AKO-DF14123xxxx / AKO-DF10123xxxx

Installation instructions

1- Warnings
- Using the equipment without following the manufacturer’s instructions may affect the device’s safety requirements. To ensure that the device operates correctly, only probes supplied by AKO should be used.
- The unit must be installed in a location protected from vibrations, water and corrosive gases, where the ambient temperature does not exceed that shown in the technical data.
- To ensure a correct reading, the probe must be situated in a location without any external heat influences except for the temperature which is being measured or controlled.
- The power supply circuit must be provided with a main switch rated at at least 2 A, 230 V, located close to the equipment. The cables will enter through the back and should be type H05VV-F or H05V-K.
- Connecting wires for the relay contacts should be sized 2.5 mm².
- Between -40 °C and +20 °C, if the probe NTC is prolonged till 1.000 m with a minimum of cable 0.5 mm², the maximum deviation will be of 0,25 °C (extension cable for probe ref. AKO-15586).
- AKO accepts no responsibility for the misuse or improper installation of the switches provided.

NOTE: Equipment not compatible with AKO-14917 (external communication module) and AKO-14918 (programming key)

2- Dimensions

<table>
<thead>
<tr>
<th>Standard panel</th>
<th>Long panel</th>
</tr>
</thead>
<tbody>
<tr>
<td>30 mm</td>
<td>30 mm</td>
</tr>
<tr>
<td>39 mm</td>
<td>91 mm</td>
</tr>
<tr>
<td>21.5 mm</td>
<td>20.8 mm</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Extended panel</th>
</tr>
</thead>
<tbody>
<tr>
<td>165 mm</td>
</tr>
<tr>
<td>101 mm</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SLIM models</th>
<th>STANDARD models</th>
</tr>
</thead>
<tbody>
<tr>
<td>7.1 mm</td>
<td>25.5 mm</td>
</tr>
<tr>
<td>41.1 mm</td>
<td>60.4 mm</td>
</tr>
</tbody>
</table>

3- Installation

<table>
<thead>
<tr>
<th>Standard panel</th>
</tr>
</thead>
<tbody>
<tr>
<td>165 mm</td>
</tr>
<tr>
<td>7.1 mm</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Long panel</th>
</tr>
</thead>
<tbody>
<tr>
<td>165 mm</td>
</tr>
<tr>
<td>7.1 mm</td>
</tr>
<tr>
<td>60.7 mm</td>
</tr>
<tr>
<td>71 mm</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Extended panel</th>
</tr>
</thead>
<tbody>
<tr>
<td>165 mm</td>
</tr>
<tr>
<td>79 mm</td>
</tr>
</tbody>
</table>

4- Wiring

The probe and its cable should NEVER be installed in the same conduit as power, control or supply cables.

SLIM models

STANDARD models

Switches

AUX: Function as per parameter P6
S1: Probe 1, temperature in the chamber or cabinet.
S2/DI2: Probe 2, defrost or digital input 2 (as per P4)
DI1: Digital Input 1
5. Operation

**ESC key / **
(Only STANDARD models)
Press for 5 seconds to start/stop Fast Freezing mode (rapid cooling).

**SET key**
Press for 5 seconds to modify the set point (SP).
Press for 10 seconds to go to the programming menu.
In the programming menu, go to the level displayed or accept the new value while setting a parameter.

5.1- Access to set point and programming
To change the set point, press the SET button for 5 seconds, or until the “SP” is displayed on the screen. To access the programming menu, press the SET button for 10 seconds, or until the “PRG” appears on the screen.

5.2.- Programming Menu
Through the programming menu users can set different parameters to adjust the operation of the controller to the needs of their installation.

**IMPORTANT:** If the access code function has been set as keypad lock (P2=2) or as parameter access block (P2=1), when trying to access either of the two functions, users will be prompted to enter the access code programmed in L5. If the code entered is not correct, the unit will revert to displaying the temperature.

After 20 seconds with no key being pressed, the equipment will return to the previous level. If you are on level 3, the changes will not be saved.

### Access to set point and programming
To change the set point, press the SET button for 5 seconds, or until the “SP” is displayed on the screen. To access the programming menu, press the SET button for 10 seconds, or until the “PRG” appears on the screen.

### Programming Menu
The programming menu, allows you to scroll through the various levels or, during the setting of a parameter, to change the value.

**Up key ▲ / **
Pressing for 5 seconds starts/stop defrosting.

**Down key ▼ / **
Pressing for 5 seconds activates Standby mode, pressing for 2 seconds returns the equipment to normal mode. In Standby mode, the equipment performs no actions and only the indicator is displayed on the screen.

The programming menu, allows you to scroll through the various levels or, during the setting of a parameter, to change the value.

### 6- Start-up
On power-up, the equipment will start up in Wizard mode (P3 / 1 flashing), press ▲ or ▼ to select the most appropriate application and press SET.

**1:** Multipurpose  **2:** Frozen  **3:** Fruits and vegetables  **4:** Fresh fish  **5:** Soft Drinks  **6:** Bottle racks  **7:** AC  **8:** Heat/ Incubators

The wizard will configure the parameters of the equipment for the chosen application (see table).

**WARNING:** The default parameters by type of application have been defined for the most common applications. Check that these parameters are suitable for your installation.
7 - Table of parameters and messages

**Def.** column shows factory-set default parameters. Those marked with * are variable parameters depending on the application chosen in the wizard or the P3 parameter (see table “Default parameters by application”). If not indicated otherwise, the temperature values are in °C. (Equivalent values in °F)

**SLIM models**

- **STANDARD models**
  - **Level 1**
    - **Menus and description**
    - **Min.**
    - **Max.**
    - **Values**
    - **Control**
    - **Menus and description**
    - **Min.**
    - **Mín.**
    - **255**
    - **99**
    - **1**
    - **2**
    - **150**
    - **20.0**
    - **A1**
    - **1**
    - **8**
    - **2**
    - **99**
    - **ALARMS control (visual)**
    - **120**
    - **C3-SP**
    - **Description**
    - **Table of parameters and messages**
    - **Definition**
    - **7**

- **Level 2**
  - **General status**
  - **Level 3**
    - **Description**
    - **Values**
    - **Min.**
    - **Max.**
    - **Level 1**
    - **Menus and description**
    - **Min.**
    - **Mín.**
    - **255**
    - **99**
    - **1**
    - **2**
    - **150**
    - **20.0**
    - **A1**
    - **1**
    - **8**
    - **2**
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    - **ALARMS control (visual)**
    - **120**
    - **C3-SP**
    - **Description**
    - **Table of parameters and messages**
    - **Definition**
    - **7**

**8 - Technical specifications**

- **Power supply**
  - 230V~ ± 10% 50/60 Hz 3.5VA
- **Maximum range temperature**
  - 20ºV
- **STANDARD models**
  - 1 input NTC/PTC + 1 digitised input (According to P4)
- **SLIM models**
  - Relay COOL 16 A.
  - (EN60730-1: 1209 A 250V~)
  - Number of relay operations
    - EN60730-1: 100,000 operations
  - Switches
    - 16A 125Vac, 10A 250Vac T105 % HP
  - Types of probe
    - NTC AKO-149xx
  - Measurement range
    - NTC: -50,0 °C to +99.9 °C (-58.0 °F to 211.8 °F)
    - PTC: -50.0 °C to +150.0 °C (-58.0 °F to 302.0 °F)
  - Resolution
    - 0.1 °C
  - Working environment
    - -10 a 50 ºC, humidity <90 %
  - Ambient storage humidity
    - -30 a 70 ºC, humidity <90 %
  - Class of protection - front panel
    - Standard and long panel
    - IP65
    - Extended panel
    - IP50
    - Fixation
    - Panel-mounted with anchors

Connections dimensions
- Standard terminals for cables up to 2.5 mm²
- Panel cutout dimensions
  - Standard and long panel
    - 71 x 29 mm
  - Expanded panel
    - 136 x 29 mm
- Front panel dimensions
  - Standard panel
    - 79 x 38 mm
  - Long panel
    - 91 x 38 mm
  - Extended panel
    - 181 x 38 mm

Depth
- Standard models
  - 43 mm
- SLIM models
  - Double insulation between supply, secondary circuit and relay output.
  - Rated pulse voltage
    - 2500V
  - Temperature during off-peak test in admissible parts
    - 75 °C
  - Parts which position active elements
    - 125 °C
  - Voltage and current as per EMC tests
    - 207 V, 17 mA
  - Current of radio jamming suppression tests
    - 270 mA

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We reserve the right to supply materials that might vary slightly to those described in our Technical Sheets. Updated information is available on our website: www ako.com