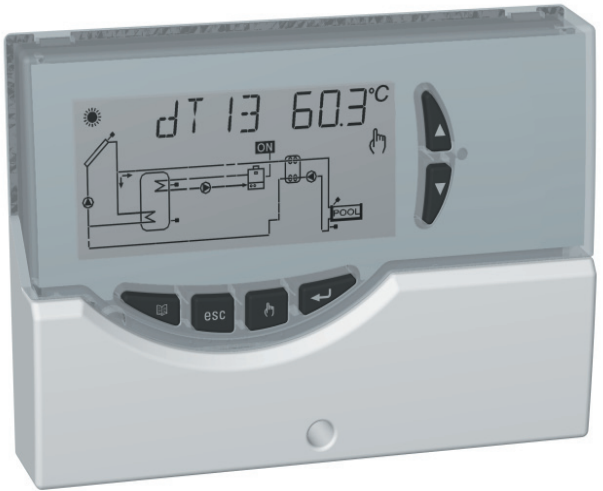
# ELIOS 25

## DIGITAL CONTROL UNIT WITH LCD DISPLAY FOR THERMAL SOLAR SYSTEMS




TDS 006 M00 OSE 012945A0 040906

CE

## MAIN FEATURES

- Power supply 230V ~ ±10% 50Hz
- Backlit alphanumeric LCD display
- Management of 5 output relays
- Possibility of setting up the output logic of the relays (normal or reversed)
- 4 inputs for Pt 1000 probes
- Temperature range readings from -40°C to +260°C
- Individual probe offset correction ±5°C
- Choice among of 19 different solar plant layouts
- Graphical visualization of the configured installation
- On screen diagnostic (input/output state and error messages)
- Visualization of the collector, boiler and additional devices temperatures
- Acoustic and visual signal in case of failure and alarm
- Activation of an auxiliary relay in case of an alarm
- Self-diagnosis of the actual installation (installation function test)
- Password-protected configuration for installer parameters
- Possibility of antifrost function activation
- Heat integration hours counter
- AUTOMATIC / MANUAL / ACB (Automatic Boiler Control) operation

## TECHNICAL FEATURES

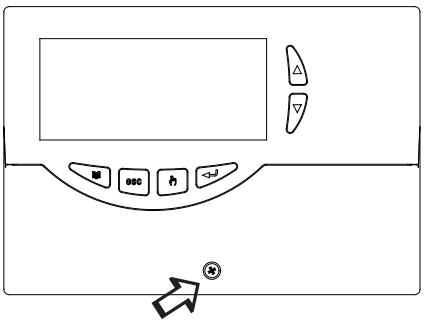
| | |
|---|---|
| Power supply: | 230V ~ ±10% 50Hz |
| Power absorption: | 4 VA |
| Sensors type: | 4 x Pt1000 Class B DIN |
| Sensor operating range: | -50°C .. 270°C |
| Temperature reading range: | -40,0°C .. 260,0°C |
| Accuracy: | ± 1 °C |
| Resolution: | 0,1 °C |
| Offset adjustment: | on S1: ±5.0°C<br>on S2: ±5.0°C<br>on S3: ±5.0°C<br>on S4: ±5.0°C |
| Installer Password: | 0000 .. 9999<br>(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.) |
| OUT3 Relay Logic: | NOR=N.O. REV=N.C.<br>(default N.O.) |
| OUT4 Relay Logic: | NOR=N.O. REV=N.C.<br>(default N.O.) |

| | | |
|---|---|---|
| Contacts rating: | | 4 x 2(1)A max @ 250V ~ (SPST)<br>Contacts under voltage. |
| Protection grade: | | IP 40 |
| Operating temp. range: | | 0°C .. 40°C |
| Storage temp. range: | | -10°C .. +50°C |
| Humidity limits: | | 20% .. 80% RH<br>non-condensing |
| Dimensions: | | 156 x 108 x 47 (W x H x D) |
| Case: | Material: | ABS V0 self-extinguishing |
| | Color: | Signal White (RAL 9003) |
| Installation: | | Wall-mount or panel-mount on a 144 x 96 mm hole by means of the proper metal fitting (optional) |

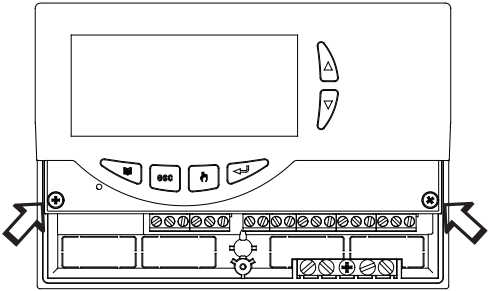
## INSTALLATION

To install the device, perform the following operations:

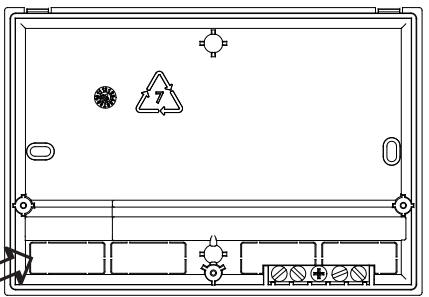
- Remove the central screw and the plastic door



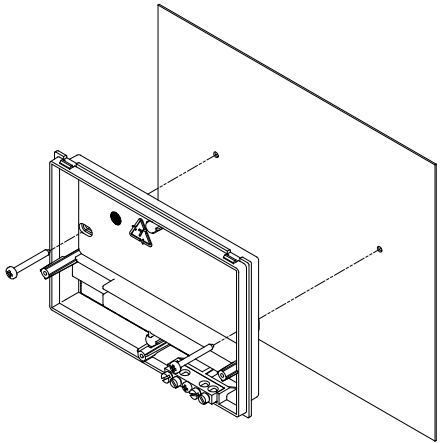
- Remove the two screws shown in the drawing, then remove the whole body from the base.



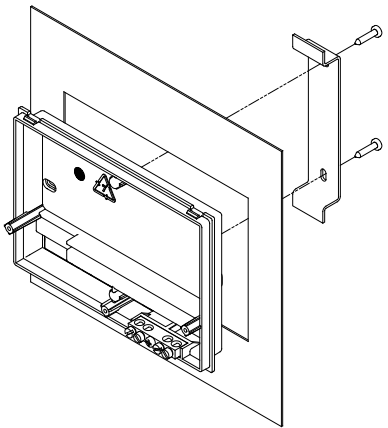
- Remove with the help of a tool the plastic from the openings provided for the cables pass-through.



## WALL MOUNTING

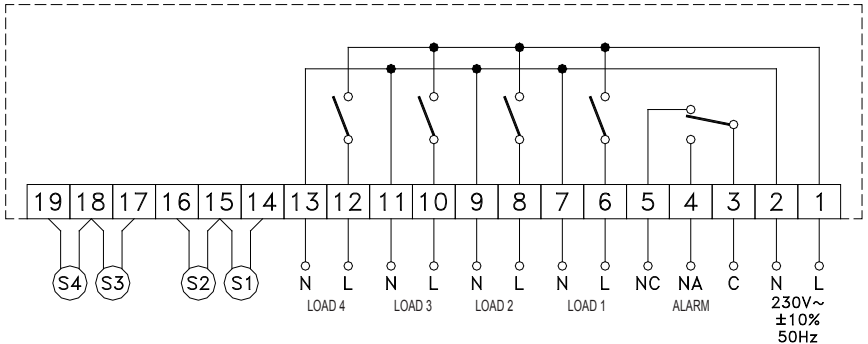


## MOUNTING ON A PANEL WITH FITTING (Optional)



- Make electrical wirings according to the diagram shown in the following page.

## WIRING DIAGRAM

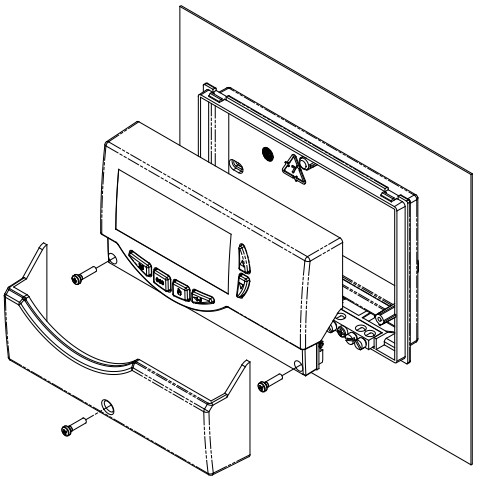



## WARNING:

S1 (or 'COL'), S2, S3 and S4 are Pt1000 temperature sensors. For S1 sensor the -50°C..+200°C range probe (grey cable) must be used, while the probes with the range of -50°C..+110°C (blue cable) can be used for the other probes. When setting up installations with 2 solar panels, the probes corresponding to S1 and S4 **must be exclusively of the -50°C..+200°C range type**. The relay outputs relative to 1, 2, 3, 4 loads are powered (230V ~); the output of the auxiliary alarm relay is changeover type (SPDT) with voltage free contacts.

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.

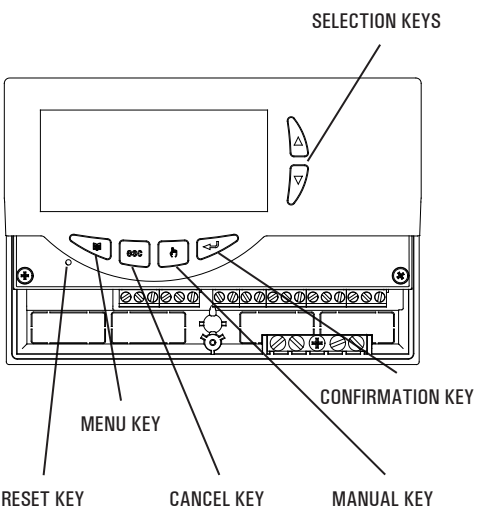
- Close the control unit case.



**ATTENTION!**

**When closing the unit please ensure that the removable wiring terminals have been inserted with the correct orientation (the terminals screws must be facing upward).**

## DESCRIPTION OF THE KEYS



## OVERVIEW

ELIOS 25 is a centralized control unit for thermal solar panels. Supplied with 5 outputs (Load Relays + Alarm Relays) and 4 Inputs (Probes) it is able to manage a system configuration that can be selected among 19 common types of layouts.

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.

## STARTING

### TURNING ON AND OFF

To turn the control unit on and off, press the ' **esc** ' key for at least 3 seconds. When the control unit is turned on it will carry out a diagnosis of the internal circuitry to verify its correct operation and the red led will flash three times.

If the control unit reveals no anomalies the red led will remain on, otherwise it will continue to flash quickly and the display will show the type of error.

### BACKLIGHT

By pressing any key the backlight of the display is activated. The backlight automatically shuts off after about 20 seconds from the last key depressure.

### ACOUSTIC SIGNALS

The control unit is supplied with an internal buzzer that gives the user an acoustic feedback in case of pressure on the keys, alarms and failure.

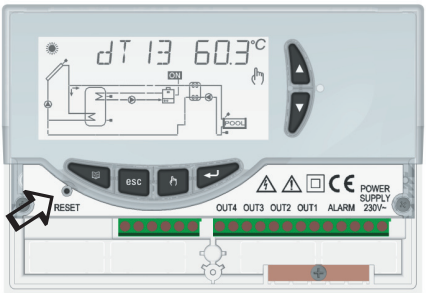
The acoustic signal can be disabled by properly setting the relevant ' Installer Parameter '.

### TEST FUNCTION FOR LOAD WIRINGS CHECK

Through this function, available at the Installer Parameter P7, the control unit cyclically activates the loads wired to the unit so that the installer can verify the accuracy of the wirings performed.

### RESET

In order to reset the device, press the key labelled as ' **RESET** ' located behind the removable door; **DO NOT USE PINS OR NEEDLES**.




## DISPLAYING THE TEMPERATURE

During normal operation the control unit alphanumeric display will show the temperatures measured by the probes connected to it. By pressing the ' ▲ ' or ' ▼ ' keys it is possible to cyclically choose which probe temperature will be shown on the display:

➔ COL ➔ S_2 ➔ S_3 ➔ S_4 ➔

## AUTOMATIC / MANUAL / ACB OPERATION (Automatic Control Boiler)

The control unit can manage the installation selected in 3 different modes:

- AUTOMATIC: in this mode the control unit automatically manages and controls the operation of the installation according to the programmed data.
- MANUAL: the collector pump is continuously powered; the only active controls will be those related to the maximum temperature and safety.
- ACB: this mode is identical to the Manual mode except that the collector pump will be activated only when the temperature of the collector exceeds ' T ACB ' programmed in the relevant installer parameter.

## INSTALLER PARAMETERS

To access the installer parameters press the ' ↵ ' key.

### Entering the Password

The display will show '**PWD 0000**' with the leftmost digit flashing thus requesting for the correct password. In order to set the 4 password digits use the ' ▲ ' or ' ▼ ' key; by pressing the ' ↵ ' key, the current digit is confirmed and the flashing is transferred to the following digit. After confirming the last digit, the ' ↵ ' key will give access to the installer parameters.

**The initial password is factory set as '0000'.**

### Modifying the Password

In order to modify the stored password, first press the ' ↵ ' key, then proceed as follows:

PRESS THE ' MENU ' KEY.



THE DISPLAY SHOWS
' PWDH0000 '.



ENTER THE CURRENT PASSWORD.
(same procedure described above)



THE DISPLAY SHOWS
' PWDN0000 '.

INSERT THE NEW PASSWORD.



THE DISPLAY SHOWS
' PWDC0000 '.



INSERT NEW PASSWORD.



THE CONTROL UNIT WILL MEMORIZE
THE NEW PASSWORD AND GIVE ACCESS
TO THE INSTALLER PARAMETERS.

Pressing the ' **esc** ' key at any time will exit the password management mode.

**Using installer parameters**

Inserting the correct Password gives access to the installer parameters change mode (' **SET** ' icon lights). The first information displayed is the model of the control unit in use and the parameter ' **P1** ' value.
By pressing the ' ▲ ' or ' ▼ ' keys it is possible to scroll through the various parameters.

Pressing the ' ↵ ' key takes the user to the parameter modifying mode selected.

To exit the installer mode press the ' **esc** ' key or wait 20 seconds.

PRESS THE ' ↵ ' KEY
ON THE ON THE INITIAL PAGE.

THE DISPLAY SHOWS ' PWD 0000 '.

INSERT THE CURRENT PASSWORD.

⮟

THE DISPLAY SHOWS THE FIRST
' INSTALLER PARAMETER '.

⮟

USING THE ARROWS ' ▲ ' OR ' ▼ ' IT IS POSSIBLE TO CYCLICALLY SCROLL THROUGH THE INSTALLATION PARAMETERS:

| | |
|---|---|
| P1: SELECTION INSTALLATION TYPE | ' PLUS ' |
| P2: SETTING THERMAL DATA | ' DATA ' |
| P3: ANTIFROST PARAMETERS MANAGEMENT | ' O AF ' |
| P4: ACOUSTIC SIGNAL MANAGEMENT | ' BEEP ' |
| P5: LOGIC RELAY SELECTION | ' ACT ' |
| P6: INTEGRATION HOURS COUNTER | ' C AH ' |
| P7: LOADS WIRING TEST | ' TEST ' |

⮟

PRESS THE ' ↵ ' KEY TO MODIFY THE
SELECTED PARAMETER.

⮟

CONFIGURE DATA FOR EVERY SINGLE PARAMETER AS ILLUSTRATED BELOW.

⮟

PRESS THE ' **esc** ' KEY TO RETURN TO THE INSTALLER PARAMETERS SELECTION.

⮟

WAIT 20 SECONDS OR PRESS THE ' **esc** ' KEY TO EXIT THE INSTALLER MODE.

**Note: in the ' installer parameters ' mode all the outputs are disabled.**

**P1: SELECT INSTALLATION TYPE**

Pressing the ' ▲ ' or ' ▼ ' keys will show all the installations that can be set up (if the probe for the selected installation has a problem or is left unconnected, that probe will flash on the display).

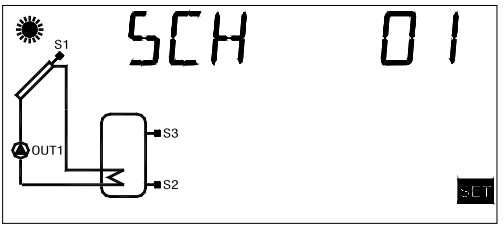
To confirm the selected installation press the ' ↵ ' key; the control unit will memorize the choice and the display will again show the parameter list.

To cancel the selection, press the ' **esc** ' key. In this case the control unit will abandon the changes made and will show again the parameter list.

The parameters influencing the regulation of the selected setup are listed below and can be modified through the second installer parameter.

## SCH 01

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

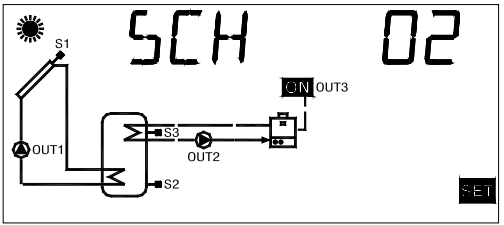



**Eventual thermal data to be programmed**

**TS1**-**TS2**-**TS3**: Probe safety temperature
**ΔT 12**: Differential between the probes S1-S2
**TM3**: Maximum temperature of probe S3
**HY12**: Hysteresis of ΔT 12
**HYT**: Thermostatic hysteresis
**HYTS**: Safety thermostatic hysteresis

## SCH 02

**Solar heating installation with 1 tank and one integrative heat source.**

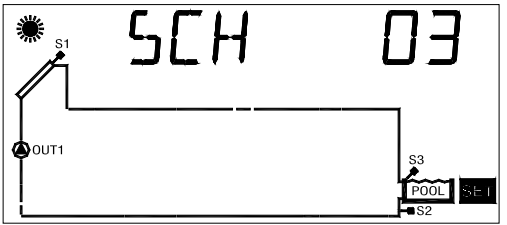



**Eventual thermal data to be programmed**

**TS1-TS2-TS3:** Probe safety temperature
**ΔT 12:** Differential between the probes S1-S2
**TM3:** Maximum temperature of the probe S3
**TAH:** Integration temperature on the probe S3
**HY12:** Hysteresis of ΔT 12
**HYT:** Thermostatic hysteresis
**HYTS:** Safety thermostatic hysteresis

## SCH 03

**Pool solar heating installation.**



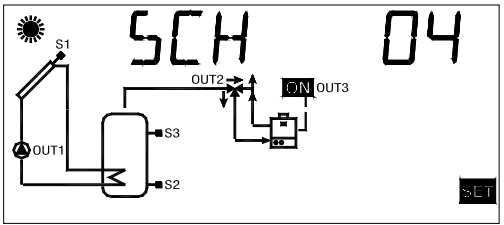

**Eventual thermal data to be programmed**

**TS1-TS2-TS3:** Probe safety temperature
**ΔT 12:** Differential between the probes S1-S2
**TM3:** Maximum temperature of the probe S3
**HY12:** Hysteresis of ΔT 12
**HYT:** Thermostatic hysteresis
**HYTS:** Safety thermostatic hysteresis

**WARNING! OUT 3 supplies 230V ~ voltage and IS NOT a potential free contact.**

## SCH 04

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



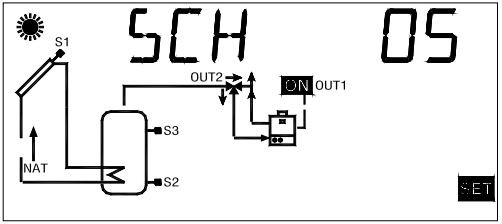

**Eventual thermal data to be programmed**

**TS1**-**TS2**-**TS3**: Probe safety temperature
**ΔT 12**: Differential between the probes S1-S2
**TM3**: Maximum temperature of the probe S3
**TAH**: Integration temperature on the probe S3
**HY12**: Hysteresis of ΔT 12
**HYT**: Thermostatic hysteresis
**HYTS**: Safety thermostatic hysteresis

**WARNING! OUT 3 supplies 230V ~ voltage and IS NOT a potential free contact.**

## SCH 05

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



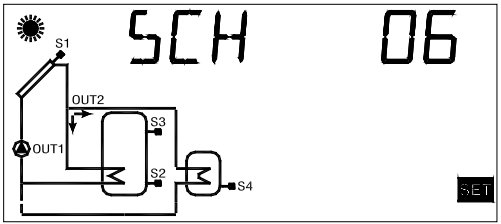

**Eventual thermal data to be programmed**

**TS1**-**TS2**-**TS3**: Probe safety temperature
**TAH**: Integration temperature on the probe S3
**HYT**: Thermostatic hysteresis
**HYTS**: Safety thermostatic hysteresis

**WARNING! OUT 1 supplies 230V ~ voltage and IS NOT a potential free contact.**

## SCH 06

**Solar heating installation with 2 tanks, valve logic control and no integrative heat source.**

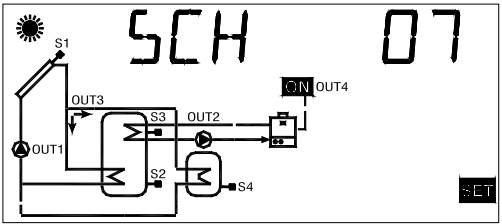



**Eventual thermal data to be programmed**

**TS1**-**TS2**-**TS3**-**TS4**: Probe safety temperature
**ΔT 12**: Differential between the probes S1-S2
**ΔT 14**: Differential between the probes S1-S4
**TM3**: Maximum temperature of the probe S3
**TM4**: Maximum temperature of the probe S4
**HY12**: Hysteresis of ΔT 12
**HY14**: Hysteresis of ΔT 14
**HYT**: Thermostatic hysteresis
**HYTS**: Safety thermostatic hysteresis

## SCH 07

**Solar heating installation with 2 tanks, logic valve control, and integrative heat source.**



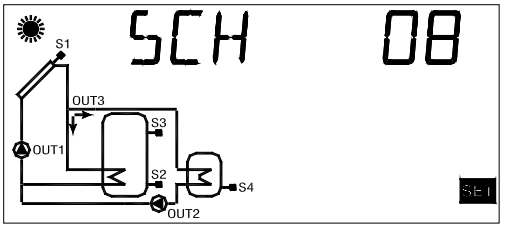

**Eventual thermal data to be programmed**

**TS1**-**TS2**-**TS3**-**TS4**: Probe safety temperature
**ΔT 12**: Differential between the probes S1-S2
**ΔT 14**: Differential between the probes S1-S4
**TM3**: Maximum temperature of the probe S3
**TM4**: Maximum temperature of the probe S4
**TAH**: Integration temperature on the probe S3
**HY12**: Hysteresis of ΔT 12
**HY14**: Hysteresis of ΔT 14
**HYT**: Thermostatic hysteresis
**HYTS**: Safety thermostatic hysteresis

**WARNING! OUT 4 supplies 230V ~ voltage and IS NOT a potential free contact.**

## SCH 08

**Solar heating installation with 2 tanks, valve logic control, no integrative heat source.**

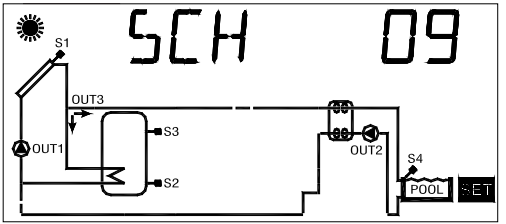



**Eventual thermal data to be programmed**

**TS1**-**TS2**-**TS3**-**TS4**: Probe safety temperature
**ΔT 12**: Differential between the probes S1-S2
**ΔT 14**: Differential between the probes S1-S4
**TM3**: Maximum temperature of the probe S3
**TM4**: Maximum temperature of the probe S4
**HY12**: Hysteresis of ΔT 12
**HY14**: Hysteresis of ΔT 14
**HYT**: Thermostatic hysteresis
**HYTS**: Safety thermostatic hysteresis

## SCH 09

**Solar heating installation with 1 tank, valve logic control and heat exchanger for pool heating.**

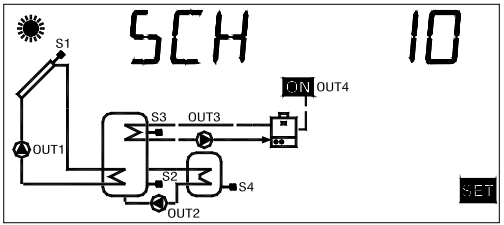



**Eventual thermal data to be programmed**

**TS1**-**TS2**-**TS3**-**TS4**: Probe safety temperature
**ΔT 12**: Differential between the probes S1-S2
**ΔT 14**: Differential between the probes S1-S4
**TM3**: Maximum temperature of the probe S3
**TM4**: Maximum temperature of the probe S4
**HY12**: Hysteresis of ΔT 12
**HY14**: Hysteresis of ΔT 14
**HYT**: Thermostatic hysteresis
**HYTS**: Safety thermostatic hysteresis

## SCH 10

**Solar heating installation with 2 tanks, sanitary regulation with thermal exchange and integrative heat source.**



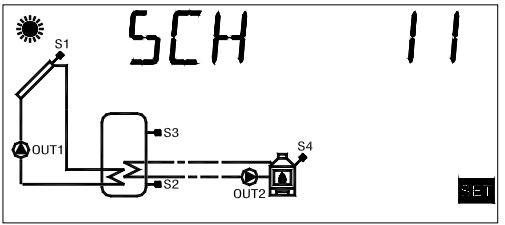

**Eventual thermal data to be programmed**

**TS1**-**TS2**-**TS3**-**TS4**: Probe safety temperature
**ΔT 12**: Differential between the probes S1-S2
**ΔT 34**: Differential between the probes S1-S4
**TM3**: Maximum temperature of the probe S3
**TM4**: Maximum temperature of the probe S4
**TAH**: Integration temperature on the probe S3
**HY12**: Hysteresis of ΔT 12
**HY34**: Hysteresis of ΔT 34
**HYT**: Thermostatic hysteresis
**HYTS**: Safety thermostatic hysteresis

**WARNING! OUT 4 supplies 230V ~ voltage and IS NOT a potential free contact.**

## SCH 11

**Solar heating installation with 1 tank and additional heat source with solid fuel.**

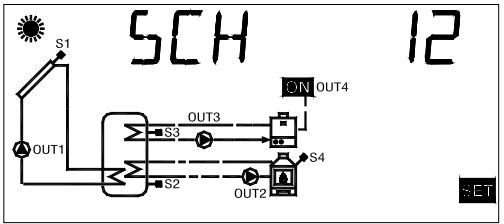



**Eventual thermal data to be programmed**

**TS1**-**TS2**-**TS3**-**TS4**: Probe safety temperature
**ΔT 12**: Differential between the probes S1-S2
**ΔT 43**: Differential between the probes S4-S3
**TM3**: Maximum temperature of the probe S3
**TM4**: Maximum temperature of the probe S4
**HY12**: Hysteresis of ΔT 12
**HY43**: Hysteresis of ΔT 43
**HYT**: Thermostatic hysteresis
**HYTS**: Safety thermostatic hysteresis

## SCH 12

**Solar heating installation with 1 tank plus one integrative and one solid fuel heat sources.**



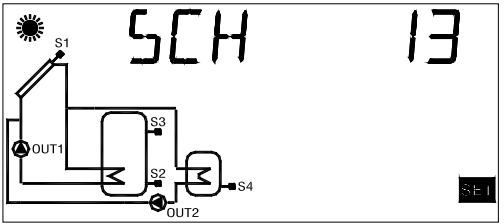

**Eventual thermal data to be programmed**

**TS1-TS2-TS3-TS4**: Probe safety temperature
**ΔT 12**: Differential between the probes S1-S2
**ΔT 43**: Differential between the probes S4-S3
**TM3**: Maximum temperature of the probe S3
**TM4**: Maximum temperature of the probe S4
**TAH**: Integration temperature on the probe S3
**HY12**: Hysteresis of ΔT 12
**HY43**: Hysteresis of ΔT 43
**HYT**: Thermostatic hysteresis
**HYTS**: Safety thermostatic hysteresis

**WARNING! OUT 4 supplies 230V ~ voltage and IS NOT a potential free contact.**

## SCH 13

**Solar heating installation with 2 tanks, pump logic.**

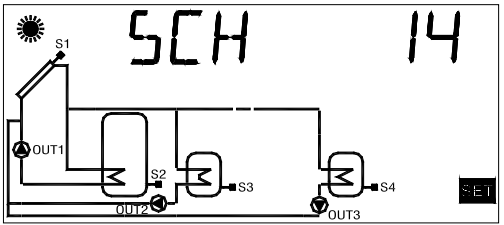



**Eventual thermal data to be programmed**

**TS1-TS2-TS3-TS4**: Probe safety temperature
**ΔT 12**: Differential between the probes S1-S2
**ΔT 14**: Differenziale tra le sonde S1-S4
**TM3**: Maximum temperature of the probe S3
**TM4**: Maximum temperature of the probe S4
**HY12**: Hysteresis of ΔT 12
**HY14**: Hysteresis of ΔT 14
**HYT**: Thermostatic hysteresis
**HYTS**: Safety thermostatic hysteresis

## SCH 14

**Solar heating installation with 3 tanks, pump logic.**

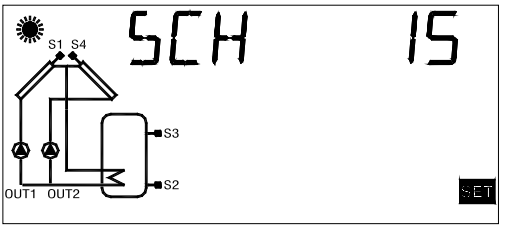



**Eventual thermal data to be programmed**

**TS1**-**TS2**-**TS3**-**TS4**: Probe safety temperature
**ΔT 12**: Differential between the probes S1-S2
**ΔT 13**: Differential between the probes S1-S3
**ΔT 14**: Differential between the probes S1-S4
**TM2**: Maximum temperature of the probe S2
**TM3**: Maximum temperature of the probe S3
**TM4**: Maximum temperature of the probe S4
**HY12**: Hysteresis of ΔT 12
**HY13**: Hysteresis of ΔT 13
**HY14**: Hysteresis of ΔT 14
**HYT**: Thermostatic hysteresis
**HYTS**: Safety thermostatic hysteresis

## SCH 15

**Solar heating installation with 2 banks of panels, 1 tank and no integrative heat source.**

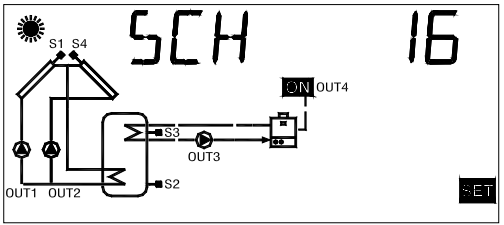



**Eventual thermal data to be programmed**

**TS1**-**TS2**-**TS3**-**TS4**: Probe safety temperature
**ΔT 12**: Differential between the probes S1-S2
**ΔT 42**: Differential between the probes S4-S2
**TM3**: Maximum temperature of the probe S3
**HY12**: Hysteresis of ΔT 12
**HY42**: Hysteresis of ΔT 42
**HYT**: Thermostatic hysteresis

## SCH 16

**Solar heating installation with 2 banks of panels, 1 tank and integrative heat source.**



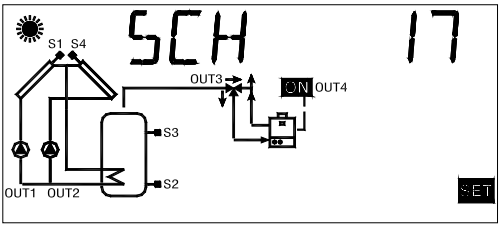

**Eventual thermal data to be programmed**

**TS1-TS2-TS3-TS4**: Probe safety temperature
**ΔT 12:** Differential between the probes S1-S2
**ΔT 42:** Differential between the probes S4-S2
**TM3**: Maximum temperature of the probe S3
**TAH**: Integration temperature on the probe S3
**HY12**: Hysteresis of ΔT 12
**HY42**: Hysteresis of ΔT 42
**HYT**: Thermostatic hysteresis
**HYTS**: Safety thermostatic hysteresis

**WARNING! OUT 4 supplies 230V ~ voltage and IS NOT a potential free contact.**

## SCH 17

**Solar heating installation with 2 banks of panels, 1 tank, integrative heat source by means of valve logic.**



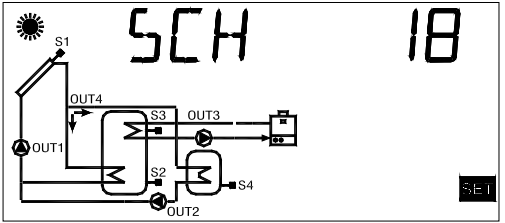

**Eventual thermal data to be programmed**

**TS1-TS2-TS3-TS4**: Probe safety temperature
**ΔT 12:** Differential between the probes S1-S2
**ΔT 42:** Differential between the probes S4-S2
**TM3**: Maximum temperature of the probe S3
**TAH**: Integration temperature on the probe S3
**HY12**: Hysteresis of ΔT 12
**HY42**: Hysteresis of ΔT 42
**HYT**: Thermostatic hysteresis
**HYTS**: Safety thermostatic hysteresis

**WARNING! OUT 4 supplies 230V ~ voltage and IS NOT a potential free contact.**

## SCH 18

**Solar heating installation with 2 tanks, logic valve, integrative heat source, extra pump on the second boiler.**

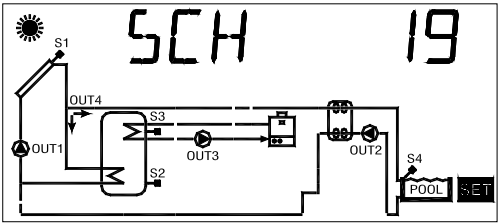



**Eventual thermal data to be programmed**

**TS1**-**TS2**-**TS3**-**TS4**: Probe safety temperature
**ΔT 12**: Differential between the probes S1-S2
**ΔT 14**: Differenziale tra le sonde S1-S4
**TM3**: Maximum temperature of the probe S3
**TM4**: Maximum temperature of the probe S4
**TAH**: Integration temperature on the probe S3
**HY12**: Hysteresis of ΔT 12
**HY14**: Hysteresis of ΔT 14
**HYT**: Thermostatic hysteresis
**HYTS**: Safety thermostatic hysteresis

## SCH 19

**Solar heating installation with 1 tank, logic valve, integrative heat source and heat exchanger for pool heating.**




**Eventual thermal data to be programmed**

**TS1**-**TS2**-**TS3**-**TS4**: Probe safety temperature
**ΔT 12**: Differential between the probes S1-S2
**ΔT 14**: Differenziale tra le sonde S1-S4
**TM3**: Maximum temperature of the probe S3
**TM4**: Maximum temperature of the probe S4
**TAH**: Integration temperature on the probe S3
**HY12**: Hysteresis of ΔT 12
**HY14**: Hysteresis of ΔT 14
**HYT**: Thermostatic hysteresis
**HYTS**: Safety thermostatic hysteresis

## P2: SETTING THE THERMAL DATA

Using this parameter it is possible to set the thermal data related to the selected installation:

AFTER SELECTING PARAMETER P2 PRESS THE ' ↵ ' KEY.

USING THE ▲ ' OR ' ▼ ' ARROWS IT IS POSSIBLE TO SCROLL CYCLICALLY THROUGH THE THERMAL DATA:

- Safety temperatures
- Differentials
- Hysteresis of the differentials
- Hysteresis of the safety thermostats
- Hysteresis of the thermostats
- Offset
- Maximum temperatures
- Integration temperature
- ACB (automatic control boiler) temperature

PRESS THE ' ↵ ' TO MODIFY THE THERMAL DATA SELECTED;
THE DATA WILL START FLASHING.

SET THE DESIRED NUMERIC VALUE USING THE ' ▲ ' OR ' ▼ ' ARROWS.

PRESS THE ' ↵ ' KEY TO CONFIRM THE PROGRAMMED SETTINGS OR PRESS THE ' **esc** ' KEY TO CANCEL THE CHANGES.

A list of the allowed regulation ranges for every single value is given in the following.

**The control unit is supplied with pre-programmed thermal data for optimal operation. Any change to these values must be performed by qualified personnel only.**

| Safety temperatures | | |
|---|---|---|
| Data | Regulation range | Default |
| TS1 | 60.0 .. 240.0 °C | 140.0 °C |
| TS2 | 40.0 .. 99.0 °C | 90.0 °C |
| TS3 | 40.0 .. 99.0 °C | 90.0 °C |
| TS4 | 40.0 .. 99.0 °C | 90.0 °C |

**WARNING!**

**It is not possible to set the Safety Temperatures TS2, TS3, TS4 to a value lower than the relevant Maximum Temperature, as the value of the Safety Temperature is limited to the value of the Maximum Temperature +5°C.**

**To lower the Safety Temperature, it is first necessary to decrease the Maximum Temperature and then set the Safety Temperature to the desired value.**

| Differentials | | |
|---|---|---|
| Data | Regulation range | Default |
| ΔT12 | 1.0 .. 25.0°C | 6.0 °C |
| ΔT14 | 1.0 .. 25.0°C | 6.0 °C |
| ΔT34 | 1.0 .. 25.0°C | 6.0 °C |
| ΔT43 | 1.0 .. 25.0°C | 6.0 °C |
| ΔT42 | 1.0 .. 25.0°C | 6.0 °C |
| ΔT13 | 1.0 .. 25.0°C | 6.0 °C |

**WARNING!**

**It is not possible to set the Differential to a value lower than the relevant hysteresis because the value of the Differential is limited to the value of the hysteresis +1°C. To lower the Differential it is first necessary to decrease the value of the hysteresis.**

| Hysteresis of the differentials | | |
|---|---|---|
| Data | Regulation range | Default |
| HY12 | 0.5 .. 20.0°C | 2.0 °C |
| HY14 | 0.5 .. 20.0°C | 2.0 °C |
| HY34 | 0.5 .. 20.0°C | 2.0 °C |
| HY43 | 0.5 .. 20.0°C | 2.0 °C |
| HY42 | 0.5 .. 20.0°C | 2.0 °C |
| HY13 | 0.5 .. 20.0°C | 2.0 °C |

**WARNING!**

**It is not possible to set the Hysteresis to a value higher than the relevant Differential, because the value of the hysteresis is limited to the value of the Differential - 1°C.**

**To increase the value of the Hysteresis it is first necessary to increase the value of the Differential.**

| Hysteresis of the safety temperatures | | |
|---|---|---|
| Data | Regulation range | Default |
| HYTS | 1.0 .. 15.0°C | 2.0 °C |

| Thermostatic hysteresis | | |
|---|---|---|
| Data | Regulation range | Default |
| HYT | 1.0 .. 15.0°C | 2.0 °C |

| Probe offset | | |
|---|---|---|
| Data | Regulation range | Default |
| OS1 | -5.0 .. +5.0°C | 0.0 °C |
| OS2 | -5.0 .. +5.0°C | 0.0 °C |
| OS3 | -5.0 .. +5.0°C | 0.0 °C |
| OS4 | -5.0 .. +5.0°C | 0.0 °C |

| Maximum temperature of the probes | | |
|---|---|---|
| Data | Regulation range | Default |
| TM2 | 20.0 .. 90.0°C | 70.0 °C |
| TM3 | 20.0 .. 90.0°C | 70.0 °C |
| TM4 | 20.0 .. 90.0°C | 70.0 °C |

**WARNING!**

**It is not possible to set the Maximum Temperature to a value higher than the relevant Safety Temperature, as the Maximum Temperature value is limited to the value of the Safety Temperature -5°C.**

**To increase the Maximum Temperature value, it is first necessary to increase the value of the Safety Temperature.**

| **Integration Temperature (After Heating) on probe S3** | | |
|---|---|---|
| Data | Regulation range | Default |
| TAH | 20.0 .. 90.0°C | 40.0 °C |

| **ACB Temperature (Automatic Control Boiler) on probe S3** | | |
|---|---|---|
| Data | Regulation range | Default |
| TACB | 20.0 .. 80.0°C | 30.0 °C |

## P3: ANTIFROST PARAMETER MANAGEMENT

Using this parameter it is possible to set the data managing the antifrost function.

AFTER SELECTING PARAMETER P3 PRESS THE ' ↵ ' KEY.

IT IS POSSIBLE TO SCROLL CYCLICALLY THROUGH ANTIFROST DATA USING THE ' ▲ ' OR ' ▼ ' ARROWS:

- Antifrost temperature ' TAF '
- Collector pump ignition interval ' P ON '
- Collector pump shut off interval ' P OFF '
- Antifrost test duration ' TMR '

PRESS THE ' ↵ ' KEY TO MODIFY THE THERMAL DATA SELECTED;
THE DATA WILL START FLASHING.

USE THE ' ▲ ' OR ' ▼ ' ARROWS TO SET THE DESIRED NUMERIC VALUE.



PRESS THE ' ↵ ' KEY TO CONFIRM THE PROGRAMMING OR PRESS THE ' **esc** ' KEY TO CANCEL THE CHANGES.



BY PRESSING THE ' ↵ ' KEY AFTER MODIFYING THE DATA RELATIVE TO THE DURATION OF THE ANTIFROST TEST, THE CONTROL UNIT WILL CONFIRM THE DATA AND WILL START THE TEST.

**The control unit is supplied with preset antifrost data for optimal operation.**
**Any change to these values must be performed by qualified personnel only.**

A list of the allowed regulation ranges for every single value is given in the following.

| **Antifrost temperature** | | |
|---|---|---|
| Data | Regulation range | Default |
| TAF | 0.0 .. 10.0°C | 4.0 °C |

| **Collector pump 'on' time** | | |
|---|---|---|
| Data | Regulation range | Default |
| P ON | 5 .. 60 sec. | 10 sec. |

| **Collector pump 'off' time** | | |
|---|---|---|
| Data | Regulation range | Default |
| P OFF | 1 .. 60 min. | 20 min. |

| **Antifrost test duration** | | |
|---|---|---|
| Data | Regulation range | Default |
| P MR | 5 .. 60 sec. | 10 sec. |

## P4: ACOUSTIC SIGNAL MANAGEMENT

Using this parameter it is possible to enable or disable the acoustic signalling of the control unit (keyboard tones, alarms, and diagnostics).

| Enable (1) / Disable (0) acoustic signal | | |
|---|---|---|
| Data | Regulation range | Default |
| BEEP | 0 .. 1 | 1 |

**Note: '1' enables acoustic signalling, while '0' disables it.**

## P5: RELAY LOGIC SELECTION

Using this parameter it is possible to reverse the output logic from Normally Open (N.O.) to Normally Closed (N.C.) and vice-versa.

It is only possible to modify the output logic for the relays actually active in the selected setup.

Value '1' for these parameters means that the output logic is reset to the N.O. value (default).

AFTER SELECTING PARAMETER P5 PRESS THE ' ↵ ' KEY.

USING THE ' ▲ ' OR ' ▼ ' ARROWS IT IS POSSIBLE TO SCROLL THROUGH THE ACTIVE OUTPUTS.

SELECT THE DESIRED OUTPUT AND
PRESS THE ' ↵ ' KEY.

CHANGE THE OUTPUT LOGIC USING
THE ' ▲ ' OR ' ▼ ' ARROWS.

PRESS THE ' ↵ ' KEY TO CONFIRM THE PROGRAMMED SETTING OR PRESS THE ' **esc** ' KEY TO CANCEL THE MODIFICATION.

The output logic can be selected for the following three outputs only:

| **Output logic for OUT 2** | | |
|---|---|---|
| Data | Regulation range | Default |
| OUT 2 | 0 .. 1 | 1 |

| **Output logic for OUT 3** | | |
|---|---|---|
| Data | Regulation range | Default |
| OUT 2 | 0 .. 1 | 1 |

| **Output logic for OUT 4** | | |
|---|---|---|
| Data | Regulation range | Default |
| OUT 2 | 0 .. 1 | 1 |

**Note: '1' means Normally Open (N.O.) logic, while '0' means Normally Closed (N.C.) logic.**

## P6: INTEGRATION HOURS COUNTER

Using this parameter it is possible to display the actual number of hours of the integrative source operation or reset it.

AFTER SELECTING PARAMETER P6 PRESS THE ' ↵ ' KEY.



THE DISPLAY SHOWS 'H' AND ACTUAL HOURS OF ACTIVITY OF THE INTEGRATIVE SOURCE.



PRESS THE ' ↵ ' KEY , THE DISPLAY SHOWS 'H' FLASHING.



PRESSING THE ' ↵ ' KEY RESETS THE COUNTER, PRESSING THE ' **esc** ' AGAIN SHOWS THE CURRENT RUNNING HOURS.

The counter recording the running hours of the integrative source can handle values up to 9999. Once the maximum value is reached, the counter stops.

## P7: LOADS WIRING TEST

This parameter allows to set the test of the loads wired to the control unit as well as the wirings themselves.
The control unit tests the loads connected to it, according to the selected diagram, by turning on all the available outputs in sequence for 10 seconds each.
The sequence of the test, in multiples of 5, can be set using the single ' TMR ' parameter present.
The activation of the test is signalled on the display with the ' TIMER ' icon.

AFTER SELECTING PARAMETER P7 PRESS THE ' ↵ ' KEY.

THE DISPLAY SHOWS ' TMR ' AND THE NUMBER OF CYCLES IN THE TEST.

⮟

PRESS ' ↵ '. THE DISPLAY SHOWS 'TMR' FLASHING.

⮟

USING THE KEYS ' ▲ ' OR ' ▼ ' SET THE NUMBER OF CYCLES TO 5, 10, 15, 20 OR 25.

⮟

PRESS ' ↵ ' TO CONFIRM THE PROGRAMMED DATA AND START THE TEST.
BY PRESSING ' **esc** ' THE MODIFICATIONS ARE CANCELED AND THE DISPLAY AGAIN SHOWS THE NUMBER OF PRESET CYCLES.

| **Test sequence cycles number** | | |
|---|---|---|
| Data | Regulation range | Default |
| TMR | 05 .. 25 | 05 |

## FUNCTIONS ACCESSIBLE TO THE USER

The functions accessible to the user are limited and do not allow setting those data influencing the installation management.
The only operations allowed to the user are the following:

**Turning on / Turning off the control unit**

**Manual Management of the installation**

By pressing the ' ☝ ' key it is possible to activate or deactivate the manual operation of the control unit.
When manual function is chosen the display shows the icon ' ☝ '. In manual operation the collector pump is always active, regardless of the measured temperatures and the integrative heat source is always disabled.

The only active controls are those related to the maximum temperatures and safety.

**User menu**

PRESS THE ' 📖 ' KEY TO ACCESS
' USER PARAMETERS '.

⮟

THE FIRST ' USER PARAMETER '
IS SHOWN.

⮟

USING THE ' ▲ ' OR ' ▼ ' ARROWS IT IS POSSIBLE TO SCROLL CYCLICLALLY THROUGH THE USER PARAMETERS:

U1: SHOWS MAXIMUM TEMPERATURES
U2: ENABLES / DISABLES ANTIFROST
U3: ENABLES / DISABLES ACB

⮟

PRESS THE ' ↵ ' KEY TO SELECT THE
DESIRED PARAMETER.

⮟

SET THE DESIRED VALUE FOR EVERY SINGLE PARAMETER AS EXPLAINED BELOW.

⮟

PRESS THE ' **esc** ' KEY TO RETURN TO THE USER PARAMETERS SELECTION MENU.

⮟

WAIT 20 SECONDS OR PRESS THE ' **esc** ' KEY TO QUIT USER MODE.

**WARNING!**
**In the ' USER PARAMETERS ' mode all outputs are disabled.**

**Displaying the Maximum Temperatures recorded**

Parameter ' TMAX U1 ' allows to display the maximum temperature recorded in the system for each probe TM-.

PRESS THE ' ↵ ' KEY
TO VIEW THE TEMPERATURE.

⮟

USING THE ' ▲ ' OR ' ▼ ' ARROWS IT IS POSSIBLE TO SCROLL CYCLICALLY THROUGH THE RECORDED TEMPERATURES:

TM1 ➔ TM2 ➔ TM3 ➔ TM4

⮟

PRESS THE ' ↵ ' KEY. THE DISPLAY SHOWS FLASHING THE NUMBER OF THE PROBE.
PRESSING THE ' **esc** ' KEY RETURNS TO SHOWING THE USER PARAMETERS.

⮟

PRESSING ' ↵ ' RESETS THE TEMPERATURE RECORDED TO THAT POINT;
PRESSING ' **esc** ' RETURNS TO SHOWING THE MEMORIZED TEMPERATURE.

⮟

PRESS THE ' **esc** ' KEY TO QUIT THE MAXIMUM TEMPERATURE DISPLAY MODE.

**Antifrost Activation**

The ' AFR U2 ' parameter (anti-frost) enables or disables the antifrost function. The management of the antifrost data is performed through the user parameters.

PRESS THE ' ↵ ' KEY;
THE DISPLAY SHOWS 'AFR' FLASHING.

⮟

USING THE ' ▲ ' OR ' ▼ ' ARROWS IT IS POSSIBLE TO ENABLE OR DISABLE THE ANTIFROST:
**0: DISABLED**
**1: ENABLED** (THE DISPLAY SHOWS ❄)



PRESS THE ' ↵ ' KEY TO CONFIRM THE PROGRAMMING OR PRESS THE ' **esc** ' KEY TO QUIT USER PARAMETERS.

**Automatic Boiler Control by means of Collectors (ACB)**
The function ' ACB ' is an interesting addition to the Manual mode.
When the function ' ACB ' is enabled, the collector pump, in contrast to the Manual mode, in which it is always running, is stopped if the collector temperature, measured by the probe S1, drops below the temperature set in the ' TACB ' parameter in the installer parameters.

PRESS THE ' ↵ ' KEY;
THE DISPLAY SHOWS ' ACB ' FLASHING.



USING THE ' ▲ ' OR ' ▼ ' ARROWS IT IS POSSIBLE TO ENABLE OR DISABLE THE ACB:
**0: DISABLED**
**1: ENABLED** (THE DISPLAY SHOWS ☝ and TIMER )



PRESS THE ' ↵ ' KEY TO CONFIRM THE PROGRAMMING OR PRESS THE ' **esc** ' KEY TO QUIT USER PARAMETERS.

## TROUBLESHOOTING

| ANOMALY | POSSIBLE CAUSE | |
|---|---|---|
| During normal operation the control unit displays the symbol  and emits an acoustic signal characterized by a series of 'beeps'. The probe that generated the problem is flashing on the display. | The control unit has revealed an anomaly on the probe.<br><br>The display shows the number of the damaged probe and the type of anomaly present. | |
| | COL OPEn<br>S_2 OPEn<br>S_3 OPEn<br>S_4 OPEn | Open circuit on probe input ($R = \infty$). |
| | COL ShrT<br>S_2 ShrT<br>S_3 ShrT<br>S_4 ShrT | Short circuit on probe input ($R \approx 0$). |

| | |
|---|---|
| The display shows the icon  and the control unit emits an acoustic signal characterized by a series of 'beeps'. | One or more probes are measuring a temperature higher than the relevant programmed safety temperature. |
| In the selection of the installation to be realized (installer parameter P1) one or more probes flashing. | The probe is miswired or damaged. |

## SUPPLIED ACCESSORIES

Included in the packaging the following probes are provided:

- N° 1 **STL MTS L150**: Pt1000 probe -50°C .. +200°C grey cable.
- N° 3 **STL MTI M150**: Pt1000 probe -50°C .. +110°C blue cable.

## ACCESSORIES SUPPLIED ON REQUEST

- **ACC STA 0004**: zinc-plated iron fitting for fixing the control unit on a panel.

## REPLACEMENTS

- **STL MTS L150**: Pt1000 probe -50°C .. +200°C grey cable.
- **STL MTI M150**: Pt1000 probe -50°C .. +110°C blue cable.

**NOTES:**

**NOTES:**

seitron s.r.l.

**Via Prosdocimo, 30 I-36061 BASSANO DEL GRAPPA (VI) - ITALY- Tel.: +39.0424.567842 Fax.: +39.0424.567849**
**http://www.seitron.it e-mail: info@seitron.it**