

ATTENTION

Firmware V4

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.

**DESCRIPTION**

FBSM is a heating controller for heating rooms (bain-marie). It has 2 relays: one heater **relay (30A)** and one **relay (10A)** to control room's lamp or fan. The sensor can be either **NTC** scale $-50\pm+112^{\circ}\text{C}$ ($-58\pm+230^{\circ}\text{F}$) or **PTC** scale $-50\pm+150^{\circ}\text{C}$ ($-58\pm+302^{\circ}\text{F}$) by adjusting a parameter.

INDICATIONS AND BUTTON OPERATIONS OUTSIDE THE PARAMETER'S MENU

Indications	
	heater ON
	fan ON
	alarm ON
	malfunction ON

button	Operations outside the parameter menu	
	pressed once	pressed more than 3 sec
	enter parameter's menu	-
	temperature scale °C/°F	device ON/OFF
	-	-
SET	-	-

PROGRAMMING THE PARAMETERS

By pressing [] we **enter or exit** the parameter's menu.

The first parameter "SPo" is displayed and with the [], [] we scroll into the parameters based on the parameter's table below.

By pressing [**SET**] the value of the parameter is displayed and with the [], [] we adjust 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, the old one is kept and the name of the parameter is displayed

SWITCHING ON/OFF THE DEVICE

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

TECHNICAL SPECIFICATIONS

Power supply: 24VAC/DC 50/60Hz / Maximum power consumption: 3W

It is recommended using a power supply safety fuse 0.5A (not included)

Cabinet's temperature sensor NTC 10K 1% 25°C IP68 with temperature range $-50\pm+112^{\circ}\text{C}$ ($-58\pm+230^{\circ}\text{F}$) (or PTC 1K 25°C with temperature range $-50\pm+150^{\circ}\text{C}$ ($-58\pm+302^{\circ}\text{F}$) not included) / Accuracy: $\pm 0.5^{\circ}\text{C}$

Heater relay 250VAC 30A resistive load

Relay for the cabinet lamp or fan ON/OFF 250VAC 10A

Connections: cable cross section 2.5 mm² for all relays / cable cross section from 0.25 to 1.0 mm² for the sensor

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

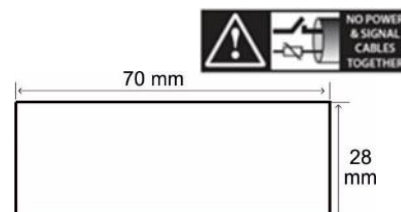
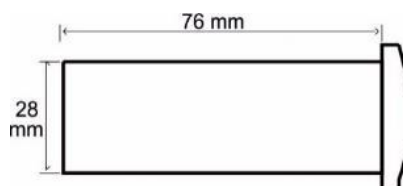
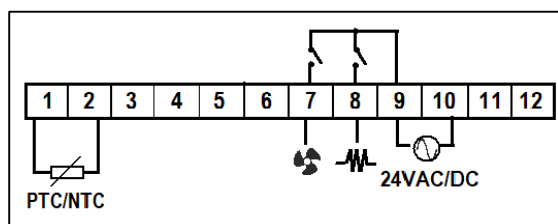
Operating temperature: $-15\pm+70^{\circ}\text{C}$ / Storage temperature: $-20\pm+80^{\circ}\text{C}$

The device is mounted through panel hole 29x71mm and is restrained with two plastic side brackets

Connection with terminal blocks 18A

CONNECTIONS - DIMENSIONS

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.



PARAMETER TABLE

#	code	Description	Max. Min	Default Settings	
				Program 31	Program 32
1	SPo	SET POINT: temperature control of the cabinet	SLo. . . SHi	75	70
2	Cod	code to enter parameter's menu Cod = 22. reset to Programs 31 till 32 we choose Cod = 31 till 32(desired program) and exit from parameter's menu	0. . .255	22	22
3	SLo	minimum temperature limit of SPo	-50.0. . .+110	25	25
4	SHi	maximum temperature limit of SPo	-50.0. . .+110	90	72
5	diF	differential relay function	0.1. . . 25.0	5	3
6	AJ1	zero adjustment of temperature sensor	-9.0. . .+10.0	0	3
7	LAo	fan/lamp relay operation, where: Lao=0 relay is activated and the fan indication is ON and Lao=1 relay is deactivated and the fan indication is OFF	0 . . .1	1=  OFF	0=  ON
8	dEC	temperature indication as integer or decimal , where dEC=0 integer , dEC=1 decimal	0 . . .1	0	0
9	Sen	NTC/PTC sensor selection for Sen = 0 PTC and Sen = 1 NTC	0 . . .1	0	0
10	C_F	switch °C/°F (0=°C, 1=°F) ATTENTION: changes between °C/°F do not apply on SP	0 . . .1	0	0

ALARM TABLE

1	LF1	cabinet sensor malfunction
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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.