycles at rated load
- Electromechanical relay, Form A, 24 to 240VAC or 30VDC max., 5A resistive load, 100,000 cycles at rated load
- NO-ARC relay, Form A, 24 to 240VAC, 15A @ 122°F (50°C), resistive load, no VDC, 2 million cycles at rated load
- Universal process output: range selectable; 0 to 10VDC ±15mV into a min. 1,000Ω load with 2.5mV nominal resolution; 4 to 20mA ±30µA into max. 800Ω load with 5µA nominal resolution; temperature stability 100ppm/°C

Operator Interface

- Dual 4 digit, 7 segment LED displays
- Typical display update rate 1Hz
- Advance, infinity, up and down keys plus an FN Key for control
- FN Key on 1/16 DIN package automatically programmed as an auto/manual transfer mode function on PID models.

Ordering Information

PM LEGACY™ Control Configuration Information

1-2	3	4	5	6-7	8	9-10-11	12	13-14
	Package Size	Primary Functions	Power Supply, Digital I/O	Output 1 and 2 Hardware Options	Comm. Options	Future Options	Model Selection	Custom Options
PM						A A A	H	

3	Package Size
3 =	1/32 DIN (coming soon)
6 =	1/16 DIN

4	Primary Functions
C =	PID controller with universal input

5	Power Supply, Digital Inputs/Outputs (I/O)
1 =	100 to 240VAC
3 =	20 to 28VAC or 12 to 40VDC

6-7	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

*CH, EH, KH - Not available with the $^{1}/_{32}$ DIN (PM3) package size.

8	Communication Options
Standard bus always included	
A =	None
B =	Bluetooth®

Note: Bluetooth® not available in all countries, contact factory.

12	Model Selection
H =	PM LEGACY EXPRESS Version

13-14	Custom Options
WP =	Watlow logo face plate
WN =	No logo/no name face plate
AG =	Conformal coating
12 =	Class 1, Div. 2 (not available with mechanical relay Output Types E, H or J)

Declaration of Conformity - Series EZ-ZONE® PM

WATLOW Electric Manufacturing Company
1241 Bundy Blvd. Winona, MN 55987 USA

Declares that the following product meets the essential requirements of the following European Union Directives by using the relevant standards show below to indicate compliance.

Designation:	**Series EZ-ZONE® PM (Panel Mount)**
Model Numbers:	PM (3, 6, 8, 9 or 4)(Any Letter or number)(1, 2, 3 or 4)(A, C, E, F or K) (A, C, H, J or K) – (Any letter or number)(Any letter or number)(A, C, E, F or K)(A, C, H, J or K) (Any three letters or numbers)
Classification:	Temperature control, Installation Category II, Pollution degree 2, IP65
Rated Voltage and Frequency:	100 to 240 V~ (ac 50/60 Hz) **or** 15 to 36 V⎓dc/ 24 V~ac 50/60 Hz
Rated Power Consumption:	10 VA maximum PM3, PM6 Models. 14 VA maximum PM8, PM9, PM4 Models

2014/30/EU Electromagnetic Compatibility Directive

EN 61326-1:2013	**Electrical equipment for measurement, control and laboratory use – EMC requirements (Industrial Immunity, Class B Emissions).**
IEC 61000-4-2:2008	Electrostatic discharge immunity
IEC 61000-4-3:2007 +A1/2008, A2/2010	Radiated, radio-frequency electromagnetic field immunity 10V/M 80–1000 MHz, 3 V/M 1.4–2.7 GHz
IEC 61000-4-4:2012	Electrical fast-transient / burst immunity
IEC 61000-4-5:2014 +A1/2017	Surge immunity
IEC 61000-4-6:2013 + Corrigendum 2015	Immunity to conducted disturbances induced by radio-frequency fields
IEC 61000-4-11:2004 + A1/2017	Voltage dips, short interruptions and voltage variations immunity
EN 61000-3-2:2014	Limits for harmonic current emissions for equipment ≤ 16 Amps per phase
EN 61000-3-3[1]:2013 + A1/2017	Voltage fluctuations and flicker ≤ 16 Amps per phase
SEMI F47-0812	Specification for semiconductor sag immunity Figure R1-1

[1]For mechanical relay loads, cycle time may need to be extended up to 160 seconds to meet flicker requirements depending on load switched and source impedance.

2014/35/EU Low-Voltage Directive

EN 61010-1:2010[2]	**Safety Requirements of electrical equipment for measurement, control and laboratory use. Part 1: General requirements**

[2] Compliance with 3rd Edition requirements with use of external surge suppressor installed on 230 Vac~ power line units. Recommend minimum 1000 V peak to maximum 2000 V peak, 70 joules or better part be used.

Compliant with 2011/65/EU RoHS2 Directive Per 2012/19/EU W.E.E.E Directive

Please Recycle Properly. Models PM(4, 8 or 9)E contain a type BR1225 coin cell battery which shall be recycled at end of life per 2006/66/EC Battery Directive as amended by 2013/56/EU Directive.
Models PM6XXXX – (B, E, F, G, H, J, K)XXXXXX where (X = any letter or number allowed above)

Include *Bluetooth*® wireless technology and have been reviewed to the following additional requirements.

2014/53/EU Radio Equipment Directive (RED)

EN 61010-1:2010	Safety Requirements of electrical equipment for measurement, control and laboratory use. Part 1: General requirements Covering the essential requirements of article 3.1(a) or Directive 2014/53/EU
EN 61326-1:2013	Electrical equipment for measurement, control and laboratory use – EMC requirements (Industrial Immunity, Class A Emissions). *CAUTION: This equipment not intended for use in residential environments and may not provide adequate protection to radio reception in such environments.*
EN 301 489-1 V2.1.1	ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 1: Common technical requirements; Harmonized Standard covering the essential requirements of article 3.1(b) of Directive 2014/53/EU and the essential requirements of article 6 of Directive 2014/30/EU
EN 301 489-17 V3.1.1	ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 17: Specific conditions for Broadband Data Transmission Systems; Harmonized Standard covering the essential requirements of article 3.1(b) of Directive 2014/53/EU
EN 300 328 V1.9.1	Electromagnetic compatibility and Radio spectrum Matters (ERM); Wideband transmission systems; Data transmission equipment operating in the 2.4 GHz ISM band and using wide band modulation techniques; Harmonized EN covering the essential requirements of article 3.2 of the R&TTE Directive NVLAP Test Report 10928545H-A
EN 300 328 V2.1.1	Additional Receiver blocking test for to cover requirements for 2014/53/EU. NVLAP Test Report 11649468H-E

Contains Module FCC ID: VPYLBZY Part 15C 2.
Contains Module IC: 772C-LBZY RSS 210

- Japanese Radio Law（日本電波法）
Type certification（工事設計認証）

Output Power: Frequency Range 2402.0 - 2480.0
Output Power 0.001 Watts Antenna gain: -0.6 dBi PCB antenna

R 001-P00500

Doug Kuchta	Winona, Minnesota, USA
Name of Authorized Representative	Place of Issue
Director of Operations	May 2018

Signature of Authorized Representative

Bluetooth Enabled Product Statement

Bluetooth® Enabled Product

Models PM6XXX-(B, E, F, G, H or K)XXXXXX contain an embedded Bluetooth module.
Output Power: Frequency Range 2402.0 - 2480.0 Output Power 0.001 Watts
Antenna gain: -0.6 dBi PCB antenna

FCC

The transmitter module is mounted on the top of the display PC board partially under the LED display module. Visible when display removed from bezel.

Module FCC ID: VPYLBZY Part 15C 2.

Unit is assembled from tested components, complete system not tested.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:
-- Reorient or relocate the receiving antenna.
-- Increase the separation between the equipment and receiver.
-- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
-- Consult the dealer or an experienced radio/TV technician for help.

Industry Canada

Contains IC: **772C-LBZY**

Specification : RSS210

Japan

- Japanese Radio Law（日本電波法）
Type certification（工事設計認証）

R001-P00500

CE – See current Declaration of Conformity for full details.
Directive 2014/53/EU Radio Equipment Directive
Standards
EN 300 328 V1.9.1 NVLAP Test Report 10928545H-A
EN 300 328 V2.1.1 Receiver blocking test. NVLAP Test Report 11649468H-E

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