FREEZER CONTROLLER TOUCH LINE Model RSP & REF-FR-SB

KIOUR

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 room's temperatures in range -50÷+150°C (-58÷+302°F) while a second **PTC** sensor applies to the evaporator. It has **five relays** (compressor, fan, defrost, door and level control). and, it has an OFF mode in which all relays are OFF. It has also defrost control and a buzzer alarm The controller has a serial input and can connect to the **KIOUR CAMIN** modbus network for full monitoring and data logging of the device.

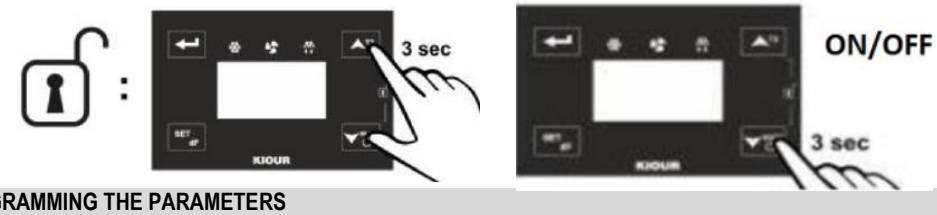
INDICATIONS AND BUTTON OPERATIONS

Indications	
❄	compressor ON
	fan ON
	defrost ON
	water evaporation resistance ON
	locked keyboard
	sensor malfunction

button	Operations		
	pressed once	pressed more than 3 sec	pressed at the same time
↵	enter parameter's menu confirm new value	-	-
▼ ⏻ MUTE	temperature scale indication °C/°F mute buzzer	ON/OFF controller	unlock device
▲ T2	-	indicate evaporator temperature	
SET df	cancel new value	manual defrost	

STARTING UP - ⏻ SWITCHING ON/OFF THE DEVICE

At the startup of the device, the temperature controller performs a self-check for 7sec and the room's temperature is displayed. Do not touch the screen during self-check. By pressing the two buttons ([▲], [▼] 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.



By pressing more than 3sec the button [▼] we **switch ON or OFF**

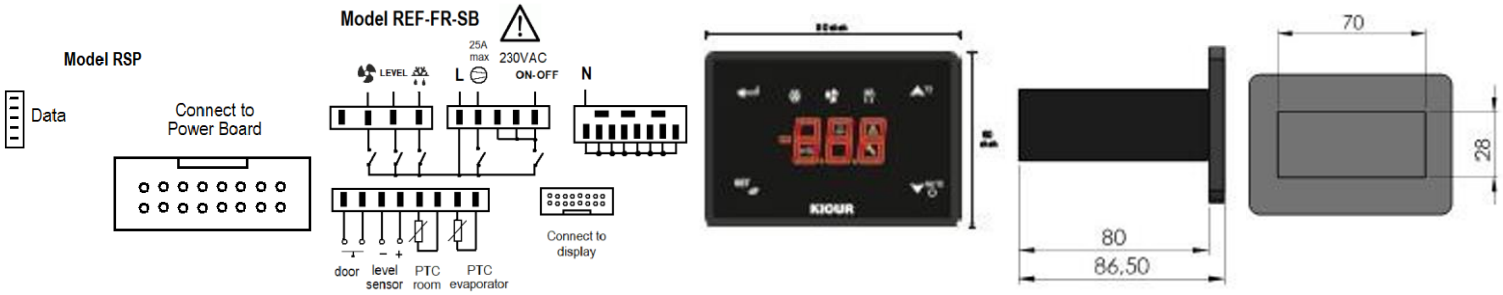
PROGRAMMING THE PARAMETERS

By pressing [↵] we enter the parameter's menu.
The first parameter "**SPO"** is displayed and with [▲], [▼] we scroll into the parameters with the order they appear to 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.

TECHNICAL SPECIFICATIONS

Power supply: 230VAC 50/60Hz / Maximum power consumption: 3W
It is recommended to use a power supply safety switch: fuse 0,5A (not included)
Cabinet's and Evaporator's temperature sensors PTC 1K 25ºC / Accuracy: 0.5°C
Relay compressor 250VAC 30A resistive load 2HP / Relays fan, defrost, ON/OFF and water level 250VAC 10A
Operating temperature: -15÷+70°C / Storage temperature: -20÷+80°C
RSP mounted through panel hole 29x71mm and is restrained with two plastic side brackets / Connection with flat cable 0.5mm
REF-FR-SB can be screwed inside the refrigeration / Connection with terminal tabs 6,3mm

CONNECTIONS - DIMENSIONS



SERIAL INPUT

RSP can connect to the **key programmer** or to the data logger **Mini Logger** or to the **KIOUR CAMIN** network or to any **modbus network**.

- **Key programmer:** controller's parameter values can be saved or retrieved from the programming key. Plug in the programming key to the controller and press at the same time [**SET**]+[▲]. The device connects to the key and the message "**Eo**" is displayed. By pressing [▲] the device downloads the parameters from the key and the message "**ro**" = read O.K. or "**rF**" = read Fail is displayed. By pressing [▼] the device uploads 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 10sec the key is disconnected.
- **Data logger Mini Logger:** the controller is connected to the data logger via cable and by programming the parameter **Add = 1**. Automatically, based on selected minutes, the data logger writes to a microSD memory card the controller's temperatures, status and alarms.
- **CAMIN network:** the controller can connect to the **CAMIN** network via an interface **NET-INS-485**. **CAMIN** is an PC software application designed to collect information, watch and fully control a net of **KIOUR** devices while sending SMS and email in case of an alarm. The maximum length of the net can be 1000 meters.

PARAMETER TABLE

#		description	min	max	RSP	UOM
1	**SPo**	SET POINT: temperature control of the cabinet	LSP	HSP	-18	°C/°F
2	**ALo**	**lower alarm limit** temperature of the cabinet	-50	+150	-25	°C/°F
3	**AHi**	**higher alarm limit** temperature of the cabinet	-50	+150	0	°C/°F
4	**dr1**	deFrost repetition time per hour	1	100	6	h
5	**Cod**	code to enter parameter's menu **Cod = 22**	0	255	0	-
6	**diF**	**differential relay function**	0.1	25	3	°C/°F
7	**dd2**	maximum operating time of defrost, where **0 min =** no deFrost	0	120	20	min
8	**dP3**	**dripping time** and pause time of compressor after deFrost	0	15	2	min
9	**dY4**	**deFrost is displayed,** where: **dY4 = -1**, **dFr** is displayed if the room's temperature is greater than SPo+diF. **dY4 = 0**, room's temperature is displayed continuously **dY4 = 1÷40 min, dFr** is displayed from the beginning of the deFrost until the selected time expires	-01	40	-01	-
10	**dE5**	end temperature of deFrost: after failure of the evaporator's sensor**(LF2)**, there is no control from the end temperature of deFrost and deFrost finishes based on time selected form the **parameter dd2**	0	100	15	°C/°F
11	**dt6**	Type of deFrost operation**: 0 = electrical** (compressor OFF, heater ON). **1 = hot gas** (compressor ON, heater ON)	0	1	0	-
12	**AF1**	**Alarms operation: 0 =** auto, where the disappearance of the cause of the alarm mutes the buzzer, **1 =** manual, where the indication remains after the disappearance of the cause. In each case by pressing **[MUTE]** we mute the buzzer and the flashing of the lower line of the hundred's display indicates that there is still an alarm. The **[MUTE]** of alarms is valid until the disappearance of the last alarm.	0	1	0	-
13	**At2**	**Buzzer operation**, where room's temperature alarms: **-01 =** do not activate it. **0 =** activate it immediately. **1÷120 min =** activate it after the selected minutes. For sensor and door failure alarms, do not force the above setting.	-01	120	60	min
14	**Fo1**	evaporator's temperature**, where below Fo1 the fan is ON during deFrost**	-50	+100	-10	°C/°F
15	**Ft2**	**Fan operation**, where: **-01=** It operates continuously. **0=** starts and stops at the same time with the compressor. **1÷15min=** operates at the same time with the compressor and stops after the selected minutes.	-01	15	0	-
16	**Fd3**	**Fan operation during deFrost**, where: **0 =** does not operate and starts when the compressor starts and if the evaporator's temperature is less than the **Fo1**. **1=** operates if the evaporator's temperature is less than **Fo1.** **2 =** operates constantly in both types of deFrost, (electrical or hot gas)	0	2	0	-
17	**Co1**	**minimum operation** time of compressor	0	15	2	min
18	**CP2**	**minimum OFF** time of compressor	0	15	2	min
19	**CF3**	**Compressor's operation when room's sensor malfunction occurs,** where: **-01=** does not operate**.** **0=**operates continuously and defrost starts to operate according to chosen time. **1÷150min=** operates based on fixed ON and OFF timers which are defined by the parameters **CF3** and **CF4**. The defrost also operates according to time.	-01	150	3	-
20	**CF4**	**Compressor's operation when room's sensor malfunction occurs,** where: **1÷150=** the compressor stops according to chosen minutes.	1	15	3	min
21	**Se1**	**zero adjustment of cabinet sensor**	-10	+15	0	°C/°F
22	**Se2**	**zero adjustment of evaporator sensor**	-10	+15	0	°C/°F
23	**Ser**	(not in use)	-	-	-	-
24	**LSP**	**minimum** temperature limit of SPo	-50	+150	-21	°C/°F
25	**HSP**	**maximum** temperature limit of SPo	-50	+150	-10	°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 (9600 mbps)	-	-	-	-
28	**trE**	time response of the device to the **CAMIN network**	1	100	20	msec
29	**Add**	**address of the device** in the network	0	255	1	-

ALARM TABLE

1	**LF1**	cabinet sensor malfunction
2	**LF2**	evaporator sensor malfunction
3	**ALo**	alarm low temperature in the cabinet
4	**AHi**	alarm high temperature in the cabinet
5	**dor**	open door alarm (if the door is open more than 4min the alarm is activated and the compressor stops)
The alarms are automatically deactivated when the cause of the alarm disappears.		

Made in Greece.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ATTENTION according to safety standards, the device must be properly positioned and protected from any contact with electrical parts. All parts that provide protection must be fastened in such a way that they cannot be removed without the use of tools. **ATTENTION**: disconnect the power supply of the device before proceeding to any kind of maintenance. **ATTENTION**: do not place the device near heat sources, equipment containing strong magnets, in areas affected by direct sunlight or rain. **ATTENTION:** 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. **Use the device only as described in this document, not to 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. 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.

KIOUR preserves the right to adjust its products without further notice.