



Shelly Wave H&T [↗](#)

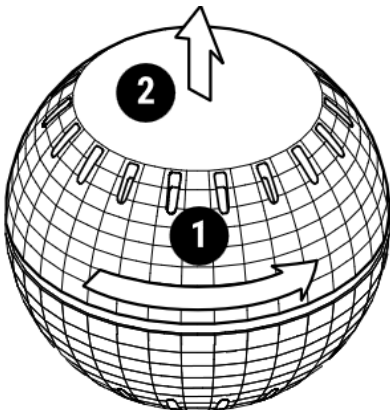
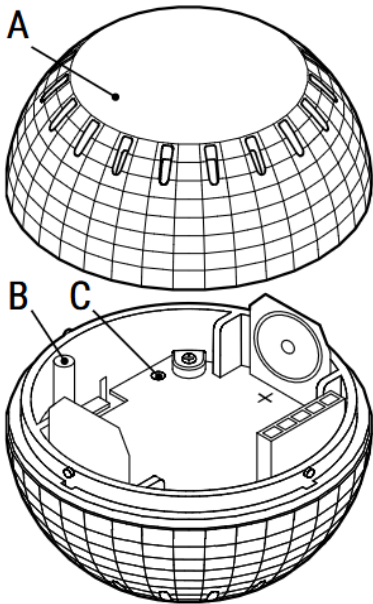


Fig.1

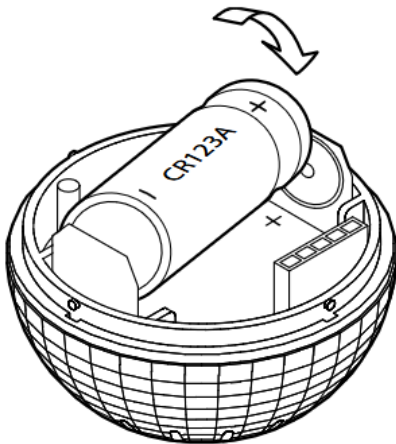


Fig.2

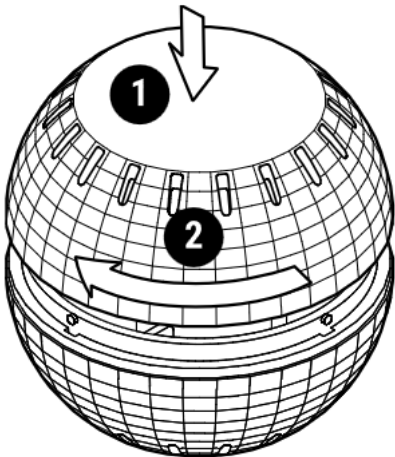


Fig.3

A: Bottom shell

B: S button

C: LED indication

Device: Shelly Wave H&T (EU)

EU Part number/Ordering Code: QLHT-0U2ZEU

Z-Wave Product type ID: 0x0100

Z-Wave Product ID: 0x0083

Z-Wave Manufacturer: Shelly Europe

Z-Wave Manufacturer ID: 0x0460

This device supports both Z-Wave® (mesh) and Z-Wave® Long Range (star) network topologies. During the device inclusion process, you must select one type of network topology.

Bellow sections marked with * are valid only for Z-Wave® mesh network inclusion and are not applicable for Z-Wave® Long Range star network inclusion.

User and safety guide [↗](#)

Z-wave® Smart sensor with humidity and temperature measurement [↗](#)

READ BEFORE USE

This document contains important technical and safety information about the Device, its safe use and installation.

⚠CAUTION! Before beginning the installation, please read carefully and entirely this guide and any other documents accompanying the Device. Failure to follow the installation procedures could lead to malfunction, danger to your health and life, violation of law or refusal of legal and/or commercial guarantee (if any). Shelly Europe Ltd. is not responsible for any loss or damage in case of incorrect installation or improper operation of this Device due to failure of following the user and safety instructions in this guide.

Terminology [↗](#)

***Learn mode** - a state that allows the Device to receive network information from the gateway.

- **Device** - In this document, the term “**Device**” is used to refer to the Shelly Wave device that is a subject of this guide.
- **Gateway (GW)** - A Z-Wave® gateway, also referred to as a Z-Wave® controller, Z-Wave® main controller, Z-Wave® primary controller, or Z-Wave® hub, etc., is a device that serves as a central hub for a Z-Wave® smart home network. The term “**gateway**” is used in this document.
- **S button** - The Z-Wave® Service button, located on Z-Wave® devices and is used for various functions such as adding (inclusion), removing (exclusion), and resetting the device to its factory default settings. The term “**S button**” is used in this document.
- **Adding/Inclusion** - The process of adding Z-Wave device to a Z-Wave network - gateway. The words **included, added**, etc. are used in this regard.
- **Removing/Exclusion** - The process of removing Z-Wave device from a Z-Wave network - gateway. The words **excluded, removed**, etc. are used in this regard.
- **Learn mode** - a state that allows the Device to receive network information from the gateway.
- **Mesh network** - devices can communicate with each other in addition to the gateway. Devices (only mains powered) can act as repeaters to extend network.
- **Long range network** - devices can communicate only with gateway (no repeater function).

About Shelly Wave [↗](#)

Shelly Wave is a line of innovative microprocessor-managed devices, which allow remote control of electric circuits with a smartphone, tablet, PC, or home automation system. They work on Z-Wave® wireless communication protocol, using a gateway, which is required for a configuration of devices. When the gateway is connected to the internet, you can control Shelly Wave devices remotely from anywhere. Shelly Wave devices can be operated in any Z-Wave® network with other Z-Wave® certified devices from other manufacturers. All mains operated nodes within the network will act as repeaters regardless of vendor to increase reliability of the network. Devices are designed to work with older generations of Z-Wave® devices and gateways.

About the Device

The Device is a smart Z-Wave® humidity and temperature sensor featuring long battery life.

Installation instruction

Inserting/Replacing the Battery

1. Remove the Device bottom shell by turning it counterclockwise as shown on Fig. 1.
2. Insert the battery as shown on Fig. 2.
3. The LED indication should start flashing slowly, indicating the Device is awake. Attach the bottom shell to Device by turning it clockwise as shown on Fig. 3.

Device can be also power supplied through a USB power adapter. Device USB adapter is available for purchase separately at: [Shelly H&T USB Add-on White](#)

⚠CAUTION! The product is intended for indoor use only.

⚠CAUTION! Keep the Device away from liquids and moisture. The Device shouldn't be used in places with high humidity.

⚠CAUTION! Do not install the Device where it can get wet.

⚠CAUTION! Do not use the Device if it has been damaged!

⚠CAUTION! Do not attempt to service or repair the Device yourself!

⚠CAUTION! The Device may be connected wirelessly and may control electric circuits and appliances. Proceed with caution! Irresponsible use of the Device may lead to malfunction, danger to your life or violation of the law.

△RECOMMENDATION: Place the Device as far away as possible from metal elements as they can cause signal interference.

⚠WARNING! Even used batteries may cause severe injury or death. Call a local poison control center for treatment information!

⚠WARNING! Do not force discharge, recharge, disassemble, heat above manufacturer's specified temperature rating or incinerate! Doing so may result in injury due to venting, leakage or explosion resulting in chemical burns.

⚠WARNING! Do not recharge non-rechargeable batteries!

⚠CAUTION! Remove and immediately recycle or dispose of exhausted batteries according to your local regulations!

⚠CAUTION! If the Device is not used for an extended period, remove the battery. Reuse it if it still has power or dispose of it according to local regulations if it is exhausted.

⚠CAUTION! Do not dispose of batteries in household trash or incinerate! Batteries can emit hazardous compounds or cause fire if not disposed of properly.

⚠CAUTION! Ensure the batteries are installed correctly according to polarity (+ and -).

⚠CAUTION! Use only 3 V CR123A or a compatible battery!

⚠CAUTION! Always completely secure the battery compartment! If the battery compartment does not close securely, stop using the product, remove the batteries, and keep them away from children.

About Z-Wave®



The Z-Wave® protocol is an interoperable, wireless, RF-based communications technology designed specifically for control, monitoring, and status reading applications in residential and light commercial environments. Mature, proven, and broadly deployed, Z-Wave® is by far the world market leader in wireless control, bringing affordable, reliable, and easy-to-use 'smart' products to millions of people in every aspect of daily life.

Interoperability has always been at the core of the Z-Wave® protocol, alongside the features like backward compatibility, security, and reliability. All Z-Wave® devices can be operated in any Z-Wave® network with other Z-Wave® certified devices, regardless of brand or manufacturer. All mains operated nodes within the network will act as repeaters regardless of vendor to increase the reliability of the network. There are 4000+ Z-Wave® certified products that are backwards- and forwards-compatible in the Z-Wave® ecosystem and well over 100 million devices currently in the market.

With over 20 years in the marketplace, Z-Wave® technology has best-in-class security measures to keep your home network smarter and safer.

Source: www.z-wavealliance.org, <http://www.z-wave.com>

Z-Wave® Adding / Removing / Factory reset

Adding the Device to a Z-Wave® network (inclusion)

Note! *In case of Security 2 (S2) adding (inclusion), a dialog will appear asking you to enter the corresponding PIN Code (5 underlined digits) that are written on the Z-Wave® DSK label on the side of the Device and on the Z-Wave® DSK label inserted in the packaging.*
IMPORTANT: The PIN Code must not be lost.

SmartStart adding (inclusion)

SmartStart enabled products can be added into a Z-Wave® network by scanning the Z-Wave® QR Code present on the Device with a gateway providing SmartStart inclusion. No further action is required, and the SmartStart device will be added automatically once the battery device wakes up in the network vicinity.

1. With the gateway application scan the QR code on the Device label and add the Security 2 (S2) Device Specific Key (DSK) to the provisioning list in the gateway.
2. Wake up the device
3. Check if the blue LED is blinks once. If so, the Device is not added to a Z-Wave® network.
4. Adding will be initiated automatically within a few seconds after device wake's up and the Device will be added to a Z-Wave® network automatically.
5. The blue LED will be blinking in Mode 2 during the adding process.
6. The green LED will be blinking in Mode 1 if the Device is successfully added to a Z-Wave® network.

Adding (inclusion) with the S button (*not available for Long Range inclusion)

1. Single press and check if the blue LED blinks once. If so, the Device is not added to a Z-Wave® network.
2. Enable add/remove mode on the gateway.
3. To enter the Setting mode, press the S button (>0,5s) on the Device until the LED turns solid blue.

4. Release and then press and hold (> 2s) the S button on the Device until the blue LED starts blinking in Mode 3. Releasing the S button will start the Learn mode.
5. The blue LED will be blinking in Mode 2 during the adding process.
6. Once the device has been successfully added into a Z-Wave® network, the LED will remain off. To confirm the inclusion of the device, press the S-button again; the green LED will blink once as a signal of successful inclusion.

Note! In Setting mode, the Device has a timeout of 10s before entering again into Normal mode.

Removing the Device from a Z-Wave® network (exclusion) [↗](#)

Note! The Device will be removed from your Z-Wave® network, but any custom configuration parameters will not be erased.

Removing (exclusion) with the S button [↗](#)

1. Single press and check if the green LED blinks once. If so, the Device is added to a Z-Wave® network.
2. Enable add/remove mode on the gateway.
3. To enter the Setting mode, press the S button (>0,5s) on the Device until the LED turns solid blue.
4. Release and then press and hold (> 2s) the S button on the Device until the blue LED starts blinking in Mode 3. Releasing the S button will start the Learn mode.
5. The blue LED will be blinking in Mode 2 during the removing process.
6. The blue LED will be blinking in Mode 1 if the Device is successfully removed from a Z-Wave® network.

Note! In Setting mode, the Device has a timeout of 10s before entering again into Normal mode.

Factory reset [↗](#)

Factory reset general [↗](#)

After Factory reset, all custom parameters and stored values (kWh, associations, routings, etc.) will return to their default state. HOME ID and NODE ID assigned to the Device will be deleted. Use this reset procedure only when the gateway is missing or otherwise inoperable.

Factory reset with the S button [↗](#)

Note! Factory reset with the S button is possible anytime.

1. To enter the Setting mode, press the S button (>0,5s) on the Device until the LED turns solid blue.
2. Press the S button multiple times until the LED turns solid red.
3. Press and hold (> 2s) S button on the Device until the red LED starts blinking in Mode 3. Releasing the S button will start the factory reset.
4. During factory reset, the LED will turn solid green for about 1s.
5. The blue LED will be blinking in Mode 1 if the Factory reset is successful.

Remote factory reset with parameter with a gateway [↗](#)

Factory reset can be done remotely with the settings in Parameter No. 120.

Z-Wave® Security 2 and Device Specific Key (DSK) [↗](#)

The Device supports the latest Security 2 (S2) feature. S2 is handled by the strong AES 128 Encryption protocol, which means that the S2 makes Z-Wave® the most secure IoT (Internet of Things) security platform out there. To fully utilize the product and its Security 2 feature, a Security 2-enabled Z-Wave® gateway must be used.

Authenticated Control

- Out-Of-Band DSK for adding (inclusion)
- May be used by most implementations

The Device also supports Security 2 Authenticated, Unauthenticated, and Unsecure adding (inclusion).

Note! When adding the Device to a Z-Wave® network with a gateway supporting Security 2 (S2), the PIN Code of the Z-Wave® Device Specific Key (DSK) is required. You can find it on the label on the side of the Device and a copy is inserted in the packaging, which must not be lost. Do not remove the Z-Wave® DSK label from the Device. As a backup measure, use the label in the packaging.



The first five digits of the key are highlighted or underlined to help the user identify the PIN Code part of the DSK text. The DSK is additionally represented with a QR Code as shown on the image.

Z-Wave® DSK label and QR code (example) [↗](#)

A joining node requesting to join the S2 Access Control Class or the S2 Authenticated Class will obfuscate its Public Key by setting the bytes 1..2 to zeros (0x00) before transferring its key via RF.

The DSK may be used for out-of-band (OOB) authentication.

- The including gateway may use a QR code scanning device to read the entire DSK of the joining device and match it with the obfuscated public key received via RF from the joining device.

① NOTE: This Device must be used in conjunction with a Security Enabled Z-Wave® gateway to fully utilize all implemented functions.

① NOTE: This Device is a security enabled Z-Wave Plus® product that can use encrypted Z-Wave Plus® messages to communicate to other security enabled Z-Wave Plus® products.

① NOTE: DSK access via UI gateways, which implement the S2 and SmartStart security feature, display an input dialog box, with a full or partial DSK key. Most of them display a partial DSK (they do not show the PIN code) when the Device is added with the S2-Authenticated security scheme. When added with the S2-Unauthenticated, some gateways show the complete DSK while others perform the complete adding (inclusion) process without prompting the user with the dialogue.

LED Signalization [↗](#)

General rules [↗](#)

- Switching between Normal and Settings mode is done by press and hold the S button.
- **Solid LED** means that you are in the **Settings mode**. Once in settings mode, switch to normal mode goes automatically after 10s.
- Press on the S button wake up LED for 1s, and device power cycle wakes up LED for 10s.
- During module boot up LED will blink in mode 5 (0,2s On blue/0,2s On red) for 4-5 s.

Normal mode LED status: Normal mode is defined by stable device function that can remain for an infinite time.

LED type: RGB dimmable

Normal mode [↗](#)

Removed/Excluded [↗](#)

The LED will be blinking **blue** in Mode 1 for 30s after every power cycle and 30s after S button pressed.



Added/Included [↗](#)

The LED will be blinking **green** in Mode 1 for 10sec after every power cycle and 1sec after S button pressed.



Settings in progress [↗](#)

Factory reset and reboot [↗](#)

During factory reset, the LED will turn solid **green** for approx. 500ms, then the **blue** LED will be blinking in Mode 1.

Adding / Removing [↗](#)

During adding or removing, the LED will be blinking **blue** in Mode 2.



OTA firmware updating [↗](#)

During the OTA update, the LED will be blinking **blue** and **red** in Mode 2.



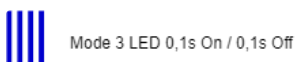
Settings mode with S button [↗](#)

Adding / Removing menu selected (*adding not available for Long Range inclusion) [↗](#)

When the menu is selected the LED will be on **blue**, for maximum of 10 seconds.

Adding / Removing menu - while pressing S- button - Add/Remove process selected (*adding not available for Long Range inclusion) [↗](#)

When the menu is executing the LED will be blinking **blue** in Mode 3.



Factory reset menu selected [↗](#)

When the menu is selected the LED will be on **red**, for maximum of 10 seconds.

Factory reset - while pressing S - button - Factory reset process selected [↗](#)

When the menu is executing the LED will be blinking **red** in Mode 3.



Mode 3 LED 0,1s On / 0,1s Off

Alarm Mode [↗](#)

NA

Z-Wave® Parameters [↗](#)

Parameter No. 117 - Remote Device reboot [↗](#)

This parameter enable restarting or rebooting the Device without physical intervention. Use this parameter only for troubleshooting scope. After device reboot the parameter value will be set to default.

Values size: 1 Byte

Default value: 0

Values & descriptions:

- 0 - function inactive
- 1 - Remote device reboot

Parameter No. 119 - Power source selection [↗](#)

Parameter defines if device is battery supplied or by external power supply.

Values size: 1 Byte

Default value: 0

Values & descriptions:

- 0 - battery
- 1 - external

Parameter No. 120 - Factory Reset [↗](#)

Reset to factory default settings and removed from the Z-Wave network.

The parameter is Advanced and may be hidden under the Advanced tag.

Values size: 4 Byte

Default value: 0

Values & descriptions:

- 0 - No action
- 1 - Factory reset

i After reset is performed, the parameter value is automatically set to 0.

Parameter No. 161 - Temperature threshold [↗](#)

The temperature value is reported if the measured difference is higher to defined threshold value.

Values size: 1 Byte

Default value: 5

Values & descriptions:

- 1 - 50 (1 stands for 0.1°C and 50 stands for 5.0°C)

Parameter No. 162 - Temperature offset

Set value by this parameter is added to or subtracted from the actual measured value to adjust the temperature report.

Values size: 2 Byte

Default value: 0

Values & descriptions:

- Min. value: -500
- Max. value: +500

NOTE: 1=1/10° [°C/°F]. The value is added to the currently measured value for the purpose of sensor calibration.

Parameter No. 163 - Humidity treshold

The humidity value is reported if the measured difference is higher to defined treshold value.

Values size: 1 Byte

Default value: 5

Values & descriptions:

- 1 - 50 (1 stands for 1% RH and 50 stands for 50% RH)

Parameter No. 164 - Humidity offset

Set value by this parameter is added to or subtracted from the actual measured value to adjust the humidity report.

Values size: 2 Byte

Default value: 0

Values & descriptions:

- Min. value: -50
- Max. value: +50

NOTE: 1=1% [RH]. The value is added to the currently measured value for the purpose of sensor calibration.

Parameter No. 165 - Temperature units

Select tempaerature unit in °C (Celsius) or °F (Fahrenheit).

Values size: 1 Byte

Default value: 0

Values & descriptions:

- 0 - °C (Celsius)
- 1 - °F (Fahrenheit)

Parameter No. 201 - Serial Number 1

This parameter contains a part of device's serial number.

The parameter is Read-Only and cannot be changed.

The parameter is Advanced and may be hidden under the Advanced tag.

Values size: 4 Byte

Default value: Device specific

Values & descriptions:

· 0x00000000 - 0x7FFFFFFF

Parameter No. 202 - Serial Number 2 [↗](#)

This parameter contains a part of device's serial number.

The parameter is Read-Only and cannot be changed.

The parameter is Advanced and may be hidden under the Advanced tag.

Values size: 4 Byte

Default value: Device specific

Values & descriptions:

· 0x00000000 - 0x7FFFFFFF

Parameter No. 203 - Serial Number 3 [↗](#)

This parameter contains a part of device's serial number.

The parameter is Read-Only and cannot be changed.

The parameter is Advanced and may be hidden under the Advanced tag.

Values size: 4 Byte

Default value: Device specific

Values & descriptions:

· 0x00000000 - 0x7FFFFFFF

Z-Wave® Command Classes [↗](#)

1. ASSOCIATION_V2 [S0, S2]*
2. ASSOCIATION_GRP_INFO_V3 [S0, S2]*
3. BATTERY_V3 [S0, S2]*
4. CONFIGURATION_V4 [S0, S2]*
5. DEVICE_RESET_LOCALLY_V1 [S0, S2]*
6. FIRMWARE_UPDATE_MD_V5 [S0, S2]*
7. INDICATOR_V3 [S0, S2]*
8. MANUFACTURER_SPECIFIC_V2 [S0, S2]*
9. MULTI_CHANNEL_ASSOCIATION_V3 [S0, S2]*
10. POWERLEVEL_V1 [S0, S2]*
11. SECURITY_V1
12. SECURITY_2_V1
13. SENSOR_MULTILEVEL_V11 [S0, S2]*
14. SUPERVISION_V1
15. TRANSPORT_SERVICE_V2
16. VERSION_V3 [S0, S2]*
17. WAKE_UP_V2 [S0, S2]*
18. ZWAVEPLUS_INFO_V2

Battery Command Class [↗](#)

The Device use Battery Command Class to manage the reporting of the battery's power level.

With the use of a Battery Get command we can get a report, in percentage, of the battery's power level. These values are from 0x00 to 0x64 in hexadecimal or in decimal, from 0 to 100.

Low-Battery warning

When the battery level is close to 0, the device will send an unsolicited / automatic report to the controller with a value 0xFF representing a low-battery warning.

NOTE! Because it is impossible to know the chemistry and discharge characteristics of each battery, and because of such low voltages, Low-battery warnings can vary widely.

Wake up Command Class [↗](#)

This device goes to sleep mode to limit the power consumption of the battery. With the help of this command class the device lets the controller know when it is asleep and when did it Wake up. When the device is asleep it will not receive or process any commands sent to it.

The Device wakes up on it's own to report to the gateway, that it still alive. The default interval is 43200 seconds or 12 hours meaning the Device will wake up by itself twice a day.

This interval can be set through the Wake Up Interval Set. The values that it will accept are between 0 and 86400 seconds (24 hours).

WARNING! Low values for the interval will cause to device to drain the battery very quickly.

When the Device wakes up, it sends a Wake up notification to the gateway, letting it know it is awake and ready to receive commands.

The Device will wake up when:

- Pressing the S button
- When the Device is powered on
- By the set wake up interval

When the device wakes up, it reset the interval timer and send a Wake Up Notification to the gateway, letting it know that it is awake. At that moment any commands that have been queued for execution will be sent to the device. Afterwards, when all commands are received by the device, the gateway will notify the Device that it may go to sleep again with a Wake Up No More Information command.

WARNING! If by any chance the Device does not receive a Wake Up No More Information command, the device will stay awake for at least 10 seconds before it goes to sleep by itself.

Supporting Command Class Indicator

The Device supports the Command Class Indicator V3 (ID 0x50). When the Device receives an indicator set, the LED blinks according to the received indicator set.

Refer to LED Signalization chapter.

Z-Wave® Associations [↗](#)

Associations are used for direct communication between the Device and other devices within your Z-Wave network without the need of the Z-Wave gateway.

Max. number of associated devices per group is 9. This value is fixed and cannot be configured.

Each association group supports the association of up to 9 devices (nodes). To avoid network delays, we recommend limiting the number of associated devices to no more than 5 per group. "Lifeline group" is reserved for controlling devices, such as Gateways and remote controllers, or devices who can interpret the reports sent.

Association group 1 - "Lifeline group" sends to the controlling device it's command class notifications and or command class reports when said command classes are triggered. Max. 9 nodes are allowed:

Root device [↗](#)

Root device - Association Group 1 - Lifeline [↗](#)

1. INDICATOR_REPORT : LED status
2. DEVICE_RESET_LOCALLY_NOTIFICATION : triggered upon request
3. BATTERY_REPORT : This command MUST be issued periodically to report the current battery level. The frequency is up to the implementation
4. BATTERY_REPORT : "This command MUST be issued by a node when its battery becomes low and the end user needs to reload or replace the battery. The Battery Level field MUST be set to 0xFF to indicate a low battery warning."
5. SENSOR_MULTILEVEL_REPORT : temperature and humidity

Technical Specifications [↗](#)

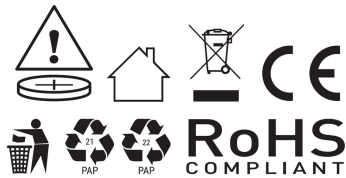
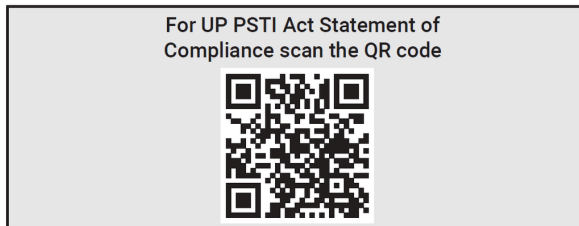
Power supply		1x 3 V CR123A battery
Battery life		Up to 2 years
Humidity sensor		Yes
Temperature sensor		Yes
Long range network	Distance (depends on local condition)	Up to 80 m indoors (262 ft.) or up to 1000 m outdoors (3281 ft.)
	Z-Wave® repeater	No
	Z-Wave® frequency bands	908.42MHz 912MHz 920MHz
Mesh network	Distance (depends on local condition)	Up to 40 m indoors (131 ft.)
	Z-Wave® repeater	Yes
	Z-Wave® frequency bands	908.42MHz 912MHz 920MHz
CPU		Z-Wave® S800
Maximum radio frequency power transmitted in frequency band(s)		< 25 mW
Size (H x W x D)		35x46 mm / 1.38x1.81 in
Weight		16 g without battery 33 g with battery
Shell material		Plastic
Color		Black or White
Ambient temperature		-20°C to 40°C / -5°F to 105°F
Humidity		30% to 70% RH
Max. altitude		N/A

Important disclaimer [↗](#)

Z-wave® wireless communication may not always be 100% reliable. This Device should not be used in situations in which life and/or valuables are solely dependent on its functioning. If the Device is not recognized by your gateway or appears incorrectly, you may need to change the Device type manually and ensure that your gateway supports Z-wave Plus® multi-channel devices and Z-wave® Long Range capability in case of Long Range devices.

Declaration of Conformity

Hereby, Shelly Europe Ltd. declares that the radio equipment type Shelly Wave H&T is in compliance with Directive 2014/53/EU, 2014/35/EU, 2014/30/EU, 2011/65/EU. The full text of the EU declaration of conformity is available at the following internet address: <https://shelly.link/ShellyWaveH&T-DoC>



Manufacturer

Shelly Europe Ltd.

Address: Shelly Europe Ltd, 51 Cherni Vrah Blvd., building 3, floor 2 and 3, Lozenetz Region, Sofia 1407, Republic of Bulgaria

Tel.: +359 2 988 7435

E-mail: zwave-shelly@shelly.cloud

Support: <https://support.shelly.cloud/>

Web: <https://www.shelly.com>

Changes in the contact data are published by the Manufacturer at the official website: <https://www.shelly.com>

RF exposure statement

This equipment complies with the FCC radiation exposure limits set forth for an uncontrolled environment. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

FCC Warning

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

(1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

NOTE 2: Any changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.