

# CE Installation instructions



**AKO-D14112** **AKO-D14212** **AKO-D14312**  
**AKO-D14123-2** **AKO-14220** **AKO-D14223**  
**AKO-D14320** **AKO-D14323**

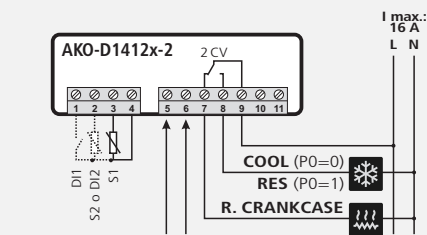
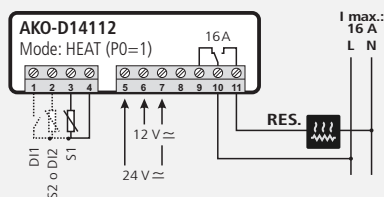
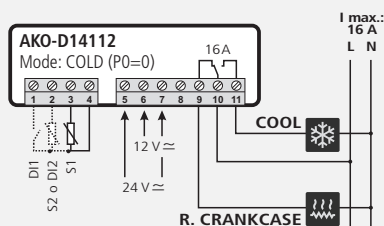
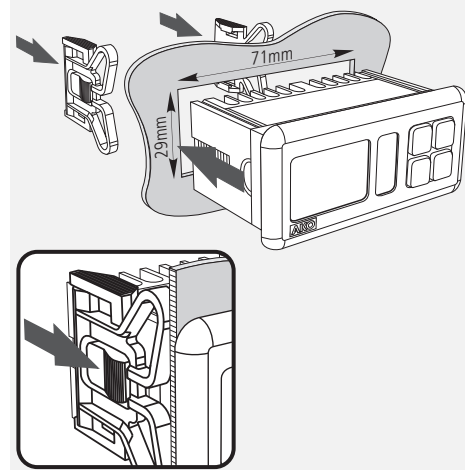
## 3- Wiring

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

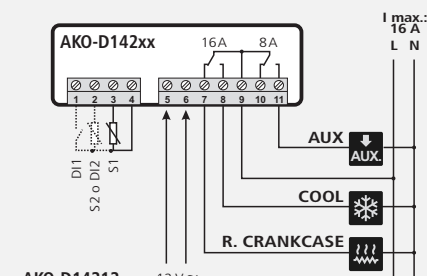
## 1- Warnings

- 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 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.
- The gauge will depend on local regulations, but should in no case be less than 1 mm<sup>2</sup>.
- Connecting wires for the relay contacts should be sized 2.5 mm<sup>2</sup>.
- Between -40 °C and +20 °C, if the probe NTC is prolonged till 1.000 m with a minimum of cable 0,5 mm<sup>2</sup>, the maximum deviation will be of 0,25 °C (extension cable for probe ref. **AKO-15586**)
- NOTE:** Equipment not compatible with **AKO-14917** (external communication module) and **AKO-14918** (programming key)

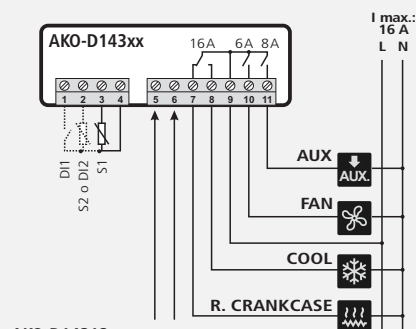
## 2- Installation



**AKO-D14120-2** 120 V~ 50/60 Hz  
**AKO-D14123-2** 230 V~ 50/60 Hz



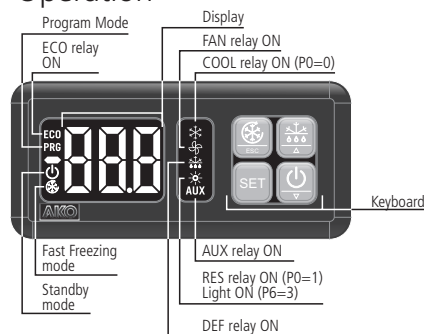
**AKO-D14212** 12 V~  
**AKO-D14220** 120 V~ 50/60 Hz  
**AKO-D14223** 230 V~ 50/60 Hz



**AKO-D14312** 12 V~  
**AKO-D14320** 120 V~ 50/60 Hz  
**AKO-D14323** 230 V~ 50/60 Hz

**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

## 4- Operation



### ESC key /

Press for 5 seconds to start/stop Fast Freezing mode (rapid cooling).

In the programming menu, exit without saving parameter, return to previous level or exit programming.

### 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.

### Up key /

Pressing for 5 seconds starts/stops defrosting.

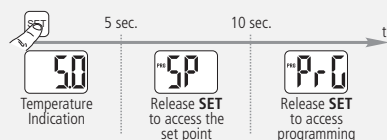
The programming menu, allows you to scroll through the various levels or, during the setting of a parameter, to change the value.

### Down key /

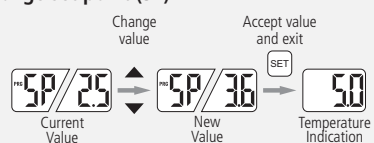
Pressing for 5 seconds activates Standby mode, pressing for 2 seconds returns the equipment to normal mode. In Standby mode, the equipment performs no actions and only the indicator is displayed on the screen.

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

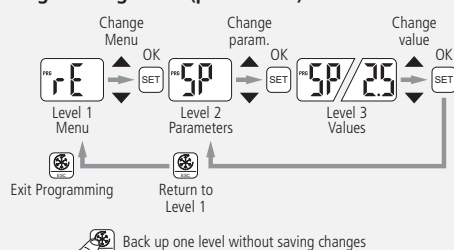
### 4.1- Access to set point and programming



#### Change set point (SP)



#### Programming Menu (parameters)



## 5- 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 "Default settings by application").

AKO ELECTROMECÁNICA S.A.L.  
 We reserve the right to supply materials which may be slightly different from those described in our Data Sheets. Updated information on our web site: [www.ako.com](http://www.ako.com)  
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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"). If not indicated otherwise, the temperature values are in °C. (Equivalent values in °F)

|                                    |                                                                           |                                                                                                                                                                                                                  |          |         |         |         |   |   |   |
|------------------------------------|---------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|---------|---------|---------|---|---|---|
| AKO-D14312, AKO-D14320, AKO-D14323 |                                                                           |                                                                                                                                                                                                                  |          |         |         |         |   |   |   |
| AKO-D14212, AKO-D14220, AKO-D14223 |                                                                           |                                                                                                                                                                                                                  |          |         |         |         |   |   |   |
| AKO-D14112, AKO-D14123-2           |                                                                           |                                                                                                                                                                                                                  |          |         |         |         |   |   |   |
| Level 1 Menus and description      |                                                                           |                                                                                                                                                                                                                  |          |         |         |         |   |   |   |
| rE                                 | Control                                                                   |                                                                                                                                                                                                                  |          |         |         |         |   |   |   |
|                                    | Level 3                                                                   | Description                                                                                                                                                                                                      | Values   | Min.    | Def.    | Max.    |   |   |   |
| SP                                 |                                                                           | Temperature Adjustment (Set Point)<br>(limits depending on probe type)                                                                                                                                           | With NTC | -50     | 99      |         | ● | ● | ● |
|                                    |                                                                           |                                                                                                                                                                                                                  | With PTC | (-58°F) | (210°F) |         |   |   |   |
|                                    | C0                                                                        | Calibrating probe 1 (Offset)                                                                                                                                                                                     | (°C/°F)  | -20.0   | 0.0     | 20.0    | ● | ● | ● |
|                                    | C1                                                                        | Probe 1 differential (Hysteresis)                                                                                                                                                                                | (°C/°F)  | 0.1     | 2.0     | 20.0    | ● | ● | ● |
|                                    | C2                                                                        | Upper blocking of the set point<br>(cannot be set above this value)                                                                                                                                              | With NTC | 99      | 99      |         | ● | ● | ● |
|                                    |                                                                           |                                                                                                                                                                                                                  | With PTC | (210°F) | (210°F) |         |   |   |   |
|                                    |                                                                           |                                                                                                                                                                                                                  |          | -       | 150     |         | ● | ● | ● |
|                                    |                                                                           |                                                                                                                                                                                                                  |          |         | (302°F) |         |   |   |   |
|                                    | C3                                                                        | Lower blocking of the set point (cannot be set below this value)                                                                                                                                                 | (°C/°F)  | -50     | -50     | C2      | ● | ● | ● |
|                                    | C4                                                                        | Type of delay for protection of the compressor:<br>0=OFF/ON (since the last disconnection); 1=ON (since start-up/reset);<br>2=OFF-ON/ON-OFF (since the last shut-down /start-up)                                 |          | 0       | 0       | 2       | ● | ● | ● |
|                                    |                                                                           |                                                                                                                                                                                                                  |          |         |         |         |   |   |   |
|                                    | C5                                                                        | Protection delay time (value of the option selected in parameter C4)                                                                                                                                             | (min.)   | 0       | 0       | 120     | ● | ● | ● |
| C6                                 |                                                                           | Status of COOL relay with probe fault<br>0=OFF; 1=ON; 2=Average based on last 24 hours prior to probe fault;<br>3=ON-OFF as prog. C7 and C8 (in heat mode always OFF)                                            |          | 0       | 0       | 3       | ● | ● | ● |
|                                    |                                                                           |                                                                                                                                                                                                                  |          |         |         |         |   |   |   |
|                                    | C7                                                                        | Time relay ON in case of faulty probe<br>(if C7=0 and C8≠0, the relay will always be OFF deenergised)                                                                                                            | (min.)   | 0       | 10      | 120     | ● | ● | ● |
|                                    | C8                                                                        | Time relay OFF in case of fault of probe 1<br>(if C8=0 and C7≠0, the relay will always be ON energised)                                                                                                          | (min.)   | 0       | 5       | 120     | ● | ● | ● |
|                                    | C9                                                                        | Maximum duration of fast freezing mode. (0=off)                                                                                                                                                                  | (h.)     | 0       | 24      | 48      | ● | ● | ● |
|                                    | C10                                                                       | Change set point (SP) in fast freezing mode, when it reaches this point (SP + C10)<br>returns to normal. (SP+C10 ≥ C3) (0=OFF)                                                                                   | (°C/°F)  | 0       | -50     | C3-SP   | ● | ● | ● |
|                                    | C11                                                                       | Length of inactivity at digital input to activate ECO mode<br>(Only if P10 or P11=1 and P0=0) (0=OFF)                                                                                                            | (h.)     | 0       | 2       | 24      | ● | ● | ● |
|                                    | C12                                                                       | Change set point (SP) in ECO mode (SP+C12 ≤ C2) (0=off)                                                                                                                                                          | (°C/°F)  | 0       | 2       | C2-SP   | ● | ● | ● |
|                                    | EP                                                                        | Exit to Level 1                                                                                                                                                                                                  |          |         |         |         | ● | ● | ● |
| dEF                                | Level 2 DEFROST Control (if P0=0 Direct, Cold)                            |                                                                                                                                                                                                                  |          |         |         |         |   |   |   |
|                                    | Level 3                                                                   | Description                                                                                                                                                                                                      | Values   | Min.    | Def.    | Max.    |   |   |   |
| d0                                 |                                                                           | Defrost frequency (Time between two starts)                                                                                                                                                                      | (h.)     | 0       | ★       | 96      | ● | ● | ● |
| d1                                 |                                                                           | Maximum defrost duration (0=defrost deactivated)                                                                                                                                                                 | (min.)   | 0       | ★       | 255     | ● | ● | ● |
| d2                                 |                                                                           | Type of message during defrost:<br>0=Current temperature; 1=Temperature at start of defrost; 2=Display dEF message                                                                                               |          | 0       | 2       | 2       | ● | ● | ● |
| d3                                 |                                                                           | Maximum duration of message (time added at the end of the defrost)                                                                                                                                               | (min.)   | 0       | 5       | 255     | ● | ● | ● |
| d4                                 |                                                                           | Defrost end temperature (probe 2) (if P4 ≠ 1)                                                                                                                                                                    | (°C/°F)  | -50     | 99.9    | (211°F) | ● | ● | ● |
| d5                                 |                                                                           | Defrost on equipment start-up<br>0=NO, First defrost as per d0, 1=YES, First defrost as per d6                                                                                                                   |          | 0       | 0       | 1       | ● | ● | ● |
| d6                                 |                                                                           | Defrost start delay on equipment start-up                                                                                                                                                                        | (min.)   | 0       | 0       | 255     | ● | ● | ● |
| d7                                 |                                                                           | Defrost type: 0=Resistors, 1=Inverted cycle, 2=Fan / air<br>(In two-relay equipment, P6 must be programmed to zero), 3=Compressor off                                                                            |          | 0       | 0       | 3       | ● | ● | ● |
| d8                                 |                                                                           | Calculated time between defrost periods:<br>0=Total actual time; 1=Sum of times the compressor is on                                                                                                             |          | 0       | 0       | 1       | ● | ● | ● |
| d9                                 |                                                                           | Drip time at end of defrost (compressor and fans off) (if P4 ≠ 1)                                                                                                                                                | (min.)   | 0       | 1       | 255     | ● | ● | ● |
| EP                                 |                                                                           | Exit to Level 1                                                                                                                                                                                                  |          |         |         |         | ● | ● | ● |
| FAn                                | Level 2 FAN control (Evaporator)<br>In 2-relay models P6 must be set to 0 |                                                                                                                                                                                                                  |          |         |         |         |   |   |   |
|                                    | Level 3                                                                   | Description                                                                                                                                                                                                      | Values   | Min.    | Def.    | Max.    |   |   |   |
| F0                                 |                                                                           | Fan shut-down temperature as per probe 2 (if P4 ≠ 1)                                                                                                                                                             | (°C/°F)  | -50     | ★       | 99.9    | ● | ● | ● |
| F1                                 |                                                                           | Probe 2 differential (if P4 ≠ 1)                                                                                                                                                                                 | (°C/°F)  | 0.1     | 2.0     | 20.0    | ● | ● | ● |
| F2                                 |                                                                           | Stop fans when stopping compressor 0=No, 1=Yes                                                                                                                                                                   |          | 0       | 1       | 1       | ● | ● | ● |
| F3                                 |                                                                           | Fan status during defrost: 0=Off; 1=On                                                                                                                                                                           |          | 0       | ★       | 1       | ● | ● | ● |
| F4                                 |                                                                           | Starting delay after defrost (if F3=0)<br>Will only operate if it is higher than d9                                                                                                                              | (min.)   | 0       | 3       | 99      | ● | ● | ● |
| F5                                 |                                                                           | Stop fans on opening the door 0=No, 1=Yes<br>(Requires a digital input configured as port P10 or P11=1)                                                                                                          |          | 0       | 0       | 1       | ● | ● | ● |
| EP                                 |                                                                           | Exit to Level 1                                                                                                                                                                                                  |          |         |         |         | ● | ● | ● |
| AL                                 | Level 2 ALARMS control (visual)                                           |                                                                                                                                                                                                                  |          |         |         |         |   |   |   |
|                                    | Level 3                                                                   | Description                                                                                                                                                                                                      | Values   | Min.    | Def.    | Max.    |   |   |   |
| A0                                 |                                                                           | Configuration of temperature alarms: 0=Relative to SP; 1=Absolute                                                                                                                                                |          | 0       | 0       | 1       | ● | ● | ● |
| A1                                 |                                                                           | Maximum alarm probe 1 (must be greater than SP)                                                                                                                                                                  | With NTC | 99.9    | 99.9    |         | ● | ● | ● |
|                                    |                                                                           |                                                                                                                                                                                                                  | With PTC | (211°F) | (211°F) |         |   |   |   |
| A2                                 |                                                                           | Minimum alarm probe 1 (must be less than SP)                                                                                                                                                                     | (°C/°F)  | -50     | -50     | A1      | ● | ● | ● |
| A3                                 |                                                                           | Temperature alarm delay during start-up                                                                                                                                                                          | (min.)   | 0       | 0       | 120     | ● | ● | ● |
| A4                                 |                                                                           | Temperature alarm delay after completion of a defrost                                                                                                                                                            | (min.)   | 0       | 0       | 99      | ● | ● | ● |
| A5                                 |                                                                           | Temperature alarm delay after reaching the value of A1 or A2                                                                                                                                                     | (min.)   | 0       | 30      | 99      | ● | ● | ● |
| A6                                 |                                                                           | External alarm delay when receiving digital input signal (P10 or P11=2 or 3)                                                                                                                                     | (min.)   | 0       | 0       | 120     | ● | ● | ● |
| A7                                 |                                                                           | Deactivation delay of the external alarm when the signal of the digital input disappears (P10 or P11=2 or 3)                                                                                                     | (min.)   | 0       | 0       | 120     | ● | ● | ● |
| A8                                 |                                                                           | Show warning if defrost is terminated by time-out 0=No, 1=Yes                                                                                                                                                    |          | 0       | 0       | 1       | ● | ● | ● |
| A9                                 |                                                                           | Alarm relay polarity 0=Relay ON in alarm (OFF no alarm)<br>1=Relay OFF on alarm (ON with no alarm)                                                                                                               |          | 0       | 0       | 1       | ● | ● | ● |
| A10                                |                                                                           | Temperature Alarm Differential (A1 and A2)                                                                                                                                                                       | (°C/°F)  | 0.1     | 1.0     | 20.0    | ● | ● | ● |
| A12                                |                                                                           | Door open alarm delay (if P10 or P11=1)                                                                                                                                                                          | (min.)   | 0       | 2       | 120     | ● | ● | ● |
| EP                                 |                                                                           | Exit to Level 1                                                                                                                                                                                                  |          |         |         |         | ● | ● | ● |
| CnF                                | Level 2 General status                                                    |                                                                                                                                                                                                                  |          |         |         |         |   |   |   |
|                                    | Level 3                                                                   | Description                                                                                                                                                                                                      | Values   | Min.    | Def.    | Max.    |   |   |   |
| P0                                 |                                                                           | Type of operation 0=Direct, Cold; 1=Inverted, Heat                                                                                                                                                               |          | 0       | ★       | 1       | ● | ● | ● |
| P1                                 |                                                                           | Delay of all functions on receiving electrical power                                                                                                                                                             | (min.)   | 0       | 0       | 255     | ● | ● | ● |
| P2                                 |                                                                           | Access code (password) functions<br>0=Inactive; 1=Block access to parameters; 2=Keyboard lock                                                                                                                    |          | 0       | 0       | 2       | ● | ● | ● |
| P3                                 |                                                                           | Set the default parameters according to the type of application (see accompanying table)<br>1=Multipurpose 2=Frozen 3=Food and Vegetables<br>4=Fresh Fish 5=Soft Drinks 6=Bottle Racks<br>7=AC 8=Heat/Incubators |          | 1       | -       | 8       | ● | ● | ● |
|                                    |                                                                           |                                                                                                                                                                                                                  |          |         |         |         |   |   |   |
| P4                                 |                                                                           | Selection of type of input<br>1=1 probe + 2 digital inputs, 2=2 probes + 1 digital input                                                                                                                         |          | 1       | 1       | 2       | ● | ● | ● |
| P5                                 |                                                                           | Address (only systems with built-in communications)                                                                                                                                                              |          | 0       | 1       | 255     | ● | ● | ● |
| P6                                 |                                                                           | Configuration of AUX relay<br>1=defrost 2=Alarm 3=Light                                                                                                                                                          |          | 0       | 1       | 3       | ● | ● | ● |

|                                    |                                             |                                                                                    |                                            |      |      |      |   |   |   |
|------------------------------------|---------------------------------------------|------------------------------------------------------------------------------------|--------------------------------------------|------|------|------|---|---|---|
| AKO-D14312, AKO-D14320, AKO-D14323 |                                             |                                                                                    |                                            |      |      |      |   |   |   |
| AKO-D14212, AKO-D14220, AKO-D14223 |                                             |                                                                                    |                                            |      |      |      |   |   |   |
| AKO-D14112, AKO-D14123-2           |                                             |                                                                                    |                                            |      |      |      |   |   |   |
| Level 1 Menus and description      |                                             |                                                                                    |                                            |      |      |      |   |   |   |
| P7                                 | Temperature display mode                    | 0=Whole in °C<br>2=Whole in °F                                                     | 1=One decimal in °C<br>3=One decimal in °F | 0    | 1    | 3    | ● | ● | ● |
| P8                                 | Probe to be displayed (as per parameter P4) | 0=visualization of all the probes in sequence; 1=Probe 1; 2=Probe 2; 3=Probe 3 (1) |                                            | 1    | 1    | 2    | ● | ● | ● |
| P9                                 | Selection of probe type                     | 0=NTC; 1=PTC                                                                       |                                            | 0    | 0    | 1    | ● | ● | ● |
| P10                                | Configuring digital input 1                 | 0= Off                                                                             | 1=Door contact                             | 0    | 0    | 6    | ● | ● | ● |
|                                    | 2=External alarm                            | 3=Severe external alarm                                                            | 4=Slave defrost                            |      |      |      |   |   |   |
| P11                                | Configuring digital input 2                 | 0= Off                                                                             | 1=Door contact                             | 0    | 0    | 6    | ● | ● | ● |
|                                    | 2=External alarm                            | 3=Severe external alarm                                                            | 4=Slave defrost                            |      |      |      |   |   |   |
| P12                                | Digital input polarity 1                    | 0=Energised on closed contact, 1=Energised on open contact                         |                                            | 0    | 0    | 1    | ● | ● | ● |
| P13                                | Digital input polarity 2                    | 0=Energised on closed contact, 1=Energised on open contact                         |                                            | 0    | 0    | 1    | ● | ● | ● |
| EP                                 | Exit to Level 1                             |                                                                                    |                                            |      |      |      | ● | ● | ● |
| tid                                | Level 2 Access and information control      |                                                                                    |                                            |      |      |      |   |   |   |
|                                    | Level 3                                     | Description                                                                        | Values                                     | Min. | Def. | Max. |   |   |   |
| L5                                 | Access code (Password)                      |                                                                                    |                                            | 0    | -    | 99   | ● | ● | ● |
| PU                                 | Program version (Information)               |                                                                                    |                                            |      | -    |      | ● | ● | ● |
| Pr                                 | Program revision (Information)              |                                                                                    |                                            |      | -    |      | ● | ● | ● |
| EP                                 | Exit to Level 1                             |                                                                                    |                                            |      |      |      | ● | ● | ● |
| EP                                 | Exit Programming                            |                                                                                    |                                            |      |      |      | ● | ● | ● |



**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.

|                                      |                   |              |                            |                 |                  |                   |             |                       |
|--------------------------------------|-------------------|--------------|----------------------------|-----------------|------------------|-------------------|-------------|-----------------------|
| DEFAULT SETTINGS BY APPLICATION (P3) |                   |              |                            |                 |                  |                   |             |                       |
|                                      | 1<br>Multipurpose | 2<br>Frozen  | 3<br>Fruits and vegetables | 4<br>Fresh fish | 5<br>Soft Drinks | 6<br>Bottle Racks | 7<br>AC     | 8<br>Heat/ Incubators |
| SP                                   | 2 (35,6°F)        | -18 (-0,4°F) | 10 (50°F)                  | 0 (32°F)        | 3 (37,4°F)       | 12 (53,6°F)       | 21 (69,8°F) | 37 (98,6°F)           |
| d0                                   | 4                 | 4            | 4                          | 4               | 24               | 24                | 96          | -                     |
| d1                                   | 20                | 20           | 20                         | 20              | 20               | 20                | 0           | -                     |
| F0                                   | 8 (46°F)          | 0 (32°F)     | 30 (86°F)                  | 8 (46°F)        | 8 (46°F)         | 30 (86°F)         | 99 (210°F)  | -                     |
| F3                                   | 1                 | 0            | 1                          | 1               | 1                | 1                 | 1           | -                     |
| P0                                   | 0                 | 0            | 0                          | 0               | 0                | 0                 | 0           | 1                     |

|          |                                                                                                                                   |  |     |
|----------|-----------------------------------------------------------------------------------------------------------------------------------|--|-----|
| MESSAGES |                                                                                                                                   |  |     |
| L5       | Access code (Password) request                                                                                                    |  | D   |
| dEF      | Indicates a defrost is underway. (Only if parameter d2=2)                                                                         |  | D   |
| E1       | Probe 1 faulty (open circuit, crossover, NTC: temp. >99°C or <-50 °C<br>PTC: temp. >150 °C or <50 °C) - (equivalent limits in °F) |  | D A |
| E2       | Probe 1 faulty (open circuit, crossover, NTC: temp. >99°C or <-50 °C<br>PTC: temp. >150 °C or <50 °C) - (equivalent limits in °F) |  | D A |
| AH       | Flashing: maximum temperature alarm on probe 1 (A1)                                                                               |  | D A |
| AL       | Flashing: minimum temperature alarm on probe 1 (A2)                                                                               |  | D A |
| AE       | External alarm activated (only if parameter P10 or P11=2)                                                                         |  | D A |
| AES      | Severe external alarm activated (only if parameter P10 or P11=3)                                                                  |  | D A |
| Adt      | Defrost time-out alarm (only if parameter A8=1)                                                                                   |  | D   |
| PAb      | Door open alarm (Only if P10 or P11=1 and as per time at A12)                                                                     |  | D   |

D: Displays the message on the display, A: Activates the alarm relay (if available).

7- Technical specifications

|                                                                                                                                                                                                   |                                      |                                                                                                                        |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------|------------------------------------------------------------------------------------------------------------------------|
| Power supply                                                                                                                                                                                      | AKO-D14112                           | 12/24V ≈ ±20% 2.5VA                                                                                                    |
|                                                                                                                                                                                                   | AKO-D14123-2                         | 230V~ ±10% 50/60 Hz 3.5VA                                                                                              |
|                                                                                                                                                                                                   | AKO-D14220/D14320/D14120-2           | 120V~ +8% -12% 50/60 Hz 4VA                                                                                            |
|                                                                                                                                                                                                   | AKO-D14223/D14323                    | 230V~ ±10% 50/60 Hz 3.75VA                                                                                             |
|                                                                                                                                                                                                   | AKO-D14212/D14312                    | 12V ≈ ±20% 2VA                                                                                                         |
| Maximum Voltage SELV circuits                                                                                                                                                                     |                                      | 20V                                                                                                                    |
| Inputs (According to P4)                                                                                                                                                                          |                                      | 2 input NTC/PTC + 1 digitised input (PTC only AKO-D141xx)<br>1 input NTC/PTC + 2 digitised input (PTC only AKO-D141xx) |
| Relay COOL                                                                                                                                                                                        | AKO-D14123-2 2 CV                    | (EN60730-1: 16(10)A 250V~)<br>Other models 16A (EN60730-1: 12(9)A 250V~)                                               |
| Relay FAN 8A                                                                                                                                                                                      |                                      | (EN60730-1: 5(4)A 250V~)                                                                                               |
| Relay AUX 8A                                                                                                                                                                                      |                                      | (EN60730-1: 8(4)A 250V~)                                                                                               |
| Number of relay operations                                                                                                                                                                        |                                      | EN60730-1: 100.000 operations                                                                                          |
| Types of probe                                                                                                                                                                                    |                                      | NTC AKO-149xx / PTC AKO-1558xx                                                                                         |
| Measurement range NTC                                                                                                                                                                             |                                      | -50,0 °C a +99,9 °C (-58,0 °F a 211 °F)                                                                                |
| PTC                                                                                                                                                                                               |                                      | -50,0 °C a +150 °C (-58,0 °F a 302 °F)                                                                                 |
| Resolution                                                                                                                                                                                        |                                      | 0,1 °C                                                                                                                 |
| Working environment                                                                                                                                                                               |                                      | -10 a 50 °C, humidity <90 %                                                                                            |
| Ambient storage humidity                                                                                                                                                                          |                                      | -30 a 70 °C, humidity <90 %                                                                                            |
| Class of protection - front panel                                                                                                                                                                 |                                      | IP65                                                                                                                   |
| Fixation                                                                                                                                                                                          |                                      | Panel-mounted with anchors                                                                                             |
| Panel cutout dimensions                                                                                                                                                                           |                                      | 71 x 29 mm                                                                                                             |
| Front panel dimensions                                                                                                                                                                            |                                      | 79 x 38 mm                                                                                                             |
| Depth                                                                                                                                                                                             |                                      | 61 mm                                                                                                                  |
| Connections                                                                                                                                                                                       |                                      | Screw terminals for cables up to 2.5 mm²                                                                               |
| Rating of control device: built-in, automatic operation feature Type 1.B, for use in clean environments, Class A software and continuous operation. Pollution classification 2 s/ UNE-EN 60730-1. |                                      |                                                                                                                        |
| Double insulation between supply, secondary circuit and relay output.                                                                                                                             |                                      |                                                                                                                        |
| Rated pulse voltage                                                                                                                                                                               |                                      | 2500V                                                                                                                  |
| Temperature during ball-pressure test                                                                                                                                                             | Accessible parts                     | 75 °C                                                                                                                  |
|                                                                                                                                                                                                   | Parts which position active elements | 125 °C                                                                                                                 |
| Voltage and current as per EMC tests                                                                                                                                                              | AKO-D14123-2/D14223/D14323           | 207 V, 17 mA                                                                                                           |
|                                                                                                                                                                                                   | AKO-D14220/D14320/D14120-2           | 105 V, 36 mA                                                                                                           |
|                                                                                                                                                                                                   | AKO-D14112/D14212/D14312             | 9,6 V, 181 mA                                                                                                          |
| Current of radio jamming supression tests                                                                                                                                                         |                                      | 270 mA                                                                                                                 |