

What is Z-Wave?

Z-Wave is the international wireless protocol for communication in the Smart Home. This device is suited for use in the region mentioned in the Quickstart section.

Z-Wave ensures a reliable communication by reconfirming every message (**two-way communication**) and every mains powered node can act as a repeater for other nodes (**meshed network**) in case the receiver is not in direct wireless range of the transmitter.



This device and every other certified Z-Wave device can be **used together with any other certified Z-Wave device regardless of brand and origin** as long as both are suited for the same frequency range.

If a device supports **secure communication** it will communicate with other devices secure as long as this device provides the same or a higher level of security. Otherwise it will automatically turn into a lower level of security to maintain backward compatibility.

For more information about Z-Wave technology, devices, white papers etc. please refer to www.z-wave.info.

Product Description

This in-wall module is with compact design as well as stable performance, which can suit for any of the installation box and various operation situation. It supports basic command class, and also can act as repeater regardless of vendor to increase reliability of the network.

Prepare for Installation / Reset

Please read the user manual before installing the product.

In order to include (add) a Z-Wave device to a network it **must be in factory default state**. Please make sure to reset the device into factory default. You can do this by performing an Exclusion operation as described below in the manual. Every Z-Wave controller is able to perform this operation however it is recommended to use the primary controller of the previous network to make sure the very device is excluded properly from this network.

Reset to factory default

This device also allows to be reset without any involvement of a Z-Wave controller. This procedure should only be used when the primary controller is inoperable.

Restoring Factory Settings: The default configuration can be restored by: Sending commands through controller/gateway (the command classes which support this function is Configuration Command Class). The parameter are as follows: Parameter Number 0xFF Size 1 BYTE Default value N/A Configuration value 0x55 Set 0xFF as 0x55 will restore Factory Settings. Or press the inner button on the module 10 times in quick succession. Please use this procedure only when the network primary controller is missing or otherwise inoperable.

Safety Warning for Mains Powered Devices

ATTENTION: only authorized technicians under consideration of the country-specific installation guidelines/norms may do works with mains power. Prior to the assembly of the product, the voltage network has to be switched off and ensured against re-switching.

Inclusion/Exclusion

On factory default 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. This process is called **Inclusion**.

Devices can also be removed from a network. This process is called **Exclusion**. Both processes are initiated by the primary controller of the Z-Wave network. This controller is turned into exclusion respective inclusion mode. Inclusion and Exclusion is then performed doing a special manual action right on the device.

Inclusion

Add the device into Z-Wave network: 1. Set controller into ADD mode. Follow the instructions provided by the controller/gateway manufacturer. 2. Press the momentary button on the device 3 times, or the connected external button S1 3 times in quick succession. Note: If the ADD is successful, the INDICATION LED will blink 6 times. If not, INDICATION LED will be solid on or off depending on switch state.

Exclusion

Remove the device from Z-Wave network: 1. Set controller into REMOVE mode. Follow the instructions provided by the controller/gateway manufacturer. 2. Press the momentary button on the device 3 times, or the connected external button S1 3 times in quick succession. Note: If the REMOVE is successful, the INDICATION LED will blink 6 times. If not, INDICATION LED will be solid on or off depending on switch state.

Quick trouble shooting

Here are a few hints for network installation if things don't work as expected.

1. Make sure a device is in factory reset state before including. In doubt exclude before include.
2. If inclusion still fails, check if both devices use the same frequency.
3. Remove all dead devices from associations. Otherwise you will see severe delays.
4. Never use sleeping battery devices without a central controller.
5. Don't poll FLIRS devices.
6. Make sure to have enough mains powered devices to benefit from the meshing

Association - one device controls another device

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. button pressed, sensor triggers, ...). In case the event happens all devices stored in the respective association group will receive the same wireless command, typically a 'Basic Set' Command.

Association Groups:

Group Number	Maximum Nodes	Description
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1	1	The Command Classes will be sent in this Group are :1. COMMAND_CLASS_SWITCH_MULTILEVEL,2. SWITCH_MULTILEVEL,3. COMMAND_CLASS_DEVICE_RESET_LOCALLY, 4. DEVICE_RESET_LOCALLY_NOTIFICATIONAnd the trigger situation are:1Press or hold momentary button on the device. 2Or Press or hold external button on the gateway and complete dimming.For the rest 2 CCs is:When
2	1	The Command Classes will be sent in this Group is :COMMAND_CLASS_SWITCH_MULTILEVEL,SWITCH_MULTILEVEL,3. COMMAND_CLASS_DEVICE_RESET_LOCALLY, 4. DEVICE_RESET_LOCALLY_NOTIFICATION trigger situation are:1Press or hold momentary button on the device. 2Or Press or hold external button on the gateway and complete dimming.3Or Get dimming request from the gateway and complete dimming.
3	1	The Command Classes will be sent in this Group is :COMMAND_CLASS_SWITCH_MULTILEVEL,SWITCH_MULTILEVEL,3. COMMAND_CLASS_DEVICE_RESET_LOCALLY, 4. DEVICE_RESET_LOCALLY_NOTIFICATION situation are:1Press or hold momentary button on the device. 2Or Press or hold external button on the gateway and complete dimming.3Or Get dimming request from the gateway and complete dimming.

Configuration Parameters

Z-Wave products are supposed to work out of the box after inclusion, however certain configuration can adapt the function better to user needs or unlock further enhanced features.

IMPORTANT: Controllers may only allow configuring signed values. In order to set values in the range 128 ... 255 the value sent in the application shall be the desired value minus 256. For example: To set a parameter to 200 it may be needed to set a value of 200 minus 256 = minus 56. In case of a two byte value the same logic applies: Values greater than 32768 may needed to be given as negative values too.

Parameter 1: Dimmer state saved or not when power down

0x00 not savedDimmer will be off when powered again0x01 savedDimmer will keep the same state when powered again

Size: 1 Byte, Default Value: 1

Setting	Description
0 - 1	0: not savedDimmer will be off when powered again; 1: savedDimmer will keep the same state when powered again

Parameter 10: Single dimmingstep size (Auto)

1~99 percentage value (modification isnt recommended)

Size: 1 Byte, Default Value: 1

Setting	Description
1 - 99	1~99 percentage value

Parameter 13: One click of S1

0x00 switch between Off and last saved brightness level1~99 percentage value switch between Off and the set value

Size: 1 Byte, Default Value: 0

Setting	Description
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0 - 99	0 :switch between Off and last saved brightness level; 1~99: percentage value swit
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Parameter 2: External switch type

*0x00 Button (Momentary buttons)0x01 Toggle (2-state Switches)0x02 Roller blinds switch:S1
Dim up S2 Dim down*

Size: 1 Byte, Default Value: 0

Setting	Description
0 - 2	0: Button (Momentary buttons) ; 1: Toggle (2-state Switches) ; 2: Roller blinds sw

Parameter 255: Factory setting

0x55restore factory setting(Write only)

Size: 1 Byte, Default Value: 0

Setting	Description
0 - 85	0-84: no operation: 85: factory setting restoring

Parameter 3: 2-state Switches

*0x00 for the toggle Dimmer without specified on/off position0x01 for the toggle Dimmer with
specified on/off position*

Size: 1 Byte, Default Value: 0

Setting	Description
0 - 1	0: for the toggle Dimmer without specified on/off position; 1: for the toggle Dimm

Parameter 5: Minimum brightness level

1~98 percentage brightness level

Size: 1 Byte, Default Value: 5

Setting	Description
1 - 98	1~98 percentage brightness level

Parameter 6: Maximum brightness level

2~99 percentage brightness level

Size: 1 Byte, Default Value: 99

Setting	Description
2 - 99	2~99 percentage brightness level

Parameter 7: Single dimmingstep time(Manual)

Max 5.11s, in 10ms steps

Size: 2 Byte, Default Value: 3

Setting	Description
0 - 511	Max 5.11s, in 10ms steps

Parameter 8: Single dimmingstep size(Manual)*1~99 percentage value (modification isnt recommended)*

Size: 1 Byte, Default Value: 1

Setting	Description
1 - 99	1~99 percentage value

Parameter 9: Single dimmingstep time (Auto)*Max 5.11s, in 10ms steps*

Size: 2 Byte, Default Value: 1

Setting	Description
0 - 511	Max 5.11s, in 10ms steps

Technical Data

Hardware Platform	ZM5202
Device Type	Light Dimmer Switch
Network Operation	Always On Slave
Firmware Version	HW: 255 FW: 3.02
Z-Wave Version	6.71.03
Certification ID	ZC10-18086201
Z-Wave Product Id	0x015F.0x220A.0x5101
Firmware Updatable	Updatable by Professional/Technician
Neutral Wire Required	ok
Color	Dark Gray
Security V2	S2_UNAUTHENTICATED

Supported Command Classes

- Association Grp Info
- Association V2
- Basic
- Configuration
- Device Reset Locally
- Firmware Update Md V4
- Manufacturer Specific V2
- Switch Multilevel V2

- Powerlevel
- Scene Activation
- Scene Actuator Conf
- Security 2
- Supervision
- Transport Service V2
- Version V2
- Zwaveplus Info V2

Explanation of Z-Wave specific terms

- **Controller** — is a Z-Wave device with capabilities to manage the network. Controllers are typically Gateways, Remote Controls or battery operated wall controllers.
- **Slave** — is a Z-Wave device without capabilities to manage the network. Slaves can be sensors, actuators and even remote controls.
- **Primary Controller** — is the central organizer of the network. It must be a controller. There can be only one primary controller in a Z-Wave network.
- **Inclusion** — is the process of adding new Z-Wave devices into a network.
- **Exclusion** — is the process of removing Z-Wave devices from the network.
- **Association** — is a control relationship between a controlling device and a controlled device.
- **WakeUp Notification** — is a special wireless message issued by a Z-Wave device to announce that it is able to communicate.
- **Node Information Frame** — is a special wireless message issued by a Z-Wave device to announce its capabilities and functions.