KIOUR

Description

REF-DF-SM is a compact controller for refrigerator's control with defrost. It controls one PTC sensor with temperature range -19÷+99 °C / -2÷+210 °F. It has 3 relays: compressor, water level control and ON-OFF, one input for level control and one input for open door. Also it has an OFF state, in which all relays are OFF and oF is displayed.

Indications and button

indication	function
❄	compressor ON
❄❄	deFrost ON

button	function
↵	enter
▼ ⏻	down arrow ON/OFF
▲	up arrow
SET dF	set deFrost

Technical Specifications

Power supply: 230 Vac 50/60 Hz
Maximum power consumption: 3 W
Controls one PTC sensor
Accuracy: 1 % ± 1 digit
Relay compressor 250 Vac 30 A resistive load 2 HP
Relay water level and ON/OFF relay 250 Vac 10 A resistive load
Operating temperature: -10÷+60 °C
Storage temperature: -20÷+80 °C
Mounted through panel hole
Connection with terminal blocks or terminals 6.3 mm

Functions of the button

button	function		
	pressed once	**pressed more than 3sec**	**pressed together**
↵	Set Point indication confirm new value	-	-
▼ ⏻	indicate temperature range °C/°F	ON/OFF controller	enter parameters menu
▲	-	-	enter parameters menu
SET dF	cancel new value	start manual the deFrost	

Managing the parameters

By pressing at the same time [**SET**] and [▲], [▼] we access the parameters menu.
The first parameter **SP** is displayed and with the [▲], [▼] 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.

Serial Input

Via serial input, **REF-DF-SM** can be connected to the **memory backup** or to **CAMIN** network:

Memory backup (key): we can save the controller's parameter values to the key or retrieve stored values from the key and paste them to the controller

Connect the key to the device.
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 failed sequence repeat the same process.

The key can be connected to various types of devices. If you try to read the parameters of a different device, message **rF** is displayed.
In all devices and at any time we can perform the write operation. After 10 sec the key is disconnected automatically.

Connect the network to the device: The device can be connected 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.

Parameters description

	parameter	min	max	def	UOM
SP	SET POINT: temperature control room	SL	SH	0	°C/°F
SL	lower limit temperature	-18	+80	-2	°C/°F
SH	maximum limit temperature	0	99	8	°C/°F
di	differential working temperature of compressor	1	50	3	°C/°F
Cr	minimum OFF time of compressor	0	4	0	min
Cf	in case of sensor's fault, the compressor operates as follows: 0 = 40% operation of the compressr (3min ON, 4min OFF) 1 = 100% operation of the compressor (ON continuously)	0	1	0	-
dF	number of deFrost circles every 24h, with "0" = no deFrost and for example with "6" -> 24h / 6 = 4h, which means every 4h the deFrost starts	0	12	4	-
dt	maximum duration of deFrost	1	90	18	min
dL	temperature limit of deFrost: above this temperature the automatic deFrost stops and it is not possible to start the procedure again manually. Manual deFrost lasts 20 min and does not stop according to "dL" temperature limit.	1	70	10	°C/°F
do	type of deFrost: compressor OFF (not programmable)	-	-	-	-
dr	dripping time. After the defrost, the compressor remains OFF according to dripping time	0	10	0	min
td	during deFrost the indication dF is displayed, with "0" = the room's temperature is displayed during deFrost	0	99	20	min
AJ	zero adjustment of the sensor	-9	+10	0	°C/°F
ts	refresh delay of temperature indication at display	0	20	0	sec
FC	switch °C/°F (0=°C, 1=°F) **ATTENTION:** changes between °C/°F do not affect the SP	0	1	0	°C/°F
Br	baud rate (9600mbps)	-	-	-	-
tr	time response: the respond time of the device to the network	5	100	20	msec
FF	operation mode of relay ON-OFF ("1" = ON continuously, "0" = ON when compressor is ON)	0	1	1	-
Ad	address of device at the network operation	0	250	2	-
	alarm				
F1	sensor's malfunction (when the malfunction is fixed, the alarm disappears)				

Connection Diagrams - Dimensions
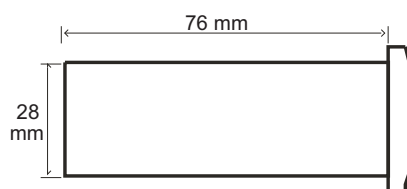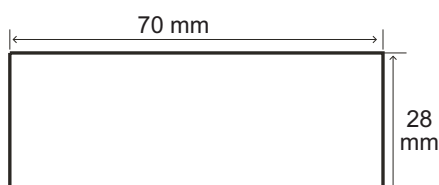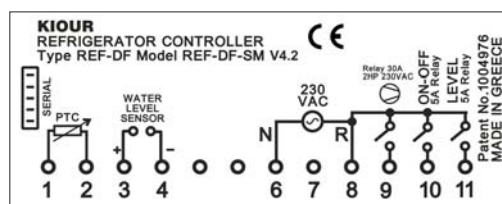
ATTENTION to prevent electrostatic discharges at the side slots of the device and sharp objects from been inserted

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.

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