

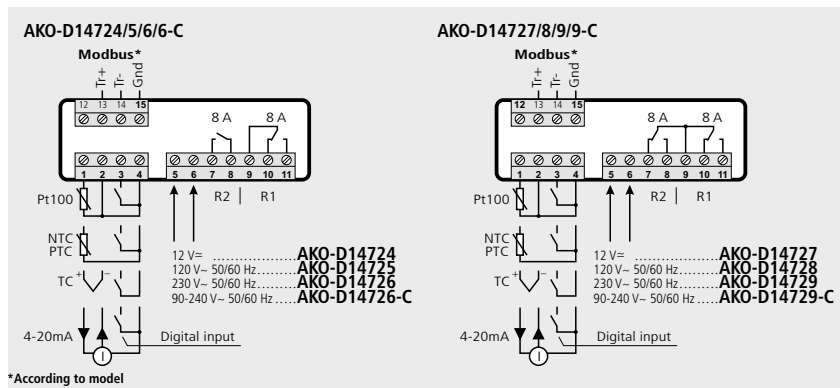
CE Instructions



AKO-D14724 AKO-D14725 AKO-D14726
AKO-D14727 AKO-D14728 AKO-D14729
AKO-D14726-C AKO-D14729-C

3- Wiring

The probe and its cable should **NEVER** be installed in a conduit together with power control or feeder cables.



4- Operation

ESC key

Deactivates alarms but they remain signalled (According to parameter A16).

The save without changes, return to previous level or exit programming parameter appears on the programming menu.

SET key

Pressing it for 5 seconds allows changing the SP set point of relay 1.

Pressing it for 10 seconds accesses the programming menu.

In the programming menu, it accesses the level shown on the display or, during the setting of a parameter, changing its value.

Up key ▲

Pressing it for 5 seconds allows changing the SP2 set point of relay 2.

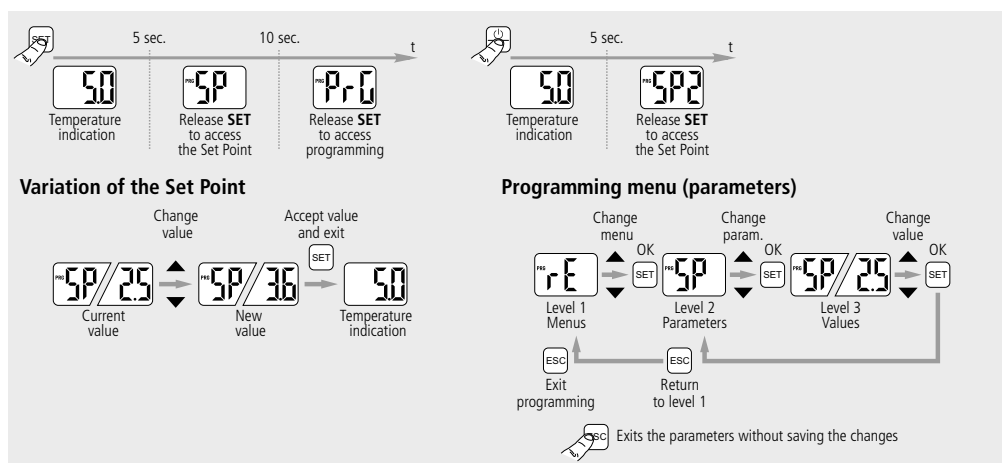
In the programming menu it allows scrolling around the different levels, or during the setting of a parameter, changing its value.

Down key ▼ / ⏻

Pressing it for 5 seconds activates the Stand-by mode, and pressing it for 2 seconds returns the device to the normal mode. In the Stand-by mode, the unit does not carry out any action and the display only shows the ⏻ indicator.

In the programming menu it allows scrolling around the different levels, or during the setting of a parameter, changing its value.

4.1- Access to set point and to programming



1- Warnings

-Using the unit not observing the manufacturer's instructions may alter the appliance's safety requirements. Only probes supplied by AKO should be used for the appliance to operate correctly.

-The unit should be installed in a place protected from vibrations, water and corrosive gases, where the ambient temperature does not exceed the value indicated in the technical data.

-For the reading to be correct, the probe should be used in a place without heat influences apart from the temperature you want to measure or control.

-The power circuit should be equipped with a switch for its disconnection of at least 2 A, 230 V, situated near the appliance. The cables will enter the back of the unit and will be H05VV-F or H05V-K.

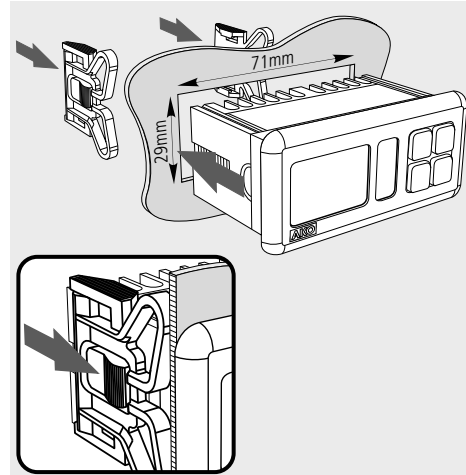
-The section to be used will depend on current local regulations, but should never be less than 1 mm².

-Cables for relay contact wiring should have a section of 2.5 mm².

-From -40 °C to +20 °C, if the NTC probe is extended to 1000 m with at least 0.5 mm² cable, the maximum deviation will be 0.25 °C (cable for probe extension ref. AKO-15586)

ATTENTION: Unit not compatible with **AKO-14917** (External Communication Module) and **AKO-14918** (Programming Key)

2- Installation



5- Technical specifications

Power supply	AKO-D14724/D14727 12 V ± 20% 2.5 VA
	AKO-D14725/D14728 120 V ~ +8% -12% 50/60 Hz 4 VA
	AKO-D14726/D14729 230 V ~ ±10% 50/60 Hz 3.75 VA
	AKO-D14726-C/D14729-C 90-240 V ~ ±10% 50/60 Hz 7 VA
Maximum voltage in the SELV circuits	 20 V
Inputs	 1 input NTC/PTC/Pt100/Thermocouple J or K/4-20 mA + 1 digital input
Relay R1	 EN60730-1: 8(4) A 250 V ~ SPDT
Relay R2	AKO-D14724/25/26/26-C EN60730-1: 8(4) A 250 V ~ SPST
	AKO-D14727/28/29/29-C EN60730-1: 8(4) A 250 V ~ SPDT
No. of relay operations	 EN60730-1: 100,000 operations
Measuring range	NTC -50.0 °C to +99.9 °C (-58.0 °F to 211 °F)
	PTC -50.0 °C to +150 °C (-58.0 °F to 302 °F)
	Pt100 -100 °C to +440 °C (-148.0 °F to 824 °F)
	4-20 mA -999 to 999 (Configurable)
	Thermocouple J 0 °C to +600 °C (32 °F to 1112 °F)
	Thermocouple K 0 °C to +999 °C (-32 °F to 1830 °F)
Resolution	NTC 0.1 °C
	PTC -50 to 100 °C 0.1 °C
	> 100 °C 1 °C
	Pt100 -100 to 100 °C 0.1 °C
	> 100 °C 1 °C
	4-20 mA 0.1 from -100 to 100 and 1 for values < -100 or > 100
	Thermocouple J/K 1 °C
Precision	NTC/PTC/Pt100 ±0.5 °C
	4-20 mA ±0.1 mA
	Thermocouple J/K ±2 °C or 1 %
Working environment	 -10 to 50 °C, <90 % humidity
Storage environment	 -30 to 70 °C, humidity <90 %
Protection degree of the front part	 IP65
Fixing	Panel mounting with anchors
Panel cavity dimensions	 71 x 29 mm
Front part dimensions	 79 x 38 mm
Depth	61 mm
Wiring	Terminal to screw for cables with a section of up to 2.5 mm ²
Control device classification:	Built-in assembly, with Type 1.B automatic operation action feature, for use in clean situations, logical support (Software) class A and continuous operation.
Contamination degree 2 acc/UNE-EN 60730-1.	
Double power input insulation, secondary circuit and relay output.	
Rated pulse voltage	 2,500 V
Pressure ball test temperature	
Accessible parts	 75 °C
Parts that position active elements	 125 °C
Voltage and current delayed by the EMC tests	
AKO-D14724/D14727 9.6 V, 181 mA	
AKO-D14725/D14728 105 V, 36 mA	
AKO-D14726/D14729/D14726-C/D14729-C 207 V, 17 mA	
Radio interference suppression test current	 270 mA

Updated information in our website: www.ako.com
 We reserve the right to supply materials slightly different to those described in our Data Sheets.

AKO ELECTROMECÁNICA, S.A.L.

Av. Roquetes, 30-38
 08812 Sant Pere de Ribes
 Barcelona (Spain)
 Tel. (34) 938 142 700
 Fax (34) 938 934 054
www.ako.com
ako@ako.com

AKO

6- Parameter and message table

The **Def.** column indicates the factory default parameters. Unless otherwise indicated, the temperature values are expressed in °C. (Equivalent temperature in °F)

Level 1 Menus and description					
rE	Level 2 Control relay R1				
	Level 3	Description	Values	Min.	Def. Max.
SP		Relay R1 temperature setting (Set Point)	(°C/°F)	A	0 B
C0		Probe 1 calibration (Offset)	(°C/°F)	-20.0	0.0 20.0
C1		Differential of R1 and SP (Hysteresis)	(°C/°F)	-50	1 50
C2		Upper lock of the Set Point (Relay R1) (it cannot be set above this value)	(°C/°F)	C3	B B
C3		Lower lock of the Set Point (Relay R1) (it cannot be set under this value)	(°C/°F)	A	A C2
C6		State of relay R1 with damaged probe 0=OFF; 1=ON; 2=Average according to last 24h prior to probe error; 3=ON-OFF according to prog. C7 and C8 (In heat mode always OFF)		0	0 3
C7		Time of relay R1 in ON in the event of damaged probe (If C7=0 and C8>0, the relay will always be OFF disconnected)	(min.)	0	10 120
C8		Time of relay R1 in OFF in the event of damaged probe (If C8=0 and C7>0, the relay will always be ON connected)	(min.)	0	5 120
C12		Variation of Set Point (Relay 1) per digital input (0= deactivated)	If P35=2 (°C/°F) If P35=4	C3-SP C3	0 C2-SP
C16		Duration of the variation Set Point (Relay R1) per digital input (if P35 = 2)	(min.)	0	0 254
C17		ON-OFF delay time for R1 (from the last disconnection)	(min.)	0	0 120
C18		ON-OFF delay time for R1 (from the last connection)	(min.)	0	0 120
EP		Output to level 1			
rE2 Level 2 Control relay R2					
	Level 3	Description	Values	Min.	Def. Max.
SP2		Relay R2 temperature setting (Set Point)	(°C/°F)	A	0 B
C51		Differential of R2 and SP2 (Hysteresis)	(°C/°F)	-50	1 50
C52		Upper lock of the Set Point (Relay R2) (it cannot be set above this value)	(°C/°F)	C53	B B
C53		Lower lock of the Set Point (Relay R2) (it cannot be set under this value)	(°C/°F)	A	A C52
C56		State of relay R2 with damaged probe 0=OFF; 1=ON; 2=Average according to last 24h prior to probe error; 3=ON-OFF according to prog. C57 and C58 (In heat mode always OFF)		0	0 3
C57		Time of relay R2 in ON in the event of damaged probe (If C57=0 and C58>0, the relay will always be OFF disconnected)	(min.)	0	10 120
C58		Time of relay R2 in OFF in the event of damaged probe (If C58=0 and C57>0, the relay will always be ON connected)	(min.)	0	5 120
C62		Variation of Set Point 2 (Relay R2) per digital input (0= deactivated) (If P31=2, not applicable)	(°C/°F)	C53 -SP2	0 C52
C66		Duration of the variation Set Point 2 (Relay R2) per digital input (if P35 = 2)	(min.)	0	0 254
C67		ON-OFF delay time for R2 (from the last disconnection)	(min.)	0	0 120
C68		ON-OFF delay time for R2 (from the last connection)	(min.)	0	0 120
EP		Output to level 1			
dEF Level 2 DEFROST Function (R1)					
	Level 3	Description	Values	Min.	Def. Max.
d0		Frequency of disconnection of relay R1 (Time between 2 starts)	(h.)	0	6 120
d1		Disconnection period of relay R1 (0= deactivated)	(min.)	0	0 120
EP		Output to level 1			

Level 1 Menus and description					
AL	Level 2 ALARM control (Visual)				
	Level 3	Description	Values	Min.	Def. Max.
A0		Configuration of the temperature alarms 0=Relative to the SP of R1; 1=Absolute		0	0 1
A1		Alarm for maximum (it should be higher than the SP)	(°C/°F)	A2	999 B
A2		Alarm for minimum (it should be lower than the SP)	(°C/°F)	A	-99 A1
A3		Delay of temperature alarms in the start-up	(min.)	0	0 250
A5		Delay of temperature alarms from when the A1 or A2 value is reached.	(min.)	0	0 250
A6		Delay of the external alarm on receiving a signal in digital input (P35=1)	(min.)	0	0 120
A9		Polarity alarm relay (if P31=4) 0= Relay ON in alarm (OFF without alarm) 1= Relay OFF in alarm (ON without alarm)		0	0 1
A10		Differential temperature alarms (A1 and A2)	(°C/°F)	1	1 20.0
A16		Disconnection of the alarm relay after pressing the ESC key 0= Yes; 1= No		0	0 1
EP		Output to level 1			
CnF Level 2 General status					
	Level 3	Description	Values	Min.	Def. Max.
P0		Type of R1 operation 0=Direct, Cold; 1=Reverse, Heat (If P31≠3)		0	1 1
P1		Delay of all functions on receiving power supply	(min.)	0	0 255
P2		Access code (password) function 0=Inactive; 1=Access to parameters locked; 2=Keypad locked		0	0 2
P3		Return to initial parameters (press SET to activate)		1	1 1
P5		Address (Only units with built-in communication)		0	1 255
P7		Temperature display mode 0=Integers in °C 1=A decimal in °C* 2=Integers in °F 3=A decimal in °F*		0	1 3
P9		Selection of type of probe 0=NTC; 1=PTC; 2=Pt100; 3=TJ; 4=TK; 5=4-20 mA		0	2 5
P12		Polarity digital input 0= Activates on closing contact 1= Activates on opening contact		0	0 1
P30		Type of R2 operation 0=Direct, Cold; 1=Reverse, Heat (If P31=1)		0	1 1
P31		Type of relation between R1 and R2 1= 2 separate stages 2= 2 related stages 3= Neutral zone 4= One stage + alarm		1	1 4
P32		Maximum scale value (If 4-20 mA)		-999	100 999
P33		Minimum scale value (If 4-20 mA)		-999	0 999
P34		Scale locked with probe 4-20 mA 0= Without lock 1= Locked according to P32 and P33		0	0 1
P35		Configuration digital input 0= Deactivated 1= External alarm 2= Variation of SP and SP2(SP+C12, SP2+C62) 3= Reversal of type of operation of R1 4= Changing the SP (SP=C12)		0	0 4
EP		Output to level 1			
tid Level 2 Access control and Information					
	Level 3	Description	Values	Min.	Def. Max.
L5		Access code (Password)		0	- 99
PU		Programme version (Information)		-	-
Pr		Programme revision (Information)		-	-
EP		Output to level 1			
EP		Exit programming			

A: Minimum value according to probe used (See table 1); B: Maximum value according to probe used (See table 1)

* Option not available if the probe is a thermocouple

Note: If the probe is 4-20 mA, the values may not refer to temperatures.

Table 1: Max. and min. values according to type of probe

Type of probe	Minimum value	Maximum value
NTC	-50	100
PTC	-50	150
Pt100	-100	440
Thermocouple J	0	600
Thermocouple K	0	999
4-20 mA	-999	999

7- Operating modes

