

**ATTENTION**

Read carefully these instructions before installing and using this device and keep them for future reference. Attention to installation and electrical wiring. Use this device only as described in this document and never use itself as a security device. The device must be disposed of in accordance with local standards for the collection of electrical and electronic equipment.

**DESCRIPTION**

The AG is a milk tank controller, which controls temperatures with an NTC / PTC sensor. It has 3 digits of temperature display with an accuracy of 0.5 °C and 4 keys. It has a 16A 250VAC relay for the compressor and a 5A 250VAC relay for the agitator. It has a buzzer that activates in case of alarm. The device is mounted on a panel front with a 29x71mm hole and is restrained with two plastic side brackets. Through the serial input it can be connected to a network either through Cloud IoT on the CORTEX platform, or through a local computer in the CAMIN program for complete local recording and monitoring of the device.

**INDICATIONS AND BUTTONS FUNCTION**

Display indications	
	Compressor ON
	agitator ON
	alarm ON
	malfunction ON

Keyboard	
	enter/exit the parameter's menu enter a new parameter
	display the parameter's value enter parameter's value manual agitator
	up arrow
	down arrow mute buzzer ON/OFF device (check below)

For more indications regarding the alarms please see the alarm's table at page 3.

**ADJUSTING TEMPERATURE – SET POINT**

1. Press to display the first parameter **SPo**.
2. Press to display its value. With or change **SPo** value.
3. Press to save the new value. The device is working properly with the new adjustment.

**INDUSTRIAL FACTORY SETTINGS**

1. Press to display **SPo**. By pressing the parameter **Cod** is displayed.
2. Press to display its value and press to enter the value **31**. Press to store the value to parameter **Cod**.
3. Press again to exit the parameter menu. 'YES' is displayed on the screen. All appropriate factory settings are now stored in the device.

**ON/OFF DEVICE**

To activate or deactivate the device, press for 3 seconds

**MANUAL AGITATION**

Press for 3 seconds to start the agitator. It remains ON for time equals the parameter "**AGt**", regardless the state of the compressor.

**PROGRAMMING A PARAMETER**

**ATTENTION:** to gain full access to the parameter's menu, the 5<sup>th</sup> parameter **Cod** must be adjusted to **22** (see parameter table next page)

1. Press to enter the parameter menu.
2. Choose the parameter you want to adjust by pressing or and press to display its value.
3. Press or to change its value and then press to store the new value.
4. Press to exit the parameter menu.

**TECHNICAL SPECIFICATIONS**

Model **AG** power supply: 230VAC 50/60Hz / Maximum power consumption: 3W. Model **AGW** switching power supply 100-264VAC 50/60Hz 5W.

It is recommended using a power supply safety fuse: 0.5A (not included)

Room temperature sensor NTC 10K 1% 25°C IP68 with temperature range -37÷+110°C (-34÷+230°F) (or PTC 1K 25°C with temperature range -50÷+110°C (-58÷+230°F) not included) / Accuracy: ±0.5°C

Alarm buzzer / Serial input with 5pin connector

Compressor relay 16A res. 250VAC normally open contact / Agitator relay 5A res. 250VAC which is a SPDT relay / Max current load 16A

Connections: cable cross section 2.5 mm<sup>2</sup> for all relays / cable cross section from 0.25 to 1.0 mm<sup>2</sup> for the sensors

Connections with terminal blocks 18A using cable with cable cross section up to 2.5 mm<sup>2</sup> / It is recommended using a torque wrench with maximum torque 0.4Nm

Operating temperature: -15÷+55°C / Storage temperature: -20÷+80°C

Dimensions 28x70x60mm / The device is mounted on a panel hole 29x71mm and it is restrained with plastic side brackets / Protection IP65 front

Firmware: V3

## SERIAL INPUT

**AG** connects via serial input to the cloud and the online CORTEX platform or to a local computer with the CAMIN program or to the memory key or to the Mini Logger or to any Modbus network.

- Cloud and CORTEX platform: connection to the cloud and the CORTEX platform for monitoring - recording and managing the thermostat from your mobile, tablet or any computer.
- CAMIN program: local connection and monitoring - recording and management of the thermostat through the CAMIN program installed on a local computer.
- Mini Logger recorder: The thermostat can be connected to the recorder and record based on selected minutes on a microSD memory card, its temperatures and the state of the relays and alarms. It is connected via a cable to the serial input and we program the parameter Add = 1.
- Memory key: the parameter values are stored in the memory key or recorded by it in the thermostat.

## AGITATION CYCLE

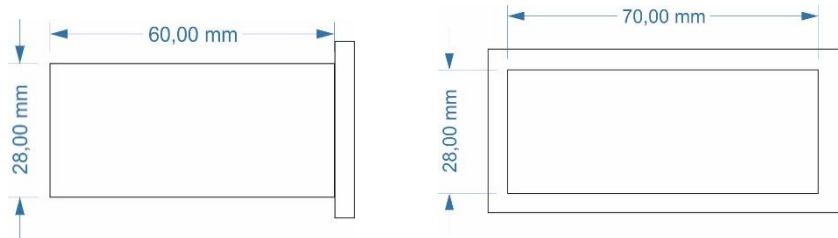
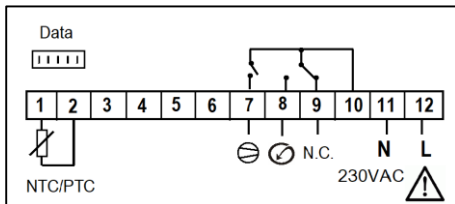
The function of the agitator is set by the parameter "**AGC**" as follows:

- **AGC = 0**, the agitator always operates in parallel with the compressor. The agitation cycle starts with the OFF of the compressor, where the agitator remains ON for a time equal to the parameter "**AGt**" (agitator duration) and OFF for a time equal to the parameter "**iAG**".
- **AGC = 1**, the agitator operates independently of the compressor. The ON - OFF agitation cycle is based on the parameters "**AGt**" (agitator time) and "**iAG**" (agitator stop).

## ELECTRICAL DIAGRAM - DIMENSIONS


**ATTENTION:** according to safety standards, the device must be properly positioned and protected from any contact with electrical parts. The device must be fastened in such a way that it cannot be removed without the use of tools. Disconnect the main safety switch of the installation before proceeding to any maintenance. Disconnect the power supply of the device before proceeding to any maintenance. Do not place the device near heat sources, equipment containing strong magnets, in areas affected by direct sunlight or rain. Prevent electrostatic discharges and sharp objects from been inserted to the device. Separate signal cables from power supply cables to prevent electromagnetic disorders. Signal cables must never be in the same pipe with the power supply cables. **ATTENTION:** Read carefully the technical specifications and make sure that the working conditions are appropriate. According to safety standards, the device must be fastened in such a way that it cannot be removed without the use of tools

Dimensions are in mm. The device is mounted on panel hole with cut 29x71mm and restrained with plastic side brackets



## PARAMETER TABLE

#		description	min	max	AG	M.M
1	<b>SPo</b>	SET POINT: room temperature setting	LSP	HSP	4.0	°C/°F
2	<b>Cod</b>	Enter password code Cod = 22 and press  to enter the other parameters	0	255	0	-
<b>ANALOG INPUTS - TEMPERATURE</b>						
3	<b>diF</b>	Differential of set point SPo (thermostat delay)	0.1	25.0	2.0	°C/°F
4	<b>LSP</b>	Lower setting limit of SPo	-50.0	HSP	-2.0	°C/°F
5	<b>HSP</b>	Maximum setting limit of SPo	LSP	+110	8.0	°C/°F
6	<b>dEC</b>	Temperature indication as integer or decimal, where 0 = integer / 1 = decimal	0	1	1=decimal	-
7	<b>Sen</b>	Sensor type NTC/PTC 0 = PTC / 1 = NTC	0	1	1=NTC	-
8	<b>SE1</b>	Milk tank sensor offset	-9.9	+15.5	0.0	°C/°F
9	<b>C_F</b>	Temperature measurement unit: toggling between °C/°F do not adjust the SPo automatically, it must be changed by the user: 0 = °C / 1 = °F	0	1	0=°C	°C/°F
<b>ALARMS</b>						
10	<b>ALo</b>	lower alarm limit temperature of the milk tank	-50.0	+110	-1.0	°C/°F
11	<b>AHi</b>	higher alarm limit temperature of the milk tank	-50.0	+110	+15.0	°C/°F
12	<b>At2</b>	Time delay in activating "AHi" and "ALo" with parallel buzzer operation This setting does not apply to sensor failure "LF1"	0	99	90	min
<b>COMPRESSOR</b>						
13	<b>CP2</b>	Compressor's minimum time OFF	0	4	3	min
14	<b>CF3</b>	Compressor's operation in case of room's sensor malfunction LF1 and in cooling mode, the compressor operates as follows: 0 = 40% ON compressor (3 minutes ON, 4 minutes OFF) / 1 = ON constantly the compressor.	0	1	0	-
<b>AGITATION</b>						
15	<b>AGC</b>	agitator configuration where : 0 = agitator parallel to the compressor, 1 = independent agitator	0	1	0	-
16	<b>AGt</b>	length of agitation cycle	0	255	3	min
17	<b>iAG</b>	Interval between agitation cycles	1	120	15	min

NETWORK - GENERAL SETTINGS						
18	Add	Device address on network	0	255	1	-
19	trE	Response time of the device on network	5	100	40	msec
20	bAU	Baud rate: 0 = 2400 / 1 = 4800 / 2 = 9600 / 3 = 19200 Enter the new value, exit the parameter menu by pressing  and toggle the power supply of the device	0	3	3	-
21	Pro	Cabinet's program (factory settings) is displayed – no access	-	-	31	-
22	tPE	Unique product number – no access	-	-	227	-
23	SrU	Milk tank service: after the end of the selected time, 'SrU' is displayed and informs that the tank needs service. The thermostat continues to operate normally and its functions are not suspended. -01 = disabled function 0 to 150 weeks = remaining time to activate the 'SrU' milk tank service notification. The countdown starts once a new value is stored. Whenever we enter the parameter, the remaining time until the activation of 'SrU' notification is displayed. To deactivate the notification, insert SrU = -1.	-01	150	-01	weeks
24	UEr	Firmware version - no access	-	-	3.X.X	-

#### ALARM TABLE

1	LF1	temperature sensor malfunction
2	ALo	Low milk tank temperature
3	AHi	High milk tank temperature
4	SrU	room service notification: timer has elapsed and the milk tank needs a service (see parameter 23, SrU)
5	EEr	Error in memory RAM: re-enter the SPo (see ADJUSTING TEMPERATURE – SET POINT page 1)
The alarms are automatically deactivated once the cause of the alarm disappears.		

Made in Greece.



The device is under two year's guarantee. The guarantee is valid only if the manual instructions have been applied. The control and service of the device must be done by an authorized technician. The guarantee covers only the replacement or the service of the device. KIOUR PC implements a Quality Management System according to EN ISO 9001:2015 Standard with registration number 01013192. KIOUR preserves the right to adjust its products without further notice