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SCM850B-E1010

I Master i²NET, basic version, command of **30** serial slave units. Suitable to manage heating, wine-making, evaporative cooling installation.

SCM850B-E1011

I Master i²NET basic version with serial port TCP/IP for Eye-Lan and with software Eye-Lan Lite.
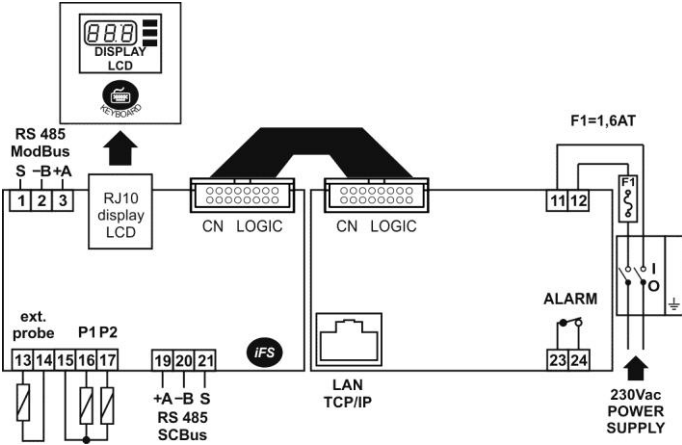
SCM850B-E1012

I Master i²NET basic version with serial port RS485 for MODBus RTU.

SCM850B-E1013

I Master i²NET basic version with:
- serial port TCP/IP for Eye-Lan and software Eye-Lan Lite
- serial port MODBus RTU.

WIRING DIAGRAM

POWER SUPPLY	
11 - 12	Power supply 230Vac
ALARM OUPUT	
23 - 24	Alarm relay – 3(1)A 250Vac
OUTSIDE SENSOR	
13	(**P**) Outside temperature sensor / Digital input
14	(**C**) Common to outside temperature sensor / Digital input
SERIAL PROBES	
15	(**C**) Common to temperature probes P1 and P2
16	(**P1**) room probe P1
17	(**P2**) room probe P2
SCBus NETWORK CONNECTION	
19 +A	
20 –B	Network connection SCBus RS 485
21 S	
TCP-IP NETWORK CONNECTION (OPTIONAL)	
TCP-IP	Network connection TCP-IP required for Eye-Lan software. ONLY FOR SCM850B-E1011 or SCM850B-E1013.
MODBus NETWORK CONNECTION (OPTIONAL)	
1,2,3	Network connection MODBus RS 485. ONLY FOR SCM850B-E1012 or SCM850B-E1013.

MASTER SCM850: INSTALLATION

1. WARNINGS

⚠ **BEFORE OPERATING ON THE DEVICE, PLEASE CAREFULLY READ THE INSTRUCTIONS IN THIS MANUAL. KEEP THIS MANUAL IN A SAFE PLACE FOR FUTURE REFERENCE**

Use the appliance only for its intended purpose as described in this manual. The Manufacturer declines all responsibility for inappropriate use or incorrect setting of the controls. To ensure safe operation:
- Appliance must be properly installed and maintenance must be performed according to this manual;
- Supply voltage and environmental conditions fall within the values specified on appliance data plate.

⚠ **ELECTRIC CONNECTIONS**
THE DEVICE IS NOT PROTECTED AGAINST CIRCUIT OVERLOADING: EQUIP POWER SUPPLY INPUT AND ALL OUTPUTS WITH NECESSARY SAFETY DEVICES.
- Avoid crossing cables by separating ELV ExtraLowVoltage from load-referred connections.
- Protect the device power supply and probe inputs from electric disturbances.
- Disconnect the appliance from the power supply before carrying out any maintenance;
- Do not EVER open the device plastic enclosure

2. TECHNICAL FEATURES

Power supply:	230Vac
Operation field:	-50.0…150°C
PTC 990Ω accuracy:	~2 °C nel range –60T50 °C; ~5 °C nel range +50T160 °C;
Unit consumption:	7 VA
Housing:	plastic enclosure 310 x 230 x 150mm
Fixing:	on wall
Data storage:	on EEPROM memory
Front protection:	IP00
Employment conditions:	environment temperature –10…50°C storage temperature –20…70°C
Relative environment hum:	30 / 80%, without condensation
Connection:	screw terminal, cables max cross section 2,5mm²
Display:	LCD display
Inputs:	3 inputs PTC 990 Ω @25°C (if enabled)
Outputs :	relay ALARM SPST 3(1)A 250Vac
Serial Connections:	1 serial port RS-485 to SCBus i²NEt. 1.000m max length tolerated for the network 1 *iFS* serial interface TTL to the expansion key: • device firmware update; • quick arameter setting (copy/paste); SCM850B-E1011 / SCM850B-E1013 ONLY: 1 serial port TCP/IP (10/100Mbps) to Eye-lan software. SCM850B-E1011 / SCM850B-E1013 ONLY: 1 serial port RS-485 MODBus.

3. MAIN FEATURES

DISPLAY WITH AUTOMATIC DECIMAL POINT: The display decimal range is: –50,0 and 150,0, out of this range the device switches automatically to integer numbers
SCBUS AND INFRANet, 2-WIRE BUS CONNECTION: A two-pole cable is required to connect the master to the zone slave modules. This simplifies the connection.
The two-way communication runs along a RS-485 serial line made of a 2-wire twisted shielded cable (i.e. Belden 8762 with PVC sheathing 2 twisted terminals + copper sheathing, 20 AWG, 89pF cables nominal capacity, 161pF cable / copper sheathing nominal capacity). 1.000m max length tolerated for the network;
LCD DISPLAY: a large LCD display helps to keep the thermostat always under control at a glance. Scrolling text messages and symbols describe the operations in progress.
SCM850B-E1011 or SCM850B-E1013 ONLY: PC CONNECTION: use a serial cable TCP/IP, cat. 5, for the connection master SCM850 to PC and the Eye-Lan software.

4. SERIAL TCP/IP PORT TO EYE-LAN
SCM850B-E1011 or SCM850B-E1013 ONLY

MASTER SCM850 DEFAULT NETWORK ADDRESS: **192.168.1.100**.
NETWORK PORT PASSWORD (IF REQUIRED): **moxa**.

⚠ AT THE FIRST START UP CONNECT THE MASTER SCM850 DIRECTLY TO PC USING A SERIAL CABLE CAT.5. YOU MAY CHANGE THE MASTER IP ADDRESS.
- SHOULD YOU NEED TO CONNECT MORE NETWORK MASTERS SCM850 TO THE SAME NETWORK, MAKE SURE EACH MASTER HAS GOT A DIFFERENT AND UNIQUE IP ADDRESS
- IF EYELAN SOFTWARE DOES NOT REACH THE SCM850 MASTER CHECK PARAMETER *H0r*.

To set the address of the network port, proceed as follows:

- open a blank internet page (Explorer® / Firefox® / Chrome®);
- type the master IP address on the address bar, default value:192.168.1.100.
- insert the password if required: "moxa".
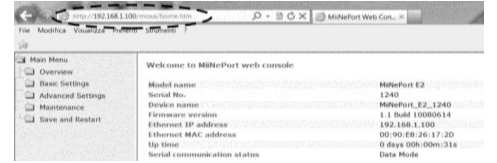
- click "Basic Settings → Network Settings"; now you can change the IP address, the master netmask. It is also possible to set the gateway and server DNS, whenever necessary;
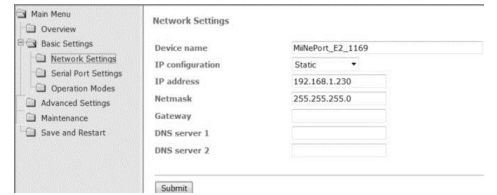
- Set "IP configuration" as "Static";
- Click "Submit" to save changes
- Click "Basic Settings → Serial Port Settings", and check the settings:
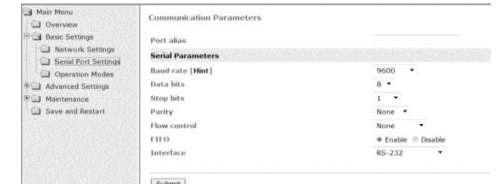
- Click "Basic Settings → Operation Modes", check the item "Mode" has been set as "TCP Server" and the item "Local TCP port" is "4001":

⚠️: TAKE NOTE OF THE NEW NETWORK ADDRESS.

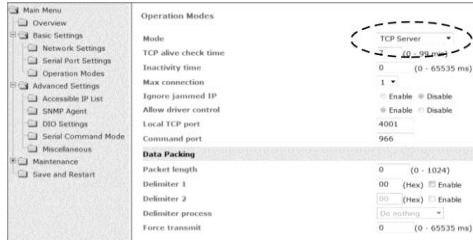| Main Menu | Operation Modes | |
Overview		
Basic Settings	Mode	TCP Server ▼
Network Settings	TCP alive check time	(0 - 99 min)
Serial Port Settings	Inactivity time	0 (0 - 65535 ms)
Operation Modes	Max connection	1 ▼
Advanced Settings	Ignore jammed IP	○ Enable ● Disable
Accessible IP List	Allow driver control	● Enable ○ Disable
SNMP Agent	Local TCP port	4001
DIO Settings	Command port	966
Serial Command Mode	Data Packing	
Miscellaneous	Packet length	0 (0 - 1024)
Maintenance	Delimiter 1	00 (Hex) □ Enable
Save and Restart	Delimiter 2	00 (Hex) □ Enable
	Delimiter process	Do nothing ▼
	Force transmit	0 (0 - 65535 ms)

5. HOW TO CONNECT THE EXPANSION KEY SCAME20
SCM850B-E1011 or SCM850B-E1013 ONLY

- Switch off the gateway SCM850;
- Connect the expansion key to the iFS port of the master SCM850;
- Power on the gateway SCM850 and wait for the red led on the expansion key to switch off, ~3sec.;
- Switch off the SCM850, disconnect the key and power on again the master SCM850.
- Set the software to work with the expansion key. Go to the Eye-Lan and check item "Options→License".

NOTE: the SCAME20 key works only one time, it can be used only to upgrade one SCM850 device.

6. MODBus PORT
SCM850B-E1011 or SCM850B-E1013 ONLY

RS485 MODBus PORT ENABLED ONLY WITH $H0r$=2 or 3. For the MODBus parameters see datasheet E1313C.

MASTER SCM850: USE
7. FRONT PANEL

7.1 KEYBOARD

⏻ M	**- MASTER:** press it briefly to enter the master SCM850 menus **- ON/OFF ZONE:** hold it for 2s.: Enable-ON / Disable-OFF of the slave module displayed on the "**ZONE:**" area.
🖐 S	**- SLAVE MODULE:** press it briefly to enter the menu of the slave module displayed on the "**ZONE:**" area. **- SET POINT ZONE:** hold it for 2s.: set-point of the slave module displayed on "**ZONE:**".
✕ rst	**ESC / RESET:** In setup mode it works as ESC. Hold it pressed to launch the RESET of the selected slave module (ONLY for devices with RESET function)
↵	**ENTER:** it works as enter/confirm button. Press it: + to enter the displayed menu/parameters; + to confirm / start the displayed functions.
↑	**UP:** in normal operation, press it to scroll the slave modules acknowledged by the master SCM850; in setup mode, it increases the displayed value;
↓	**DOWN:** in normal operation, press it to scroll backwards the slave modules acknowledged by the master SCM850; in setup mode, it decreases the displayed value;
⚠	**ALARM:** to go to the alarm menu / to mute a buzzing alarm. Only accessible when an alarm is in progress.
◥	**DISPLAY LCD:** to go to the display settings: language selection, backlight, buzzer, speed text, column text…

7.2 DISPLAY: SYMBOLS
SYMBOLS COMMON TO ALL SCBus APPLICATIONS

⚠	**ALARM:** ON when an alarm condition is ON
🔧	**SETUP:** Setting mode Icon ON: the display is showing the parameter/menu *name*. Icon BLINKING: the display is showing the parameter/menu *value*.
ZONE:	**Zone :** the displayed module is the one to which the data refer. (19 = slave module n° 19)
☀❄	**Summer / Winter :** ●: slave module in summer mode (cool - direct action). ○: slave module in winter mode (heat - direct action).
🌡 ERR	**Slave module temperature alarm:** (only modules featuring temperature alarm function) ●: temperature alarm in progress. ○: no temperature alarm in progress
DAY 1234567	**Days of the week :** (1 = Monday,.. , 7 = Sunday).
ON	**ZONE Enable-On / Disabile-Off:** ● : Slave module enabled ON. ○ : Slave module enabled OFF. In OFF mode the slave module does not maintain the **rt**, antifrost set point. When the slave module is in OFF mode, the master SCM850 displays only the ZONE and the measured TEMPERATURE
🖐	**Manual / Holiday mode:** 🖐+ ☽ ON: slave module in holiday mode. Holiday mode can be enabled only by Eyelan. 🖐ON + ☽ blinking: slave module in manual ON mode; 🖐OFF: slave module in AUTO mode;

SYMBOLS FOR HEATING APPLICATIONS

BLK	**Burner in lockout:** when **BLK** is ON If blinking: reset command locked, see parameters H30 and H31.
AG1	**Generic alarm, auxiliary input AG1** Modules for standard burner or inverter: SCQ72/SCP004V156/SCP004V160/SCP004V157: AUX input alarm / thermal overload relay alarm. Modules for blower burners, warm air generators: SCP674V030/SCP674V202: Thermal overload relay or b-thermostat alarm. ●: alarm in progress. ○: no alarm.
AG2	**Generic alarm, auxiliary input AG2** Modules for standard burner or inverter: SCQ72/SCP004V156/SCP004V160/SCP004V157: gas pressure switch alarm. Modules for blower burners, warm air generators: SCP674V030/SCP674V202: alarm of blocked air filters 1 and 2. ● alarm in progress. ○: no alarm
SEA	**Serious external alarm.** Modules for standard burner or inverter: SCQ72/SCP004V156/SCP004V160/SCP004V157: serious external alarm burner overheating. If a SEA alarm is in progress the burner stops. ● : alarm in progress. ○ : no alarm.
🔥	**Burner output:** 🔥 ON: burner output activated or first stage activated in the case of a multi-stage burner. 🔥 BLINKING: warning light of burner ON or 1st level ON.
🔥HI	Only for multi-stage burner: 🔥HI ON: second stage burner output ON or second burner activated (SCQ71). 🔥HI BLINKING: warning light of 2nd level of burner ON or 2nd burner ON. ONLY for SCB40 SCB50: "**HI**' refers to burners of ZONE 2.
✹	**Fan output:** (according to the slave module features) ✹ ON: fan output activated
☀	**Timer program of burner on - SP1C :** timer program of burner/s ON with SP1C set-point
☀	**Timer program of burner on - SP1E :** timer program of burner/s ON with SP1E set-point..
☽	**Timer program of burner off - rt :** timer program of burner/s OFF. If **rt** ≠ 0 the network device maintains the antifreeze set-point.
🖐	**Manual mode :** 🖐 on : slave module in manual mode : on or off; 🖐 off : slave module in automatic mode;;

SYMBOLS FOR WINE MAKING APPLICATIONS

🔥	**Heat valve output:** 🔥 ON: heat valve activated.
❄	**Cold valve output:** ❄ ON: cold valve activated
☀	**Slave module ON** : slave module enabled.
☽	**Slave module OFF** : slave module disabled.

SYMBOLS FOR EVAPORATIVE COOLING APPLICATIONS

🔽 LOAD	**LOAD** : : status of the "water load" of the displayed evaporative cooler: ●: tank filling, water load in progress; ○: no water load;
🔽 DUMP	**DUMP** : status of the "water dump" of the displayed evaporative cooler. ●: tank drain, water dump in progress; ○: no water drump.
⚙ PUMP	**PUMP**: status of the "pump" of the displayed evaporative cooler. ●: pump working, water flowing, pads stepping. ○: pump OFF.
❄	**COOL:** ON when the displayed evaporative cooler is working in cool mode. During the TIMER setup, ❄ refers to timer programs of COOL mode.
✹	**FAN**: ON when the evaporative cooler is working in fan mode. During the TIMER setup, ✹ refers to timer programs of FAN mode.
OFF	**OFF** : ON when the evaporative cooler is OFF. During the TIMER setup, **OFF** refers to timer programs of cooler OFF.
D.1	**Float n° 1 - full tank / pump enable / load stop** : on when the full tank float activates, that is when the tank is full.
D.2	**Float n° 2 - empty tank / pump stop / load enable:** on when the empty tank float activates that is when the tank is empty.
🖐	**Manual mode::** 🖐 + **OFF** ON→ manual off; + ✹ ON → manual fan; + ❄ ON → manual cool; + ☽ ON → holiday; + ❄ +and ☽ blinking → manual cool from master; 🖐 OFF : the network device displayed is in automatic mode;
BLK	**error 43: FLOAT STOP:** When ON, float blocked, full/drain tank alarm in progress or pending. **error 19: Inverter alarm**

7.3 LANGUAGE, DISPLAY BACKLIGHT

Hold for 3s the key ◥ to go to the display menu:
- **LANGUAGE**:
  o IT = Italiano;
  o UK = English;
- **BACKLIGHT** :
  o No = backlight OFF;
  o YES = backlight ON for 30s after keypress;
  o ALWAYS = backlight always ON;
- **BIP** at keypress:
  o SI = Buzzer on;
  o No = Buzzer off;

- **TXT SCROLL SPEED**:
  - ○ MEDIUM = text scroll medium speed;
  - ○ FAST = text scroll fast speed;
- **NEW PARAGRAPH**:
  - ○ NO = new paragraph disabled, scrolling text active;
  - ○ YES = new paragraph active; the long texts will not scroll, they will be displayed on two times;
- Press ⬆ or ⬇ to scroll the parameter list:
- Press ⬅ to display the selected parameter's value;
- Press ⬆ or ⬇ to modify the displayed value;
- Press ⬅ to confirm the entered value.
- To exit press ✕ or wait for *H0r* sec.

8. MENU / FUNCTION / PARAMETER SETUP

- To enter menus and parameters of the *MASTER SCM850*, press ⊙🗓: the display shows the first menu of the list: *tiME*;

- Press ⬆ or ⬇ to scroll the menu:
  - ○ *tiME*: clock menu;
  - ○ *inFo*: info menu;
  - ○ *PAr*: parameter menu;
  - ○ *Fnc*: function menu;
  - ○ *Pt1*: serial timer program zone 1, (only if *PtE=YES*);
  - ○ *Pt2*: serial timer program zone 2, (only if *PtE=YES*);
  - ○ *Lrn*: network acquisition;

Zone *99* refers to the master SCM850.

tiME
ZONE: 99
MENU OROLOGIO

- To enter menus and parameters of the *SLAVE MODULE*:

- press ⬆ / ⬇ to select the required slave module, see display "*ZONE:*";

- press 🕗 to enter the setting of the selected module. The display shows the first menu of the list: *SEt*;

- Press ⬆ or ⬇ to scroll the menu:
  - ○ *SEt*: set-point;
  - ○ *inFo*: info;
  - ○ *PAr*: parameters;
  - ○ *Fnc*: functions;
  - ○ *Pt n*: timer programs;
  - ○ *tiME*: clock (according to the item version).

The display screen in the picture shows: setting menu of slave module/zone *3*.

SEt
ZONE: 03
MENU SETPOINT

When entering the menu list of MASTER or SLAVE module, the setup symbol "🔧" lights on and the display shows a short description of the parameter, ex.: "tiME = clock menu" or "SEt = set point menu".

- press ⬅ to open the selected menu, now the display shows the first parameter of the menu and the setup symbol "🔧" lights on.
- press ⬆ or ⬇ to scroll the parameter list. At the bottom the display shows the parameter description;
- press ⬅: the display shows the value of the selected parameter, the symbol "🔧" blinks;
- press ⬆ or ⬇ to edit the value;
- press ⬅ to confirm the value and go back to the parameter list;
- to exit press ✕ or wait for *H0r* sec.

⚠ *H0d* is the max permanence time into the module setting procedure.
The setup symbol "🔧" keeps lit steady when scrolling the parameter list; it blinks when displaying the parameter value.

9. Lrn MENU: CONNECTION AND CONFIGURATION OF SLAVE MODULES

⚠ WHEN CONNECTING THE TERMINAL SCM850 TO THE SERIAL DEVICES, see "SCBus network connection"; DO NOT SWAP *+A* / *−B* WIRES.

- MAKE A LINEAR NETWORK CONNECTION: NOT STAR, RING OR TREE.
- MAKE SURE THE REMOTE CONTROLS ARE CORRECTLY CONNECTED AND SUPPLIED, BEFORE PROCEEDING.

To start the acquiring process, go to parameter *Lrn* of the master *SCM850*, see point 8.1.

Set *Lrn* to "*YEs*" and press ⬅ to confirm the value and start the network acquisition. During the network scanning the display shows *Lrn*, the symbol 🔧 lights on and in the *ZONE:* area the 2 segments ▬ ▬ blink; at the end, the display shows the list of the acquired devices.

DISPLAY	DESCRIPTION
ZONE: 00;01...29;59 (*)	Acquired / acknowledged device
⚠ + *nont* +	Acquisition failed: no modules connected to the master. Error n°11, see point n°26.

(*): value depending on the code number of serial devices in the network.
Should the device lack of a previously acquired network, an acquiring process will automatically start at the device power on.

ZONE: 99
The address *99* stands for the master device SCM850.
Connect max *30* slave modules to the master SCM850.

When the network has been created, you can scroll the thermal zones by using the keys ⬆ or ⬇. The master SCM850 cyclically shows the different zones, at regular interval, parameter *H8*.

10. MASTER SCM850: MENU - NETWORK MAIN SETUP

The master SCM850 has the following menus:
- ○ *tiME*: clock;
- ○ *inFo*: info;
- ○ *PAr*: parameters;
- ○ *Fnc*: functions;
- ○ *Pt1*: serial timer program zone 1, (only if *PtE=YES*);
- ○ *Pt2*: serial timer program zone 2, (only if *PtE=YES*);
- ○ *Lrn*: network acquisition;

To enter menus and parameters of the *MASTER SCM850*, press ⊙🗓: see point 8.1.

When entering the SCM850 menu, the display shows *99*.

10.1 TiME: NETWORK CLOCK / CALENDAR SETUP

To *display* the set time, go to the *tiME* menu, see point n.8.1.
The display shows the time and the week day (1=Monday…7=Sunday).
Ex.: Wednesday, 2:32pm:

DAY ☐☐③☐☐☐☐
14:32

Should the clock not be set or expired, the alarm n°13 is signaled.

Per *adjust* the current date and time on the SCM850, proceed as follows:

- locate the menu *tiME* and press ⬅: now the display shows the first parameter of the menu;

tY	*tY* : current year;	
tM	*tM* : current month;	
td	*td* : current day of the month;	
tU	*tU* : current day (1=Monday, 2= Tuesday,…,7=Sunday);	
tH	*tH* : current hour;	
tn	*tn* : current minute/s;	

To set the tiME menu, see point 8.1.

10.2 inFo : SERIAL PROBE, OUTSIDE PROBE

inFo includes the following data:
- ○ *tA1*: temperature of serial probe 1;
- ○ *UA1*: humidity of probe 1 (evaporative cooler modules ONLY);
- ○ *tA2*: temperature of serial probe 2;
- ○ *UA2*: humidity of probe 2 (evaporative cooler modules ONLY);
- ○ *Et*: temperature of outside probe
- ○ *ntC*: network connection quality : 10=excellent / 7=good / 5=scarse / 0=low, no connection.

Press ⬆ or ⬇ to check the connection quality of each slave module, ex : 14 10 : device n.14 has an excellent connection.

⚠ Not all the slave modules can work with the serial probe.
See parameter /P1 and /P2 to set the serial probe 1 and 2.
In case of serial or outside probe fault, the display shows " *- -* ".

10.3 PAr: MASTER SCM850 SETUP

To set the SCM850, locate the "*PAr*" menu, see point 8.1

THE THERMOSTAT HAS 3 PARAMETER LISTS: "USER" / "INSTALLER" / "MANUFACTURER". TO SET UP THE "USER" PARAMETERS, PASSWORD IS NOT REQUIRED. THE PASSWORD IS ONLY REQUIRED TO REVIEW / SETUP THE "INSTALLER" / "MANUFACTURER" PARAMETERS.

- Now "*PA*" is displayed and then the pre-set password value "*00*";
- Press ⬆ or ⬇ button to enter the right password (for different password levels see at the end of this paragraph). The thermostat remembers the password for the next 4 minutes.
- Press the ⬅ button: the first parameter, of the list enabled by the password, will be displayed. In case of wrong password, only the parameters of the USER list will be displayed.
- To scroll and set the parameters proceed as described in point 8.1.

When scrolling the parameter list, the symbol "🔧" is ON; when the display shows the parameter value, the symbol "🔧" flashes.

PARAMETER LIST:

Cod	Parameter	Type	Range	UM	Def
/	**Probe parameters**				
/CE	Probe PE calibration – external probe	☺	-12…12	°C	0.0
/S	Probe reading stability	I	0…5	-	2
/P0	Only for SCM850B-E1012 or SCM850B-E1013. Network probes 1, 2 and outside probe managed by terminal SCM8xx or modbus. 1 = probes managed by terminal SCM8xx, see /P1, /P2 and /PE; 2 = network probes and external probe manageg by Modbus protocol. In this case the parameters /P1, /P2 and /PE are irrelevant.	F	1…2	-	1
/P1	Network probe P1: -2= network probe P1 connected to master SCM850; -1 = no network probe; x = network probe, connected to zone x (x≠-1 and x ⊆ 0..59).	I	-2…59	-	-1
/P2	Network probe P2: -2 = network probe P2 connected to master SCM850; -1 = no network probe; x = network probe, connected to zone x (x≠-1 and x ⊆ 0..59).	I	-2…59	-	-1
/PE	Outside probe (NO / YES)	I	no..YES	-	no
PtE	Enable network timer programs zone 1 and 2 (NO / YES)	I	no..YES	-	no
A	**Alarm parameters**				
A3	Buzzer alarm delay at power on	I	0..15	Min	0
AS	Buzzer sound (NO / YES)	I	no..YES	-	no
H	**Other parameters**				
H07	Reset TCP/IP port (SCM850B-E1011/E1013 ONLY) no = no reset; YES = reset of SCM850 TCP/IP port. It lasts ~30s.	F	no..YES	-	no

Code	Description	Type	Range	Unit	Default
H0A	Baud rate SCBus port: 24 = baud rate - 2400bps 96 = baud rate - 9600bps Some evaporative cooler slave modules work at 2400bps only.	F	24…96	-	24
H0r	Enable serial ports. SCM850B-E1010: leave the value to 0.		0..1	-	0
	SCM850B-E1011: Enable port TCP/IP- Eye_lan: 0=TCP/IP OFF; 1=TCP/IP ON;		0..1	-	1
	SCM850B-E1012: Enable MODBus port: 0 = MODBus OFF; 2 = MODBus ON; 1 or 3 = do not set;	F	0…3	-	3
	SCM850B-E1013. Enable TCP/IP-Eye_lan + MODBus: 0 = MODBus + TCP/IP OFF; 1 = only TCP/IP – Eye-Lan ON; 2 = only MODBus ON; 3 = TCP/IP + MODBus ON.		0…3	-	3
H0c	Data flow check from SCM850 to the slave modules: 0= no data flow check (slave modules old version); 1= data flow check enabled – write only; 2= data flow check enabled – write/read; 3= data flow check enabled – write/read, with parity bit check	F	0…3	-	3
H0d	Parameter setup timeout: max permanence time into the module setting procedure.	☺	30…250	Sec	180
H0H	Number of serial device queries before an alarm is signaled	F	1…3	-	3
H0M	Temperature deviation before a variation is signaled. Ex.: **H0M** = 2 → +/-0,2°C temperature deviation. The temperature displayed will be updated only if it increases/decreases by +/-0,3°C	F	0…5	-	1
H5	Item version (read only):	☺	-	-	-
H8	Frequency of slave modules sampling/toggling	☺	8…30	Sec	8
H9	*Models with MODBus port only (SCM850B-E1012 –E1013)* MODBus serial address (see point 6)	F	1..247	-	1
H9A	*SCM850B-E1011 and -E1013 only:* Slave module ID code - "most significant byte". **H9A**=**H9b**=0: ID check disabled. No ID code is required by the EyeLan software. **H9A**≠0 ID check enabled. The EyeLan software recognizes the device SCM850 only if its correct ID code has been previously set in the EyeLan. ID code=(**H9A** x 100) + **H9b**.	F	0…99	-	0
H9b	*SCM850B-E1011 and -E1013 only:* Slave module ID code - "less significant byte". **H9b**=**H9A**=0: ID check disabled. No ID code is required by the EyeLan software. **H9b**≠0 ID check enabled. T he EyeLan software recognizes the device SCM850 only if its correct ID code has been previously set in the EyeLan. ID code=(**H9A** x 100) + **H9b**.	F	0…99	-	0
H9C	*SCM850B-E1011 and -E1013 only:* no = device NOT MODBus compliant; YES = device standard MODBus compliant;	F	no..YES	-	no
H9r	*SCM850B-E1011 and -E1013 only:* no = MODBus enabled as READ & WRITE; YES = MODBus enabled as READ ONLY.	F	no..YES	-	no
Hdb	Factory restore	F	no..YES	-	no
HE	Alarm output contact: 0=N.C. contact; 1= N.O. contact;	I	0…1	-	0
HH	Release firmware (read only)	☺	-	-	-

LEGEND: PARAMETERS AND RELATED PASSWORD

Type	Description	PA
☺	**USER** parameters.	*any*
I	**INSTALLER** parameters. Before changing them, carefully read the instructions.	*95*
F	**FACTORY** parameters. These parameters are factory set, the default values can be different from the suggested ones. Modifying these parameters can cause the bad functioning of the thermostat. FACTORY parameters include INSTALLER and USER parameters.	*59*

⚠ The "factory restore" function restores the device to the factory default settings. All the parameter settings will be canceled. To execute a factory restore of the SCM850, set parameter **Hdb** = **YES** and press ⏎.

10.4. *Fnc* : FUNCTIONS

The menu *Fnc* includes the following parameters: *A-M*, *At-1* e *At-2*, *HC-M*.

NETWORK OPERATING MODE oFF / AUtO /on (*parameter A-M*):

- *A-M* = oFF: all slave modules are in manual OFF mode and maintain just the antifrost setpoint, if enabled. No timer programs.
  Slave modules for evaporative coolers / wine making tanks: the modules which do not feature the anti-frost setpoint will switch OFF.
- *A-M* = AUtO: all slave modules are in automatic mode. Every device runs according to its specific timer setting, parameter *A-M* and *P-on*.
- *A-M* = On: all slave modules are in manual ON mode and maintain just the COMFORT set-point. In ON mode, any scheduled timer programs will be temporarily suspended.

⚠ *any change to the parameter A-M does not have immediate effect on the serial network. Network modules take about ~30s to apply the new setup to the system.*

NETWORK ACTION nULL / CooL / HEAt (*parameter HC-M*):

- *HC-M* = nULL: each slave module activates according to the setting of the individual parameter *H-C*.
- CooL: all slave modules runs with direct action, in summer / cool mode.

- HEAt: all slave modules runs with reverse action, in winter / heat mode.

Ex: **HC-M** = **CooL** all slave modules connected to the master SCM850 will have **H-C** = **CooL**. If you change the **H-C** setting of a single module, it will be automatically re-set to the **HC-M** value after 30s
To allow the free setting of a slave module, set **HC-M** = **null**.

⚠ *any change to the parameter HC-M does not have immediate effect on the serial network. Network modules take about ~30s to apply the new setup to the system.*
When the master SCM850B-E1012 / SCM850B-E1013 is connected to a MODBus network (**H0r**=2/3), the **HC-M** parameter setting does not affect the slave module functioning.

TEMPERATURE NETWORK PROBES P1 AND P2 CALIBRATION (*At-1* and *At-2*):
It is possible to automatically change the temperature of all slave modules working with the network probe P1 or P2.
Example: **At-1 = 1**: it increases by 1°C the temperature measured by the network probe P1. That means decreasing by 1°C the set-point of all slave modules working with the network probe P1.

10.5. *Pt1 & Pt2*: NETWORK TIMER PROGRAMS - ZONE 1 AND 2.

A network zone 1 or 2 timer program is a command of outputs ON / OFF sent to all the slave modules connected to that network zone; the slave module sorts them by day and time and runs them cyclically.
NOTE: *Not all slave modules feature the network timer program. Please refer to the slave module datasheet for further info.*

It is possible to set 16 different timer programs a zone.
The network zone 1 timer program is enabled only if the network probe 1 is enabled, */P1* ≠-1.
The network zone 2 timer program is enabled only if the network probe 2 is enabled, */P2* ≠-1.
The *Pt1 / Pt2* menu, network timer programs for zone 1 / 2, is accessible only if *PtE*=**YES**.
For the setting and clearing of the network timer programs, please see point 17. The procedure is the same used for the slave module timer programs.

The salve module executes the timer programs only if:
- parameter *A-M*=*AUtO*, both in the slave module and in master SCM830 setting.
- read the network probe;
- parameter *t8*=*no*.

11. ALARM MENU: LIST OF ERRORS / ALARM MESSAGES

When there are no pending alarms, if you press the key ⚠, no action will be executed.

In case of alarm/ failure, the display shows the symbol "⚠" and the message "ALARM IN PROGRESS". SCM850 stores up to 10 alarm events. Alarm menu is only available and accessible when an alarm / error event occurs.

To check the list of pending alarm / error events:

- press ⚠, the first alarm / error event will be displayed;
- press ↑ or ↓ to browse the list of pending alarm / error events.
  Example:

12 ZONE 24	*Alarm in progress in zone 24: slave module 24 cannot be reached by the network SCBus = alarm code n°12;*

  ZONE "99" refers to the master SCM850.

ALARM CODES

10	Eeprom MASTER broken, switch the thermostat off and on again
	Eeprom SLAVE MODULE broken, switch the thermostat off and on again
11	Network error. Network not acquired or lost.
12	Network error: network device disconnected or not connected.
13	Error of MASTER clock. The clock may have expired. Check date and time.
14	Error of MASTER parameter setting: failure in the network probe setting. Repeat the setting, check parameters /P1 and /P2.
15	Error of Master: network failure. Repeat the network acquisition procedure: it may occur when you replace a network slave module with one having the same serial address.
17	Network device generic alarm/ burner in lockout
18	Auxiliary alarm 2 - AG2: Slave module code SCP004V157/SCP004V160: gas pressure switch alarm / no gas; Slave module code SCP674V030 + SCP674V202: alarm air filter 1 or 2 stuffed up. Slave module code SCQ72 / SCP004V156: Insufficient gas pressure. The alarm activates if after a delay of 30s. from the activation of the B_LO burner output, the S_LO LED indicator input does not light on. The alarm activates immediately if the burner is already ON since more than 30s and the S_LO LED indicator does not light on. See parameter *H06*
19	Auxiliary alarm 1 – AG1: Slave module (inverters) SCP004V157 + SCP004V160: thermal overload relay alarm; Slave module SCP674V030 + SCP674V202: b-thermostat or gas pressure alarm. Slave module SCQ72 / SCP004V156: Serious alarm AG1 – warning signal AUX. Slave module SCRE70 : Inverter alarm.
20	Fault of probe 1 - slave module
21	Fault of probe 2 - slave module (if the slave module features it)
22	Fault of probe 3 - slave module (if the slave module features it)
23	Fault of probe 4 - slave module (if the slave module features it)
24	Fault of probe 5 - slave module (if the slave module features it)
25	Fault of probe 6 - slave module (if the slave module features it)
26	Fault of probe 7 - slave module (if the slave module features it)
27	Fault of probe 8 - slave module (if the slave module features it)
30	Outdoor probe error: outdoor probe in short-circuit or not connected or temperature over instrument limits. Check the cable to the probe. The alarm stops when the temperature goes back to normal values.
38	High humidity alarm
39	Low humidity alarm
40	Slave module temperature alarm
41	Slave module high temperature alarm.
	SEA : overheat alarm
42	Slave module low temperature alarm.
43	Evaporative cooler modules: float alarm, error tank filling/draining
54	iNet network error: one or more burner devices connected to the SCQ65 are disconnected from the network. To see the burner devices disconnected from the iNet network enter the *S-*

En parameter inside the *inFo* menu.

- To exit press ✕ or wait for **H0r** sec.

NOTE: When an alarm occurs, if it is not cleared within 4 minutes, the master unit SCM850 activates the alarm relay.

SLAVE MODULES

The slave modules connected to the master SCM850 feature the following menus:
- ○ 5EŁ: set-point;
- ○ ınFo: info;
- ○ PAr: parameters;
- ○ Fnc: functions;
- ○ PŁ ıⁿ: timer programs;
- ○ Ł ıⁿE: clock/timer (slave modules with built-in timer only)

To go to these menus and set the parameters, proceed as follows:

- press ↑ or ↓ to select the desired slave module;

- press 🔳 to go to the menu list of the slave module;

- For further info about the parameter setting, see point 8.1.

NOTE: The parameter list varies according to the slave module model. Please refer to the slave module datasheet.

12. *SEt*: TEMPERATURE/ HUMIDITY SET POINT - SLAVE MODULE

5EŁ menu: according to the slave module, it includes the following parameters:

Slave modules for heating plants:
- **SP1C**: slave module comfort set-point;
- **SP1E**: slave module economy set-point (according to the slave module model).

Slave modules for wine making plants: the master SCM850 displays only the setpoint:
- **SPd :** set-point COOL - Slave module in direct – cool mode
- **SPr :** set-point HEAT – Slave module in reverse – heat mode
Slave modules for evaporative cooling plants:
- **SP**: slave module temperature set-point;
- **rU**: slave module humidity set-point. When the environment humidity exceeds the humidity setpoint, the evaporative cooler pump stops.

Quick setup of SP1C or SPd or SP: hold the key 🔳 and release it when the display shows the first parameter of the menu *SEt*. Now the display shows the set value.

For further info about the parameter setting, see point 8.1.

13. *inFo*: TEMPERATURE / INFO – SLAVE MODULE

ınFo menu: according to the slave module, it includes the following info:
Slave modules for heating plants:
- ○ **tA1 / tP1** : room temperature measured by probe P1. P1 is the probe connected directly to the slave module or the network probe (according to the slave module version).
- ○ **tP2** : temperature measured by probe P2 (according to the slave module version);
For further info refer to the slave module datasheet.

Slave modules for wine making plants:
- ○ **tPM** : temperature measured by probe **PM**, weighted average of P1 and P2.
- ○ **tP1** : temperature measured by probe **P1**.
- ○ **tP2** : temperature measured by probe **P2**.

Slave modules for evaporative cooling plants:
- ○ **tA1** : temperature measured by probe **P1**;
- ○ **UA1** : humidity measured by probe **P1**.

For further info about the parameter setting, see point 8.1.

14. *Fnc*: FUNCTIONS – SLAVE MODULE

The parameter list in menu Fnc varies according to the slave module model.

For further info about the parameter setting, see point 8.1.

14.1 ON/OFF – SLAVE MODULE

TO ON/OFF a slave module, set the parameter **P-on** – menu *Fnc* of the slave module:
- **P-on =1**: slave module ON / symbol **ON** = "◉".
- **P-on =0**: slave module OFF but still powered / symbol **ON** = "○". No antifrost setpoint is maintained in this mode. The master SCM850 shows ONLY the temperature measured by the OFF module; all other symbols are OFF.

Quick setup of parameter P-on of the slave module:
Press ↑ or ↓ to select the desired slave module. Hold the key 🔳 and release it when the display shows the first parameter of the menu *P-on*. The display shows the set value.

14.2 SUMMER / WINTER MODE (DIRECT/REVERSE ACTION) – SLAVE MODULE

⚠ THE TYPE OF ACTION OF A NETWORK DEVICE CAN BE FORCED BY THE *HC-M* PARAMETER OF THE MASTER SCM850, SEE POINT N°10.4.

H-C parameter / Fnc menu: type of action of the slave module (according to the slave module).

- **H-C =** CooL : summer mode/ COOL, symbol ❄ ON, "◉".

In summer mode, the symbol ❄ switches ON when the relay closes (according to the model).
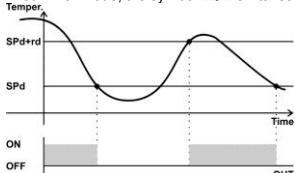
The COOL relay of the slave module activates when temperature is t ≥ **SP + rd** and turns off when it reaches the set-point temperature **SP**.

The slave module for heating plants in summer mode, are OFF.

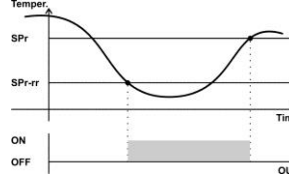- **H-C =** HEAL : winter mode/ HEAT, symbol ❄ OFF, "○".

In summer mode, the symbol 🔥 switches ON when the relay closes (according to the model).

The HEAT relay of the slave module activates when temperature is t ≤ **SP – rd** and turns off when it reaches the set-point temperature **SP**.

Slave modules for heating plants: In the event of faulty probe the output is always OFF. Almost all versions of slave module for heating plant do not work in summer mode.
Slave modules for wine making plants: In the event of faulty probe the output may be always OFF, always ON or may ON/OFF cyclically.
Slave modules for evaporative cooling plants: In the event of reverse action / HEAT mode, the slave module switches OFF.

14.3 MANUAL OFF / MANUAL ON / AUTO WORKING MODE – SLAVE MODULE

A-M parameter / Fnc menu: type of action of the slave module (according to the slave module).
Slave modules for heating plants:
- **A-M =** oFF : slave module in OFF mode. It just maintains the antifrost setpoint, *rt*;
- **A-M=** AUŁo : slave module in automatic mode. It runs according to its timer programs;
- **A-M =** On slave module in manual ON mode. It just maintains the COMFORT set-point.
Slave modules for evaporative cooling plants:
- **A-M =** oFF : slave module in OFF mode.
- **A-M=** AUŁo : slave module in automatic mode. It runs according to its timer programs;
- **A-M =** CooL : slave module in manual cooling mode
- **A-M =** FAn slave module in manual fan mode

14.4 BURNER ENABLE / DISABLE

SLAVE MODULE CONTROLLING 1 OR MORE BURNERS ONLY
Should there be some not used area inside a heating zone, you can disable a specific burner and get an impressive energetic saving.

To ENABLE / DISABLE 1 or more burners:
Go to the slave menu *Fnc* and set parameter *En1*:
- **En1** : enable / disable burner 1; **En1=no** : burner OFF. / **En1=YES** : burner ON.
- **En2** : enable / disable burner 2; **En2=no** : burner OFF. / **En2=YES** : burner ON.
- **En3** : enable / disable burner 3; **En3=no** : burner OFF. / **En3=YES** : burner ON.
- **En4** : enable / disable burner 1; **En4=no** : burner OFF. / **En4=YES** : burner ON.
- **etc** (according to the slave module)

14.5 FAN SPEED – SLAVE MODULE

SLAVE MODULES FOR EVAPORATIVE COOLING SYSTEMS ONLY
To set the fan speed of the evaporative cooler module, go to menu *Fnc* on the slave module itself and locate parameter *FAn*:
- **Fan =** AUŁo : auto mode. The fan speed varies according to the measured temperature and the temperature set-point.
  NOTE: AUŁo mode works properly only if a temperature and humidity sensor is connected to the slave module, otherwise the speed switches automatically to F 1.
- F 1: Min. fan sped;
- F2: Average fan speed;
- F3: Max fan speed.

15. *PAr*: PARAMETERS - SLAVE MODULE

Menu PAr : parameter setting of the slave module.

The parameter list varies according to the slave module model. Please refer to the slave module datasheet.
THE THERMOSTAT HAS 3 PARAMETER LISTS: "USER" / "INSTALLER" / "MANUFACTURER". TO SET UP THE "USER" PARAMETERS, PASSWORD IS NOT REQUIRED. THE PASSWORD IS ONLY REQUIRED TO REVIEW / SETUP THE "INSTALLER" / "MANUFACTURER" PARAMETERS.

- The display shows "**PA**" and then the password value, default "**00**";
- Press ↑ or ↓ button to enter the right password (for different password levels see at the end of this paragraph). The thermostat remembers the password for the next 4 minutes.
- Press the ⏎ button: the first parameter, of the list enabled by the password, will be displayed. In case of wrong password, only the parameters of the USER list will be displayed.
- To scroll and set the parameters proceed as described in point 8.1.

When scrolling the parameter list, the symbol "🔧" is ON; when the display shows the parameter value, the symbol "🔧" flashes.

16. *tiME*: CURRENT LOCK / CALENDAR - SLAVE MODULE

SLAVE MODULES WITH BUILT-IN REAL TIME CLOCK ONLY
To display the set time, go to the *tiME* menu, see point n.8.1.
The display shows the time and the week day (1=Monday…7=Sunday).
Ex.: Wednesday, 2:32pm:

NOTE: Should the display shows **SYS**, it means that the slave module works according to the time set on the master SCM850. In this case it is not possible to adjust the slave module time.

Per *adjust* the current date and time on the slave module, proceed as follows:

- locate the menu *tiME* and press ⏎ : the hour digits flash;
- press ↑ or ↓ to set the current hour;
- press ⏎ to confirm it; the minute digits flash;
- press ↑ or ↓ to set the current minutes;
- press ⏎ to confirm it; the set day flashes;
- press ↑ or ↓ to set the current day, ex:

DAY ①	DAY ②	DAY ⑥	DAY ⑦
1=Monday	2 =Tuesday	6 = Saturday	7 = Sunday

- press ↵ to confirm the value;
- To exit press ✗ or wait for *H0r* sec.

17. *PtiM*: TIMER PROGRAMS - SLAVE MODULE

SLAVE MODULES FOR HEATING AND EVAPORATIVE COOLING APPLICATIONS ONLY

A timer program is a command of outputs ON / OFF; the master sorts them by day and time and runs them cyclically.

Each slave module features specific timer programs. It is possible to set 16 different timer programs a zone.

The salve module executes the timer programs only if parameter *A-Π=AUtO*, both in the slave module and in master SCM850 setting.

You can override the slave module timer program by:
- parameter *A-Π* menu *Fnc*: function *manual ON / OFF*
- parameter *P-on* = 0 : it turns OFF the slave module.
- the key-switch on the room globe-sensor.

To enter the timer programs, go to menu *Pt iΠ*, see point 8.1:
- now the display shows the first timer program set for the selected zone. The display shows the message "- - : - -" in case no timer programs are set;

To check the set timer programs or locate the first free place of memory:
- Press the ↑ button. The first free place of memory is signalled as "– –:– –".

To set a timer program:
- Hold the ↵ button until the digits of hours "– –:" of the new timer program flash.
- Press ↑ or ↓ button to select the starting hour of the timer program;
- Press ↵ button to confirm the selected value; the digits of minutes ":– –" flash;
- Press ↑ or ↓ to select the minutes, they move forward / backward by 10;
- Press ↵ button to confirm the value; the following symbols light on "①②③④⑤⑥⑦";
- Press ↑ or ↓ button to select the day(s) when the timer program should be active, i.e.:

"②"	"①②③④⑤"
2 =Tuesday	Weekdays: Monday to Friday

- Press ↵ to confirm it: the display shows the temperature setpoint set for the timer program.

Slave modules for heating plants:
- ○ ☀ ON = set-point comfort, *SP1C*, timer program of outputs ON.
  If in heating / winter mode / reverse action: it is a program of burner ON with *SP1C*.
  If in summer / fan mode: it is a program of fan ON (according to the model);
- ○ ☀ ON = set-point economy, *SP1E*, timer program of outputs ON (option only available with *r0*=2, according to the model).
  If in heating / winter mode / reverse action: it is a program of burner ON with *SP1E*.
  If in summer / fan mode: it is a program of fan ON (according to the model).
  NOTE: when you add new timer programs of economy set-point SP1E and then you set the slave module to work only with the comfort set-point SP1C (*r0*=1), all SP1E timer programs will be automatically executed as timer programs with SP1C;
- ○ ☾ ON = anti-frost protection set point, *OFF*, it is a program of output OFF.
  If in heating / winter mode / reverse action: it is a program of burner OFF with anti-frost protection set point, only if *rt* ≠ 0.
  If in summer / fan mode OFF: it is a program of FAN OFF (according to the model).

Slave modules for evaporative coolers:
- ○ ❄ ON = timer program of COOL output ON, *COOL*;
- ○ ❁ ON = timer program of FAN output ON, *FAN*;
- ○ *OFF* ON = timer program of outputs OFF, *OFF*.

- press ↑ or ↓ to set the desired timer program;
- Press ↵ to confirm and save the timer program just set;
- Press ↑ to go to the next space of memory;

To delete *ONE* or *ALL* the selected timer program:
- go to the menu *Pt iΠ* desired:
- To delete just ONE timer program:
  - ○ press ↑ to select the scheduled timer program to cancel;
  - ○ Hold ↑ or ↓ for ~3s, until the display shows "– –:– –";
- To delete ALL the saved TIMER programs:
  - ○ Hold ↑ or ↓ for 6s until the display shows *"EALL"*.

To exit press ✗ or wait for *H0r* sec.

18. BURNER RESET

Function only available for the slave modules featuring the reset command.
- Press ↑ / ↓ to select the slave module;
- hold the key ✗ pressed until the display shows *rSt*;
- release the key, now
  - Only for old SCM850: a burner reset is executed
  - the display shows the value *00*, set the parameter to 01 and press ↵ or wait 3sec. without pressing any key;
  - now a burner reset is executed.

⚠ should the display blink the label *BLK*, it means that the reset is locked, see parameters *H30* and *H31*. If *H31*=1 you can reset the burner at maximum 5 times in 15minutes. If you exceed the 5 attempts within 15min. then the burner command locks, the icon *BLK* blinks and the parameter *H30* value is equal to 1. Set *H30* = 2 to unlock the reset command.

19. GUARANTEE

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