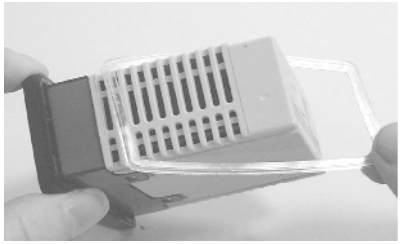
# EC 60-312ZN, EC 100-312ZN

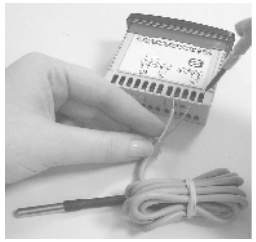
Code: 26.189 Code: 26.195

Electronic Controls

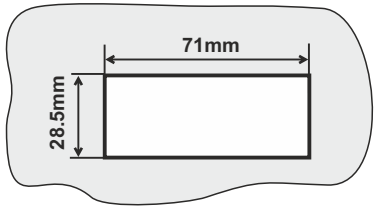
## Installation Instructions

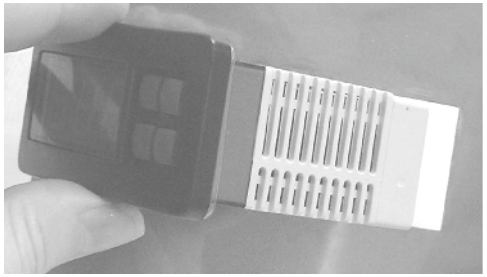
### Installation

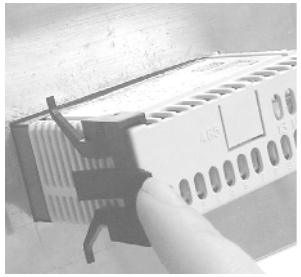


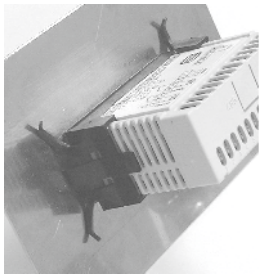


Measures for Drill to Embeded



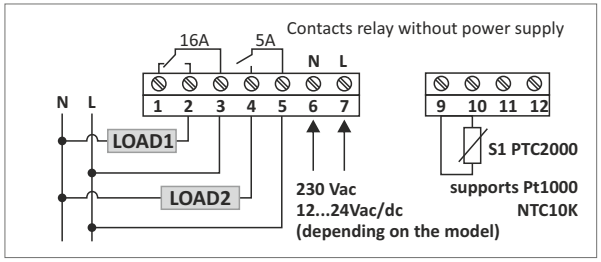







**ASSEMBLY NOTE:** Before making any electrical connections, ensure that the control is disconnected from the power supply. Any manipulation of the control is to be performed only by qualified personnel.

### Electrical Drawing





### Guarantee Conditions

This appliance has a three-years guarantee limited to replacement of defective parts. Transports not included.

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 of liquid spills or gaseous emissions.

For the rest of general conditions visit our web.

**VERY IMPORTANT:**

Before opening the box, to access the connection, make sure the voltage switch.

This controller is not a safety device, or can be used as such, it is the responsibility incorporate adequate protection to every type of installation (**homologated**) installer.

The probe cable must be as far away as possible from other electrical conductors. Its maximum recommended by current regulation length should not exceed 3 meters.

Independent control device mounting, and connection via fixed pipeline.

Reserved the right of modify without prior notice.

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(Barcelona) Spain
**www.sonder.es**

Cód: 5422V2 - ING - ABR21

EC 60-312ZN, EC 100-312ZN
Code: 26.189 Code: 26.195
Electronic Controls

## Use Instructions

### Operation

1.- When the appliance is switched on, the display will show "- - -", " nt " "- - -" & the temperature detected by the PTC2000 sensor(included, but supports NTC10K & Pt1000). Press ^ or v and **the setpoint value** appears blinking. (Value limited by the parameters **HSE-LSE**)

2.- To change the setpoint press ^ v while blinking, to increase or decrease the desired temperature. The temperature is memorized after 3 seg. of not playing the keys.

### Factory Settings

| Function ... Description | Adjusted to | Scale |
|---|---|---|
| - .... Temperature setpoint | **4,0°C.** | *-40 to +140°C |
| **diF**.... Temperature differential (hysteresis) | **1,0°C.** | 0,3 to 9°C |
| **HSE**... High setpoint | **99°C.** | *-40 to +140°C |
| **LSE**.... Low setpoint | **- 40°C.** | *-40 to +140°C |
| **doF**.... Minimum time for off | **2 minutes.** | 0 to 15 min |
| **C-H**.... Control type | **rE.** | rE❄/cA♨ |
| **dEG**... Temperature units | **CEL** | CEL / FAH |
| **CAL**... Sensor calibration | **0°C.** | -9.0°C to +9.0°C |
| **dit**..... Defrost timer | **24 Hours.** | 1 to 168H |
| **dEt**.... Defrost stop time | **0 minutes.** | 0 to 99 min |
| **tYP**.... Type of temperature sensor | **PTC.** | *ntc/Ptc/Pt |
| **tPP**.... Time to acces to Prog. Parameters | **5 seconds.** | 3 to 40 Sec. |
| **PAS**... Parameter access code | **0 Deactivated.** | 0 to 99 |
| **Second Relay** | | |
| **SSP**.... Neutral zone | **-5°C.** | -20 a +20°C |
| **diF**.... Temperature differential (hysteresis) | **2,0°C.** | 0,3 a 9,0°C |
| **doF**.... Minimum time for off | **1 minute.** | 0 a 15 min |
| **C-H**.... Control type | **cA.** | rE/cA |

*** If the control has the Pt1000 sensor selected, the scales go to: -40°C ... +400°C**

### Defrost function

- Manual DEFROST: Press **OK** for 10 seconds. The "**dEt**" duration cycles starts during wich "**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

- **Differential (diF/di2)**: Temperature 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/do2)**: 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/C2H)**:

  "**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.
- **Temperature units (dEG)**: Defines in which units it shows the temperature, degrees Celsius (CEL) or degrees Fahrenheit (FAH).
- **Sensor calibration (CAL)**: This function enables you to change the displayed temperature.
- **Defrost timer (dit)**: Interval between the start of two succesive 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.
- **Probe type selection for temperature reading (tYP)**: Defines the type of probe for temperature reading, NTC10K, PTC2000, PT1000.
- **Time of acces 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 (PAS)** : Factory setting zero (disabled). Enter parameter programming by pressing and holding down **PRG** for 5 seconds 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, " - " appears. If the selected number is incorrect the thermostat will not allow access to programming and "**---**" appears.
- **Neutral zone (SSP)**: the set temperature of regulation of the 2nd relay will be the set temperature ± **SSP** value.

### Parameters Programming

1. Press **PRG** during the time settled down in the parameter tPP (of factory 5 s.) & " **-** " appear in the screen. Release the key.
2. pressing **OK** their current value will appear blinking.
3. While value is blinking, press ^ or v to change the desired value. Press **OK** to store it in memory. The designation of the parameter being programmed reappears.
4. Press ^ to scroll forward to the next parameter. Repeat Nº 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.

### Relay Display

1 Fixed in the display indicates that the relay is on.

1 Flashing in display indicates that control is waiting for the time **doF/do2** parameter to activate relay.

### ERROR Indicators

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

"**ALP**" Required temperature beyond limits (HSE & LSE limits).

"**AL**" The room temperature is beyond the limits marked by the **HSE** & **LSE** parameters. **AL** & temperature detected by probe.

### Reset settings to factory defaults

- Disconnect the control power and reconnect, wait until see on the screen the temperature reading.
- Press **OK** until see on the display "**- - -**" (aprox. 40 seconds).
- The settings return to the factory settings if you has the password disabled ( "**- 0 -**").

### Technical Specifications

Power Supply EC 60:..... **230Vac +10%, -15% 50/60Hz.**
Power Supply EC 100:..... **12...24Vac/dc 50/60Hz.**
Probe :..... **PTC 2000, without polarity, IP65 from -40 to +140°C.**
Resolution:..... **0,1°C.**
Maximum cable section to connect:..... **1,5mm².**
Relay 1 SPDT (potentials free contacts):..... **16(7)A 250V~.**
Relay 2 SPDT (potentials free contacts):..... **5A 250V~.**
Environment:..... Tmin. **0°C**, Tmax. **45°C**, %H.R. **20 ... 85%.**
Storage temperature:..... **maximmum 50°C.**
External box protection grade:..... **IP65.**
Pollution degree:..... **2.**
Action type According EN 60730:..... **1.B.**