

### Description


The digital control unit S303 is a centralized control unit for thermal solar panels. Equipped with 3 relay outputs (2 for loads + 1 for alarm), PWM output, 0..10V output and 3 inputs (sensors), can configure and manage up to 6 different types of solar systems. When a specific installation is selected, the control unit automatically manages the outputs and inputs used to control the valves, the pumps, the integrative sources and the probes used in the type of installation selected.

Moreover on the backlit LCD display it is possible to visualize the hydraulic diagram of the installation set up, the state of the outputs, the probes as well as several other data and informations. **Control unit supplied with 2 NTC probes.**

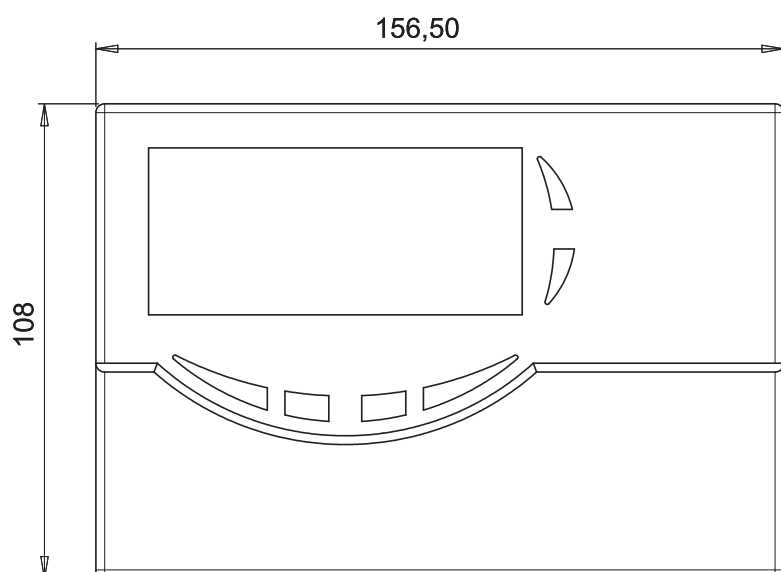


### Technical features

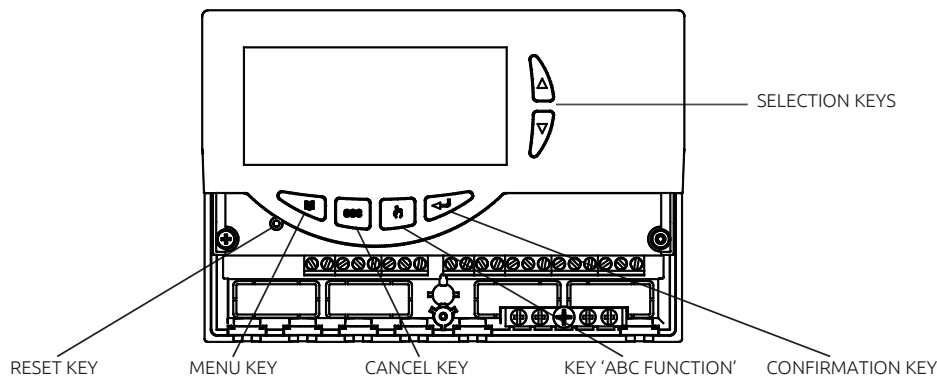
|   |               |   |
|---|---------------|---|
| Power supply:                           |               | 230V~ ±10% 50Hz   |
| Power absorption:                       |               | <2 VA   |
| Sensors type:                           |               | 3 x NTC 10K @ 25 °C ±1 %                                    |
| Sensor operating range:                 |               | -50 °C .. +200 °C (collector)<br>-50 °C .. +110 °C (boiler) |
| Temperature reading range:              |               | -20 °C .. 180 °C  |
| Accuracy:                               |               | ±2 °C   |
| Resolution:                             |               | 0,1°C (-20°C .. 144,9°C)<br>1°C (145°C .. 180°C)            |
| Offset adjustment:                      | on S1:        | ±5.0°C  |
|   | on S2:        | ±5.0°C  |
|   | on S3:        | ±5.0°C  |
| Installer Password:                     |               | 0000 .. 9999 (default 0000)                                 |
| Acoustic Signal:                        |               | On/Off (default On)   |
| Backlight timing:                       |               | 20 sec from last keypress                                   |
| OUT2 Relay Logic:                       |               | NOR=N.O. REV=N.C.<br>(default N.O.)                         |
| <u>Contacts rating:</u>                 |               |   |
| OUT 1 relay:                            |               | 2(1)A max 250V~ (SPST)<br>Voltage free                      |
| OUT 2 relay:                            |               | 8(1)A max 250V~(SPST)<br>Voltage free                       |
| Alarm relay contacts rating:            |               | 4(1)A max 250V~ (SPDT)<br>Voltage free                      |
| <u>Output Signal:</u>                   |               |   |
| PWM:                                    | Amplitude:    | 10V ±15%  |
|   | Frequency:    | 1KHz  |
|   | Current:      | 15mA max.   |
| 0..10V:                                 | Amplitude:    | 0V..10V ±10%@10V  |
|   | Minimum load: | 10KOhm.   |
| Max allowed PWM / 0...10V cable length: |               | < 3m.   |

|  |  |
|--|--|
| Protection grade:                                  | IP40   |
| Type of action:                                    | 1  |
| Overvoltage category:                              | II   |
| Pollution degree:                                  | 2  |
| Tracking Index (PTI):                              | 175  |
| Class of protection against electric shock:        | II  |
| Rated impulse voltage:                             | 2500V  |
| Number of manual cycles:                           | 50000  |
| Number of automatic cycles:                        | 100000   |
| Software class:                                    | A  |
| EMC test voltage:                                  | 230V~ 50Hz   |
| EMC test current:                                  | 34mA   |
| Distances tolerances fault mode 'short' exclusion: | ±0,15mm  |
| Ball pressure test temperature:                    | 75°C   |
| Operating temp. range:                             | 0°C .. 40°C  |
| Storage temp. range:                               | -10°C .. +50°C   |
| Humidity limits:                                   | 20% .. 80% RH non-condensing   |
| Case:  | Material: ABS V0 self-extinguishing  |
|  | Color: Signal White (RAL 9003)   |
| Dimensions:  | 156 x 108 x 47 (W x H x D)   |
| Weight:  | ~672 gr. (version with probe)<br>~553 gr. (version without probe)                    |
| Installation:                                      | Wall-mount   |

## / Dimensions



### / Description of the keys

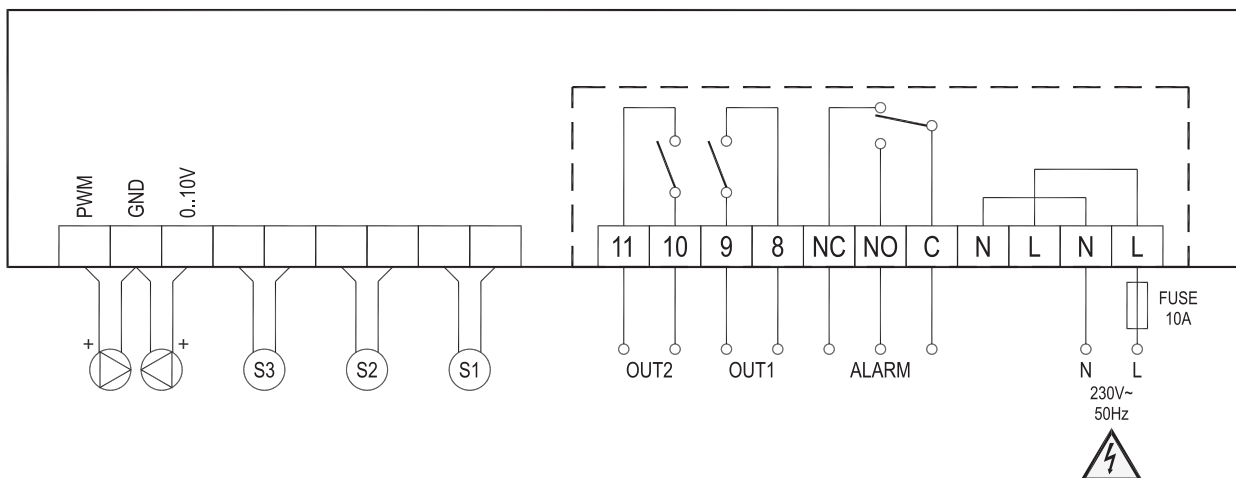


#### WARNING!



The installation technician shall operate in full compliance with all the applicable technical standards in order to grant the unit safety.

### / Electrical connections



— — :reinforced insulation

#### WARNING!



Before wiring the appliance be sure to turn the mains power off.

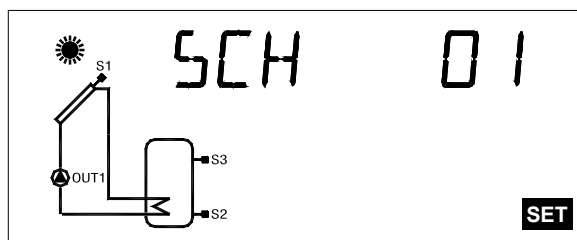
**WARNING!** S1, S2 and S3 are NTC temperature sensors. For S1 sensor the  $-50^{\circ}\text{C}..+200^{\circ}\text{C}$  range probe (blue cable) must be used, while the probes with the range of  $-50^{\circ}\text{C}..+110^{\circ}\text{C}$  (yellow cable) can be used for the other probes. The outputs OUT1, OUT2 and Alarm, are voltage free. It is advisable to fit a 10A 250V~ fuse on the power unit mains capable to intervene in case of short circuits on loads.

**TERMINAL BOARD GROUNDING:** On the base of the control unit case is located a brass terminal board for connecting the ground protection conductors of the load devices connected to the control unit.

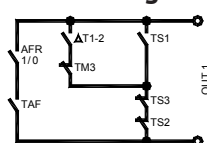
### / Available diagrams

#### SCH 01

Solar heating installation with 1 tank and no integrative heat source.

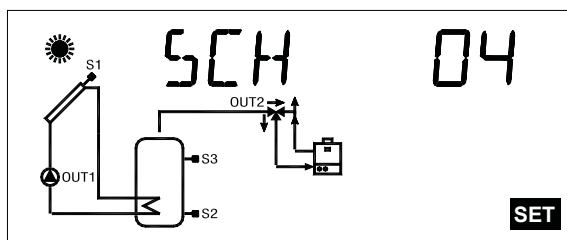


##### Control logic

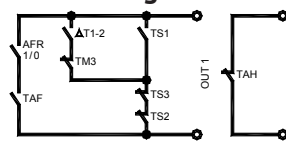


#### SCH 04

Solar heating installation with 1 tank, direct integration by means of valve logic.

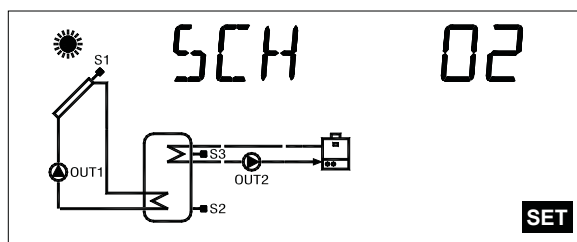


##### Control logic

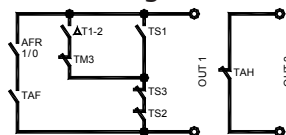


#### SCH 02

Solar heating installation with 1 tank and additional thermostatic heating.

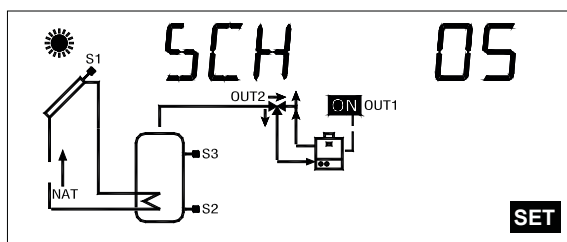


##### Control logic

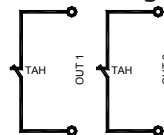


#### SCH 05

Natural circulation solar heating installation with 1 tank and direct integration by means of valve logic.

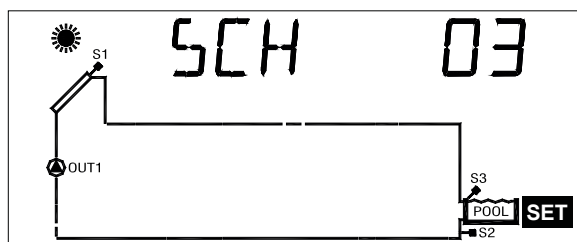


##### Control logic

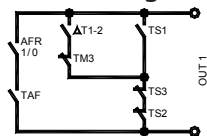


#### SCH 03

Pool solar heating installation.

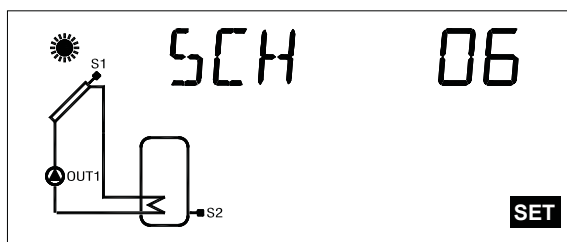


##### Control logic



#### SCH 06

Solar heating installation with 1 tank and only 2 probe.



##### Control logic

