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WATLOW PM Plus 1-4 Din Controller

USER GUIDE

For model numbers:

PM4 _ _ [E,F,C] [J,C,H] – _ _ _ _ [P,V] _ _

More product information: www.watlow.com

User guide: www.watlow.com/kb/pmp

Technical assistance: us.support@watlow.com

CONTROLLER INTERFACE

Home

- Return to the Home screen from anywhere.

Right

- Open the Operation list from the Home page.
- Advance to the next list or parameter

Left

- Go back to the previous list.

Up / Down

- Increment or decrement a number.
- Scroll up or down in a list.
- Select a list, parameter or value

F1 / F2

- Perform the user-programmable functIon chosen with the associated Action block.

1 – MOUNT TO PANEL

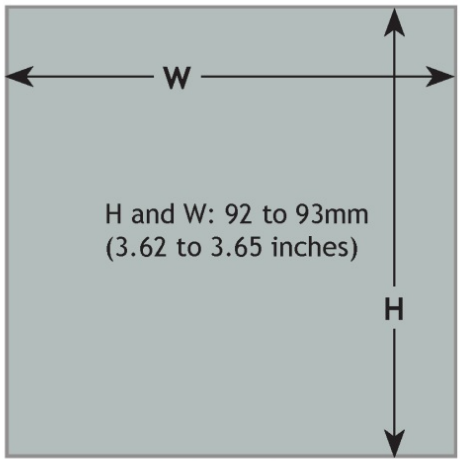


Figure 1

Figure 2

1. Make the panel cutout using the measurements in Figure 1.
2. Remove the green terminal connectors and the mounting collar assembly.
3. Insert the controller into the panel cutout from the front.
4. 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.
5. Slide the mounting bracket over the controller with the screws aligned to the collar base. Push the bracket gently but firmly until the hooks snap into the slots in the case.
6. Tighten the four #6-19 x 1.5 in. screws (two on each side) with a Phillips screwdriver until the device is flush with the panel (3 to 4 in-lbs torque). See figure 3.
7. Reinstall the terminal connectors in their original locations. (Or first connect field wiring as indicated in this guide and then reinstall the connectors.)

Figure 3

NOTE: Mounting requires access to the back of the panel.

2 – CONNECT THE SENSOR INPUT

Connect your sensors as indicated in the diagram for your sensor type.
Figure 4 illustrates a thermocouple connection.

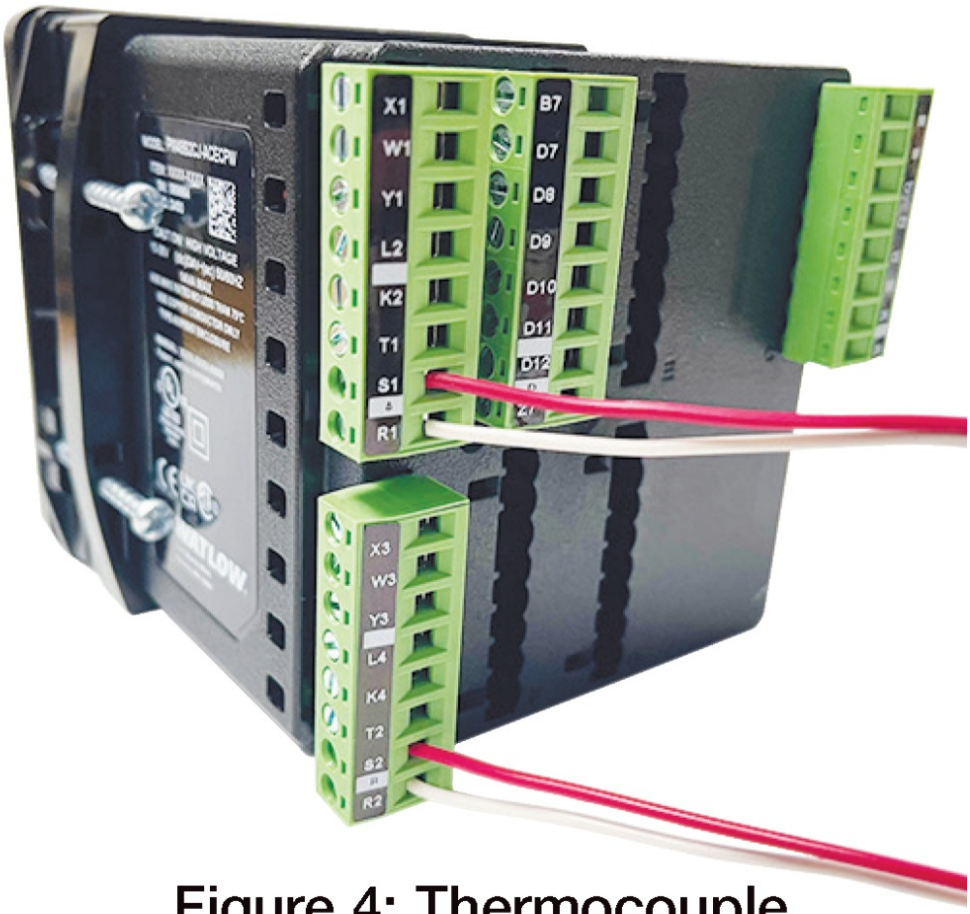
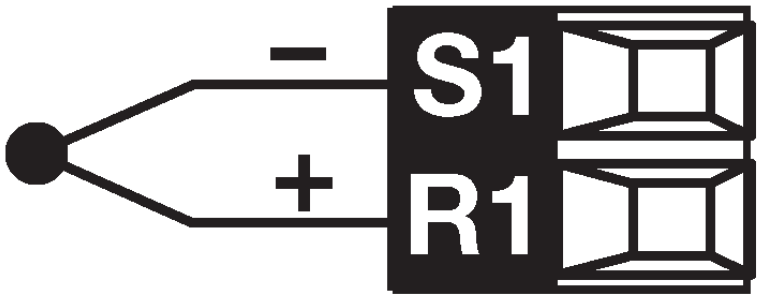
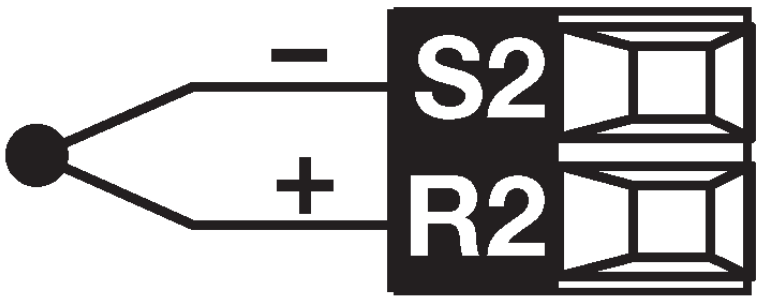


Figure 4: Thermocouple

Thermocouple



Input 1



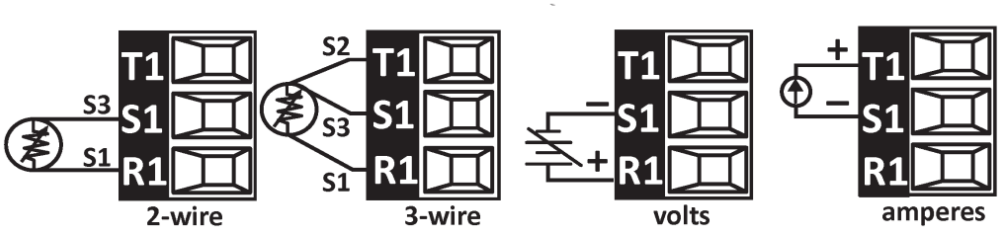
Input 2

Platinum 100Ω or 1000Ω RTD 20Ω max. round trip lead resistance

Process Voltage or Current

Voltage: 0 to 50 mV or 0 to 10V@ 20kΩ

Current: 0 to 20 mA @ 100Ω

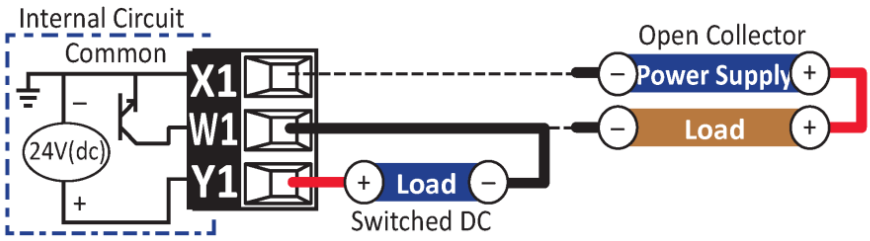


3 – WIRE OUTPUT 1

Refer to the wiring diagram for your model number and connect outputs to the terminals as indicated

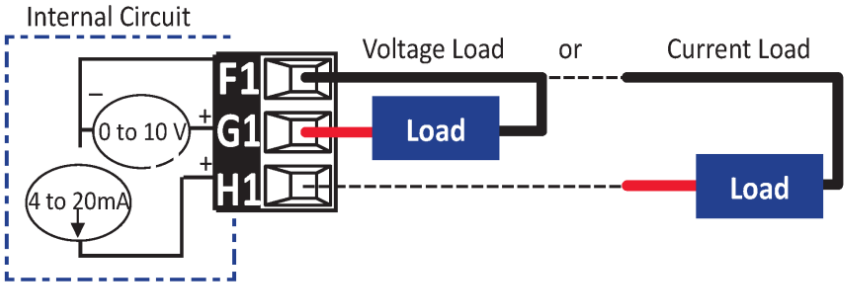
Figure 5: Universal Process Output

PM4 _ _ C _ - _ _ _ _ _ _ _: Switched DC or Open Collector



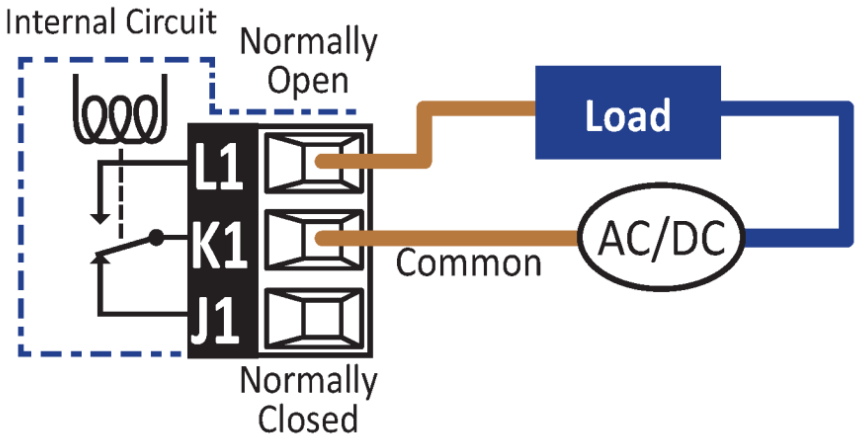
PM4 _ _ F _ - _ _ _ _ _ _ _: Universal Process

0 to 20 mA: 800 Ω max. load or 0 to 10V: 1kΩ min. load



PM4 _ _ E _ - _ _ _ _ _ _ _: Form C Relay

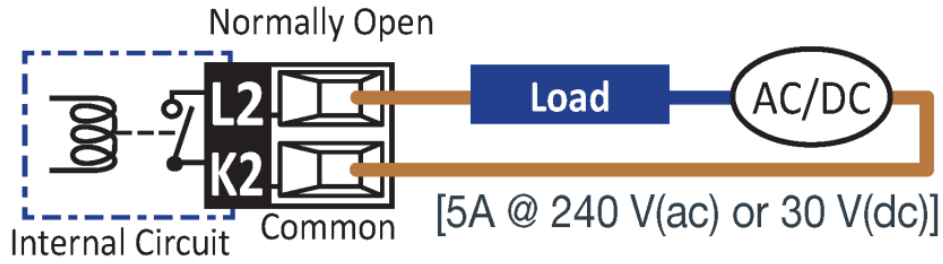
[5A @240 V(ac) or 30 V (dc)]



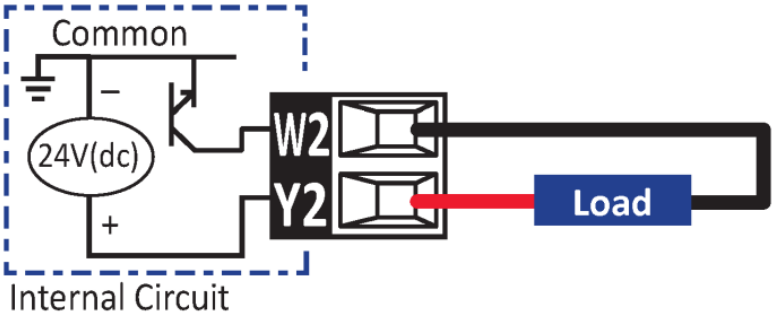
4 – WIRE OUTPUT 2

Refer to the wiring diagram for your model number and connect outputs to the terminals as indicated.

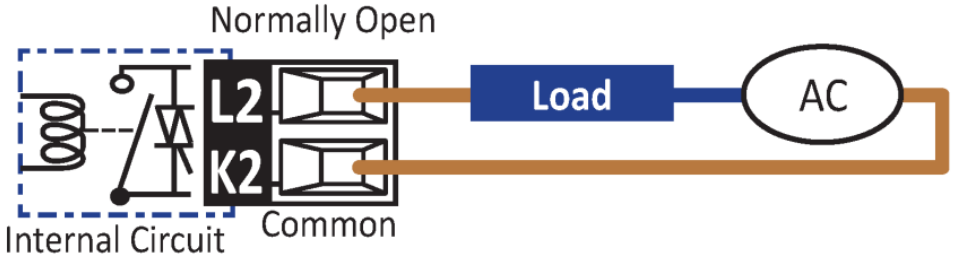
PM4 _ _ _ J - _ _ _ _ _ _ _ _: Form A Relay



PM4 _ _ _ C - _ _ _ _ _ _ _ _: Switched DC



PM4 _ _ _ H - _ _ _ _ _ _ _ _: No-Arc Relay



5 – CONNECT POWER

Connect power to terminals 98 and 99.

Connect the power source for your model:

PM4 _ [1,2,3,4] _ _ – _ _ _ _ _ _ _ _

1 or 2: 120-240 V (ac)

3 or 4: 24 V (ac or dc)

CAUTION

Do not connect high voltage to a controller that requires low voltage.

6 – SET UP THE SENSORS

- Sensor
- Types
- Thermocouple
- Millivolts
- Volts
- Milliamp
- RTD 100 Ohm
- RTD 1000 Ohm
- Potentiometer

1. Tap Home for the Home screen.
2. Tap Right to open the Operations list.
3. Select Setup (use Up / Down as needed) and tap Right.
4. Select Analog Input and tap Right.
5. Select Analog Input 1 or Analog Input 2 and tap Right.
6. Select Sensor Type and tap Right.

For a thermocouple:

• Select Thermocouple and tap Right.

• Scroll to the type: J, K, N, R, S, or T and tap Right.

For an RTD:

• Select RTD 100 Ohm or RTD 1000 Ohm and tap Right.

• Select 2 or 3 as needed for your sensor and tap Right.

For other sensor types see the PM PLUS User's Guide.

7 – SET UP OUTPUTS

- Output Functions
- Heat Power
- Cool Power
- Event A
- Event B
- Alarm
- Off

1. Tap Home for the Home screen.
2. Tap Right to open the Operations list.
3. Select Setup (use Up / Down as needed) and tap Right.
4. Select Output tap Right.
5. Select Output 1 (or desired output) and tap Right.
6. Select Function and tap Right.
7. Scroll to the desired function and tap Left
8. Set the settings for that output function:

For alarm outputs:

• Select Output Function Instance, then choose the alarm: 1, 2, 3 or 4.

For a control loop heat output:

• If you have a relay output, a switched DC output, or a process output with a 0 to 10 V signal; then there is no need to change any settings, since the default settings should apply.
• To set up a 4 to 20 mA process output, set Output Type to Milliamps, set Output Function to Heat Power, Output Function Instance to 1, Scale Low to 4.00, Scale High to 20.00, Range Low to 0.0 and Range High to 100.0.

8 – SET UP ALARMS

Alarm Type

1. Tap Home for the Home screen.
2. Tap Right to open the Operations list.
3. Select Setup (use Up / Down as needed) and tap Right.
4. Select Alarm tap Right.
5. Select Alarm 1, Alarm 2, Alarm 3 or Alarm 4 and tap Right.
6. Select Type, and tap Right.
7. Select Off, Process Alarm or Deviation Alarm and tap Left.

Alarm Sides

1. Scroll to Alarm Sides and tap Right.
2. Scroll to the desired option: Both, High or Low and tap Left.
3. Set the alarm setpoint(s): Low Set Point and/or High Set Point, as necessary for your sides selection.

Note: Enter negative values for low deviation alarms.

9 – CONTROL LOOP MODE, SET POINT, AUTOTUNE

Control Mode

1. Tap Home for the Home screen.
2. Tap Right to open the Operations list.
3. Select Setup (use Up / Down as needed) and tap Right.
4. Select Control Loop and tap Right.
5. Select the control loop (if there is more than one) and tap Right.
6. Scroll to Control Mode and tap Right.
7. Select Off, Auto or Manual and tap Right.

Auto: loop adjusts output so process matches set point.
Manual: user sets control loop output in percent power.
Off: no control loop output

Control Loop Set Point

1. Tap Home or the Home screen.
2. Use Up / Down to set the set point.

Autotune

1. On the Setup list scroll to and select Control Loop.
2. Scroll to and select AutoTune.
3. Select Yes.

Specifications

- Model Numbers: PM4 _ _ [E,F,C] [J,C,H] – _ _ _ _ [P,V] _ _
- Dimensions (H x W): 92 to 93mm (3.62 to 3.65 inches)
- Power Source: PM4 _ [1,2,3,4] _ _ – _ _ _ _ _ _ _ _
    - 1 or 2: 120-240 V (ac)
    - 3 or 4: 24 V (ac or dc)

Frequently Asked Questions (FAQ)

Q: Where can I find more detailed product information?

A: You can visit www.watlow.com for more product information or refer to the user guide at www.watlow.com/kb/pmp. For technical assistance, you can contact us at us.support@watlow.com.

Documents / Resources

	WATLOW PM Plus 1-4 Din Controller [pdf] User Guide PM4 _ _ E, C J, H - _ _ _ _ P, V _ _, PM Plus 1-4 Din Controller, PM Plus, 1-4 Din Controller, Controller

References

- User Manual

Related Posts

WATLOW PM6 PM Plus Controller User Guide

WATLOW PM6 PM Plus Controller CONTROLLER INTERFACE Scroll up or down lists using the + or - keys. …

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