HEATIT Z-WATER2

Installers manual

Status

Heatit Z-Water2 CE

230VAC 50Hz
Art. no. 45 124 95

Reset

DOCUMENT CENTER QR

heatit

Z-WAVE PLUS
heatit.com

SMART START

S2 SECURITY

OTA UPDATE

Z-WAVE PLUS

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1. INTRODUCTION

Heatit Z-Water2 is a DIN-rail regulator for controlling waterbased heating systems. The module clips right onto a DIN-rail and allows you to control your waterbased heating through your Z-Wave™ network.
Heatit Z-Water2 is equipped with 9 potential free relays for actuators. It also has 2 analog inputs for temperature sensors.

The Heatit Z-Water2 relays may be controlled by associations with other Z-Wave thermostats e.g Heatit. Each relay can control one or several actuators in your underfloor heating system.

2. STATEMENT REGARDING PRODUCTS FROM MULTIPLE MANUFACTURERS

Please read this before installation

This device may be used with all devices certified with the Z-Wave Plus™ certificate and should be compatible with such devices produced by any manufacturer. Every primary controller is different depending on the manufacturer, their target audience and intended use/application. Please review the functionalities implemented by the primary controller you intend to use with our Z-Wave Plus certified device to ensure that it provides the necessary controls to take full advantage of our product's capabilities.

3. BEHAVIOR WITHIN THE Z-WAVE NETWORK

This device may be operated within any Z-Wave™ network with Z-Wave-certified devices from other manufacturers. All non-battery-operated nodes within the network will act as repeaters regardless of manufacturer to increase the 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 network to communicate with the other devices within it. Devices may also be removed from a network. The add/remove processes are initiated by the primary controller of the Z-Wave network.

4. INSTALLATION GUIDELINES

Installation must be done by a qualified electrician in accordance with national building codes. Before installation, disconnect the power to the device from the mains. During installation of the device, power to the device must be disconnected AT ALL TIMES!

Max tightening torque for terminal screws: 2Nm

Use the following procedure to install Heatit Z-Water2:
1. Place the top part of the DIN rail mounting on the Heatit Z-Water2 over the top of the DIN rail so it hooks onto the rail.
2. Use a flathead screwdriver to push the DIN rail mounting tab downward.
3. Tilt the bottom of the Heatit Z-Water2 until it touches the DIN rail. Now let go of the DIN rail mounting tab so it locks into place.
4. Make all the necessary connections to the device (max tightening torque for all screw terminals is 2Nm). Apply power to the device after all connections have been made.

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5. CONNECTIONS

SCHEMATIC FOR USE WITH 230VAC ACTUATORS
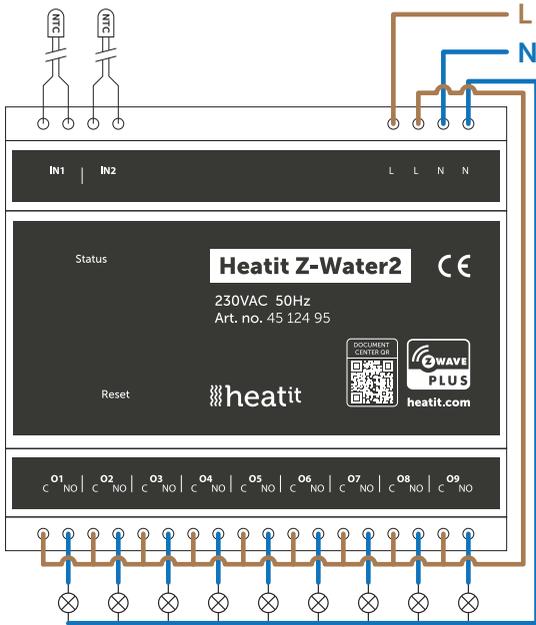
SCHEMATIC FOR USE WITH 24VDC ACTUATORS
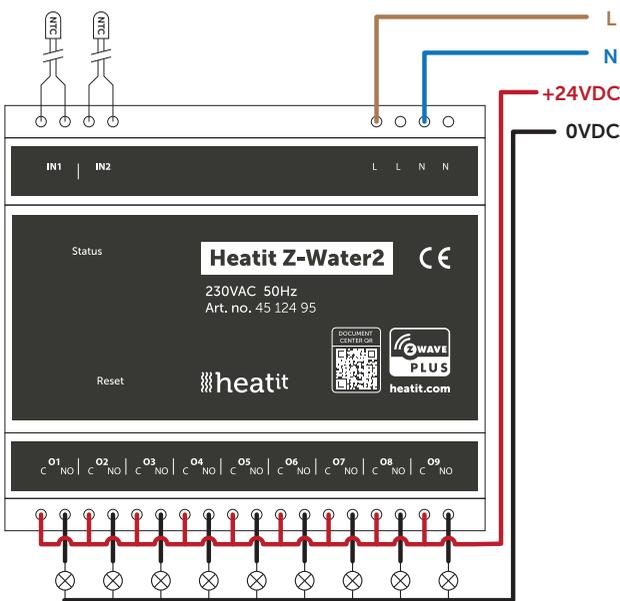
6. QUICK START

1. Switch off the mains supply (disable the fuse).
2. Fasten the device onto the DIN rail.
3. Connect wires according to the labeling described in Chapter 5.
4. After verifying the connections, switch the mains voltage on.
5. Set the primary controller in add mode (security/non-security).
6. Press the reset button on the product 3 times in a rapid sequence. Heatit Z-Water2 is now included in your Z-Wave network.

7. ADD/REMOVE

Please read this before installation

The primary controller/gateway has a mode for adding or removing devices. Please refer to your primary controller manual on how to set the primary controller in add/remove mode.

The device may only be added or removed from the network if the primary controller is in add/remove mode. When the device is removed from the network, it will NOT revert to factory settings.

An always listening node must be powered continuously and reside in a fixed position in the installation to secure the routing table. Adding the device within a 2 meter range from the gateway can minimize faults during the Interview process.

There are two ways to add the device to a Z-Wave network.

7.1 Method 1: Standard (Manual)

Add/remove mode is indicated on the device by a blinking green LED. It indicates this for 90 seconds until a timeout occurs, or until the device has been added to/removed from the network. Configuration mode can also be cancelled by performing the same procedure used for starting Configuration mode.

To start the configuration process, press the reset button 3 times in rapid succession. The LED will light solid green for 3 seconds if add/remove is successful. The device is now ready for use with default settings.

NB! When the device is removed from the gateway, the parameters are not reset. To reset the parameters, see Chapter "Factory reset".

If inclusion fails, please perform a "remove device" process and try again. If inclusion fails again, please see "Factory reset".

7.2 Method 2: SmartStart (Automatic)

SmartStart enabled products may be added to a Z-Wave network by scanning the Z-Wave QR-Code on the product if your primary controller supports SmartStart inclusion. No further action is required and the SmartStart product will be added automatically after being powered on within range of the primary controller.

8. FACTORY RESET

Press and hold the reset button. After 3 seconds the LED will start to blink green. After 20 seconds the LED will start blinking green rapidly. You may now release the button. If reset was successful the LED will light solid green for 3 seconds.
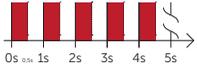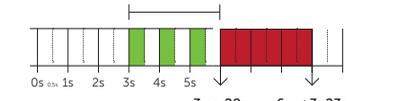
Please use this procedure only when the network primary controller is missing or otherwise inoperable.

9. STARTUP

After powering up the device for the first time, all the parameters will have default settings.

10. LED BLINKING PATTERNS DESCRIPTION

The device supports numerous LED blinking patterns to make it as easy as possible to identify what the device is doing.

Device Not in Network The LED will blink red when the device is not added to a Z-Wave network.	 0s 0,5s 1s 2s 3s 4s 5s
Add/Remove When device enters add/remove mode the LED will blink green. If successful, the LED will light up in solid green for 3 seconds. If unsuccessful, the LED will light up in solid red for 3 seconds.	Successful Unsuccessful 0s 0,5s 1s 2s 3s xs x+3s
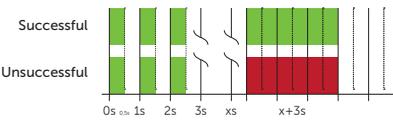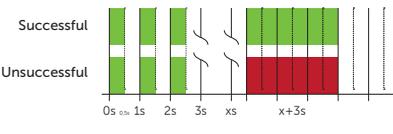
Factory Reset
If the button is held for more than 3 seconds, the GREEN LED will start blinking with 0.5s intervals.
When the button has been held for 20 seconds, the GREEN LED will blink rapidly with 0.1s intervals for 3 seconds.
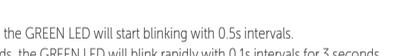
Figure 1 (success)
Within the 3 second period the button must be released.
If the button is released within this period, the device will indicate that it has been successfully reset by lighting up in solid GREEN for 3 seconds.
Then the device will start blinking RED because it is not included in a gateway.

0s 0,5s 1s 2s 3s 4s 5s 19s 20s 0,5s 1s 1,5s 2s 2,5s 3s 1s 2s 3s
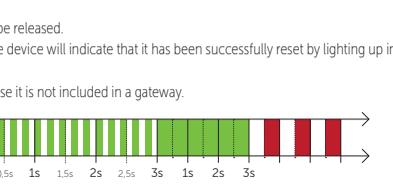
Figure 2 (fail) If the button is released before the 3 seconds period, the device will indicate fail by turning RED LED on for 3 seconds.	Released @ x seconds 0s 0,5s 1s 2s 3s 4s 5s 3<x<20s 6<x+3<23s
Figure 3 (fail) The button MUST be released between 20 and 23 seconds for local reset to take place. If held longer, the device will ignore the command.	 0s 0,5s 1s 2s 3s 4s 5s 19s 20s 20,5s 21s 21,5s 22s 22,5s 23s 24s
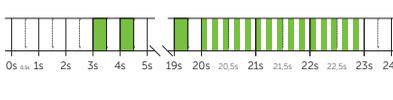
11. QR-CODE PLACEMENT (DSK)

The QR-Code is needed when including a device using S2 security or SmartStart. The DSK can be found in the QR-Code and is located;

- On the product.
- In the Quick Guide.
- On the packaging box/gift box.

12. SECURITY

S2 security enhances Z-Wave Plus with an additional layer of AES 128-bit encryption of the wireless Z-Wave communication to prevent hacking and man-in-middle attacks on the home network.
This device supports S2 and has a Z-Wave DSK QR-Code label that may be used when the device is added to the Z-Wave home network. The primary controller will ask for a 5-digit code. They are the first underlined 5 digits located on the QR code sticker. The primary controller will then ask you to confirm the rest of the code that is contained in the QR-Code.

13. NODE INFORMATION FRAME

The node information frame is the "business card" of a Z-Wave device. It contains information about the device type and its technical features. The add and remove procedure of the device is confirmed by sending out a node information frame. Besides this, it may be necessary for certain network operations to send out a node information frame.

14. ASSOCIATIONS

Z-Wave devices interact with other Z-Wave devices. The relationship between one device controlling another device is called an association. In order to control a subordinate device, the controlling device needs to maintain a list of devices that will receive controlling commands. These lists are called "Association Groups". They are always related to the specific event triggered (e.g., sensor reports). In case the event is triggered, all devices stored in the respective association group will receive a joint wireless command.

14.1 Setting and Removing Associations

Associations may be assigned and removed via Z-Wave commands. Please refer to your primary controller/Z-Wave gateway for more information.

15. ASSOCIATION GROUPS

With Multi Channel support:

DEVICE 1 (ENDPOINT 1)	RELAY OUTPUT 1
Group 1	Lifeline. Lifeline Group to be used by primary controller, sends: - Device Reset Notification - Indicator Report - Binary report Sends Binary report On / Off when relay output 1 is activated. Max. nodes in group: 1
DEVICE 2 (ENDPOINT 2)	**RELAY OUTPUT 2**
Group 1	Lifeline. Sends Binary report On / Off when relay output 2 is activated. Max. nodes in group: 0
DEVICE 3 (ENDPOINT 3)	**RELAY OUTPUT 3**
Group 1	Lifeline. Sends Binary report On / Off when relay output 3 is activated. Max. nodes in group: 0
DEVICE 4 (ENDPOINT 4)	**RELAY OUTPUT 4**
Group 1	Lifeline. Sends Binary report On / Off when relay output 4 is activated. Max. nodes in group: 0
DEVICE 5 (ENDPOINT 5)	**RELAY OUTPUT 5**
Group 1	Lifeline. Sends Binary report On / Off when relay output 5 is activated. Max. nodes in group: 0
DEVICE 6 (ENDPOINT 6)	**RELAY OUTPUT 6**
Group 1	Lifeline. Sends Binary report On / Off when relay output 6 is activated. Max. nodes in group: 0
DEVICE 7 (ENDPOINT 7)	**RELAY OUTPUT 7**
Group 1	Lifeline. Sends Binary report On / Off when relay output 7 is activated. Max. nodes in group: 0
DEVICE 8 (ENDPOINT 8)	**RELAY OUTPUT 8**
Group 1	Lifeline. Sends Binary report On / Off when relay output 8 is activated. Max. nodes in group: 0
DEVICE 9 (ENDPOINT 9)	**RELAY OUTPUT 9**
Group 1	Lifeline. Sends Binary report On / Off when relay output 9 is activated. Max. nodes in group: 0
DEVICE 10 (ENDPOINT 10)	**ANALOGUE INPUT 1**
Group 1	Lifeline. Sends Multilevel Sensor Reports for input 1. Max. nodes in group: 0
DEVICE 11 (ENDPOINT 11)	**ANALOGUE INPUT 2**
Group 1	Lifeline. Sends Multilevel Sensor Reports for input 2 Max. nodes in group: 0

16. CONFIGURATION PARAMETERS

Z-Wave products are supposed to work out of the box after inclusion. Some device configuration may, however, alter the functionality to better serve user needs or unlock further enhanced features. All the parameters below do not feature altering capabilities, advanced or read only flags.

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PARA NO#	PARA SIZE (BYTE)	NAME	SHORT DESCRIPTION / COMMENT	MIN	MAX	DEFAULT	DESCRIPTION OF VALUE
1	1	Input 1 Calibration	Manually calibrate input 1 ±6°C.	-60	60	0	-6.0°C to 6.0°C. Calibrates input 1 by ±6°C. (Default is 0°C). NB! To set a negative value, use 256 and subtract the desired value.
2	1	Input 2 Calibration	Manually calibrate input 2 ±6°C.	-60	60	0	-6.0°C to 6.0°C. Calibrates input 2 by ±6°C. (Default is 0°C). NB! To set a negative value, use 256 and subtract the desired value.
3	2	Temperature report interval	Set the time interval between consecutive temperature reports.	30	65535	870	30 to 65535 seconds. 870s (default 14 min 30 sec).
4	1	Temperature report hysteresis	Set the change in temperature required to send a temperature report based on change.	1	100	10	0.1°C to 10°C. 10 (1°C) (Default).
5	1	Power restore state	The state the relays should return to once power is restored after a power failure.	0		2	Off.
				1			On.
				2			Returns relay state as it was before power outage. (Default).
6	1	Inverted output	Configures if the function of the relay output shall be inverted.	0		0	Standard relay output functionality, non-inverted. (Default).
				1			Relay outputs have inverted functionality.
7	1	Valve inactivity exercise	Relays will turn on to open valves for the selected amount of time after 30 days of relay inactivity.	0		0	Valves do not open periodically. (Default).
				1	30		1 to 30 minutes, amount of time relays should be turned on for after 30 days of relay inactivity.
8	1	Select antenna type	Choose if the device uses the internal antenna or an external wired antenna.	0		0	Internal antenna. (Default).
				1			External wired antenna.

17. CALIBRATION

Parameters 1 and 2 allow you to calibrate the temperature displayed in the controller/gateway. If the temperature sensor readout is not correct, you can make minor changes to the temperature readout. You can calibrate the measured temperature by ±6°C degrees.

18. COMMAND CLASSES

Besides the mandatory command classes, the device has support for the following command classes:

18.1 Basic Command Class

The Basic Command Class is mapped to the Binary Switch Command Class and uses the following values:
Basic Set 0x00 = Binary Switch Set 0x00
Basic Set 0xFF = Binary Switch Set 0xFF

18.2 Binary Switch Command Class

Binary Switch commands are used to control the relays.
Uses the following values:
0x00 = OFF
0xFF = ON

18.3 Multilevel Sensor Command Class

The device supports Multilevel Sensor Command Class.
Supported Multilevel Sensor attributes are:
Type: Air Temperature (0x01)
Scale: Celcius (°C) (0x00)
Precision: 1 decimal
Size: 4

18.4 Indicator Command Class

The device supports Indicator Command Class.
The indicator Command Class will turn ON/OFF internal LED.

19. SUPPORTED COMMAND CLASSES

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

| ASSOCIATION	VERSION	INSECURE ON SECURE INCLUSION	SECURE ON SECURE INCLUSION
Association	v2		Yes
Association Group Information	v3		Yes
Device Reset Locally	v1		Yes
Firmware Update MD	v5		Yes
Manufacturer Specific	v2		Yes
Multi Channel Association	v3		Yes
Multi Channel	v4		Yes
Power level	v1		Yes
Security	v1	Yes	
Security 2	v1	Yes	
Supervision	v1	Yes	
Indicator	v3		Yes
Transport Service	v2	Yes	
Version	v3		Yes
Z-Wave Plus Information	v2	Yes	
Binary Switch	v2		Yes
Basic	v2		Yes
Configuration	v4		Yes
Multilevel Sensor	v11		Yes

20. OTHER FEATURES

External antenna (U.FL female connector)

The device allows you to connect a U.FL female connector antenna. This allows the antenna to be wired outside of the installation location in cases of unsatisfactory wireless performance. This connector is placed in the middle of the radio module that is sticking out of the main PCB. See Chapter 22 for a detailed illustration of the placement. Set parameter 8 to 1 to activate this feature.

Automatic valve exercise

Valve exercising is beneficial during longer periods of inactivity to ensure the proper operability of the valves and prevent the valves from getting stuck. If not exercised, corrosion or other buildup may result in the valve becoming inoperable or prevent complete closure. To activate this feature see parameter 7.

21. DIMENSIONS

105mm

58mm

86mm
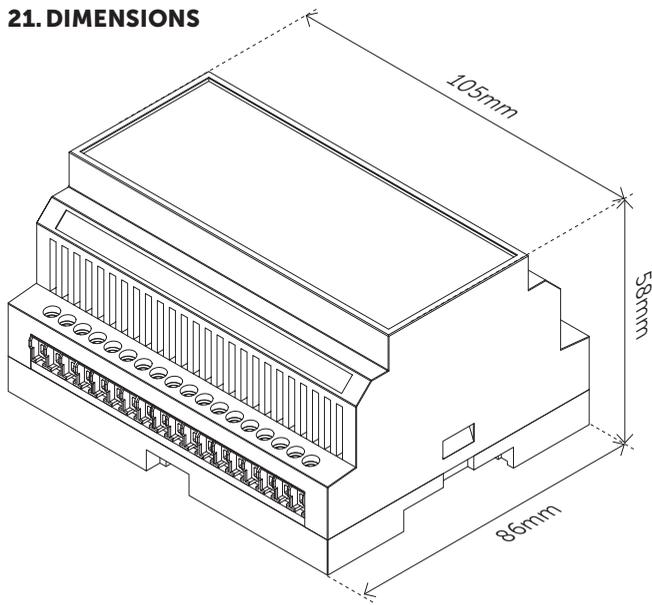
22. EXTERNAL ANTENNA CONNECTOR
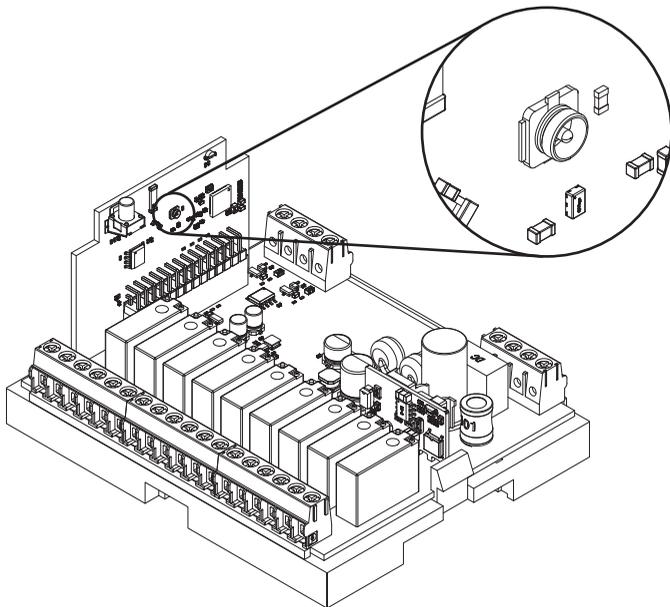
PRODUCT INFO Heatit Z-Water2

FEATURES

- Z-Wave
- Regulator for waterbased heating systems
- 9 potential free relays
- Valve exercise
- Can control 230VAC actuators and 24VDC actuators from an external power supply
- Can be used with Heatit thermostats in each heating zone
- DIN-rail mounting
- SmartStart
- Connector for external antenna
- Firmware update (OTA)
- Supports encryption mode S0, S2 Authenticated Class, S2 Unauthenticated Class

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

TECHNICAL DATA

Protocol	Z-Wave, 868.4MHz
Chip	Z-Wave 800 chip
Rated voltage	230VAC 50Hz
Power consumption	0.4W standby
Ambient temperature	5°C to 40°C
Storage temperature	-30°C to 70°C
Humidity	10% to 85% RH
Max. switching current	5A
Max load per relay	1385VA/150W
Inputs	10kΩ NTC
Range RF	Min. 40 meters
Screw terminals	Max 2.5mm² 2Nm
IP Code	IP20
Size (LxHxW)	105 x 58 x 86mm
Approvals	Z-Wave Plus v2, CE

ACCESSORIES
Heatit DIN Trafo 24V   Art.no: 54 304 57

MAINTENANCE
The device is maintenance-free. Indoor use only.