AKO 16526 V2 Advanced Temperature Controller Instruction Manual

Contents

AKO 16526 V2 Advanced Temperature Controller

Product Usage Instructions

- Make sure to follow all safety instructions provided in the manual.
- Regular maintenance is essential for the proper functioning of the product. Refer to the maintenance section in the manual for detailed instructions.
- Proper connection of the product is crucial for its performance.
- Follow the connection guidelines provided in the manual.
- Use the keyboard to input commands and navigate through the settings.
- Ensure sensors are properly connected and functioning to monitor temperature accurately.
- Follow the assistant’s instructions displayed on the screen to set up and configure the product.
- Operate the product according to the specified settings and modes mentioned in the manual.
- Pay attention to messages displayed on the screen for important notifications and alerts.

FAQ

- **Q: How do I silence an ongoing alarm?**
  - **A:** To silence an ongoing alarm, follow the steps outlined in the manual, usually involving pressing a specific key or combination of keys.
- **Q: How do I set the type of refrigerant gas used?**
  - **A:** Navigate to the relevant menu on the display using the arrow keys and select the appropriate gas type from the available options. Confirm your selection by pressing the SET key.
- **Q: What should I do if there is a final defrost alert?**
  - **A:** When you receive a final defrost alert, make sure to check and address any issues related to exceeding the defined defrost time as per the settings.

Warnings

- If the device is used without adhering to the manufacturer’s instructions, the device safety require-ments could be compromised. Only sensors supplied by AKO must be used for the unit to operate correctly.
- From -40°C to +20°C, if the NTC sensor is extended to 1000m with at least a 0.5mm2 cable, the maximum

deviation will be 0.25°C (cable for sensor extension ref. AKO-15586 / AKO-15586H. Earth the cable mesh at one end only).
- Pt1000 sensors can be extended up to 25m using the AKO-15586 / AKO-15586H sensor extension cable..
- The product 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 sensor should be used in a place without heat influences apart from the temperature you want to measure or control.
- The IP65 protection degree is only valid with the protection cover closed.
- The IP65 protection degree is only valid if the cables enter the device using a tube for electric conductions + gland with IP65 or above. The gland should be the right size for the diameter of the tube used.
- Do not spray the unit directly with high-pressure hoses, as this could damage it.

IMPORTANT

- The AUXILIARY relays are programmable, and their operation depends on the configuration.
- The function of the digital inputs depends on the configuration.
- The recommended currents and powers are the maximum working currents and powers.

Maintenance

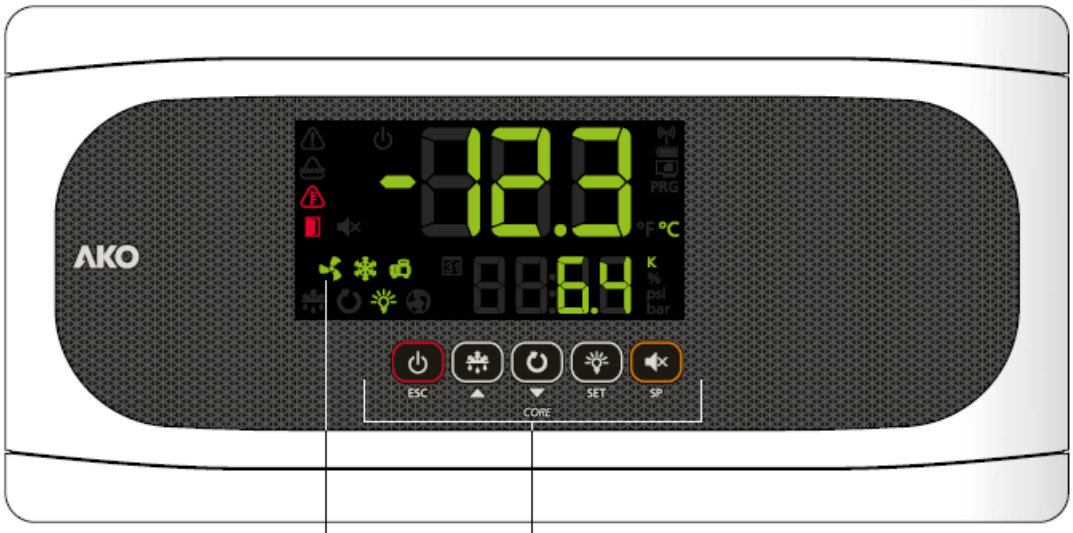
- Clean the surface of the unit with a soft cloth, water and soap.
- Do not use abrasive detergents, petrol, alcohol or solvents, as this might damage the unit.

Wiring

- Always disconnect the power supply to do the wiring.
- The sensors and their cables must NEVER be installed in a conduit together with power, control or power supply cables.
- For disconnection, the power supply circuit must be equipped with at least a 2 A, 230 V switch, located near the device. The power supply cable shall be of the H05VV-F or NYM 1×16/3 type. The section to be used will depend on current local regulations, but should never be less than 1.5mm2.
- Cables for relay or contactor outputs should have a section of 2.5mm2, allow working temperatures equal to or over 70ºC, and be installed with as little bending as possible.
- The 120/230 V~ wiring area must be kept clear of any other external element.
- The wiring setup depends on the options selected in the set-up wizard and on the input and output configurations (See page 31).
- Check the enclosed schematic and the defined configuration before wiring.
- The parameter St (Type of connected probes) affects all probe inputs. Therefore all connected probes (NTC or Pt1000) must be the same.

Description

- Temperature controller with output for electronic expansion valve regulation and evaporator fan speed control.
- In addition to regulating the cooling of the cold room, the controller can be configured to control superheating and regulate the speed of the evaporator fans using an inverter or electronic fans.



1: Display; 2: Keypad

Constant: Stand-By mode activated. Regulation is paused.
Flashing: controlled stop process for the regulation in progress.

Constant: cold room door open.
Flashing: the door has been open for a longer time than defined in parameter A12.

There is an active alarm (no HACCP or temperature).

Constant: HACCP alarm active.
Flashing: HACCP alarm recorded and unconfirmed To acknowledge an HACCP alarm, press the key.

The temperature alarm is active.

Constant: evaporator fans active.
Flashing: the evaporator fans should be active but something is preventing them from activating.
Pulsing: evaporator fans controlled by analogue output.

Constant: the COOL relay is active.
Flashing: the COOL relay should be active but a delay or protection is preventing this.
Pulsing: expansion valve regulated.

Constant: compressor active.
Flashing: the compressor should be active but a delay or protection is preventing this.

Defrosting active.

Continuous cycle mode active.

Cold room light active.

Alarm in progress muted.

°F °C Temperature displayed in °Fahrenheit / °Centigrade.

PRG Programming mode active.

K Lower display showing the real time superheating value.

% Lower display showing percentage of EEV opening or percentage of evaporator fan power (depending on configuration).

bar psi Lower display showing low pressure in psi/bar.

Keypad

- ESC Press and hold for 3 seconds to activate/deactivate the Stand-By mode. In this mode, regulation is paused and the m icon is displayed.
- In the programming menu, this key exits the parameter without saving changes and returns to the previous level or exits programming.
- ▲ Pressing once without holding displays the temperature of sensor S2 for 10 seconds (if it is enabled). Pressing it for 3 seconds starts/stops the defrost.
- In the programming menu, it allows you to scroll through the different levels, or when setting a parameter to change its value.
- ▼ Pressing it for 3 seconds activates/deactivates the continuous cycle mode.
- In the programming menu, it allows you to scroll through the different levels, or when setting a parameter to change its value.
- SET Pressing once without holding activates/deactivates the cold room light.
- Pressing it for 3 seconds accesses the condensed programming menu.
- Pressing it for 6 seconds accesses the expanded programming menu.
- In the programming menu, it accesses the level shown on the display or, during the setting of a parameter, accepts the new value.
- SP Pressing it once without holding it down displays the current effective value of the temperature Set Point in the upper display and the superheating set point in the lower display, taking into considera-tion temporary changes due to other parameters.
- When an alarm is in progress, pressing once without holding mutes the acoustic alarm.
- Pressing for 3 seconds accesses the temperature Set Point setting.

STAND-BY

- If the regulation cannot be stopped immediately due to its configuration, a controlled stop process starts and the m icon flashes. To stop the controlled stop process and force Stand-by, press the Stand-by key again for 3 seconds.

Probes

Cold room Probe /
Evaporator Probe /
2on evaporator Probe

Superheating probe

Wizard
The first time the unit receives the power supply, it will enter into Wizard mode.

The display will show the message InI flashing at 0.

The buttons ▲ and ▼ change the value, the SET button accepts the value and moves on to the next step.

Step 1
Select the most suitable InI option based on the type of installation to be carried out and press SET.
The available options will be shown in the following table:

InI	Type of installation				Parameters									
	Control of the compressor	Pump Down	Defrost	Evap. Fans	Pd	o00	I00	I10	I11	I20	I21	d1	D7	F3
0	Demo mode: it displays the temperature but does not regulate the temperature													
1	No	No	Electric	Yes	0	0	2	0	0	0	0	20	0	0
2	Yes	Yes	Electric	Yes	1	1	2	7	1	0	0	20	0	0
3	Yes	No	Electric	Yes	0	1	2	0	0	0	0	20	0	0
4	No	No	Air	Yes	0	0	1	0	0	0	0	20	1	1
5	Yes	Yes	Air	Yes	1	1	1	7	1	0	0	20	1	1
6	Yes	No	Air	Yes	0	1	1	0	0	0	0	20	1	1
7	Yes	Yes	Hot gas	Yes	1	1	2	7	1	7	1	5	2	0
8	Yes	No	Hot gas	Yes	0	1	2	0	0	7	1	5	2	0

If options 2, 5 or 7 are chosen, check the configuration of parameter I11 according to the pressure switch type used.

Step 2

- Define the type of refrigerant gas used.

u02=0	R404A	**u02=6**	R513A	**u02=12**	R1234ze
u02=1	R134A	**u02=7**	R744	**u02=13**	R23
u02=2	R407A	**u02=8**	R449A	**u02=14**	R717
u02=3	R407F	**u02=9**	R290	**u02=15**	R407C
u02=4	R410A	**u02=10**	R32	**u02=16**	R1234yf
u02=5	R450A	**u02=11**	R448A	**u02=17**	R22
u02=18	R454C	**u02=19**	R455A	**u02=20**	R507A
u02=21	R515B	**u02=22**	R452A	**u02=23**	R452B
u02=24	R454A				

Step 3*:

- Define the minimum value of the pressure sensor (I62) (value at 4 mA, 0 V, 0.5 V or 1 V according to I61).

Step 4*:

- Define the maximum value of the pressure sensor (I63) (value at 20 mA, 5 V, 4.5 V or 10 V according to I61).
- *Steps only visible if u02=7

Step 5:

- Select the temperature set point.

Step 9:

- Set all other parameters to default.
- dFP=0 No, the other parameters do not need to be changed
- dFP=1 Yes, set all other parameters to their default values
- This option only appears if this is not the first time the set-up wizard has been run.
- The initial configuration is now complete, and the device will start to regulate the temperature.

The configuration wizard will not reactivate. To reactivate it, activate the standby mode (by pressing the m key for 3 seconds) and wait until the unit completely halts regulation (the m indicator will light up permanently) and press the ▲, ▼ SET buttons in this order in sequence, not at the same time.
If the Pump Down function is active, there may be a delay between the initiation of the Stand-by function and the moment the controller stops.

Operation

Messages

- 

Pump down malfunction error (Stop). The time configured in parameter C20 has been exceeded. Only displayed on screen.
- 

Pump down malfunction error (Start). The time configured in parameter C19 has been exceeded. Only displayed on screen.
- 

Sensor 1, 2, 3, 4, 5, or 6 is faulty (open circuit, crossed circuit, or value outside sensor limits). Activates the alarm relay and the audible alarm.
- 

Open door alarm. Only if the door stays open for a longer time than defined in parameter A12. Activates the alarm relay and the audible alarm.
- 

Maximum temperature in control sensor alarm. The temperature value programmed in A1 has been reached. Activates the alarm relay and the audible alarm.
- 

Minimum temperature in control sensor alarm. The temperature value programmed in A2 has been reached. Activates the alarm relay and the audible alarm.

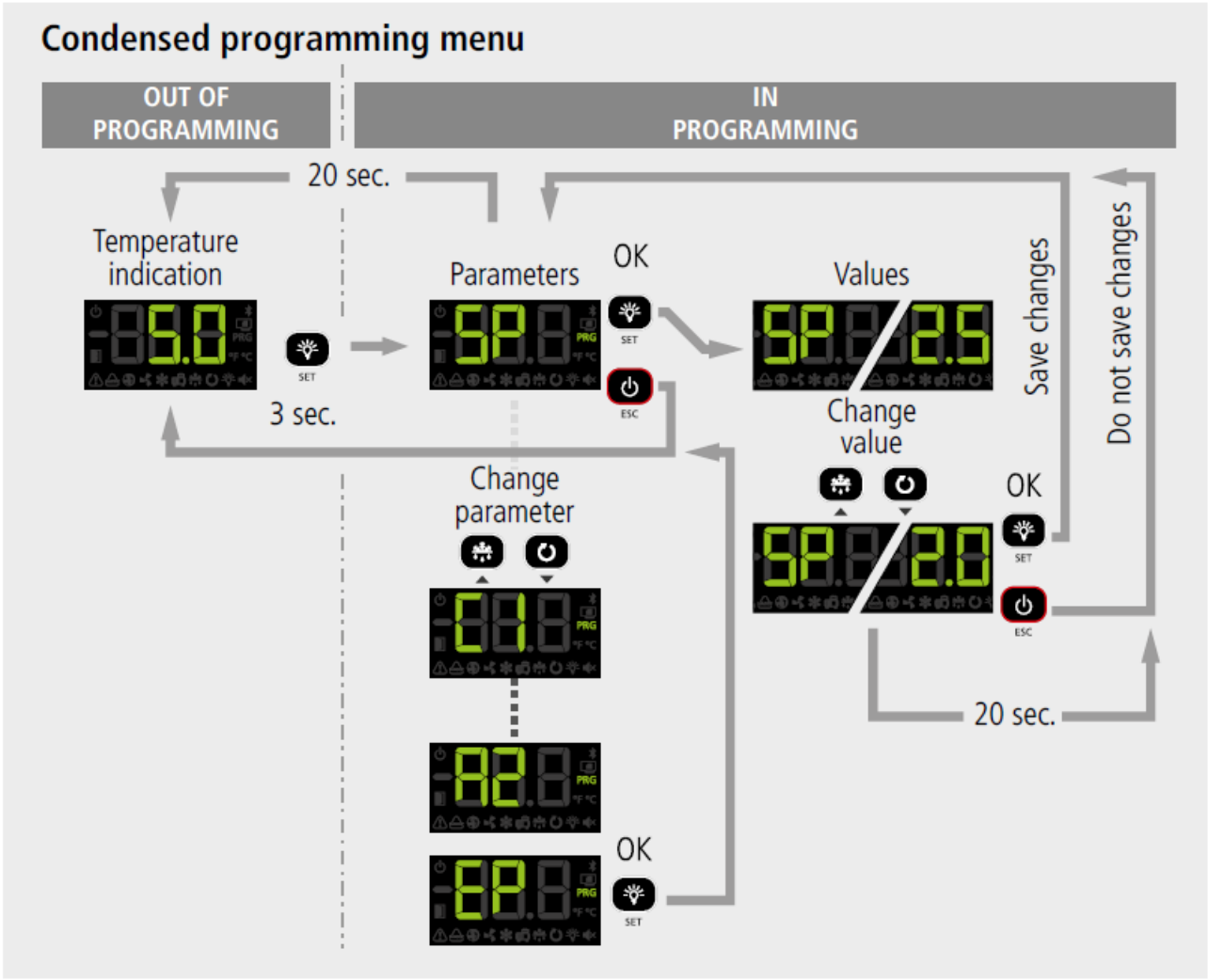
-  External alarm activated (by digital input). Activates the alarm relay and the audible alarm.
-  Severe external alarm activated (by digital input). Activates the alarm relay and the audible alarm.
-  Defrost the time-out alert. The time set in d1 has been exceeded.
-  HACCP alarm. The temperature has reached the value of parameter h1 for a longer period than established in h2. Activates the alarm relay and the audible alarm.
-  HACCP alarm due to a fault in the electric supply. The temperature set in h1 has been reached following a fault in the electric supply. Activates the alarm relay and the audible alarm.
-  Minimum superheat alarm. The value set in A20 has been reached. Activates the alarm relay and the audible alarm.
-  Minimum superheat alert. The value defined in A23 has been reached. Only displayed on screen.
-  Maximum evaporating pressure alarm. The value defined in A26 has been reached. Activate the alarm relay and the audible alarm.
-  Minimum evaporating alarm. The value defined in A29 has been reached. Activates the alarm relay and the audible alarm.
-  Indicates that a defrost is being performed. Only displayed on screen.

-  Password request. See parameters b10 and PAS. Only displayed on screen.
-  Shown sequentially with the temperature: the controller is in demo mode, and the configuration has not been made.

Configuration

Condensed programming menu

- This allows for the most-used parameters to be quickly configured. Press the SET key for 3 seconds to access it.



Parameters

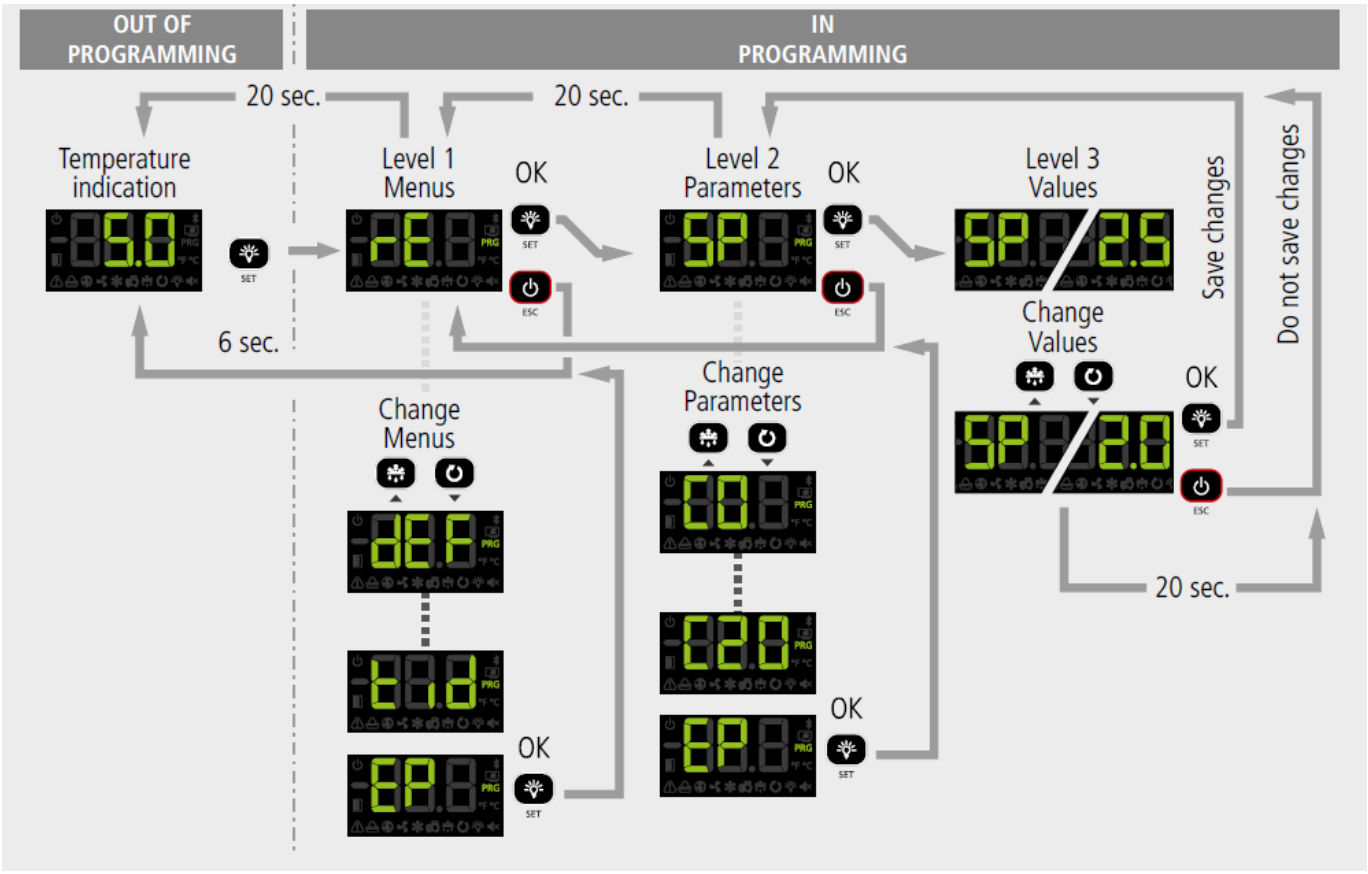
Level 2	Description	Values	Min.	Def.	Max.
SP	Temperature setting (Set Point)	ºC/ºF	-50	0.0	99
C1	Sensor 1 differential (Hysteresis)	ºC/ºF	0.1	2.0	20.0
d0	Defrost frequency (time between 2 starts)	h.	0	6	96
d1	Maximum defrost duration (0=defrost deactivated)	min.	0	*	255
d4	Final defrost temperature (by the sensor) (If I00 ¹ 1)	ºC/ºF	-50	8.0	50
SH	Superheating set point	ºK	0.1	8	40
F3	Status of the fans during the defrost 0=stopped; 1=running		0	*	1
A1	Alarm for maximum in sensor 1 (it must be higher than the SP)	ºC/ºF	A2	99.0	99.0
A2	Alarm for minimum in sensor 1 (it must be lower than the SP)	ºC/ºF	-50	-50	A1

* According to the set-up wizard.

Extended programming menu
Use the extended programming menu to configure all of the unit's parameters to adapt it to your installation requirements. Press the SET key for 6 seconds to access it.

IMPORTANT: if the password function has been configured as a keypad lock (b10=2), or as an access to parameters block (b10=1), you will be requested to enter the password programmed in PAS when attempting to access either of the two functions. If the entered password is not correct, the unit will go back to showing the temperature.
IMPORTANT: certain parameters or menus may not be visible depending on the configuration of the other parameters and the options chosen during set-up.

Extended programming menu



Parameters
Regulation and control

Level 1	Level 2	Description	Values	Min.	Def.	Max.
rE	SP	Temperature setting (Set Point)	°C/°F	-50	0.0	99
	C0	Sensor 1 calibration (Offset)	°C/°F	-20.0	0.0	20.0
	C1	Sensor 1 differential (Hysteresis)	°C/°F	0.1	2.0	20.0
	C2	Set point top locking (it cannot be set above this value)	°C/°F	C3	99	99
	C3	Set point bottom locking (it cannot be set under this value)	°C/°F	-50	-50	C2
	C4	Type of delay for the protection of the compressor: 0=minimum OFF time of the compressor 1=minimum OFF and ON time of the compressor in each cycle		0	0	1
	C5	Protection delay time (value of the option selected in parameter C4)	min.	0	0	120
	C6	COOL relay status with fault in sensor 1: 0=OFF; 1=ON; 2=average according to last 24 h before the sensor error; 3=ON-OFF according prog. C7 and C8		0	2	3
	C7	Time of relay ON if sensor 1 damaged (if C7=0 and C8≠0, the relay will always be OFF when disconnected)	min.	0	10	120
	C8	Time of relay OFF if sensor 1 damaged (if C8=0 and C7≠0, the relay will always be ON when connected)	min.	0	5	120
	C9	Maximum duration of the continuous cycle mode (0=deactivated)	h.	0	0	48
	C10	Variation of the Set Point (SP) in continuous cycle mode. When it reaches this point (SP+C10), it reverts to the normal mode (SP+C10 ≥ C3) The value of this parameter is always negative, unless it is 0 (0=OFF)	°C/°F	0	-50	C3-SP
	C12	Variation of the set point (SP) when the change set point change function is active (SP+C12≤ C2) (0=deactivated)	°C/°F	C3-SP	0	C2-SP
	C19	Maximum time for start-up after gas collection (values between 1 and 9 seconds are not accepted) (0=deactivated)	sec.	0	0	120
	C20	Maximum time for pump down (0=deactivated)	min.	0	0	15
	C22	Stop fans and COOL when opening door 0=no 1=yes		0	0	1
	C23	Start-up delay for fans and COOL when door open	min.	0	0	999
	EP	Output to level 1				

Defrost

Level 1	Level 2	Description	Values	Min.	Def.	Max.
dEF	**d0**	Defrost frequency (time between 2 starts)	h.	0	6	96
	d1	Maximum defrost duration (0=defrost deactivated)	min.	0	*	255
		Type of message during the defrost: 0=sign of the real temperature; 1 =sign of				
	d2	the temperature at the start of the defrost;		0	2	2
		2=sample of the dEF message				
	d3	Maximum message duration (time added at the end of the defrost process)	min.	0	5	255
	d4	Final defrost temperature (by the sensor) (If I00¹1)	ºC/ºF	-50	8.0	50
	d5	Defrost on connecting the unit: 0=NO, first defrost according to d0; 1=YES, first defrost according to d6		0	0	1
	d6	Delay of the defrost start on connecting the unit	min.	0	0	255
	d7	Type of defrost: 0=resistors; 1=air/fans 2=hot gas		0	*	2
	d8	Time calculation between defrost periods: 0=total real-time 1=sum of COOL time connected		0	0	1
	d9	Drip time when a defrost finishes (stop COOL and fans)	min.	0	1	255
	EP	Output to level 1				

Evaporator fans

Level 1	Level 2	Description	Values	Min.	Def.	Max.
FAn	F0	Fans stop temperature ºC/ºF. -50 45 50				
	F1	Sensor 2 differential if fans are stopped	ºC/ºF	0.1	2.0	20.0
	F2	Stop fans when the compressor stops 0=no 1=yes		0	0	1
	F3	Status of the fans during the defrost 0=stopped; 1=running		0	*	1
	F4	Start-up delay after defrost (if F3=0) ctuates if higher than d9	min.	0	2	99 Only a
	F10	Fan control type 0=ON/OFF 1=frequency inverter		0	0	1
	EP	Output to level 1				

Expansion valve

Level 1	Level 2	Description	Values	Min.	Def.	Max.
	u00	Valve type: 0=solenoid + EV thermostat 1= PWM-type EEV tepper-type EEV		0	1	2 2=S
	SH	Superheating set point	K	0.1	8	40
	u02	Refrigerant gas type: 0= R-404A, 1= R-134A, 2= R-407A, 3= R-407F, 4= R-410A, 5= R-450A, 6= R-513A, 7= R-744, 8= R-449A, 9= R-290, 10= R-32, 11= R-448A, 12=R1234ze, 13=R23, 14=R717, 15=R407C, 16=R1234yf, 17=R22, 18=R454C, 19=R455A, 20=R507A, 21=R515B, 22=R452A, 23=R452B, 24=R454A		0	*	17
	u03	PWM cycle time	s.	2	6	10
	u04	Proportional constant value (P)		1	10	100
	u05	Integral constant value (I)		0	10	100
	u06	Derivative constant value (D)		0	0	100

EEV	**u07**	Opening value of the electronic expansion valve when cooling is activated	%	u13	50	u12
	u08	Duration of valve opening on cooling demand	s.	2	5	240
	u09	Valve opening value with sensor error S5 or S6: 0=fixed opening according to u10; 1=average opening over the last 24 hours		0	0	1
	u10	Valve opening value with sensor error S5 or S6 (if u09=0)	%	u13	0	u12
	u11	Manual valve opening value (-1=disabled), (cycles acc. to u03) Requires safety code. See user manual.	%	-1	-1	100
	u12	Maximum valve opening value	%	u13	100	100
	u13	Minimum valve opening value	%	0	0	u12
	u14	Valve opening value after defrost (0=disabled), (duration according to u15) u13	%	0/	0	u12
	u15	Duration of valve opening after defrosting	s	0	0	240
	u16	Valve opening in case of LOP error (0=valve closed)	%	0/	0	u12 u13
	EP	Output to level 1				

Alarms

Level 1	**Level 2**	**Description**	**Values**	**Min.**	**Def.**	**Max.**
	A0	Configuration of the temperature alarms 0=relative to SP 1=absolute		0	1	1
	A1	Alarm for maximum in sensor 1 (it must be higher than the SP)	ºC/ºF	A2	99.0	99.0
	A2	Alarm for minimum in sensor 1 (it must be lower than the SP)	ºC/ºF	-50	-50	A1
	A3	Delay of temperature alarms in the start-up	min.	0	0	120
	A4	Delay of temperature alarms from the end of a defrost	min.	0	0	99
	A5	Delay of temperature alarms from when the A1 or A2 value is reached	min.	0	30	99

AL	**A6**	Delay of external alarm/severe external alarm on receiving digital input signal (I10 or I20=2 or 3)	min.	0	0	120
	A7	External alarm deactivation delay/severe external alarm on the disappearance of the signal at digital input (I10 or I20=2 or 3)	min.	0	0	120
	A8	Show warning if the defrost ends for maximum time 0=no 1=yes		0	0	1
	A9	Polarity relay alarm 0=relay ON in alarm (OFF without alarm); 1=relay OFF in alarm (ON without alarm)		0	0	1
	A10	The differential of temperature alarms (A1 and A2)	ºC/ºF	0.1	1.0	20.0
	A12	Delay of open door alarm (if I10, I20 or I30=1)	min.	0	10	120
	A20	Minimum superheating value for LSH alarm	K	0	2	SH
	A21	LSH alarm activation delay	sec.	0	30	240
	A22	LSH alarm hysteresis A20	K	0.1	2	Sh-
	A23	Maximum overheating value for LSH alert	K	sh	40	40
	A24	Delayed activation of the HSH warning	s	0	30	240
	A25	HSH alarm deactivation hysteresis	K	0.1	2	A23-sh
	A26	Maximum evaporating pressure (MOP)	bar	0	60	60
	A27	MOP alarm activation delay (delay time for activating alarm after the threshold has been exceeded)	sec.	0	30	240
	A28	MOP alarm deactivation hysteresis (when the pressure drops below the MOP-hysteresis level the alarm is deactivated)	bar	0.1	1	60
	A29	Minimum evaporating pressure (LOP)	bar	-1	0	8
	A30	LOP alarm activation delay (delay time for activating alarm after the threshold has been exceeded)	sec.	0	30	240
	A31	LOP alarm deactivation hysteresis (when the pressure exceeds the LOP-hysteresis level the alarm is deactivated)	bar	0.1	1	8
	EP	Output to level 1				

Basic configuration

Level 1	Level 2	Description	Values	Min.	Def.	Max.
bcn	b00	Delay of all functions on receiving power supply	min.	0	0	255
	b01	Cold room light timing	min.	0	0	999
	b10	Password function 0=inactive 1=parameter access lock 2=keypad lock		0	0	2
	PAS	Password		0	0	99
	b20	MODBUS address		1	1	247
	b21	Communication speed: 0=9600 bps 1=19200 bps 2=38400 bps 3=57600 bps	bps	0	0	3
	b22	Audible alarm enabled 0=no 1=yes		0	1	1
	b23	Lower display function: 1=sensor S2, 2=sensor S3, 3=sensor S4, 4=sensor S5, 5=superheating, 6=pressure sensor, 7=% EEV, 8=% eFAN, 9=carousel, 10=off		1	*	10
	Unt	Working units 0=ºC 1=ºF		0	0	1
	EP	Output to level 1				

Inputs and outputs

Level 1	Level 2	Description	Values	Min.	Def.	Max.
InO	St	Type of probes connected: 0= NTC, 1= Pt1000		0	0	1
	I00	Probes connected: 1=sensor 1 (cold room), 2=sensor 1 (cold room) + sensor 2 (evaporator)			1	2 2
	I10	D1/S3 input configuration: 0=deactivated, 1=door contact, 2=external alarm, 3=severe external alarm, 4=change SP, 5=remote defrost, 6=defrost lockout, 7=low pressure switch, 8=remote activation in Stand-by mode, 9=product temperature		0	*	9
	I11	Digital input polarity D1: 0=activates on closing, 1=activates on opening ontact			0	0 1 c
	I20	D2/S4 input configuration: 0=deactivated, 1=door contact, 2=external alarm, 3=severe external alarm, 4=change SP, 5=remote defrost, 6=defrost lockout, 7=high pressure switch for hot gas, 8=remote activ ation of Stand-by mode, 9=product temperature, 10=defrost 2nd eva porator		0	*	10
	I21	Digital input polarity D2: 0=activates on closing, 1=activates on opening ontact			0	0 1 c
	I30	D3/S5 input configuration: 0=deactivated, 1=door contact, 2=external alarm, 3=severe external alarm, 4=change SP, 5=remote defrost, 6=defrost lockout, 7=remote activation of Stand-by mode, 8=rroduct t emper- ature, 9=superheating temperature (Sh)		0	9	9
	I31	Digital input polarity D3: 0=activates on closing, 1=activates on opening ontact			0	0 1 c

Inputs and outputs

Level 1	Level 2	Description	Values	Min.	Def.	Max.
InO	I60	Pressure units: 0=bar, 1=Psi		0	0	1
	I61	Pressure sensor type (S6): 0=deactivated, 1=4-20 mA, 2=0-5 V, 3=0.5-4.5 V, 4=0-10 V, 5=1-5 V			0 3 5	
	I62	Minimum pressure sensor value (4 mA, 0 V, 0.5 V, 1 V)		-1	-1	I63
	I63	Maximum pressure sensor value (20 mA, 5 V, 4.5 V, 10 V)			I62 9 60	
	I64	Pressure sensor calibration (S2)		-10	0	10
	o00	AUX 1 relay configuration: 0=deactivated, 1=compressor/crankcase resistance, 2=light, 3=virtual control, 4= Alarm, 5=resistor. door frame			0 * 5	
	o10	AUX 2 relay configuration: 0=deactivated, 1=alarm, 2=light, 3=virtual control, 4=defrost 2nd evaporator, 5=resistor. door frame, 6=equal solenoid status, 7=equal device status		0	2	7
	o20	AUX 3 relay configuration: 0=deactivated, 1=alarm, 2=light, 3=external AO controller ON/OFF, 4=defrost 2nd evaporator, 5=resistor. door frame			0 0 5	
	o30	Analog output type (AO): 0=4-20 mA, 1=0-10 V		0	0	1
	EP	Output to level 1				

HACCP alarm

Level 1	Level 2	Description	Values	Min.	Def.	Max.
HCP	h1	HACCP alarm maximum temperature	ºC/ºF	-50	99.0	99.0
	h2	Maximum permitted time for activation of the HACCP alarm (0=HACCP alarm deactivated)	h.	0	0	255
	EP	Output to level 1				

Information (read-only)

Level 1	Level 2	Description	Values	Min.	Def.	Max.
tid	InI	Option chosen in the configuration wizard				
	Pd	Pump down active? 0=no, 1=yes				
	PU	Software version (Information)				
	Pr	Program revision				
	PSr	Program Subversion				
	bU	Bootloader version				
	br	Bootloader revision				
	bSr	Program Subversion				
	PAr	Parameter map revision				
	EP	Output to level 1				

Technical specifications

- Power supply…… 100 – 240 V ~ 50/60 Hz
- Maximum input power in the operation……..8.1 VA
- Maximum nominal current……..15 A DEF relay – SPDT – 20 A NO (EN 60730-1: 15 (15) A 250 V~)
- NC…… (EN 60730-1: 15 (13) A 250 V~)
- FAN relay – SPST – 16 A …… (EN 60730-1: 12 (9) A 250 V~)
- Relay COOL – SPST – SSR 2 A …….. Vmax: 275 V~, Imax: 2 A
- AUX relay 1 – SPDT – 20 A NO…… (EN 60730-1: 15 (15) A 250 V~)
- NC…… (EN 60730-1: 15 (13) A 250 V~)
- AUX relay 2 – SPDT – 16 A NO…….. (EN 60730-1: 12 (9) A 250 V~)
- NC…….. (EN 60730-1: 10 (8) A 250 V~)
- AUX relay 3 – SPST – 16 A NO…….. (EN 60730-1: 12 (9) A 250 V~)
- No. of relay operations……EN 60730-1:100,000 operations
- Temperature range of probes (NTC/Pt1000)…….-50.0 ºC to 99.9 ºC
- Resolution, adjustment, and differential…… 0.1ºC
- Thermometric accuracy…….. ±1ºC
- Tolerance of the (NTC/Pt1000) probes at 25°C……..±0.4ºC
- Inputs S1 to S4 …….. NTC probe AKO-14901 or probe Pt1000

- Inputs S5…….. NTC probe AKO-14950 / 14950-8 o probe Pt1000
- Working ambient temperature ……-10ºC to 50ºC
- Ambient storage temperature……-30ºC to 60ºC
- Protection degree …… IP 65
- Installation category…… II as per EN 60730-1
- Degree of pollution…….. II as per EN 60730-1
- Grade as per UNE-EN 60730-1: Built-in control device, with Type 1. B automatic action operation feature, for use in clean situations, logical support (software) class A, and continuous operation.
- Degree of pollution 2.
- Double isolation between power supply, secondary circuit, and relay output.
- Accessible parts pressure ball test temperature…….. 75 °C
- Parts positioning active elements…….. 125 ºC
- Radio interference suppression test current……..270 mA
- Voltage and current delayed by the EMC tests:…… 207 V, 17 mA
- Type of mounting……. Fixed interior
- MODBUS address…… indicated on the label
- Dimensions…….. 290mm (W) x 141mm (H) x 84.4mm (D) Internal buzzer

For further information, refer to the user manual available at:
https://help.ako.com/assets/uploads/351652662.pdf

CONTACT

- AKO ELECTROMECÁNICA , S.A.
- Avda. Roquetes, 30-38
- 08812 Sant Pere de Ribes.
- Barcelona Spain
- **www.ako.com**

Updated information is available on our website.

Documents / Resources

	AKO 16526 V2 Advanced Temperature Controller [pdf] Instruction Manual 16526 V2 Advanced Temperature Controller, 16526 V2, Advanced Temperature Controller, Temperature Controller, Controller

References

- User Manual