HEATING CONTROLLER Model FBSM_V3 — KIOUR

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÷+112°C (-58÷+230°F) or **PTC** scale -50÷+150°C (-58÷+302°F) by adjusting a parameter.

INDICATIONS AND BUTTON OPERATIONS OUTSIDE THE PARAMETER'S MENU

Indications	
-W-	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: 24VACDC 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÷+112°C (-58÷+230°F) (or PTC 1K 25°C with temperature range -50÷+150°C (-58÷+302°F) not included) / Accuracy: ±0.5°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
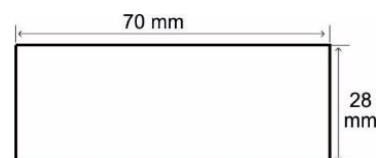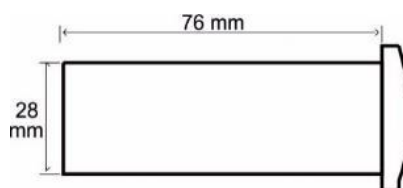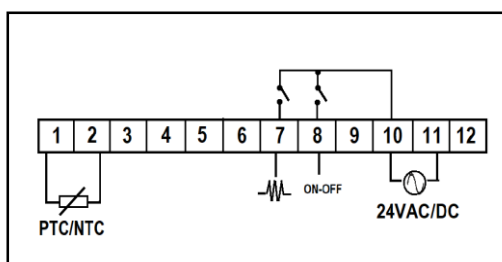
Connections with terminal blocks using cable with cable cross section up to 2.5 mm² / It is recommended using a torque wrench with maximum torque 0.4Nm

Operating temperature: -15÷+70°C / Storage temperature: -20÷+80°C

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

Connection with terminal blocks 18A

CONNECTIONS - DIMENSIONS

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. . .SHi	25	25
4	SHi	**maximum** temperature limit of SPo	SLo. . . +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	ON or OFF fan indicator on the display, where: **Lao=0** the fan indication is activated και **Lao=1** the fan indication is deactivated	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 |

Made in Greece.

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.