

REFRIGERATION SYSTEM CONTROLLER FP-MC-R23BT

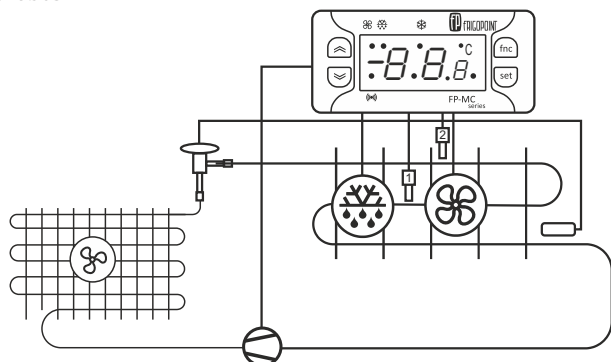
Operation instruction

SAFETY INSTRUCTION

- Carefully read the following instruction. Ignoring this instruction may lead to failure of controller and to personnel injuries.
- Operation of controller should be done by qualified personnel which has all the necessary knowledge and skills.
- Please follow the sequence of connections, power polarity and safety rules.
- Follow instruction for connection and controller configuration. Ignoring instruction for connection and controller configuration may lead to it's failure.
- Follow requirements for temperature and humidity of working environment.

GENERAL DATA

Refrigeration compressor controller designed for management of compressor, evaporator's fan and defrost using 2 analog probes.



TECHNICAL DATA

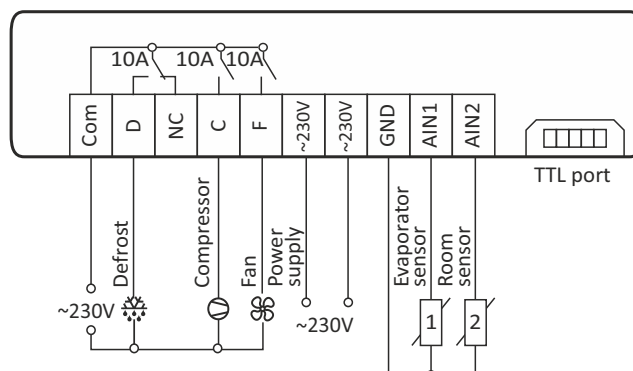
Power supply	~230V ±10%; 50/60 Hz
Power consumption	max. 2VA
Dimensions	Mounting 71x29 mm Panel 77x35.5 mm Full 77x35.5x64.5 mm
Protection class	IP65 front panel, IP 20 case
Temperature sensor	FP-TSN; range-50..110 °C FP-TSP; range-55..140 °C
Relay out	Inductive loads (AC15) 250V/4A Resistive load (AC1) 250B/10A
Connections	Screw terminals 2.5 mm ² step 5 mm

INASTALLATION

Controller is installed into panel with a notch 71x29mm. Fixation of controller is made with a help of clamps supplied together with controller.

ELLECTRICAL CONNECTIONS

Connections are made according to the layout shown further in this instruction as well as on controller. In order to avoid effect of electromagnetic field of power signals on analog signals coming from probes make sure that minimum distance between power and probe wires is 30 mm. Analog inputs of controller are made for connecting probes of appropriate types only.



INSTALLATION OF PROBES

AIN1(1) – evaporator temperature probe – place between blades, closer to upper point of evaporator.

AIN2 (1) – coldroom temperature probe – place at the center of evaporator.

INTERFACE












To access menu push “set”. If there is no “alarm” you would see “set” on display. To move between folders of menu or to change parameters push “up” and “down”, to exit folder push “fnc”. Menu consists of the following folders:

Pb1 – indication of probe 1, Pb2 – indication of probe 2

Set – setting working point, Al – current alarms

PROGRAMMING

To access programming menu push and hold “set” for 5 seconds, you would see CP on display. If you use password for entering programming menu which can be set in PA1 part of menu, please enter it. To move between folders of menu or to change parameters push “up” and “down”, to exit folder push “fnc”, to enter folder or to change parameters push “set”. For manual defrost push and hold “up” for 5 seconds. If conditions of defrost finish performed (for example temperature of evaporator probe not higher then temperature set for.

	Compressor on		Fan on
	Switch on delay., protect, block.		Fan off
	Compressor off.		Alarm
	Defrost on		Buzzer off
	Manual defrost		No alarm
	Defrost off		

COPY CARD

Copying parameters is available with a help of copy card. To activate function of copy card push “set” on appropriate function, if function is activated “y” will appear on display, if deactivated “n” will appear on display. To upload parameters card should be put into switched off controller, after controller should be switched on. If parameters uploaded successfully “dLy” will appear on display, if not “DLn” will appear on display.

ALARMS

E1 – failure of probe 1

E2 – failure of probe 2

AH1 – Maximum temperature alarm

AL1 – Minimum temperature alarm

To switch off sound alarm push any button.

Name	Description	Unit	Factory	Min	Max
REGULATION					
dF	Differential of regulation	°C/°F	2.0	0.1	30.0
HSE	Maximum volume of setpoint	°C/°F	99.0	LSE	302
LSE	Minimum volume of setpoint	°C/°F	-50.0	-55.0	HSE
OnT	Duration of work of compressor when probe alarm is on. OnT=0 Compressor constant on	min	0	0	250
OffT	Duration of compressor stop when probe alarm is on. OffT=0 Compressor constant off	min	1	0	250
dOn	First switch on delay	S	0	0	250
dOff	After switch off delay	min	0	0	250
dbi	Minimum time of stops	min	0	0	250
OdD	Activation of exits delay	min	0	0	250
DEFROST					
dEY	Defrost mode 0 - ED, 1 - reverse cycle, 2 - natural		0	0	2
dIt	Interval of defrost	hours	6	0	250
dCIt	Interval of defrost calculation 0 - compressor operating time, 1 - real time, 2 - compressor stop		1	0	2
dOH	First defrost shift	min	0	0	59
dEt	Duration of defrost	min	30	1	250
dSE	Temperature of defrost finish	°C/°F	8.0	-50.0	150.0
dPO	Defrost enquiry when switching on		n	0=n	1=y
FAN					
FSL	Switch off temperature	°C/°F	2.0	-50.0	-50.0
FAd	Switch off differential	°C/°F	2.0	10	50.0
FdL	Fan delay period	min	0	0	250
dL	Fan delay period	min	0	0	250
dFd	Fan working mode in time of defrost 0 - off, 1 - on		y	0=n	1=y
FCD	Combined work with compressor 0 - no, 1 - combined work with compressor, 2 - filling coefficient/cycle		y	0=n	2=dc
ALARM					
AFd	Alarm differential	°C/°F	2.0	10	50.0
HAL	Maximum volume of temperature	°C/°F	50.0	LAL	150.0
LAL	Minimum volume of temperature	°C/°F	-50.0	-50.0	HAL
PAO	Delay period of fixing alarm after power is on	hours	0	0	10
dAO	Delay period of fixing alarm after defrost	min	0	0	999
EAO	Automatic signal delay	min	0	0	250
INTERFACE					
LOC	Keyboard blocked 0 - no, 1 - blocked (only «set» active)		n	0=n	1=y
PAI	First level password		0	0	250
ndL	Decimal point availability		y	0=n	1=y
CA1	Calibration of probe 1	°C/°F	0	-120	120
CA2	Calibration of probe 2	°C/°F	0	-120	120
dDL	Indication during defrost 0 - coldroom temp, 1 - temp before defrost, 2 - Def		1	0	2
d-ro	Units of temperature measurements		0	0=°C	1=°F
CONFIGURE					
HOO	Type of temperature probes		1	0=PTC	1=NTC
H+2	Evaporator probe presence		1	0=n	1=y
rEL	Controller version				
EA6	Reserved (read only)				
COPY CARD					
UL	Unloading on card		/		
dL	Loading on card		/		
Fr	Default settings		/		