“MUSA Plus”
Electronic control for towel radiators

EN

MUSA Plus is a digital chrono-thermostat for the automatic control of electric towel radiators.
By means of an external sensor is capable of keeping the room temperature at a desired value.
MUSA Plus has a simple yet modern design, suitable for every
type of furnishing and every model
of electric towel radiator.
MUSA Plus is easy to install and
it is available in several colors.
MUSA Plus is a certified product.

Available colours: -White
-chrome

CE

MUSA Plus is compliant wi th the following standars:

-Eco-design Directive for Energy-using Products, 2005/32/EC (<0,5W).
EN 62233:2008
EN 55014-1:2006 + A1:2009 + A2:2011
EN 55014-2:1997 + A1:2001 + IS1:2007 + A2:2008 ===> Cat. 2
EN 61000-3-2:2014
EN 61000-3-3:201

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Introduction

•Seven operational modes: Comfort, Night, Antifreeze, Fil-Pilote, Chrono, Timer-2h, Stand-by.

- "Comfort" mode: The thermostat keeps the room temperature at the value set by the user.
- "Night" mode: The electronic control keeps the room temperature to a level below the configured “Comfort” value.
- "Antifreeze' mode: The electronic control keeps the room temperature above 7°C.
- "Fil-Pilote" mode: The operations of device are controlled through the signal received from the "Fil-Pilote" system.
- "Timer-2h" mode: The electronic control powers the heating element for a period of 2 hours independently of the configured temperature. At the end of the 2 hours time period, the device returns to previous operational mode. For safety reasons, during the 2 hours time period the room temperature is automatically controlled in order not to exceed 32°C.
- "Chrono" mode: The electronic control operates according to a daily/weekly program. The program is user defined.
-In "Stand-by": The electric resistance is not powered and all lights are turned off, however the device is still operative.

Further features:

•Large backlit display showing the configured temperature, time, program and current operational mode.

•The operational mode and all related functions can also be set through the IR remote control (optional).

•The user according to his needs can configure the daily/weekly program.

•The **“Open Window Detection”** function enables detecting of an open window by sensing a sudden decrease of the temperature in the room. In such a case, the device deactivates the heating element for a maximum of 30 minutes or until an increase of the room temperature reveals that the window has been closed.

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Technical Specifications	
Produc t	Digital electronic control for towel radiators
Application	Towel radiators
Version	Class I Class II
IP Level	IP44
Fil-Pilote	Only available for Class II
Room temperature setting	Digital through buttons
Display	Temperature, date/time, mode/functions, indication of heating activity, key lock, white backlighting
Funtion	Comfort, Night, Antifreeze, St and-by, Fil-Pilote, Timer-2h, Chrono-thermostat, Open Window Detection.
Selectable temperature range	7°C ÷ 32°C
Operational temperature	-10°C ÷ +40°C
Maximal power	2000W
Supply voltage	230VAC 50Hz - 60Hz
Size	113 x 73 x 42mm (H x Lx l)
Connection to t he heating element	Faston 6.3x0.8mm Phase, neutral, tEarth (Class I)
Temperature sensor	10KOhm at 25°C, type NTC
Warranty	2 years
Standard	EN 62233:2008 EN 55014-1:2006 + A1 :2009 + A2:2011 EN 55014-2:1997 + A1:200 1 + IS1:2007 + A2:2008 EN 61000-3-2:2014 EN 61000-3-3:201
Approval mark	CE
Environmental directive	WEEE, RoHS

Notes

Repairs: Any servicing or repair work must be carried out by an authorized service center.
Compatibility with other products: Contact your distributor.
Warranty: 2 years from the date of purchase. This guarantee does not cover and is void with respect to the following:
-Products which have been subjected to unauthorized repair or improper maintenance by the user;
-Products which have been subjected to improper installation or any misuse contrary to the instructions in this user manual;
-Products which have been subjected to unauthorized modifications or other acts by the user.

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WARNING RISK OF ELECTRIC SHOCK!
Disconnect power supply before proceeding with installation.

Preserve with care the present instruction sheet and read care fully before using the device.

•The present device has be en designed for exclusive use on a towel radiator.

•The thermostat is designed for heating the liquid contained inside a towel radiator in combination with a heating elemen t. Any other use is forbidden.

•Before using, carefully ensure that the line voltage is the sa me as that sp ecified for the device (see technical specifications).

•Only use heating elements compatible wi th the type of used towel radiator.

•Disconnect power supply before cleaning or performing maintena nce of the product.

•In case of damage of the powe r supply cable shut down the de vice and do not tamper with it. The damaged power supply cabl es can be replaced exclusively by the ma nufacturer or by an authorized service center . Failure to comply with the above rules could lead to compromised system safety and void the warranty.

•Store and transport the he ating element exclusively in the protecting packaging.

•Replacement of the heating el ement can be done exclusivel y by the product manufacturer.

•Children aged under 8 years old and people with reduc ed physical, sensory or mental abilities.

•can use the device only under supervision. Children should not play with the device.

•Cleaning and maintenance mean t to be carried out by the user should not be done by children without supervision.

CONNECTIONS TO ELECTRIC MAINS

The available versions are the following:
•1 Schuko plug, UK plug, Swiss plug, Italian plug (Class I or Class II) for direct connection.
•3-wires for Class I models: Live (brown); Neutral (blue); Earth (green-yellow).
•2-wires for Class II models: Live (brown), Neutral (blue).
•3-wires for Class II models with "Fil-Pilote": Live (brown), Ne utral (grey), "Fil- Pilote" (black).

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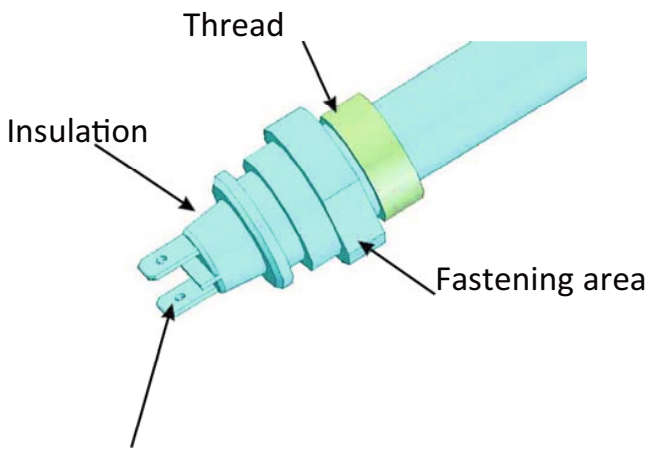
Installation guide

For use by installer only

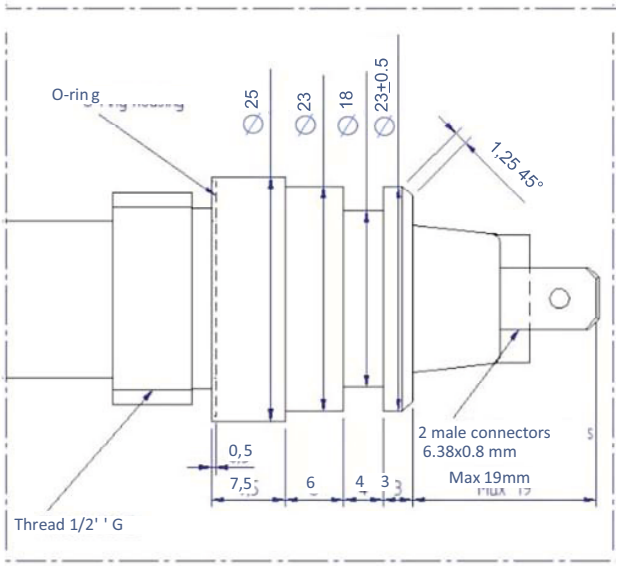
WARNING:
Disconnect the power supply before proceeding with installation.
The installation has to be performed only by authorized personnel.

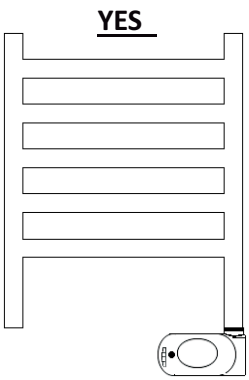
•The electronic control must be connected to the electric resistance only by authorized personnel.
•Make sure that the power of the electric resistance does not exceed the maximum power of the towel radiator

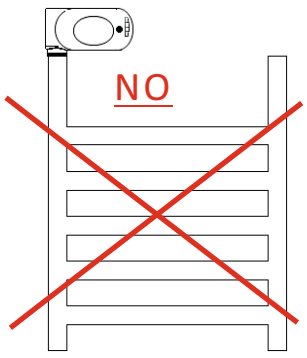
Example of heating element (Class II).



2 Faston connectors 6.3x0.8mm







IMPORTANT: Pay attention to the maximal length of the 19mm connector (see picture above). Longer connectors could damage the device.

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•Disconnect power supply before installation.
•Only qualified personnel can connect the electronic device to the heating element.
•Make sure that the power of th e electric resistance does not exceed the maximum power allowed by the electronic control device.

1. Make sure that the towel radiator does not have l eakage or air lock.
2. The device shall not be pos itioned directly in fron t of an electric plug.
3. Prevent water jets from hitting the equipment.
4. Connect the temperature controller on ly to a suitable heating element.
5. Ensure that the mains voltage is the same as indicated in the technical specifications.
6. Make sure that the type of electric resistance is compatible with the model of towel radiator being used (check the product specifications prov ided by the manufacturer). The usage of a heating element wi th higher power:
   - Does not increase the actual power of the towel radiator;
   - Might shorten life of the heating element;
   - Could damage the equipment.
7. Make sure that the po wer of the electric resistance does not exceed the maximum power of the towel radiator (check the la bel on the heating element).
8. When installed in a ro om with bathtub or shower, respec t the "Protection Zones" according to IP44 insulation class (in UK according to IEE cabling directives). Furthermore, make sure to respect all local safety directives.
9. The device has to be protected by a 30mA circuit breaker (RCD).
10. Power the device with the recommended voltage (see technical specifications).
11. For models having no plug it is necessary to install a su itable omnipolar disconnection switch ensuring complete disconnection in ca se of category III over voltage (that means a switch with at least 3 mm of space between open contacts).
12. After ensuring that the "O-Ring" is correctly positioned, screw t he electric resistance in the relevant threaded ho le of the towel radiator, properly se cure it and insert the cover ring.
13. Place the "O-Ring" befo re the fastening area.
14. Extract the connecting cables from the device. The four poles connector and the ground connector (only Class I).
15. Connect the four poles connec tor to the heat ing element.
16. Connect the female Faston connect or to Earth (only Class I).
17. Insert the lower part of the heating element into the ready connected thermostat.
18. Align the device to the towel ra diator. Warning! Do not rota te the device more than 30 degrees on both directions.
19. Push the device against the bas e of the heating element to co mpress the "O-Ring", properly fix the related fastener so that the device remains well secure d and does not rotate around the heating element.
20. Connect the power supply cable.

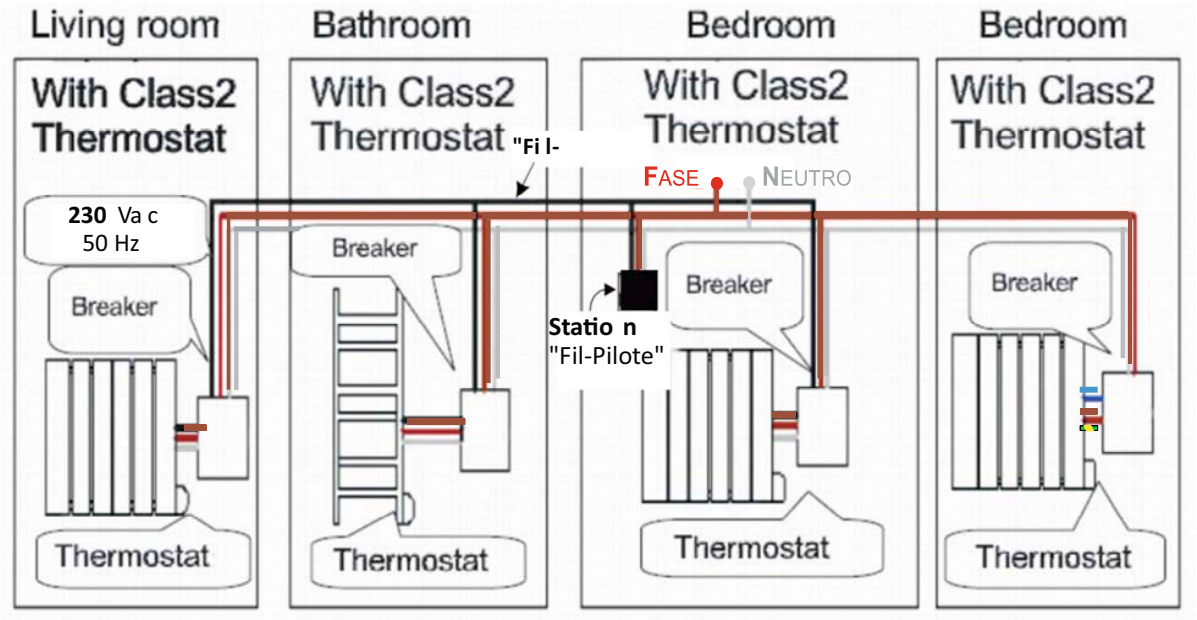
DISPOSAL

This product may not be treated as ordinary household waste. It has to be disposed in proper waste collection sites. In case of replacement it shall be returned to the distributor. Such an end-of-life treatment of the product will preserve the environment and will reduce consumption of natural resources. This sym bol applied to the present product indicates the obligation to bring it to a proper waste collection site, in order to let it be disposed according to 2002/96 / CE (RAEE - WEEE) directives.

Connection to Fil-Pilote system

(Only for product versions equipped with "Fil-Pilote")

Example



1. A control unit supporting the "Fil-Pilote" system can remotely control a Musa device with "Fil-Pilote" functionality (Class II). The brown wire is the Live wire (L), the gray wire is the Neutral wire (N) and the black wire is used for receiving the Fil-Pilote signal.

⚠ **Do not connect the black wire to the ground.**

2. A Musa Plus device without "Fil-Pilote" functionality (Class I) cannot be remotely controlled. The brown wire is the Live wire (L), the blue wire is the Neutral wire (N) and the yellow/green wire has to be connected to Earth.

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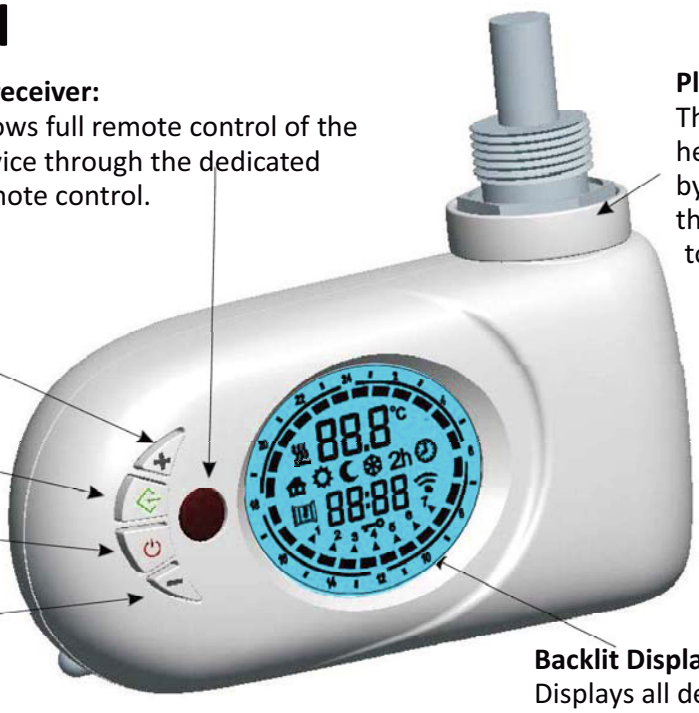
User Manual



IR receiver:
Allows full remote control of the device through the dedicated remote control.

Plastic cover:
The part connecting to the heating element is kept hidden by this special layout, so that the thermostat fits perfectly to the towel radiator.

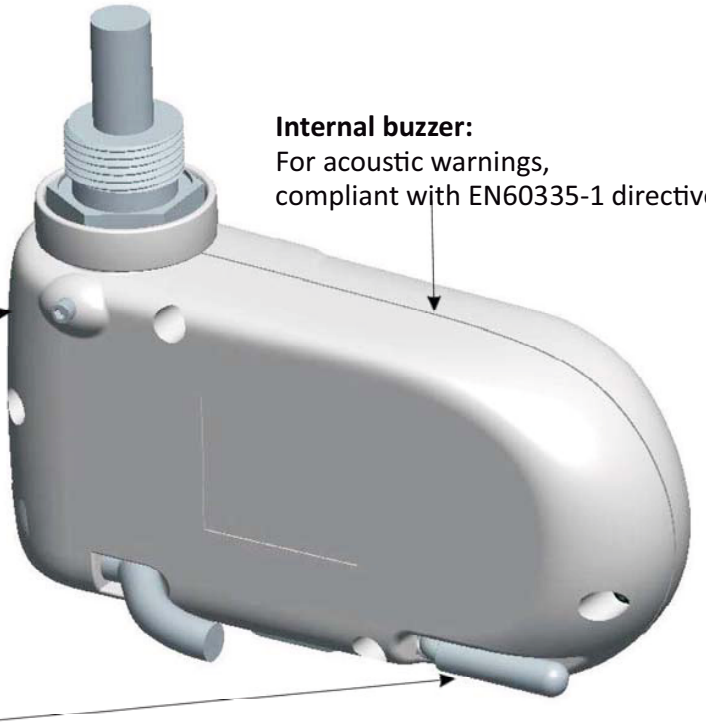
[+] Button

Button [Prog]

[On/stand-by] Button

[-] Button

Backlit Display:
Displays all device related information.



Internal buzzer:
For acoustic warnings, compliant with EN60335-1 directive.

Water Protection:
The IP44 prot ection level is guaranteed by a special design of the connection parts.

External sensor:
Guarantees a stable room te mperature a nd a prompt reaction in case of stro ng temperature variation.

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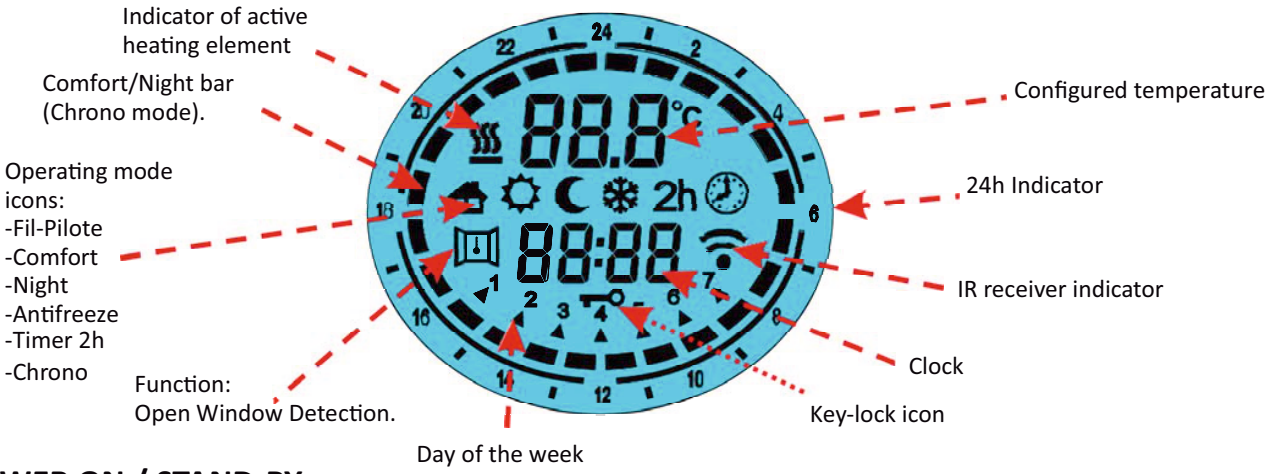
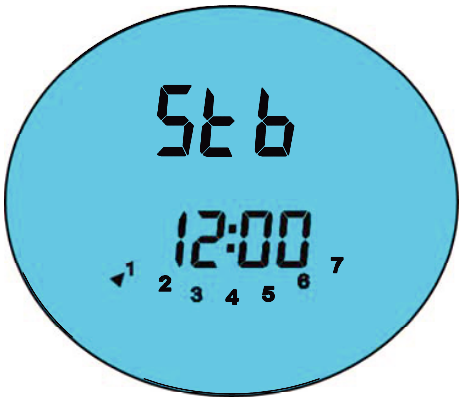


1.POWER ON / STAND-BY

Press the **[On/Stand-by]** key to turn on the device or to enter the "Stand-by" mode.
When activated, the bottom part of the display shows the current time, while the configured operative mode and the temperature are shown in the upper part. When in "Stand-by" mode current time, day of the week and the message: " Stb" are displayed.
NOTE: When the device goes into "Stand-by" mode it beeps twice for 0.5s.
When the device is activated it beeps once for 1s.

Example in "Comfort" mode.

Example in "Stand-by" mode.



1.“COMFORT” and “NIGHT” MODES

Two different levels of temperature can be set:
-"COMFORT" temperature: It is the temperature used for "Chrono", "Fil-Pilote" and "Comfort" modes.
-"NIGHT" temperature: It is the temperature used for the "Night " and "Chrono" modes.
The desired temperature can be set pressing the **[+]** e **[-]** buttons. The range of configurable temperature is 7°C - 32°C.
IMPORTANT!
The temperature of "Night" mode must be below to the “Comfort” mode temperature. For this reason the “Night” mode temperature can be set to a value between 7°C and the (configured "Comfort" mode temperature - 0.5°C).
The temperature of "Comfort" mode can be configured in the whole (Night temperature + 0.5°C) ÷ 32°C range.

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1.OPERATING THE DEVICE

Press the **[PROG]** button to select the desired operative mode. An icon on the display indicates the selected operating mode, according to the following table:

				2h	
Fil-Pilote	Confort	Night	Antifreeze	Timer 2H	Chrono

COMFORT MODE

The "Comfort" stably maintains the room temperature to a selected value. To set this operative mode:
-Press the **[Prog]** button until the display shows the “Comfort” icon
-Set the desired temperature through **[+]** and **[-]** buttons.

NIGHT MODE

The "Night" mode sets a value of temperature below the "Comfort" temperature value.
It is suggested to set this operating mode during the night or when the room is not occupied for 2 or more hours.
-Press the **[Prog]** button until the display shows the " Night" icon
-Set the desired temperature through **[+]** and **[-]** buttons.

ANTIFREEZE MODE

In "Antifreeze" mode the temperature is fixed to 7°C. The device activates the heating element when the room temperature falls below 7°C. It is suggested to set this operating mode when the room is not occupied for several days. Press the **[Prog]** button until the display shows the "Antifreeze" icon

TIMER-2H MODE

The "Timer 2h" mode can be used to quickly warm up the room or to speed up towel drying.
-Press the **[Prog]** button until the display shows the "2h" icon.
The device is activated at the maximum power for 2 hours, up to a maximum room temperature of 32°C. The “Timer-2h” mode is automatically deactivated after a period of 2 hours and the device returns to the operative mode previously set. The user can switch to another operative mode at any time by simply pressing the **[PROG]** button.

FIL-PILOTE MODE (Only for product versions equipped with "Fil-Pilote")

In "Fil-Pilote" mode the device is managed by a central control system that sets the operating mode for all the connected devices. The device operates with the most advanced "Fil-Pilote" system with six commands, which allows the following functions:

1. Standby: power off the heating element, the device remains active.
2. Comfort: maintains the "Comfort" temperature set by the user.
3. Eco: maintains the room temperature 3,5°C below the "Comfort" temperature.
4. Anti-freeze: maintains the room temperature at 7°C.
5. Eco-1: maintains the room temperature 1°C below the "Comfort" temperature.
6. Eco-2: maintains the room temperature 2°C below the "Comfort" temperature.

The user can set the desired temperature on the device:
-Press the **[Prog]** button until the "Fil-Pilote" icon is displayed.
Set the desired temperature through the **[+]** and **[-]** buttons.

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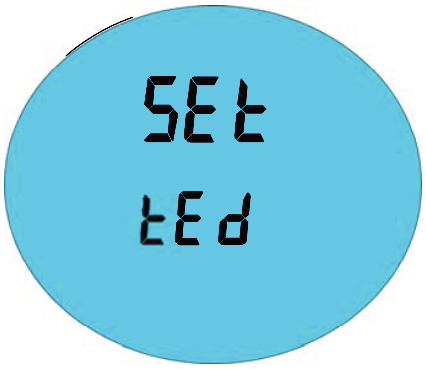
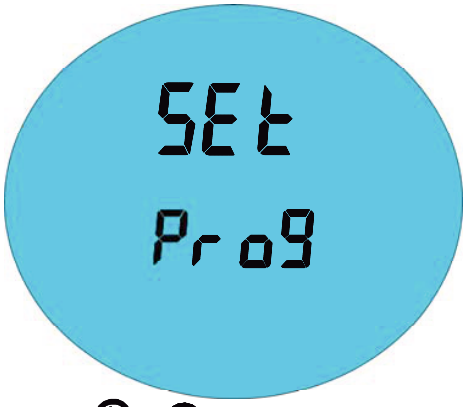
CHRONO MODE

This operating mode allows th e user to configure different temperature values for each hour of each day of the week. The “Comfort” / “Night” temp eratures and the related time in tervals can be thus programmed.
-To activate this function, press the **[PROG]** button until the “Chrono” icon is displayed.

Programming the “Chrono” mode

a) Setting the current day of the week and time
- Enter into “Stand-by” mode and press the **[-]** button at least 3 seconds.
- On the upper part of the display the message “Set” will be displayed
- To set the day and time press the **[+]** button until the bottom part of the display the message “TED” is disp layed (see picture on the right).
- Press the **[Prog]** button to enter the editing mode
- The blinking arrow indica tes the currently selected day: Pressing the **[+]** / **[-]** buttons the desired day can then be set
- Press again the **[Prog]** button to confirm the selected day. After that, the procedure for entering the time starts and the display shows the currently selected time . “Hours”: Use the **[+]** and **[-]** buttons to set the correct hour and co nfirm the selected value pressing the **[Prog]** button. Minutes: Same procedure as for the hours. Confirm th e selected value by pressing the **[Prog]** button.
- At the end of the procedure, the th ermostat returns into “Stand-by” mode.

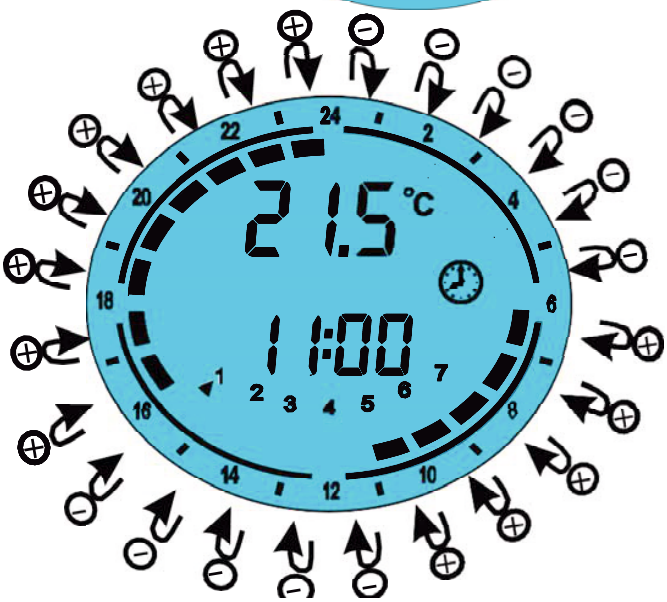




b) Setting the program for the “Chrono” mode

- Enter into “Stand-by ” mode and press the **[-]** button at least 3 seconds.
- On the upper part of the display the message “Set” will be displayed
- To set the day and time press the **[+]** button until the bottom part of the display t he message “Prog” is displayed (see picture on the right).
- Press the **[Prog]** button to enter the editing mode
- Now a time sequence can be defined for each day of the week.

The procedure starts with day 1, and the desired sequence can be configured with the **[+]** and **[-]** buttons: For each hour of the day, it is then possible to assign either the
“Comfort” temperature (full ba r indication displayed) by pressing the **[+]** button or the “Night” temperature (empty bar) by pressing the **[-]** button (see picture below).
Press **[PROG]** to confirm the entered configuration for day 1, and repeat the same proc edure for the remaining 6 days of the week.



4. KEY LOCK

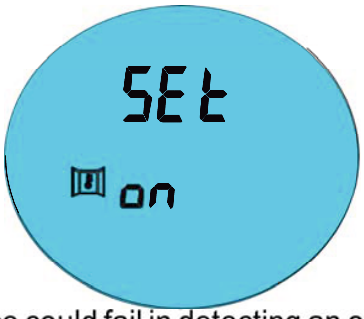
It is possible to lock the but tons of the device to avoi d inadvertent modifications of the settings.
Press together the **[PROG]** buttons for 3 seconds to lo ck all the buttons except the **[On/Stand-by]** button. The key-lo ck icon is activated on the display.
To unlock the buttons pr ess again together the **[PROG]** buttons for 3 seconds.
The key-lock icon disa ppears on the display

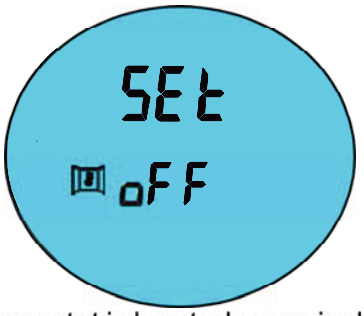
5."Open Window Detection" function

The "Open Window Dete ction" function enables detecting of an open window by sensing a sudden decrease of the temperature in the room. In such a case, the device deactivates the heating element for a maximum of 30 minutes or until an increase of the room temperature reveals that the window has been closed.
To activate this function:

- Enter into "Stand-by" mode.
- Press the **[+]** button for 3 seconds.
- Press the **[+]** button to activate / deactivate the function
- Press the **[Prog]** button to commit and return into "Stand-by" mode.

When this function is enabled, the "O pen Window" icon on the display is lit.
When the device detects that the window is potentially opened, the "Op en Window" icon starts blinking
When the function is disa bled the "Open Window" icon is not shown on the display.





Note: The device could fail in detecting an opened window e.g. if the thermostat is located on an isolated area of the room and far from air currents or if the thermostat is placed close to an external heating source, or if the temperature variation in the room is too slow.

Note 1: When the symbol is on, the heating element is active .

Note 2: This icon " " indicates that it is being received signal from the remote control.

Note 3: In case of loss of power supply, the settings of the "Chrono" mode (cu rrent day of the week, current time, daily program for the week) remain stored in memory for a few minutes.

REMOTE CONTROL (OPTIONAL)
Musa is equipped with an IR receiver and therefore it can be remotely contro lled through the optional remote control device. All the functions previous ly described are availabl e on the remo te control.

The manufacturer reserves the right to make any changes to the produ ct described in this manual, at any time, and wi thout prior warning