BS-840 — PROGRAMMABLE THERMOSTAT FOR FIREPLACES

TECHNICAL CHARACTERISTICS

OPERATION VOLTAGE	220-240V AC/45-55Hz
CONSUMPTION(without the blower)	3VA / 2,5W max.
BLOWER OUTPUT RATING	200W max (0,85A)
BLOWER OUTPUT PROTECTION	Internal replaceable fuse
SENSOR RATING	Up to 250°C for the sensor head, up to 200°C for the cable
SENSOR MEASUREMENT RANGE	-40°C to 250 °C
BLOWER POWER ADJUSTMENT	20% - 90%
CONTROL BUTTONS	MENU, +, -, ON/OFF
INDICATORS	MANUAL, SEMIAUTOMATIC, AUTOMATIC, BLOWER
ILLUMINATION	Blue colored peripheral illumination
SETTING TYPES	2 Types. User and Installer
SENSOR LENGTH	250 cm
SENSOR CONSTRUCTION MATERIAL	Stainless steel head, silicon cable
DEGREES OF COVER PROTECTION	IP 20
PRODUCED IN ACCORDANCE WITH	EN 61000-6-1, EN 61000-6-3, EN 60730-1, EN 60730-2-9
OPERATION TEMPERATURE RANGE	-10 to 60 °C
RELATIVE HUMIDITY	0 - 90% RH
EXTERNAL DIMENSIONS	120 x 85 x 28 mm
TYPICAL WEIGHT (Main unit / + sensor)	230gr / 300gr
GUARANTEE	2 years
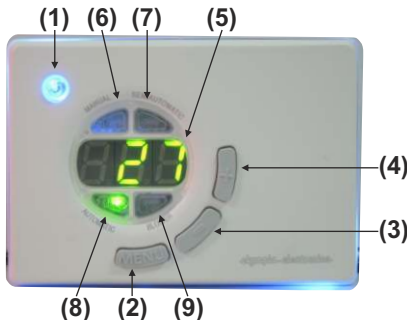
DESCRIPTIONS OF CONTROL BUTTONS-INDICATORS

(1). ON-OFF button
(2). Settings selection button
(3). Decrease button
(4). Increase button
(5). LED screen
(6). Manual operation indicator
(7). Semiautomatic operation indicator
(8). Automatic operation indicator
(9). Blower operation indicator

OPERATION

STANDBY MODE
When the product is connected for the first time to the mains power supply it goes into standby mode. In the opposite condition press the **ON/OFF** button. The display shows 3 dashes and all the indicators are OFF. In this mode, the device is practicaly not operational.

NORMAL OPERATION
By pressing the **ON/OFF (1)** button, the devices enters normal operation mode. The display shows the current temperature of the hot air and the indicators show the operation mode of the blower.

OPERATION MODE SELECTION
By pressing the **MENU (2)** button we can select the operation mode between MANUAL, SEMIAUTOMATIC and AUTOMATIC. The operation mode is shown from the respective indicators **(6), (7), (8)**.

MANUAL OPERATION (MAN)
In this mode of operation the only setting that can be adjusted is the blower speed. With the keys ``**+**`` **(4)** and ``**-**`` **(3)** we can select the desired speed which is steady and independent of the temperature.

SEMIAUTOMATIC OPERATION (SEMI)
It is basically the same operation as the manual operation mode with the only difference that the blower operates only when the temperature of the hot air is higher than the activation temperature ⊢ℇ⊆ .

AUTOMATIC OPERATION (AUTO)
In this mode of operation, the speed of the blower is automatically adjust depending on the temperature of the hot air. The speed is minimum when the hot air temperature exceeds the

activation temperature tES , and gradually increase until is reaches it's maximum value. **The buttons ``+`` and ``-`` do not operate**.

If no button is not pressed for 3" during the setting mode, the device will automatically show the initial screen with the temperature of the hot air while simultaneously storing the settings. The buttons``+`` and ``-`` , have a repetition function.

KEYBOARD LOCK
If it is required that the keyboard is locked so as to prevent unathorized usage (eg. From small children) it can be locked if the **MENU** button is pressed unitl the message Loc is shown (about 5"). After this, every press of a button shows this message and the device does not accept any commands. This lock function does not affect the **ON/OFF** button which operates normaly. The keyboard can be unlocked by pressing the **MENU** button until the message ULc is shown on the display.

INSTALLER SETTINGS (*)
These settings do not refer to the user and must be done by qualified personel. <u>The device must be in standby mode (page 1).</u> To enter this seeting mode press the **ON/OFF** button for >5 seconds or more while the device is in standby mode. The display shows Pro (programing mode) and the device is ready to accept new settings.

FACTORY SETTINGS
Operation mode .... : Automatic
Blower speed MAN-SEMI .... : 50%
Blower activation temp. SEMI-AUTO .... : 45°C
Minimum blower activation temp. .... : 35°C
Maximum blower activation temp. .... : 80°C
Blower speed influencing temp. .... : 50°C
Buzzer activation temp............................ : 120°C
Minimum blower speed............................ : 20%
Maximum blower speed........................... : 99%
Overheating temperature......................... : 140°C
Blower activation temp. hysteresis .... : 2°C
Peripheral lighting .... : 3 (active)
To reset to factory default setting see paragraph 9 (page 3).

1. ADJUSTING THE BLOWER ACTIVATION TEMPERATURE in programing mode (*)
With the first press of the **MENU** button, the display shows the message tES (temperature Start) for 2 seconds and after that the temperature that the blower is activated can be adjusted. When the hot air temperature exceeds this temperature then the blower is activated. This is used for manual and semiautomatic operation. The value can be adjusted between 35°C and 80°C.

2. ADJUSTING THE BLOWER SPEED INFLUENCING TEMPERATURE in programing mode (*)
With the second press of the **MENU** button the display shows the message toF (temperature of fan) for 2 seconds and after that the blinking current value. This value only influences the automoatic operation mode and can be adjusted between 20°C and 80°C by using the buttons ``+`` και ``-``. This temperature regards the influence of the temperature to the speed of the blower. If you have selected the blower activation temperature of 45°C and toF 50°C, then the blower will be activated with a minimum speed at 45°C and will gradually increase to maximum speed at 95°C.

3. ADJUSTING THE BUZZER ACTIVATION TEMPERATURE in programing mode (*)
With a third press of the **MENU** button the display shows the message AbL (Acoustic buzzer Limit) for 2 seconds and after that the blinking current value. The value refers to the temperature above which the buzzer is activated. It can be adjusted between 80°C and 180°C, **a value of 79 disables the buzzer.** If the buzzer is sounding and a button is pressed then the buzzer stops. After 5 minutes the temperature is checked and if it is still above the set value the buzzer will re-sound. If not then the buzzer will not sound.

4. ADJUSTING THE MINIMUM BLOWER SPEED LIMIT in programing mode (*)
With a fourth press of the **MENU** button the display shows the message FLL (Fan Low Limit) for 2 seconds and after that, the blinking current value. This value refers to the lower speed limit of the blower during the manual and semiautomatic operation. This value can be adjusted between 20% and 50% by using the buttons ``+`` and ``-``.

5. ADJUSTING THE MAXIMUM BLOWER SPEED LIMIT in programing mode (*)
With a fifth press of the **MENU** button the display shows the message FHL (Fan High Limit) for 2 seconds and after that the blinking current value. This value refers to the upper speed limit of the blower during the manual and semiautomatic operation. This value can be adjusted between 50% and 99% by using the buttons ``+`` and ``-``.

6. ADJUSTING THE OVERHEAT LIMIT in programing mode (*)
With a sixth press of the **MENU** button the display shows the message tHA (temperature High Alarm) for 2 seconds and after that the blinking current value. The value refers to the overheating level of the fireplace and can be adjusted between 100°C and 200°C using the buttons ``+`` and ``-``. When the temperature of the hot air exceeds this limit, the buzzer sounds

and the blower is activated with a maximum speed. The display shows the message *bUr* (burn) until the temperature is decreased to an acceptable level where the device returns to the previous operation mode. If a button is pressed, the buzzer is deactivated for 5 minutes. The buzzer will be reactivated if after 5 minutes the temperature is still above the alarm limits. This procudure will be continued unitl the temperature levels are normal.

7. ADJUSTING THE HYSTERESIS TEMPERATURE in programing mode (*)

With a seventh press of the **MENU** button, the display shows the message *YSt* (Hysteresis) for 2 seconds and after that the blinking current value. This level refers to the temperature where the blower is deactivated in regards to the activation temperature. If the activation temperature is set to $45°C$ and the hysteresis temperatures is set to $5°C$, then the blower will be activated at $45°C$ and will be deactivated when the hot air temperature drops to $40°C$. This value can be adjusted between $1°C$ and $30°C$ by using the buttons ``**+**`` και ``**-**``.

8. ENABLE / DISABLE THE PERIPHERAL ILLUMINATION in programing mode (*)

With an eighth press of the **MENU** button, the display shows the message *LEd* for 2 seconds and after that the blinking current value. There are only 2 settings which refer to the operation of the peripheral blue illumination. By using the buttons ``**+**`` και ``**-**`` we can select either the value **2**, where the illumination is deactivated or the value **3** where the peripheral illumination is activated. The peripheral illumination can be active only during normal operation and not during standby mode.

9. RESETTING TO FACTORY DEFAULT SETTINGS in programing mode (*)

With a ninth press of the **MENU** button, the display shows the message *FAc* (Factory). If one of the buttons ``**+**`` or ``**-**`` is pressed then all the settings are restored to factory defaults.

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*Every new press of the **MENU** button, from this point on repeats the setting cycle. In order to complete and store the settings press the **ON/OFF** button and the device will enter normal operation mode.*
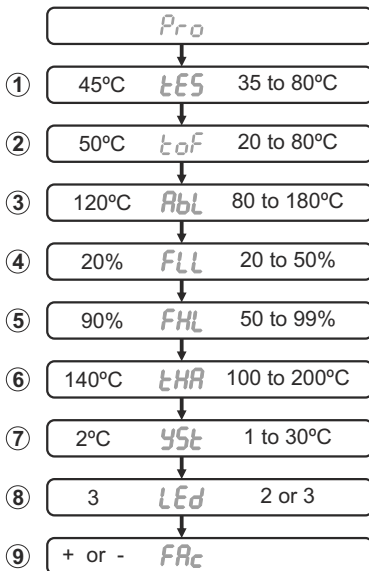
SENSOR ERROR

If for any reason the temperature sensor has a short circuit the the display shows *ErL* (Error Low) the buzzer is sounded and the blower is deactivated. This state is active for as long as the problem exists. If the temperature sensor has an open circuit then the display shows *ErH* (Error High). If the device is set to

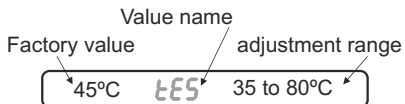standby mode with the **ON/OFF** button, the buzzer is deactivated.

INSTALLATION

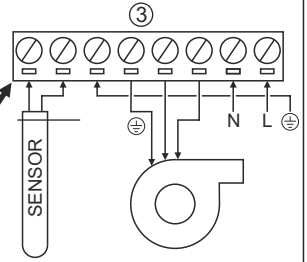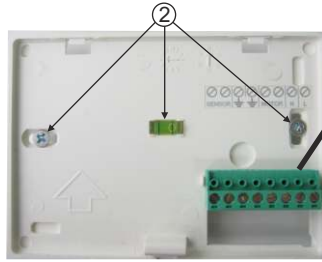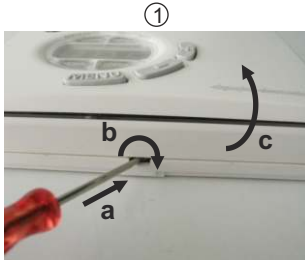To install the device follow the installation instructions described on page 4.

Quick programing guide

	Factory value	Value name	adjustment range
①	45ºC	tES	35 to 80ºC
②	50ºC	toF	20 to 80ºC
③	120ºC	AbL	80 to 180ºC
④	20%	FLL	20 to 50%
⑤	90%	FHL	50 to 99%
⑥	140ºC	tHA	100 to 200ºC
⑦	2ºC	YSt	1 to 30ºC
⑧	3	LEd	2 or 3
⑨	+ or -	FAc	

Value explanation

Value name

Factory value — adjustment range

45ºC   tES   35 to 80ºC

Installation instructions

SENSOR

N L

(The procedure bellow is done when the mains is interrupted)

① To install the device insert a flat blade screwdriver
   (with a width equal to the opening). Press **(a)** and rotate
   clockwise **(b)** in order to unclip the plastic retainer from the
   plastic cover and lift the top section **(c)**.

② Use the supplied screws and plugs to mount the device
   to the desired location. Align the base cover using the built in
   alignment vial and tighten the screws.

③ Make the electrical connections as shown in the diagram.
   Connect the neutral cable to the **N** terminal, connect the phase
   terminal to the **L** terminal and connect the ground cable to the
   POWER EARTH terminal

   *WARNING!!! Every metallic part of the fireplace should
   be connected to the ground terminal.*

   The sensor is connected to the SENSOR terminals and can be
   installed by using the included screw. The BLOWER cables
   are connected to the MOTOR terminals.

④ After all the connections are finished, replace the plastic
   cover with care so that the two parts are locked. The device
   is now ready to be activated.

REPLACING THE FUSE

If the blower is not operating then the most usual cause is a
faulty fuse. To replace the fuse, the top cover must be removed
according to step 1 of the installation instructions. Use a plier to
remove the faulty fuse (as show in the photo) and replace it
with a new fuse of the same type and rating. Refit the top cover
according to step 4 of the installation instructions.
**The whole procedure must be carried out after the
interruption of the mains power supply.**

Dimensions in mm

85

120

28
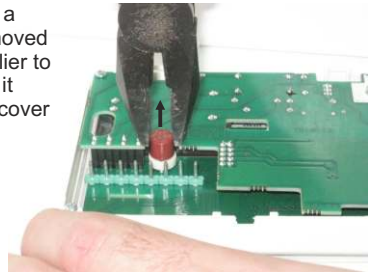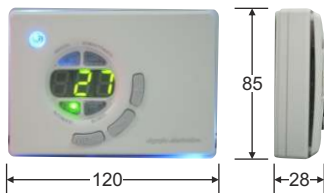
WARRANTY

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