

HELIOTROPE POOL HM-4000D SOLAR POOL HEAT CONTROLLER FOR VALVE DIVERTER CONTROL WITH DIGITAL POOL TEMPERATURE DISPLAY

Installation Instructions

DESCRIPTION

The HM-4000D Helio-Matic is a combination 120 Volt or 240 Volt controller for solar pool heating. The HM-4000D has a 24VAC valve output which controls the water flow direction with a three-way valve. This controller is equipped with a digital pool temperature display.

The HM-4000D is a temperature differential unit shipped from the factory preset at 6° ON/3° OFF. This differential system automatically measures (through ohm resistance) the temperature at the solar collector panels and in the pool suction pipe. If there is sufficient heat at the solar collector panels and the pool water temperature is below the desired temperature knob setting at the controller, the HM4000D sends a 24VAC signal to the Diverter Valve and directs water flow from the pool circulation to the collector panels on the roof.

High Limit is adjustable from 70° to 100° and when the set temperature is reached the pumped water flow is directed away from the solar collectors. This adjustment is with the knob on the front panel.

The control normally uses one 10K AS-2-10 roof sensor and two 10K IS-1.0 pool sensors. If a threaded sensor is desired in place of the IS-1.0 a 10K BP-25-1/4" threaded brass plug can be utilized in the 1/4" pipe plug located in the filtration pump's strainer housing.

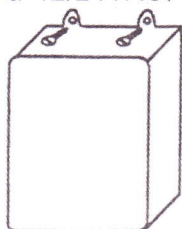
In normal installations, the solar collectors are at an elevation higher than the pool water surface and because of this configuration there is a need for additional collector freeze protection. Should the collector be mounted below the pool water surface, or the pump allowed to run 24 hours per day in freezing weather, there must be provision for collector freeze protection.

The HM-4000D is used to control a 12/24VAC, 0.8 Amp Actuator valve for diverting the filtration pumped flow either to the collectors or bypassing the collectors.

CONTROLLER INSTALLATION

Mount the controller box with the two mounting tabs at the top of the box.

Outdoor mounting is acceptable



SCREW INTO WALL

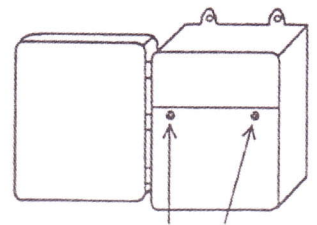
because the controller is inside a weather-proof housing.

THE CONTROLLER MUST BE LOCATED AT LEAST FIVE OR MORE FEET FROM THE POOL.

POWER WIRING

The controller should be powered at all times. Check the line side (input) of the pump's Time Clock to determine voltage, either 120V or 240V.

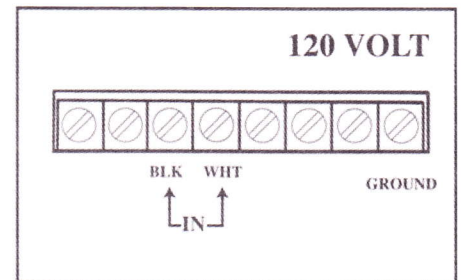
Disconnect the power to the Time Clock. Remove the cover on the High Voltage compartment of the controller by removing the screws.



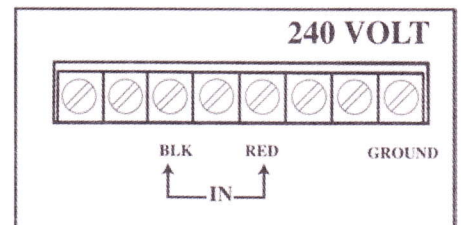
REMOVE SCREWS

The controller should be installed by a qualified electrician and conform to the National Electric Code and prevailing local codes. Depending on whether the supply voltage is 120 V or 240V, wire as shown in the illustration.

120V - Connect power-in wiring from the line Side of the Time Clock. Black conductor to terminal #3 and the white (neutral) to terminal #4.



240V - Connect power-in wiring from the line side of the Time Clock to terminal #3 and #5.



To reduce the risk of electric shock, connect the "earth ground" terminal to the grounding terminal of the electrical service or supply panel with a continuous green insulated copper wire equivalent in size to the circuit conductors supplying this equipment, but no smaller than No. 12AWG (3.3mm).

faulty sensor from the system and compare it at room temperature with a good sensor. Be sure to leave both sensors in the room together for about 30 minutes so they can reach the same temperature. If the suspect sensor shows a large variation from the good sensor, this would confirm a faulty sensor. If not, the sensor is good and the large temperature variation experienced in the system is probably a problem in the plumbing of the system.

WARNING ON TEMPERATURE CONTROL KNOB TOLERANCE

The Helio-Matic solar pool heat controller's temperature control knob has been set at the factory to indicate the exact temperature of the pool through the ohm resistance of the IS-1.0 Pool Sensor at a tolerance of + 3 degrees Fahrenheit. DO NOT change this setting!

TROUBLESHOOTING THE FLOW-VERTER VALVE

If the valve fails to operate as indicated by the indicator light "FLOW THRU COLLECTORS" then check the Low Voltage connection terminal at the HM-4000D controller for power. With the switch in the "TEST ON" position the black and green terminals should read 24VAC. With the switch in the "OFF" position the black and red terminals should read 24VAC. If both of these conditions exist either a wiring to the valve failure has occurred or there is a failure with the valve.

Individual motors, microswitches, and shaft with o-rings are available as replacement parts. Also a complete drive assembly is available and can be easily replaced without removing the valve from its plumbing connections.

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