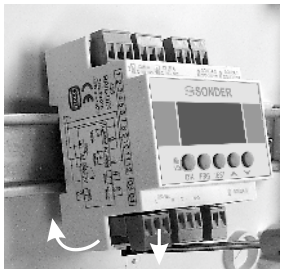
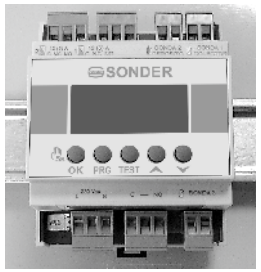
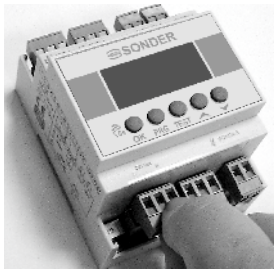
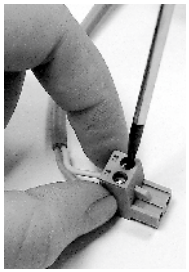
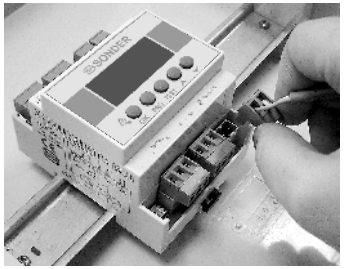
Allegro 400 RAIL Code: 20.012

Differential Electronic Thermostat

Installation Instructions

Installation



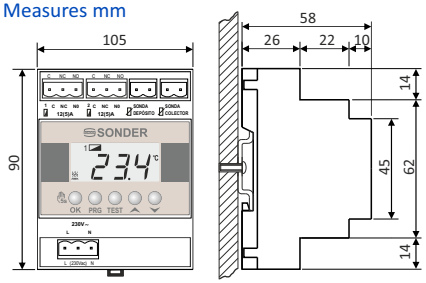
Box IP55

ASSEMBLY NOTE

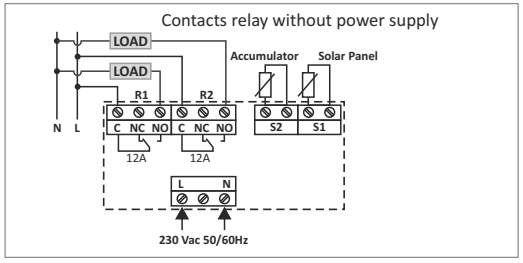
Before making any electrical connections, ensure that the control is disconnected from the power supply.

Any manipulation of the control is to be performed only by qualified personnel.

Measures mm



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. If need lengthen, it is to be done by welding and shrink to keep reading value and isolate from moisture.

Independent control device mounting, and connection via fixed pipeline.

Reserved the right of modify without prior notice.

Sonder Regulación, S.A.

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Cód: 5207V1 - ING - ENE20

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Differential Electronic Thermostat

Use Instructions

Description

Differential control with two relays. Relay 1 it turns on/off depending on the temperature difference between the probes and the relay 2 it turns on/off how temperature alarm for the probe setting in **tAL** parameter. Typical set-up for a solar-panel installation:

When the temperature difference between the two probes is greater than the value set in **dFA**, activates relay 1 (connected to a pump), and the heat-transfer fluid in the circuit will circulate until **dFd** is reached.

When the solar panel temperature is lower than the value set in **Ant**, activates relay 1 to make the heat-transfer fluid circulate until the temperature set in **Ant** +2°C (fixed differential) is reached, regardless of the accumulator temperature.

When the temperature rises above the value set in **tAL** (temperature alarm) has a three types of operating (setting in **ALr**):

AAC - (**Accumulator Temperature Alarm – probe S2**), it turns on relay connected to the pump, so that the heat-transfer fluid starts to circulate, and the relay 2 connected to heat-unit to cooling the fluid, and the relays are deactivated when the acumulator temperature falls below **tAL**-1°C (fixed differential) or when the temperature difference between the two probes is less than **dFd.**

APL - (**Solar Panel Tempperature Alarm – probe S1**, mode used in **installations with a draining system**), it deactivates relay 1, connected to pump, for fluid circulation, and activates relay 2, connected to the panel-draining system; it turns off when the panel temperature falls below **tAL**-1°C (fixed differential).

ArO - (**Accumulator Temperature Alarm – probe S2,** type used in **Zone Valves Control Installation**) it deactivates relay connected to valve when accumulator temperature (S2) reach **tAL** & activates R2 regardless of the temperature of S1.

Operation

1. On powering up, the display shows "---", " ALL", "---" and the temperature selected in the **Pnt** parameter:
   tAC = Accumulator - Tank Temperature
   tPL = Solar panel - Collector Temperature (factory setting)
2. Pressing **OK** shows the second temperature of Pnt parameter.
3. Pressing OK for 5 seconds takes you into and out of forced operation of the relay. The screen displays simbol and **on1**. If not out of this mode, the control is fixed and does not regulate.
4. Pressing ^ takes you into and out of forced operation of the relay 2. The screen displays simbol and **on2**.
5. Pressing v for 5 seconds takes you into and out of forced stoppage. The screen displays **OFF**.
6. Press **TEST** to check the settings of parameters: **dFA, dFd, tAL, Ant** (shows the parameter and then their value) and for the last one "**888**"(lighting all segments)

Note: go through steps 3 and 4 to check that your installation is properly set up, and make sure that control returns to normal mode.

Factory Settings

Function ... Description	Adjusted to	Escala
CAd... Accumulator Probe Calibration	**0°C.**	-9 to +9°C
CAc... Solar Panel Probe Calibration	**0°C.**	-9 to +9°C
dFA... Activation Differential	**8°C.**	2 to 15°C
dFd... Deactivation Diferential	**4°C.**	1 to 11°C
Ant... Anti-Frost Option (differential fix to2°C)	**5°C.**	-20 to +10°C
ALr... Alarm Mode	**AAC.**	AAC / APL / ArO
tAL... Alarm Temperature (differential fix to 1°C)	**60°C.**	15 to 110°C
Pnt... Temperature display on screen	**tPL.**	tPL or tAC
tPP... Time to acces programming Parameters	**5 seconds.**	3 to 40 sec.
PAS... Password (to access programming)	**0 deactivated.**	0 to 99

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.

Description of Parameters

- **Accumulator Probe Calibration S2(CAd)**: Adjust the temperature reading of the probe to the reading of a pattern precision thermometer.
- **Solar Panel Probe Calibration S1(CAc)**: Adjust the temperature reading of the probe to the reading of a pattern precision thermometer.
- **Activation Differential (dFA)**: Defines the temperature difference that must exist between accumulator and solar panel to activate the pump.
- **Deactivation Differential (dFd)**: Defines temperature difference that must exist between accumulator and solar panel to activate the pump.
- **Anti-Frost Option (Ant)**: When the solar panel probe goes below this, relay is activated and is disconnected with **Ant** + 2°C.
- **Type for Alarm Relay (ALr)**: Operating mode for **tAL** depending if installation has panel-draining or Unit Heater.
- **Accumulator Alarm (tAL)**: When the temperature in the accumulator reaches the value indicated in **tAL**, the relay will behave according to the setting of **ALr**.
- **Temperature Display on Screen (Pnt)**: Select which temperature reading will display (**tPL** solar panel / **tAC** accumulator) .
- **Time of acces to programming of parameters (tPP)**: Time that should be pressing **PRG** to enter in the programming of parameters, either to modify them or to visualize their values. (Time expressed in seconds)
- **Password to acces parameters (PAS)**: Access code for programming parameters (default "0" off) Once activated, proceed as follows:
  1. **PAS** appears for an instant and then the message "**0**"; with arrows, up or down, select the access code previously programmed.
  2. Press **OK.** If the selected number is correct, appears **CAd**. If the number selected it is incorrect control does not allow access to programming, appearing **"---".**

Parameters Programming

1. Press **PRG** during the time settled down in the parameter **tPP** (of factory 5 seconds) and **CAd** 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 step 2 and 3.
5. Press **PRG** to exit the parameters "---" appears and then the current temperature detected by the probe. After 1 minute without pressing any key, the thermostat leaves programming of parameters.

Warning Indicators

1 -> Fixed in the display indicates that the relay is on and their number.
ES -> Probe Error: Probe is disconnected or its wires are cut. Relay to off.
AL -> Temperature Alarm. Operating according to the **ALr** setting.
ErP-> Programming Error: **dFA** should be higher than **dFd**. Relay to off.

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:..... **230Vac +10%, -15% 50/60Hz.**
Probes (without polarity):..... **2, PTC2000 IP65 -40 to +140°C.**
Resolution:..... **0,1°C.**
Maximum cable section to connect:..... **2,5mm².**
Relays - Breaking power (potentials free contacts):..... **12(5)A 250V~.**
Environment:..... Tmin. **0°C**, Tmax. **45°C**, %H.R. **20 ... 85%.**
Storage temperature:..... **maximmum 50°C.**
Protection degree:..... **IP20.**
Pollution degree:..... **2.**
Action type According EN 60730:..... **1.B.**