Instructions CE

Installation

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

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

Surface unit fixing

Press down lightly to open the cover

Detail of fixing screw-holes

Wiring

AKO-14615

Portable server connector

230V ~ 50/60 Hz

COOL

L N

Probe

AKO-14605

Portable server connector

230V ~ 50/60 Hz
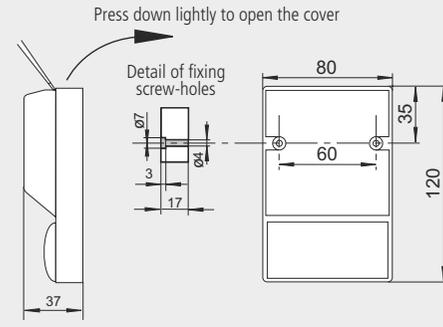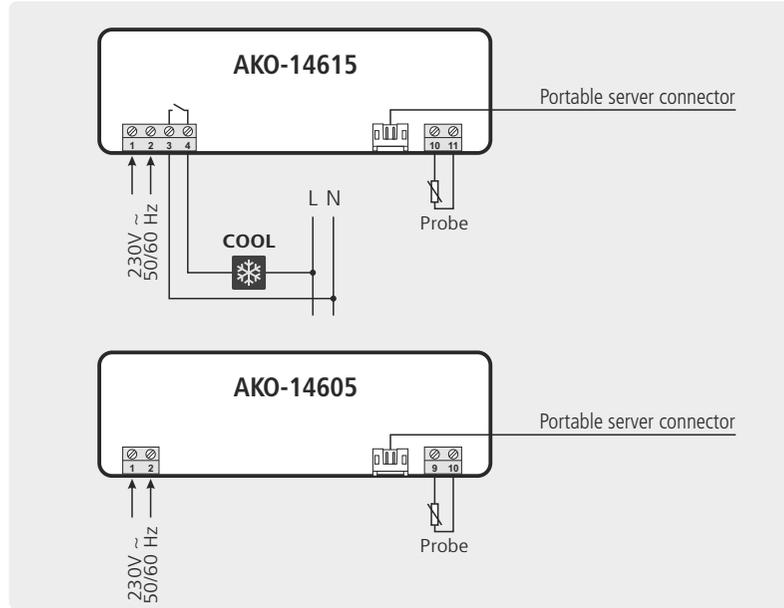
Probe

ℹ 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 2A, 230V, switch located close to the unit. The cables should be of the type H05VV-F 2x0,5 mm^2 or H05V-K 0,5 mm^2.

Section of connecting wires for relays contacts must be between 1 mm^2 and 2,5 mm^2.

Adjustment and configuration (AKO-14615 only)

It should only be programmed or modified by personnel who are fully conversant with the equipment operation and possibilities.

Adjusting the set point temperature

The factory SET POINT default value is 0 ºC.

-Press ▼ key for at least 5 seconds to DISPLAY SET POINT. It displays the CURRENT SET POINT value and LED "**ON**" starts flashing.

-Press ▲ or ▼ keys to CHANGE SET POINT into the required value.

-Press ▲ + ▼ keys simultaneously to ACCEPT THE NEW SET POINT. The display returns to the current temperature display status and LED "**ON**" stops flashing.

Parameters configuration

LEVEL 1 PARAMETERS:

-Press ▲ + ▼ keys simultaneously for at least 10 seconds. LED "**ON**" will be flashing, indicating that we are in the programming LEVEL 1 PARAMETERS and the first parameter "C0" is displayed.

-Press ▲ key to access the next parameter and ▼ key to return to the previous one.

-Pressing ▲ + ▼ keys simultaneously in the last parameter EP, the controller returns to the current temperature display status and LED "**ON**" will stop flashing.

LEVEL 2 VALUES:

-To DISPLAY CURRENT VALUE of any parameter, select the required one and press ▲ + ▼ keys simultaneously. Once it is displayed, pressing ▲ or ▼ key can CHANGE VALUE.

-Press ▲ + ▼ keys simultaneously to ACCEPT THE NEW VALUE. The programming returns to LEVEL 1 PARAMETERS.
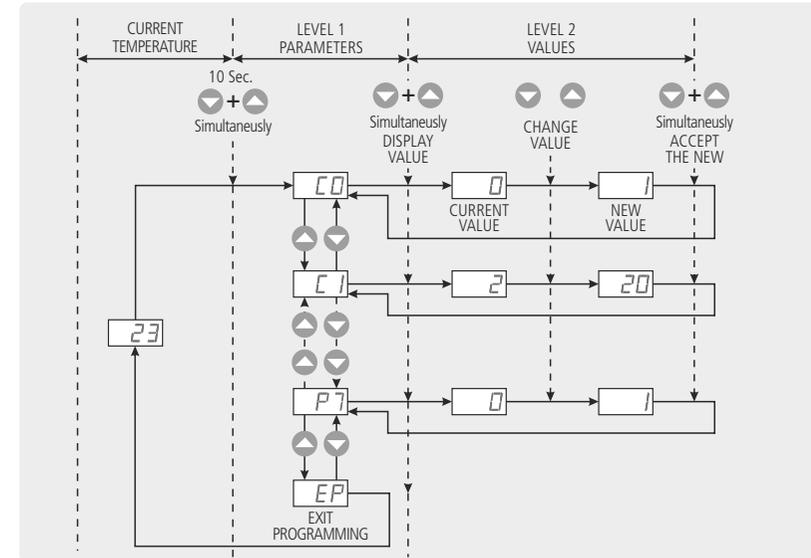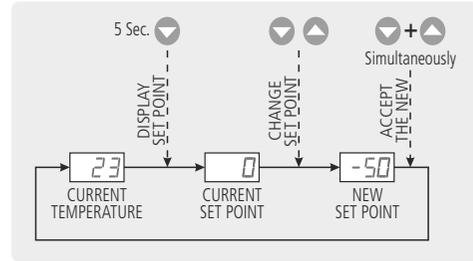
ℹ **NOTE:** If a key is not pressed for 25 seconds in any of the previous steps, then the equipment will automatically return to the current temperature display situation without modifying any of the values.

ℹ **NOTE:** When the time parameters are modified, the new values are applied once the current cycle is completed. In order for it to have an immediate effect, switch the controller off and then on again.

Operation

AKO-14615

LED DEF
LED ON
UP KEY
DOWN KEY
ON
PRG
SET
DISPLAY
℃

AKO-14605
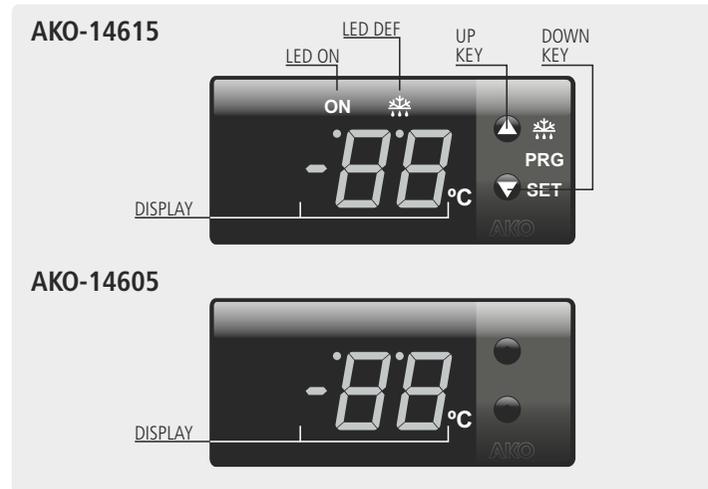
DISPLAY
℃

UP key ▲

-When pressed for at least 5 seconds, a manual defrost is started with programmed duration.
-In programming, it increases the value being displayed.

DOWN key ▼

-When pressed for at least 5 seconds, it displays the SET POINT temperature value.
-In programming, it decreases the value being displayed.

LED DEF

Permanent: Indicates defrost in operation.

LED ON

Permanent: Indicates compressor relay is ON.
Flashing: Set Point or parameter programming phase.

Relay control

Operation for COLD (P0=0)

ON
OFF
C1
SET POINT
TEMP.

Operation for HEAT (P0=1)

ON
OFF
C1
SET POINT
TEMP.
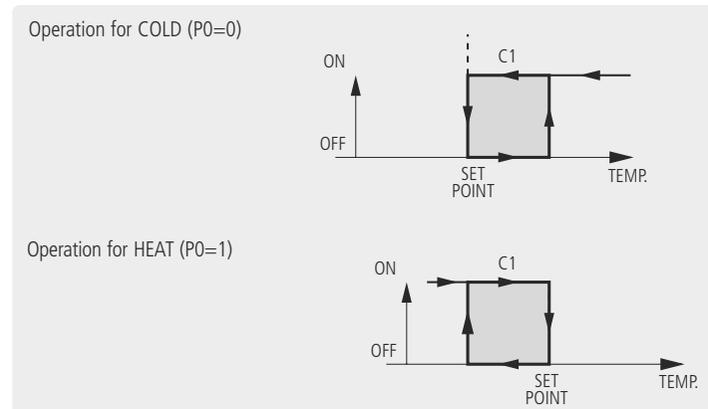
Accessories

PORTABLE SERVER

AKO-14918 portable server, with no power supply, in which parameters programmed in a powered controller can be copied by transfer. Parameters can be transferred again from the server to other identical powered controllers

AKO-14918
Power supply
Transfer
Programming
- 18
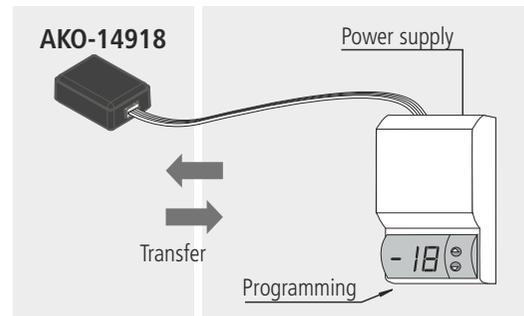
Maintenance and warnings

Clean the surface of the units with a soft cloth and soap and water. Do not use abrasive detergents, petrol, alcohol or solvents.
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 ℃ and +20 ℃, when probes is extended with minimum 0,5 mm^2 up to 1000m cable, deviation will be less than 0,25 ℃ (Sensor prolongation cable ref. **AKO-15586**).
The diagrams in this instructions represent concepts, the rating plate of each unit includes its diagram with terminal numbering for correct connection.

Technical data

Display ....2 Digits de -50℃ to 99℃
Sensor ....NTC 1,5m included
Power supply...230 v~ ± 10%, 50/60Hz
Relay ....Control (compressor) R16(4)A, 250V, cos φ=1, SPST
Connector for parameter transfer
Thermometric accuracy:...±1 ℃
Probe tolerance at 25 ℃ ....±0,4 ℃
Maximum input power...4,5VA
Working ambient temperature ....5℃ to 50℃
Storage ambient temperature ....-30℃ to 70℃
Double insulation between the power supply, the secondary circuit and the relay output.
Installation category II under CEI 664 standard.

Parameters and messages

The values in the **Def.** column are factory-set.

Level 2	REFRIGERATION control				
	Level 3 Description	Values	Min.	Def.	Max.
C0	Probe 1 calibration (Offset)	(℃/℉)	-20	0.0	20
C1	Probe 1 differential (Hysteresis)	(℃/℉)	1	2	20
C2	Set point upper limit (It cannot be set above this value)	(℃/℉)	C3	99	99
C3	Set point lower limit (It cannot be set below this value)	(℃/℉)	-50	-50	C2
C4	Compressor protection delay type: **0**=OFF/ON (From de last to switch-off) **1**=ON (At swicht-on)		0	0	1
C5	Protection delay time (Value for the option selected for parameter C4)	(min.)	0	0	99
C7	"COOL" relay (Compressor) ON time in case of sensor 1 failure if C7=0 and C8≠0, the relay will always be OFF de-energised	(min.)	0	10	99
C8	"COOL" relay (Compressor) OFF time in case of sensor 1 failure if C8=0 and C7≠0, the relay will always be ON energised	(min.)	0	5	99
Level 2	Control DEFROST (If P0=0 Cool)				
	Level 3 Description	Values	Min.	Def.	Max.
d0	Elapsed time between 2 starts	(h.)	0	1	99
d1	Maximum duration	(min.)	0	0	99
d2	Type of message during defrost **0**=Display the actual temp. **1**=Display the defrost start temp. **2**=Display the message dF.		0	2	2
d3	Message maximum duration (Time added at the end of defrost)	(min.)	0	5	99
Level 2	Control access and information				
	Level 3 Description	Values	Min.	Def.	Max.
L5	Access password to parameters and information		0	0	99
L6	Parameters transfer: **0**=Disabled; **1**=Send; **2**=Receive)		0	0	2
PU	Program version (Information)			-	
Level 2	General status				
	Level 3 Description	Values	Min.	Def.	Max.
P0	Type of operation: **0**=Cold; **1**=Heat		0	0	1
P1	Delay of all functions on power supply switch on	(min.)	0	0	99
P2	Allocation of password to Set Point: **0**=Without allocation; **1**=With allocation of L5 password		0	0	2
P3	Initial parameters: **1**=YES, configure to "Def" and exit programming (if P2=0)		0	0	1
P5	Address for units with communication (Not activated)		0	0	99
P7	Temperature display mode: **0**=Integers in ℃; **2**=Integers in ℉		0	1	3
EP	Exit programming				

MESSAGES	
dF	It indicates defrosting is being carried out. In order to display "dF" during defrosting, it is essential that parameter d2 is set to option 2
E1	Probe failure (Open circuit, crossed, temp.> 99℃/99℉ or temp.<-55℃/-58℉)
--	Temperature > 99 ℃/℉
EE	Memory failure
PA	Password request to enter in programming parameters or SET POINT