Micro Dimmer

MH-P220

Introduction

Micro Dimmer is a Z-Wave Plus enabled in-wall module which can be wired with a wall switch panel. It supports basic command class, and also can act as a repeater in Z-Wave network. This product can be included and operated in any Z-Wave network with other Z-Wave certified devices from any other manufacturers.

Specifications

Power supply: 85~260VAC, 50/60Hz

Z-Wave frequency: 868.42MHz (EU), 908.42MHz (US), 921.4MHz (AU) or other frequency customized

*Max output: 1*2A （Resistive）

Dimension：44 *38 *17mm (L *W *H)

**Note: For non-resistive load, a derating output is highly suggested.*

Installation Instructions

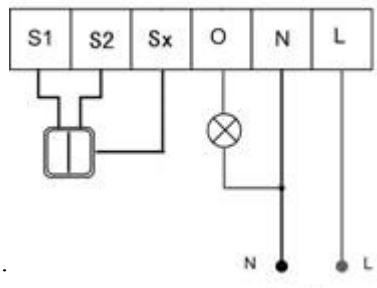
IMPORTANT:

- A qualified electrician with the understanding of wiring diagrams and knowledge of electrical safety should complete the installation inside the main circuit box (normally outside your house).
- Read all instructions and documentation and save for future reference.

Step1 Preparing

CAUTION: Cut off power supply at circuit breaker or fuse before installation to avoid fire, shock or death!

1. Remove the wall switch cover plate.
2. Disconnect both wires from the wall switch.



Step2 Wiring (standard strip length: 6-7mm)

1. Connect Hot Line to “L”.
2. Connect Neutral Line to “N”.
3. Connect “O” with load and then with “N”.
4. Connect “S1”, “S2” &”Sx” with external switch panel (Optional).

Step3 Mounting Wall Switch

Mount wall switch and cover plate back to the in-wall box.

Step4 Restoring Power

Restore power at circuit breaker or fuse. Installation is complete.

Operation .

Add the device into Z-Wave network:

1. Set controller into INCLUSION 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 inclusion is successful, the INDICATION LED will blink 6 times. If not, INDICATION LED will be solid on or off depending on switch's state.

Remove the device from Z-Wave network:

1. Set controller into EXCLUSION 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 exclusion is successful, the INDICATION LED will blink 6 times. If not, INDICATION LED will be solid on or off depending on switch's state.

Dimming:

The device can be controlled by:

- Pressing external button.
- Sending commands through controller or gateway.（the command classes which support this function are Basic_Command_Class, Multi_Level_Switch_Command_Class）

Association Group:

The device supports 4 association groups (AG):

1st AG: reports device's dimming state. It supports only one Node ID. A controller/gateway SHOULD be associated to this AG.

2nd AG: to control the associated devices synchronously. When S1's state changes, it will send "Basic Set Command" to these devices. It supports upto 5 Node IDs.

3rd AG: to control the associated devices synchronously. When S1's state changes, it will send "Multi-level Set Command" to these devices. It supports upto 5 Node IDs.

4th AG: to control the associated devices synchronously. When S2's state changes, it will send "Basic Set Command" to these devices. It supports upto 5 Node IDs.

Note: *Please refer to table "Parameters Setting" for the detail configurations for AGs.*

Scene Function:

As a Scene device, it supports “Scene Activation CC” and “Scene Actuator Conf CC” ,which make the device can be added into any scene , and supports 255 Scene ID.

Meanwhile, it can work as a scene controller to activate Scenes. By configuring the parameters of S2, 3 different scenarios can be realized. The “Scene Activation CC” can be sent to AG1 (gateway) by “one click”, “double click” or “hold” external button S2. Pls refer to the following table items 19, 20&21 for more details in configuration.

Parameters Setting:

Add	Function	Byte	Options	Default	Remark
1	Dimmer state saved or not when power down	1	**0x00** not saved， Dimmer will be off when powered again **0x01** saved，Dimmer will keep the same state when powered again	0x01	
2	External switch type	1	**0x00** Button (Momentary buttons) **0x01** Toggle (2-state Switches) **0x02** Roller blinds switch: S1 Dim up ， S2 Dim down	0x00	
3	2-state Switches	1	**0x00** for the toggle Dimmer without specified on/off position **0x01** for the toggle Dimmer with specified on/off position	0x01	
4	ALL ON/ALL OFF	1	**0x00** forbid ALL ON, forbid ALL OFF **0x01** forbid ALL ON, allow ALL OFF **0x02** allow ALL ON, forbid ALL OFF **0xFF** allow ALL ON, allow ALL OFF	0xFF	
5	Minimum brightness level	1	**1~98** percentage brightness level	0x01	The max level should always higher than min level
6	Maximum brightness level	1	**2~99** percentage brightness level	0x63	
7	Single dimming step time(Manual)	2	Max 2.55s, in 10ms steps	0x03 (30ms)	Manual control realized by holding external button
8	Single dimming step size(Manual)	1	**1~99** percentage value (modification isn’t recommended)	0x01	
9	Single dimming step time (Auto)	2	Max 2.55s, in 10ms steps	0x03 (30ms)	Auto control realized by: - one click; - double click of external button; - send Z-Wave CC
10	Single dimming step size (Auto)	1	**1~99** percentage value (modification isn’t recommended)	0x01	
11	Timer function (Auto-off)	2	**0x00** function disabled **0x0001~0x00FF** 1s~255s	0x00	

12	Reserved				
13	One click of S1	1	**0x00** switch between Off and last saved brightness level **1~99** percentage value switch between Off and the set value	99 (0x63)	
14	Double click of S1	1	**0x00** function disabled **0x01** reach max brightness level	0x01	
15	Operation report from Switch1 to Association Group 2 & 3	1	bit 6:0 **0x00** report all operation to AG2&3 **0x01** only report Basic Set ON **0x02** only report Basic Set OFF bit7 **0** report Change Dimming Level **1** not report Change Dimming Level	0x00	Dimming level report only valid when holding external button
16	Operation report from Switch1 to Association Group 2	1	**0x00** When sent Basic Set On, carried Value is 0xFF **0x01** When sent Basic Set On, carried Value is Current Dimmer Value	0x01	
17	Switch 2 function	1	**0x00** wire with roller blinds switch **0x01** enable Scene Activation, and send Basic Set ON/OFF to AG4 **0x02** Scene Activation only **0x03** send Basic ON/OFF only **0xFF** disable S2 Function	0x01	
18	Operation report from Switch2 to Association Group 4	1	**0x00** send Basic ON or Basic OFF to AG4 when turn on/off S2 **0x01** only send Basic ON **0x02** only send Basic OFF **0xFF** no report to AG 4	0x00	
19	Scene ID sent to AG1 when one click of S2	1	**0** Scene Activation disabled **1~255** send Activation CC to AG1 with specified Scene ID	0x00	
20	Scene ID sent to AG1 when double click of S2	1	**0** Scene Activation disabled **1~255** send Activation CC to AG1 with specified Scene ID	0x00	For momentary button only
21	Scene ID sent to AG1 when hold S2	1	**0** Scene Activation disabled **1~255** send Activation CC to AG1 with specified Scene ID	0x00	For momentary button only
255	Factory setting	1	**0x55** restore factory setting		write only

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.

- Pressing and Holding the momentary button on device for 15s.

Note：If the Factory Settings is restored successfully, INDICATION LED will blink 6 times.

SAFETY NOTICE .

1. Flush-mount only into a UL/ETL/CE certified plastic junction box and Dimmer panel cover. The minimum size should be 65*65*42mm, minimum Volume is 180cm^3.
2. Use Copper Conductors Only.
3. CAUTION - Risk of Electric Shock - More than one disconnect Dimmer may be required to de-energize the equipment before servicing.
4. WARNING-This device shall not be used in combination with a wall Dimmer controlling a receptacle.

1-year Limited Warranty .

We warrant this product to be free from defects in material and workmanship under normal and proper use for one year from purchase date of the original purchaser. We will, at its option, either repair or replace any part of its products that prove defective by reason of improper workmanship or materials. THIS LIMITED WARRANTY DOES NOT COVER ANY DAMAGE TO THIS PRODUCT THAT RESULTS FROM IMPROPER INSTALLATION, ACCIDENT, ABUSE, MISUSE, NATURAL DISASTER, INSUFFICIENT OR EXCESSIVE ELECTRICAL SUPPLY, ABNORMAL MECHANICAL OR ENVIRONMENTAL CONDITIONS, OR ANY UNAUTHORIZED DISASSEMBLY, REPAIR OR MODIFICATION. This limited warranty shall not apply if: (i) the product was not used in accordance with any accompanying instructions, or (ii) the product was not used for its intended function. This limited warranty also does not apply to any product on which the original identification information has been altered, obliterated or removed, that has not been handled or packaged correctly, that has been sold as second-hand or that has been resold contrary to Country and other applicable export regulations.

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.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

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.