LIST OF PART NUMBERS AND DETAILS FOR TEMPERATURE CONTROLLING THERMOMETERS

	MODELS	POWER SUPPLY	RELAYS				REMOVABLE TERMINAL STRIP	PROBE INPUTS (NTC/PTC)*	DIGITAL INPUTS	FORMAT	KEYS	COMMUNI-CATION	RTC	ECO MODE	DISPLAY
			COOL	DEF.	FAN	AUX									
	AKO-D14012	12/24V	-	-	-	-	NO	1	-	SLIM	1	NO	NO	NO	3 digits with decimal point and minus sign, red display
	AKO-D14023	230V	-	-	-	-	NO	1	-	SLIM	1	NO	NO	NO	
	AKO-D14120	110V	16 A	-	-	-	NO	1	-	SLIM	3	NO	NO	NO	
	AKO-D14123	230V	16 A	-	-	-	NO	1	-	SLIM	3	NO	NO	NO	
	AKO-D14125 Without probe	230V	16 A	-	-	-	NO	1	-	SLIM	3	NO	NO	NO	
	AKO-D14023-C	90-240V	-	-	-	-	YES	1	-	STANDARD	1	YES	NO	NO	
	AKO-D14112	12/24V	16 A	-	-	-	NO	Up to 2	Up to 2	STANDARD	4	NO	NO	YES	
	AKO-D14123-2	230V	2 CV	-	-	-	NO	Up to 2	Up to 2	STANDARD	4	NO	NO	YES	
	AKO-D14123-2-RC	90-240V	2 CV	-	-	-	YES	Up to 2	Up to 2	STANDARD	4	YES	YES	YES	
	AKO-D14212	12V	16 A	-	-	8 A	NO	Up to 2	Up to 2	STANDARD	4	NO	NO	YES	
	AKO-D14220	120V	16 A	-	-	8 A	NO	Up to 2	Up to 2	STANDARD	4	NO	NO	YES	
	AKO-D14223	230V	16 A	-	-	8 A	NO	Up to 2	Up to 2	STANDARD	4	NO	NO	YES	
	AKO-D14312	12V	16 A	-	6 A	8 A	NO	Up to 2	Up to 2	STANDARD	4	NO	NO	YES	
	AKO-D14320	120V	16 A	-	6 A	8 A	NO	Up to 2	Up to 2	STANDARD	4	NO	NO	YES	
	AKO-D14323	230V	16 A	-	6 A	8 A	NO	Up to 2	Up to 2	STANDARD	4	NO	NO	YES	
	AKO-D14323-C	90-240V	16 A	-	6 A	8 A	YES	Up to 2	Up to 2	STANDARD	4	YES	NO	YES	
	AKO-D14412	12V	6 A	6 A	6 A	6 A	NO	Up to 3	Up to 3	STANDARD	4	NO	NO	YES	
	AKO-D14412-RC	12V	6 A	6 A	6 A	6 A	YES	Up to 3	Up to 3	STANDARD	4	YES	YES	YES	
	AKO-D14420	120V	16 A	6 A	6 A	8 A	NO	Up to 3	Up to 3	STANDARD	4	NO	NO	YES	
	AKO-D14423	230V	6 A	6 A	6 A	6 A	NO	Up to 3	Up to 3	STANDARD	4	NO	NO	YES	
	AKO-D14423-RC	90-240V	6 A	6 A	6 A	6 A	YES	Up to 3	Up to 3	STANDARD	4	YES	YES	YES	
	AKO-D14423-P	90-240V	16 A	8 A	6 A	6 A	YES	Up to 3	Up to 3	STANDARD	4	NO	NO	YES	
	AKO-D14423-P-RC	90-240V	16 A	8 A	6 A	6 A	YES	Up to 3	Up to 3	STANDARD	4	YES	YES	YES	
	AKO-D10123	230V	2 CV	-	-	-	NO	Up to 2	Up to 2	EXTENDED	4	NO	NO	YES	
	AKO-D10223	230V	16 CV	-	-	8 A	NO	Up to 2	Up to 2	EXTENDED	4	NO	NO	YES	
	AKO-D10323	230V	16 CV	-	6 A	8 A	NO	Up to 2	Up to 2	EXTENDED	4	NO	NO	YES	
	AKO-D16323	90-240V	16 A	-	6 A	8 A	SI	Up to 2	Up to 2	BIGDarwin	2	NO	NO	YES	2 digits with decimal point and minus sign, red display

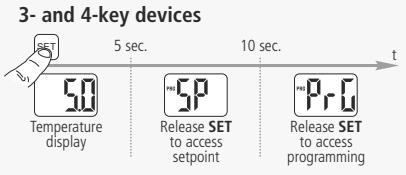
*Unless otherwise indicated, all devices are supplied with one 1.5-metre NTC probe.
If your installation requires additional probes, request parts **AKO-149xx** for NTC probes and **AKO-1558xx** for PTC probes.

COMMON 230 VAC APPLICATIONS

CONSERVATION		FREEZING		HEAT
Static evaporator **AKO-D14123**	Ventilated evaporator **AKO-D14223**	Static evaporator **AKO-D14223**	Ventilated evaporator **AKO-D14323**	**AKO-D14123**
With integrated communications + 2 CV relay + RTC **AKO-D14123-2-RC**	With integrated communications + auxiliary relay **AKO-D14323-C**		With integrated communications **AKO-D14323-C** With integrated communications + auxiliary relay + RTC **AKO-D14423-RC / AKO-D14423-P-RC**	With integrated communications + RTC **AKO-D14123-2-RC**

SETPOINT AND PROGRAMMING ACCESS

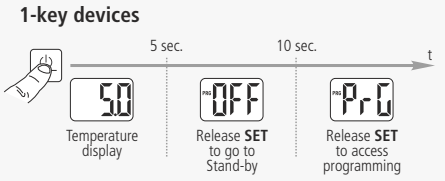
3- and 4-key devices



Key functions during programming

- Toggle parameters or increase value.
- Toggle parameters or decrease value.
- SET — Access parameter or accept the new value.

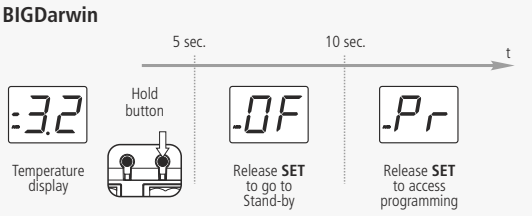
1-key devices



Key functions during programming

SET — Short push (less than 5 seconds): Toggle parameters or increase value. Long push (more than 5 seconds): Access parameter or accept the new value.

BIGDarwin



Key functions during programming

Short push (less than 5 seconds): Toggle parameters or increase value. Long push (more than 5 seconds): Access parameter or accept the new value.

Toggle parameters or decrease value.

Distributor:

TABLE OF PARAMETERS

rE — CONTROL AND MONITORING

	Description	Units
SP	Temperature Adjustment (Set Point)	(°C/°F)
C0	Calibrating probe 1 (Offset)	(°C/°F)
C1	Probe 1 differential (Histeresis)	(°C/°F)
C2	Upper blocking of the Set Point (cannot be set above this value)	(°C/°F)
C3	Lower blocking of the Set Point (cannot be set below this value)	(°C/°F)
C4	Type of delay for protection of the compressor: **0**=OFF/ON (since the last disconnection); **1**=OFF-ON/ON-OFF (since the last shut-down /start-up)	
C5	Protection delay time (value of the option selected in parameter C4)	(min.)
C6	Status of COOL relay with probe fault **0**=OFF; **1**=ON; **2**=Average based on last 24 hours prior to probe fault; **3**=ON-OFF as prog. C7 and C8	
C7	Time relay ON in case of faulty probe (If C7=0 and C8≠0, the relay will always be OFF deenergised)	(min.)
C8	Time relay OFF in case of fault of probe 1 (If C8=0 y C7≠0, the relay will always be ON energised)	(min.)
C9	Maximum duration of fast freezing mode. (**0**=Off)	(h.)
C10	Change set point (SP) in fast freezing mode, when it reaches this point (SP + C10) returns to normal. (SP+C10 ≥ C3) (**0**=OFF). The value of this parameter is always negative or 0.	(°C/°F)
C11	Length of inactivity at digital input to activate ECO mode (Only if P10 or P11=1 and P0=0) (**0**=OFF)	(h.)
C12	Change set point (SP) in ECO mode (SP+C12 ≤ C2) (**0**= Off)	(°C/°F)
EP	Exit to Level 1	

dEF — DEFROST CONTROL

	Description	Units
d0	Defrost frequency (Time between two starts)	(h.)
d1	Maximum defrost duration (**0**=defrost deactivated)	(min.)
d2	Type of message during defrost: **0**=Currentl temperature; **1**=Temperature at start of defrost; **2**=Display dEF message	
d3	Maximum duration of message (time added at the end of the defrost)	(min.)
d4	Defrost end temperature (probe 2) (If P4 ≠ 1)	(°C/°F)
d5	Defrost on equipment start-up **0**=NO, First defrost as per d0; **1**=YES, First defrost as per d6	
d6	Defrost start delay on equipment start-up	(min.)
d7	Defrost type: **0**=Resistors **1**=Inverted cycle	
d8	Calculated time between defrost periods: **0**=Total actual time; **1** =Sum of times the compressor is on	
d9	Drip time at end of defrost (compressor and fans off) (if P4 ≠ 1)	(min.)
d10	1st defrost start time (RTC required)	(h : min.)
d11	2nd defrost start time (RTC required)	(h : min.)
d12	3rd defrost start time (RTC required)	(h : min.)
d13	4th defrost start time (RTC required)	(h : min.)
d14	5th defrost start time (RTC required)	(h : min.)
d15	6th defrost start time (RTC required)	(h : min.)
EP	Exit Level 1	

Fan — FAN CONTROL

	Description	Units
F0	Fan shut-down temperature as per probe 2 (if P4 ≠ 1)	(°C/°F)
F1	Probe 2 differential (If P4≠ 1)	(°C/°F)
F2	Stop fans when stopping compressor **0**=No, **1**=Yes	
F3	Fan status during defrost: **0**=Off; **1**=On	
F4	Starting delay after defrost (if F3=0) Will only operate if it is higher than d9	(min.)
F5	Stop fans on opening the door 0=No, 1=Yes (Requires a digital input configured as port P10 or P11=1)	
EP	Exit Level 1	

AL — ALARMS CONTROL

	Description	Units
A0	Configuration of temperature alarms: **0**=Relative to SP; **1**=Absolute	
A1	Maximum alarm probe 1 (must be greater than SP)	(°C/°F)
A2	Minimum alarm probe 1 (must be less than SP)	(min.)
A3	Temperature alarm delay during start-up	(min.)
A4	Temperature alarm delay after completion of a defrost	(min.)
A5	Temperature alarm delay after reaching the value of A1 or A2	(min.)
A6	Retardo de alarma externa al recibir señal en entrada digital (P10 o P11=2 o 3)	(min.)
A7	External alarm delay when receiving digital input signal (P10 or P11=2 or 3)	(min.)
A8	Show warning if defrost is terminated by time-out **0**=No, **1**=Yes	
A9	Alarm relay polarity **0**=Relay ON in alarm (OFF no alarm) **1**=Relay OFF on alarm (ON with no alarm)	
A10	Temperature Alarm Differential (A1 and A2)	(°C/°F)
A12	Door open alarm delay (if P10 or P11=1)	(min.)
EP	Exit to Level 1	

CnF — GENERAL STATUS

	Description	Units
P0	Type of operation **0**=Direct, Cold; **1**=Inverted, Heat	
P1	Delay of all functions on receiving electrical power	(min.)
P2	Access code (password) functions **0**=Inactive; **1**=Block access to parameters; **2**=Keyboard lock	
P4	Selection of type of inputs **1**=1 probe + 2 digital inputs **2**=2 probes +1 digital input **3**=3 probes	
P5	MODBUS address	
P6	Configuration of AUX relay **0**=Fans **1**=Defrost / 2nd Defrost **2**=Alarm **3**=Light **4**=Pump down **5**=Master Defrost	
P7	Temperature display mode **0**=Whole in °C **1**=One decimal in °C **2**=Whole in °F **3**=One decimal in °F	
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	
P9	Selection of probe type **0**=NTC; **1**=PTC	
P10	Configuring digital input 1 **0**= Off **1**=Door contact **2**=External alarm **3**=Severe external alarm **4**=Slave defrost **5**=Act. ECO mode by pushbutton **6**=Act. Fast Freezing **7**= Low pressure switch **8**=Remote defrost **9**=Act. ECO mode by switch	
P11	Configuring digital input 2 **0**= Off **1**=Door contact **2**=External alarm **3**=Severe external alarm **4**=Slave defrost **5**=Act. ECO mode by pushbutton **6**=Act. Fast Freezing **7**= Not used **8**=Remote defrost **9**=Act. ECO mode by switch	
P12	Digital input polarity 1 **0**=Energised on closed contact, **1**=Energised on open contact	
P13	Digital input polarity 2 **0**=Energised on closed contact, **1**=Energised on open contact	
P14	Maximum start-up time after pump down	(sec.)
P15	Maximum pump down time	(min.)
P19	Lights in ECO Mode (P6=3) 0=ON; 1=OFF	
EP	Exit Level 1	

rtC — RTC REAL TIME CLOCK PARAMETERS

	Description	Units
r1	Clock configuration: HOUR	(h.)
r2	Clock configuration: MINUTES	(min.)
EP	Exit Level 1	

tid — ACCES AND INFORMATION CONTROL

	Description	Units
L5	Access code (Password)	
PU	Program version (Information)	
Pr	Program revision (Information)	
EP	Exit Level 1	

MESSAGES

L5	Access code (Password) request.	**AE**	External alarm activated.
E1 / E2 / E3	Probe 1, 2 or, 3 faulty.	**AES**	Severe external alarm activated.
dEF	Indicates a defrost is underway.	**Adt**	Defrost time-out alarm.
AH	Flashing: maximum temperature alarm on control probe.	**Pab**	Door open alarm.
AL	Flashing: minimum temperature alarm on control probe.	**Pd**	Pump down malfunction error (Stop)
Ar	Clock battery discharged or clock deprogrammed	**LP**	Pump down malfunction error (Start-up)

DISPLAY INDICATORS

PRG Programming mode active

ECO ECO mode active

Standby mode active

Continuous cycle active

COOL relay active

FAN relay active

DEF relay active

HEAT relay active

AUX AUX relay active

Flashing indicator lights signal that the function should be activated by temperature but is not due to a timing or protection override.

The list of parameters, messages and configurations is general. Some models may not have certain parameters or messages. Specific parameters and messages appear in the installation manual for each model.

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