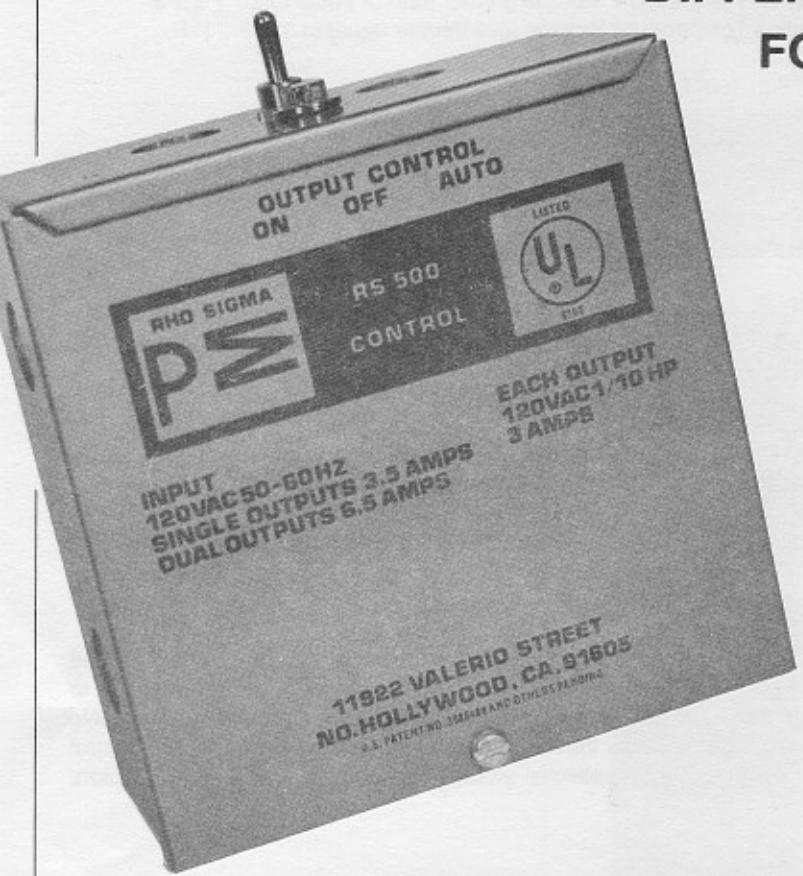
RHO SIGMA

RS500S and RS502S
PRODUCT INFORMATION BULLETIN

DIFFERENTIAL THERMOSTAT FOR ON/OFF SWITCHING



FEATURES

- ALL SOLID STATE SWITCHING
- RS502 LINEARIZED CIRCUIT
- ON-OFF-AUTO SELECT SWITCH
- INDICATING LIGHT
- 6" × 6" × 3" STEEL ENCLOSURE WITH KNOCKOUTS
- EASY INSTALLATION
- HOOK-UP WIRE ACCESS INSIDE ENCLOSURE
- UL LISTED
- ALL ELECTRONIC COMPONENTS MOISTURE-PROOFED
- CAN BE USED FOR LIGHT LOAD OR HEAVY LOAD SITUATIONS WITH RELAY INTERFACE
- SENSORS AVAILABLE IN SEVERAL VARIATIONS OF PROTECTIVE HOUSINGS

The RS500S or RS502S Series of differential thermostat is a LINEARIZED all solid state device for direct Full On/Full Off control of a pump or control of a relay where several loads must be driven simultaneously.

The electronic linearization incorporated in the circuitry eliminates the inherent thermistor non-linearity that occurs at high and low temperatures. The linearizer accepts the conventional signal from the sensors and corrects extreme temperature error. This results in $\pm 2^{\circ}$F accuracy over the temperature range normally encountered in solar systems.

The minimum requirement of the RS500S or RS502S is to sense conditions when the temperature difference between the solar collector and solar storage is sufficient to justify pump or fan operation. An adequate temperature dead band is incorporated to prevent harmful cycling of the pump or fan in the mornings or evenings.

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SPECIFICATIONS

INPUT: 120 VAC, 50/60 Hz, 3.5 Amps

OUTPUT: 120 VAC, 50/60 Hz, 3.0 Amps, 1/10 H.P.

TEMPERATURE DIFFERENTIALS:

Turn-on: Temperature Collector minus Temperature Storage greater than or equal to $20^{\circ}F \pm 3^{\circ}F$

Turn-off: Temperature Collector minus Temperature Storage less than or equal to $3.5^{\circ}F \pm 1^{\circ}F$

AMBIENT OPERATING TEMPERATURE: $32^{\circ}F$ to $150^{\circ}F$

(Rho Sigma recommends mounting control indoors.)

OPTIONAL FUNCTIONS

H: HIGH TEMPERATURE DETECTION CIRCUIT

This option functions from the storage sensor signal to shut the pump off when sufficient tank temperature is reached. Standard temperature setting is $160^{\circ}F$. (Other settings available on special order.)

L: LOW TEMPERATURE DETECTION CIRCUIT

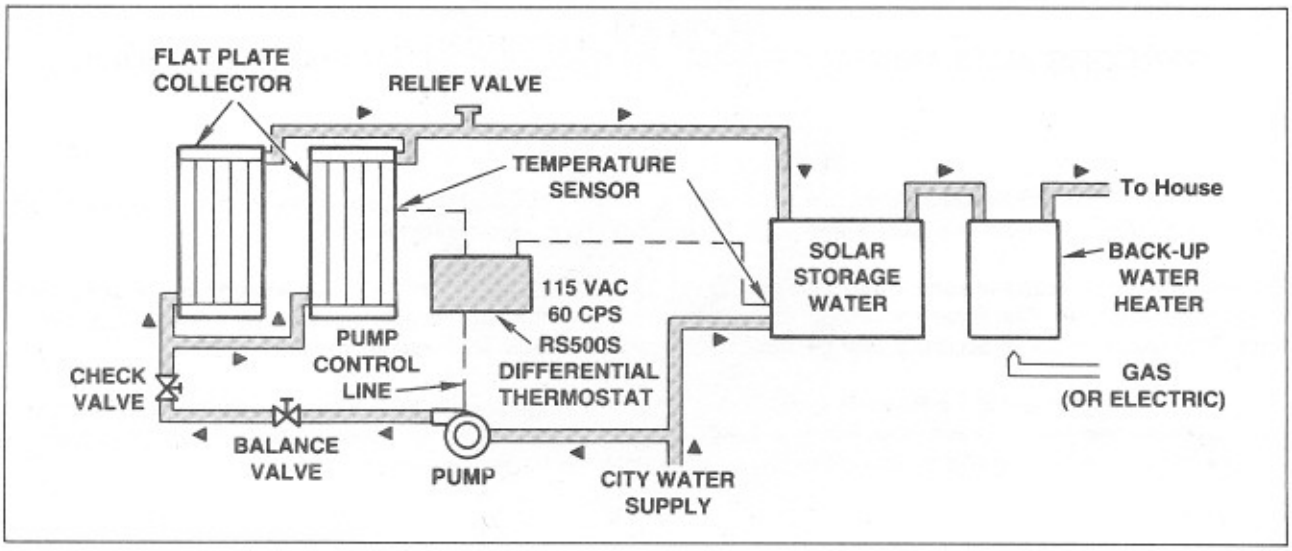
This option functions from the collector sensor signal to turn the pump fully ON when the collector approaches $40^{\circ}F \pm 2^{\circ}F$. This function turns off $4^{\circ}F$ above turn on point. The location of the collector sensor is most important for the correct operation of this function. The sensor should be placed DIRECTLY ON THE ABSORBER PLATE BENEATH THE GLAZING where it can detect the $40^{\circ}F$ temperature. Because of collector temperature gradients a LOW position on the plate is recommended for sensing the coldest collector temperature point. Consult your collector manufacturer.

DIRECT DIGITAL TEMPERATURE READ-OUT

It is now possible to order your RS500S or RS502S with LED direct digital temperature read-out for both the collector and storage sensor locations. The large (.300 inch) cool green numerals can easily be read across the room and are accurate to within $\pm 2^{\circ}F$ over the usable temperature range of $0^{\circ}F$ to $212^{\circ}F$. This feature is also available in Celcius ($^{\circ}C$) scale. No additional sensors are required, since the thermometer read-out shares the linear differential signal without affecting control operation. This feature includes a three position switch to select either collector, storage or off modes. This display is factory mounted and cannot be added to a field application.

220 VAC CONFIGURATIONS

All models of the RS500S or RS502S Series are available in a 220 VAC, 50/60 Hz input and output. This is a factory modification which must be specified.



TYPICAL APPLICATION OF RHO SIGMA CONTROLS AND SENSORS