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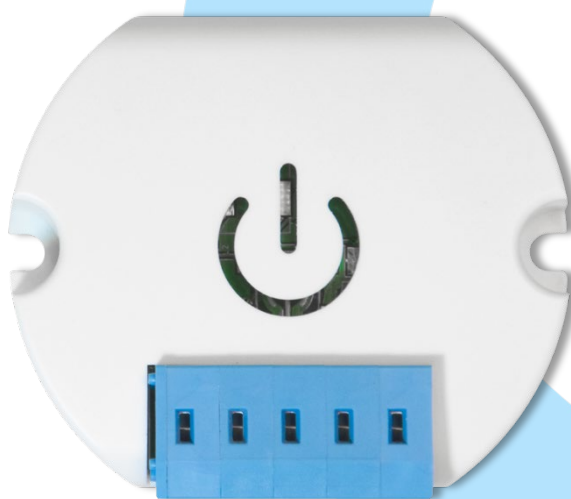
# DIMMY

Type: ZDI5200

**Z-Wave universal dimmer with power metering**

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Installation Guide and User's Manual





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# Content

1	Safety Instructions .....	4
2	Disposal.....	4
3	Warranty .....	4
4	Product description.....	5
5	Installation guidelines .....	6
5.1	Installation.....	6
5.1.1	Cable connecting/disconnecting .....	6
5.2	Dimmer output.....	7
5.2.1	Trailing edge dimming .....	7
5.2.2	Leading edge dimming.....	7
5.3	Power metering.....	8
6	Behaviour within the Z-Wave network .....	9
6.1	Z-Wave network – add and remove.....	9
6.2	Security .....	10
6.3	Z-Wave Plus specific information.....	10
6.3.1	Z-Wave specific device information .....	10
6.3.2	Z-Wave specific information. ....	10
7	Factory reset.....	12
8	Association groups .....	13
9	Configuration parameters .....	14
10	Technical specifications .....	16

# 1 Safety Instructions

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 Please read and follow the manual carefully.

- ! **Only authorised technicians under consideration of the country-specific installation norms may do works with 230 Volt mains power.**
- ! **Prior to the assembly of the product, the voltage network must be switched off.**

DIMMY is powered from the mains voltage (230V AC). In some countries the module is only allowed to be installed by authorized electricians. Mains voltage is very dangerous and can cause serious injury or death if mishandled. If the device is not correctly installed, the device can, in the worst case, pose a fire hazard.

# 2 Disposal

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Dispose of the packaging in an environmentally-friendly manner. This product is labelled in accordance with European Directive 2012/19/EU concerning used electrical and electronic appliances (Waste Electrical and Electronic Equipment – WEEE). The guideline determines the framework for the return and recycling of used products as applicable throughout the EU.

# 3 Warranty

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The guarantee conditions for this product are as defined by your representative in the country in which it is sold. Details regarding these conditions can be obtained from the dealer from whom the product was purchased. The bill of sale or receipt must be produced when making any claim under the terms of this guarantee.

## 4 Product description

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DIMMY type ZDI5200 is a Z-Wave light dimmer with power metering, the module is designed to be installed in, for example, lamp outlets and thereby making the connected lamp dimmable through the Z-Wave network.

The DIMMY module can dim all kind of dimmable light sources from 0 - 250W.

The built-in power metering can measure the power consumption of the connected load as low as 2W and the metering data, both Watt and kWh, are reported to the Z-Wave Controller.

DIMMY is controlled via Z-Wave commands, for example by Logic Group MATRIX wall switches, and is able to send status-reports back to the switches and thereby be a part of a multi-way switching configuration, where several switches can control the DIMMY module and the switches receives reports about the actual status of the module.

DIMMY is also working as a repeater in the Z-Wave network and therefore **expands** the Z-Wave network coverage.

DIMMY is a **single channel** device, which means that all associations to DIMMY must be made as **single channel** associations.

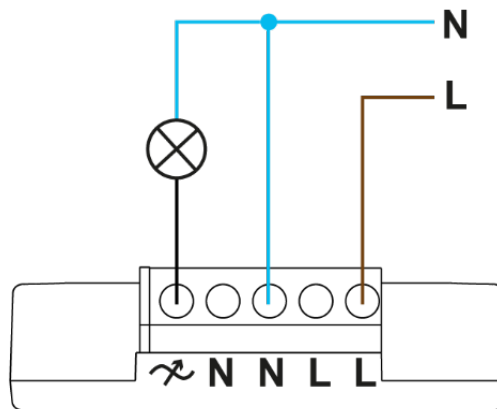
## 5 Installation guidelines

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### 5.1 Installation

DIMMY is designed for fitting into PL ceiling boxes, CE boxes and other junction boxes.

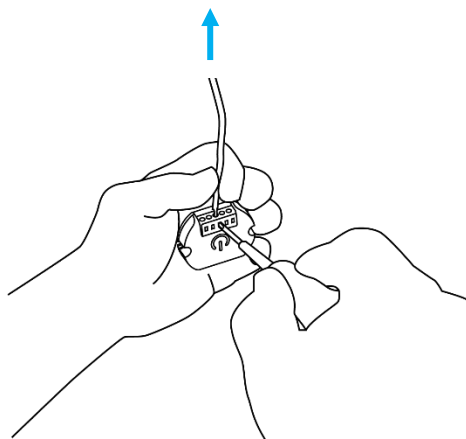
For easy installation DIMMY is provided with a connection terminal with push-in terminations. The cable must be solid with a stripped length between 9 and 10 mm. The maximum conductor size is 2.5 mm<sup>2</sup>, or maximum 1.5 mm<sup>2</sup> for stranded conductors with a ferrule.



#### 5.1.1 Cable connecting/disconnecting

When installing DIMMY, simply push solid cables into the connection terminals.

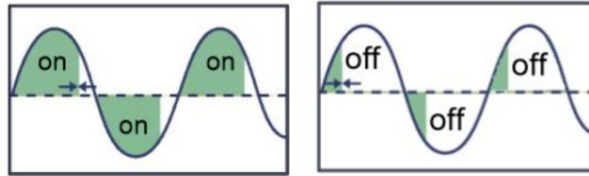
When removing the cables, activate the release-slot with a slotted screwdriver, max 2.5 mm, while pulling the cable out.



## 5.2 Dimmer output

### 5.2.1 Trailing edge dimming

Dimming by trailing edge is implemented by switching off the voltage in the sinus curve before time, and thereby limiting the power to the load.



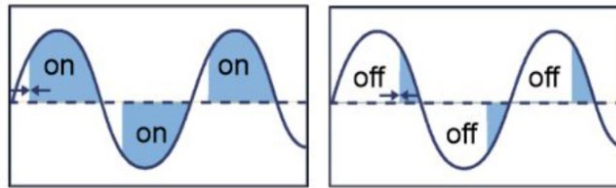
**Figure 1. Trailing-edge-dimming.**

Trailing-edge dimming is used for resistive loads (light bulbs, 230V halogen) and capacitive loads (electronic transformers e.g. 12V halogen “light” power supply, and LED retrofit).

This dimming solution is selected by setting configuration parameter #2 to the value ‘1’.

### 5.2.2 Leading edge dimming

Dimming by leading edge is working by delaying the switch-on of the voltage in the sinus curve, and thereby limiting the power to the load.



**Figure 2. Leading-edge-dimming.**

Leading edge can be used for resistive loads (light bulbs, 230V halogen) and inductive loads (iron core transformers for 12V halogen, “heavy” power supplies).

This dimming solution is selected by setting configuration parameter #2 to the value ‘2’.

**WARNING.** When using iron-core transformers, it is **IMPORTANT** to use leading edge dimming, otherwise it will damage the DIMMY module.

### 5.3 Power metering

The DIMMY module can measure the power of the connected load and report it to the Z-Wave Controller. The reports are sent as Command Class Metering Reports with information about the actual Watt used by the load, and reports with the summarized kWh.

The time between the reporting can be configured by configuration parameter #5, and by default the reports are sent every minute. The reports are also sent when the consumption of the load changes with more than 1.5 Watt, and the sent-time for the last report is more than 5 seconds.



## 6 Behaviour within the Z-Wave network

This product can be 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.

On delivery, 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. Devices can also be removed from a network. Both add and remove process are initiated by the primary controller of the Z-Wave network. This controller will be turned into a mode for adding or removing devices. Please refer to your primary controller's manual on how to turn your controller into add or remove mode. Only if the primary controller is in add or remove mode, this device can be added or removed from the network. When the device is removed from the network, it will set the device back to factory default.

If the device already belongs to a network, follow the remove process before adding it in your network. Otherwise, the adding of this device will fail.

### 6.1 Z-Wave network – add and remove

DIMMY is a SmartStart enabled product and 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.

Find the DSK, QR code and PIN Code on the back of the module (Figure 3).

Add DIMMY to a network with Classic Inclusion by triple-pressing on the switch shaped as a power symbol (I) (Figure 4). The LED inside the module will start blinking.

Use same procedure for removing DIMMY with Classic Exclusion.

If DIMMY already belongs to a Z-Wave network, the remove process must be performed before adding it in a new network. Otherwise, the adding of the device will fail.

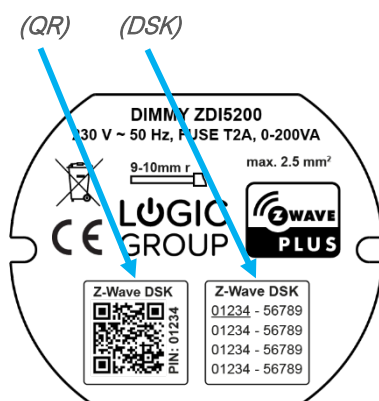


Figure 3: SmartStart Inclusion

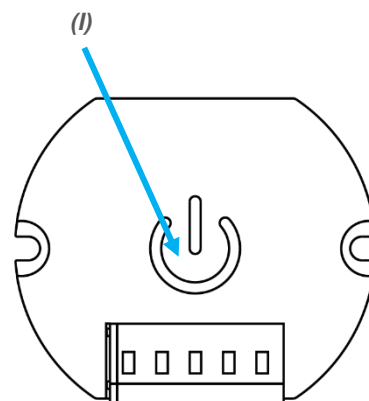


Figure 4: Classic Inclusion

## 6.2 Security

DIMMY is a Security Enabled Z-Wave Plus product and a Security Enabled Z-Wave Controller must be used in order to fully utilize the security features of this product.

DIMMY can operate in security S0 and S2 mode, this requires that the device is added in security mode during the inclusion process.

## 6.3 Z-Wave Plus specific information

DIMMY is a Z-Wave Plus device and supports all required command classes for fulfilling the Z-Wave Plus specification. DIMMY supports both Security S0 and Security S2.

### 6.3.1 Z-Wave specific device information

DIMMY reports following Z-Wave specific device information.

Property	Reported value
Device Type	Switch Multilevel
Basic Device Class	ROUTING_SLAVE
Generic Device Class	GENERIC_TYPE_SWITCH_MULTILEVEL
Specific Device Class	SPECIFIC_TYPE_POWER_SWITCH_MULTILEVEL
Z-Wave Plus Node Type	NODE_TYPE_ZWAVEPLUS_NODE
Z-Wave Plus Role Type	ROLE_TYPE_SLAVE_ALWAYS_ON
Z-Wave Plus Icon Type	ICON_TYPE_GENERIC_LIGHT_DIMMER_SWITCH
Z-Wave Plus User Icon Type	ICON_TYPE_SPECIFIC_LIGHT_DIMMER_SWITCH_PLUGIN

Manufacturer specific device information:

Property	Reported value
Manufacturer ID	0x0234
Product Type ID	0x0003
Product ID	0x0123

### 6.3.2 Z-Wave specific information.

	Description
Supported Command Classes	Basic, Switch Binary, Switch Multilevel, Meter
Controlled Command Classes	

**Basic Set command mapping:**

When a Command Class Basic Set command is received, then the command will be mapped as a Command Class Switch Binary Set command.

**Supported command classes:**

<b>Supported Command Classes</b>	<b>Insecure Inclusion</b>	<b>Insecure on Secure Inclusion</b>	<b>Secure on Secure Inclusion</b>
COMMAND_CLASS_ZWAVEPLUS_INFO (V2)	Yes	Yes	
COMMAND_CLASS_TRANSPORT_SERVICE (V2)	Yes	Yes	
COMMAND_CLASS_SECURITY	Yes	Yes	
COMMAND_CLASS_SECURITY_2	Yes	Yes	
COMMAND_CLASS_SUPERVISION (V1)	Yes	Yes	
COMMAND_CLASS_ASSOCIATION (V2)	Yes		Yes
COMMAND_CLASS_ASSOCIATION_GRP_INFO (V1)	Yes		Yes
COMMAND_CLASS_BASIC (V2)	Yes		Yes
COMMAND_CLASS_CONFIGURATION (V3)	Yes		Yes
COMMAND_CLASS_DEVICE_RESET_LOCALLY (V1)	Yes		Yes
COMMAND_CLASS_FIRMWARE_UPDATE_MD (V4)	Yes		Yes
COMMAND_CLASS_MANUFACTURER_SPECIFIC (V2)	Yes		Yes
COMMAND_CLASS_MULTI_CHANNEL (V4)	Yes		Yes
COMMAND_CLASS_MULTI_CHANNEL_ASSOCIATION (V3)	Yes		Yes
COMMAND_CLASS_POWERLEVEL (V1)	Yes		Yes
COMMAND_CLASS_SWITCH_BINARY (V1)	Yes		Yes
COMMAND_CLASS_SWITCH_MULTILEVEL (V4)	Yes		Yes
COMMAND_CLASS_METER (V3)	Yes		Yes
COMMAND_CLASS_VERSION (V3)	Yes		Yes

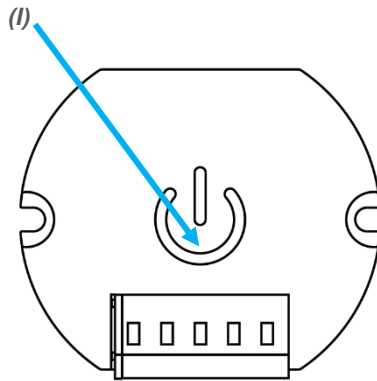
## 7 Factory reset

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*NOTE: Only use this procedure when the primary network controller is missing or is otherwise inoperable.*

DIMMY can be factory reset by holding the switch shaped as a power symbol (I), for at least 10 seconds.

By following this procedure, all configuration parameters and the device network address will be reset back to the values they had when the device was manufactured.



## 8 Association groups

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From a Z-Wave controller's point of view, DIMMY will consist of a single endpoint-device, i.e. a Power Switch Multilevel device.

**NB.** DIMMY is a **single channel** device, **not** multi channel, which means that all associations **to** DIMMY must be made as **single channel** associations.

Below is an overview of the association groups in the DIMMY module.

### Root endpoint

- |         |   |
|---------|---|
| Group 1 | <i>Lifeline.</i><br>Sends Device Reset notifications, Meter reports and Multilevel Switch reports.<br>Max. nodes in the group: 5  |
| Group 2 | Nodes in this group receives <b>Basic Report</b> with the actual state of the multilevel switch (dimmer). It can be used by MATRIX devices to update their internal pushbutton states and can be used in multi-way switching configurations for ensuring that all controlling devices has an updated status<br>Max. nodes in the group: 5 |

## 9 Configuration parameters

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Z-Wave products are supposed to work out of the box after they are added to the Z-Wave network, however certain configurations of a device can alter the functionality to better serve the user's needs or unlock further enhanced features.

Parameter 1, Parameter size 1 byte. Duration of dimming.

This parameter specifies the duration of a full regulation of the light from 0% to 100%. A regulation of the light with 1% will take 1/100 of the specified duration. This is used when the dimming is fulfilled from other Z-Wave devices with a factory default duration.

<i>Value</i>	<i>Description</i>
0	Immediately.
1 - 127	Duration in seconds. (Default is 5 seconds).
128 - 255	Duration in minutes (minus 127) from 1 – 128 minutes, where 128 is 1 minute.

Parameter 2, Parameter size 1 byte. Dimmer mode.

The dimmer can work in three different modes: on/off, leading edge or trailing edge.

<i>Value</i>	<i>Description</i>
0	No dimming, only on/off (0%/100%).
1	Trailing edge dimming. (Default)
2	Leading edge dimming.

Parameter 3, Parameter size 1 byte. Dimmer minimum level.

This parameter specifies the actual level of the dimmer output when set to 0%.

<i>Value</i>	<i>Description</i>
0 - 99	Corresponds to 0 – 99% (Default is 0)

Parameter 4, Parameter size 1 byte. Dimmer maximum level.

This parameter specifies the actual level of the dimmer output when set to 99%.

<i>Value</i>	<i>Description</i>
1 - 99	Corresponds to 1 – 99% (Default is 99)

Parameter 5, Parameter size 1 byte. Meter report time.

This parameter specifies how often meter reports are sent via association group 1.

<i>Value</i>	<i>Description</i>
0	Meter reports are never sent.
1 - 127	Report time in seconds. (Default is 60 seconds).
128 - 255	Report time in minutes (minus 127) from 1 – 128 minutes, where 128 is 1 minute.

## 10 Technical specifications

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Power supply	230V AC / 50 Hz
Max. load	1 – 200VA / 1 – 250W
Fuse	T2A (not replaceable by customer)
Connection terminals	Push-in terminals: 0.5 – 2.5 mm <sup>2</sup> / 20 – 14 AWG
Connections	2 x Line (looped internally) 2 x Neutral (looped internally) 1 x Dimmer Line Output
Power consumption	Standby: 0.6 W.
Radio protocol	Z-Wave®: EU 868.4MHz – 500 Series.
Approvals	CE EN 50491-3: 2009 EN 60669-2: 2004 Z-Wave Plus
Explorer Frame Support	Yes
SDK	6.81.03
Device type	Slave with repeater functionality
Generic Device Class	Switch Multilevel
Specific Device Class	Power Switch Multilevel
Routing	Yes
FLiRS	No
Z-Wave Plus	Yes
Firmware Version	1.01
Security	Security S0, Security S2

