Surface temperature controller with 4 relays and 3 probes

Device designed to display, control and regulate cooling generators (manual or automatic program). Auxiliary relay configurable for indicating alarms, defrost 2nd evaporator or solenoid control. Possible stop for pump down. Input for independent probe or defrost control in 2nd evaporator.

1- Versions and references

<table>
<thead>
<tr>
<th>MODEL</th>
<th>FUNCTION</th>
<th>RELAY</th>
<th>POWER SUPPLY, 50/60 Hz</th>
</tr>
</thead>
<tbody>
<tr>
<td>AKO-14641</td>
<td>Controller</td>
<td>COOL: 16 A, 250 V, cos ϕ = 1, SPST</td>
<td>120 V ~ +8% -12%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>DEF: 8 A, 250 V, cos ϕ = 1, SPST</td>
<td>120 V ~ +8% -12%</td>
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<tr>
<td></td>
<td></td>
<td>FAN: 6 A, 250 V, cos ϕ = 1, SPST</td>
<td>120 V ~ +8% -12%</td>
</tr>
<tr>
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<td>AUX: 6 A, 250 V, cos ϕ = 1, SPST</td>
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2- Technical data

Temperature range: -50.0 °C to 99.9 °C (-58.0 °F to 211 °F)
Resolution: 0,1 °C or 1 °C, configurable by parameter P7
Input for NTC probe: 0, 1 or 1 °C, configurable by parameter P7
Cos ϕ: 0, 4 or 1 °C
Thermometric accuracy: ± 1 °C
Probe tolerance at 25 °C: ± 0,4 °C
Working ambient temperature: 5 °C to 50 °C
Storage ambient temperature: -30 °C to 70 °C
Control device classification: Independent mounting, with characteristic of automatic operation Type 1.B, to be used in a clean situation, logical medium (software) class A and continuous operation.

Degree of contamination 2 on UNE-EN 60730-1.

Double insulation between the power supply, the secondary circuit and the relay output.

Allocaled pulse temperature: 2500 V

Pressure ball test temperature: Accessible parts: 75 °C
Parts that position active elements: 125 °C
Voltage and current declared by the EMC tests: 207 V, 23 mA

Remote data.

Suitable fixing screw-holes for universal flush-mounting wall box.

3- Installation

The controller should be installed in a place protected from vibrations, water and corrosive gases, and where ambient temperature does not surpass the value specified in the technical data.

In order to give a correct reading, the probe should be installed in a place without heat influences other than the temperature that is to be measured or controlled.

3.1 Fastening

Press down lightly to open the cover.

3.2 Connection

The probe and its lead should NEVER be installed in ducting along with power, control or power supply wiring.

The power supply circuit should be connected with a minimum 2 A, 230 V, switch located close to the unit. Power supply cables should be H05VV-F 2x0,5 mm² or H05V-K 2x0,5 mm².

Section of connecting wires for relays contacts should be 2,5 mm².

4- Front panel functions

LED Cool (Compressor) 
Permanent: The relay COOL (compressor) energized.

Flashing: Because of the temperature detected by Sensor 1 (TEM), the COOL relay should be energised, but is no due to a programmed parameter.

LED Def
Permanent: Indicates defrost in operation.

Flashing: Alarm indicator energized.

LED Alarm (●)
Permanent: Alarm displayed, but display maintained.

5- Adjustment and configuration

5.1 Set point temperature

The factory SET POINT default value is 0.0 °C.

Press SET key for at least 5 seconds to DISPLAY SET POINT. Displays SP for 5 seconds. It displays the CURRENT SET POINT value and LED °C or °F starts flashing.

- Press [ ] or [ ] keys to CHANGE SET POINT into the required value.
- Press SET key to ACCEPT THE NEW SET POINT. The display returns to the CURRENT TEMPERATURE display status and LED °C or °F stops flashing.
- Press the [ ] key to exit the temperature set point without modifying the value.

When PA is displayed, PASSWORD programmed in LS parameter of tid menu should be entered to access the CURRENT SET POINT.

- Press [ ] key. 0 will be displayed to ENTER PASSWORD.
- Press [ ] or [ ] keys to CHANGE NUMBER and DISPLAY PASSWORD programmed.
- Press SET key to ACCEPT PASSWORD. The CURRENT SET POINT value will be displayed and it can be already modified.

5.2 Parameters configuration

Level 1 Menu

When the keys [ ] and [ ] are pressed simultaneously for at least 10 seconds, the display should be 00. LED °C or °F will be flashing, we are in the programming Level 1 MENU and the first menu “REN” is displayed.

- Press [ ] key to access the next menu and [ ] key to return to previous one.
- Pressing [ ] key, the controller returns to the CURRENT TEMPERATURE display status and LED °C or °F will stop flashing.

When PA is displayed, PASSWORD programmed in LS of “tid” menu should be entered to access programming LEVEL 1 MENS.

- Press [ ] key. 0 will be displayed to ENTER PASSWORD.
- Press [ ] or [ ] keys to CHANGE NUMBER and DISPLAY PASSWORD programmed.
- Press SET key to ACCEPT PASSWORD. The first menu “REN” will be displayed.
6- Description of parameters and messages
Values in the Def. column are factory-set.

6.1 Level 2 Menus and description

Level 2 Parameters
- In the desired menu of LEVEL 1 MENUS, press key. LEVEL 2 PARAMETERS programming is accessed. The first parameter of the selected menu is displayed on the screen.
- Press key to access the next parameter and key to return to the previous one.
- Press key, the controller returns to the LEVEL 1 MENUS.

REMARK: If no key is pressed for 25 seconds in either of the previous steps, the controller will automatically return to the CURRENT TEMPERATURE display status without modifying any of the parameters values.

7- Parameters transfer
Portable server AKO-14918 portable server, with no power supply, in which parameters programmed in a portable controller can be copied by transfer.
Parameters can be transferred again from the server to other identical powered controllers.
Storage dump or fast copy of the parameters entered in the portable server to the controller:
Press the key, while the controller is being connected to the power supply until the display shows CYF, indicating that the transfer was made correctly. Disconnect the controller and reconnect it to the power supply.
Storage dump can also be done from parameter L6=-2.

8- Maintenance
Clean the controller surface with a soft cloth, soap and water. Do not use abrasive detergents, petrol, alcohol or solvents.

9- Warnings
The use of the unit without observing the manufacturer’s instructions may alter its safety qualification.
To ensure correct operation of the apparatus, only NTC type probes supplied by AKO should be used.
Between -40 ºC and +20 ºC, when the NTC probe is extended up to 1,000 m with minimum 0.5 mm2 cable, deviation will be less than 0.25 ºC (Probe extension cable ref. AKO-1556).

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