SYSTEMA

E1356A1

SCP674V202

UK *Board for blown warm air generators to be plugged into the mother board SCP674V030 with i²NET serial port, air recycle management.*

SCP674V122T

UK *User set up interface with built-in probe, developed for the multitasking board SCP674V202.*

ENGLISH

⚠ **BEFORE OPERATING ON THE DEVICE, PLEASE CAREFULLY READ THROUGH THE INSTRUCTIONS IN THIS MANUAL.**

This instrument has been designed to operate without risk only if:

- Installation, use and maintenance are performed according to the instructions of this manual;
- Supply voltage and environmental conditions fall within the values indicated on the product label.

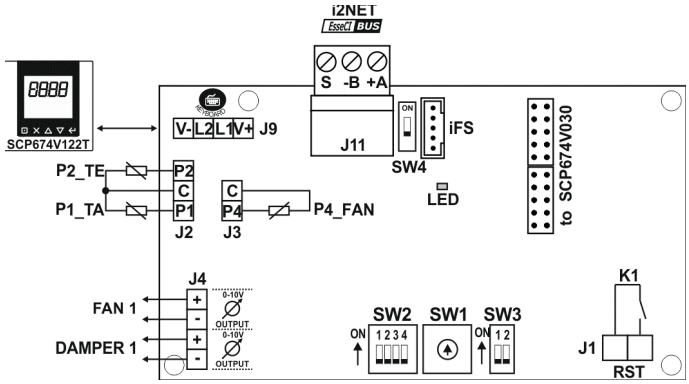
⚠ **ELECTRIC CONNECTIONS**

- Avoid crossing cables by separating very low connections from load-referred connections.
- Protect the device power supply and probe inputs from electric disturbances.
- Disconnect all electrical connection before doing the maintenance;
- When making the connections to the burner, follow carefully the specific instructions and information provided by manufacturer;
- Never open the instrument case.

WE REMIND YOU THAT THE INSTRUMENT IS NOT PROTECTED FROM ELECTRICAL OVERLOADING:

- Beware to equip outputs with necessary security devices;
- Make sure that employment conditions like supply tension, ambient temperature and humidity are within the indicated limits.

WIRING DIAGRAM SCP674V202

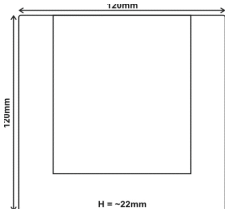


LEGENDA

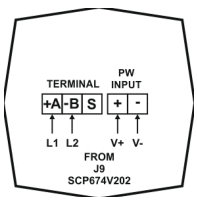
		POWER SUPPLY
		From main board SCP674V030
		PROBE INPUTS
J2	P1	Room sensor input, P1.
	C	Common sensor P1 and P2.
	P2	Outside sensor input, P2.
J3	P4	Fan sensor 2 input, air outlet, P4.
	C	Common sensor P4.
		SCBus NETWORK CONNECTIONS
J11	+A -B S	SCBus network connections
		SWITCHES / ROTARY SWITCHES
SW1 / SW2		Serial address + serial sensor
SW3		Serial keyboard
SW4		End of line resistor presence
		RELAY COMMAND
J1	K1	Reset command, ***RT***;
		0..10V OUTPUTS
J4	+ -	0…10V output: FAN1
	+ -	0…10V output: DAMPER1
		CONNECTIONS TO THE KEYBOARD SCP674V122T
J1A	V+	Connect the terminal V+ to the terminal + of the SCP674V122T keyboard
	L1	Connect the terminal L1 to the terminal +A of the SCP674V122T keyboard
	L2	Connect the terminal L2 to the terminal -B of the SCP674V122T keyboard
	V-	Connect the terminal V- to the terminal - of the SCP674V122T keyboard

SCP674V122T

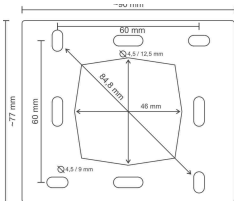
BOX



TERMINALS



MOUNTING



1. SCP674V202 / SCP674V122T : TECHNICAL FEATURES

Power supply SCP674V202:	From main board SCP674V030;
Power supply SCP674V122T:	From power module, serial board SCP674V202;
Operation field:	–50,0…150°C with sensors PTC;
Board SCP674V202 dimensions:	~60x110x25mm
BOX SCP674V122T dimensions:	plastic, dimensions 120x120x22mm
SCP674V122T mounting	On wall or on a 2 modules built-in box 502E
Data maintenance:	On EEPROM memory
Frontal protection:	IP00
Employment conditions:	Room temperature –10…50°C; Storage temperature –20…70°C
Relative room humidity:	30 / 80%, without condensation
Connections: (*)	Screw-terminals for cables with maximum section of 1,5mm² or 2,5mm²
Ingressi:	3 probe inputs: P1, P2 PTC 990 Ω @25°C. P4 NTC 10KΩ @25°C
Output:	Relay K1 SPST 3(1)A 250Vac;
Data output:	iFS serial interface TTL level
SCP674V122T display:	display 4 DGT + DP + icone.
Serial connection:	serial port RS-485. Network cables must not exceed 1.000m in length.
Connection between electronic board SCP674V202 / keyboard SCP674V122T .	To connect the electronic board SCP674V202 to the keyboard SCP674V122T use a non-crossed 4-wire **Note**: linear connection required. The cable connection between the 2 devices must not exceed 20m in length.

2. MAIN FEATURES

REDUCTION OF CONNECTIONS: The two-way communication among appliances runs along a RS-485 serial line made of a 2-wire twisted shielded cable (for example: Belden 8762 model with PVC sheathing 2 twisted terminals + copper sheathing, 20 AWG, 89pF nominal capacity between cables, 161pF nominal capacity between cable and copper sheathing). The maximum length tolerated for the connection is 1000m.

CONECTION TO THE BOARD SCP674V030: the serial device is extremely easy to connect to the board SCP674V030: just plug the SCP674V202 to the CN1 and CN2 connectors of the SCP674V030 and properly set the switches SW1 and SW2.

SCP674V122T KEYBOARD DISPLAY WITH AUTOMATIC DECIMAL POINT: The decimal range of display is included between –50,0 and 99,9; in case of values exceeding that range, the device switches automatically to integer numbers.

3. DEVICE CONFIGURATION: STAND ALONE DEVICE OR CODING A NETWORK DEVICE; ROOM AND EXTERNAL PROBE PRESENCE;

⚠ **NOTE: THE DEVICE MUST BE OFF BEFORE CHANGING THE DIP SETTING.**

SW3: Enable/disable of the network port & network connection speed.

- dip n°1: enable/disable of the network port SCBus / i²Net

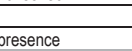
SW3	ONLY DIP n°1. DESCRITPTION
	Stand alone device, not connected to the SCBus network Internal timer and outside probe (if enabled) connected to the module SCP674V202, to the ***C-P2*** terminals.
	Network device, connected to a SCBus I²Net network. Serial timer (using the timer setting of master device) when you click to display the time, the label SYS will appear. The outside probe (if enabled) is connected to the master device.

- dip n°2: network connection speed

SW3	DIP n°1 ON, SET DIP n°2. DESCRIPTION
	Baud rate: 2400bps. We suggest you to set this transmission speed in plants with a few network modules or in very large plants, around the 1.000m.
	Baud rate: 9600bps. We suggest you to set this transmission speed in plants with many network modules or in plants smaller than 1.000m.

SW1 + SW2 = address of the serial thermostat. Ambient probe or network probe.

The MASTER network controller recognizes the serial remote thermostats by the number they are codified. Beware of not giving the same number to two or more remote thermostats in order to any injury or equipment damage and heating plant lockout.

SW2 PACK (DIP 1 & 2)	*SW1 ROTARY SWITCH*	THERMAL ZONE
 - Pack 0	from 0…to F	0…15
 - Pack 1	from 0…to F	16…31
 - Pack 2	from 0…to F	32…47
 - Pack 3	from 0…to B	48…59

⚠ Do not assign the same address to two or more interfaces in order to avoid any injury or equipment damage.

NOTE: The LED placed on the module shows the working status of the module and of network connection:

LED status ■	
Normal blinking. Frequency 1Hz	Online, SCBus connected, network module in operation.
Lit steady.	Offline, no connection to the SCBus network.
Quick blinking. Frequency 4/5Hz	Network module not in operation.

SW4: end of line resistor presence.

In a SCBus/i²NEt network the last network device, the farest from the master device, must mount a end of line resistor. The end of line resistor can be:

- enabled from the switch SW4, dip n°1 in ON position;

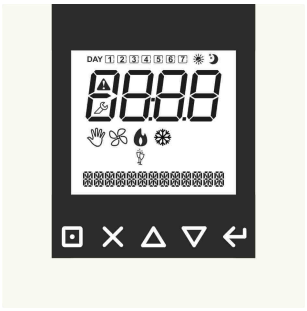
- mounted directly on the terminals +A and –B of the network device if the switch SW4 is in OFF position.

SW2, dip n°3 & 4: ambient probe presence.
The temperature probe can be connected directly to the serial control board or the serial device can work according to the temperature values read by the serial probe 1 and 2 if present:

SW2	PROBE
	TEMPERATURE PROBE PRESENT, MOUNTED ON SCP674V202 BOARD
	NETWORK PROBE N° 1. ONLY IF
	NETWORK PROBE N° 2. ONLY IF
	TEMPERATURE PROBE PRESENT, MOUNTED ON REMOTE KEYBOARD SCP674V122T.

NOTE: if you enable the serial probes 1 and/or 2, check you set the correct serial probe addresses on the master network.

4. SCP674V122T FRONTAL PANEL



KEY	DESCRIPTION
	MENU: to enter the menus of the SCP674V202 device. Press with "**ENTER / CONFIRMATION**" key to enter the menu parameters of the SCP674V122T display.
	ESC: during setup it works like esc key.
	UP: During setup to scroll the menu and parameter lists, to increase the displayed values. Press with the **DOWN** key for 3sec.to: - unlock the keyboard if loocked; - switch on the device if ***oFF***.
	DOWN: During setup to scroll the menu and parameter lists, to decrease displayed values Press with the **UP** key for 3sec. to: - unlock the keyboard if loocked; - switch on the device if ***oFF***.
	ENTER/CONFIRMATION: Press with "**MENU**" key to enter the menu parameters of the SCP674V122T display. During setup: - to enter the displayed menu/parameters; - to confirm/start the displayed functions.

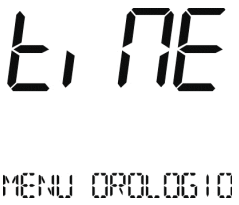
ICON	DESCRITION
1 2 3 4 5 6 7	**Day/days of the week:** 1 = Monday,.. , 7 = Sunday.
	Burner status: - on: burner on; - blinking: burner warning light on; - off: burner off.
	Cooling: (future use)
	Fan: on: fan on. Off: fan off.
	Alarm: on if an alarm is in progress. Enter the AL SE menu to see the alarm code.
BLK	***Burner lockout:*** on when the device detects a flame failure.
	Configuration: programming phase: The symbol lights on when the display shows the parameter/menu label. The symbol blinks when the display shows the parameter value
	Manual: on: device in manual mode, on or off; Blinking: holiday function on. You can enable an Holiday program only by Eye-lan program.
	Timer program on - SP1C: Timer program of burner ON with set-point temperature SP1C.
	Timer program on - SP1E: (if ***r0***=2) Timer program of burner ON with set-point temperature SP1E.
	Timer program off - rt: Timer program of burner OFF, the burner maintains just the antifreeze set-point. ***rt***=0 no anti-freeze setpoint, burner outputs OFF
	Future use.
	Description line: name/explain of the parameter / menù / alarm on display.
LOC	**Keyboard locked**: see paragraph n°7
oFF	**Device OFF** ATTENTION: the device keeps powered even when in off mode.
StoP	**Device in manual off mode from master.** The network device SCP674V202 is in off mode from the master device. The ***A-M*** parameter of the master SCM850/SCM830/SCM805 device is equal to ***oFF***.

5. MENU DEVICE

SCP674V202 parameters are organized in menus.

To enter the menus and the parameters of the device proceed as follows:

- Press briefly , now the display shows inFo;
- press or to scroll the list of menus:
  - inFo: information menu;
  - AL SE: alarm menu;
  - t INE: clock menu;
  - Fnc: function menu;
  - SEt: set-point menu;
  - PAr: parameter menu;
  - Pt rn: timer program menu;



A short menu description will be shown at the bottom of the display, i.e. for the time menu: "clock menu".

- press the button to open the selected menu; now the display shows the first parameter of the menu;
- press or to scroll the parameter list. At the bottom of the display appears the name of the displayed parameter;
- press the button, now the display shows the value of the selected parameter;
- press or button to change the displayed value;
- press finally button to confirm the inserted value and go back to the parameter list;
- to exit and save changes either press the button for 2sec. or wait for 30sec.

The setup "" icon keeps lit steady when scrolling the parameter list; it blinks when displaying the parameter value.

6. SCP674V122T KEYBOARD/DISPLAY MENU

Hold at least for ~3sec. the buttons + to go to the list of the keyboard functions:

- **LAn - LANGUAGE** :
  - IT = Italian;
  - UK = English;
- **Li9 - BACKLIGHT** :
  - NO = backlight OFF;
  - YES = backlight ON for 30sec. after keypress;
  - ALWAYS = backlight always ON;
- **bIP - BUZZER** :
  - YES = Buzzer ON;
  - NO = Buzzer OFF;
- **Int – CONTRAST REGULATION**: 1=min….10=max;
- **Ct – CALIBRATION OF THE ROOM PROBE**: -12,0 …12,0°C;
- **SPd - SCROLL SPEED** :
  - MEDIUM = medium speed text scroll;
  - FAST = text scroll fast speed;
- **rtn - 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.

Press the button or wait for 30 sec. to go back to the normal functioning.

7. KEYPAD LOCK

To lock the keypad, set ***HL***=YES.

With the keypad locked is not allowed to enter/read/change all the parameters and the menus.

When the keypad is locked, the message LOC will be displayed anytime a key is pressed.
It is possible to run a reset command even with the keypad locked.

To temporarily unlock the keypad hold the keys and pressed for at least 3 seconds until the message UnL is displayed. The keypad locks automatically after 15 seconds of inactivity.

It is possible to execute a BURNER RESET even with the keypad locked.

8. INFORMATION MENU: inFo

The menu "inFo" gives you access to the following parameters of the SCP674V202 board:

- "***tA***" : ambient probe temperature;
- "***FiM***" : air flow currently delivered by the machine;
- "***PiM***" : power currently delivered by the machine;
- "***FtM***" : Delivery air temperature: it is the average between probes P3 and P4, it applies only if P3 is enabled;
- "***Err***" : internal use warnings:
  - Err=0 → no problems.
  - Err≠0 → errors
- "***Et***" : outside probe temperature (present only if ***/P2*** ≠ ***no***);

See point n°5 to locate and enter the inFo menu.

9. ALARM MENU: ALSt

The menu "AL SE" gives you access to the alarm in progress list.

In case of alarm / failure, the display shows the LED "" and the message "ALARM IN PROGRESS".
The alarm menu is only available and accessible in presence of alarm / error events.

See point n°5 to locate and enter the AL SE menu.

ALARM CODES:

Display	*Description*
10	Eeprom broken, switch off the device and start it again
20	Room probe in short-circuit or not connected or temperature over instrument limits. Check the cable to the probe.
21	Outside probe in short-circuit or not connected or temperature over instrument limits. Check the cable to the probe (outside probe connected directly connected to the SCP674V202 only)
22	P3 probe in short-circuit or not connected or temperature over instrument limits. Check the cable to the probe (IF PRESENT).
23	P4 probe in short-circuit or not connected or temperature over instrument limits. Check the cable to the probe (IF PRESENT).
30	Outside probe in short-circuit or not connected or temperature over instrument limits. Check the cable to the probe.
59	Network/serial probe not connected or not properly set. Check parameter /P1 and/or /P2 on the network terminal
58	Serial timer fault or timer not set.
41	High temperature alarm. The alarm stops when the temperature goes back to normal values.
42	Low temperature alarm. The alarm stops when the temperature goes back to normal values.
13	Clock error. The clock may have expired. Set the current time.
17	Burner lockout
19	Pressure gas or b-thermostat alarm. Check the status of the SAFETY GAS PRESSURE input or of the SAFETY BTERM SWITCH input on the SCP674V030 board.
18	Air filter 1 or 2 alarm. Check the status of the SAFETY AIR FILTER 1 and 2 input input on the SCP674V030 board.

10. SET-POINT MENU: SEt

SET-POINT = it is the desired temperature to be maintained by the warm air generator.

The menu SEt gives you access to the following parameters:
- ***SP1C***: comfort set-point of SCP674V202. ***SP1C*** allowed value range is in between [***rL***, ***rH***];
- ***SP1E***: economy set-point of SCP674V202. The SP1E is enabled only with ***r0***=2. ***SP1E*** allowed value range is in between [***rL***, ***SP1C***]

See point n°5 to locate and enter the SEt menu.

11. FUNCTION MENU: Fnc

The menu Fnc gives you access to the following parameters:

- P-on: ON/ OFF, stand-by device;
- FAn: fan speed value in ***USEr*** *ModE*.
- Pnt: PWM output power in ***USEr*** *ModE*.
- ModE: operation mode of the outputs PWM and fan, fixed or automatic;
- A-M: operation mode of the device, automatic or manual ON / OFF;
- H-C: type of action, summer / winter;
- rSt: enable reset relay, start the burner reset.

See point n°5 to locate and enter the Fnc menu.

11.1 – STAND-BY DEVICE

To switch on/off the SCP674V202 and SCP674V030 devices set P-on the parameter:
- ***0*** = device off / stand-by;
- ***1*** = device on;

⚠ ATTENTION: the devices, SCP674V202 / SCP674V030, are still powered even if in OFF mode.

NOTE: If the device is in stand-by, ***P-on*** = 0:
- when the device is OFF, ***P-on***=0 the anti-freeze set-point is not maintained, parameter ***rt.***
- the display shows the oFF label;
- anyway it is possible to switch on the device. To switch on the device hold the keys ▲ and ▼ pressed for at least 3 seconds until the oFF message disappears, now the display shows the temperature.

11.2 – FAN SPEED VALUE IN *USEr* MODE

Parameter FAn sets the fan capacity to maintain in ModE = USEr.

11.3 – PWM OUTPUT POWER IN *USEr* MODE

Parameter Pnt sets the PWM power to maintain in ModE = USEr.

11.4 – PWM & FAN OUTPUTS: AUTOMATIC / MANUAL

The parameter ModE sets the operation mode of the outputs PWM and FAN. The device in heating / reverse action features 2 operation modes:
- ***USEr*** - "User / Manual" mode: the user can select the operation mode of the warm air generator. The device SCP674V202 works as a thermostat with ON/OFF action, it maintains the set-point SP1C, SP1E or rt without any flow or power optimization algorithms.
  The fan air flow depends on the parameter FAn and the PWM engine power depends on the parameter Pnt.
- AUtO: "Automatic" mode. The operation mode of the PWM and fan outputs depends on the value of the external temperature, the air flow temperature and the parameter ***LP*** setting. For more information see point 15.

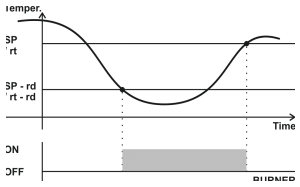
11.5 – OPERATION MODE OF THE DEVICE: AUTOMATIC / MANUAL

The A-M parameter sets the operating mode of the device:
- oFF: the device runs in manual mode; it just maintains the anti-freeze set-point (see parameter ***rt***). During this mode the icon ✋ is on.
- AUtO : the device runs in automatic mode; the network device works according to the set timer programs;
- on: the device runs in manual mode; it just maintains the comfort set-point – ***SP1C***. During this mode the icon ✋ is on.

The manul mode on or oFF has priority over the Holiday function.

11.6 – TYPE OF ACTION, SUMMER / WINTER

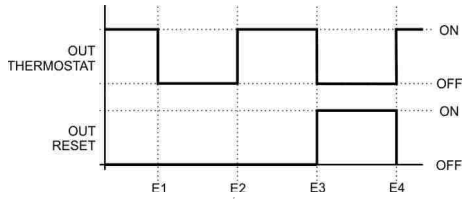
The H-C parameter sets the type of action of the device:



- CooL= direct, summer / cooling. The burner output of the SCP674V030+SCP674V202 device is always off;
- HEAt= reverse, winter / heat;
  The regulation relay turns on when temperature t ≤ ***SP*** - ***rd*** and turns off when it reaches the set-point temperature ***SP***. In the event of ambient probe fault the relay is always OFF.

11.7 – THERMOSTAT RESET:

Set the rSt parameter to start a reset cycle.
The module can be reset by briefly cutting off the power supply:



E1	**Set the rSt parameter to YES, then pres** ↵ : thermostat contact opens.
E2	**Thermostat contact closes** : the event E2 lasts 3 seconds.
E3	**Activation of reset relay RT**: after a delay of 5 seconds.
E4	**Activation time of reset relay RT**: it depends on parameter ***L2***. • ***L2*** < 3sec. The module will execute only the burner reset. • ***L2*** > 6sec. The module will execute the reset of the burner and of the module SCP674V030 post serious alarm. When choosing this setting, any time you press the reset button, all the outstanding alarm / serious alarm events displayed on the SCP674V030 will be deleted.

12. CLOCK MENU: TiME

NOTE: the built-in timer can only be displayed/adjusted if the SCP674V202 is not connected to a SCBus/i²Net network, dip1 of switch SW3 = 0  .

If the dip1 of switch SW3 = 1, any time you enter the tIME menu, the label "***SYS***" will be displayed.

To *display* the set time, go to the tIME menu, see point n.5.
For example: Wednesday, 2:32pm: the display shows

To *adjust* the set time:
- go to the tIME menu: press ↵, now the hour digits will begin flashing;
- press ▲ or ▼ to set the current hour;
- press ↵ to confirm it; the minute digits will begin flashing;
- press ▲ or ▼ to set the current hour;
- press ↵ to confirm it; now the day set blinks, the other week days are off;
- press ▲ or ▼ to set the current day, es :
  DAY 1 DAY 2 DAY … 6 DAY 7
  1=Monday 2 =Tuesday 6 = Saturday 7 = Sunday
- press ↵ to confirm it;
- to exit the menu either press the ✕ button or wait for 30 sec.

13. PROGRAM TIMER MENU: PtiM

The menu PtiM gives you access to the timer programs of the device:
The timer programs are a sequence of events of burner and fan ignition and shut down; the device sorts them by day and time and starts them cyclically. It is possible to set 16 different timer programs for each device.

The SCP674V202 executes the timer programs only if the parameter A-M = AUtO.
The timer can be disabled by:
- manual function *ON / OFF*:
  - A-M = oFF, the SCP674V202 just maintains the anti-freeze set-point, parameter ***rt***;
  - H-M = on, the SCP674V202 just maintains the comfort set-point, ***SP1C***;
- stand-by of the SCP674V202 device, P-on = 0. the SCP674V202 does not maintains any set-point, not even the anti-freeze set-point.

See point n°5 to locate and enter the PtiM menu:
- now the first place on memory is displayed. Should the display show "- - : - -" it means that no timer program has been entered.
- to ***read*** the timer programs or to search the first free timer program press the ▲ key until the first free place on memory "- - : - -" appears on display;
- to ***insert*** / ***change*** the timer program on display press briefly ↵, now the digits of hours "– –:" of the 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 selected value; now the following signals light on 1 2 3 4 5 6 7;
- press ▲ or ▼ button to select the day(s) when the timer program should be active, i.e.:
  2 — Only 2 = Tuesday
  1 2 3 4 5 — Weekdays: Monday to Friday
- press ↵ to confirm the value. the timer program type will be displayed:
  - ***SP1C*** = comfort set-point - it is a timer program of outputs ON, LED ☀ ON.
    Module in heating/winter mode: program of burner ON with SP1C.
    Module in cooling/ summer mode: fan always ON, no matter the detected temperature;
  - ***SP1E*** = economy set-point - it is a timer program of outputs ON, LED ☀ ON (SP1E available only if ***r0*=2**).
    Module in heating/winter mode: program of burner ON with SP1E.
    Module in cooling/ summer mode: fan always ON, no matter the detected temperature;
  - ***OFF*** = anti-frost protection set point, it is a program of output OFF, LED ☾ ON.
    Module in heating/winter mode: program of burner OFF.
    Module in cooling/ summer mode: fan always OFF, no matter the detected temperature;
- 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 PE II menu:
- to delete ONE program:
  - press ▲ to select the scheduled timer program to be cancelled
  - hold ↵ for 3s until ***"--:--"*** will be displayed.
- to delete ALL the saved TIMER programs:
  - hold ↵ for 6s until ***"EALL"*** will be displayed.

To ***exit*** the "PE II" menu wait for 10 sec. without pressing any key.

TIMER PROGRAMS OPTIMIZATION – ONLY IF **/P2 = YES**:
When the chrono-thermostat is in ***AUTO*** mode it is possible to select the working period optimisation. Through this function, it is possible to reach the desired temperature at a fixed time. This will considerably reduce power wastages. This is the result of a constant control of the ambient temperature in every single zone, of the set point value, which is set by the user for that specific zone, of the system temperature increase in Grades/Hour and of the value of the outside temperature. In this way, the system is able to set out and if necessary to revise the pre-start period required to reach the desired temperature. The absence of any connections to external events in defining the starting period erases all possible interferences caused by internal or external climatic changes in the room. In the event of an unexpected increase of the system heating efficiency, due for instance to a different humidity value of the air, the electricity supply will immediately be interrupted until the next analysis of the variables.
The parameters for this function [***t0***, ***tr***] are set by the manufacturer to standard levels. Please check them with regard to the specific device.

NOTE: If you enter timer programs with SP1E and then set the device to work only with SP1C, parameter ***r0***=1, the timer programs with sp1e will be automatically switched in programs with SP1C.

14. PARAMETERS MENU: PAr

The menu "PAr" gives you access to the parameters of the device. See point n°5 to locate and enter the "PAr" menu.

THE SCP674V202 DEVICE 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 password value, generally "***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, the thermostat will revert to normal functioning.
- To scroll and set the parameters proceed as described in point 5.

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

PARAMETR LIST

Cod	*Parameters*	*Type*	*Range*	*UM*	*Def*
/	**Regulating probe parameters**				
/A	P3-P4 probe average. /A=0→100% P3	M	0...100	°C	50
/C1	Calibration probe P1 – temperature probe	☺	-12…12	°C	0,0
/C2	Calibration probe P2 – outside probe	I	-12…12	°C	0,0
/C3	Calibration probe P3 – fan probe 1, inlet air	I	-12…12	°C	0,0
/C4	Calibration probe P4 – fan probe 2, outlet air	I	-12…12	°C	0,0
/P2	Probe P2 set up. no=missing; int=built-in;	M	no… int	-	no
/P3	Presence of probe P3 (on SCP674V030). no; YES	M	no..YES	-	YES
/P4	Presence of probe P4. no; YES	M	no..YES	-	NO
/S	Reading stability AD inputs	I	0…5	-	2
r	**Regulator parameters**				
r0	To set if the device works with 1 or 2 set-points. 1=only SP1. 2=SP1+SP2	M	1…2	-	1
rd	Set-point differential	☺	0,1…12	°C	0,5
rt	Safety set-point / antifreeze function. 0=burner output off, antifreeze function disabled.	☺	0,0…20	°C	6
rL	Minimum temperature limit ***SP1C*** e ***SP1E***	I	-40…***rH***	°C	10
rH	Maximum temperature limit ***SP1C***	I	***rL***…99	°C	30
L	**Output parameters**				
L0	Outputs delay at PWON	M	15…250	sec	15
L2	Reset pulse duration.	M	1…30	Sec	7
LbP	Proportional band.	I	1…12	°C	3
LP	Control of the burner power: 0 = burner free power; 1 = burner power controlled by the temperature of the air flow	M	0…1	-	0
LrA	Automatic correction of parameter LrH. It is the value of the burner maximum power in case of outside temperature Et ≥***Ln8***.	I	30…100	%	40
Ln6	Outside temperature minimum value, obtained from the algorithm of parameter LrH automatic correction, "LrA".	I	-20…Ln8	°C	-20
Ln8	Outside temperature maximum value, obtained from the algorithm of parameter LrH automatic correction, "LrA".	I	Ln6…15	°C	15
F	**Fan parameters**				
F1A	Fan stop during air filter alarm. no = no fan stop during an air filter alarm; YES = fan stop during an air filter alarm.	M	no…YES	-	no
FH	Fan activity in HEATING mode: brn= fan thermostated; on= fan always on off= fan always off	I	brn, on, off	-	brn
FC	Fan activity in COOLING mode: 0=OFF= fan always off; 1= ON = fan ON according to the prg. timer; 2= ON = fan ON according to the prg. timer;	I	0, 1, 2	-	0
FCF	Fan activity in FREE-COOLING mode: (not implemented) 0=OFF= fan always off; 1= OFF = fan always off; 2= OFF = fan always off;	I	0, 1, 2	-	0
Fd	Fan differential	M	0,1..12	°C	10
FtA	Fan set-point of heat exchanger. Fan will keep off if the temperature measured by the probe FtM is lower than the set value. If ***F1***=BRN and ***FtA***=0 fan will be paralleled to the burner.	M	0,0…99	°C	40
Ftr	Air flow temperature with constant fan flow in AUTO mode.	☺	5…150	°C	60
F0t	Cycle time function tFan in AUTO mode.	M	5…250	sec	20
FLo	Fan minimum speed	M	0…FHi	%	30
FHi	Fan maximum speed	M	FLo…100	%	100
A	**Alarm parameters**				
Ad	Alarm differential	M	0,1…12	°C	2,0
AE	Delay in the notification of burner lockout. 0=No delay; 1=30 secs; 2=60 secs; 3=90 secs.	M	0…3	-	1
AL	Absolute alarms of low temperatures Lt	☺	-40..AH	°C	-40
AH	Absolute alarms of high temperatures Ht	☺	AL…99	°C	99
A3	Alarm bypass time at start up	☺	0…250	min.	0
t	**Timer parameters**				
t0	Maximal pre-start time of programs 0=function of pre-start excluded	☺	0…6	hour	0
tr	Heating plant efficiency	I	0,1…12	°C*hour	3,0
H	**Other parameters**				
H10	% of air shutter opening in winter mode with fan ON	I	0…100	%	70
H11	% of air shutter opening in winter mode with fan OFF	I	0…100	%	100
H12	% of air shutter opening in summer mode with fan ON	I	0…100	%	0
H13	% of air shutter opening in summer mode with fan OFF	I	0…100	%	100
HH	Release firmware (READ ONLY)	☺	-	-	-
HL	Keypad guard. NO=NO; YES=YES	☺	NO..YES	-	NO

LEGEND: PARAMETER AND PASSWORD

Type	*Description*	*PA*
☺	**USER** parameters	any
I	**INSTALLER** parameters. Read the instructions before editing the parameter	95
M	**MANUFACTURER** parameters. These parameters are usually factory preset; the default values may differ from the suggested ones. Changing these parameters may cause a bad functioning of the device. These parameters are visible only by entering the right password.	59

(*)NOTE:

- REGULATOR PROBE – PROBES AVERAGE FtM

Parameter ***/A***, "probes average", sets the regulation temperature of the fan output, that is the virtual probe "***FtM***", probe FtM value is equal to:
- probe "***P3***" if ***/A***=0 ;
- probe "***P4***" if ***/A***=100 ;

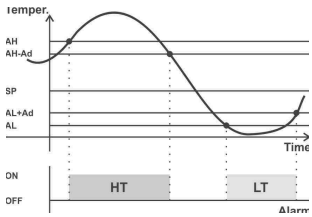
- the weighted average of the value measured by the regulation probe "***P3***" and the regulation probe 2 "***P4***" only if ***/A***≠0 and ***/P3*** = ***/P4*** = YES.

The formula to calculate the temperature of the virtual probe is:

FtM = *[P3x(100-/A) + P4x/A] / 100*

⚠ If ***/A***=100, or ***FtM*** = only P4, any E3 error will be taken into account during the cooling regulation.

- TEMPERATURE ABSOLUTE ALARMS



The values of the parameters ***AL*** and ***AH*** are the alarm absolute limits of low ***Lt*** and high ***Ht*** temperature.

When these limits are exceeded an alarm occurs: it stops as the temperature goes back to normal values.

- AIR DAMPER CONTROL

Parameters ***H10*** , ***H11***, ***H12*** and ***H13*** control the opening closing of the air damper1 , terminals 5 and 6 of J4:

- H10 : Percent of air damper opening in winter mode with fan ON;
- H11 : Percent of air damper opening in winter mode with fan OFF;
- H12 : Percent of air damper opening in summer mode with fan ON (timer ON);
- H13 : Percent of air damper opening in summer mode with fan OFF (timer OFF);

15. FAN & PWM OUTPUTS: OPERATION MODE

The parameter ***ModE*** sets the SCP674V202 operation mode. The device in heating / reverse action features 2 operation modes:

- USEr - "User / Manual" mode: the user can select the operation mode of the warm air generator. The device SCP674V202 works as a thermostat with ON/OFF action, it maintains the set-point SP1C, SP1E or rt without any flow or power optimization algorithms.

  The fan air flow depends on the parameter FHn while the PWM engine power depends on the parameter PWE.

  If ***FH***=*brn* and **FtA**≠0 → the fan of the serial module SCP674V202 activates according the value ***FtM*** (weighted average between probes P3 and P4).

  Fan output activates for temperature values ***FtM>FtA.*** In this case the fan air flow (SCP674V202 J4 terminals + and -) depends on the parameter FHn.

  Fan stops when temperature ***FtM<FtA-Fd.***

  In case of ***FtM<FtA,*** fan output can be enabled by terminal J9C "C_F1" of SCP674V030.

  If ***FtM<FtA-Fd*** and fan output enabled by "C_F1", the fan air flow (SCP674V202 J4 terminals + and -) works at the minimum power , see parameter ***FLo***.

  FH=*on* → the fan output is always ON, whatever the temperature detected by probes P1, P3 and P4. The fan air flow depends on parameter "***FAn***".

  FH=*oFF* → the fan output is always OFF whatever the temperature detected by probes P1, P3 and P4. The fan air flow (SCP674V202 J4 terminals + and -) depends on the parameter "***FAn***".

  When the burner switches off, SCP674V202 TA output OFF:

  If ***FH = brn*** the fan output status depends on the ***FtM*** value. Fan is ON when ***FtM>FtA***, and OFF when ***FtM<FtA-Fd***;

  If ***FH = on*** the fan output keeps always on. In this case the air flow equals to the value of the parameter "FAn".

- AUto - "Auto" mode: the operation mode of the PWM and fan outputs depends on the parameter ***LP*** setting.

  ○ ***LP=0*** →PWM burner free power: the activity of the PWM output is automatic-proportional and the air flow temperature is kept constant thanks to a P.I. regulation. The value of the PWM output is proportional to the difference between the real temperature and the set set-point. A correction algorithm of the max delivery power is applied to the burner max value; the algorithm considers the variation of the outside temperature P2 and the parameter ***LrA***. ***LrA*** is related to parameters ***Ln6*** and ***Ln8***.

  The higher the outside temperature, the lower the PWM output power value; the lower/colder the outside temperature, the more similar or equal to the 100% of the PWM output the max percent value of the PWM output will be. Should the outside temperature be "Et" ≥ ***Ln8***, the PWM max power will be similar or equal to ***LrA***; should the outside temperature be "Et" ≤ ***Ln6***, the PWM max power will be ***100%***. EXAMPLE:

  If ***LrA*** = 50% ; ***Ln6*** = -10°C ; ***Ln8*** = 10°C, then:

  ○ If Et = -10°C = ***Ln6*** → PWM power = max → 100%;

  ○ If Et = 0°C → PWM power = max → 75%;

  ○ If Et = 10°C = ***Ln8*** → PWM power = max → ***LrA*** = 50%;

  Set ***Ln6***=***Ln8*** or ***LrA***=100 or ***/P2=no*** to disable the automatic correction algorithm of the max delivery power.

  The proportional band amplitude depends on parameter ***LbP***. ***FtM*** (weighted average between probe P3 and P4) is the probe set for the fan control.

  The fan output, with P.I. control, modulates the air flow capacity in order to maintain the air flow temperature (parameter ***Ftr)*** constant: the air flow capacity will be increased or decreased by the 5% every ***F0t*** seconds. The air flow capacity varies between ***Flo***, minimum speed, and ***FHi***, maximum speed. If the air temperature remains in a range ***Ftr*** +/-5°C, the air flow capacity will remain constant.

  The fan output keeps off when temperature is lower than ***FtA – Fd*** (only if ***FtA*** ≠ 0).

  The device works correctly in "auto" mode when at least the P2 and P3 probes are enabled.

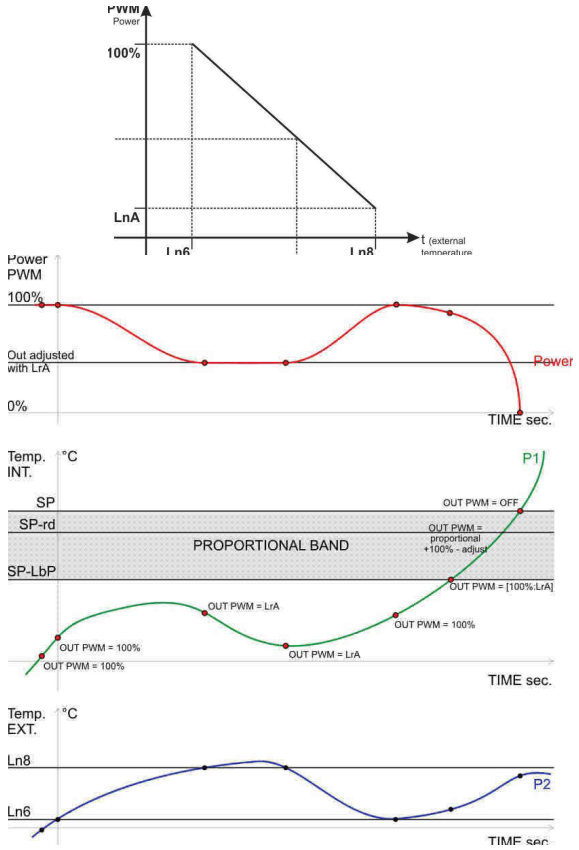
  Even if burner is stopped, fan can remain ON or start up, according to ***FH*** parameter:

  - If ***FH*** = ***brn*** the fan output works with P.I. control for temperature ***FtM>FtA***, and is OFF when ***FtM<FtA-Fd***. In case of ***FtM<FtA,*** fan output can be enabled by terminal J9C "C_F1" of SCP674V030, in this case the fan air flow (SCP674V202 J4 terminals + and -) works at the minimum power, see parameter ***FLo***.

  - If ***FH*** = ***on*** the fan output is always ON. In this case the air flow rate varies in order to maintain the air flow temperature (parameter ***Ftr)*** constant;

  - If ***FH*** = ***oFF*** the fan output is always OFF. The fan air flow (SCP674V202 J4 terminals + and -) depends on the parameter "***FAn***".

PWM OUTPUT ACTIVITY WHEN IN AUto MODE AND ***LP = 0***



○ ***LP=1*** →PWM burner power depending on the air flow temperature: the burner activates according to the room temperature, P1 probe; the PWM output power varies according to the air flow temperature, ***FtM***. ***FtM*** is the PWM output control temperature, it is the weighted average between probe P3 and P4. The PWM output modulates the air flow capacity in order to maintain the air flow temperature (parameter ***Ftr)*** constant:

- It increases the air flow by 5% every ***F0t*** seconds when the air temperature calculated by ***FtM*** is lower than ***Ftr*** – 5°C;
- It decreases the air flow by 5% every ***F0t*** seconds when the air temperature calculated by ***FtM*** is higher than ***Ftr*** + 5°C.
- It keeps steady when the air temperature calcolated by ***FtM*** is in between ***Ftr*** +/-5°C.

A correction algorithm of the max delivery power is applied to the burner max value; the algorithm considers the variation of the outside temperature P2 and the parameter ***LrA***. ***LrA*** is related to parameters ***Ln6*** and ***Ln8***.

The higher the outside temperature, the lower the PWM output power value; the lower/colder the outside temperature, the more similar or equal to the 100% of the PWM output the max percent value of the PWM output will be. Should the outside temperature be "Et" ≥ ***Ln8***, the PWM max power will be similar or equal to ***LrA***; should the outside temperature be "Et" ≤ ***Ln6***, the PWM max power will be ***100%***. EXAMPLE:

If ***LrA*** = 50% ; ***Ln6*** = -10°C ; ***Ln8*** = 10°C, then:

○ If Et = -10°C = ***Ln6*** → PWM power = max → 100%;

○ If Et = 0°C → PWM power = max → 75%;

○ If Et = 10°C = ***Ln8*** → PWM power = max → ***LrA*** = 50%;

Set ***Ln6***=***Ln8*** or ***LrA***=100 or ***/P2=no*** to disable the automatic correction algorithm of the max delivery power.

When ***Lb=1***, the fan air flow depends on the parameter "***FAn***".

Fan and PWM outputs are OFF when the temperature is lower than ***FtA – Fd*** (only if ***FtA ≠ 0*** and ***FH=brn***).

If FH=oFF → PWM always ON at 0%.

The device works correctly in this mode when at least the P2 and P3 probes are enabled.

The fan output activates according to ***FH*** parameter.

- If ***FH*** = ***brn*** the fan output is ON for temperature ***FtM>FtA***, and is OFF for temperature ***FtM<FtA-Fd***; In case of ***FtM<FtA,*** fan output can be enabled by terminal J9C "C_F1" of SCP674V030, in this case the fan air flow (SCP674V202 J4 terminals + and -) activates at the minimum power, see parameter ***FLo***.

- If ***FH*** = ***on*** the fan output is always ON. In this case the air flow rate varies in order to maintain the air flow temperature (parameter ***Ftr)*** constant;

- If ***FH*** = ***oFF*** the fan output is always OFF.

ATTENTION:

⚠ Should an error E3 / E4 occur or P3 be disabled, the air flow rate corresponds to the setting of parameter FAr.

⚠ Should an error E2 occur or the outside probe be disabled, the PWM output automatic correction algorithm will disable and the max value of the burner power will be equal to ***100%***;

16. SCP674V030 / SCP674V202 : FAN OPERATION MODE

The operation mode of the fan output depends on the parameter ***FH***, ***FC***, ***FCF***, ***FtA*** and on the device control mode, SUMMER/WINTER.

Reverse action, HEATING - HEAt:

If ***FH*** = ***brn***, the fan output and the related 0…10V output of SCP674V202 are thermostated, they activate according to the ***FtM*** temperature value and to parameter ***FtA***.

The fan output is ON for temperature ***FtM>FtA***, and is OFF for temperature ***FtM<FtA-Fd*** (only if ***FtA ≠ 0***).

If ***FtM<FtA***, the fan output can be enabled by J9C "C_F1" of SCP674V030: the air flow will run at the minimum power, see parameter ***FLo***.

If ***FH= on***, the fan output and the related 0…10V output will be always ON, no matter the temperature detected by the probe ***FtM***.

If ***FH= oFF***, the fan output and the related 0…10V output will be always OFF, no matter the temperature detected by the probe ***FtM***. The fan output activates when the contact "J9C "C_F1" of SCP674V030 closes. The 0…10V output will be always ON at the minimum power, see parameter ***FLo***.
Should an error E3 or E4, probe P3 and probe P4, occur the status of the fan output and the related 0…10V output will depend on ***FH.***

If the SCP674V202 electric board is not connected to a SCBus network and it is set in direct action, ***H-C*** = ***COOL***, so the fan and the 0…10V outputs depend on the inserted timer programs .

- if a timer program of "ON" is in progress → fan output always ON;
- if a timer program of "OFF" is in progress → fan output always OFF

If the SCP674V202 electric board is connected to a SCBus network, the ***A-M*** parameter is equal to ***AUto*** and it is set in direct action, ***H-C*** = ***COOL*** and also ***H-CM*** = ***COOL*** (***H-CM*** is a parameter of the master device SCM850/SCM830/SCM805) so***:***
Direct action, SUMMER COOLING – COOL
FC=0 : the fan output and its 0…10V output are always OFF.
FC=1 or 2 : the fan output and its 0…10V output activates according to the timer programs inserted on the device:

- if a timer program of "ON" is in progress → fan output always ON. The 0..10V output is on, see parameters ***FLo*** and ***FAn***;
- if a timer program of "OFF" is in progress → fan output always OFF

NOTE: In any case, the fan output activates when the contact "C_F1" J9C on the board SCP674V030 closes.

FREE COOLING: NOT IMPLEMENTED
FCF=0 or 1 or 2: the fan output and its 0…10V output are always OFF.
The fan output activates when the contact "C_F1" J9C on the board SCP674V030 closes;

17. DISPOSAL

This electronic device is made of metal and plastic parts: it must be collected and disposed of separately in accordance with the local waste disposal legislation in force.

18. NOTES

RoHS COMPLIANT 2002/95/EC CE

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