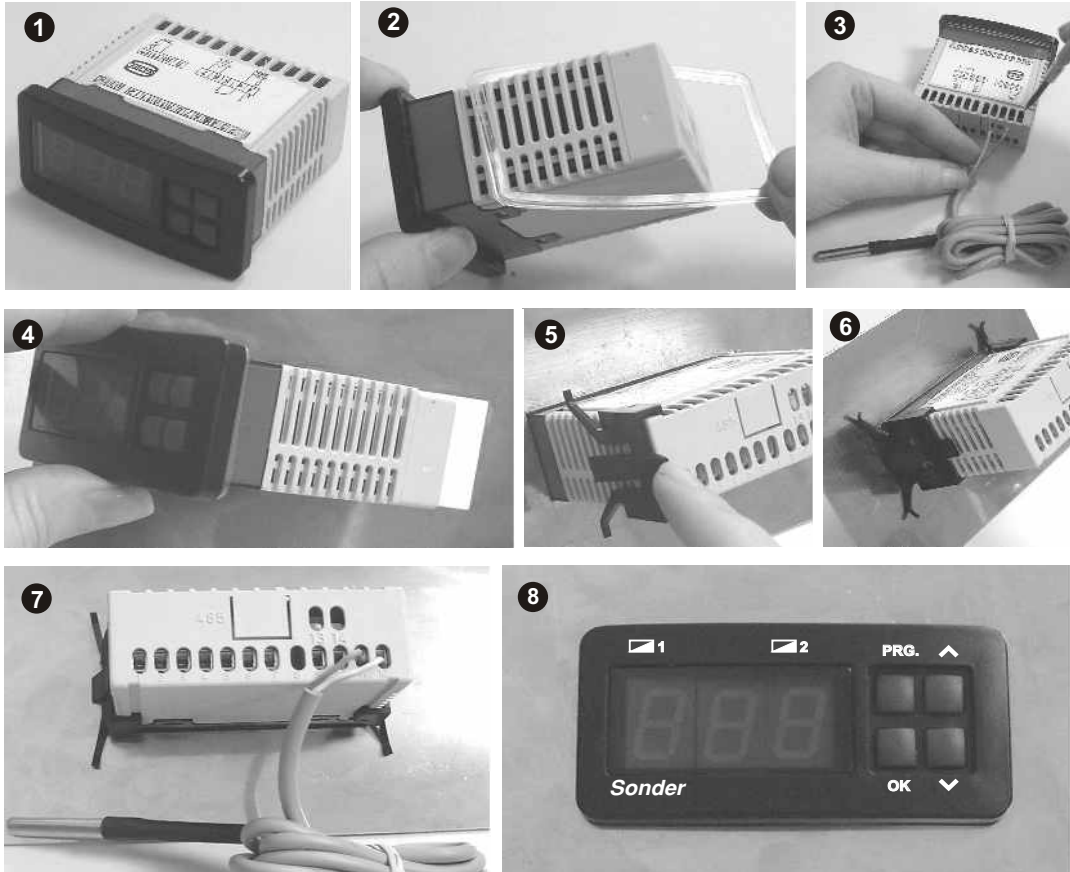


EC 60-312AL, EC 100-312AL

ELECTRONIC CONTROL

INSTALLATION AND USE INSTRUCTIONS



Guarantee conditions

This appliance has a two-years guarantee limited to replacement of defective parts.

We will not accept any responsibility for damage caused to the appliance by poor handling.

The guarantee does not include:

- Appliances with a damaged, effaced or altered series number.

- Appliances which have not been connected or used following the instructions that accompany it.

- Appliances which have been altered without the prior consent of the manufacturer.

- Appliances damaged by blows or liquid spills or gaseous emissions.

VERY IMPORTANT !:

The probe cable has to be kept as far away as possible from other electrical conductors.

The maximum lenght recommended under actual standard must be less than 3 M.

It is the installer's responsibility to fit electrical protection suitable for the installation (STANDARDIZED).

Reserved the right of modify without prior notice.

EC 60-312AL, EC 100-312AL

Sonder Regulación, S.A.

Avda. La Llana, 93
08191 RUBÍ

(Barcelona) Spain

www.sonder-regulacion.com



Cod: 5421V0 ING.-03/06

EC 60-312AL, EC 100-312AL

ELECTRONIC CONTROL

INSTALLATION AND USE INSTRUCTIONS



OPERATION

- When the appliance is switched on, the display will show "- - -", "RL", "- - -" and the temperature detected by the sensor. Press \blacktriangle or \blacktriangledown , and the setpoint temperature value appears blinking.
- To change the setpoint press \blacktriangle or \blacktriangledown while blinking, to increase or decrease the desired temperature. The temperature is memorized after 3 sec. of not playing the keys.

FACTORY SETTINGS

Nº	FUNCTION	VALUE
-	Temperature setpoint.....	4°C
diF	Temp. differential (hysteresis).....	1,0°C
HSE	High setpoint.....	99°C
LSE	Low setpoint.....	40°C
doF	Minimum off time.....	2 min
C-H	Control type.....	rE
CAL	Sensor calibration.....	0°C
dit	Defrost timer.....	24H
dEt	Defrost stop time.....	0 min
tPP	Prog. Parameters time.....	5 sec
PAS	Param. access code.....	0 Deactivated
LAL	Low alarm temperature.....	-30°C
HAL	Prog. Parameters time.....	130°C
dSA	Alarm on delay.....	10 min

SCALE

-40 to 140°C
0,3 to 9,0°C
-40 to 140°C
-40 to 140°C
0 to 15 min
rE / cA / Fr
-9,0°C to 9,0°C
1 to 168H
0 to 99 min
3 to 40 Sec.
0 to 99
-40 a +140°C
-40 a +140°C
0 to 120 min

The factory settings are those considered to be the most common for normal use of installations. If they are right for your purposes, your thermostat is ready to control and regulate your installation.

If you should need any other settings due to the requirements of your installation, please read this manual carefully.

-Manual DEFROST: Press **OK** for 10 seconds. The "dEt" duration cycles starts during with "dEF" is shown on the display.

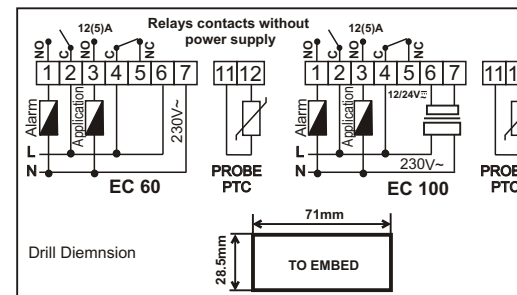
-Automatic DEFROST: performed every number of hours indicated in the "dit" parameter, lasting the time set in the "dEt" parameter.

-TO CANCEL ALL TYPES OF DEFROST, program the "dEt" to 0.

DESCRIPTION OF PARAMETERS

- The display shows the temperature detected by the sensor.
- Differential (diF)**: Temp. values between energizing and releasing.
- Low setpoint (LSE) and High setpoint (HSE)**: The temperature limits within which the setpoint can be adjusted and set.
- Minimum off time (doF)**: Delay time applied when the compressor stops and which prevents the compressor restarting even if conditions for this are met. This delay is also applied after switching on the thermostat to protect the compressor in the event of a power outage.
- Control type (C-H)**:
 "rE" type: The relay disconnects when the temperature falls to the setpoint and will connect when it rises to the setpoint plus differential.
 "cA" type: it disconnects when the setpoint is reached and will connect when the temperature falls to setpoint minus differential.
 "Fr" type: The same of "rE" type + Alarm relay activation to defrost.
- Sensor calibration (CAL)**: This function enables you to change the displayed temperature.

ELECTRICAL CONNECTION



- **Defrost timer (dit)**: Interval between the start of two successive defrosts expressed in hours.

- **Time-out defrost finish (dEt)**: After this time has elapsed (in minutes) defrost finishes. Zero indicates defrost disabled. "dEF" appears on the display during defrost.

- **Low alarm limit (LAL)**: A temperature belows this setting will activate a light on the right of the display.

- **High alarm limit (HAL)**: A temperature above this setting will activate a light on the right of the display.

- **Alarm on delay (dSA)**: Delay time applied when an alarm situation occurs.

- **Time of access to programming of parameters (tPP)**: it is the time that should be pressing the key **PRG**. to enter in the programming of parameters, either to modify them or to visualize their values. (Time expressed in seconds)

- **Parameters access code**: Factory setting zero (disabled). Enter parameter programming by pressing and holding down **PRG** for 5 s. If the code is other than zero, enter parameters as follows:

A.- "PAS" is briefly displayed and then the message "- 0 -"; Use the up or down arrows to select the previously programmed parameters access code.

B.- Press **OK**: If the selected number is the correct one, "diF" appears. If the selected number is incorrect the thermostat will not allow access to programming and "----" appears.

PARAMETERS PROGRAMMING

1. Press **PRG** during the time settled down in the parameter tPP (of factory 5 s.) and "diF" will appear in the screen. Release the key.

2. pressing **OK** their current value will appear blinking.

3. While value is blinking, press \blacktriangle or \blacktriangledown to change the desired value. Press **OK** to store it in memory. The designation of the parameter being programmed reappears.

4. Press \blacktriangle to scroll forward to the next parameter. Repeat point 3.

5. Press **PRG** to exit the parameters "- - -" appears and then the current temperature detected by the sensor. After 1 minute without pressing any key, the thermostat leaves programming of parameters.

RELAYS DISPLAY

1 State of APPLICATION relay: A fixed light below the symbol = ON

2 State of ALARM relay: A fixed light below the symbol = ON

ERROR INDICATORS

"ES" Probe Error: Probe is disconnected or its wires are cut.

"888" Parameter table memorization error.

"ALP" required temperature beyond limits (HSE and LSE limits)

While the "ALP," "ES" and "888" alarms are activated a continuous emergency cycle occurs in application relay consisting of:

rE mode: 10 min ON - 5 min OFF

cA mode: 5 min ON - 5 min OFF

"AL" the room temperature is beyond the limits marked by the HSE and LSE parameters. AL and the temperature detected by the probe flash on and off.

TECHNICAL SPECIFICATIONS

Display:.....3 Digit (Red).

SensorPTC 2000, IP67, -40 to +140°C.

Resolution:.....0,1°C.

Power supply EC 60:.....230 V~ +10%, -15%. 50/60Hz.

Power supply EC 100:.....12...24V~.

Connections probe:.....without polarity.

Breaking power (contacts):.....12(5)A 250V~.

Connected wire section:.....1,5mm².

External box protection grade:.....IP55.

Working temperature:.....-5°C to 45°C.

Storage temperature:.....de -20 to 60°C.