

HEATIT Z-TRM2fx

Firmware 3.6

01.05.2019

Ver 2019-A

Installers manual



IMPORTANT

PLEASE READ THIS BEFORE INSTALLATION

This Heatit device is certified by Pepper One GmbH according to the requirements set forward by the Z-Wave Alliance and Silicon Labs. This is a Z-Wave Plus product with the 500 series chip. If the product does not work with your gateway, then the gateway manufacturer has not made an integration for such a device. We do not give any guarantee towards integration.

PRINCIPLES FOR REGULATION

Heatit Z-TRM2fx is designed for controlling electrical heating cables and electrical radiators/convectors. The thermostat uses an external temperature sensor. After you have set the temperature, the thermostat will use a hysteresis to regulate the temperature. The hysteresis is adjustable.

TEMPERATURE SHOWN IN DISPLAY

The temperature shown in the display is the actual temperature for floor sensor and the external room sensor. You are able to calibrate the sensor values.

Z-WAVE THERMOSTAT – SETUP

This manual describes the most essential functions and technical specifications of the thermostat. These instructions help the user to control the thermostat, and the electrician to install and setup the thermostat.

FACTORY RESET

By pressing buttons Right and Center (down and confirm) for 20 seconds, the thermostat will perform a complete factory reset. NB! Please use this procedure only when the primary controller/gateway is missing or otherwise inoperable.

BEHAVIOR WITHIN THE Z-WAVE NETWORK

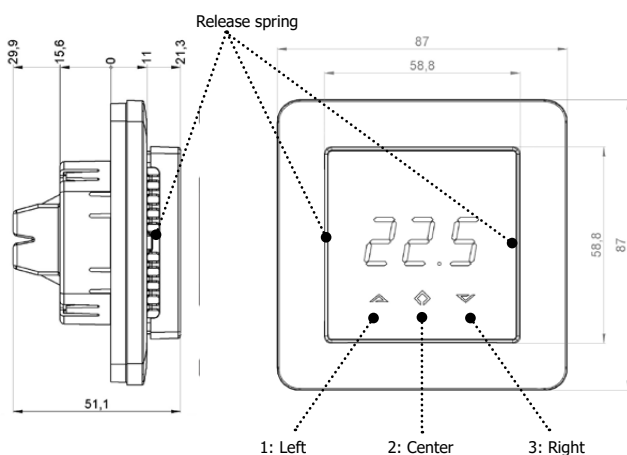
This product can be operated in any Z-Wave network with other Z-Wave certified devices from other manufacturers. All non-battery operated nodes within the network will act as repeaters regardless of vendor to increase reliability of the network.

On delivery, the device does not belong to any Z-Wave network. The device needs to be added to an existing wireless network to communicate with the devices of this network. Devices can also be removed from a network. Both add and remove process are initiated by the primary controller of the Z-Wave network. This controller will be turned into a mode for adding or removing devices. Please refer to your primary controllers manual on how to turn your controller into add or remove mode. Only if the primary controller is in add or remove mode, this device can be added or removed from the network. When the device is removed from the network, it will set the device back to factory default.

If the device already belongs to a network, follow the remove process before adding it in your network. Otherwise, the adding of this device will fail.

INSTALLATION

Installation must be done by a qualified electrical installer in accordance with the National Building codes. Before installation, disconnect any power to the thermostat's mains. During installation of the thermostat, power to the thermostat must be disconnected AT ALL TIMES!

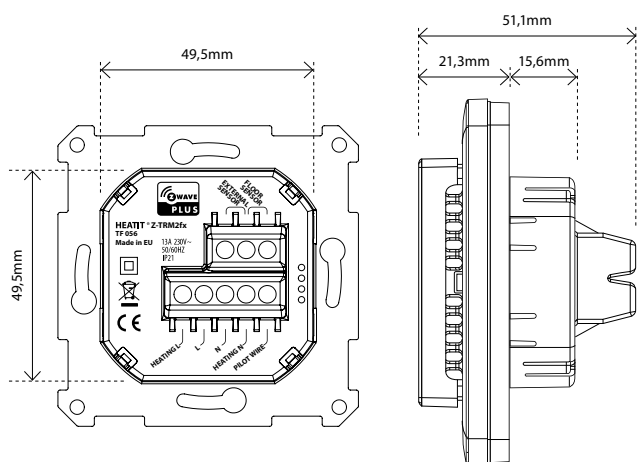


Use e.g. a small slotted screwdriver. Start by carefully removing the front cover by pushing the release springs. The front cover and the frame can now be removed.

Now connect the wires to the thermostat's terminals:
Use 1,5mm² or 2,5mm² according to load.

HEATING (N)	Heating cable connection (Neutral)
N	Power connection (Neutral) 230V
L	Power connection (Live) 230V
HEATING (L)	Heating cable connection (Live)
PILOT	230V pilot signal (ECO temp)
FLOOR SENSOR	NTC type (10, 12, 15, 22, 33 or 47kΩ). Default 10kΩ.
EXTERNAL SENSOR	NTC type (10, 12, 15, 22, 33 or 47kΩ). Default 10kΩ.

Next, position the thermostat and fasten it onto the wall's mounting box using 2-4 screws. Position the frame, then position and carefully press the front cover until it snaps in place. Check that the front cover has snapped in place properly on both left and right side. The front cover should now be firmly fixed on all sides.



To be able to read the Power Metering, the load needs to be connected to both heating L + N.

STARTUP

AFTER CONNECTING THE POWER TO THE THERMOSTAT FOR THE FIRST TIME, ALL PARAMETERS WILL HAVE DEFAULT SETTINGS.

CONTROL

The thermostat is controlled by three touch sensitive capacitive buttons.

You only need to touch lightly to activate the buttons.

- 1: Left (Up)
- 2: Center (Confirm)
- 3: Right (Down)

ADDING/REMOVING

To add or remove the thermostat to your home automation gateway, press Center (confirm) for 10 seconds.

The display will show OFF. Press Right (down) 4 times till you see Con in the display. Now start add/remove device in your home automation software. Start adding/removing mode by pressing Center (confirm) for approximately 2 seconds. Adding/removing Mode is indicated in the display by some "circling" LED segments in the display until the timeout occurs after 20 seconds or the module has been added/removed in the network. Confirmation will show Inc/EcL in the display. If adding/removing fails, Err (error) will appear. Leave programming mode by choosing ESC in menu. Your thermostat is ready for use with default settings.

PROGRAMMING YOUR THERMOSTAT

To activate the programming mode, press Center (confirm) for 10 seconds. Now the display will show OFF.

Now you are in programming mode. To scroll up and down in the menu use button 1 and 3 (left and right) to navigate. To enter submenu press Center (confirm). Always confirm your setting by pressing Center (confirm) for 2 seconds.

Menu:

OFF Turns the thermostat off.

Sensors:

1. F Choice of sensors

Depending on your choice of sensors, the menu will change.

- 2. SEn** Select the right Ohm value for your external/floor sensor.
NTC type (10, 12, 15, 22, 33 or 47kΩ). Default 10kΩ.
- 3. CAE** Calibration for external sensor.
CAF Calibration for floor sensor.
- 4. br1** Brightness of display can be adjusted in this menu.
- 5. Con** Activation of inclusion/exclusion mode.
- 6. diF** Hysteresis.
- 7. ALo** Setting lowest allowed temperature (limitation).
(Airsensor)
AHI Setting highest allowed temperature (limitation).
(Airsensor)
FLO Setting lowest allowed temperature (limitation).
(Floor sensor)
FHI Setting highest allowed temperature (limitation).
(Floor sensor)
- 8. HEA** Switch between heating and cooling function.
- ESC** Escape – exit programming menu.

1. CHOICE OF SENSOR

The thermostat has a range of choices when it comes to sensors. To get to the menu you have to press Center (confirm) for 10 seconds, then press Right (down) once and an F shows in the display. Then press Center (confirm) again and you can choose one of these modes, while moving up and down with buttons Left or Right.

F Floor sensor

A2 External room sensor

A2F External room sensor + Floor sensor

When you have decided on the sensor mode you want to use, press the Center (confirm) button. If you choose F without having a floor sensor connected, Er4 will be shown in the display. If you choose A2 or A2F and there is no external sensor installed, Er5 will be displayed on the screen.

NOTE: Wooden floors require that a floor sensor is connected in order to limit the floor temperature to a maximum of 27°C (in accordance with specifications from most wooden floor manufacturers).

2. SELECT THE RIGHT OHM VALUE FOR YOUR EXTERNAL FLOOR SENSOR

The following values are available: NTC type (10, 12, 15, 22, 33 or 47kΩ). Default 10kΩ. The function is only active when an external sensor is connected. Confirm with Center (confirm) button.

3. CALIBRATION

In this mode you are able to adjust the displayed temperature. If the thermostat of some reason (or sensor) is not calibrated properly you are able to make minor changes to the temperature. You are able to raise/lower the set point by up to 4°C. Confirm with Center (confirm) button.

This function is only available for the floor sensor and external room sensor.

4. BRIGHTNESS

Use Left and Right (up and down) button to adjust the brightness between 0-9. Confirm with Center (confirm) button.

5. ADDING/REMOVING

To add or remove the thermostat to your home automation gateway, press Center (confirm) for 10 seconds.

The display will show OFF. Press Right (down) 4 times till you see Con in the display. Now start add/remove device in your home automation software. Start adding/removing mode by pressing Center (confirm) button for approximately 2 seconds. Adding/Removing Mode is indicated in the display by some "circling" LED segments in the display until the timeout occurs after 20 seconds or the module has been added/removed in the network. Confirmation will show Inc/EcL in the display. If adding/removing fails, Err (error) will appear.

6. HYSTERESIS (DIF)

In this mode you are able to make changes to the hysteresis in the thermostat. This means that you can changes the hysteresis from 0,3°C up to max 3,0°C. Confirm with Center (confirm) button. Default setting is 0,5°C. When using a waterbased heating, the recommended hysteresis is a minimum of 1,0°C.

7. MIN/MAX TEMPERATURE SETTINGS

FLO Min Floor temperature
FHI Max Floor temperature
ALo Min Air/room temperature
AHI Max Air/room temperature
Confirm with Center (confirm)

8. HEA Choose whether the thermostat is to be used for heating or cooling.

ESC Leaving programming mode.
Confirm with Center (confirm) button.

9. STANDBY AND MAIN SCREEN

When the thermostat remains untouched for a while, it will automatically go to standby screen. Standby screen shows the temperature in the room or floor if the thermostat is connected to external sensors. By pressing Left or Right (up or down) button the setpoint will be shown in the display.

10. DISPLAY ON/OFF - don/doF

Activate by pressing Left and Center (up and confirm) button for 10 seconds. The display light is temporarily activated if one of the buttons is pushed.

In case doF is activated, the screen will be blank (can be used if installed where people are sensitive to the light of the display). A very nice feature when used in a bedroom. When touching the display, the screen lights up.

11. CHILDLCK - LOC

By pressing Left and Right (up and down) buttons for 10 seconds, child lock will be activated and no changes can be made. Trying to make changes causes the LOC text to appear in the display. Child lock is deactivated by pressing Left and Right (up and down) buttons for 10 seconds. OPn will appear in the display.

12. FACTORY RESET - RES

By pressing buttons Right and Center (down and confirm) for 20 seconds, the thermostat will perform a complete factory reset. NB! Please use this procedure only when the primary controller/gateway is missing or otherwise inoperable.

13. CO/ECO MODE

The thermostat has 2 main programs, CO – comfort mode and ECO - economy mode. When Center (confirm) button is pushed for 2 seconds you switch between the 2 modes. You would normally have 2 different set-points for the different modes.

CO – mode: Is used for normal use. Example: 21°C.

ECO – mode: Is a setback mode that you can use if the thermostat is installed in a room or a house that is rarely used.

The ECO-mode can also be activated by the pilot wire if this is connected. Example: 18°C.

Some gateways also support switching between CO/ECO mode. In most circumstances, the CO/ECO function can be regarded as a home/away function.

14. ERROR CODES

Err:	Adding fails
Er2:	Z-Wave error
Er3:	Internal error
Er4:	Floor sensor error
Er5:	External sensor error

If you have chosen F sensor mode without having a floor sensor connected, Er4 will be shown in the display. If you have chosen A2, and there is no external sensors installed, Er5 will be shown in the display. If the Er1, Er2 or Er3 error codes are shown, contact your local dealer or Thermo-Floor AS.

OPERATING THE DEVICE

Multi Channel support

Heatit Z-TRM2fx has support for the **Multi Channel Command Class**, and can therefore be seen as many devices by the Z-Wave Controller. Where each of the devices has association groups in order to send information to other Z-Wave devices, see the chapter concerning "Association Groups".

The first Multilevel device reports the temperature for the external temperature sensor.

Second Multilevel device reports the temperature for the floor sensor.

Commands sent to each of the logical devices will be interpreted according to the description in the section: Supporting Command Classes.

No Multi Channel support

If the Z-Wave Controller, or the Z-Wave devices that shall be associated with Heatit Z-TRM2fx, does not support the **Multi Channel Command Class** (Multichannel encapsulation), then only the association groups in the root device is accessible. This device will contain 5 association groups. For further information, see the chapter concerning association groups. The root device is the actual thermostat device.

Supporting Command Classes

Besides the mandatory command classes, Heatit Z-TRM2fx has support for following command classes:

- **Basic Command Class**

A **Basic Set** to the root endpoint or endpoint 1 will change the Thermostat Mode.

- **Binary Switch Command Class**

Sends **Binary Switch Set** commands to other devices when the internal relay is switched. It can be used to control other slave relay devices.

- **Thermostat Setpoint Command Class**

When a **Thermostat Setpoint Set** command is received by the root device, it can set the actual setpoints for the three different modes the thermostat is able to operate in; Setpoint for the heating mode, setpoint for cooling mode and the setpoint for energy saving mode.

- **Thermostat Mode**

It is possible to change the operating mode of the thermostat by sending a **Thermostat Mode Set** command. This way it is possible to set the operating mode to: Heating Mode, Cooling Mode or Energy Saving Mode.

Security

Heatit Z-TRM2fx is able to operate in security S0 and S2 mode, this requires that the device is added in security mode during the inclusion process.

It has a QR-code label that can be used when the module is included into the Z-Wave home network. The including Controller will ask for a 5-digit code, which can be identified beneath the QR-code, and will then ask to confirm the rest of the code that is contained in the QR-code.

NODE INFORMATION FRAME

The Node Information Frame is the business card of a Z-Wave device. It contains information about the device type and the technical capabilities. The inclusion and exclusion of the device is confirmed by sending out a Node Information Frame. Beside this, it may be necessary for certain network operations to send out a Node Information Frame.

ASSOCIATIONS

Z-Wave devices control other Z-Wave devices. The relationship between one device controlling another device is called association. In order to control a different device, the controlling device needs to maintain a list of devices that will receive controlling commands. These lists are called **association groups** and they are always related to certain events (e.g. sensor reports, ...). In case the event happens all devices stored in the respective association group will receive a common wireless command.

Association Groups (Multi Channel support)

When using Heatit Z-TRM2fx in a Multi Channel environment:

THERMOSTAT DEVICE 1	THE MAIN THERMOSTAT DEVICE
Group 1	Lifeline. (Normally used by the Z-Wave Controller) Sends: - Thermostat Setpoint Reports - Thermostat Mode Reports Max. nodes in group: 0
MULTILEVEL SENSOR DEVICE 2	DEVICE FOR EXTERNAL ROOM TEMPERATURE SENSOR
Group 1	Lifeline Max. nodes in group: 0
Group 2	Send Multilevel Sensor Reports. Max. nodes in group: 5
MULTILEVEL SENSOR DEVICE 3	DEVICE FOR FLOOR SENSOR
Group 1	Lifeline Max. nodes in group: 0
Group 2	Send Multilevel Sensor Reports. Max. nodes in group: 5
BINARY SWITCH DEVICE 4	DEVICE FOR THE INTERNAL RELAY
Group 1	Lifeline Max. nodes in group: 0
Group 2	Send Binary Switch Set commands representing the status of the internal relay. Max. nodes in group: 5

Association Groups (when no Multi Channel support)

When used in a system with no Multi Channel support:

THERMOSTAT DEVICE	THE MAIN THERMOSTAT DEVICE
Group 1	Lifeline. (Normally used by the Z-Wave Controller) Sends: - Device Reset Notifications. - Thermostat Setpoint Reports - Thermostat Mode Reports - Basic Reports - Meter Reports Max. nodes in group: 5
Group 2	Send Multilevel Sensor Reports for external temperature sensor. Max. nodes in group: 5
Group 3	Send Multilevel Sensor Reports for floor temperature sensor. Max. nodes in group: 5
Group 4	Send Binary Switch Set commands representing the status of the internal relay. Max. nodes in group: 5

Setting and Removing Associations

Associations can be assigned and removed via Z-Wave commands.

CONFIGURATION PARAMETERS

Z-Wave products are supposed to work *out of the box* after inclusion, however certain configuration of a device can alter the functionality to better serve the user's needs or unlock further enhanced features.

Parameter 1, Parameter Size 1. Operation mode

VALUE	DESCRIPTION
0	Off. (Default)
1	Heating mode
2	Cooling mode (not implemented)
11	Energy saving heating mode

Parameter 2, Parameter Size 1. Sensor mode

VALUE	DESCRIPTION
0	F-mode, floor sensor mode. (Default)
3	A2-mode, external room sensor mode
4	A2F-mode, external sensor with floor limitation

Parameter 3, Parameter Size 1. Floor sensor type

VALUE	DESCRIPTION
0	10K NTC. (Default)
1	12K NTC
2	15K NTC
3	22K NTC
4	33K NTC
5	47K NTC

Parameter 4, Parameter Size 1. Temperature control hysteresis (DIFF I)

VALUE	DESCRIPTION
3 - 30	0.3°C – 3.0°C. Default is 5 (0.5°C)

Parameter 5, Parameter Size 2. Floor minimum temperature limit (FLo)

VALUE	DESCRIPTION
50 - 400	5.0°C – 40.0°C. Default is 50 (5.0°C)

Parameter 6, Parameter Size 2. Floor maximum temperature limit (FHi)

VALUE	DESCRIPTION
50 - 400	5.0°C – 40.0°C. Default is 400 (40.0°C)

Parameter 7, Parameter Size 2. Air (A2) minimum temperature limit (ALo)

VALUE	DESCRIPTION
50 - 400	5.0°C – 40.0°C. Default is 50 (5.0°C)

Parameter 8, Parameter Size 2. Air (A2) maximum temperature limit (AHi)

VALUE	DESCRIPTION
50 - 400	5.0°C – 40.0°C. Default is 400 (40.0°C)

Parameter 9, Parameter Size 2. Heating mode setpoint (CO)

VALUE	DESCRIPTION
50 - 400	5.0°C – 40.0°C. Default is 210 (21.0°C)

Parameter 10, Parameter Size 2. Energy saving mode setpoint (ECO)

VALUE	DESCRIPTION
50 - 400	5.0°C – 40.0°C. Default is 180 (18.0°C)

Parameter 11, Parameter Size 2. Cooling setpoint (COOL)

VALUE	DESCRIPTION
50 - 400	5.0°C – 40.0°C. Default is 210 (21.0°C)

Parameter 12, Parameter Size 1. Floor sensor calibration

NB. To set a negative value, use 255 and subtract the desired value.

VALUE	DESCRIPTION
-40 - 40	-4.0°C – 4.0°C. Default is 0 (0.0°C)

Parameter 13, Parameter Size 1. External sensor calibration

NB. To set a negative value, use 255 and subtract the desired value.

VALUE	DESCRIPTION
-40 - 40	-4.0°C – 4.0°C. Default is 0 (0.0°C)

Parameter 14, Parameter Size 1. Temperature display

Selects which temperature is shown in the display.

VALUE	DESCRIPTION
0	Display measured temperature (Default)
1	Display setpoint temperature

Parameter 15, Parameter Size 1. Button brightness – dimmed state

Configure the brightness of the buttons, in dimmed state.

VALUE	DESCRIPTION
0 - 100	0 – 100% (Default 50%)

Parameter 16, Parameter Size 1. Button brightness – active state

Configure the brightness of the buttons, in active state

VALUE	DESCRIPTION
0 - 100	0 – 100% (Default 100%)

Parameter 17, Parameter Size 1. Display brightness – dimmed state

Configure the brightness of the display, in dimmed state.

VALUE	DESCRIPTION
0 - 100	0 – 100% (Default 50%)

Parameter 18, Parameter Size 1. Display brightness – active state

Configure the brightness of the display, in active state.

VALUE	DESCRIPTION
0 - 100	0 – 100% (Default 100%)

Parameter 19, Parameter Size 2. Temperature report interval

Time interval between consecutive temperature reports. Temperature reports can be also sent as a result of polling.

VALUE	DESCRIPTION
0	Reporting of temperatures disabled
30 - 32767	30 seconds – 32767 seconds. Default is 60 seconds

Parameter 20, Parameter Size 1. Temperature report hysteresis

The temperature report will be sent if there is a difference in temperature value from the previous value reported, defined in this parameter (hysteresis). Temperature reports can be also sent as a result of polling.

VALUE	DESCRIPTION
1 - 100	0.1°C – 10.0°C. Default is 10 (1.0°C)

Parameter 21, Parameter Size 2. Meter report interval

Time interval between consecutive meter reports. Meter reports can be also sent as a result of polling.

VALUE	DESCRIPTION
0	Reporting of metering values is disabled
30 - 32767	30 seconds – 32767 seconds. Default is 60 seconds

Parameter 22, Parameter Size 1. Meter report delta value

Delta value in kWh between consecutive meter reports. Meter reports can be also sent as a result of polling.

VALUE	DESCRIPTION
0 - 127	A delta value of 0 – 12.7 kWh will result in a metering report. Default is 10 (1.0 kWh)

COMMAND CLASSES**Supported Command Classes**

The following table lists all Command Classes supported by the Z-Wave Device. The device supports both S0, S2 Authenticated security and S2 Unauthenticated security.

	INSECURE INCLUSION	INSECURE ON SECURE INCLUSION	SECURE ON SECURE INCLUSION
Association (version 2)	Yes		Yes
Association Group Information (version 1)	Yes		Yes
Multi Channel Association (version 3)	Yes		Yes
Version (version 3)	Yes		Yes
Configuration (version 3)	Yes		Yes
Manufacturer Specific (version 2)	Yes		Yes
Z-Wave Plus Information (version 2)	Yes	Yes	
Device Reset Locally (version 1)	Yes		Yes
Powerlevel (version 1)	Yes		Yes
Firmware Update (version 4)	Yes		Yes
Multi Channel (version 4)	Yes		Yes
Basic (version 2)	Yes		Yes
Supervision (version 1)	Yes	Yes	
Multilevel Sensor (version 5)	Yes		Yes
Thermostat Setpoint (version 3)	Yes		Yes
Thermostat Mode (version 3)	Yes		Yes
Switch Binary (version 1)	Yes		Yes
Meter (version 3)	Yes		Yes
Security (version 1)	Yes	Yes	
Security 2 (version 1)	Yes	Yes	

Controlled Command Classes

Multilevel Sensor (version 5)
Thermostat Setpoint (version 3)
Thermostat Mode (version 3)
Switch Binary (version 1)
Meter (version 3)

THERMOSTAT DEVICE 1

Supported Command Classes
Association (version 2)
Association Group Information (version 1)
Multi Channel Association (version 3)
Z-Wave Plus Information (version 2)
Supervision (version 1)
Thermostat Setpoint (version 3)
Thermostat Mode (version 3)
Security (version 1)

Controlled Command Classes

MULTILEVEL SENSOR DEVICE 2

Supported Command Classes
Association (version 2)
Association Group Information (version 1)
Multi Channel Association (version 3)
Z-Wave Plus Information (version 2)
Supervision (version 1)
Multilevel Sensor (version 5)
Security (version 1)

Controlled Command Classes

Multilevel Sensor (version 5)

MULTILEVEL SENSOR DEVICE 3

Supported Command Classes
Association (version 2)
Association Group Information (version 1)
Multi Channel Association (version 3)
Z-Wave Plus Information (version 2)
Supervision (version 1)
Multilevel Sensor (version 5)
Security (version 1)

Controlled Command Classes

Multilevel Sensor (version 5)

BINARY SWITCH DEVICE 4

Supported Command Classes
Association (version 2)
Association Group Information (version 1)
Multi Channel Association (version 3)
Z-Wave Plus Information (version 2)
Supervision (version 1)
Switch Binary (version 1)
Meter (version 3)
Security (version 1)

Controlled Command Classes

Switch Binary (version 1)
Meter (version 3)

PRODUCT INFO Heatit Z-TRM2fx

FEATURES

- Floor sensor
- External room sensor
- Temperature limiter
- Weekly program/setback via gateway or pilot wire
- Multilevel sensor command class
- Firmware updates (OTA)
- Supports encryption mode: S0, S2 Authenticated Class, S2 Unauthenticated Class
- Power metering
- LED-diode
- May be used in connection with different NTC-sensors
- Lock mode/child lock
- Calibration
- 5 associations

This product is a security enabled Z-Wave Plus product with encryption. The product must be used with a security enabled Z-Wave Controller in order to fully utilize the product.

TECHNICAL DATA

Protocol	Z-Wave		
SDK	6.71.03		
Rated voltage	230V 50/60Hz		
Max load	2900W (resistive load) 750W self-limiting heating cable		
Max current	13A		
Power consumption	<2,0W		
Min/max installation temp	-20°C - 40°C		
Min/max operating temp	5°C - 40°C		
Temperature intervals	Floor sensor	5°C - 40°C	
	External room sensor	5°C - 40°C	
Hysteresis	0,3°C - 3,0°C (default 0,5°C)		
Switch	Single-pole switch		
Included in package	Floor sensor, Art. no. 54 301 07		
Compatible with NTC sensors with values	10, 12, 15, 22, 33 and 47 kΩ @ 25°C		
IP Code	IP 21		
Routing	Yes		
Explorer Frame Support	Yes		
Device Type	Slave with routing capabilities		
Generic Device Class	Thermostat		
Specific Device Class	Thermostat General V2		
Approvals	Z-Wave Plus CE EN 60730-1, EN 60730-2-9 EMC 2014/30/EU, RoHS 2011/65/EU LVD 2014/35/EU		

TERMINAL

Use 1,5mm² or 2,5mm² according to load.

ART. NO.	PRODUCT	COLOR	Z-WAVE FREQUENCY
54 305 60	Heatit Z-TRM2fx thermostat 2900W 13A	White RAL 9003	EU 868,4MHz
54 304 46	Plastic kit for Heatit (front and frame)	Black RAL 9010	

Heatit Controls AB can not be held liable for typographical errors, other errors or omissions in our information.

Product specifications may change without further notice.

All electrical installations must be carried out by a licensed electrician.

The product must be installed in accordance with national building codes and our installers manual.