CHIILER THERMOSTAT
Model FSD3

KIOUR

ATTENTION

Firmware V7.0.0

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.

DECRIPTION

FSD3 is a thermostat for chiller cabinets, suitable for all applications including the ones with anti-explosive standards and has the following specifications: one NTC / PTC temperature sensor which controls the room temperature; 3 indication digits with resolution 0.5°C and 4 buttons; one digital input for controlling the cabinet's door; 3 relays: compressor 30A 250VAC, fan 10A 250VAC, ON/OFF 10A 250VAC; a buzzer in case of an alarm; a serial data port in order to connect either to cloud IoT platform Cortex via a mobile application or to a computer via CAMIN software for full monitoring and data logging of the device (see page 2 – Serial input of the thermostat).

THERMOSTAT'S DIMENSIONS

***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 in panel hole 29x71mm and it is restrained with plastic side brackets.

INDICATIONS AND BUTTONS FUNCTION

Display indications	
❄	compressor ON
dFr	deFrost ON
	fan ON
⚠	alarm ON
	malfunction ON

Keyboard	
↵	enter/exit the parameter's menu confirm new value of a parameter
SET	display the parameter's value manual deFrost
MUTE	down arrow mute buzzer ON/OFF cabinet
T2	up arrow

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

ADJUSTING ROOM'S TEMPERATURE – SET POINT

1. Press ↵ to display the first parameter **SPo**.
2. Press SET to display its value. With T2 or MUTE change its value.
3. Press ↵ to save the new value. The cabinet is working properly with the new adjustment.

INDUSTRIAL FACTORY SETTINGS OF CABINET

1. Choose from the following table the corresponding program of your cabinet.
2. Press ↵ to display the first parameter **SPo**. Press 4 times MUTE and the parameter **Cod** is displayed.
3. Press SET to display its value and press T2 to enter the cabinet's program. Press ↵ to store the cabinet's program to parameter **Cod**.
4. Press ↵ again to exit the parameter menu. All appropriate settings are now stored and the cabinet is working properly.

Cabinet's model	Program
Counters RU	**31**
Saladette / Glass door RU	**32**

⏻ ON / OFF CABINET

1. Press for 3 seconds MUTE to activate or deactivate the cabinet.

MANUAL DEFROST

1. Press for 3 seconds SET to start manual defrost with duration 20 minutes. Manual defrost starts regardless of the room temperature.

PROGRAMMING A PARAMETER

***ATTENTION**: to gain full access to the parameter's menu, the 5th parameter **Cod** must be adjusted to **22** (see parameter table page 4).*

1. Press ↵ to enter the parameter menu.
2. Choose the parameter you want to adjust by pressing MUTE or T2 and press SET to display its value.
3. Press MUTE or T2 to change its value and then press ↵ to store the new value.
   Press SET if you want to cancel the new value and the parameter's name is displayed.
4. Press ↵ to exit the parameter menu.

TECHNICAL SPECIFICATIONS OF THE THERMOSTAT

Power supply: 230VAC 50/60Hz / Maximum power consumption: 3W
It is recommended using a power supply safety fuse: 0.5A (not included)
Room and evaporator temperature sensors NTC 10K 1% 25°C IP68 with rubber tube and temperature range -37÷+110°C (-34÷+230°F) or PTC 1K 25ºC with metal tube and temperature range -50÷+110°C (-58÷+230°F) / Accuracy: ±0.5°C
Alarm buzzer / Serial input with 5pin connector / Digital input door
3 anti-explosive relays: compressor relay 30A res. 250VAC normally open contact / fan relay 10A res. normally open contact / ON/OFF relay 10A res. normally open contact / Max current load 16A.
Connections: cable cross section 2.5 mm² for all relays / cable cross section from 0.25 to 1.0 mm² for the sensors and door switch
Connections with terminal blocks using cable with cable cross section up to 2.5 mm² / It is recommended using a torque wrench with maximum torque 0.4Nm
Operating temperature: -15÷+55°C / Storage temperature: -20÷+80°C
Dimensions: front 79x36mm and depth 79mm / Protection IP 65 front
The device is mounted on panel hole 29x71mm and it is restrained with plastic side brackets.
Firmware: V7.0.0

SERIAL INPUT OF THE THERMOSTAT

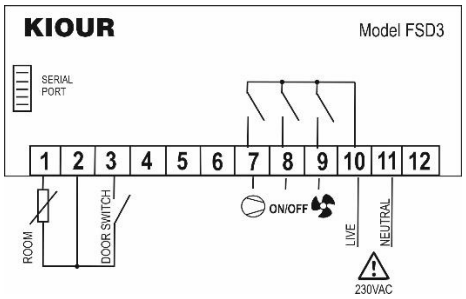
FSD3 can connect through the serial input to the following options:

- Mobile application for android and iOS, Cloud service 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, email and mobile notifications in case of an alarm.
- CAMIN program: local connection and monitoring - recording and management of the thermostat through the CAMIN program installed on a local computer.

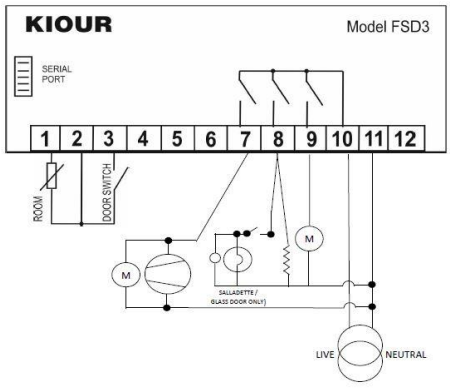
ELECTRICAL DIAGRAMS

***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.*

Thermostat FSD3



Saladette cabinet's and Glass door RU



PARAMETER'S TABLE

No	code	description	min	max	UOM	INDUSTRIAL FACTORY SETTINGS	
						COUNTERS RU	SALADETTE RU
						Program 31	Program 32
1	**SPo**	SET POINT: room temperature setting	LSP	HSP	°C/°F	0.0	3.0
2	**ALo**	Low alarm room threshold	-50.0	AHi	°C/°F	-5.0	-5.0
3	**AHi**	High alarm room threshold	ALo	150	°C/°F	+15.0	+15.0
4	**dr1**	Time between two successive defrost, where 0 = defrost is deactivated.	0	12	hours	4	4
5	**Cod**	**Access code to the following parameters Cod = 22.**	0	255	-	31	32

6	**diF**	Differential of room temperature SPo (thermostat delay)	0.1	25.5	°C/°F	3.0	3.0
7	**dd2**	Defrost duration. Manual defrost lasts 20 minutes.	1	90	minutes	25	25
8	**dP3**	Dripping timer, where the compressor is OFF after defrost	0	10	minutes	0	0
9	**dY4**	*Display indication during defrost* 0 = indication of room's temperature 1 to 99 minutes = indication dFr from 1 to 90 min counting from the beginning of defrost	0	99	minutes	25	25
10	**dE5**	*Defrost end temperature* Defrost end temperature is the room temperature. Automatic defrost does not start if the evaporator temperature is greater than the defrost end temperature dE5. Manual defrost starts regardless of the room temperature and ends after 20 minutes.	0.0	25.5	°C/°F	12.0	12.0
11	**dt6**	(not in use)					
12	**AF1**	(not in use)					
13	**At2**	*Time delay in activating "AHi" and the buzzer. This setting does not apply to "ALo", sensor malfunction and door alarm.* 0 = immediate buzzer activation 1 to 120 minutes = delay in buzzer activation	0	120	minutes	20	20
14	**Fo1**	(not in use)					
15	**Ft2**	*Evaporator's fan operation.* During defrost the fan operates. -1 = continuous function 0 = parallel with the compressor	-1	0	-	-1	-1
16	**tdS**	delay of room temperature on screen	0	20	sec	0	0
17	**Co1**	(not in use)					
18	**CP2**	Compressor's minimum time OFF	0	4	minutes	2	2
19	**CF3**	*Compressor's operation in case of room's sensor malfunction* 0 = 40% ON compressor (3 minutes ON, 4 minutes OFF) 1 = ON compressor constantly	0	1	-	0	0
20	**UFu**	*Serial input operation* 0 = operates with CAMIN network and key memory 1 = connection with an external device for alarm output ATTENTION: when parameter Add is different than zero, the UFu parameter automatically is programmed to zero.	0	1	-	0	0
21	**SE1**	Room sensor offset	-9.9	+15.5	°C/°F	1.0	1.0
22	**SE2**	(not in use)					
23	**oS2**	(not in use)					
24	**LSP**	Lower setting limit of SPo	-50.0	HSP	°C	0.0	3.0
25	**HSP**	Maximum setting limit of SPo	LSP	150	°C	+10.0	+10.0
26	**C_F**	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	°C/°F	0	0
27	**SEn**	*Sensor type NTC/PTC* 0 = PTC 1 = NTC	0	1	-	1	1
28	**trE**	Response time of the device on network	0	100	msec	20	20
29	**Add**	Device address on network	0	255	-	1	1
30	**diP**	(not in use)					
31	**Odo**	*Door switch operation* 0 = OFF 1 = NO (normally open) 2 = NC (normally close) If the cabinet's door remains open for 2 minutes, the alarm *dor* is activated and the compressor stops.	0	2	-	0	0
32	**bAU**	*Baud rate: 0 = 2400 / 1 = 4800 / 2 = 9600 / 3 = 19200* Enter the new value, exit the parameters menu by pressing ↵ and toggle power supply of the device.	0	3	-	3	3
33	**Pro**	cabinet's program is displayed (industrial factory settings) – *the parameter cannot be programmed*	-	-	-	31	32
34	**tPE**	*Product number – not programmable*	-	-	-	33	33
35	**UEr**	*Firmware version - no access*	-	-	-	7.0.X	7.0.X

ALARM TABLE

1	**LF1**	Room sensor malfunction
2	**ALo**	Low room temperature
3	**AHi**	High room temperature
4	**dor**	Open door (If the cabinet's door remains open for 2 minutes, the alarm *dor* is activated and the compressor stops)
5	**EEr**	error in memory RAM: re-enter the SPo of the cabinet (see ADJUSTING ROOM'S 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 preserves the right to adjust its products without further notice. KIOUR PC implements a Quality Management System according to EN ISO 9001:2015 Standard with registration number 01013192.