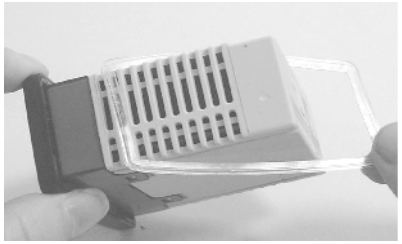
EC 60-4a20mA, EC 100-4a20mA

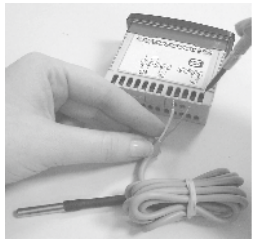
Code: 26.186 Code: 26.187

Electronic Control

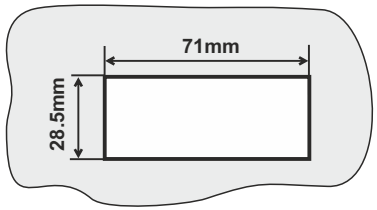
Installation instructions

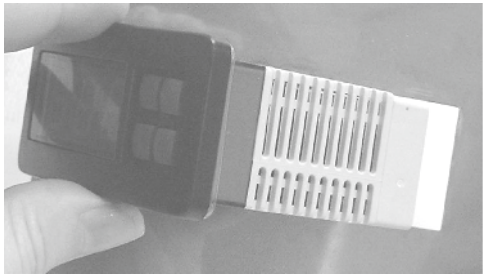
Installation

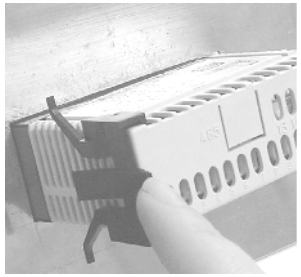


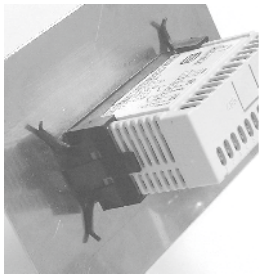


Measures for Drill to Embeded



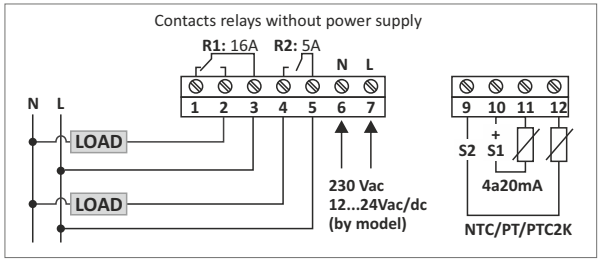






ASSEMBLY NOTE: Before making any electrical connections, ensure that the control is disconnected from the power supply. Any manipulation of the control is to be performed only by qualified personnel.

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.

See the rest of the general conditions on the website.

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.

Sonder Regulación, S.A.
Avda. La Llana, 93
08191 RUBÍ
(Barcelona) Spain
www.sonder.es

Code: 5412V3 - en - ENE21

EC 60-4a20mA, EC 100-4a20mA

Code: 26.186 Code: 26.187

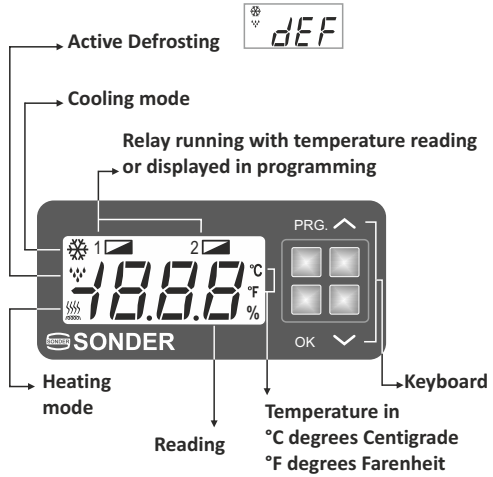
Electronic Controls

Use Instructions

Description

It is an all/nothing universal control with two probe inputs and two relays. Input 1 is for 4a20mA probe that acts on relay 1, it can read any magnitude (humidity, pressure,...) and input 2 is for temperature probe that acts on relay 2, it can be NTC10K, PTC2000 or PT1000 type.

Functionement



OK Key
In the programming menu, open parameter setting and save changes.

PRG. Key
Pressing for the time set in parameter tPP (factory setting 5 seconds) accesses the menu for setting the parameters.

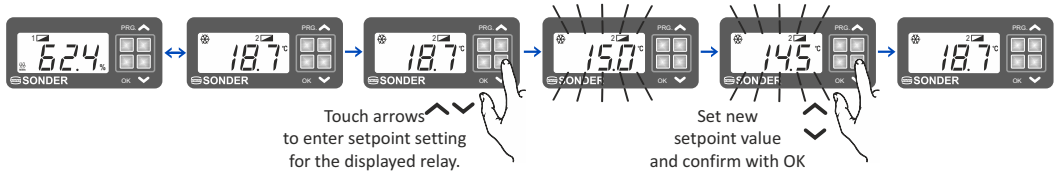
UP Key ^
In the programming menu, you can scroll through the various parameters or, while setting a parameter, change its value.

DOWN Key v
In the programming menu, you can scroll through the different parameters, change the value of a parameter while setting it.

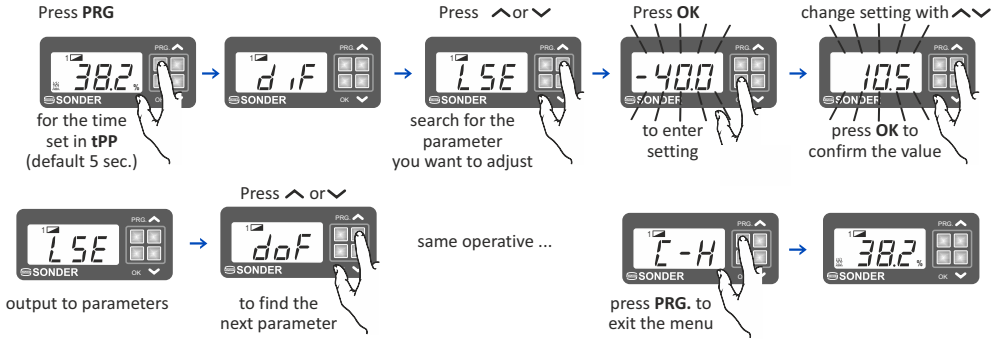
1 Fixed on the display indicates that the relay's running.

1 Flashing indicates that the relay is waiting for the **doF** parameter time to activate.

Setpoint setting of the displayed relay



Access to the parameter settings menu



EC 60-4a20mA, EC 100-4a20mA

Code: 26.186 Code: 26.187

Electronic Controls

Use Instructions

Parameters and their factory-set values

	Function Description	Adjusted to	Scale
1	**RELAY 1** (S1 4a20mA)		
38.4 %	**-** .... Set point percentage	**50.0%**	0.0 to 100.0%
diF	**diF**.... Setpoint differential (Hysteresis)	**5.0%**	1.0 to 20.0%
HSE	**HSE**... Maximum setpoint limitation	**100.0%**	0.0 to 100.0%
LSE	**LSE**.... Minimum setpoint limitation	**0.0%**	0.0 to 100.0%
doF	**doF**.... Minimum disconnection time	**2 minutes**	0 to 15 minutes
C-H	**C-H**.... Control Type	**rE**	rE ❄/cA ♨
CAL	**CAL**... Adjust to recalibrate probe	**0.0%**	-10.0 to +10.0%
rtF	**rtF**..... Relay operation for ALP / ES	**50.0%**	0.0 to 100.0%
Hin	**Hin**.....Upper display limit	**100.0%**	0.0 to 100.0%
Lin	**Lin**..... lower display limit	**0.0 %**	0.0 to 100.0%
2	**RELAY 2** (S2 NTC10K/PTC2000/PT1000)		
128.1 °C	**-** ... Set point percentage	**4,0°C**	-40.0 to +800°C
diF	**diF**.... Setpoint differential (Hysteresis)	**1,0°C**	0.3 to 9.0°C
HSE	**HSE**... Maximum setpoint limitation	**99.0°C**	-40.0 to +800°C
LSE	**LSE**.... Minimum setpoint limitation	**-40°C**	-40.0 to +800°C
doF	**doF**.... Minimum disconnection time	**0 minutes**	0 to 15 minutes
C-H	**C-H**.... Control Type	**rE**	rE ❄/cA ♨
CAL	**CAL**... Adjust to recalibrate probe	**0.0°C**	-9.0 to +9.0%
rtF	**rtF**..... Relay operation for ALP / ES	**50%**	0 to 100%
dEG	**dEG**... Temperature Units	**CEL**	CEL/FAH
dit	**dit**..... Defrost timer	**24 hours**	1 to 168 hours
dEt	**dEt**.... Duration of defrosting stoppages	**0 minutes**	0 to 100 minutes
tYP	**tYP**.... Type of temperature sensor for relay 2	**PTC**	ntc / Ptc / Pt1
	IN COMMON RELAY1 & RELAY 2		
SEL	**SEL**.... Selector of probes to be displayed	**P1**	ALL / P1 / P2
tPP	**tPP**.... Time to enter parameter programming	**5**	3 to 40 seconds
PAS	**PAS**... Parameter access code	**0**	0 to 100

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 please read this manual carefully.

2 **RELÉ 2** (S2 NTC10K/PTC2000/PT1000)

- 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 CANCELL ALL TYPES OF DEFROST, program the **dEt** to 0.

Description of Parameters

- **Differential (diF)**: Percentage range for S1 and temperature range for S2 between switch-on and switch-off.
- **Low setpoint (LSE) and high setpoint (HSE)**: The temperature limits within wich 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 switches off when the reading falls below the set point and will switch on when the reading rises above the set point plus the differential.

  "cA" (♨) type, switches off when the setpoint is reached and will switch on when the reading drops to setpoint minus differential.
- **Sensor calibration (CAL)**: Allows you to adjust the displayed reading for each probe. Using an accurate standard thermometer look at the reading and then adjust the displayed reading of the probe to this temperature.
- **Relay operation in the case of ALP / ES alarms (rtF)**: When the control detects ALP / ES it enters a 15-minute cycle that turns the relay on and off. With this parameter you will adjust the% of time that the relay will be active (**0%** = relay always OFF / **40%** = relay 6 minutes ON & 9 minutes OFF / **100%** = relay always ON).
- **Display Higher limit (Hin) and lower limit (Lin):** These are the upper and lower display values to which the 4mA and 20mA of the S1 probe are associated. Example of "**Hin**" and "**Lin**":

  If we wish to display the humidity between 0.0 &100.0% we must set Hin=100 &Lin=0. When reading 4mA it displays 0 &20mA 100.

  If we wish to display a PRESSURE between 0 and 15 bar, we must set Hin=15 and Lin=0. When reading 4mA it displays 0 and 20mA 15.
- **Temperatur units (dEG)**:Defines in which units to display the temperature for S2, degrees Celsius (CEL) or degrees Fahrenheit (FAH).
- **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 at S2 (TYP):** Defines the type of probe for the S2 input, NTC10K, PTC2000, PT1000.
- **Selection of probes displayed on the control (SEL):** Defines which probes are displayed on the control, ALL (S1+S2 alternately), P1 (S1 4a20mA), P2 (S2 temperature). Although the probes are not displayed, if they are installed, they are active and work as programmed.
- **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, "**diF**" appears. If the selected number is incorrect the thermostat will not allow access to programming and "**---**" appears.

Technical Specifications

Power Supply EC 60:..... **230Vac +10%, -15% 50/60Hz**.
Power Supply EC 100:..... **12...24Vac/dc 50/60Hz**.
Probe S1:..... **4...20mA, accuracy 0.1%.**
Probe S2:..... **NTC10K / PTC 2000 / PT1000, accuracy 0,1°C.**
Maximum cable section to connect:..... **1,5mm²**.
Relay R1:..... **16(7)A 250V~**.
Relay R2:..... **5(1)A 250V~**.
Environment:..... Tmin. **0°C**, Tmax. **45°C**, %H.R. **20 ... 85%**.
Storage temperature:..... **máximo 50°C**.
Ecternal box protection grade:..... **IP65**.
Pollution degree:..... **2**.
Action type According EN 60730:..... **1.B**.

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 -"**).

ERROR Indicators

ES	Probe Error: Probe is disconnected or its wires are cut.
ALP	Temperature setpoint outside limits (**HSE** & **LSE** limits).
AL	The temperature reading is outside the limits set by the **HSE** and **LSE** parameters. Flashing display of **AL** and the temperature read by probe.