

TR 0301 U Solar Controller

Part #7747208381

Engineering
Submittal
Sheet



3 inputs, 1 output

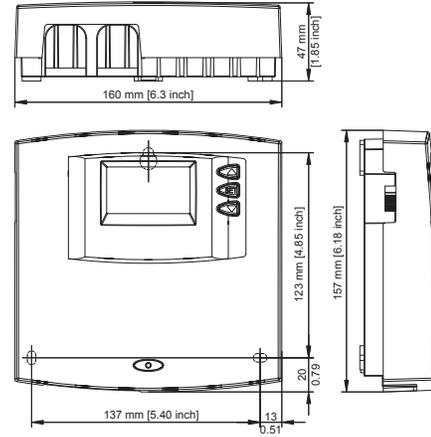
The TR 0301 U controller was specially developed for the North American market. With its highly fireproof case and special certification (ETL label) from a Nationally Recognized Testing Laboratory (NRTL) in the U.S., the controller meets the safety standards and requirements for North America.

The clearly arranged display ensures easy operation using pictograms. The controller is used for monitoring and controlling solar thermal systems that have a collector array and a storage tank. In addition, the controller also has important system monitoring and safety functions to ensure safe and durable operation of the entire system. Additional functions of the TR 0301 include the option of limiting the storage tank temperature, a tube collector function, an antifreeze function, a vacation and storage re-cool function as well as a choice of temperature indications in either degrees Celsius (°C) or Fahrenheit (°F). The operational safety of the system is supported by a sophisticated fault diagnosis. The multi-colored LCD backlight ensures quick and safe location of occurring errors and facilitates quick troubleshooting.

The TR 0301 U controller is supplied with a pre-fitted power connection cable and a pre-installed, pluggable pump output.

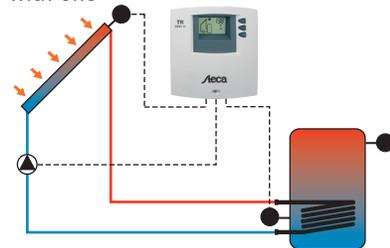
Features

- Backlight LCD Display
- Animated representation of solar system functions
- Compact, 3-piece designer case
- Anti-freeze function
- Tube collector function
- Vacation (storage re-cool) function
- Limitation of storage tank temperature
- Temperature display for storage tank and collector
- Pump operating status display
- Temperature sensor monitoring and system monitoring
- Temperature display °C/°F

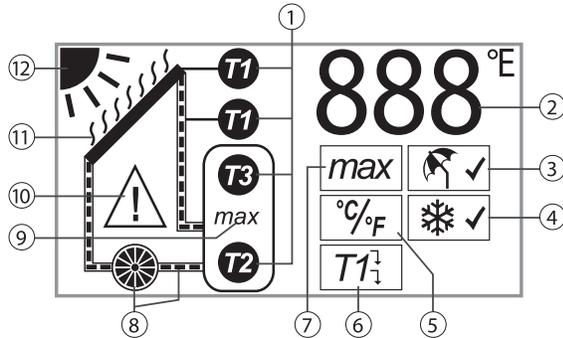


Temperature Differential Controller	TR 0301 U
System voltage	120 VAC, 60 Hz (optional 240 VAC, 60 Hz)
Max. own consumption	≤ 1 W (≤ 0.001 HP)
Inputs	3 3 x temperature recording (Pt1000)
Output	Switch relay; switching performance max. 400 W (0.5 HP [120 V~]) or 800 W (1 HP [240 V~])
Turn-on temperature difference	8 K (46.4°F)
Turn-off temperature difference	4 K (39.2°F)
Operation temperature range	0°C (+32°F)... +45°C (+113°F)
Animated LCD display	2 color backlight
Protection class	IP 20/DIN 40050
Weight	0.55 kg (19.54 oz) including cable
Dimension l x w x h	160 x 157 x 47 mm 6.3" x 6.18" x 1.85"
Temperature sensors 2 x Pt1000	Collector sensor: 59 inch (1.5 m) silicone cable with bushing (Measuring range up to +356°F (+180°C)) Storage tank sensor: 11.8 inch (0.3 m) twisted single conductor flat surface sensors with compression cable lug (Measuring range up to 222°F (+105°C))

System example with one storage tank

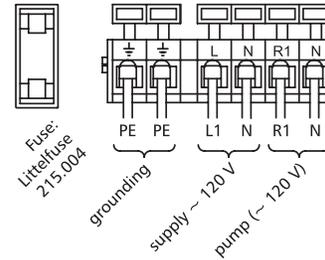


Display overview

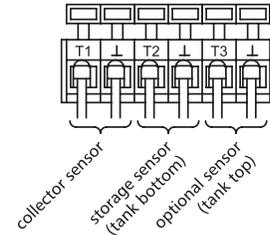


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|---|--|
| ① Temperature sensor symbols | ⑧ Solar circuit symbols |
| ② Displays the temperature values and faults, e. g. short circuit, interruption (see p. 27) or SYS = system error (see p. 28) | ⑨ Displays message "Maximum storage tank temperature has been reached" |
| ③ Holiday function (see p. 21) | ⑩ Warning display if faults occur, e. g. short circuit, interruption (see p. 27) or SYS = system error (see p. 28) |
| ④ Freeze recirculation function (see p. 21) | ⑪ Displays message for evaporation of the collector fluid |
| ⑤ Selecting the temperature unit °C / °F | ⑫ Displays message for sufficient heat supply |
| ⑥ Tube collector function (see p. 20) | |
| ⑦ Setting the maximum storage tank temperature | |

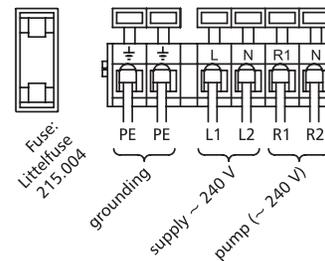
Terminal plan 120 V version



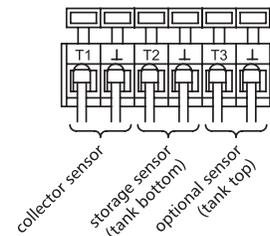
Sensor wiring Class 2



Terminal plan 240 V version



Sensor wiring Class 2



- Sensor cables may be extended to a maximum length of ca. 330 ft. When using extension cables, select the following cable cross sections:
 - #AWG 18 up to 165 ft. long
 - #AWG 14 up to 330 ft. long
- Connect the cables in accordance with the terminal plan.



BOSCH

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