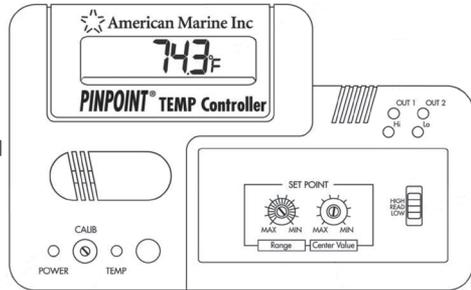


PINPOINT[®] **Temperature Controller** **230VAC HK/UK Plug**



User's Manual



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***PINPOINT*[®] Temperature Controller**

User's Manual

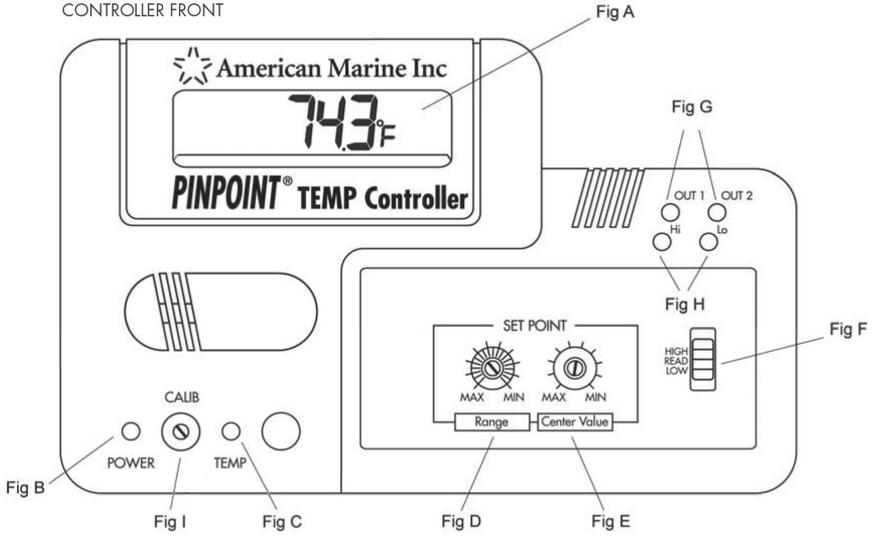
- I. Overview**
- II. General Specifications**
- III. Displays & Adjustments**
- IV. Important Note on Probe Placement**
- V. Adjusting the Controller Set Points**

I. Overview

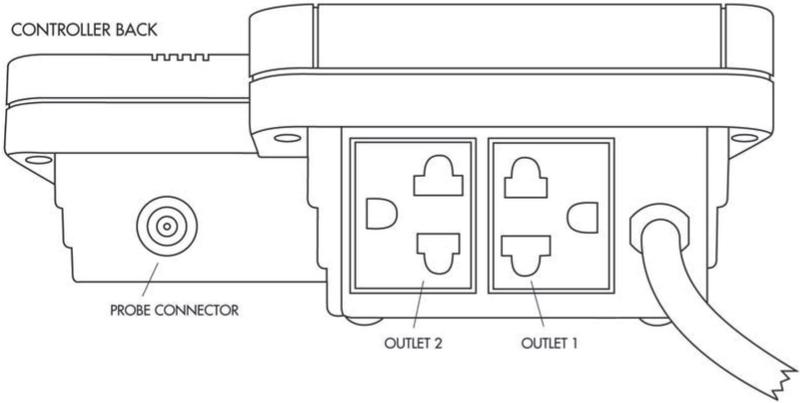
This device consists of a Temperature Monitor and electronics which will control external device(s) based on the temperature reading. Typically this will be a heating unit and/or a chiller unit. The temperature set points should be entered before putting the controller into service. After the controller is in service, it will be necessary to occasionally re-confirm proper probe placement and temperature reading.

Many users will be controlling either a chiller OR a heater; or BOTH a chiller AND a heater with this instrument. It is important to pay special attention to the placement of the temperature probe in the system and insure reasonable circulation. Control electronics are not human, they are not intelligent and they cannot “know” when something has happened to make their input or output invalid. Be sure to monitor the system so that you can note if a problem exists and correct it in a timely fashion.

CONTROLLER FRONT



CONTROLLER BACK



II. General Specifications

Measurement Range +32.0° F through + 212.0° F

Control Range 60.0° F through 102.0° F

Minimum Range $\pm 0.5^\circ$ F above/below selected temperature

Maximum Range $\pm 10.0^\circ$ F above/below selected temperature

3 1/2 Digit LCD Display

Resolution: 000.1° Fahrenheit Degree

2 Independent 6 Amp 230 VAC Relay Outputs

Capacity: Chiller up to 1 hp/750 watts and heater up to 750 watts

III. Displays and Adjustments

Temperature Display

Instrument Status Controller

Set Point Block Display Mode

Controller Status LEDs

230 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 set points depending on the position of the slide switch (Fig F).

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 set points. Below the display is a single adjustment screw (Fig I) which is used to calibrate the temperature reading of the probe if desired.

CENTER (Controller Set Point Block)

There are two adjustment screws that are used to create the controller set points. They control the RANGE (Fig. D) and CENTER VALUE (Fig. E) of the controller. 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. In the center position, the display indicates the temperature as measured by the probe, 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 set points.

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 230 VAC outlets, located on the back of the controller. The lower LED lights (Fig. H) are activated when the slide switch is in the HIGH or LOW position.

230 VAC OUTLETS

There are two outlets, which will be individually energized when the temperature measurement is above (Outlet #1) or below (Outlet #2) the controller set points. A common application for the controller will be to control a chiller. Since the addition of a chiller will lower the system temperature, the chiller should be plugged into the HIGH control outlet (Outlet #1). If a heating device was to be added to the system, the heating device would 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 important that the probe is immersed in the system. If the water level falls below the sensing tip of the electrode, the temperature probe will not read water properly. Sufficient circulation around the probe tip is recommended.

If desired, calibration of the temperature probe can be accomplished by placing the slide switch in the middle READ position and adjusting screw labeled Fig I.

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 SET POINTS

The **PINPOINT® Temperature Controller** is capable of controlling temperature within the range of 60.0° F through 102.0° F. After the selection of the HIGH and LOW temperature set points, the Range Screw will create a small or large span/range around the optimal selected temperature from about $\pm 0.5^\circ$ F to $\pm 10.0^\circ$ F.

Two adjustment screws on the front panel determine the controller temperature set points. The right adjustment screw is labeled “CENTER VALUE” (Fig. E) and the left adjustment screw is labeled “RANGE” (Fig. D).

First determine the optimum temperature value for the system. As an example let's choose 78.0° F as the optimum temperature.

1. Adjust the RANGE screw to Minimum for ease of calculation.
2. Toggle the slide switch from HIGH to LOW and note the display readings. As an example if the HIGH reading is 75.2 and the LOW reading is 73.8 then the current optimal value is the number that is exactly in between ($75.2 + 73.8$ divided by 2 would be 74.5).
3. Since we are looking for an optimal value of 78.0 and the optimal value is currently set to 74.5 (3.5° too low) we should make the adjustment using the CENTER VALUE screw. Put the slide switch in the HIGH position and adjust the CENTER VALUE screw up by 3.5 from 75.2 to 78.7
4. The HIGH value will now be set at 78.7 and the LOW value is automatically reset to 77.3. The optimum temperature value will now be set at 78.0 ($78.7 + 77.3$ divided by 2 which would be 78.0)
5. You may customize the temperature span/range around the optimum temperature value when the chiller and/or heater will become active. Currently the optimum temperature value is set at 78.0 which indicate at a system temperature slightly below the LOW value of 77.3 Outlet #2 will energize the heating device so when the temperature is increased to 78.0 the heating device will shut off. Also when the system temperatures rises above the HIGH set point of 78.7 the chiller will energize until the temperature reaches 78.0 at which time it will shut off.

WARRANTY

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.

American Marine Inc. will not be liable for any costs of removal, installation, transportation charges, or any other charges, which may result in connection with a warranty claim.

American Marine Inc. will not be liable for any damage or wear to products or livestock caused by abnormal operating conditions, water damage, abuse, misuse, unauthorized alteration or repair or if the product was not installed in accordance with the printed operating instructions.

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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