

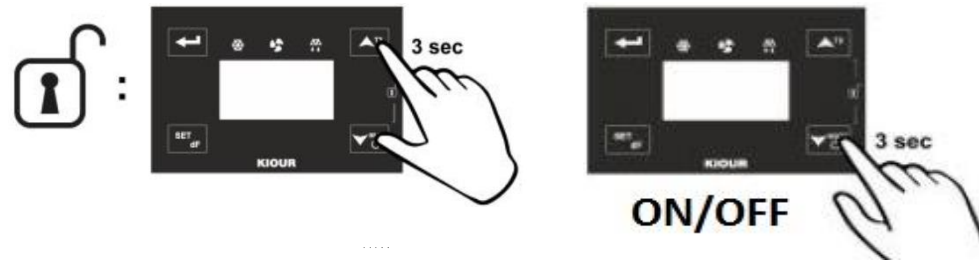


**Description**

RSP is a freezer controller using touch technology for the keyboard. It consists of two parts, RSP (keyboard) and REF-FR-SB (relays). A PTC sensor controls temperatures in range -50+150 °C (-58+302 °F) while a second PTC sensor applies to the evaporator. In scale -50.0+99.9°C there is a decimal analysis with accuracy ±0.1°C. It has five relays (compressor, fan, deFrost, door and level control), deFrost control and buzzer activation due to an alarm.

**Start up**

At the startup of the device, the temperature controller performs a self-check for 7 sec and the room temperature is displayed. Do not touch the screen during self-check. By pressing the two arrows ([▲],[▼]) at the same time for 3 seconds the countdown starts and the temperature controller unlocks (images below). By pressing [▼] for 3sec we turn ON or turn OFF the controller (images below). The keyboard locks automatically after 50sec without activity.



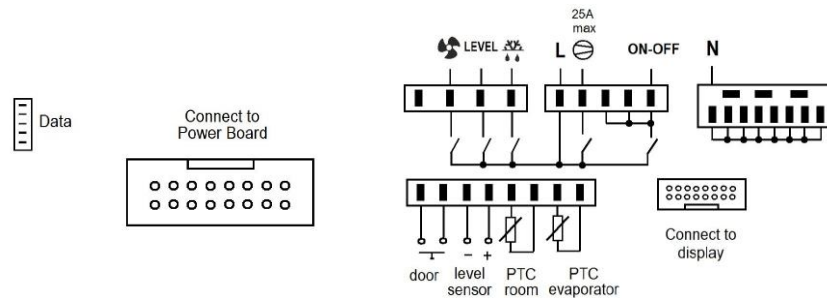
**Functions of the buttons**

button	operation	
	pressed once	pressed more than 3 sec
←	enter parameters menu confirm new value	-
▼ MUTE ⏻	indicate temperature range °C/°F mute buzzer in case of an alarm	ON/OFF controller
▲ T2	-	evaporator's temperature
SET dF	cancel new value	manual deFrost

**Managing the parameters**

By pressing [←] we enter the parameter's menu.  
 The first parameter **SPo** is displayed and with the [▲], [▼] we scroll into the parameters with the order they appear to the parameters table below.  
 By pressing [SET] the value of the parameter is displayed and with the [▲], [▼] we change the value.  
 By pressing [←] we confirm the new value and the name of the parameter is displayed.  
 By pressing [SET] we cancel the new value and the name of the parameter is displayed.  
 By pressing [←] we exit the parameters menu.

**Connections**



**Serial input**

RSP can connect to the key programmer or the data logger Mini Logger or the CAMIN network. From the parameter **Add** we adjust the address of the device.

- Key programmer:** controller's parameter values can be saved or retrieved from the programming key. Connect the programming key to the controller and by pressing [SET] and [▲] the device connects with the key and the message **Eo** is displayed. By pressing [▲] the device reads the parameters from the key and the message **ro = read O.K.** or **rF = read Fail** is displayed. By pressing [▼] the device writes the parameters to the key and the message **Yo = Write O.K.** or **YF = Write Fail** is displayed. In case of failure (rF or YF) reenter the key to the serial input and repeat the procedure from the beginning. The key can connect to all **KIOUR** devices. If you try to read the parameters of a different device, message **rF** is displayed. At any time we can perform the aforesaid operation. After 10 sec the key is disconnected.
- Data logger Mini Logger:** the controller can connect to the data logger and save its temperatures based on selected minutes, its status and alarms to a microSD memory card. It connects to the controller via a cable and the parameter **Add = 1** must be adjusted.
- CAMIN PC network:** the controller can connect to CAMIN network (RS485, modbus protocol) through an interface **NET-IN-1**. CAMIN is an application designed to collect information, watch and fully control a net of devices. The maximum length of the net can be 1000 meters.

**Indications and buttons**

indication	function
☄	compressor
🌀	fan
❄	deFrost
🔒	locked keyboard
🌫	water evaporation resistance is ON
🔧	sensor's alarm

button	function
←	enter
▼ MUTE ⏻	down arrow ON/OFF mute buzzer
▲ T2	up arrow evaporator's temperature
SET dF	Set manual deFrost

**Technical specifications**

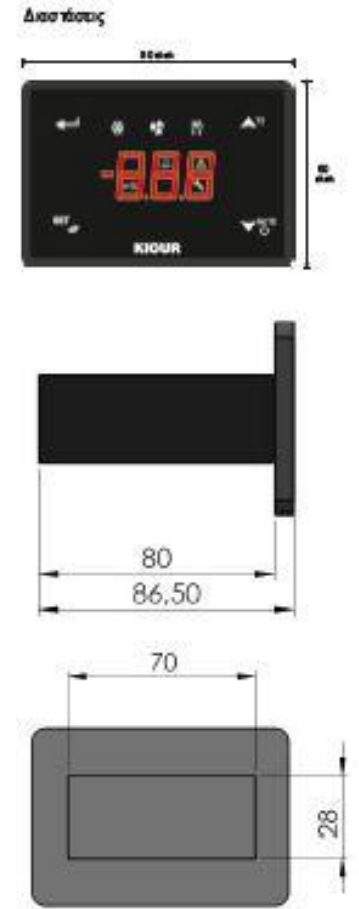
Power supply: 230VAC 50/60Hz  
 Maximum power consumption: 3W  
 Two PTC temperature sensors  
 Digital inputs for the door and the water level  
 Accuracy: 0.1% ± 1 digit  
 Buzzer alarm  
 Serial Input  
 Relay 250VAC 30A resistive load 2HP  
 Relay water level, deFrost, ON/OFF and fan 250VAC 10A  
 Operating temperature: -15+55°C  
 Storage temperature: -20+80°C  
 RSP is mounted through panel hole 29x71mm and REF-FR-SB can be screwed within the freezer  
 Connection with contacts 6.3mm

**Parameter's table**

No		parameter	min	max	def	UOM
1	SPo	SET POINT: temperature control room	ALo	AHi	-18.0	°C/°F
2	ALo	lower alarm limit temperature of the room	-50	AHi	-25.0	°C/°F
3	AHi	higher alarm limit temperature of the room	ALo	+150	0.0	°C/°F
4	dr1	deFrost repetition time every 24h	1	100	6	-
5	Cod	code to enter parameter's menu = "22"	0	255	0	-
6	diF	differential operating temperature of SPo	0.1	25.5	1	°C/°F
7	dd2	deFrost duration where for dd2 = 0 the deFrost is OFF	0	120	20	min
8	dp3	Dripping time, 0 - 15 min and compressor's time pause after the dFrost	0	15	2	min
9	dY4	Display operation at deFrost dY4 = -01, if the temperature of the room is greater than SPo+diF, dFr is displayed dY4 = 0, temperature is displayed continually dY4 = 1-40 min, dFr is displayed from the beginning of the deFrost, until time expires	-01	40	-01	min
10	dE5	Temperature of deFrost: 1 - +70 °C. Sensor's malfunction of the evaporator doesn't make temperature control and deFrost finishes from expire of time.	0.0	100	15	°C/°F
11	dt6	deFrost's working mode where 0 = Electrical: Compressor OFF, Resistance ON and 1 = Hot GAS: Compressor ON, Resistance ON.	0	1	0	-
12	AF1	Alarm's working mode where 0=Auto, 1=Manual. At the auto set up (0) the disappearance of the ALARM stops the buzzer etc. At the manual set up (1), the disappearance of the ALARM does not stop the buzzer and the indication of the ALARM is displayed. In any case by pressing the down button we stop the buzzer and the indication of ALARM but the flashing line of the display of the hundreds indicates that there is still an ALARM. The RESET is valid until the disappearance of the last ALARM.	0	1	0	min
13	At2	At2 = -1, the alarms of the room's temperature do not activate the buzzer At2 = 0, the alarms of the room's temperature activate the buzzer immediately At2 = 1 - 120 min, the alarms of the room's temperature are activated after the time of the parameter's value expires. The ALARMS of the sensor's fault and of the open door are activated immediately.	-01	120	60	min
14	Fo1	Below this evaporator's temperature, the Fan is activated after the deFrost, <b>Normal working of FAN</b> Ft2 = -01, the fan works continually Ft2 = 0, the fan starts and stops at the same time with the compressor Ft2 = 1-15 min, the fan operates at the same time with the compressor and stops after specific time, indicated by the parameter's value.	-50.0	+100	-10	°C/°F
15	Ft2		-01	15	0	min
16	Fd3	<b>Fan working mode at deFrost</b> Fd3 = 0, during the deFrost, the Fan is OFF. It turns ON after the compressor is ON and if the temperature of the evaporator is lower than the parameter's value, Fo1 Fd3 = 1, the fan is ON if the evaporator's temperature is lower than Fo1 Fd3 = 2, the fan is ON in both types of deFrost (ELE - GAS)	0	2	0	sec
17	Co1	Minimum working time of the compressor	0	15	0	min
18	CP2	Minimum stop time of the compressor	0	15	0	min
19	CF3	<b>Working mode of the compressor with a room's sensor malfunction</b> CF3 = -1, the compressor stops working. CF3 = 0, the compressor is always ON. The deFrost works according to time. CF3 = 1-150 min, the compressor works with fixed times, ON and OFF, that are defined from the parameters CF3 and CF4. The deFrost, also, works according to time.	-01	150	3	msec
20	CF4	<b>Working mode of the compressor with a room's sensor malfunction</b> CF4 = 1-150 min. Stop time of the compressor.	1	150	3	min
21	Se1	Zero adjustment of room's sensor	-10.0	15.5	0.0	°C/°F
22	Se2	Zero adjustment of evaporator's sensor	-10.0	15.5	0.0	°C/°F
23	SEr	Out of order				
24	LSP	Lower limit temperature of SET POINT	-50	100	-21.0	°C/°F
25	HSP	Maximum limit temperature of SET POINT	-50	100	-10.0	°C/°F
26	C.F	switch °C/°F (0=°C, 1=°F) ATTENTION: changes between °C/°F do not apply on SPo	0	1	0	°C/°F
27	br	Baud Rate	-	-	-	-
28	trE	time response of the device on the network	1	100	20	msec
29	Add	address of the device in the CAMIN network, for MINI LOGGER enter Add=1	0	255	0	-

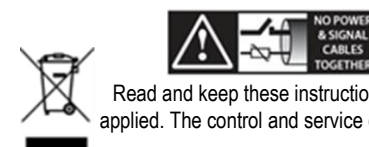
**Alarm's Table**

1	LF1	room's sensor malfunction
2	LF2	evaporator's sensor malfunction
3	ALo	low temperature in the room
4	AHi	high temperature in the room
5	dor	open door



When the door opens, the "dor" alarm is activated automatically after 2 min. If the door remains open for more than 4min, the compressor automatically turns off. When an alarm appears, the buzzer is activated. By pressing [▼] we mute the buzzer, while the alarm continues to be displayed until the malfunction is restored.

ATTENTION to prevent electrostatic discharges at the side slots of the device and sharp objects from been inserted.



ATTENTION: separate the signal's cables from the power supply's cables to prevent electromagnetic disorders Signal cables must never be in the same pipe with the power supply cables.

Read and keep these instructions. The device is under two year's guarantee of good operation. 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.