WiDom Smart Plug

WSP 1.00 Installation and Operating Instructions

Revision History

Rev. Doc.	Date	Revisor	Pag.	Description
0	05/02/2019	GT		Initial version

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Device description

WiDom Smart Plug is able to detect overvoltage and/or overcurrent events and indicate them through a multicolor LED. Furthermore, it protects appliances from eventual overload. A very innovative design, which integrates a complex system that allows a precise energy consumption monitoring. The integration of these features in its very small size product, make it unique on the market.

The device is equipped with contact protection technology (*Zero Crossing*) which reduces the electrical stress on the relay contacts and ensures a longer life. The open / closed switching of the device always occur when the instantaneous value of voltage is 0.

It operates in any Z-Wave network with other Z-Wave/Z-Wave Plus certified devices and controllers from any other manufacturer. As a constantly powered node, WiDom Smart Plug will act as repeater regardless of the vendor in order to increase the reliability of the network.

Load control functionality	Switching the relay
Z-Wave functionality	3 click including the device in the Z-Wave Network; 3 clicks removing the device from the Z-Wave Network;
Meter functionality	Manual reset of alarms

Technical Specifications

Power Supply	230 VAC±10% 50/60 Hz
Maximum Load on Relay	2500 VA – 250VAC – 10 A
Temperature limitation	105 °C
Work Temperature	From -10° to 40° C
Power consumption	< 0.6 Watt
Radio frequency	Check the radio frequency section
Protection system	S0 and S2 Security
Maximum distance	Up to 100 m outdoor Up to 40 m indoor
Dimensions (HxWxD)	69x44x44 mm
Actuator element	Relay
Compliance	CE, RoHs
Electrical IP Rating	IP 20
Meter Specifications	
Parameters	Voltage RMS, Active Power, Energy
Meter Range	Voltage RMS: 250 V Active Power: 2500 W Energy: 2.000.000 kWh
Resolution	Voltage RMS: 0.1 V Active Power: 0.01 W Energy: 0.001 kWh
Maximum Error	Voltage RMS: 2 Volt Active Power: 0.5 Watt

Radio Frequency

Product Code	Z-Wave Frequency
WSPEU	868.4MHz,
WSPBR	919.8MHz, 921.4MHz
WSPCL	919.8MHz, 921.4MHz
WSPCO	908.4MHz, 916MHz
WSPIN	865.2MHz
WSPJP	922.5MHz, 923.9MHz, 926.3MHz
WSPRU	869.0MHz
WSPZA	868.4MHz, 869.85MHz
WSPTW	922.5MHz, 923.9MHz, 926.3MHz
WSPAE	868.4MHz, 869.85MHz

Product Code	Z-Wave Frequency
WSPAU	919.8MHz,
WSPCN	868.4MHz
WSPHK	919.8MHz
WSPIL	916MHz
WSPMY	919.8MHz, 921.4MHz
WSPSG	920.9MHz, 921.7MHz, 923.1MHz
WSPKR	920.9MHz, 921.7MHz, 923.1MHz
WSPTH	920.9 MHz, 921.7MHz, 923.1 MHz
WSPUS	908.4MHz

LED status indicator

The system includes an RGB LED that shows the device's status during use:

One single BLUE blink: when connecting to the power supply and the device is not yet included in the Z-Wave network

OFF: the relay is OFF

Solid GREEN: the relay is ON

Blink GREEN - BLUE: Learn mode for Inclusion and Exclusion

Blink GREEN – the device is indicating Overcurrent event

Blink BLUE – the device is indicating Overvoltage event

WiDom Smart Plug Activation

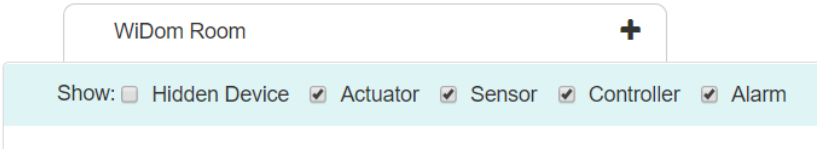
1) Connect the device to a power outlet
2) Include the device in the Z-Wave network

Including (Add) the device into an existing Z-Wave network

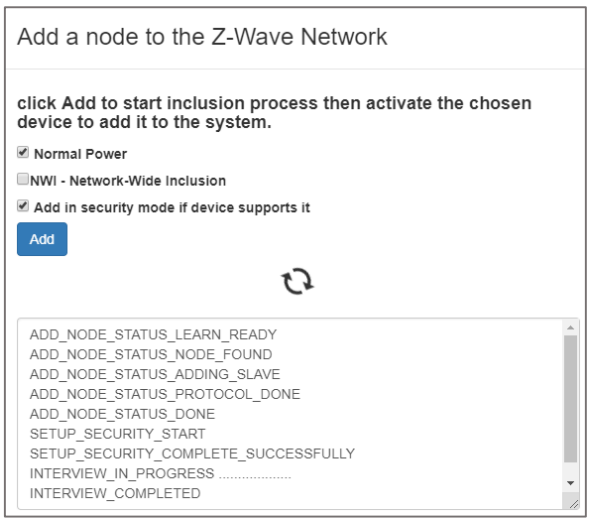
WiDom Smart Plug is compatible with all Z-Wave/Z-Wave Plus certified controllers. The device supports both the ***Network Wide Inclusion*** mechanism (which offers the ability to be included in a network, even if the device is not directly connected to the controller) and ***Normal Inclusion***.

If the device is not included into a Z-Wave network, **three consecutive clicks** on the Push Button will launch the process of traditional inclusion. If the device inclusion procedure does not start within 2 seconds, the Network Wide Inclusion network will be launched and will last between 15-30 seconds.

If you are using the *WiDom Multi Sensor Room Controller* you can include the device in the preferred room by clicking on the ✚ button and opening the inclusion interface.



The procedure of inclusion is activated by clicking **Add** in the inclusion interface and by pressing any sequence of click on the push button.

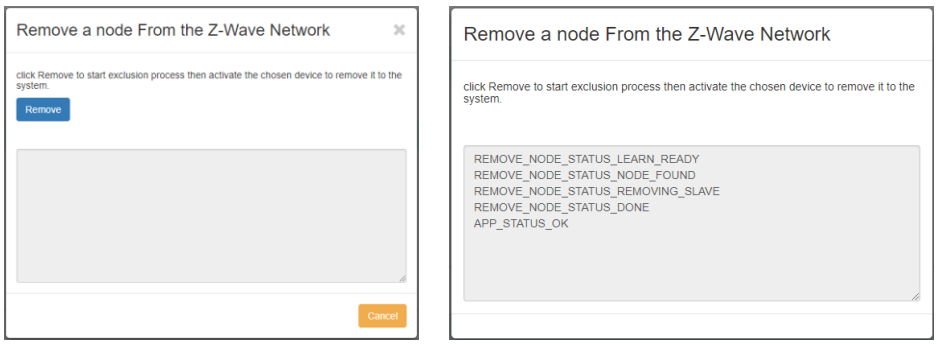


Excluding (Remove) the device from a Z-Wave network

Only a controller can remove a device from the network. After activating the exclusion function by the controller, the device can be removed by setting it in *Exclusion Mode* by **three consecutive clicks** on the Push Button.

If you are using the *WiDom Multi Sensor Room Controller,* the procedure of exclusion can be activated by **Removing** a node from the Z-Wave network and three clicks on the push button; as soon as the exclusion initiates, the LED indicator starts a sequence of GREEN-BLUE blinks.

The device is excluded from the network when the App_status in the interface is OK.



Controlling the device

Controlling the load through the Smart Plug

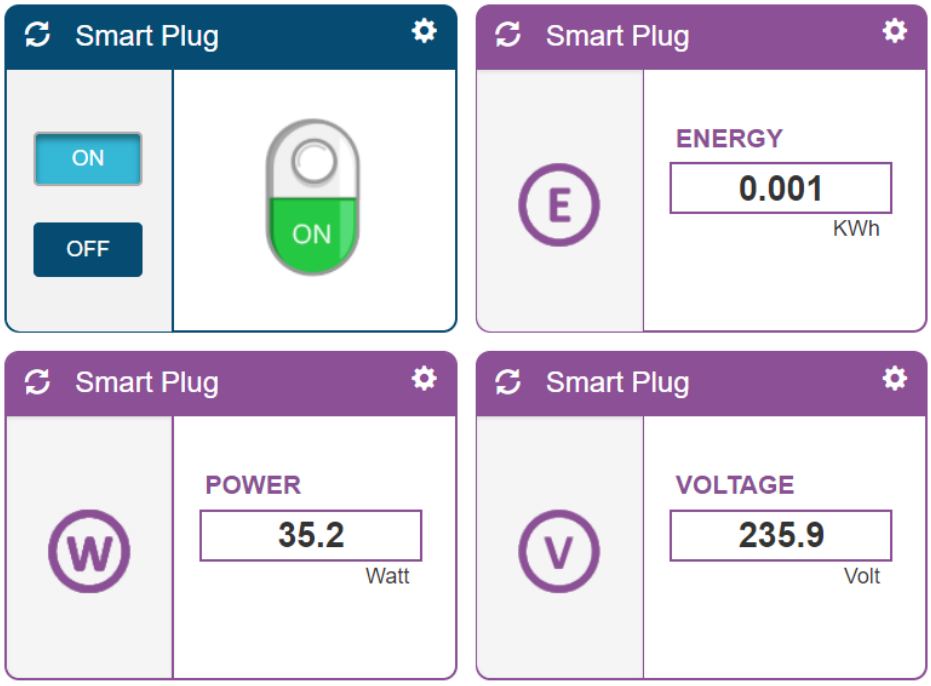
A single click or two clicks on the Push Button can turn ON/OFF the load (Parameter No. 1).

Controlling the device through Z-Wave network

WiDom Smart Plug can be controlled by any Z-Wave / Z-Wave Plus certified controller available in the market.

All Z-Wave controllers can control the device by using the ***Basic Set*** command.

In the figure below, is represented how the device will appear once included into the *WiDom Multi Sensor Room Controller*.



View of the WiDom Smart Plug control panels inside the *WiDom Multi Sensor Room Controller interface*

The control panels show the status of the load in terms *instantaneous power*, *energy consumption, line voltage* and *switching status.*

The ON/OFF buttons in the control panel allow to turn ON/OFF the load connected to the Smart Plug.

The device status is typically updated in case of status change. Nevertheless, it is possible to refresh the shown status by using the *Refresh Button* .

The device configuration parameters and settings can be accessed by using the Configuration Button .

Reset to factory settings

The device can be reset to the original factory settings by removing the device from the Z-Wave Network.

Firmware Update

The system supports over-the-air firmware updates that do not require the device to be removed from its location. The firmware update can be activated from all certified controllers supporting version 2 of the Firmware Update function.

⚠ **WARNING:** The system will be rebooted at the end of the firmware update procedure. If the load is ON it will be turned OFF and then again ON. It is advisable to carry out the firmware update procedure only when necessary.

Electric parameters reading

WiDom Smart Plug can read the Active Power, the Voltage RMS and the Energy consumed by the load. These values can be obtained through the certified controllers that support the Meter Command Class version 3.

Overvoltage and Overcurrent Alarms

WiDom Smart Plug is able to detect overvoltage and overcurrent events, and show them through a blinking LED:

- **Blink GREEN** – Overcurrent event
- **Blink BLUE** – Overvoltage event

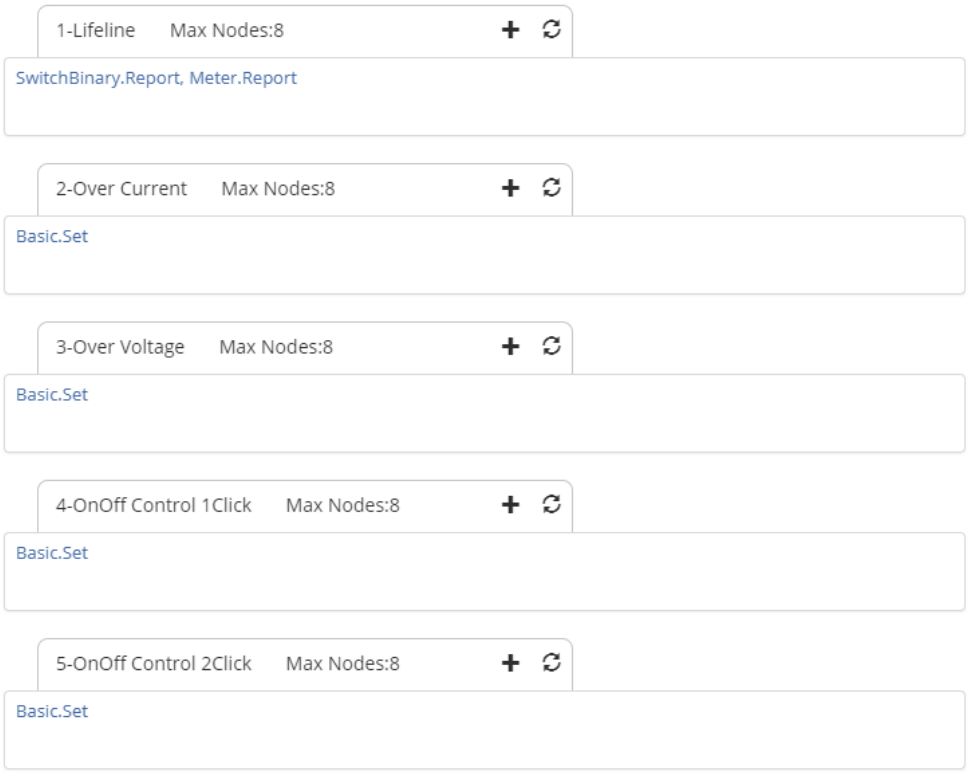
These events generate alarms that can control associated devices, by sending Basic Set Commands, and open the relay in case of the overcurrent alarm.

Associations

WiDom Smart Plug can control, through direct association, other devices of the Z-Wave network in which is included, when an event of overcurrent, overvoltage or events on the Push Button occur.

WiDom Smart Plug can control devices such as relays or dimmers. WiDom Smart Plug supports 5 association groups, each of which supports the association of up to 8 devices:

1-Lifeline: Nodes belonging to this groups will receive changes related to the relay status and power consumption
2-Over Current: Nodes belonging to this groups will be controlled by a basic set if over current event occur;
3-Over Voltage: Nodes belonging to this groups will be controlled by a basic set if over voltage event occur;
4-Control 1Click: Nodes belonging to this groups will be controlled by a basic set if the button receive one click
5-Control 2Click: Nodes belonging to this groups will be controlled by a basic set if the button receive two clicks



TIP: WiDom Smart Plug can control up to 8 devices for every group. In order to prevent the network from slowing down it is advisable to limit the associated devices to no more than 5 per group.

INFO: If you want to add the device within the first group and you are using the *WiDom Multi Sensor Controller,* the device association group can be configured as follows: 1) Click ***Configuration button***, 2) select ***Association*** section, 3) click the ✚ button to **Add** a new device to the group or click on the ✪ button to **Remove** a device.

Configurations

Parameter No. 1: Local load control (1 Byte)

Defines which sequences of click control the local load.

Configuration	Result
1	**ONE_CLICK** 1 click turn ON/OFF the local load
2	**TWO_CLICKS** 2 clicks turn ON/OFF the local load
3 (Default Value)	**ONE_CLICK or TWO_CLICKS** 1 click or 2 clicks turn ON/OFF the local load

Controlling the associated devices

Parameter No. 2: Level used to control the devices associated to group 4 (1 Byte)

Defines how to control the devices associated to 1 click event.

Configuration	Result
0	**SWITCH_OFF** The associated devices are switched OFF
-1	**SWITCH_ON** The associated devices are switched ON
1 - 99	**LEVEL** The associated devices (dimmer, roller shutters) are set to the indicated level
100 (Default Value)	**RELAY_STATUS** If the relay is ON/OFF, the associated devices are ON/OFF

Parameter No. 3: Level used to control the devices associated to group 5 (1 Byte)

Defines how to control the devices associated to 2 clicks event.

Configuration	Result
0	**SWITCH_OFF** The associated devices are switched OFF
-1	**SWITCH_ON** The associated devices are switched ON
1 - 99	**LEVEL** The associated devices (dimmer, roller shutters) are set to the indicated level
100 (Default Value)	**RELAY_STATUS** If the relay is ON/OFF, the associated devices are ON/OFF

Overvoltage Alarm

Parameter No. 4: Overvoltage level (2 Byte)

Defines the voltage level (in Volts) beyond which an overvoltage event is identified and the overvoltage timer is activated. The timer is reset when the event ceases, i.e. when the voltage returns below the overvoltage level. As soon as an overvoltage event occurs, the LED starts a *BLUE* blinking. If the overvoltage event ceases before the overvoltage timer expires, the blue blinking is stopped, otherwise the alarm is generated and the blinking reset is established by parameter 6.

Configuration	Result
110 – 260 **253** (Default value)	Defines the overvoltage level (in Volts)

Parameter No. 5: Overvoltage Timer (2 Byte)

Define the time (seconds) in which the voltage must persist above the overvoltage level so that an alarm is generated.

Configuration	Result
1 – 3600 **5** (Default value)	Overvoltage time interval (in seconds) after witch an alarm is generated

Parameter No. 6: Overvoltage Alarm Reset (1 Byte)

Define how to reset the overvoltage alarm and breaks off the blue blinking.

Configuration	Result
0 (Default Value)	**MANUAL** Manual when the relay change its state through the Push Button
1	**OVER_VOLTAGE_END** When the overvoltage event is terminated

Parameter No. 7: Level used to control the devices associated to group 3 (1 Byte)

Define how to control the devices associated to the overvoltage alarm

Configuration	Result
0 (Default Value)	**SWITCH_OFF** The associated devices are switched OFF
-1	**SWITCH_ON** The associated devices are switched ON
1 - 99	**LEVEL** The associated devices (dimmer, roller shutters) are set to the indicated level

Overcurrent Alarm

Parameter No. 8: Overcurrent level (1 Byte)

Defines the current level (in Amps) beyond which an overcurrent event is identified and the overcurrent timer is activated. The timer is reset when the event ceases, i.e. when the current returns below the overcurrent level. As soon as an overcurrent event occurs, the led starts a red blinking. If the overcurrent event ceases before the overcurrent timer expires, the red blinking is stopped, otherwise the alarm is generated and the blinking reset is established by parameter 10.

Configuration	Result
1-12 **12** (Default value)	Defines the overcurrent level (in Amps)

INFO: If the current exceeds the maximum threshold of 12A, the timer is reset and the alarm is immediately generated and the relay is opened.

Parameter No. 9: Overcurrent Timer (2 Byte)

Define the time (seconds) in which the current must persist above the overcurrent level so that an alarm is generated and the relay is opened.

Configuration	Result
1 - 3600 **10** (Default value)	Overcurrent time interval (in seconds) after witch an alarm is generated

Parameter No. 10: Overcurrent Alarm Reset (1 Byte)

Define how to reset the over-current alarm and breaks off the red blinking.

Configuration	Result – Alarm reset
0	**MANUAL** Manual when the relay change its state through the Push Button
1 (Default Value)	**OVER_CURRENT_END** When the over-voltage event is terminated

Parameter No. 11: Level used to control the devices associated to group 2 (1 Byte)

Define how to control the devices associated to the overcurrent alarm.

Configuration	Result
0 (Default Value)	**SWITCH_OFF** The associated devices are switched OFF
-1	**SWITCH_ON** The associated devices are switched ON
1 - 99	**LEVEL** The associated devices (dimmer, roller shutters) are set to the indicated level

Supported Command Classes

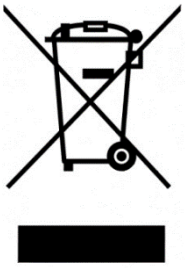
Supported: Supported only non-secure mode

Supported: Only in secure mode

Supported: In Secure and non-secure mode

No	Command Class	Non Secure added Supported only in non-secure mode	Securely added	
			Non-secure CC Supported in Secure and non-secure mode	Secure CC Supported only in secure mode
1	COMMAND_CLASS_ZWAVEPLUS_INFO	x	x	
2	COMMAND_CLASS_SWITCH_BINARY	x		x
3	COMMAND_CLASS_METER	x		x
4	COMMAND_CLASS_ASSOCIATION	x		x
5	COMMAND_CLASS_MULTI_CHANNEL_ASSOCIATION	x		x
6	COMMAND_CLASS_ASSOCIATION_GRP_INFO	x		x
7	COMMAND_CLASS_TRANSPORT_SERVICE	x	x	
8	COMMAND_CLASS_VERSION	x		x
9	COMMAND_CLASS_MANUFACTURER_SPECIFIC	x		x
10	COMMAND_CLASS_POWERLEVEL	x		x
11	COMMAND_CLASS_CONFIGURATION	x		x
12	COMMAND_CLASS_SECURITY		x	
13	COMMAND_CLASS_SECURITY_2		x	
14	COMMAND_CLASS_SUPERVISION	x		x
15	COMMAND_CLASS_FIRMWARE_UPDATE_MD	x	x	

Disposing the devices



This product bears the selective sorting symbol for waste electrical and electronic equipment (WEEE).

This means that this product must be handled pursuant to European Directive 2002/96/EC in order to be recycled or dismantled to minimize its impact on the environment.

For further information, please contact your local or regional authorities.

Electronic products not included in the selective sorting process are potentially dangerous for the environment and human health due to the presence of hazardous substances.

Compliance with directives

WiDom devices are built in compliance with directives LVD 2006/95/EC, EMC 2004/108/CE and R&TTE

WiDom shall not be held responsible for any damage caused by these devices if they are used in a manner that is not compliant with the instructions in this manual. WiDom reserves the right to make any changes to the product that it considers necessary or useful without jeopardizing its primary features.

Warranty

This warranty is provided by WiDom srl (hereinafter "WiDom") based in Quartu S.Elena 09045 (CA), Italy (VAT number 03452490927).

WiDom warrants to the original purchaser (hereinafter "Customer") that the device sold under this agreement (hereinafter "Device") is free from defects in parts and workmanship under normal use for 12 months from date of purchase ("Warranty Period").

The original purchase invoice or sales receipt, showing the date of purchase is the proof of date of purchase by the Customer.

If a Device, sold by WiDom to the Customer, has manufacturing defects or in any case of alleged lack of conformity, the Customer shall send within thirty (30) days from the day in which he discovers such defects, a claim form by using the web site (www.widom.it) informing WiDom on the full name of the Customer, the nature of the defects and the date in which the Devices has been purchased.

Warranty Claims received after the expiration of the Warranty Period shall not be considered valid.

Once WiDom, receives the Warranty Claim, it shall inform the Customer by e-mail or letter, if the Warranty is applicable and the address where the Device shall be sent in order to verify the defects (if any). Customer must prepay shipping and transportation charges as indicated by WiDom. The Device shall be sent by the Customer to WiDom at its own costs and expenses, by express courier or hand delivered, and with the original packaging, the supplied accessories (if any) and documents proving date of purchase. WiDom shall then inform the Customer about the defects and on its repair or replacement (where applicable). Should WiDom not evidence defects on the Device, the Device shall be returned to the Customer.

Should WiDom notices the defects, and this warranty is applicable, it will remove, at its sole discretion, any defect, free of charge, by repairing any defective components of the Device with new or regenerated components or by replacing the Device. The Warranty Period of the replaced or repaired Device shall not be extended.

WiDom will ship the repaired or a replaced Device to Customer freight prepaid.

WiDom will not be liable for damages to property caused by faulty device. WiDom will not be liable for indirect, incidental, special, consequential or punitive damages, or for any damage, including, inter alia, loss of profits, savings, data, loss of benefits, claims by third parties and any property damage or personal injuries arising from or related to the use of the Device.

If the Device cannot be replaced with another of the same type (e.g. the Device is no longer in production or no longer available for selling in the Customer's country), it may be replaced with a different one having similar technical specifications to the faulty one. Such replacement shall be considered as a total fulfilment of WiDom's obligations.

Warranty exclusion

- defects caused by normal wear of parts or especially subject to wear, such as parts that require periodic replacement during the normal operation of the system (e.g. Batteries);
- splits, cracks, scratches, dents, scratched or discolored surfaces and parts, breakage of plastic parts and in general of any other cosmetic damage;
- damages resulting from use of the system other than that provided, including but not limited to the failure to follow instructions contained in the operating manual;
- damages caused by accident, abuse, misuse, dirt, viruses, liquid contact, fire, earthquake, improper or inadequate maintenance or calibration, negligence or other external causes;
- environmental damage and / or defects caused by smoke, dust, dirt, soot, or other external influences;
- damages caused by modifications and alterations in the functionality or features without the written permission of WiDom;
- damages resulting from transportation or inadequate packaging when returning the product to a WiDom or to an authorize service center;
- defects caused by force majeure events such as lightning, floods, fires, incorrect voltage, improper ventilation;
- damages caused by malfunctioning software, computer virus attack, or by failure to update the software as recommended by WiDom;
- damages resulting from surges in the power and/or telecommunication network, improper connection to the grid in a manner inconsistent with the operating manual, or from connecting other devices not recommended by WiDom;
- damages caused by operating or storing the device in extremely adverse conditions, i.e. high humidity, dust, too low (freezing) or too high ambient temperature;
- products whose serial number has been removed, damaged or rendered illegible;
- expiration of the Warranty Period.

If a defect is not covered by the Warranty, WiDom will inform the Customer about the extra expenses for the repair or replacement.

This warranty may be subject to changes. Please check at www.widom.it the newest warranty claim procedure.

This guarantee shall not exclude, limit or suspend the Customer rights when the provided product is inconsistent with the purchase agreement.

Extended warranty activation

The devices bought in the EU, entitle the end customers to a two-year guarantee offered by the retailer (or trader) that is separate from the above commercial guarantee offered by the manufacturer to the distributor or reseller.

WiDom offers an extra year guarantee to the end customers in addition to the EU guarantee. This warranty can be obtained only if the customer completes, by using the contacts on WiDom's website, the following two steps:

1) Within fifteen (15) days from the date of purchase, send to WiDom a copy of the purchase invoice and product code;

2) Promptly after installing the device, send to WiDom the conformity certification issued by the professional who installed the device with indication of the serial number.

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