



Fibaro Group

## FIBARO Dimmer 2

SKU: FIBEFGD-212



### Quickstart

This is a **secure Light Dimmer for Europe**. To run this device please connect it to your mains power supply.

This is a **secure Light Dimmer Switch for Europe**. To run this device please connect it to your mains power supply. To add this device to your network execute the following action:

1. Switch off the mains voltage.
2. Open the wall switch box.
3. Connect the Dimmer in accordance with one of the diagrams attached in the manual.
4. Switch on the mains voltage.
5. Wait for the calibration process to end. Light may blink. The device will be switched off once the process is completed.
6. Set the main Z-Wave controller into learning mode.
7. Quickly, three times press the B-button or key connected to the S1 terminal.
8. Wait for the device to be included into system. Successful inclusion will be confirmed by the controller.
9. Arrange the antenna and close the wall switch box.

### Important safety information

Please read this manual carefully. Failure to follow the recommendations in this manual may be dangerous or may violate the law. The manufacturer, importer, distributor and seller shall not be liable for any loss or damage resulting from failure to comply with the instructions in this manual or any other material. Use this equipment only for its intended purpose. Follow the disposal instructions. Do not dispose of electronic equipment or batteries in a fire or near open heat sources.

### 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](http://www.z-wave.info).



### Product Description

Fibaro Dimmer can switch or dim connected light source either through radio waves or through the wall switch connected directly to it. Dimmer 2 is equipped with a smart algorithm of light source detection which makes configuration easier and ensures high compatibility of the device. It may be used as a switch with non-dimmable light sources in 3-wire connection. Active power and energy consumption allows to monitor and reduce electricity bills. Dimmer 2 is compatible with any Z-Wave or Z-Wave Plus Controller.

Remotely controlled light dimming module is designed to work with various types of light sources in 2 or 3-wire connection so it can operate with or without neutral lead. Fibaro Dimmer can switch or dim connected light source either through radio waves or through the wall switch connected directly to it. Dimmer 2 is equipped with a smart algorithm of light source detection which makes configuration easier and ensures high compatibility of the device. It may be used as a switch with non-dimmable light sources in 3-wire connection. Active power and energy consumption allows to monitor and reduce electricity bills. Dimmer 2 is compatible with any Z-Wave or Z-Wave Plus Controller.

As a dimmer it operates under the following loads:

- 230V operated conventional incandescent and halogen light sources
- ELV electronic transformers (12V operated halogen lamps and dimmable LED bulbs)
- MLV ferromagnetic transformers with 12V operated halogen lamps

- dimmable LED bulbs
- dimmable compact fluorescent CFL tube lamps
- supported dimmable light sources with minimal power of 5VA (power factor > 0.5) using FIBARO Bypass FGB-002

Without dimming function it may work with:

- compact fluorescent lamps
- fluorescent tube lamps with electronic ballast
- LED bulbs (power factor > 0.7)
- supported light sources with minimal power of 5VA (power factor > 0.5) using FIBARO Bypass FGB-002

#### Recommended values of power for supported loads:

Supported load types		220-240V~
	<b>Resistive loads</b> Conventional incandescent and halogen light sources	50-250W
	<b>Resistive-capacitive loads</b> Fluorescent tube lamp (compact / with electronic ballast), electronic transformer, LED	50-200VA
	<b>Resistive-inductive loads</b> Ferromagnetic transformers	50-220VA

## 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.

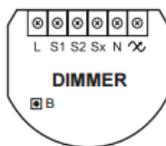
1. Disconnect the power supply
2. Remove the Dimmer 2 from the wall switch box
3. Connect the power supply
4. Locate the B-button on the housing
5. Press and hold the B-button to enter the menu mode
6. Wait for the visual LED indicator to turn yellow
7. Quickly release and click the B-button again
8. After few seconds the device will be restarted, which is signalled with the red LED indicator colour
9. The device enters the calibration mode

### 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.

## Installation

#### Notes for the diagrams:



**L** - terminal for live lead

**S1** - terminal for switch no. 1 (has the option of entering the device in learning mode)

**S2** - terminal for switch no. 2

**Sx** - terminal for power supply to the switch connected to the Dimmer 2

**N** - terminal for neutral lead

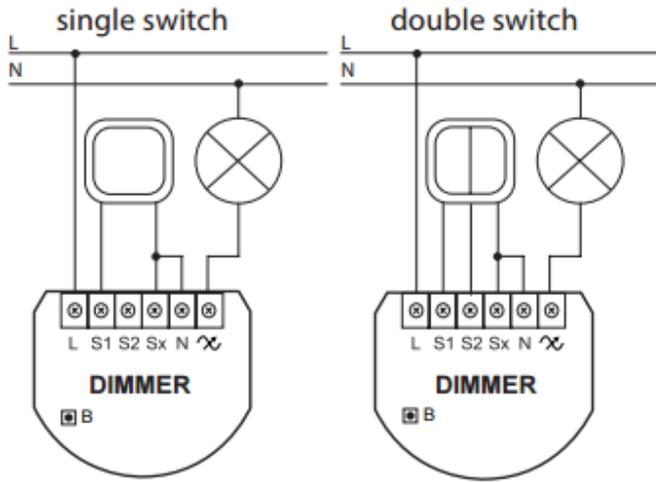
 - output terminal of the Dimmer 2 (controlling connected light source)

**B** - service button (used to add/remove the device and navigate the menu)

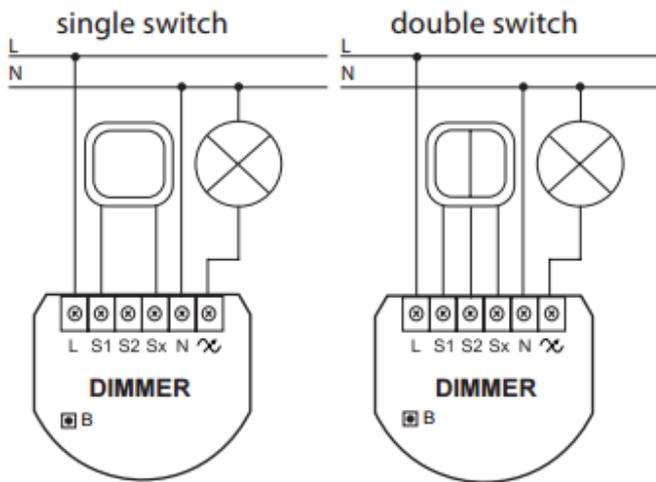
Installation of the FIBARO Dimmer 2:

1. Switch off the mains voltage (disable the fuse)
2. Open the wall switch box

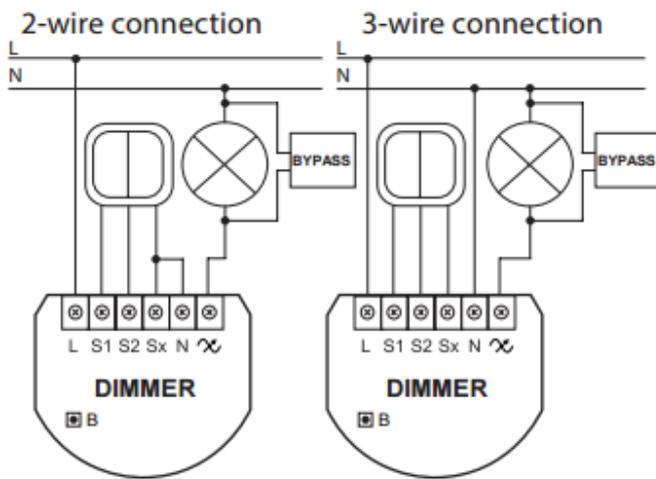
3. Connect with one of following the diagrams:



**Wiring diagram no. 1 - 2-wire connection**

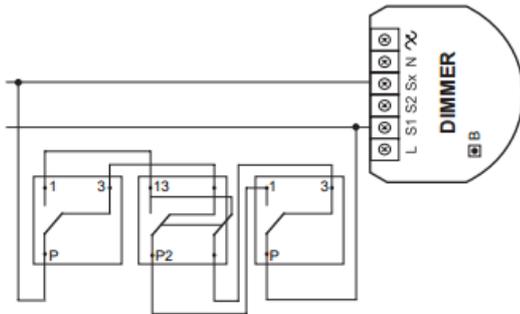


**Wiring diagram no. 2 - 3-wire connection**

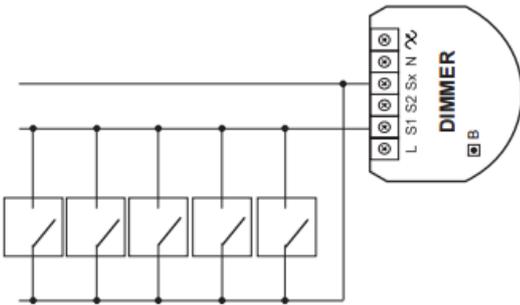


**Wiring diagram no. 3 - connecting FGB-002**

**NOTE:** Switch connected to the S1 terminal is a master switch. It activates the basic functionality of the Dimmer 2 (turning the light on/off, dimming) and starts the learning mode (Add/Remove). The switch connected to the S2 terminal is an optional switch and pushing it without changing the configuration parameters will not affect the status of the device. Functionality of the switches can be reversed by adjusting advanced parameter.



**Wiring diagram no. 4 - 3-way switch connection**



**Wiring diagram no. 5 - momentary wall switches connection**

**NOTE:** It is not recommended to install different types of wall switches (momentary, toggle, etc.) in a 3-way connection.

4. After verifying correctness of connection switch on the mains voltage
5. Wait around 30s for the calibration process to end (see „Calibration” on page 15), light may blink during the process
6. After successful calibration the device will be turned off by default
7. Add the device to the Z-Wave network (see „Adding/removing the device” on page 11)
8. Turn off the mains voltage, then arrange the device and its antenna in a wall switch box
9. Close the wall switch box and turn on the mains voltage

Tips for arranging the antenna:

- Locate the antenna as far from metal elements as possible (connecting wires, bracket rings, etc.) in order to prevent interferences.
- Metal surfaces in the direct vicinity of the antenna (e.g. flush mounted metal boxes, metal door frames) may impair signal reception!
- Do not cut or shorten the antenna - its length is perfectly matched to the band in which the system operates.

**NOTE:** After switching on the mains voltage LED indicator will signal Z-Wave network inclusion state with a colour: GREEN - device added RED - device not added RED/GREEN ALTERNATELY- Z-Wave error

## 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

Press three times the B-button or key connected to the S1 terminal.

### Exclusion

Press three times the B-button or key connected to the S1 terminal.

## Product Usage

**Momentary switch** (after releasing the switch a spring automatically pushes back and disconnects the switch):

- Turning the light ON/OFF: change the position of switch no. 1. The Dimmer 2 will be activated always at previously set brightness level.
- Brightening/dimming the light: hold switch no. 1 down. When the switch is held down, the Dimmer 2 will always reach the extreme value of 1% or 99%.
- Turning the light ON completely: fast double-click switch no. 1. The Dimmer 2 will set the load at 99%.

**Toggle switch** (operates as a two-position switch, it has no spring that would set one position of the switch):

- Turning the light ON/OFF: toggle switch no. 1. The Dimmer 2 will be activated always at previously set brightness level.
- Turning the light ON completely: toggle twice switch no. 1. The Dimmer 2 will set the load at 99%.

**Controlling the Dimmer 2 using a command:** ALL ON/ALL OFF in non-secure mode:

The Dimmer 2 responds to commands ALL ON/ALL OFF that may be sent by the Z-Wave controller. ALL ON/ALL OFF commands are usually implemented in the remote controllers using Z-wave protocol, and they are used to issue commands directed to the entire system.

By default, both commands ALL ON and ALL OFF are accepted. Settings may be changed by modifying the value of parameter 11 (see „Advanced parameters” ). In this way the user may determine to which commands the device should respond.

**Controlling the Dimmer 2 using the B-button:**

FIBARO Dimmer 2 is equipped with a B-button, which allows to use the MENU mode and additionally perform the following actions:

**1x click:**

- alarm mode cancellation (flashing alarm)
- exit the error mode
- select the desired MENU option (if MENU mode is active)

**3x click:**

- send the Node Info Z-Wave command frame (adding/removing)

**Holding:**

- enter the MENU mode (confirmed by the LED indicator)

**MENU mode & visual indications:**

FIBARO Dimmer 2 has a MENU with each position indicated by the specified LED indicator colour. In order to enter the menu press the B-button and hold for at least 2 seconds. While the B-button is still pressed, LED indicator colour will change in the following sequence: BLUE - initiate the load calibration procedure (see „Calibration“ on page 15)

RED - load calibration procedure with FIBARO Bypass 2 (see „Calibration“ on page 15)

WHITE - activate turning the load on/off using the B-button

GREEN - reset the energy consumption data memory (see „Power and energy consumption measurement“ on page 16)

VIOLET - initiate the Z-Wave network range test (see „Z-Wave range test“ on page 18)

YELLOW - reset the FIBARO Dimmer 2 to factory defaults Release the B-button to choose the desired function and confirm your choice with the B-button click.

## Communication to a Sleeping device (Wakeup)

This device is battery operated and turned into deep sleep state most of the time to save battery life time. Communication with the device is limited. In order to communicate with the device, a static controller **C** is needed in the network. This controller will maintain a mailbox for the battery operated devices and store commands that can not be received during deep sleep state. Without such a controller, communication may become impossible and/or the battery life time is significantly decreased.

This device will wakeup regularly and announce the wakeup state by sending out a so called Wakeup Notification. The controller can then empty the mailbox. Therefore, the device needs to be configured with the desired wakeup interval and the node ID of the controller. If the device was included by a static controller this controller will usually perform all necessary configurations. The wakeup interval is a tradeoff between maximal battery life time and the desired responses of the device. To wakeup the device please perform the following action: The Fibaro Dimmer 2 is powered with mains voltage so it is always awake.

## Quick trouble shooting

Here are a few hints for network installation if things dont 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. Dont poll FLIRS devices.
6. Make sure to have enough mains powered device to benefit from the meshing

## Firmware-Update over the Air

This device is capable of receiving a new firmware 'over the air'. The update function needs to be supported by the central controller. Once the controller starts the update process, perform the following action to confirm the firmware update: Dimmer 2 features remote software update (initiated by the main controller). Update status is signalled by the LED indicator with cyan colour:

- slow blinking - transferring data via Z-Wave and saving to the flash memory
- fast blinking - copying data from the external memory to the memory of the microcontroller

## Association - one device controls an other 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 wireless command, typically a 'Basic Set' Command.

### Association Groups:

Group Number	Maximum Nodes	Description
1	1	Z-Wave Plus Lifeline. Type of frame sent by the device when the association group is activated: SWITCH_MULTILEVEL_REPORT; DEVICE_RESET_LOCALLY_NOTIFICATION; SCENE_ACTIVATION_SET; METER_REPORT; SENSOR_MULTILEVEL_REPORT; NOTIFICATION REPORT.
2	8	Association Group On/Off (S1) is assigned to key no. 1. Type of frame sent by the device when the association group is activated: BASIC_SET.
3	8	Association Group Dimmer (S1) is assigned to key no. 1. Type of frame sent by the device when the association group is activated: SWITCH_MULTILEVEL_SET.
4	8	Association Group On/Off (S2) is assigned to key no. 2. Type of frame sent by the device when the association group is activated: BASIC_SET.
5	8	Association Group Dimmer (S2) is assigned to key no. 2. Type of frame sent by the device when the association group is activated: SWITCH_MULTILEVEL_SET.

## 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: Minimum brightness level

*The parameter can be changed manually after the calibration. 1-98 - percentage level of brightness*

**CAUTION:** The maximum brightness level (parameter 2) must be greater than the minimum brightness level (parameter 1).

Size: 1 Byte, Default Value: 1

Setting	Description
1 - 98	percentage level of brightness

#### Parameter 2: Maximum brightness level

*The parameter can be changed manually after the calibration*

Size: 1 Byte, Default Value: 99

Setting	Description
2 - 99	percentage level of brightness

#### Parameter 3: Incandescence level of dimmable compact fluorescent lamps

*Virtual value set as a percentage level between parameters MIN (1%) and MAX. (99%). The Dimmer 2 will set to this value after first switchon. It is required for warming up and switching dimmable compact fluorescent lamps and certain types of light sources.*

Size: 1 Byte, Default Value: 1

Setting	Description
1 - 99	percentage level of brightness

#### Parameter 4: Incandescence time of dimmable compact fluorescent lamps

*This parameter determines the time required for switching compact fluorescent lamps and certain types of light sources. Setting this parameter to 0 will disable the incandescence functionality.*

Size: 2 Byte, Default Value: 0

Setting	Description
0 - 255	0s - 25,5s

#### Parameter 5: Automatic control - dimming step size

*This parameter defines the percentage value of dimming step during the automatic control.*

Size: 1 Byte, Default Value: 1

Setting	Description
1 - 99	dimming step percentage value

#### Parameter 6: Time of a dimming step at automatic control

*This parameter defines the time of single dimming step set in parameter 5 during the automatic control.*

Size: 2 Byte, Default Value: 1

Setting	Description
0 - 255	(0s - 2,55s)

#### Parameter 7: Manual control - dimming step size

*This parameter defines the percentage value of dimming step during the manual control.*

Size: 1 Byte, Default Value: 1

Setting	Description
1 - 99	dimming step percentage value

#### Parameter 8: Manual control - time of a dimming step

*This parameter defines the time of single dimming step set in parameter 7 during the manual control.*

Size: 2 Byte, Default Value: 5

Setting	Description
0 - 255	0s - 2,55s

#### Parameter 9: Saving the state of the device after a power failure

*The Dimmer 2 will return to the last state before power failure.*

Size: 1 Byte, Default Value: 1

Setting	Description
1	the Dimmer saves its state before power failure.
0	the Dimmer 2 does not save the state before a power failure, it returns to off position

### Parameter 10: Timer functionality (auto - off)

Size: 2 Byte, Default Value: 0

Setting	Description
0	Function disabled
1 - 32767	time to turn off measured in seconds (1s-9.1h)

### Parameter 11: ALL ON/ALL OFF function

Parameter allows for activation/deactivation of Z-Wave commands enabling/disabling all devices located in direct range of the main controller.

Size: 2 Byte, Default Value: 255

Setting	Description
0	ALL ON not active, ALL OFF not active
1	ALL ON not active, ALL OFF active
2	ALL ON active, ALL OFF not active
255	ALL ON active, ALL OFF active

### Parameter 13: Force auto-calibration

Changing value of this parameter will force the calibration process. During the calibration parameter is set to 1 or 2 and switched to 0 upon completion.

Size: 1 Byte, Default Value: 0

Setting	Description
0	readout
1	force auto-calibration of the load without FIBARO Bypass 2
2	force auto-calibration of the load with FIBARO Bypass 2

### Parameter 14: Auto-calibration status

This parameter determines operating mode of the Dimmer 2 (automatic/manual settings).

Size: 1 Byte, Default Value: 0

Setting	Description
0	calibration procedure not performed or Dimmer 2 operates on manual settings
1	Dimmer 2 operates on auto-calibration settings

### Parameter 15: Burnt out bulb detection

Function based on the sudden power variation of a specific value, interpreted as a LOAD ERROR.

CAUTION Parameter 15 is relevant only when parameter 58 is set to 0 and the control mode is consistent with the mode set during the calibration process (parameter 30).

Size: 1 Byte, Default Value: 30

Setting	Description
0	function disabled
1 - 99	percentage value of power variation, compared to standard power consumption, measured during the calibration procedure (to be interpreted as load error/burnt out bulb)

### Parameter 16: Time delay of a burnt out bulb (parameter 15) or overload (parameter 39) detection

Time of delay (in seconds) for power variation detection, interpreted as a LOAD ERROR or OVERLOAD detection (too much power connected to the Dimmer 2).

Size: 2 Byte, Default Value: 5

Setting	Description
0	detection of a burnt out bulb disabled
1 - 255	delay time in seconds

### Parameter 19: Forced switch on brightness level

If the parameter is active, switching on the Dimmer 2 (S1 single click) will always set this brightness level)

Size: 1 Byte, Default Value: 0

Setting	Description
0	function disabled
1 - 99	percentage level of brightness

### Parameter 20: Switch type

Choose between momentary, toggle and roller blind switch.

Size: 1 Byte, Default Value: 0

Setting	Description
0	momentary switch
1	toggle switch
2	roller blind switch - two switches operate the Dimmer 2 (S1 to brighten, S2 to dim)

### Parameter 21: The value sent to associated devices on single click

This parameter defines the value sent to devices associated with Dimmer 2 after its enabling.

Size: 1 Byte, Default Value: 0

Setting	Description
0	0xFF value is sent, which will set associated devices to their last saved state.
1	Current Dimmer state is sent, which will synchronize brightness level of associated devices (other Dimmers for example).

### Parameter 22: Assign bistable key status to the device status

By default each change of toggle switch position results in action of Dimmer 2 (switch on/off) regardless the physical connection of contacts.

Size: 1 Byte, Default Value: 0

Setting	Description
0	Device changes status on key status change.
1	Device status is synchronized with key status.

### Parameter 23: Double click option

Size: 1 Byte, Default Value: 1

Setting	Description
0	double click disabled
1	double click enabled.

### Parameter 24: Command frames sent in 2-nd and 3-rd association groups (S1 associations)

Parameter determines, which actions will not result in sending frames to association groups.

**NOTE:** Parameter 24 values may be combined, e.g. 1+2=3 means that associations onswitching ON or OFF the Dimmer 2 (single click) will not be sent.

Size: 1 Byte, Default Value: 0

Setting	Description
0	all actions send to association groups
1	do not send when switching on the Dimmer (single click)
2	do not send when switching off the Dimmer (single click)
4	do not send when changing dimming level (holding and releasing)
8	do not send on double click
0	all actions send to association groups

### Parameter 25: Command frames sent in 4-th and 5-th association groups (S2 associations)

Parameter determines, which actions will not result in sending frames to association groups.

**NOTE:** Parameter 25 values may be combined, e.g. 1+2=3 means that associations onswitching ON or OFF the Dimmer 2 (single click) will not be sent.

Size: 1 Byte, Default Value: 0

Setting	Description
0	all actions send to association groups;
1	do not send when switching on the Dimmer (single click)
2	do not send when switching off the Dimmer (single click)
4	do not send when changing dimming level (holding and releasing)
8	do not send on double click
16	send 0xFF value on double click

### Parameter 26: The function of 3-way switch

Switch no. 2 controls the Dimmer 2 additionally (in 3-way switch mode). Function disabled for parameter 20 set to 2 (roller blind switch).

Size: 1 Byte, Default Value: 0

Setting	Description
0	3-way switch function for S2 disabled
1	3-way switch function for S2 enabled

### Parameter 27: Associations in Z-Wave network security mode

This parameter defines how commands are sent in specified association groups: as secure or non-secure. Parameter is active only in Z-Wave network security mode. It does not apply to 1st Lifeline group.

**NOTE:** Parameter 27 values may be combined, e.g. 1+2=3 means that 2nd & 3rd group are sent as secure.

Size: 1 Byte, Default Value: 15

Setting	Description
0	all groups (II-V) sent as non-secure
1	group 2 sent as secure
2	group 3 sent as secure
4	group 4 sent as secure
8	group 5 sent as secure
15	groups (II-V) sent as secure

### Parameter 28: Scene activation functionality

SCENE ID depends on the switch type configurations

**NOTE:** Enabling scene activation functionality may cause slight delay in response to external switches and sending associations.

Size: 1 Byte, Default Value: 0

Setting	Description
0	functionality deactivated;
1	functionality activated.

### Parameter 29: Switch functionality of S1 and S2

This parameter allows for switching the role of keys connected to S1 and S2 without changes in connection.

Size: 1 Byte, Default Value: 0

Setting	Description
0	standard mode;
1	S1 operates as S2, S2 operates as S1.

### Parameter 30: Load control mode

This parameter allows to set the desired load control mode. The device automatically adjusts correct control mode, but the installer may force its change using this parameter.

Size: 1 Byte, Default Value: 2

Setting	Description
0	forced leading edge control
1	forced trailing edge control
2	control mode selected automatically (based on auto-calibration).

### Parameter 31: Load control mode recognized during auto-calibration

Size: 1 Byte, Default Value: 0

Setting	Description
0	leading edge
1	trailing edge

### Parameter 32: On/Off mode

*This mode is necessary while connecting non-dimmable light sources. Setting this parameter to 1 automatically ignores brightening/dimming time settings. Forced auto-calibration will set this parameter-value to 2*

Size: 1 Byte, Default Value: 2

Setting	Description
0	on/off mode disabled (dimming is possible)
1	on/off mode enabled (dimming is not possible)
2	mode selected automatically

### Parameter 33: Dimmability of the load

*This parameter contains an information about possibility of dimming the load detected during calibration procedure. (read only)*

Size: 1 Byte, Default Value: 0

Setting	Description
0	Load recognized as dimmable
0	no soft-start

### Parameter 34: Soft-Start functionality

*Time required to warm up the filament of halogen bulb.*

Size: 1 Byte, Default Value: 1

Setting	Description
0	no soft-start
1	short soft-start (0,1s)
2	long soft-start (0,5s)

### Parameter 35: Auto-calibration after power on

*This parameter determines the trigger of auto-calibration procedure, e.g. power on, load error, etc.*

Size: 1 Byte, Default Value: 1

Setting	Description
0	No auto-calibration of the load after power on
1	Auto-calibration performed after first power on
2	Auto-calibration performed after each power on
3	Auto-calibration performed after first power on or after each LOAD ERROR alarm

### Parameter 37: Behaviour of the Dimmer after overload or surge.

*Occuring of errors related to surge or overcurrent results in turning off the output to prevent possible malfunction. By default the device performs three attempts to turn on the load (useful in case of momentary, short failures of the power supply)*

Size: 1 Byte, Default Value: 1

Setting	Description
0	device permanently disabled until re-enabling by command or external switch
1	three attempts to turn on the load

### Parameter 39: Power limit - OVERLOAD

*Reaching the defined value will result in turning off the load. Additional apparent power limit of 350VA is active by default*

**NOTE:** Parameter 39 is relevant only when parameter 58 is set to 0.

Size: 2 Byte, Default Value: 250

Setting	Description
0	functionality disabled
1 - 350	1W-350W

### Parameter 40: Response to General Purpose Alarm

Size: 1 Byte, Default Value: 3

Setting	Description
0	No reaction
1	Turn on the load
2	Turn off the load
3	Load blinking

#### Parameter 41: Response to Water Flooding Alarm

Size: 1 Byte, Default Value: 2

Setting	Description
0	No reaction
1	Turn on the load
2	Turn off the load
3	Load blinking

#### Parameter 42: Response to Smoke, CO or CO2 Alarm

Size: 1 Byte, Default Value: 3

Setting	Description
0	No reaction
1	Turn on the load;
2	Turn off the load
3	Load blinking

#### Parameter 43: Response to Temperature Alarm

Size: 1 Byte, Default Value: 1

Setting	Description
0	No reaction
1	Turn on the load
2	Turn off the load
3	Load blinking

#### Parameter 44: Time of alarm state

Size: 2 Byte, Default Value: 600

Setting	Description
1 - 32767	1s - 32767s

#### Parameter 45: OVERLOAD alarm report

Size: 1 Byte, Default Value: 1

Setting	Description
0	No reaction
1	Send and alarm frame

#### Parameter 46: LOAD ERROR alarm report

Size: 1 Byte, Default Value: 1

Setting	Description
0	No reaction
1	Send and alarm frame

#### Parameter 47: OVERCURRENT alarm report

Size: 1 Byte, Default Value: 1

Setting	Description
0	No reaction
1	Send and alarm frame

#### Parameter 48: SURGE alarm report

Size: 1 Byte, Default Value: 1

Setting	Description
0	No reaction
1	Send and alarm frame

#### Parameter 49: OVERHEAT and VOLTAGE DROP alarm report

Size: 1 Byte, Default Value: 1

Setting	Description
0	No reaction
1	Send and alarm frame

#### Parameter 50: Active power reports

The parameter defines the power level change that will result in a newpower report being sent. The value is a percentage of the previous report.

Size: 1 Byte, Default Value: 10

Setting	Description
0	power reports disabled
1 - 100	(1-100%) - power report threshold

#### Parameter 52: Periodic active power and energy reports

Parameter 52 defines a time period between consecutive reports. Timer is reset and counted from zero after each report.

Size: 2 Byte, Default Value: 3600

Setting	Description
0	periodic reports disabled
1 - 32767	(1-32767 seconds)

#### Parameter 53: Energy reports

Energy level change which will result in sending a new energy report.

Size: 2 Byte, Default Value: 10

Setting	Description
0	energy reports disabled
1 - 255	(0,01 - 2,55 kWh) - report triggering threshold

#### Parameter 54: Self-measurement

The Dimmer 2 may include active power and energy consumed by itself in reports sent to the main controller.

Size: 1 Byte, Default Value: 0

Setting	Description
0	Self-measurement inactive
1	Self-measurement active

#### Parameter 58: Method of calculating the active power

This parameter defines how to calculate active power. It is useful in case of 2-wire connection with light sources other than resistive.

**NOTE:** Parameter 58 is set to 0 after forced auto-calibration.

Size: 1 Byte, Default Value: 0

Setting	Description
0	measurement based on the standard algorithm
1	approximation based on the calibration data
2	approximation based on the control angle

**Parameter 59: Approximated power at the maximum brightness level**

*This parameter determines the approximate value of the power that will be reported by the device at its maximum brightness level. 0-500 (0-500W) - power consumed by the load at the maximum brightness level.*

**NOTE:** Parameter 59 works only when parameter 58 has a value other than 0.

Size: 2 Byte, Default Value: 0

Setting	Description
0 - 500	(0-500W) - power consumed by the load at the maximum brightness level.

**Technical Data**

<b>Dimensions</b>	42 x 38 x 20 mm
<b>Weight</b>	28 gr
<b>Hardware Platform</b>	ZM5202
<b>EAN</b>	5902020528524
<b>IP Class</b>	IP IP20
<b>Voltage</b>	100 -240V
<b>Load</b>	250 W
<b>Device Type</b>	Light Dimmer Switch
<b>Network Operation</b>	Always On Slave
<b>Z-Wave Version</b>	6.51.06
<b>Certification ID</b>	ZC10-16045036
<b>Z-Wave Product Id</b>	0x010F.0x0102.0x1000
<b>Frequency</b>	Europe - 868,4 Mhz
<b>Maximum transmission power</b>	5 mW

**Supported Command Classes**

- Switch All
- Application Status
- Association Group Information
- Association V2
- Basic
- Configuration
- Crc 16 Encap
- Device Reset Locally
- Firmware Update Md V3
- Manufacturer Specific V2
- Meter V3
- Multi Channel Association V3
- Multi Channel V4
- Notification V5
- Powerlevel
- Protection V2
- Security
- Sensor Multilevel V4
- Switch Multilevel V3
- Version V2
- Zwaveplus Info V2

**Controlled Command Classes**

- Basic

- Scene Activation
- Switch Multilevel V3

## 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.

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