

Differential Controllers

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I. Purpose of SOM 6 Differential Controller

A. Control of solar loop heat exchanger fluid circuit

- 1. Turns on the circulating pump when the collector's output temperature exceeds the tanks temperature by the programmed amount (usually 15° f).**
- 2. Turns off the circulating pump when the temperature in the tank rises to within the programmed amount of the collector's output temperature (usually 5° f).**

B. Overheating prevention of the heat exchanger fluid and solar thermal components

1. System Cooling (OCX)

- a) Uses water in the tank to cool the collector during the day.**

(1) Cools the collector by running the circulating pump when the collector's output reaches the programmed temperature (usually 250° f).

(2) Prevents degradation of corrosion inhibitors in the heat exchanger fluid.

(3) Prevents damage to solar thermal system components.

2. Recooling Function

- a) Uses the collector to cool the heat exchanger fluid and tank water during the evening.**

(1) Creates capacity for next day's solar gain.

(2) Prevents cumulative heat buildup.

(3) Can be adjusted depending on your demand level by changing the “maximum store temperature” (S MX) setting.

(4) Prevents overheating problems with system when homeowner is away on vacation.

II.SOM 6 Installation

A. Install power cord for controller and pump

- 1. Obtain line cord and plug from any store that stocks electrical supplies. Be sure not to use too thick of a gauge of wire, as the terminal block has small wiring ports. Unit draws less than 2 amps. The same wiring can be used to power the pump and the controller.**
- 2. Use a 1/8" blade screwdriver to tighten the terminals block screws, too small of a blade will damage the screws.**
- 3. See section 1.2, "Electrical Wiring" (attached), in the manuals for connection details.**

B. Install sensors to sensor clamps

- 1. Install one sensor to clamps 3 and 4, and place it in the lower sensor well with supplied thermal compound. Polarity is not an issue.**
- 2. Obtain a narrow guage of 2 conductor wire (long enough to reach the collector) and connect it to clamps 1 and 2. Connect the other end to the second sensor, and insert the sensor into the sensor well along with the supplied thermal compound.**

III.Operation and configuration of SOM 6

A. Normal Operation

- 1. Left and right push buttons toggle between the collector output temperature, the lower tank temperature, and the operating hours. The blinking symbol shows you which temperature is being displayed (see section 2 of the manual).**

B. Configuration Mode

- 1. To enter configuration mode, toggle to the operating hours counter, then press and hold the right hand push button until it enters the configuration parameters, the first of which is "DT O", and then quickly release the button. You may then toggle to whichever parameter it is that needs to be changed.**

2. To change a setting, toggle to that parameter, and then push the middle button. The “set” icon on the right hand side of the display begins blinking.

3. Use the right and left hand buttons to toggle to the desired value of the parameter which is being changed and then press the middle button a second time. The “set” icon then stops blinking and the new value is stored.