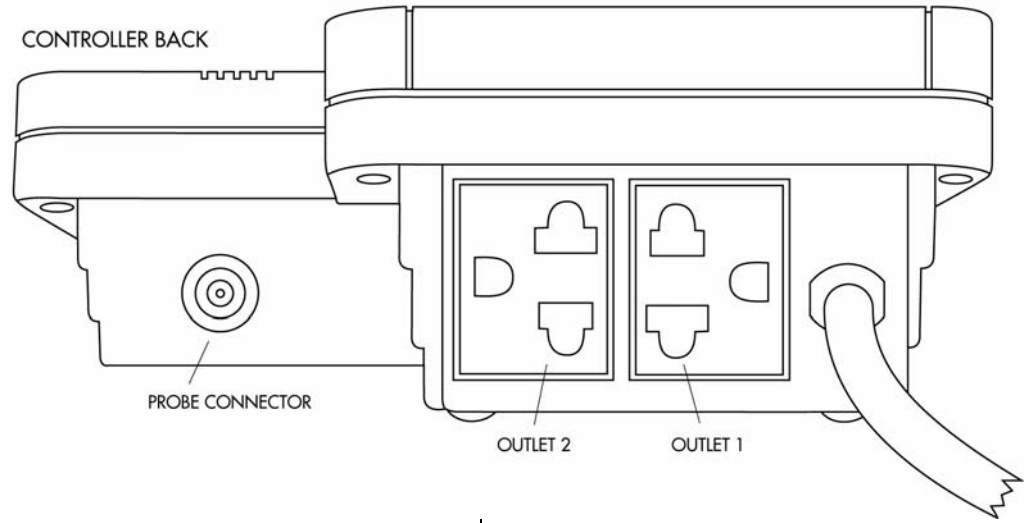
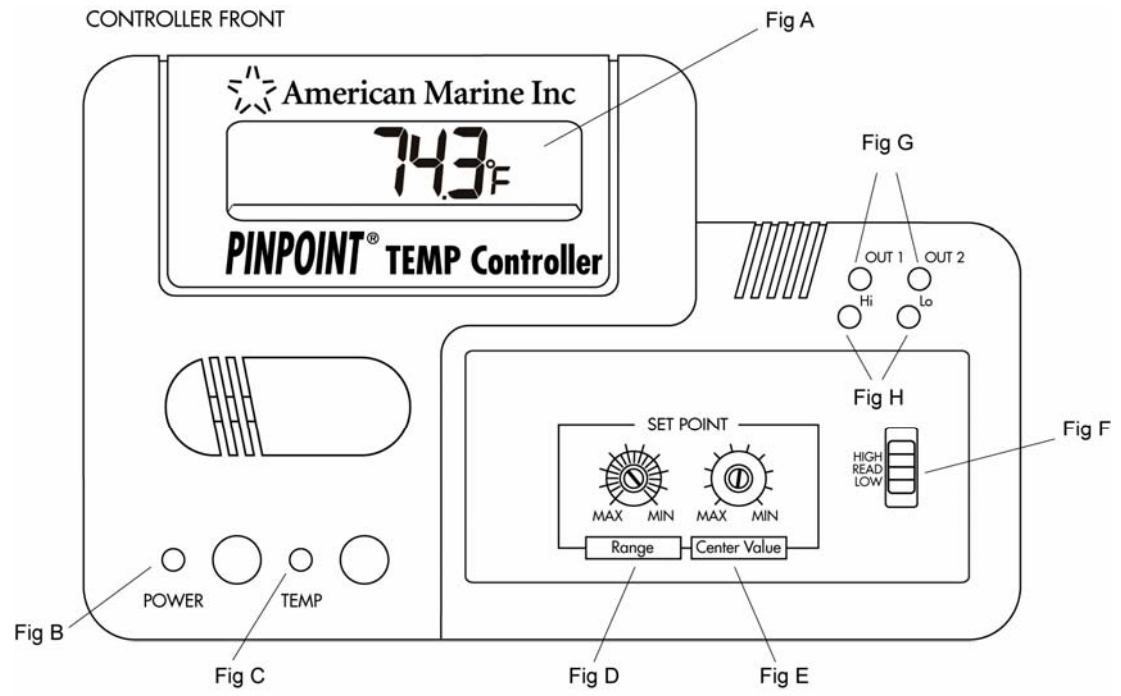


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***PINPOINT*®
Temperature
Controller**

Users Manual

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PINPOINT Temperature Controller User's Manual

I. Overview

II. General Specifications

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IV. Important Note on Probe Placement

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I. Overview

This device consists of a temperature monitor and electronics created to control a chiller and/or a heater, based on the temperature reading. Accordingly, the temperature setpoints must be set before putting the controller into service. After the controller is in service, it will be necessary to re-confirm proper probe placement and temperature reading.

It is important that you understand these instructions and it is critical that you follow the cautions in this manual. Users will be controlling EITHER a chiller OR a heater; or BOTH a chiller AND a heater with this instrument. It is critical that one pay special attention to the placement of the temperature probe in the system. You must frequently check the condition and location of the temperature probe. Control electronics are not human, they are not intelligent and they can not "know" when something has happened to make their input or output invalid. If the probe is not immersed in the system, it will no longer be reading the correct temperature.

Installing a temperature controller on your system does not mean that you no longer have to pay attention to it. You must still monitor the system so that you can note when a problem exists and correct it in a timely fashion.

II. GENERAL SPECIFICATIONS

Temperature Measurement Range 32.0° F - 212.0° F

Temperature Control Range 60.0° F – 102.0° F

Differential Minimum $\pm 0.5^{\circ}$ F of a selected temperature

Differential Maximum $\pm 10.0^{\circ}$ F of a selected temperature

3 1/2 Digit LCD Display

Resolution: 000.0° Fahrenheit Degree

2 Independent 12 Amp 110 VAC Relay Outputs

III. Displays and Adjustments

Temperature Display

Instrument Status

Controller Set Point Block

Display Mode

Controller Status LED's

110 VAC Outlets (#1 &2)

Temperature Probe

UPPER LEFT (Temperature Display)

The 3 1/2 digit LCD (Fig. A) at the top left of the controller displays a numeric value corresponding either to the temperature as measured through the probe, or the high or low controller setpoints.

LOWER LEFT (temperature monitor power & instrument status)

Below the display are two red LED lights.

The red POWER LED (Fig. B) is illuminated when the power is turned on to the controller.

The TEMP LED (Fig. C) is illuminated when the display is indicating the temperature as measured by the probe. The TEMP LED is off when the display is indicating either the high or low controller setpoints.

CENTER (Controller Setpoint Block)

There are two potentiometers that are used to adjust the controller setpoints. They control the RANGE (Fig. D) and CENTER VALUE (Fig. E) of the

controller, respectively. Detailed information regarding their adjustment is given later in the ADJUSTING THE CONTROLLER section.

LOWER RIGHT (Display Mode)

The position of the SLIDE SWITCH (Fig. F) determines what the LED display will show. At the center position, the display indicates the temperature as measured by the probe tip, and the red TEMP LED (Fig. C) at the lower left of the instrument will be illuminated. Sliding the switch up or down will cause the display to show the high and low controller setpoints, respectively.

UPPER RIGHT (Controller Status LED's)

There are a total of 4 LED's here. The upper row (Fig. G) shows the status of the 110 VAC outlets on the back of the controller beneath the LCD pH display. The lower LED lights (Fig. H) are on when the display mode switch is in the HIGH or LOW position.

110 VAC OUTLETS

There are two outlets located above the LCD display. Outlet #1 (on the left) will be energized when the temperature is above the High setpoint, and Outlet #2 (on the right) will be energized when the temperature is below the Low setpoint. A common application for the controller will be to control a chiller OR a heater, or a chiller AND a heater. Since the addition of chiller lowers the temperature you must attach the plug of the chiller to Outlet #1. If a heater is attached to the controller, it should be plugged into the LOW control Outlet # 2.

A temperature electrode is supplied with the controller. The probe cable is ozone resistant silicone. Attach the temperature probe to the BNC connector on the controller. Replacement temperature probes are available.

IV. PROPER PLACEMENT OF THE TEMPERATURE PROBE

When the controller is operational, it is critical that the probe tip is immersed in the system at all times. If the water level falls below the sensing tip of the electrode, the temperature probe will not read properly. If the erroneously measured temperature is higher than the controller setpoint, the chiller connected

to that outlet will remain permanently ON, irrespective of the actual system temperature.

Take some time to determine how much the fluid level around the probe will fluctuate. Adjust the position of the probe accordingly.

Be sure to check the probe position occasionally. Complacency usually sets in when you feel that "Everything is running fine".

V. ADJUSTING THE CONTROLLER SETPOINTS

The PINPOINT Temperature Controller is capable of controlling temperature within the range of 60.0° F to 102.0° F. After the selection of the High and Low temperature setpoints, the Range screw will create a differential or cushion of $\pm 0.5^\circ$ F to $\pm 10.0^\circ$ F above and below each setpoint.

Two adjustment screws on the front panel determine the controller Temperature setpoints. The right adjustment screw (Center Value Fig. E) should be adjusted to set the optimal temperature. The left adjustment screw (Range Fig. D) is used to create the differential both above and below your optimal temperature setpoint.

Turn the Range screw toward minimum to create the most stable temperature environment and increase this setting toward maximum to create a greater cushion around the optimal temperature setting.

Adjusting the Controller Setpoints

When using the PINPOINT Temperature Controller with a chiller put the switch to the High position. Turn the Range screw toward the Minimum setting as much as possible for maximum temperature stability. Now adjust the Center Value screw to select the optimal temperature of your system. Attach the chiller to outlet #1.

Place the selector switch in the middle position to read temperature.

When using the PINPOINT Temperature Controller with a heating device put the switch in the Low position. Turn the Range screw toward the Minimum setting as much as possible for maximum temperature stability. Attach the heater to Outlet #2. Place the selector switch in the middle position to read temperature.

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PINPOINT Temperature Controller by American Marine inc. is warranted to be free of defects in Material and workmanship for a period of 2 years from date of sale. Positive proof of purchase is required for warranty claim.

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Any defective product must be sent freight prepaid with appropriate documentation supporting the warranty claim. Replacement or repair will be at the discretion of American Marine Inc. Typical turnaround time within 24 hours. Overnight delivery available.

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