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2. Denomination of range products

➤ New range:

Product	Description
	Touch E3
	Single zone wall receiver live contact
	Single zone wall receiver heat and cool
	Single zone flush receiver
	Single zone plug receiver
	Master 6 zones 230V / 24 V
	Slave module 6 or 4 zones
	Pac module
	Thermostatic Head RF
	RF repeater

3. Technical data

This thermostat can be used in conditions described below:

Characteristics	Values
IP (degree of intrusion of foreign bodies and degrees of resistance to water)	IP20
Maximum ambient humidity (relative humidity)	85% à 20°C (68°F)
ERP	IV
Ambient operating temperature	0°C to 50°C (32°F to 122°F)
Storing temperature	-10°C to 60°C (14°F to 140°F)
Batteries	Two AAA alkaline batteries of 1.5V (warranty of 2 year lifetime and protection against battery inversion)
Power supply	2.2V à 3.6V
Wireless communication (radio frequency)	868.3 MHz, <10 mW. Range of approximately 100 meters in open field. Range of approximately 30 meters in residential area.
Internal temperature sensor	CTN 10K at 25°C
Temperature sensor (accuracy)	± 0.5°C
External temperature sensor	CTN 10K at 25°C

4. Standards

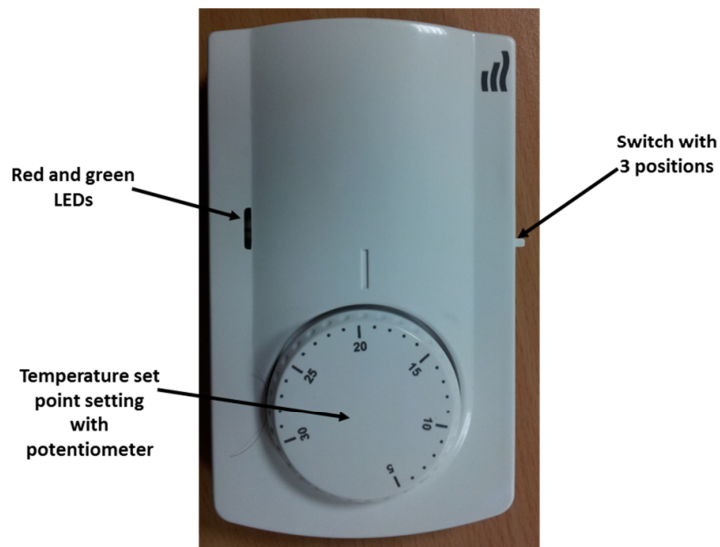
Designation	Description
Directive 1999/5/EC R&TTE	Radio And Terminal Telecommunication Equipment
Directive 2006/95/EC Low voltage	Low Voltage Directive
Directive 1999/5/EC CEM	R&TTE, Radiofrequency directive (includes EN300220 & EN301489)
Directive 2004/108/CE CEM	Electromagnetic compatibility
EN 60730-1 : 2013 (before 2003)	Automatic electric control devices for household and similar purposes - Part 1: General requirements
EN 61000-6-1 : 2007 (before 2002)	Electromagnetic Compatibility: Generic Standards - Immunity for Residential, Commercial and Light Industry
EN 61000-6-3 : 2007 (before 2004)	Electromagnetic Compatibility: Generic Standards - emission standard for residential, commercial and light industrial environments
EN 61000-4-2 : 2009 (before 2001)	Electromagnetic Compatibility: Testing and Measurement Techniques - Electrostatic Discharge Immunity Test
EN 300220-1/2 : 2012	Electromagnetic compatibility and radio spectrum (ERM) - Short-range devices (SRD) - Radio equipment operating in the frequency range 25 MHz to 1 000 MHz with power levels not exceeding 500 mW - Part 1: Technical characteristics and methods (V2.4.1)
EN 301489-1/3	Electromagnetic compatibility and Radio spectrum Matters (ERM); Electromagnetic Compatibility (EMC) standard for radio equipment and services

II. IHM specifications

1. User interface

User interface corresponds to three points:

- LEDs, with green and red colors, describing thermostat states;
- Central button for setting the temperature set point;
- Switch with three positions to select operating mode of thermostat (see paragraph 0.0 *"Operating mode description"*).



2. Visual indicator: LED's

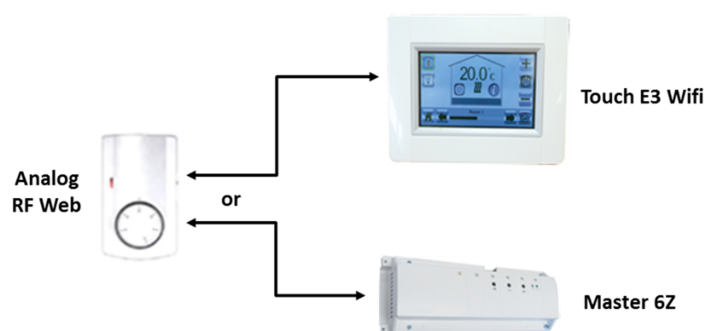


Visual indication is given by two colors LED: green, red or orange (green and red).

LED color			Thermostat state
Red	Green	Orange (green & red)	
Fixed	/	/	Heating demand – Regulation with internal sensor
Slow flashing	/	/	Internal sensor error
Very slow flashing	/	/	External sensor error
Fast flashing	/	/	Low batteries
/	Slow flashing	/	Pairing phase: system with unidirectional wireless communication
/	/	Slow flashing	Pairing phase: system with bidirectional wireless communication
/	Fast flashing	/	RF frame transmission (current range with unidirectional wireless communication)
/	/	Fixed	Heating demand – regulation with external sensor
/	/	Fast flashing	RF frame transmission (new bidirectional communication range)
Slow flashing	Slow flashing	/	Product startup
Fast flashing	Fast flashing	/	RF error (6Z master or touch E3 with bidirectional wireless communication)

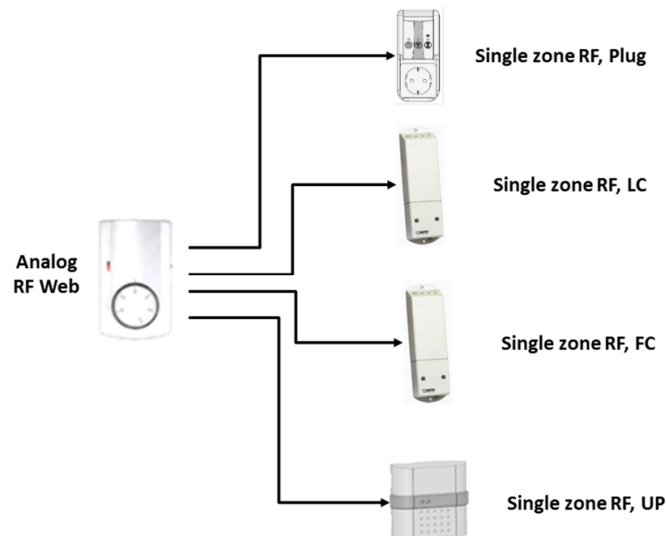
3. RF wireless communication

As presented in the first chapter III “*Presentation*”, analogue thermostat can be connected to two different protocols of wireless communication: unidirectional (current range) and bidirectional (new range). Moreover, when digital thermostat is paired with a “bidirectional system”, two cases are distinguished according to the system paired with thermostat.



- Hybrid bidirectional wireless communication with basic receivers (unidirectional wireless communication with products of new range “rF.b”):
 - When digital thermostat is paired with:
 - Single zone wall receiver H&C
 - Single zone wall receiver live contact
 - Single zone flush receiver

- Single zone plug receiver



- Analog thermostat displays heating state of system.

NOTE: RF digital thermostat must be able to be paired with two ranges of product. It must therefore be able to select automatically the appropriate communication protocol during the pairing step (see paragraph *c* and *d* respectively “*Identification of system paired to thermostat*” and “*RF wireless communication initialization*”).

4. Wireless communication functioning

When analogue thermostat sends an RF frame, LED blinks in green or orange (with respect of associated system, see paragraph 0.0 “*Identification of the system paired with thermostat*”) during transmission.

RF frame is sent:

- when user changes a parameter of analog thermostat in order to update heating/cooling system parameters (temperature set point value or operating mode);
- Automatically every 3-4 minutes.

5. Identification of the system paired with thermostat

This indication is given with the blinking color of the LED during RF frame transmission:

- Current range (unidirectional wireless communication): blinking color is green;
- New range (bidirectional communication wireless communication): blinking color is orange.

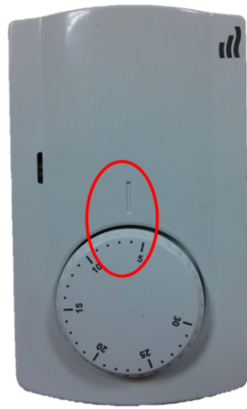
NOTE: Visual indications are described in chapter 0 “*IHM specifications*”.

6. RF wireless communication initialization

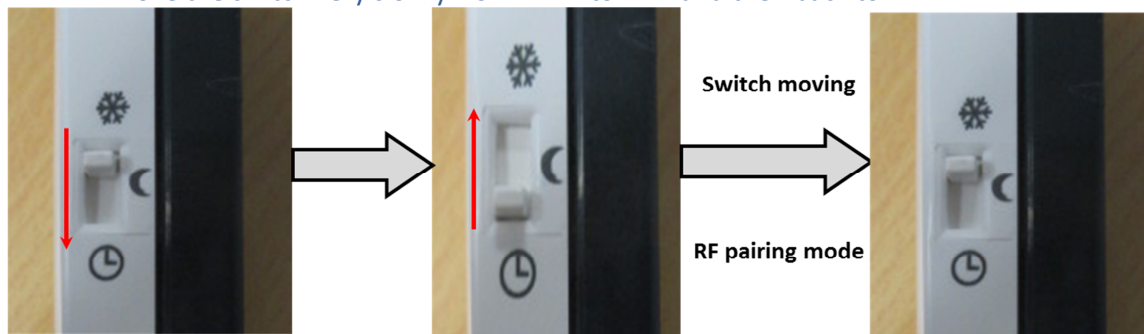
By default, RF wireless communication is unidirectional (current range).

To enter in RF communication initialization mode, user or installer has to:

- Set a low temperature set point (lower than 7°C) :



- Move the switch very slowly from  to  and then back to .



When product is in initialization step of RF communication, it sends successively unidirectional and bidirectional frames:

- When green LED is blinking, analogue thermostat sends initialization frames to products of current range (unidirectional wireless communication);
- When orange LED is blinking, analogue thermostat sends initialization frames to products of new range (bidirectional wireless communication).

During pairing step, there are three study cases:

- Pairing with receiver of the new range (see paragraph III.Fehler! Verweisquelle konnte nicht gefunden werden. "product ranges"): once paired, thermostat automatically exists from initialization phase and a RF bidirectional communication is configured.
- Pairing with receiver of current range (see paragraph III.Fehler! Verweisquelle konnte nicht gefunden werden. "product ranges"): as wireless communication is unidirectional, thermostat remains in pairing phase during 10 seconds. A RF unidirectional communication is configured.
- Pairing "not finished" or "not realized": analog thermostat remains 10 seconds in pairing then automatically returns to operating mode with unidirectional RF communication configuration (current range).

7. Timing for displaying visual indicator

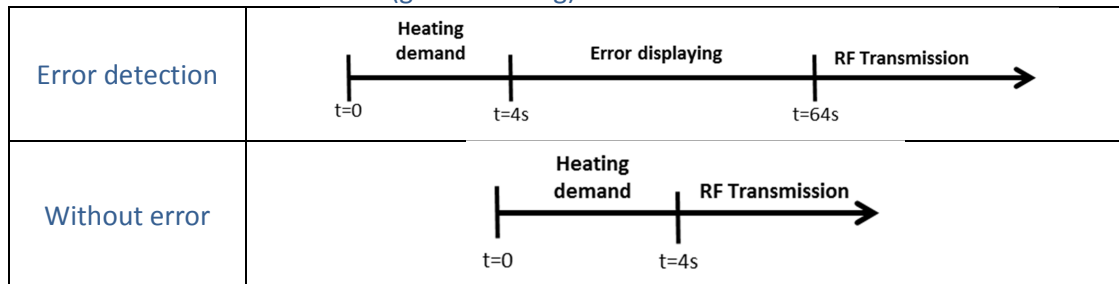
Visual indications appear as soon as user changes temperature set point or thermostat operating mode. However, depending on system paired with analog thermostat (see chapter 0 "*RF wireless communication*"), visual indications differ as presented in next paragraphs.

Only one visual indication is given without action of user. Analog thermostat indicates when it realizes RF transmission.

a. Visual information with unidirectional communication

With system with unidirectional wireless communication, visual indications are displayed in two steps:

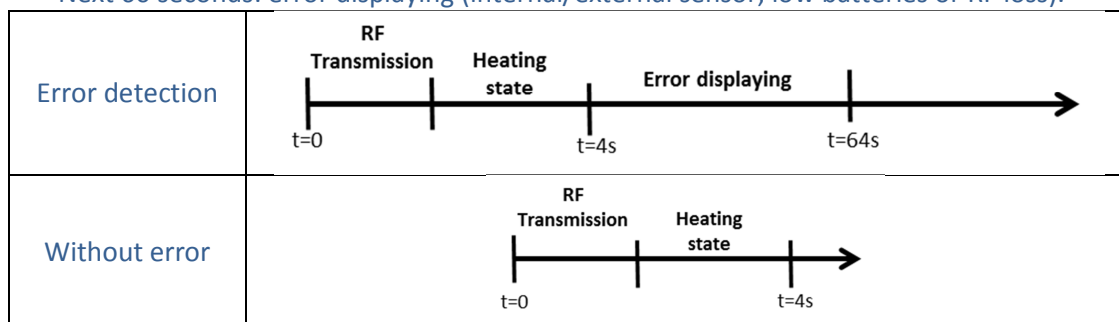
- Four first seconds: indication of heating/cooling demand;
- Next 30 seconds: error displaying (internal/external sensor or low batteries);
- End: RF frame transmission (green flashing).



b. Visual indication with bidirectional communication

With system with bidirectional wireless communication, state of heating/cooling system is sent by receiver. So, visual indications are displayed in two steps:

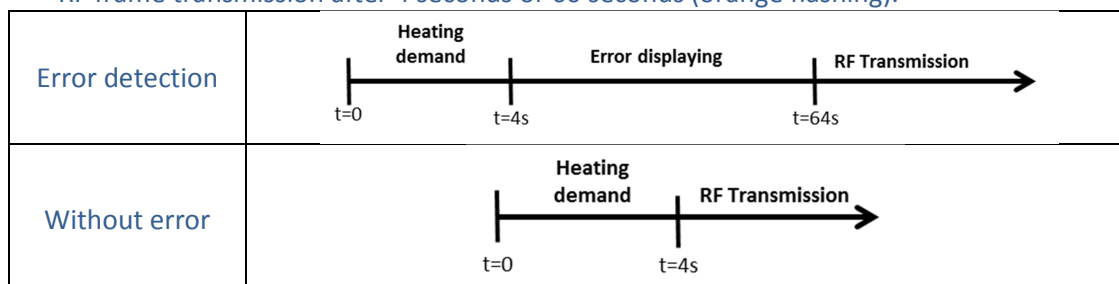
- RF frame transmission (orange flashing);
- Four first seconds: indication of heating/cooling demand;
- Next 60 seconds: error displaying (internal/external sensor, low batteries or RF loss).



c. Visual indication with « hybrid » bidirectional communication











With system with “hybrid” bidirectional wireless communication, visual indications are displayed in two steps:

- Four first seconds: indication of heating/cooling demand;
- Next 60 seconds: error displaying (internal/external sensor, low batteries or RF loss);
- RF frame transmission after 4 seconds or 60 seconds (orange flashing).



8. Operating mode description

Operating mode selection is done with three position switch.

	<p>Anti-freeze mode </p> <p>Reduced mode </p> <p>AUTO mode </p>
	<p>AUTO mode :</p> <p>If thermostat is paired with a touch E3:</p> <ul style="list-style-type: none"> ➤ Heating: comfort or reduced temperature set point, depending of program day (setting with central bottom for comfort set point) ➤ Cooling: not allowed ➤ Touch E3 can't modify temperature set point value ➤ Touch E3 can activate a boost operating mode <p>If thermostat isn't paired with touch E3:</p> <ul style="list-style-type: none"> ➤ Comfort temperature set point
	<p>Reduced mode :</p> <ul style="list-style-type: none"> ➤ Heating: reduced temperature set point (comfort temperature set point minus 2 °C) ➤ Cooling: off mode
	<p>Anti-freeze mode :</p> <p>If thermostat is paired with a touch E3:</p> <ul style="list-style-type: none"> ➤ Heating: anti-freeze mode ➤ Cooling: off mode

	Anti-freeze set point temperature: 7°C
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9. Setting comfort temperature set point

Temperature set point is configured with central button:



Temperature set point value goes from 5°C to 30°C. However, these thresholds can be modified mechanically (see paragraph IV.0 “*Thermostat calibration and set point limitation*”).

10. Thermostat reset

In order to reset analog thermostat with factor settings, battery has to be removed. All parameters and errors will be reset except for RF communication.

11. Thermostat calibration and set point limitation

d. Calibration thermostat

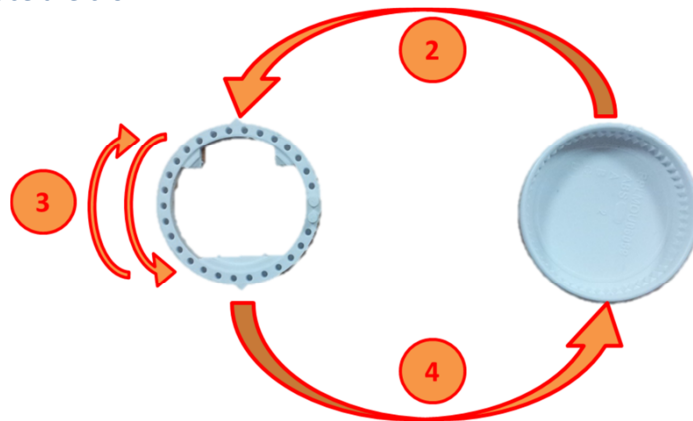
On this thermostat, it's impossible to directly calibrate temperature sensor by adding an offset value. To perform calibration, set point value is changed by modifying the position of central button without changing mechanical position of the potentiometer.

In a first time, temperature set point must be set to the value which heating is triggered. Then following steps must be performed:

- Step 1: Pull central button with a screwdriver (do not turn button during this operation)



- Step 2: Remove the inner crown of central button
- Step 3: Turn the crown by the number of degrees to be removed or added
- Step 4: Replace the crown



- Step 5: replace central button (do not turn button during this operation)



e. Temperature set point limitation

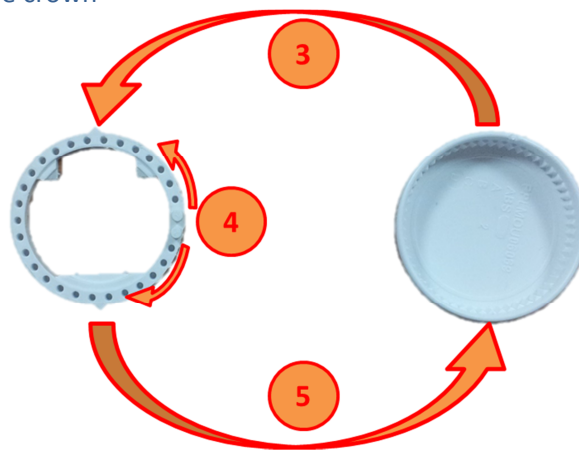
It's possible to mechanically limit the range of temperature set point. The position of plastic pins on the plastic crown must be changed inside the central button.

To realize temperature set point limitation, user must to do:

- Step 1: Set temperature set point at the middle of wanted set point interval
 - Example: for a temperature set point value of 15°C to 25°C, the button must be set to 20°C.
- Step 2: pull central button with a screwdriver (do not turn button during this operation)



- Step 3: remove the inner crown of central button
- Step 4: move the adjustment pins and set them to the new setting range
- Step 5: replace the crown



- Step 6: replace central button (do not turn button during this operation)



12. Internal Sensor/External sensor

On this thermostat, it's possible to define sensor for regulation.

By default internal sensor are used for regulation. It's possible to connect an external sensor for air regulation. System detect automatically that an external sensor are connected and regulate ambient room temperature with this sensor.

Disconnect this sensor and remove replace battery to regulate on internal sensor.