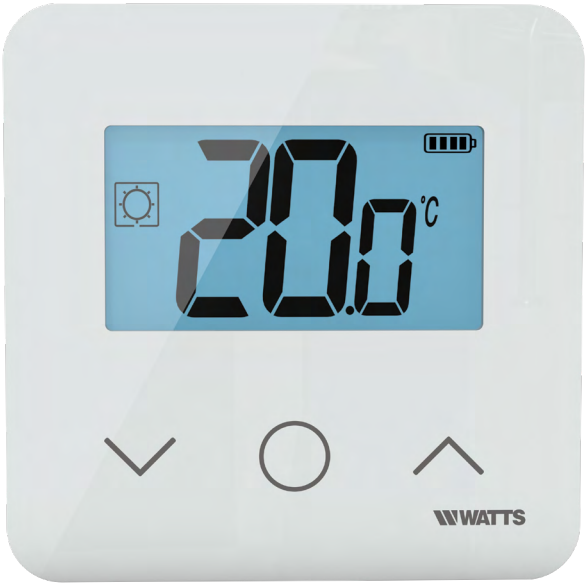
BT-D03 HC FC (relay)

Wired digital Heat&Cool room thermostat
with integrated relay
Vision® Wired

Installation manual

EN **Installation and Operation Manual**



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WATTS®

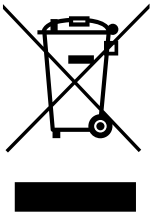
Table of content

General information

Safety warnings and operating instructions

- This product should be installed preferably by a qualified professional. Subject to observation of the above terms, the manufacturer shall assume the liability for the equipment as provided by legal stipulations.
- All instructions in this Installation & Operation manual should be observed when working with the thermostat. Failures due to improper installation, improper use or poor maintenance are voiding manufacturer liability.

- Any attempt to repair voids the responsibility and the obligation to guarantee and replacement from the manufacturer.
- Do not cover the thermostat for accurate measurement of ambient temperature. Therefore the sensor must never be hidden behind thick curtains, furniture, etc… Alternatively, a remote sensor should be used.
- Batteries may explode or leak, and cause burn injury, if recharger, disposed of fire, mixed with a different battery type , inserted backwards or disassembled. Replace all used batteries at the same time. Do not carry batteries loose in your pocket or purse. Do not remove the battery label. Keep batteries away from children. If swallowed, consult a physician at once.
- 2012/19/EU (WEEE directive): Products marked with this symbol cannot be disposed of as unsorted municipal waste in the European Union. For proper recycling, return this product to your local supplier upon the purchase of equivalent new equipment, or dispose of it at designated collection points. For more information see: www.recyclethis.info
- 2006/66/EC (battery directive): This products contains a battery that cannot be disposed of as unsorted municipal waste in the European Union. See the product documentation for specific battery information. The battery is marked with this symbol, which may include lettering to indicate cadmium (Cd), lead (Pb), or mercury (Hg). For proper recycling, return the battery to your supplier or to a designated collection point. For more information see: www.recyclethis.info



Application

- The thermostat have been designed for use in residential rooms, office spaces and industrial facilities. Verify that the installation complies with existing regulations before operation to ensure proper use of the installation.

Please refer to « Quick Installation Guide » for thermostat installation

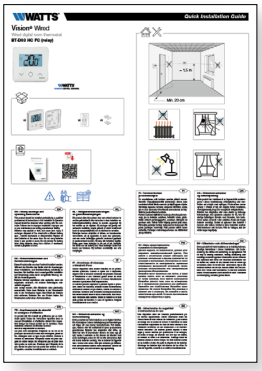
https://wattswater.eu/catalog/regulation-and-control/vision-wired/

1. Presentation

- Thermostat compatible with **Vision® Wired** system.
- 3 sensitive touch buttons.
- 2 wires connectivity, simplified wiring and installation.
- Heating, cooling or reversible mode
- Different temperature modes setting.
- Anti freeze function.
- Configurable **Hysteresis or PWM** regulation.
- Opened window detection function
- Keyboard locking and Pin code for public area.
- EEPROM non volatile memory.
- 2 parameter menus: User and Installer.

2. Box contents

1 x



Quick Installation Guide

1 x

WATTS Vision® thermostat

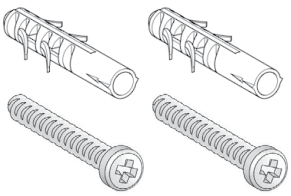
1 x

Back cover

1 x

AAA type batteries

1 x



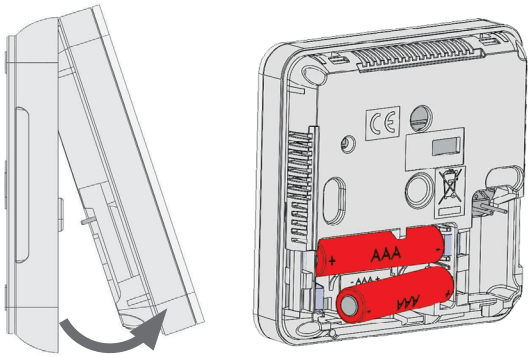
Fixing screws

3. First Installation

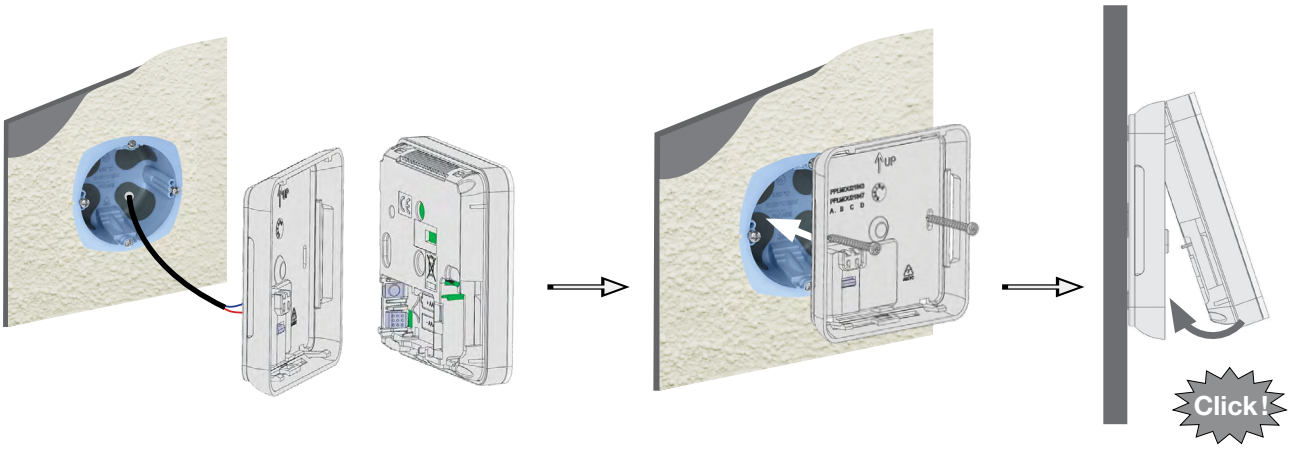
See quick installation guide for installation.

Batteries installation.
Open the cover and insert the 2 AAA supplied batteries.

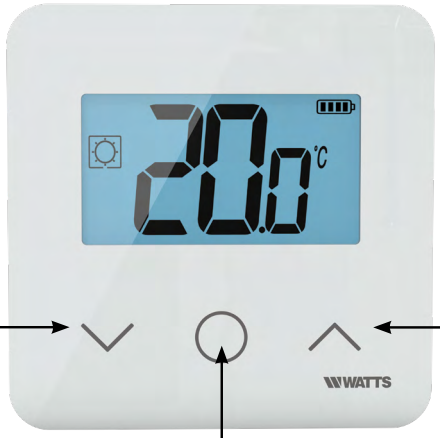
CAUTION: risk of explosion if battery is replaced by an incorrect type dispose of used batteries according to the instructions.



Connect to the quick connector on the cover the 2 wires from your installation.
After fixing the cover to the wall using the fixing screws, clip the thermostat onto the cover.



4. Product description

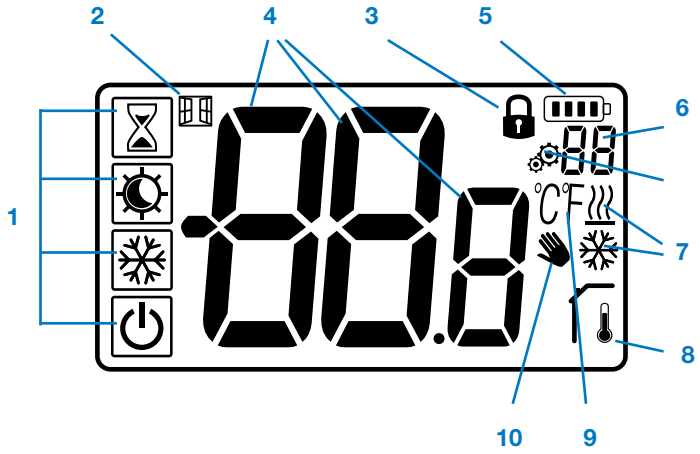


Minus button
or down/left button
for menu navigation.

Plus button
or up/right button
for menu navigation.

Validation of temperature set point setting or accessing to parameter menu
or displaying measured temperature / temperature set point.

4.1 LCD logo description



1. Temperature modes setting:

Comfort mode in heating mode

Reduced/Eco mode

Boost/timer mode

Frost protection mode

Off mode

2. Open window detection function

3. Locked keyboard

4. Measured temperature / temperature set point / remaining time for boost mode

5. Battery level

6. Parameter menu number

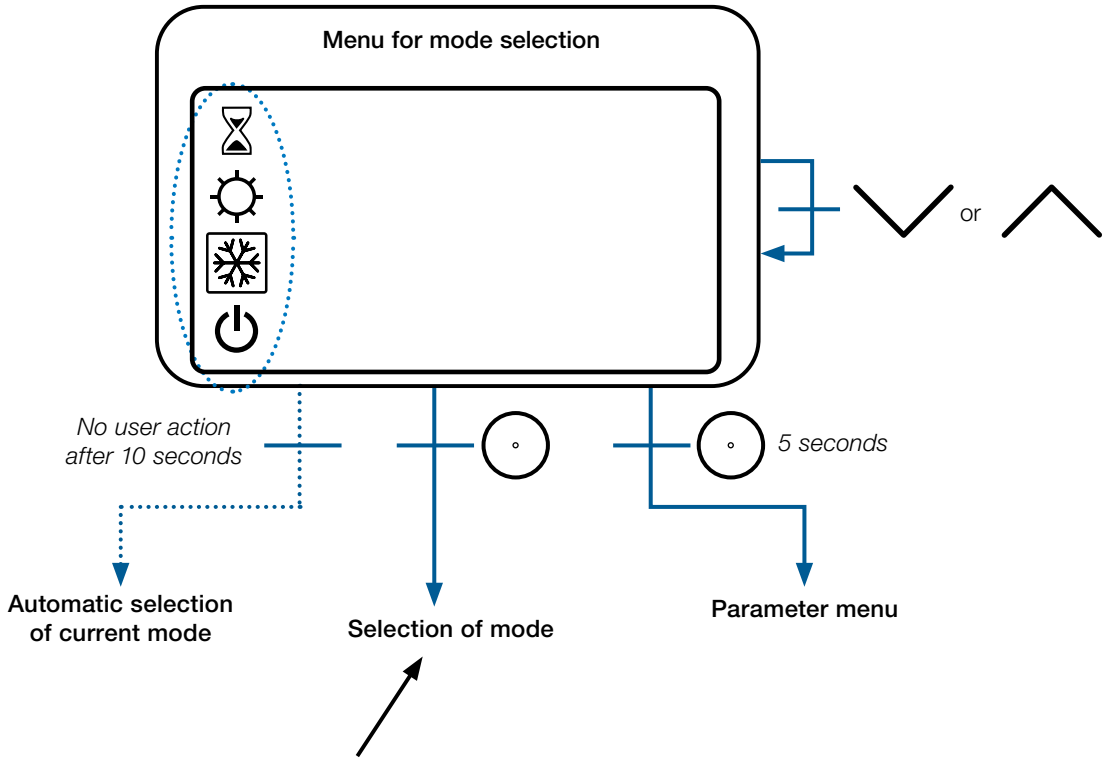
7. Indication of heating & cooling demand

8. Measure of Internal temperature sensor

9. °C °F Temperature units

10. Calibration of internal sensor

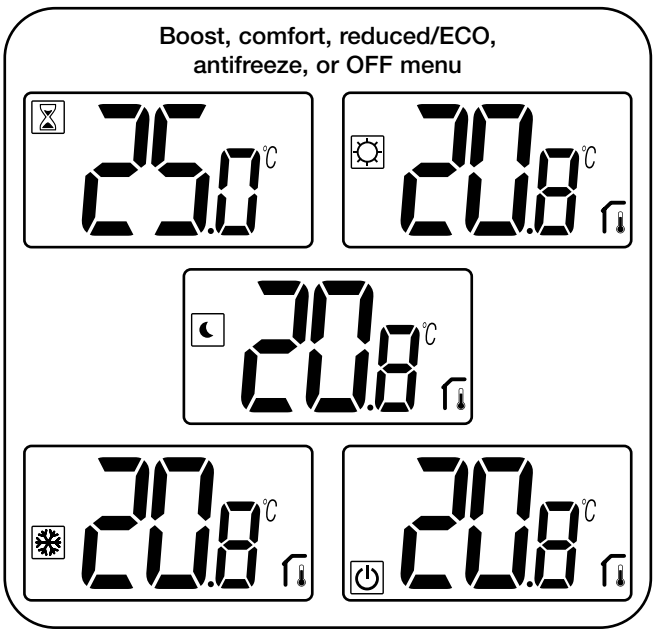
5. Mode selection



Press any ⌄ ⊙ ⌃ key to wake-up the thermostat and activates the backlight.

Hold ⊙ key for 2 second to access to menu for selection of mode.

Press ⌄ or ⌃ permits to navigate/change in different mode.



If “basic navigation” is activated (menu #02), navigation menu will be:

Note: cooling or reversible mode not available with basic navigation.

5.1 Change temperature setting

Wake-up the thermostat by pressing any key.

Press ⋁ or ⋀, to change the temperature set point (digits starts to blink).

By pressing ⊙ key, temperature set point value is validated.

5.1.1 Boost/Timer mode

In this mode, comfort temperature set point will be followed all the time.

In mode boost, set point temperature is applied during a selected time.

After this time, thermostat will return to former mode.

You can first adjust, the desired setting temperature with ⋁ or ⋀, press ⊙ key, to validate, default value 24°C.

In a second time, you can adjust the duration in hours “H” if below 24H, then in day “d”.

5.1.2 Comfort mode

In this mode, comfort temperature set point will be followed all the time.

5.1.3 Reduced/ECO mode

In this mode, reduced temperature set point will be followed all the time.

Note: In cooling mode, reduced mode acts like the OFF mode (system is stopped, NC actuators close).

5.1.4 Anti-freeze mode

Use this mode if you want to protect your installation against freezing (default value 7°C).

Remark: in cooling mode, anti-freeze mode acts like the OFF mode (installation is stopped).

5.1.5 OFF mode

Use this mode if you need to switch off your installation.

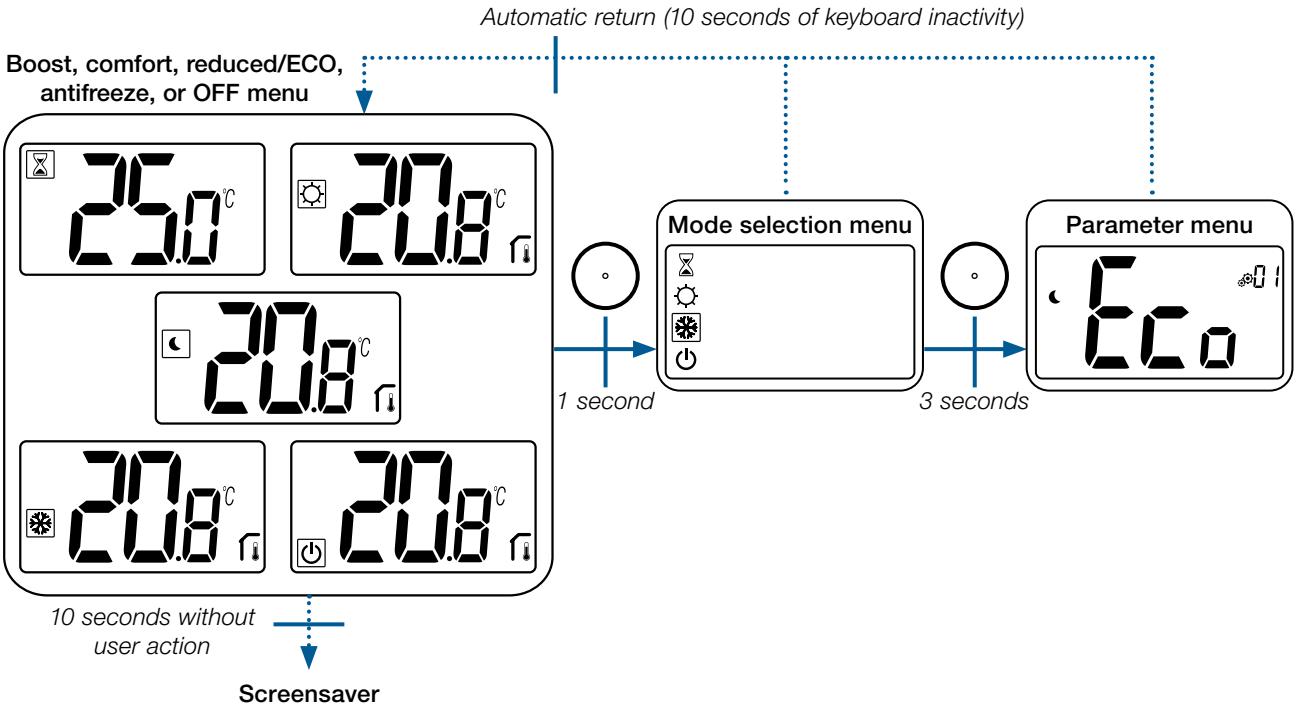
Be Careful: In this mode your installation can freeze.

5.1.6 Reversible mode

In this mode, the installation is managing both heating and cooling regulation, only if parameter #6 is “rEv”.

6. Functions Highlights

6.1 Access user parameter menu



Press any key to wake-up the thermostat and activates the backlight.

By pressing key ⊙ during 5 seconds, user can access to parameter menu.

The menu scroll is done with keys ⋁ and ⋀.

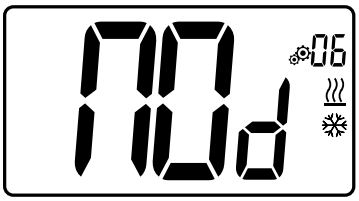
Menu is selected by pressing key ⊙, value starts blinking.

Once in the menu, the parameter value is changed with the keys ⋁ and ⋀.

Pressing again key ⊙ sets the parameter value.

Note: Thermostat parameters are divided into two groups: user and installer (advanced menu).

6.2 Reversible mode



Enter user parameter #06, use keys ⋁ and ⋀, to select operating mode of the thermostat:

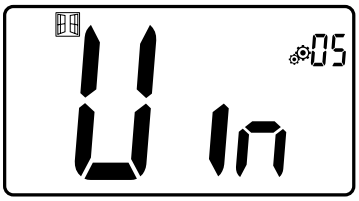
- **Hot**: heating regulation mode,
- **CLd**: cooling regulation mode,
- **rEv**: activation of reversible mode; access to this mode only if the basic parameter (#2) is not activated.

Pressing key ⊙ confirms the selection and switches to comfort mode. A user inactivity of some seconds confirms current selection and returns to old selected mode.

By pressing ⊙ key, temperature set point value is validated.

6.3 Opened windows detection

Enter user parameter #05.



When activated and a detection is running, the icon will appear and blink on the screen!; This function is done by measuring and recording the temperature evolution.

When an opened window is detected, the thermostat applies to heating system antifreeze temperature set point.

User can restart heating system, and stops window detection by pressing on a key.

6.4 Keyboard locking

Wake-up the thermostat (lighted backlight).

Press and hold ⋁ and ⋀ keys simultaneously.

Once locking is activated, logo appears on the LCD screen:

6.5 PIN code

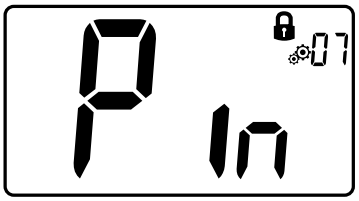
To activate this function enter user parameter #07.

The PIN code protect the thermostat from any change of the setting as temperature or mode.

When user pushes a key, “PIN” will be displayed.

If user press another time a touch, he has to enter PIN number.

Unlocking if forgotten PIN code: hold minus ⋁ and plus ⋀ key for 10 seconds.



7. Other informations

7.1 Heating and cooling indications

Logos used to indicate than system requires:

heating is ; cooling is .

7.2 LED indication

When user modify set point temperature in functioning mode, behavior information is displayed with a LED RGB located on the middle of validation key.

Temperature	LED color
T ≤ 18°C	blue
18°C < T ≤ 20°C	azure
20°C < T ≤ 22°C	green
22°C < T ≤ 24°C	yellow
24°C < T ≤ 37°C	red

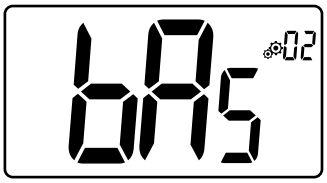
8. User parameter description

ECO/Reduced offset setting

User configure offset value for ECO/reduced mode.

Default value: **2,0°C** or **3,6°F** - Step value: **0,1°C** or **0,2°F**

Value range: **0,0°C** to **5,0°C** or **0,0°F** to **9,0°F**



“basic navigation” mode

« **Yes** » : activation of function, restrict to comfort mode and off mode

« **no** » : no activation

Default value: **no** Values: **Yes** / **no**

Room temperature display

« **Yes** » : remote displays measured temperature

« **no** » : remote displays set point temperature

Default value: **Yes** Values: **Yes** / **no**

Calibration of internal room sensor (remote)

Calibration must be done after a given order has been operating for a day. Place the thermometer in the middle of the room at about 1.5 m above the floor. Record the temperature shown after 1 hour. When you enter calibration mode, displaying of logo means no calibration has been performed yet. Enter the reading on your thermometer using minus and plus keys (step of 0.1°C or 0.2°F).

The setting is validated with validation key. logo appears to indicate that calibration.

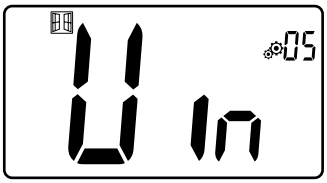
If user press simultaneously minus and plus keys, sensor calibration is reset. logo disappears.

<u>Important note</u>: a large temperature deviation may indicate an inappropriate installation of the thermostat. If the temperature difference is too big, this could mean your thermostat was not installed properly e.g. in the right place.

When user changes this parameter, regulation will restart.

Default value: **0,0°C** or **0,0°F** - Step value: **0,1°C** or **0,2°F**

Value range: **-5,0°C** to **5,0°C** or **-9,0°F** to **9,0°F**



Open window detection

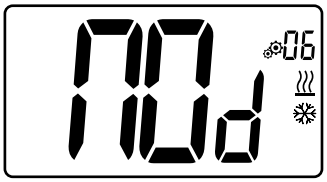
« **Yes** » : activation of function

« **no** » : no activation

If function is active, logo appears.

More information is in paragraph “Opened window detection”.

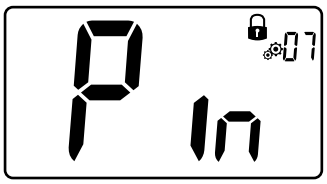
Default value: **no** Values: **Yes** / **no**



Operating mode of thermostat

- **Hot** : heating mode
- **CLd** : cooling mode
- **Rev** : Displaying « reversible » menu in navigation menu list. User is able to choose directly system configuration

Default value: **Hot** Values: **Hot** / **CLd** / **Rev**



PIN code activation

« **Yes** » : activation of function

« **no** » : no activation

More information is in paragraph “code PIN description”.

Default value: **no** Values: **Yes** / **no**

Setting value for PIN code

This menu is only displayed if parameter Pin (#07) is set with “Yes”.

User has to configure values of the three digits with ⌄ and ⌃ keys, and validate its choice with validation key ⊙.

Default value: **000** Value range: **000** to **999**

Degree unity for displaying

- **°C**: Celsius
- **°F**: Fahrenheit

Default value: **°C** Values: **°C** / **°F**

Reset user settings

Press and hold validation ⊙ key for 5 seconds to reset, all segments light up, showing that the thermostat has been reset with the factory default setting:

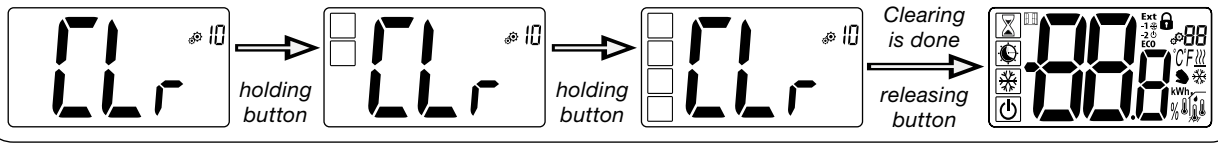
➤ Set point temperatures in ☀ ☾ ❄ ⧗ modes.

➤ All user parameters with their factory values: temperature in Celcius degrees, code PIN not activated, easy selection menu not activated, displaying measured temperature, opened window detection activated.

➤ Thermostat configuration: heating, “reversible” menu not displayed and no debug mode.

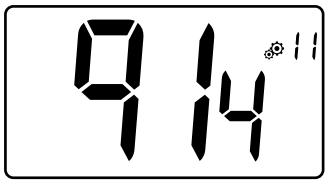
When validation key is hold:

Clearing user parameters



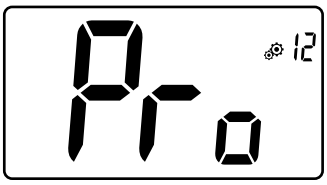
Displaying client software version

Pressing and maintaining validation ⊙ key displays software qualification version and debug information:



When “qualification version” number is displayed, user can press minus ⌄ and plus ⌃ keys to enter in debug mode (see paragraph “debug mode”):

Reminder: software version is written: Vxx.xx



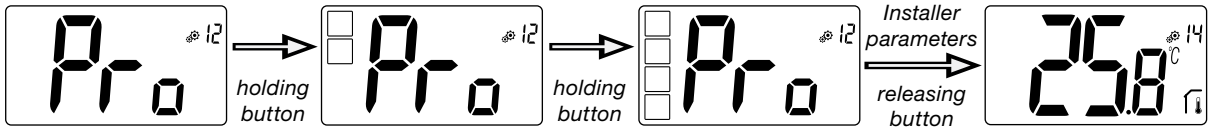
Professional/Installer menu

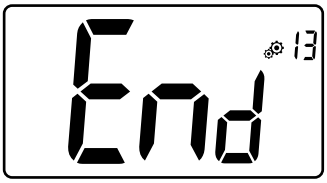
This menu permits to access to installer parameter menus.

Pressing and maintaining validation ⊙ key displays first parameter of installer menus.

When validation/menu key ⊙ is hold:

Accessing to installer parameters





User menu exit

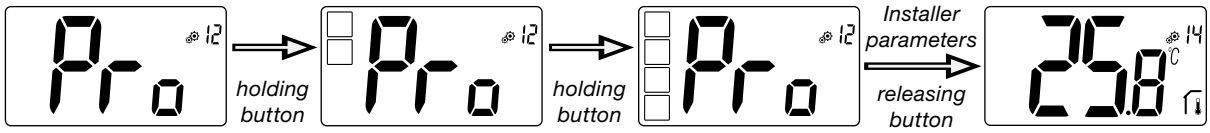
Press validation key ⊙ to exit user menu and return to the main screen.

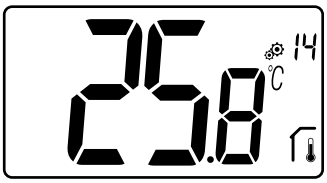
9. Installer parameter description

To access to these installer parameters, installer has to go to user parameter number 12.

After, he presses and holds validation ⊙ key during 5 seconds:

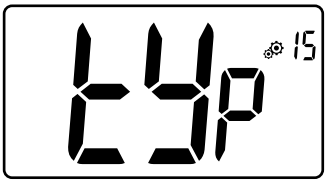
Accessing to installer parameters





Displaying of **measured temperature by internal sensor**

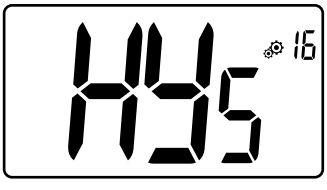
If “Err” is displayed, internal sensor is damaged.



Regulation type

- **HYs** : regulation of hysteresis
- **bP** : regulation of proportional type

Default value: **HYs** Values: **HYs** / **bP**



Hysteresis value

This menu is displayed only if parameter “Typ” (#15) is equal to “HYs”.

Use minus ⋁ and plus ⋀ keys to set hysteresis value.

The setting is validated with validation ⊙ key.

Default value: **0,3°C** or **0,5°F** - Step value: **0,1°C** or **0,2°F**

Value range: **0,2°C** to **3°C** or **0,4°F** to **5,4°F**

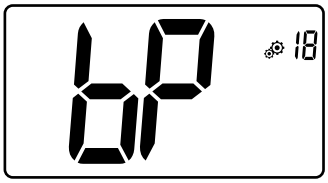
Cycle time setting

This menu is displayed only if parameter “Typ” (#15) is equal to “bp”.

Use minus ⋁ and plus ⋀ keys to set cycle time value.

The setting is validated with validation ⊙ key.

Default value: **10 minutes** Other values: [**10 15 30 45 60**]



Proportional Band

This menu is displayed only if parameter “Typ” (#15) is equal to “bp”.

Use minus ⋁ and plus ⋀ keys to set proportional band value.

The setting is validated with validation ⊙ key.

Default value: **2°C** or **3,6°F** - Step value: **0,1°C** or **0,2°F**

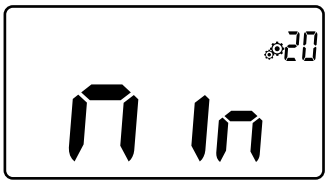
Value range: **2°C** to **5°C** or **3,6°F** to **9,0°F**

Thermal compensation

Activation or not thermal compensation of the relay warm. It will apply 2°C according an exponential curve with a time constant of 40 minutes for warm up (relay on) and 50 minutes for cool down (relay off).

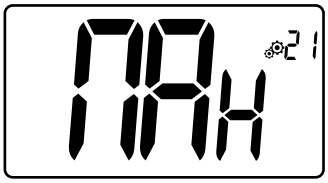
This thermal compensation must be activated if the thermostat controls a resistive load greater than 250W. If the load is inductive (power factor less than or equal to 0.7) or if the power is less than 250W, this parameter should not be activated.

Default value: **no** Values: **Yes** / **no**



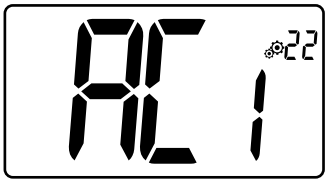
Minimum value of setting range of the set point temperature

Default value: **5,0°C** or **41°F** - Step value: **0,5°C** or **0,5°F**



Maximum value of setting range of the set point temperature

Default value: **30°C** or **86°F** - Step value: **0,5°C** or **0,5°F**

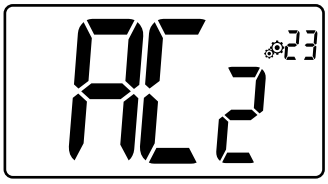


Anti-short Cycle time ON

Setting time value of minimum ON-state load.

Time value is a number of minutes.

Default value: **2 minutes** - Step value: **1 minute**

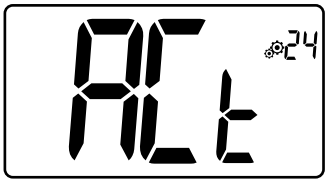


Anti-short Cycle time OFF

Setting time value of minimum OFF-state load.

Time value is a number of minutes.

Default value: **2 minutes** - Step value: **1 minute**

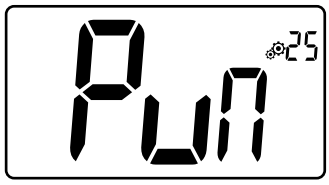


Actuator model

Setting actuator model:

- “**no**”: normally open
- “**nc**”: normally close

Default value: **nc** Value: **nc** / **no**



Pump and valve exercises

Activation or not of system exercise function.

It will drive pump during 4 minutes after 7 days pump off.

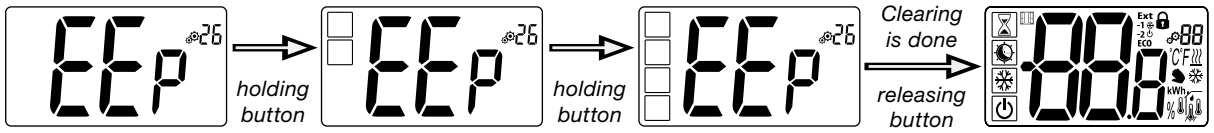
Default value: **Yes** Values: **Yes** / **no**

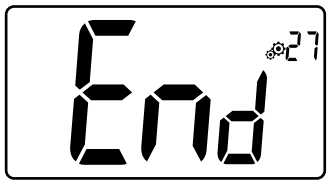
EEPROM clearing

All thermostat parameters will be loaded with factory settings.

Pressing and maintaining validation ⊙ key displays:

Accessing to installer parameters





Installer menu exit

Press validation ⊙ key to exit installer menu and return to the main screen.

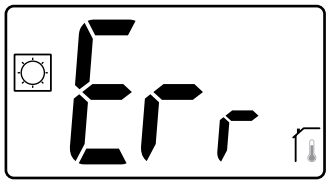
10. Troubleshooting & solutions

Description of thermostat errors displaying

Remote errors are:

- Error of temperature measurement: Internal sensor
- Low batteries

Unlocking if forgotten PIN code: hold minus ⋁ and plus ⋀ key for 10 seconds.

Internal temperature sensor error		- Displaying of “Err” and - Red LED blinking 

My Thermostat seems work correctly but the heating or the cooling doesn’t work correctly	
Output	- Check the connections. - Check the power supply of the heating element. - Contact your installer.
Sensor calibration	- Try to calibrate your thermostat (refer to user parameter #04) - Contact your installer, to check & adjust the regulation parameters with your heating system

11. Maintenance

Battery level indication

The batteries are considered weak when voltage level is too low for a correct product functioning.

The icon will blinked  on LCD screen.

Cleaning of the thermostat

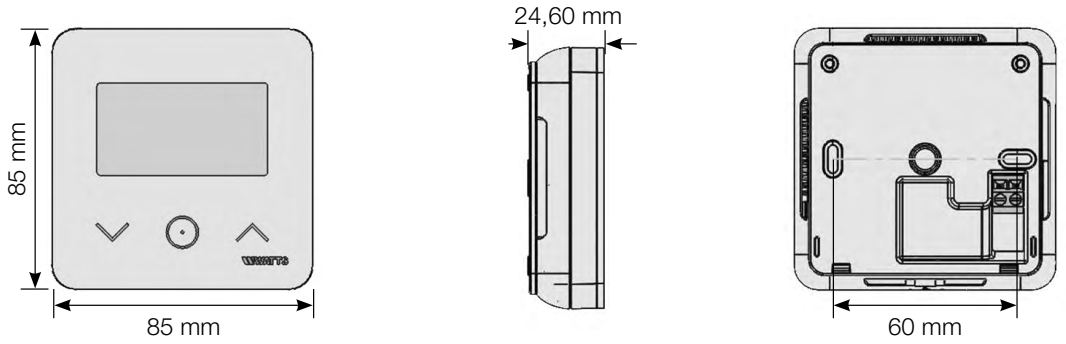
Gently dust the outside of the thermostat with a soft, lint-free cloth.

If the thermostat needs a more thorough cleaning:
Lightly dampen a soft and clean cloth with water.
Wring out any excess water from the cloth.
Gently wipe the display and sides of the thermostat, making sure no drops of water accumulate around the product.
Important: Do not spray thermostat directly with water, or use cleaning solutions or polishes, as doing so may damage the thermostat.

12. Technical characteristics

Purpose of control	Thermostat
Construction of control	Electronic independently mounted control
Software class	Class A
Extension of sensing element	Temperature
Control pollution degree	2 - Normal household environment/ 3 (blower)
Temperature for ball pressure test	75°C
Degree of protection	IP20
Environmental: **Operating temperature** **Shipping and storage temperature**	 0°C to +50°C -20°C to +60°C
Installation category **Pollution degree**	Class II 2
Temperature precision	0.1°C
Setting temperature range **Comfort, Reduced** **Holiday (Antifreeze)** **Timer**	0,5°C step 5°C to 37°C 0,5°C to 10°C 5°C to 37°C
Regulation characteristics	Proportional Band (PWM 2°C/10min) or Hysteresis 0.2°C to 3.0°C
Power supply operating life	2 AAA LR03 1.5V Alkaline ~2 years
Output	3A (1A)
Sensing elements	Internal: NTC 10kΩ at 25°C
Software version	Showed in parameter menu #11
Product conformed to **Classification** **Contribution**	UE 811/2013 and 2010/30/UE IV (2%)

12.1 Dimensions & weight



Weight: 115g (thermostat only) - all including box 220g

13. Directives

Designation	Description	Website link
Low Voltage Directive (LVD) 2014/35/EU	The Low Voltage Directive (LVD) (2014/35/EU) ensures that electrical equipment within certain voltage limits provides a high level of protection for European citizens, and benefits fully from the Single Market.	2014/35/UE
Electromagnetic Compatibility (EMC) Directive 2014/30/EU	The Electromagnetic Compatibility (EMC) Directive 2014/30/EU ensures that electrical and electronic equipment does not generate, or is not affected by, electromagnetic disturbance.	2014/30/UE
Restriction of the use of certain hazardous substances Directive (RoHS) 2011/65/ EU	Directive on the restriction of the use of certain hazardous substances in electrical and electronic equipment.	2011/65/EU
Waste Electrical & Electronic Equipment Directive (WEEE)	The WEEE Directive (2012/19/EU) aims to reduce the amount of waste electrical and electronic equipment that ends up in landfill.	2012/19/EU
Ecodesign Commission Regulation (EU) 2015/1188	Ecodesign requirements for local space heaters.	2015/1188/EU

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