

HEATIT Z-HAN2

Installers manual



Firmware version FW 1.0	Document version 2023-A
Article no. 45 125 99	Document date 01.06.2023

Org. doc. date 01.06.2023



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1. INTRODUCTION

Heatit Z-HAN2 is a Z-Wave™ HAN sensor for AMS meters (Smart meters). Heatit Z-HAN2 works with HAN ports.

The Heatit Z-HAN2 is equipped with an RJ45 port for connecting the AMS meter. The Heatit Z-HAN2 can be powered through the RJ45 port by most AMS meters, but it also has a 5V micro USB input for external power supply.

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. BEHAVIOUR 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. QUICK START

1. Contact your energy company to activate your HAN-port.
2. Connect power to the Z-HAN2 with a micro USB cable.
3. Set the primary controller to add mode (security/non-security).
4. Press the reset button 3 times in a rapid sequence. Heatit Z-HAN2 is now included in your Z-Wave network.
5. Open your main fuse box.
6. Plug the RJ45 cable into the energy meter and the Z-HAN2.

5. 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 meters range from the gateway can minimize faults during the Interview process.

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

5.1 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 module has been added to/removed from the network. Configuration mode can also be cancelled by performing the same procedure used for starting Configuration mode. USB cable must be used during add/remove.

To start the configuration process, press the reset button 3 times in rapid sequence. The LED will light up in 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".

5.2 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.

6. 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 up in solid green for 3 seconds. USB cable must be used during factory reset.

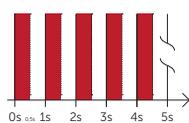
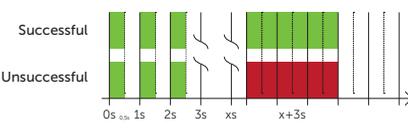
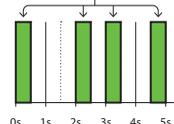
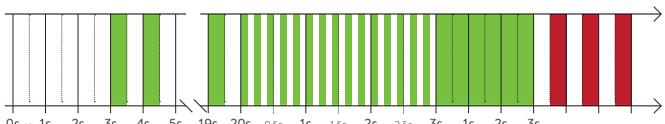
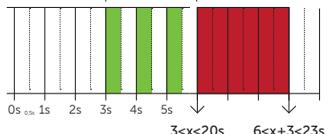
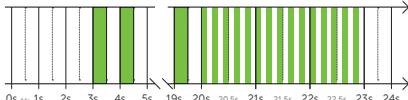
Please use this procedure only when the network primary controller is missing or otherwise inoperable.

7. STARTUP

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

8. 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.

<p>Device Not in Network The LED will blink red when the device is not added to a Z-Wave network.</p>	
<p>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.</p>	<p>Successful Unsuccessful</p> 
<p>Communication The device blinks green every time it sends data over Z-Wave.</p>	<p>Z-Wave Data transmission indication</p> 
<p>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. The device will then start blinking RED because it is not included in a gateway.</p>	
<p>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.</p>	<p>Released @ x seconds</p> 
<p>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.</p>	

9. 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.
- On the Quick Guide.
- On the gift box.

10. 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 module is added to the Z-Wave home network. The primary controller will ask for a 5-digit code, which can be found underneath the QR-Code.

11. 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.

12. 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.

12.1 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.

13. ASSOCIATION GROUPS

MULTI LEVEL SWITCH DEVICE	DESCRIPTION
Group 1	Lifeline. Lifeline Group to be used by primary controller, sends: - Device Reset Notification - Indicator Report - Meter Report - Sensor Multilevel Max nodes in group: 5
Group 2	Meter Report - Meter report (kWh) - Meter report (W) Max nodes in group: 5

14. 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 or advanced flags.

PARA NO #	PARA SIZE (BYTE)	NAME	SHORT DESCRIPTION / COMMENT	MIN	MAX	DEFAULT	DESCRIPTION OF VALUE
1	4	Meter report hysteresis for W.	Set the Meter Report hysteresis for Watts.	0	100000	200	0 = Disabled. 1 - 100 000W. Default 200W.
2	2	Meter report hysteresis for V.	Set the Meter Report hysteresis for Volts.	0	420	5	0 = Disabled. 1 - 420V. Default 5V.
3	2	Meter report hysteresis for A.	Set the Meter Report hysteresis for Amps.	0	65535	20	0 = Disabled 1 - 65 535A (0.1 - 6553.5A) Default 20 (2A).
4	2	Meter report interval for W.	Time Interval between consecutive W reports.	10	65535	10	10 - 65 535 seconds. Default 10 seconds.
5	2	Meter report interval for V and A.	Time interval between consecutive meter reports. This parameter will issue: V and A.	10	65535	300	10 - 65 535 seconds. Default 300 seconds (5 minutes).

PARA NO #	PARA SIZE (BYTE)	NAME	SHORT DESCRIPTION / COMMENT	MIN	MAX	DEFAULT	DESCRIPTION OF VALUE
6	2	Temperature report interval.	Time interval between consecutive temperature reports.	30	65 535	300	30 - 65 535 seconds. Default 300 seconds (5 minutes).
7	1	Temperature report hysteresis.	Temperature reports based on change in temperature from last report. NB! 0.5°C increments.	0	100	10	0 = Disabled. 1-100 (0.1-10.0°C). Default 10 (1°C). NB! This parameter has 0.5°C increments.
8	1	Sensor calibration.	Manually calibrates the sensor $\pm 6^\circ\text{C}$.	-60	60	0	-6.0°C to 6.0°C. Calibrates the sensor by $\pm 6^\circ\text{C}$. NB! To set a negative value, use 256 and subtract the desired value.
9	4	Serial	First half of the meter point serial number. Read only	0	4 294.9 67 295	1 718 972 025	Shows the first half of the meter point serial number. NB! This parameter is read only.
10	4	Number	Last half of the meter point serial number. Read only	0	4 294.9 67 295	1 835 363 685	Shows the last half of the meter point serial number. NB! This parameter is read only.
11	2	Scaling factor	Allows for multiplication of the meter value in case of use with large electrical systems	0	1000	0	0 = no scaling factor used 1-1000 = scaling factor for the AMS electricity meter

15. COMMAND CLASSES

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

15.1 Meter Command Class

The device supports Meter Command Class Get, and the Heatit Z-HAN2 will only respond on supported electric meter scales: kWh (accumulated), kVAh (accumulated production) W (power), V (voltage) and A (current). The device will report when asked:

Rate type: Import (0x01)

Meter type: Electric meter (0x01)

TYPE	SCALE	VALUE	SIZE	PRECISION	REPORT HYSTERESIS
Electric	kWh	0x00	4	2	On change from AMS meter.
Electric	kVAh	0x01	4	2	On change from AMS meter.
Electric	W	0x02	4	0	200W / 10s, configurable by parameter.
Electric	V	0x04	2	1	5V / 300s, configurable by parameter.
Electric	A	0x05	2	1	2A / 300s, configurable by parameter.

15.2 Indicator Command Class

The device supports Indicator Command Class.

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

16. 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 Group Information	v3		Yes
Device Reset Locally	v1		Yes
Firmware Update Meta Data	v5		Yes
Indicator	v3		Yes
Manufacturer Specific	v2		Yes
Multi Channel Association	v3		Yes
Powerlevel	v1		Yes
Security	v1	Yes	
Security 2	v1	Yes	
Supervision	v1	Yes	
Transport Service	v2	Yes	
Version	v3		Yes
Z-Wave Plus Info	v2	Yes	
Meter	v5		Yes
Configuration	v4		Yes
Sensor Multilevel	v11		Yes
Association	v2		Yes

PRODUCT INFO Heatit Z-HAN2

FEATURES

- Z-Wave HAN sensor
- RJ45 and Micro-USB
- Power metering
- SmartStart
- Firmware update (OTA)
- Temperature sensor
- 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.

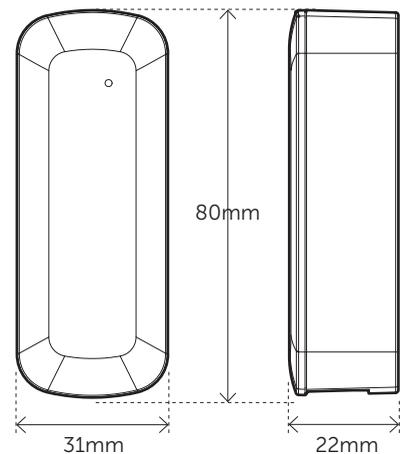
TECHNICAL DATA

Protocol	Z-Wave, 868.4MHz
Chip	Z-Wave 800 chip
Rated voltage	5V DC
Ambient temperature	5°C to 40°C
Humidity	10% to 85% RH
Range RF	Min. 40 meters
IP Code	IP20
Size (LxWxH)	80 x 31 x 22mm

Approvals Z-Wave Plus v2, CE

MAINTENANCE

The device is maintenance-free. Indoor use only.



DISPOSAL GUIDELINES

Do not dispose of electrical appliances as unsorted municipal waste, use separate collection facilities. Contact your local government for information regarding the collection systems available. If electrical appliances are disposed of in landfills or dumps, hazardous substances can leak into the groundwater and get into the food chain, damaging health and well-being.



We have designed this product in accordance with our strict quality requirements (ISO 9001) and environmental requirements (ISO 14001). All electrical installations must be carried out by an authorized electrical installer. The product must be installed in accordance with our installers manual and national building codes. Any wrongful installation, misuse or damage to the product is not covered under warranty.

Heatit Controls AB can not be held liable for any type of errors or omissions in our product information. Product specifications may change without further notice.



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