
SolaStat

SolaStat-Rly



Installation Guide.

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SolaStat-Rly. Slave Relay for SolaStat Controllers.



Features.

- Fully isolated relay (contactor).
 - Different voltages and wiring can operate safely together.
- Prewired Plug.
 - Simple and versatile connection of SolaStat-Plus-2 to HWC.
 - Electrician can install the SolaStat-Rly at a different time than the Solar Hot Water professional installs the SolaStat-Plus-2.
- High power rated contacts.
 - Low power levels through SolaStat controller wiring
 - (2 W switches 7kW).



SolaStat Models Include:

- SolaStat-Eco: Controller c/w 4 Status Lights.
- SolaStat-Plus: Controller c/w Display.
- SolaStat-Pool: Pool Controller c/w Display.
- SolaStat-Rmt: Remote Display.
- SolaStat-Rly: Slave Relay for HWC Control.
- SolaData: PC Datalogging & Comms.

Introduction.

SolaStat-Rly is Versatile; An easy to install slave relay or contactor complete in an enclosure. The input is completely isolated from the output contacts. Input and Output in no way share any common electrical connections. This provides a safe and legal interface between;

- Different voltages / Different circuits.
- Permanent and flexible wiring installations.
- High power 240Vac relay.
 - 30 Amp Resistive (7kW electric Element).
 - 3HP Inductive (2250W Motor).
- Low Voltage coil options available.

Senztek NZ Ltd has experience in designing and manufacturing Solar Hot Water Controllers to Industrial Electronic Standards for over 15 years. This has earned SolaStat a reputation for Quality, Accuracy, Efficiency and Reliability.

Ordering Information.

SolaStat-Rly

Standard Unit: 180~264Vac Coil; 2m Mains Cable; 30A/3hp Relay, 2 x 20mm Flexible Conduit Glands.

SolaStat-Rly - -
G PS

Specify Conduit Gland size and power supply option.

SolaStat-Rly Ranging Options.			
Conduit Size	G	Coil Voltage	PS
16mm	16	180~264Vac	H
20mm	20	90~132Vac	A
		18~26Vdc	M
		9~13Vdc	L

Note. Ensure specified coil voltage matches the supply voltage of the SolaStat-Plus-2 controlling the SolaStat-Rly. Other coil voltages available on special order.

Quality Assurance Programme.

The modern technology and strict procedures of the ISO9001 Quality Assurance Programme applied during design, development, production and final inspection grant the long term reliability of the instrument.

SolaStat-Rly Users Guide.

Principle of Operation

The SolaStat-Rly contains a relay. The coil of the relay is energised by the SolaStat-Plus-2 (or other power source) which closes a set of contacts. There is no electrical connection at all between the input power and output contacts. The coil consumes only 1 or 2 watts of power, but switches much higher power levels through the contact, that the energized coil closes.

Example 1. (Mains coil version)

An electrician can wire a SolaStat-Rly into a Hot Water Tank electric element without the Solar Hot Water System installer being there. The solar installer is free to arrive at a different time and date to plug in the SolaStat-Rly to the SolaStat-Plus-2 which in turn plugs into a wall socket and the Solar Hot Water System is ready to go (electrically). No more electrical work needed and no electrical registered person on site.

Example 2. (Low voltage coil version)

A SolaStat-Pool is running off an isolated 12 volt power source. The SolaStat-Pool is close to the water so the users can easily see and alter the adjustable values (mains power forbidden in this zone). The pump output is wired to a SolaStat-Rly (low voltage coil option) that controls a mains powered pump at a safe distance.

SolaStat-Rly Safety Instructions.

Read safety instructions and limit of liability before proceeding with the installation.



General Safety Instructions.

1. This installation guide is for the installation of SolaStat-Rly Slave Relay only and is not an installation guide for any other part.
2. The complete installation should be checked at least annually for damage or malfunction.
3. All servicing to be carried out by an authorised service agent only.
4. All aspects of the installation must comply with local electrical regulations.

Installation Precautions.

1. Must be installed away from water sources such as rain, leaking pipes, or wet floors and must not be installed in damp areas like bathrooms.
2. Must not be installed in direct sunlight, near flammable liquids or near radiant heat sources.
3. Must not installed where the ambient temperature can exceed 50C. Warning; Roof spaces may exceed 50C. Typically the lower in height the unit is mounted the lower the ambient temperature it will be subject to.

Electrical Precautions.

	CAUTION: Dangerous Voltages may be present. The SolaStat has no user serviceable parts. Protective enclosure only to be opened by qualified personnel. Remove ALL power sources before removing protective cover.	
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1. All mains voltage electrical work to be carried out by a qualified electrician, especially hot water tank electric element wiring installation.
2. A readily accessible disconnect device and overcurrent device rated to suit the size of the load must be incorporated in the power supply wiring.
3. Do not use mains power extension cords unless approved by the manufacturer. Water resistant plugs and sockets should be used.
4. Always use within specified voltage and load ranges. Never use with damaged leads, plugs or sockets.
5. Keep a minimum of 10mm isolation separation between the relay coil wiring and any HWC wiring. The coil wiring must be completely isolated from the HWC wiring to class II.

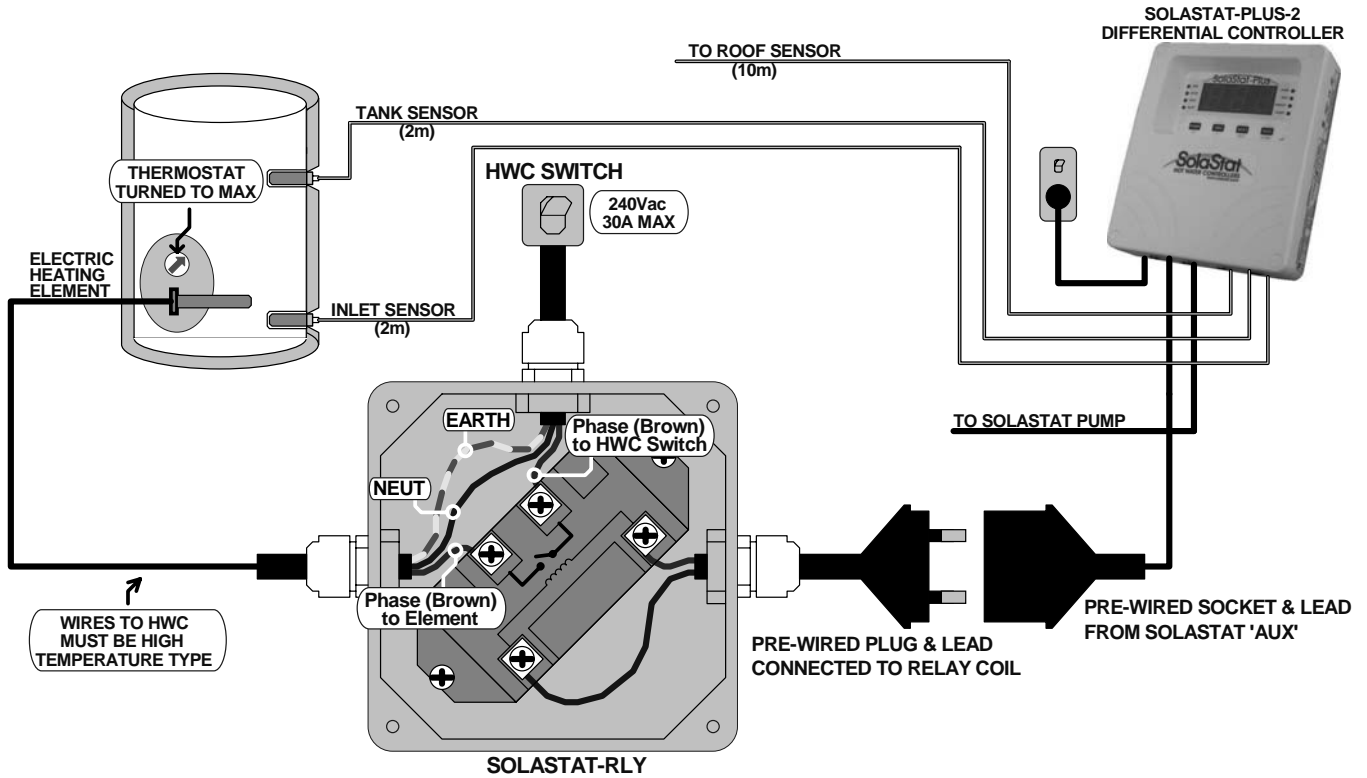
SolaStat-Rly Mounting.

1. Mount the unit where it is dry and not subject to direct sun or mechanical damage.
2. The SolaStat-Rly must not be subject to ambient temperatures exceeding 50C. Warning; Roof Spaces may exceed 50C.
3. Fix to a surface able to support the weight of the unit, as well as any conduit and wiring.
4. Allow for cable runs, location of power outlets and lengths of wires.
5. Remove the lid to access the 4 mounting screw holes. The holes need to be drilled or pushed out (the plastic is quite thin at the screw bushes).
6. Screw the unit to the desired surface.

SolaStat-Rly Wiring.

1. All mains wiring to be done by a registered electrician only.
2. Electricity Suppliers may remotely turn off the HWC electric element using controlled wiring. Do not bypass the controlled wiring. The SolaStat-Rly connects between the controlled wiring and the HWC element.
3. The 2 available screw terminals on the relay are a normally open contact. The phase (active) wires should screw to these as shown in the diagram below.
4. Keep a minimum of 10mm isolation separation between the relay coil wiring and any HWC wiring. The coil wiring must be completely isolated from the HWC wiring to class II.
5. Replace the lid when finished.
6. For SolaStat-Rly-H models with a mains rated input coil and a flexible mains cord for control (fully isolated so mixed permanent, flexible wiring permissible), the contact will not close until power is applied to the plug.
 - a. If the SolaStat-Plus-2 is already installed then it is a simple matter of plugging it in to activate the HWC (under SolaStat-Plus-2 intelligent control).
 - b. If this is a pre-solar installation (the SolaStat-Plus-2 is not installed/active yet) then the HWC can only heat water if the SolaStat-Rly is plugged into a power socket and switched on. This way normal hot water services can continue until the solar hot water system is installed.
7. The Hot Water Thermostat for the Electric Element **MUST** be installed and **MUST** be set higher than the temperature of the HWC BioSafe and Reheat adjustable values for the HWC Control Modes to operate correctly. The Hot Water Thermostat for the Electric Element is only used as a fail safe feature and in normal operation will never operate. We recommend setting the Hot Water Thermostat to the Maximum Temperature.

SolaStat-Rly Connection Diagram.



Feed the earth (green/yellow) wire and neutral (blue) wire from the HWC switch through the SolaStat-Rly enclosure directly to the HWC electric element. High temperature wires must be used when connecting to a HWC Electric Element. The Earth wire must be longer than the phase wire and the neutral wire.

Note. This diagrams are only to be used as a general guide and not all the required components are shown. Each installation needs to be customised to suit its situation. Always use best plumbing and electrical practices, and comply to any regulatory requirements.

SolaStat-Rly Specifications.

Note: All ratings at 25C

Power Supply.

Coil Voltage Options -L	9~13Vdc
-M	18~26Vdc
-A	90~132Vac 50/60Hz
-H	180~264Vac 50/60Hz
Max coil power usage.	2.5 VA

Contact Ratings

Relay Idle State	N/O
Voltage max	264Vac 50/60Hz
Resistive	30Amp (7kW element) @ 240Vac 50/60Hz
Inductive (Cos ϕ =0.4)	3HP (2250W Motor) @ 240Vac 50/60Hz 1.5HP (1125W Motor) @ 120Vac 50/60Hz

EMC and Safety Compliances.

Emissions:	EN 55022-A, CTick.
Immunity:	EN 50082-1.
Safety Compliance:	EN 60950, CTick.

General Specifications.

Operating Temperature:	-20~50°C, No Icing.
Operating Humidity:	5~85% RH Max. Non-Condensing
Enclosure Construction	ABS - Impact Resistant, UL94 V-0
Dimensions	L=100, W=100, H=60mm
Weight.	Standard model + packaging = 550grams

Product Liability.

This information describes our products. It does not constitute guaranteed properties and is not intended to affirm the suitability of a product for a particular application. Due to ongoing research and development, designs, specifications, and documentation are subject to change without notification. Regrettably, omissions and exceptions cannot be completely ruled out. No liability will be accepted for errors, omissions or amendments to this specification. Technical data are always specified by their average values and are based on Standard Calibration Units at 25C, unless otherwise specified. Each product is subject to the 'Conditions of Sale'.

Warning.

These products are not designed for use in, and should not be used for patient connected applications. In any critical installation an independent fail-safe back-up system must always be implemented.

SolaStat Distributor.

