

TechniSat

Heating thermostat HT2



Operation manual / installation guide

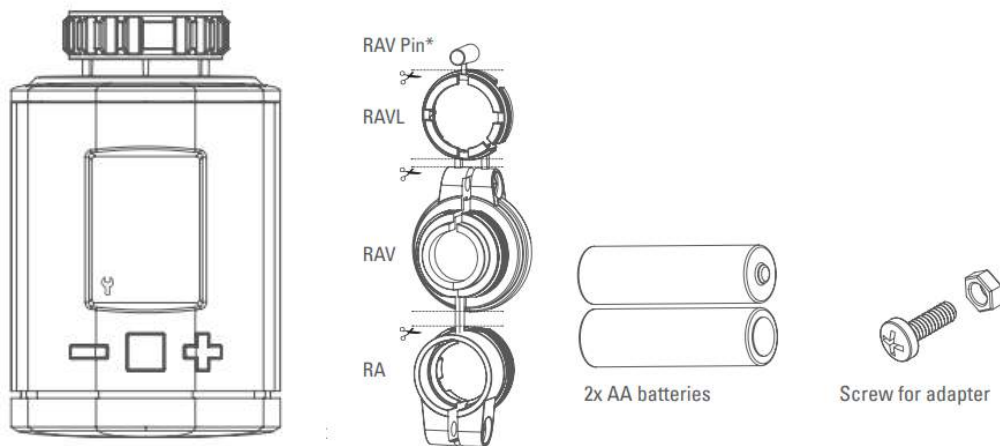
Many thanks for choosing a product of TechniSat Digital GmbH. The following quick start set up guide will help you installing your heating thermostat HT2. Please read this manual carefully before using and keep it around when installing the product. For questions and information please contact your TechniSat reseller / distributor or use our technical hotline via +49 3925/9220 1800.

Content

- 1 Included in delivery
- 2 Important instructions
- 3 Product Description
 - Technical specifications
- 4 Buttons and displays
 - 4.1 Buttons
 - 4.2 Boost-buttons LEDs
 - 4.3 LCD
 - Network behaviour
 - 4.4 Inclusion
 - 4.5 Mounting the HT2
 - 4.6 Mechanical Installation
 - 4.7 Exclusion
 - 4.8 Unmounting the HT2
 - 4.9 Plus Factory Rese
- 5 Operating the device
 - 5.1 Set point adjustment
 - 5.2 Child protection
 - 5.3 Altering the operating states
 - 5.4 Window open detection
 - 5.5 Display NodeID
- 6 Z-Wave
 - 6.1 Association
 - 6.2 Basic
 - 6.3 Configuration
 - 6.4 Multilevel Sensor
 - 6.5 Multilevel Switch
 - 6.6 Notification
 - 6.7 Protection
 - 6.8 Thermostat Mode
 - 6.9 Thermostat Set point
- 7 Troubleshooting

Included in delivery

- 1 Heating thermostat HT2
- 2 Screw
- 3 Adapters for Danfoss valves
 - 4 2x AA batteries



*When using the RAV adapter you need to use the RAV Pin for the extension of the valve stem.

2 IMPORTANT INSTRUCTIONS!

WARNING- Do **not** use rechargeable batteries!

Never recharge batteries, do not short circuit them, do not take them apart – Risk of explosion!

Remove dead batteries immediately and remove them from the device. Not use new and used batteries together. Keep batteries away from children.

Avoid contact with skin, eyes and skin. If getting contact with battery acid please immediately clean the affected areas with plenty of clear water and visit a doctor.

SAFETY INSTRUCTIONS

- The device is intended for use in buildings
- Only operate the device as described in the operating instructions
- The device should only be used in a dry and dust free place without direct sunlight
- Stop using the device if it has obvious damage

The device must be not be rebuilt, modified or be opened.

3 Product description

The heating thermostat HT2 is a Z-Wave plus radio standard compatible energy saving radiator thermostat.

FLiRS (Frequently Listening Receiver Slave):

The heating thermostate HT2 uses FLiRS to provide short latency and short responding times.

Technical specifications

Device: Heating Thermostate HT2

Method of operation: Type 1

EAN: 4019588095199

Dimensions: (W x H xD) 56 x 68 x 89 mm

Art.nr: 0000/9519

Weight: 176 g

Supply voltage: 2x 1,5V /AA

Degree of protection: IP20

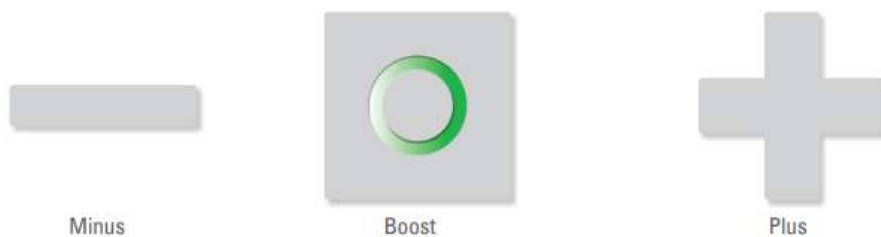
Radio frequency: 868,42 MHz

Degree of pollution: 2

Connection: M30 x 1,5mm

4 Buttons and display

4.1 Buttons



Button	Interaction	Result/Behaviour
	Press once	Decrease temperature by 0.5C
	Press and hold	Decrease room temperature by 0.5C and lower the room temperature by 0.5C every 0.5 seconds or until the lowest temperature is set
	Press once	Increase room temperature by 0.5C
	Press and hold	Increase room temperature by 0.5C and raise the room temperature by 0.5C every 0.5 seconds or until the highest temperature is set.
	Push once	<ul style="list-style-type: none"> Confirm action which is displayed in the LCD Switch into Boost-Mode (Quick Heat) Quit Boost-mode (Quick Heat) if currently active
	Hold for 3 seconds	The LCD shows the Z-Wave Node ID.
	Hold for 5 seconds	The heating thermostat HT2 will react to Exclusion Commands
	Hold while unpowered and insert batteries	Allows factory reset of the heating thermostat HT2
	Hold both simultaneously for 3 seconds	Sets or clears the child protection

4.2 Boost-button LEDs



Boost – green



Boost – red

Color	State	Meaning
	Lights constantly for 5 seconds	A task has failed.
	Permanently on	An error occurred. Consult manual for error code description.
	Blinking	User conformation is required to start a task.
	Lights constantly for 5 seconds	A task was completed successfully.

4.3 LCD



Wrench:

Lights up if mechanical tasks are opening



Antenna:

Displays the HT2 network state. Segment visible: rf-link established / Segment turned off: rf-link lost



ID: Lights up if the display shows the Z-Wave NodeID



Battery: Lights up if less than 15% battery is remaining



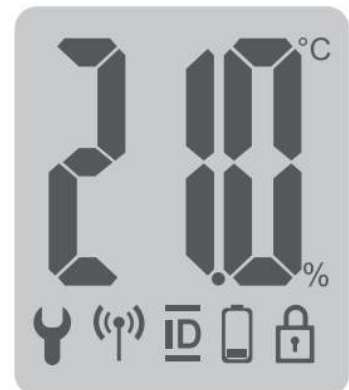
Lock: Lights up if child protection is set



Celsius: Displayed if the LCD shows a setpoint temperature



Percent: Displayed instead of C Icon if the HT2 is set to direct control mode



Inserting batteries

Remove the battery cover by simply pulling it off. Now insert the batteries. Pay attention to the correct polarity! At a later battery change, the configuration of your HT2 is maintained.

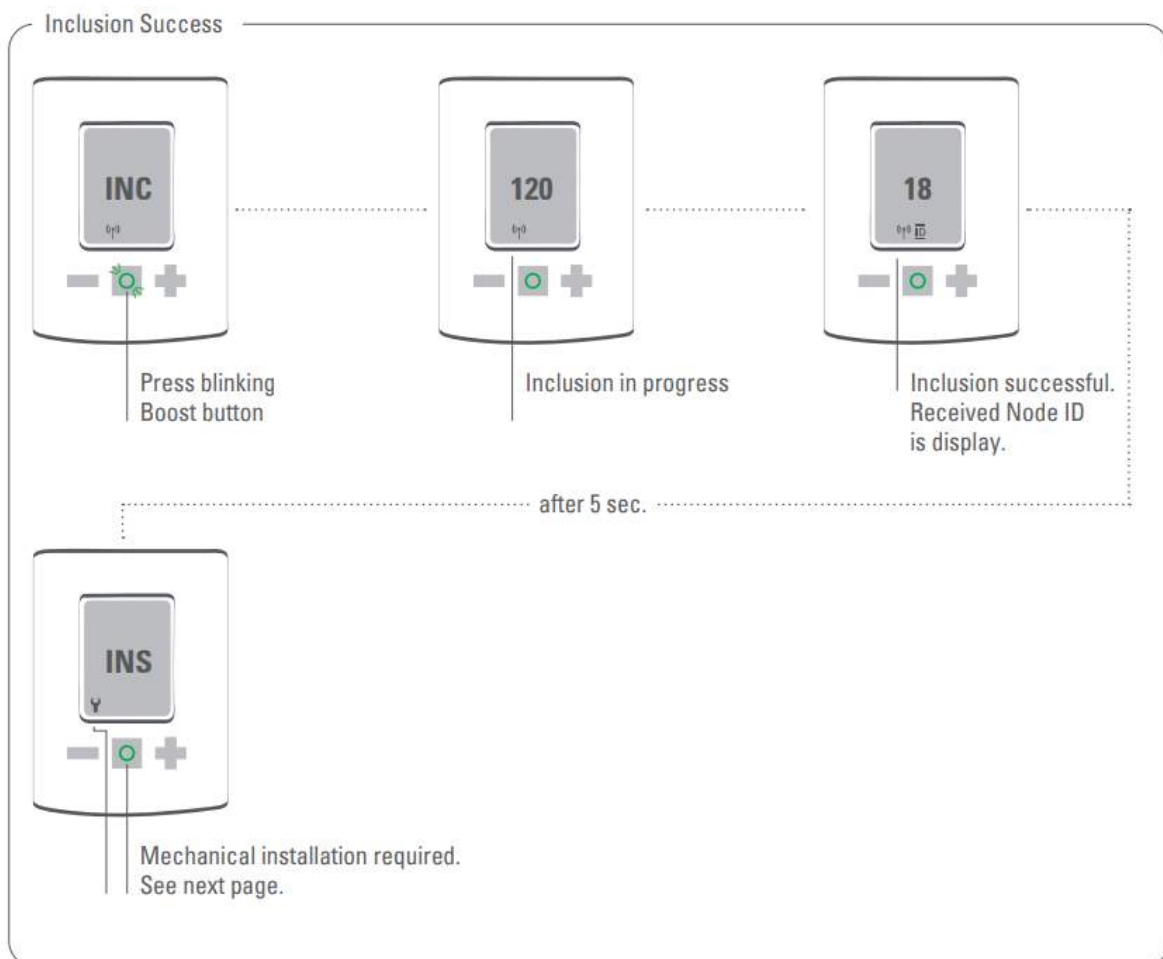


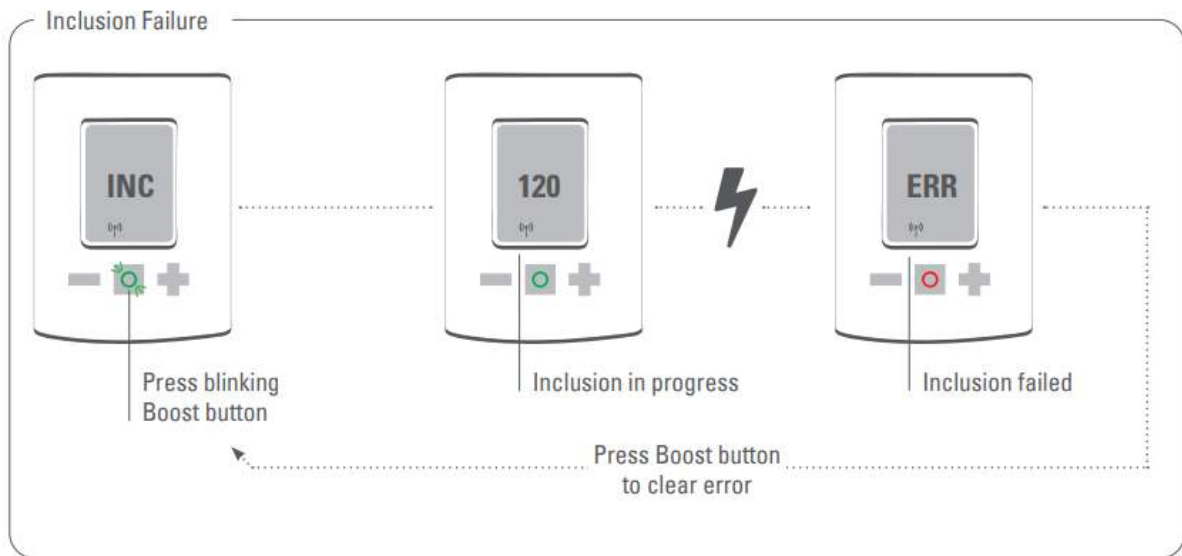
4.4 Inclusion

Start inclusion mode of your primary Z-Wave controller.

Press the Boost-Button.

The heating thermostat HT2 will show the assigned NodeID

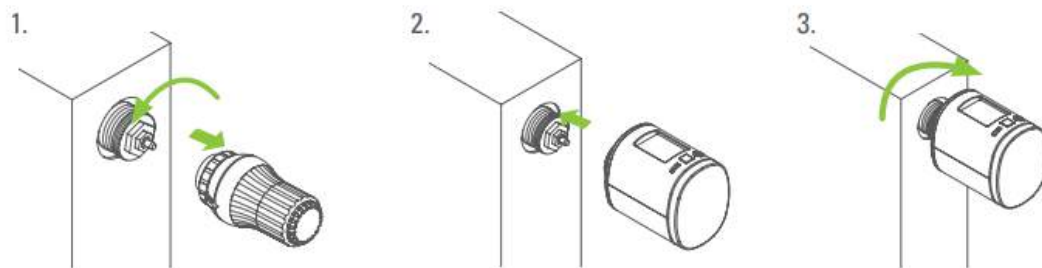




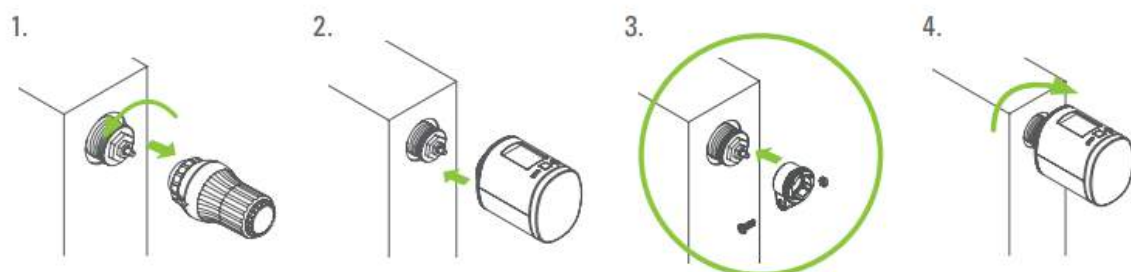
4.5 Mounting the heating thermostat HT2

After adding the HT2 to a network it is ready to be installed on the radiator. The LCD shows INS. Do not press the boost button yet. If successfully installed to the radiator proceed with 4.6.

Installation at the radiator without Adapter

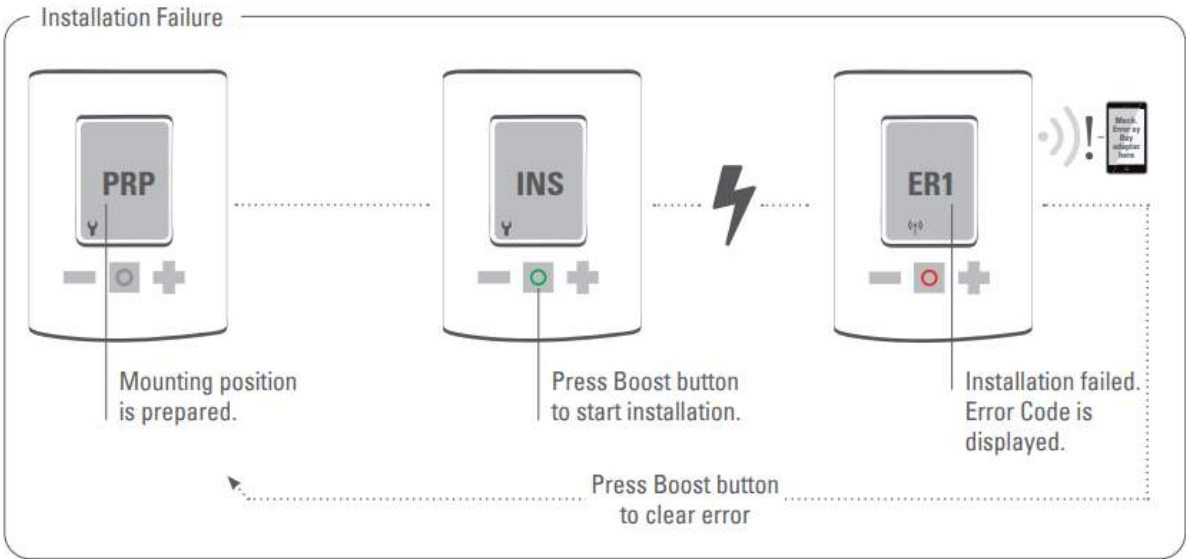
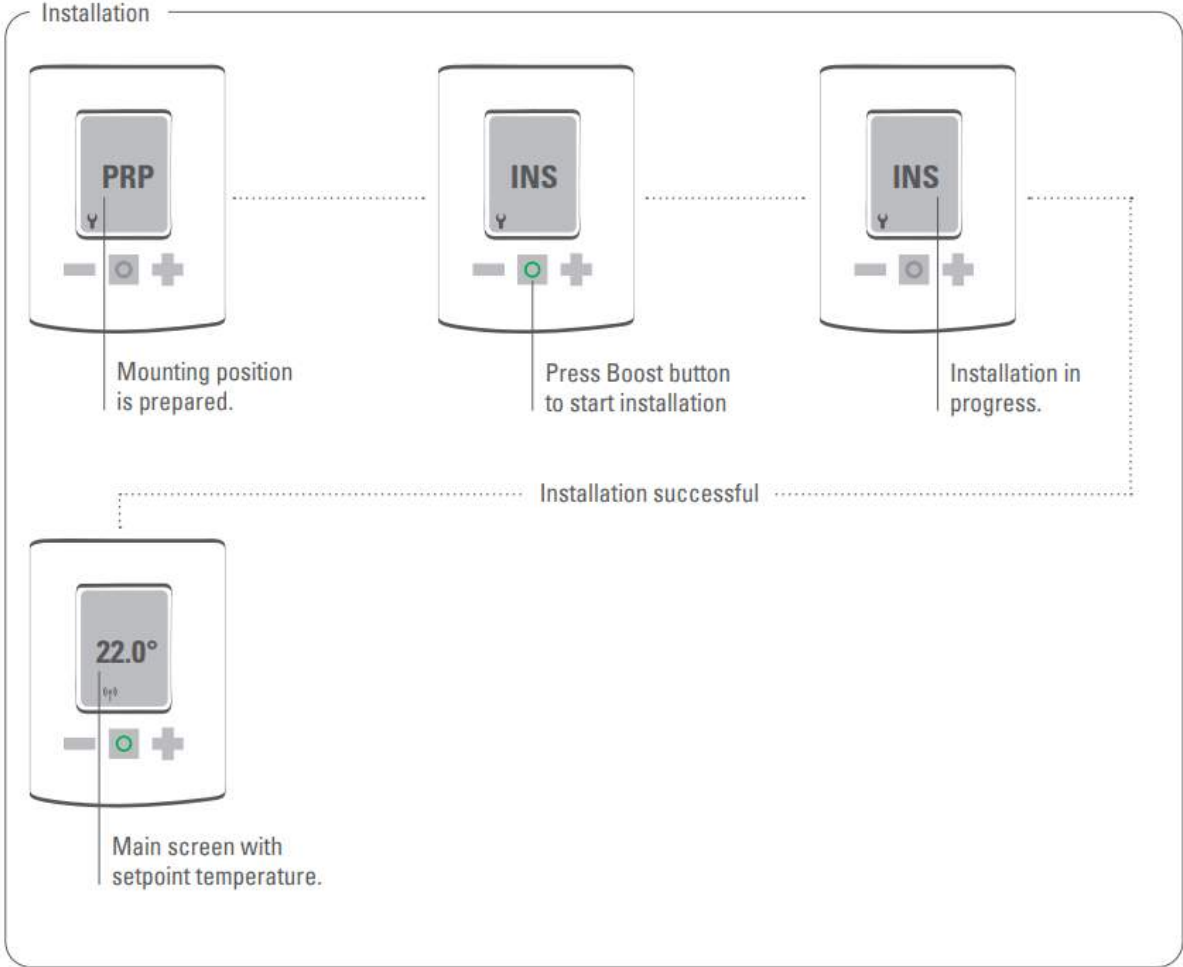


Installation at the radiator with Adapter



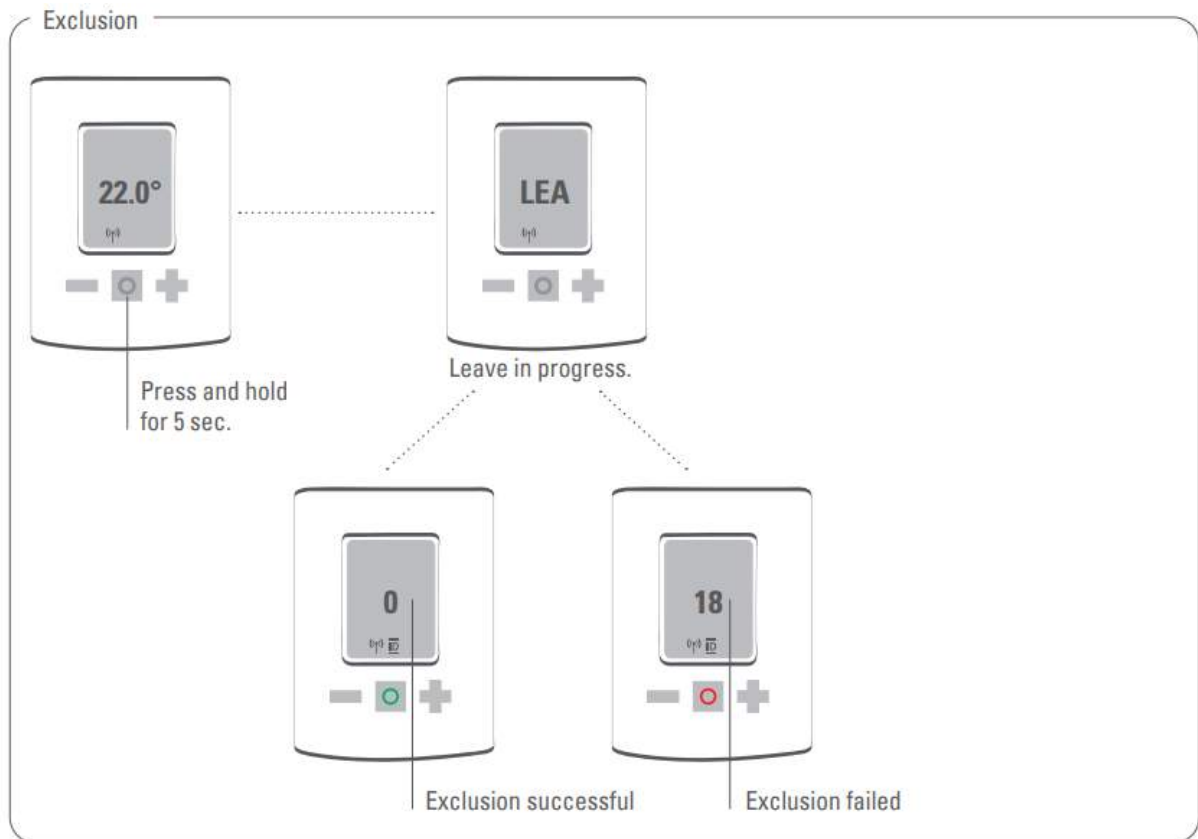
4.6 Mechanical installation

Press the boost button to start the mechanical installation.



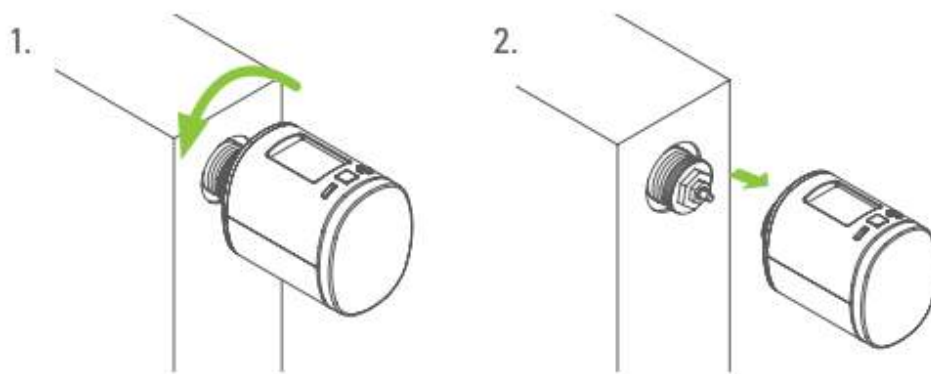
4.7 Exclusion

Start Exclusion mode of your primary Z-Wave controller. Now press and hold the boost button of the HT2 for at least 5 seconds.



4.8 Unmounting the heating thermostat HT2

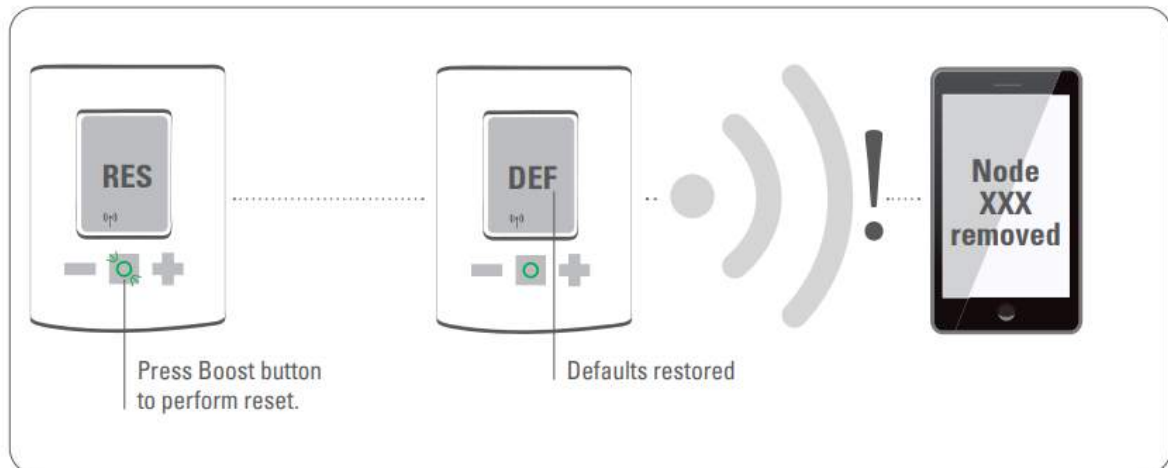
Remove the HT2 from the Z-Wave network before unmounting it. Follow the process described in Exclusion and wait until the LCD shows INC. You can now uninstall the HT 2 from the radiator.



4.9 Factory reset

Remove batteries. Press and hold boost button. While still holding boost button insert batteries. The LCD shows RES. Release boost button. To perform the factory reset press boost button.

Please use this procedure only when the network primary controller is missing or otherwise inoperable.



5.0 OPERATING DEVICE

The LCD shows the configured set point or the valve opening percentage if the device is in manufacturer specific mode.

5.1 Set point adjustment

The set point is adjusted via plus and minus button. Altering the set point locally will set the HT 2 in heating mode. The energy saving set point can only be adjusted via Z-Wave. The configurable set point is 8 C to 28 C.

If the set point is increased /decreased above/below the set point limits the HT2 will change into boost/off – mode.

5.2 Child protection

Press and hold plus and minus button simultaneously for 3 seconds to enable/disable the child protection. If the HT2 is set into the highest protection level it is no longer possible to operate the device locally.

5.3 Altering the operating states

Off-Mode

Press minus button until OFF is displayed.

Boost-Mode

Press the boost button. Alternatively press the plus button until ON is displayed.

Heating-Mode

If the operating state is not heating mode, pressing the plus or minus button will bring the device in heating mode.

5.4 Window open detection

If the room temperature drops the window open detection will trigger. Heating thermostat HT 2 will change temporarily in off mode for 15 minutes. Window open detection will end automatically after 15 minutes and the previously active operating mode will be restored. Window open detection can also be canceled by a button press. The window open detection is disabled during manufacturer specific mode. The sensitivity of the window open detection can be configured.

5.5 Display NodeID

Press and hold the boost button for 3 seconds to display the NodeID.

6 Z-Wave

Command Class	Description	Version	Control (C) Support (S)	Security *
Association	Allows to associate with other Z-Wave devices.	2	S	U, S0, S2
Association Group Information	Allows to group associations.	1	S	U, S0, S2
Basic	Provides access to basic functionality.	1	S	U, S0, S2
Battery	Returns the current battery level of the device.	1	S	U, S0, S2
Configuration	Allows to configure the device settings.	1	S	U, S0, S2
Device Reset Locally	Informs the Z-Wave Controller that the device was factory reset.	1	S	U, S0, S2
Manufacturer Specific	Provides information about Manufacturer and Product.	1	S	U, S0, S2
Multilevel Sensor	Provides the measured room temperature.	5	S	U, S0, S2
Multilevel Switch	Provides or sets the valve opening degree of the valve Controlling the valve opening degree requires manufacturer specific mode.	1	S	U, S0, S2
Notification	Informs the controller about critical system events/errors.	8	S	U, S0, S2
Power Level	Used to alter the rf-power(required by Z-Wave).	1	S	U, S0, S2
Protection	Allows to lock the device(child protection).	1	S	U, S0, S2
Security	Allows encrypted Z-Wave Communication.	2	S	U
Thermostat Mode	Configures the operation mode.	3	S	U, S0, S2
Thermostat Setpoint	Allows to configure the desired room temperature.	3	S	U, S0, S2
Transport Service	Handles the transmission of large telegrams.	2	S	U
Version	Returns information about the Firmware.	2	S	U, S0, S2
Z-Wave Plus Info	Identifies the device as a Z-Wave Plus Device.	1	S	U

*Availability of the Command Class after adding the heating thermostat HT2 to your Z-Wave network.

U Unsecure

S0 Z-Wave Security standard S0

S2 Z-Wave Security standard S2

6.1 Association

Heating thermostat HT2 can only be associated with the Z-Wave controller

Group No	Description	Commands	Max supported Nodes
1	Lifeline	BATTERY_REPORT, DEVICE_RESET_LOCALLY_NOTIFICATION, THERMOSTAT_MODE_REPORT, THERMOSTAT_SETPOINT_REPORT, NOTIFICATION_REPORT, PROTECTION_REPORT, SENSOR_MULTILEVEL_REPORT, SWITCH_MULTILEVEL_REPORT	1

6.2 Basic

Control basic functions of the heating thermostat HT2 via basic command class.

Value	Description	Function
0x00	Energy Save Heating	Switches into energy save heating mode. The room temperature will be lowered to the configured setpoint in order to save energy.
0x0F	OFF	No Heating. Only Frost-protection.
0xF0	Full Power Heating	Switches into Boost mode(Quick heat).
0xFE	Manufacturer Specific	Switches into direct Valve control mode.
0xFF	Heating	Switches into comfort heating mode. The room temperature will be kept at the configured comfortable level.

6.3 Configuration

Heating thermostat HT2 can be configured during runtime.

Parameter number	Size in Byte	Name	Description
1	1	LCD Invert	0x00 LCD-content normal 0x01 LCD-content inverted (UK Edition) default: 0x00
2	1	LCD Timeout	0x00 No Timeout LCD always on 0x05-0x1E LCD will turn off after 5 to 30 seconds. default: 0x00
3	1	Backlight	0x00 Backlight disabled 0x01 Backlight enabled default: 0x01
4	1	Battery report	0x00 Battery status is only reported as a system notification (Notification CC) 0x01 Send battery status unsolicited once a day. default: 0x01
5	1	Measured Temperature report	0x00 Unsolicited Temperature reporting disabled. 0x01 – 0x32 report if temperature changed by delta = 0,1°C ... 5,0 °C default: 0x05 (report on delta T = 0,5°C)
6	1	Valve opening percentage report	0x00 Unsolicited valve opening percentage reporting disabled. 0x01-0x64 report if valve opening changed by delta = 1% ... 100% default: 0x00
7	1	Window open detection	0x00 Disabled 0x01 Sensitivity low 0x02 Sensitivity medium 0x03 Sensitivity high default: 0x02 medium
8	1	Measured Temperature offset	0xCE-0x32 Offsets the measured temperature by -5,0°C – (+)5,0°C 0x80 External temperature sensor will be used for regulation. default: 0x00 0,0°C Offset

6.4 Multilevel sensor

Heating thermostat measured the room temperature and automatically reports sensor readings to associated devices. Per default the reporting threshold is +/-0.5 C. This parameter can be altered via configuration command class.

The measured room temperature can be adjusted with an offset. The heating thermostat HT2 can receive temperature readings from other Z-Wave devices (wall thermostat for example). The external temperature can be used for temperature regulation. This feature has to be enabled via configuration parameter. The HT2 can handle multilevel sensor reports in the following format:

Report outgoing:

Sensor type: „Air Temperature“

Scale: Celsius

Precision: 2

Report incoming:

Sensor type: „Air Temperature“

Scale: Celsius and Fahrenheit

Precision: 0, 1 and 2

6.5 Multilevel Switch

Allows to request the valve opening in percent. 0% represents a fully shut valve. 100% a fully open valve. The valve opening can be reported on change. If the configuration parameter is set.

Controlling the valve directly via multilevel switch command class is only possible if the heating thermostat HT2 is in manufacturer specific mode

6.6 Notification

Heating thermostat HT2 will send notifications on certain events.

Notification type	Reason	Description
Power Management	Replace battery soon	Notification is sent if less than 25% battery remaining
Power Management	Replace battery now	Notification is sent if less than 15% battery remaining
System	System Hardware failure with manufacturer proprietary failure code	Provides manufacturer specific error codes for mechanical problems 0x01 Motor movement not possible 0x02 Not mounted on a valve 0x03 Valve closing point could not be detected 0x04 Piston positioning failed

6.7 Protection

Heating thermostat HT2 can be locked remotely.

Protection level	Description
0x00	Unprotected regular operation possible
0x01	Restricted: device can be unlocked using a button pattern.
0x02	No local operation possible.

6.8 Thermostat Mode

Heating thermostat HT2 offers following modes.

Mode	Name
0x00	Off
0x01	Heat
0x0B	Energy Heat
0x0F	Full Power
0x1F	Manufacturer Specific

6.9 Thermostat set point

The following set points of the heating thermostat HT2 can be altered.

Modus	Name	Precision	Scale	Temp. Range
0x01	Heat	0,1 and 2	Celsius and Fahrenheit	8°C-28°C
0x0B	Energy Heat	0,1 and 2	Celsius and Fahrenheit	8°C-28°C

7.0 Troubleshooting

Problem	Reason	
Batterie Icon	Batteries do not have enough power.	Replace batteries
Heating element does not warm up.	Is the boiler water temperature O.K.? Valve does not open, is it calcified after the summer pause/heating pause.	Adjust temperature of the boiler water. Remove the HT2, move the valve back and forth per hand or with a tool
Heating element does not cool down.	Valve does not close completely. It may be that the closing point of your valve seat has shifted.	Unmount HT2. Move the valve stem several times by hand, it may be that adaption is impossible because your valve is calcified or the seat no longer performs it function.
Pressure piece falls out (This can also cause an E1-error)	Due to an endless thread the pressure piece, which is situated at the bottom, can fall out if the device has not been affixed on the valve.	Remove batteries. Out in the pressure piece. Insert the batteries. The endless thread is rotating now and fixes the pressure piece again.
ER1-3 and ERR	The error code can be cleared by pressing the boost button.	
Err	Inclusion failed	Z-wave controller out of range
ER1	Valve positioning not possible	Check if the valve is jammed
ER2	Valve not detected	Check if the HT2 is correctly mounted
ER3	Valves closing point not detected	Check if the HT2 is correctly mounted

Technisat is a registered trademark of:

TechniSat Digital GmbH TechniPark

Julius-Saxler-Str. 3

D-54550 Daun

Germany

TechniSat