Z-Wave Dimmer Controller

The Dimmer controller is a switch multilevel device based on Z-Wave enhanced 232 slave library of V6.81.03, and it be easy configuration, operation and can make the traditional LED dimmable lighting to be intelligent control. This Dimmer integrated Z-Wave communication module to connect with Z-Wave gateway.

The Dimmer controller can be included and operated in any Z-Wave network with other Z-Wave certified devices from other manufacturers. All non-battery operated nodes within the network will act as repeaters regardless of vendor to increase reliability of the network.

The Dimmer controller is a security enable Z-Wave Plus product (S0, S2) that is able to use encrypted Z-Wave Plus messages to communicate to other security enable Z-Wave Plus™ products. so a security enabled controller is needed for take full advantage of all functionally. It also supports the Over The Air (OTA) feature for the product's firmware upgrade.

If you want your Dimmer controller to be a security device that use secure/encrypted message to communicate in a Z-Wave network, then a security enabled Z-Wave controller is needed.

Features:

- Compatible with any Z-Wave or Z-Wave plus™ controller.
- The Dimmer controller could achieve the on/off and dimming function through separately physical button.
- The Dimmer controller Supporting repeater role.
- The Dimmer controller Support firmware OTA.

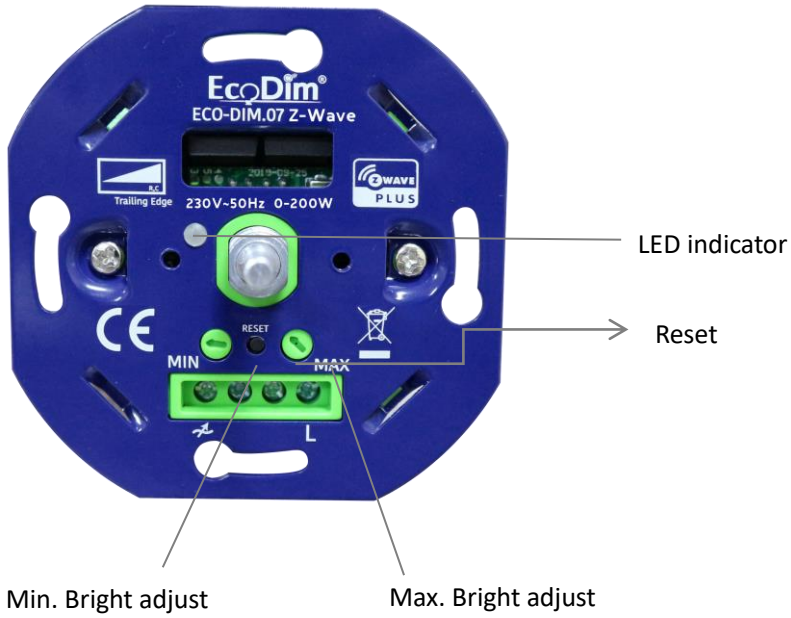
• The Dimmer controller Support SmartStart.

SmartStart:

SmartStart enabled products can be added into a Z-Wave network by scanning the Z-Wave QR Code present on the product with a controller providing SmartStart inclusion. No further action is required and the SmartStart product will be added automatically within 10 minutes of being switched on in the network vicinity.

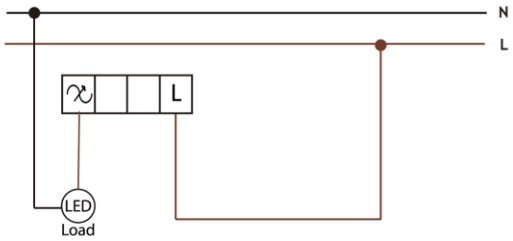
1 Product Appearance

Product appearance and function overview.



1) Button: Reset the dimmer controller and to inclusion to a Z-Wave network.
2) LED Indicator: Indicate the network status.

2 Installation Guide



PLEASE NOTE:

1. This is a two-wire dimmer and service to be connected as shown in the diagram above
2. The installation of the dimmer on a mains current of 230V should be performed by a qualified professional, taking into account the national rules. Make sure that the electricity is in all work switched off.
3. You can't connect more than one dimmer in parallel to operate the same charge from two points

3 Technical specifications

Input voltage	220-240 Vac, 50Hz
Power range	0-200W LED
	10-300W Incandescent/Halgen
Type of load	LED Retrofit | Incandescent-halogen
Type dimmer	R,C trailing edge
Operation	Press and rotary
Ambient temperature (Ta)	35 ° C
Communication Protocol	Z-Wave
Radio Frequency	868.42MHz (EU)
Wireless Range	More than 100m outdoors About 30m indoors (depending on building materials)
Power Source	220±20,50Hz
Operating Temperature	-5°C to + 40°C
Certifications	CE/FCC,Z-Wave
Dimensions (mm)	70.6*70.6*51.50mm

4 All Functions of the dimmer

4.1 Inclusion to a Z-Wave network

1. Set primary controller/gateway into inclusion mode (If you don't know how to do this, please refer to your primary controller's manual on how to turn your controller into inclusion mode).
2. Short press 2 times the reset button, it will set the dimmer controller into inclusion mode.25 seconds timeout if there is no reply from the Z-Wave primary controller, repeat the operation.
3. The dimmer controller will be added to the Z-Wave network.

4.2 Exclusion from a Z-Wave network

1. Set primary controller/gateway into exclusion mode (If you don't know how to do this, please refer to your primary controller's manual on how to turn your controller into exclusion mode).
2. Short press 2 times the reset button, it will set the dimmer controller into exclusion mode (The dimmer controller already exists a Z-Wave network). 25 seconds timeout if there is no reply from the Z-Wave primary controller,

repeat the operation.
3. The dimmer controller will be removed from the Z-Wave network.

Note:
The Dimmer will start SmartStart Inclusion when it is removed from a Z-Wave network.

4.3 Factory Reset

Press and hold down reset button for over 4 seconds, the dimmer controller will be reset to factory defaults.

Note:
This procedure should only be used when the primary controller is inoperable.
Reset Dimmer controller to factory default settings will sets the Dimmer to not in Z-Wave network state, delete the Association setting and restore the Configuration setting to the default.
The Dimmer controller will start SmartStart Inclusion when it is reset.

4.4 SmartStart Inclusion

1. The Dimmer has a DSK string, you can key in first five digit to increment SmartStart process, or you can scan QR code.

Ex: 65286-19008-32952-20593- 44872-18102-41266-46651

2. SmartStart enabled products can be added into a Z-Wave network by scanning the Z-Wave QR Code present on the product with a controller providing SmartStart inclusion. No further action is required and the SmartStart product will be added automatically within 10 minutes of being switched on in the network vicinity.

Note:
The QR code can be found on the Dimmer controller or in the box.

5 Security and non-Security features

1. The function of the Dimmer as a security and non-security device is identical.
2. When a node includes into a S0 or S2 Z-Wave network, the node supports S0 or S2 unauthenticated class, S2 authenticated and so do the supported CCs.
3.Commands list

Network Type	Included Non-Secure Network	Included Secure Network

Non-secure supported Command Classes	COMMAND_CLASS_ZWAVEPLUS_INFO_V2 COMMAND_CLASS_VERSION_V2 COMMAND_CLASS_MANUFACTURER_SPECIFIC_V2 COMMAND_CLASS_ASSOCIATION_GRP_INFO_V1 COMMAND_CLASS_ASSOCIATION_V2 COMMAND_CLASS_POWERLEVEL_V1 COMMAND_CLASS_SWITCH_MULTILEVEL_V2 COMMAND_CLASS_CONFIGURATION_V1 COMMAND_CLASS_FIRMWARE_UPDATE_MD_V4 COMMAND_CLASS_DEVICE_RESET_LOCALLY_V1 COMMAND_CLASS_SECURITY_2_V1 COMMAND_CLASS_SECURITY_V1 COMMAND_CLASS_TRANSPORT_SERVICE_V2 COMMAND_CLASS_SUPERVISION_V1	COMMAND_CLASS_ZWAVEPLUS_INFO_V2 COMMAND_CLASS_TRANSPORT_SERVICE_V2 COMMAND_CLASS_SECURITY_2_V1 COMMAND_CLASS_SECURITY_V1 COMMAND_CLASS_SUPERVISION_V1
Security Supported Report Command Classes		COMMAND_CLASS_VERSION_V2 COMMAND_CLASS_MANUFACTURER_SPECIFIC_V2 COMMAND_CLASS_ASSOCIATION_GRP_INFO_V1 COMMAND_CLASS_ASSOCIATION_V2 COMMAND_CLASS_POWERLEVEL_V1 COMMAND_CLASS_SWITCH_MULTILEVEL_V2 COMMAND_CLASS_CONFIGURATION_V1 COMMAND_CLASS_FIRMWARE_UPDATE_MD_V4 COMMAND_CLASS_DEVICE_RESET_LOCALLY_V1

6 Z-Wave Command

6.1 SDK: 6.81.03

6.2 Library

- Basic Device Class: BASIC_TYPE_ROUTING_SLAVE
- Generic Device class: GENERIC_TYPE_SWITCH_MULTILEVEL
- Specific Device Class: SPECIFIC_TYPE_POWER_SWITCH_MULTILEVEL

5.3 Z-Wave Plus Device Type

Device Type	Basic Device Attribute	Specific Device Attribute	Role Type
Light Dimmer Switch	GENERIC_TYPE_SWITCH_MULTILEVEL	SPECIFIC_TYPE_POWER_SWITCH_MULTILEVEL	Always On Slave (AOS)

6.4 Note for special commands

1. Z-Wave plus Info Command Report

Parameter	Value
Z-Wave Plus Version	V1
Role Type	ZWAVEPLUS_INFO_REPORT_ROLE_TYPE_SLAVE_ALWAYS_ON
Node Type	ZWAVEPLUS_INFO_REPORT_NODE_TYPE_ZWAVEPLUS_NODE
Installer Icon Type	ICON_TYPE_GENERIC_LIGHT_DIMMER_SWITCH
User Icon Type	ICON_TYPE_GENERIC_LIGHT_DIMMER_SWITCH

2. Association Command

The Dimmer supports 1 association group.

Grouping Identifier	Max Nodes	Transmit Content
Group 1	0x05	1. Device Reset Locally. 2. Switch Multilevel Report. The Dimmer will send Switch Multilevel Report when Dimmer state changed(Configurable).

3. Association Group Info Command

A) Association Group Name Command Report

Team No.	Value
Group 1	The ASSIC of Lifeline: 4C 69 66 65 6C 69 6E 65

B) Association Group Info Command Report

Parameter	Team No.	Value
Profile	Group 1	General: Lifeline, Profile MSB=0x00,Profile LSB=0x01

C) Association Group Command List Command Report

Team No.	Command List Support	
Group 1	COMMAND_CLASS_SWITCH_MULTILEVEL (0x26)	SWITCH_MULTILEVEL_REPORT (0x03)
	COMMAND_CLASS_DEVICE_RESET_LOCALLY(0x5A)	DEVICE_RESET_LOCALLY_NOTIFICATION(0x01)

4. Basic Command

Basic CC is maps to Multilevel CC.

Basic Set = 255 maps to Multilevel Switch Set = 255

Basic Set = 0 maps to Multilevel Switch Set = 0

Basic Set = 1-99 maps to Multilevel Switch Set = 1-99

Basic Get/Report maps to Multilevel Switch Get/Report

5. Configuration Command Parameters

The Dimmer offers a wide variety of advanced configuration settings. Below parameters can be accessed from main controllers configuration interface.

Parameter	Size	Default Value	Description

1 (0x01)	1	0x00	State After Power Restored: The state the switch should return to once power is restored after power failure. 0 - Off. 1 - On. 2 - Returns to level before Power Outage
2 (0x02)	1	0x01	Notification when Load status change: The Dimmer will send notification to associated device (Group Lifeline) when the status of Dimmer load is changed. 0 - The function is disabled. 1 - Send Switch Multilevel Report. 2 - Send Switch Multilevel Report only when Load status is not changed by Z-Wave Command.

7 QR CODE

7.1 DSK

You scan the QR code with an android phone. For example, The QR returns this number:
900112034129447151845706002418050469410587456993035100100435301536022000927015460003400518(The data for each Dimmer is different)

The DSK is: 44715-18457-06002-41805-04694-10587-45699-30351.

Note: If your controller does not support SmartStart inclusion, please refer to the manual for your controller for non-SmartStart inclusion.

7.2 Quick Response Code (QR Code)

The first 16 bytes of the ECDH Public Key and sometimes additional information is encoded into a QR Code graphic. When referred to in this document, “DSK” applies to the Full DSK, the combination of Full DSK and QR Code or the combination of Pin Code and QR Code. The QR code can be found on the side of the Dimmer or the DSK states on the DSK card.