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 2A, 230V, located close to the equipment. The cables will enter through the back and should be type H05SV-F or H05V-K.
- The gauge will depend on local regulations, but should in no case be less than 1 mm.
- Connecting wires for the relay contacts should be sized 2.5 mm².
- Between -40 ºC and +20 ºC, 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 ºC (extension cable for probe ref. AKO-15586).

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

2 - Installation

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

4 - Operation
3 key equipment

Mode: HEAT (P0=1)

Mode: COLD (P0=0)

COOL relay ON (P0=0)

Program Mode

Display

RES relay active (P0=1)

Program Mode

Display

Standby mode

Keyboard

Set 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 COOL indicator is displayed on the screen.

Pressing for 10 seconds goes to the programming menu.

Pressing for 5 seconds in the programming menu goes to the level displayed on the screen or, during the setting of a parameter, accepts the new value.

Pressing for 5 seconds in the programming menu, a short press allows you to scroll through the various levels or, during the setting of a parameter, to increment the value. When upper limit is reached, it will start again from the lower limit.

5 - Start-up
(Only 3 key models)

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 “Default settings by application”).

5.1 - Access to set point and programming
3 key equipment

1 key equipment

Program Mode

Display

Standby mode

RES relay active (P0=1)

SET 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 COOL indicator is displayed on the screen.

Pressing for 10 seconds goes to the programming menu.

Pressing for 5 seconds in the programming menu goes to the level displayed on the screen or, during the setting of a parameter, accepts the new value.

Pressing for 5 seconds in the programming menu, a short press allows you to scroll through the various levels or, during the setting of a parameter, to increment the value. When upper limit is reached, it will start again from the lower limit.

Temperature indication

Release SET to access the set point

Release SET to access programming
6- 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"). Unless otherwise stated, temperatures are expressed in °C. (Equivalent values in °F)

**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.

<table>
<thead>
<tr>
<th>DEFAULT SETTINGS BY APPLICATION (P3)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SP</strong></td>
</tr>
<tr>
<td>d0</td>
</tr>
<tr>
<td>d1</td>
</tr>
<tr>
<td>d2</td>
</tr>
<tr>
<td>d3</td>
</tr>
</tbody>
</table>

**MESSAGES**

D: Displays the message on the display
S: Shows the message in the AKONet software (Only AKO-D14023-C)

7- Technical specifications

Power supply
AKO-D14023/D14024/D14123/D14124/D14125: 230V ~ - 10% 50/60 Hz 3.5VA
AKO-D14120: 120V ~ -8% - 12% 50/60 Hz 4VA
AKO-D14023-C: 90-240V ~ 50/60 Hz 6VA
AKO-D14012: ... 12/24V = ± 20% 2.5VA

Maximum Voltage SELV circuits: ... 20V

Communication (Only AKO-D14023-C): ... Modbus RTU RS485

Inputs (According to P4) ... 1 NC/PTC

Relay COOL 16A: ... EN60730-1: 125mA 250V~

Number of relay operations: ... EN60730-1: 100.000 operations

Types of probe: ... NTC-AKO-1493x (PTC-AKO-1558xx)

Measurement range NTC: ... -50,0°C to +99,9°C (-58,0°F to 211°F)

PTC: ... -50,0°C to +150,0°C (-58,0°F to 302°F)

Resolution: ... 0,1°C

Working environment: ... -10 to 50°C, humidity <90 %

Front panel dimensions: ... 71 x 29 mm

Class of protection - front panel: ... IP65

Other models: ... 43 mm