LOGIC GROUP

MATRIX ZBA
Type: ZBA7140

Z-Wave Battery Wall Controller

Installation Guide and User's Manual
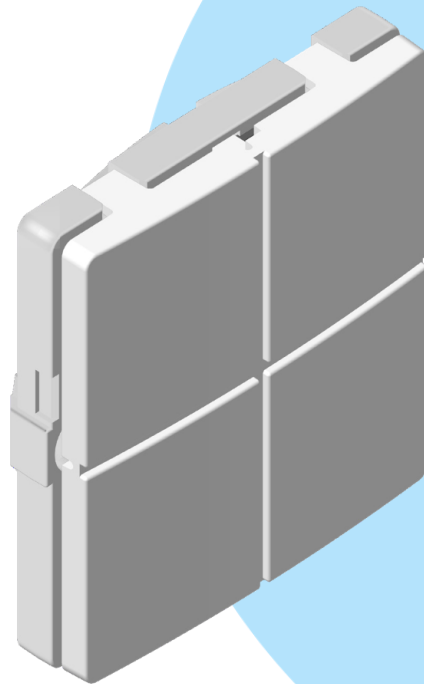
Z-WAVE PLUS   S2 SECURITY   SmartStart

Content

1 Safety Instructions

   📖 *Please read and follow the manual carefully.*

Please read this and other device guides carefully. Failure to follow the recommendations set forth by Logic Group A/S may be dangerous or cause a violation of the law. The manufacturer, importer, distributor, and / or reseller will not be held responsible for any loss or damage resulting from not following any instructions in this guide or in other materials.

Keep product and batteries away from open flames and extreme heat. Avoid direct sun light or heat exposure. Improper battery use may damage the product.

MATRIX ZBA is intended for indoor use in dry locations only. Do not use in damp, moist, and / or wet locations. Do not power permanently.

2 Disposal

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

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

MATRIX type ZBA7140 (from hereon called MATRIX ZBA) is a multifunction battery wall controller that can be mounted in a modular wall-box or directly onto the wall. It is compatible with existing FUGA® frames and wall boxes.

MATRIX ZBA has four configurable pushbuttons that can control other Z-Wave devices through the wireless Z-Wave network. These buttons can send 'ON', 'OFF' and 'DIM' commands to the associated Z-Wave devices. These devices could be light dimmers, blinds, sunscreens, etc.

MATRIX ZBA can also issue scene activation commands that can be used to activate scenes in the Z-Wave Controller.

MATRIX ZBA has four RGB indicator LEDs, one for each pushbutton, that indicates activation of the pushbutton, and when MATRIX ZBA is in inclusion or exclusion mode. These indicators can be configured to a desired indication colour, or they can indicate the battery level when a pushbutton is activated.

MATRIX ZBA is equipped with the newest battery-saving 700-series Z-Wave chip that uses up to 65% less power and have improved wireless range. This means that the small coin-cell battery can last between 5 – 10 years.

MATRIX ZBA is estimated to a battery lifetime, at normal use, to approximately 5 years.

5 Installation guidelines

5.1 Inserting Battery

MATRIX ZBA includes a battery of the type CR2032. The battery must be inserted in the battery compartment before mounting the device. Place with the "+" symbol upwards.

NB! Only place the battery right before the device is added to a Z-Wave network (see section about Z-Wave add and remove processes). Otherwise the SmartStart Inclusion mode will drain the battery.
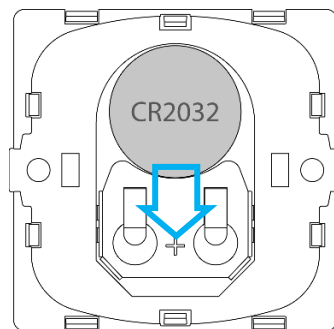
Figure 1: Inserting battery

5.2 Fastening

MATRIX ZBA is mounted in a 1 module FUGA®-compatible frame. The device can be mounted in the following ways:

A) *In a FUGA® compatible wall box or directly on the wall with wood screws.*
B) *With adhesive putty/Power tack on e.g. furniture and windows. Do not use adhesive putty on the device itself but only on the back of the frame.*

5.3 Removing the Pushbutton Cover

The pushbutton cover is removed from the device by loosening it with a slotted screwdriver in the top (A) and then in the bottom (B). Hold the top while releasing the bottom.
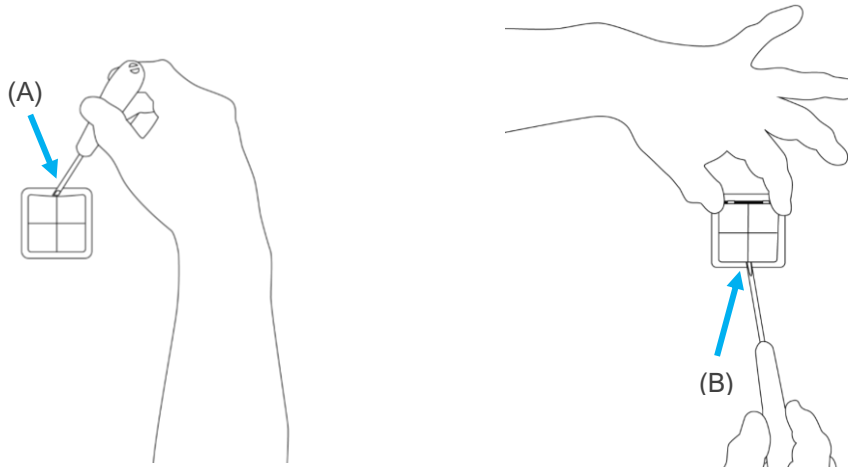
5.4 Removing from Frame

Demount the device from a frame by pushing it out at the points (C) and (D) with a slotted screwdriver.

5.5 Replacing the battery

The battery is replaced on the back of the device. Do as follows according to the chosen fastening method A) or B).

 A) *If the device is fastened with screws, the pushbutton cover must be removed, and the device must be removed from the frame.*
 1. *Remove the pushbutton cover as described in the section: "Removing the Pushbutton Cover".*
 2. *Unscrew the screws from the wall box or wall.*
 3. *Push the device out of the frame as described in the section: "Removing from Frame".*
 B) *If the device is fastened with adhesive putty, remove both device and frame from the wall by twisting them from side to side until they loosen up. The frame can stay on the device.*

After unfastening from the wall, push the battery out of the compartment. A slotted screwdriver may be used to push at the point of the arrow in Figure 2.
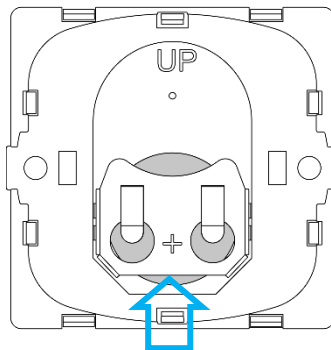
Figure 2: Pushing out the battery. A slotted screwdriver may be used at the point of the arrow.

6 Advanced features

6.1 Send wake up notifications

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

This device will wake up every 6 hours and announce the wake-up state by sending out a so-called Wake Up Notification. The controller can then empty the mailbox.

The wake-up interval is a trade-off between maximal battery lifetime and the desired responses of the device.

The device will stay awake right after inclusion for 10 seconds allowing the controller to perform certain configuration. It is possible to manually wake up the device by double-activating the button (I).
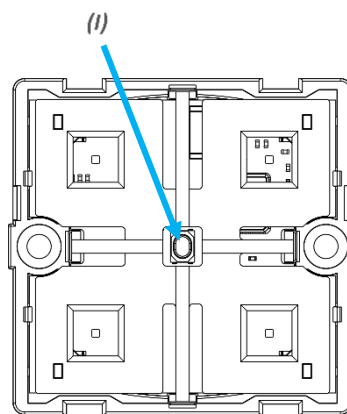
6.2 Controlling light dimmers

The four pushbuttons on MATRIX ZBA can send different Z-Wave commands to light-dimmer devices, when the devices are added to the corresponding association groups, i.e. the association groups that are used for transmitting **Command Class Switch Multilevel** messages.

There is one association group for each of the four pushbuttons that the associated devices must be added to, when commands are requested to be sent to a specific device.

When a pushbutton is held down, then a **Command Class Switch Multilevel Start** is sent to associated device, and when the button is released, a **Command Class Switch Multilevel Stop** is sent. The internal status of the switch decides whether the **Start** command contains a dim up or a dim down command.

6.3 Sending pre-configured dim-levels

MATRIX ZBA can send configurable commands to the devices in the **Switch Multilevel** association groups, both when a pushbutton is single-activated and when the pushbutton is double-activated. These two features each have two separate configuration possibilities, one for the ON command and one for the OFF command (which one is sent is decided by the internal switch status).

Example:

It is desired always to set a dimmer at 50% level when it is switched ON, and at 10% level when it switched OFF. The related configuration parameter (see section about configuration parameters) is then set to:

Byte 1: Enable / Disable

This byte must be set to 1 in order to enable the feature.

Byte 2: Upper switch value

This byte must be set to the value 50 for sending this level when an ON command is transmitted to the dimmer.

Byte 3: Lower switch value

This byte must be set to the value 10 for sending this level when an OFF command is transmitted to the dimmer.

Byte 4: Duration value

This value specifies the time the dimmer shall use to do the level change, 0 means use the dimmer default value, or 5 means do the change over 5 seconds. For this example, we just specify that the dimmer shall use its default duration time, so the byte value is set to 0.

So, byte 1 = 1, byte 2 = 50, byte 3 = 10, byte = 0. In hexadecimal it is 01 32 0A 00, and in decimal the value that the configuration parameter must be set to is: 20056576.

6.4 Button functions

The pushbuttons can be configured to function in different modes with configuration parameter 7;

The standard toggle-function where the internal state is switched between on or off and between dimming up or dimming down (Figure 3a). This is the default function of the pushbuttons.

The pushbuttons can also be configured to always switch on (key pressed) / dim up (key held), or to always switch off (key pressed) / dim down (key held). This functionality can be used if it is required to use two pushbuttons to control, for example, a dimmer. Then one pushbutton always dims up, and the other pushbutton always dim down (Figure 3b).

Figure 3a: Toggle-function: The pushbutton can switch on/off and dim up/down on the same button

Figure 3b: **Pairing function: Here pushbutton 1 and 3 are paired where 1 always** *switches on* **or dims up and 3 always switches off or** *dim down.*

The last function that the pushbuttons can be configured to, is to send an "on" command when the pushbutton is held down, and when the pushbutton is released it sends an "off" command. This functionality can be used to control devices for automatic windows or blinds, so the window is opening or closing if the button is held down, and as soon as it is released, it stops.

6.5 Control of other devices

When using MATRIX ZBA with a light dimmer, it is preferable to use association groups to control it. See section about Association Groups 1-9.

Example 1: One MATRIX ZBA and an external light dimmer.

This example illustrates a system with a MATRIX ZBA device that controls an external light dimmer with association groups.

In the figure the dimmer is controlled by group 5 (pushbutton 2) in device #5 by sending **Multi-level Switch** commands to the dimmer device #2.

Use Association group 3, 5, 7 and 9 for multilevel switching (dimming) with pushbutton 1, 2, 3 and 4. For relay modules, window control etc. use the Basic Set Association Groups.

5 -> 2 Multilevel Switch
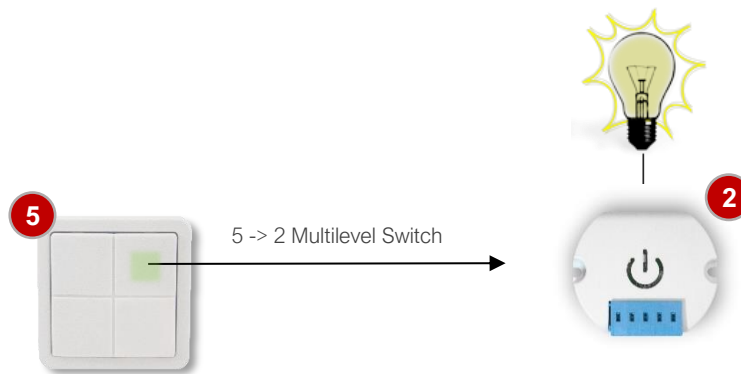
Figure 4: Controlling a light dimmer with pushbutton 2

MATRIX ZBA cannot be used in a classic multi-way switching setup. This is because MATRIX ZBA does not receive **Basic Reports**. Hence, it does not receive the information needed to know whether the light is turned on or off and at what level from other devices than itself. It is, however, possible to use two MATRIX ZBA devices to control one dimmer, using the method in Example 2.

Example 2: Two MATRIX ZBA devices controlling one dimmer.

To make the same setup as in Figure 5, use the pairing functions for both devices #5 and #7 by setting configuration parameters as such:

- *MATRIX ZBA device #5:*
  - *Parameter #10 = 2*
  - *Parameter #16 = 1*
- *MATRIX ZBA device #7:*
  - *Parameter #7 = 2*
  - *Parameter #13 = 1*

With the configuration parameters set to only dim up / turn on or only dim down / turn off, there is only one option per activation (key pressed or key held) per pushbutton. This makes **Basic Reports** unnecessary.

It does not matter which pushbuttons are used for pairing functions – for the example only, four different pushbuttons were used.

Now, associate the Associations groups (5 and 9 for device #5, 3 and 7 for device #7) with the dimmer device #9.
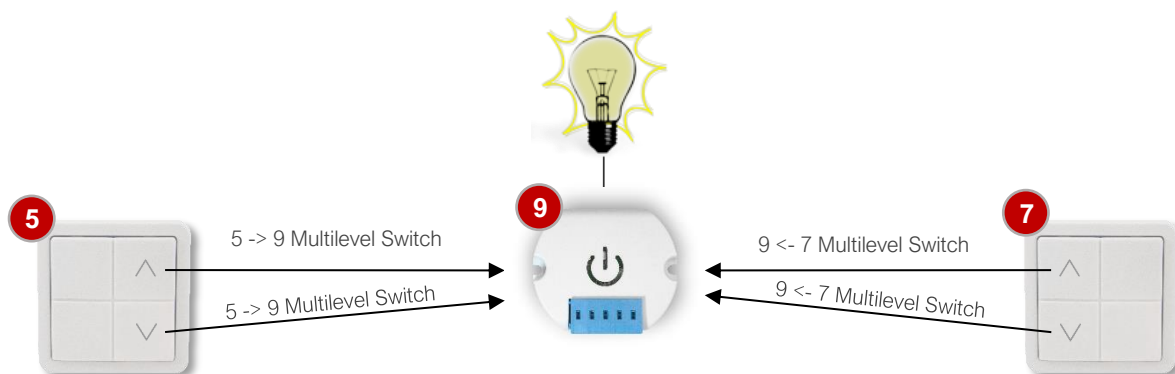
Figure 5: Pairing function with two MATRIX ZBA devices to control one dimmer device.

6.6 Central Scene notifications

MATRIX ZBA supports standard Z-Wave **Central Scene** notifications, the pushbuttons can create different scene notifications that are sent to the Controller via the lifeline association group. This allows the Controller to react on the different pushbutton activations.

Button	Scene Number	Key attribute
1	1	0: Key pressed one time
		1: Key released
		2: Key held down
		3: Key pressed two times
		4: Key pressed three times
2	2	0: Key pressed one time
		1: Key released
		2: Key held down
		3: Key pressed two times
		4: Key pressed three times
3	3	0: Key pressed one time
		1: Key released
		2: Key held down
		3: Key pressed two times
		4: Key pressed three times
4	4	0: Key pressed one time
		1: Key released
		2: Key held down
		3: Key pressed two times
		4: Key pressed three times

6.7 LED indication

The four LEDs on the MATRIX ZBA module are used for different kinds of indications; first the LEDs gives an optic feedback when a pushbutton is activated, and the LED colour indicates the actual status of the battery, green for a good battery level, yellow when the battery is running low and red when the battery must be replaced.

When the module isn't included in any Z-Wave network, the LEDs light up with a blue light until the module is included in a network.

It is also possible to configure the actual indication colour, and the level of the light. This can also be used in order to save battery life; the indication can also be switched off.

When MATRIX ZBA is put into inclusion state, then the first LED is flashing, and this LED can also be controlled by sending **Command Class Indicator** messages to the module.

6.8 Battery

MATRIX ZBA is powered by a 3V coin-cell battery type CR2032 with a specified capacity of 230 mAh. The module has an average consumption at approximately 2 µA (when it is in "deep-sleep" mode) and every time a button is pushed, the module is waked up in minimum 400 milliseconds and with a consumption of 5 mA.

So, with an average of 10 activations per day, the module will use about 60 µAh per day and with a 230 mAh battery capacity, it will give a battery life on 3.800 days ~ 10 years.

NB. It is important to be aware of, that MATRIX ZBA does NOT go into "deep-sleep" mode when the module is not included in a Z-Wave network.

Do NOT store the module with the battery mounted, when not in use!

7   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.

7.1   Z-Wave network – add and remove

MATRIX ZBA 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 QR code and PIN Code on the back of the module (Figure 6a). Find the full DSK on the product packaging.

Add MATRIX ZBA to a network with Classic Inclusion by pressing once on the switch (I) behind the pushbutton-cover (Figure 6b). The LED near pushbutton 1 will start blinking.

Use same procedure for removing MATRIX ZBA with Classic Exclusion.

If MATRIX ZBA 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.
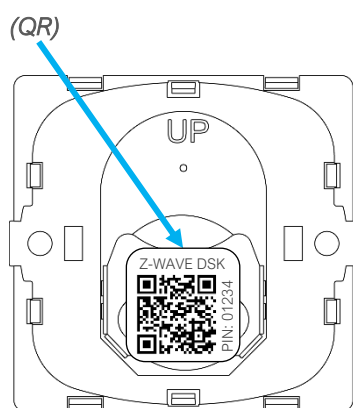

Figure 6a: SmartStart Inclusion   *Figure 6b: Classic Inclusion/Exclusion*
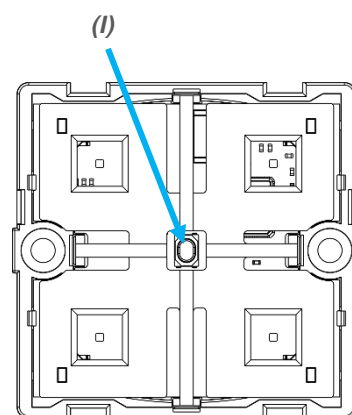
7.2 Security

MATRIX ZBA 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.

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

MATRIX ZBA has a QR-code label that can be used when the module is added to the Z-Wave home network. The network controller will ask for a 5-digit code, which can be identified besides the QR-code, and will then ask to confirm the rest of the code that is contained in this QR-code. If needed, the full DSK can be found on the product packaging.

7.3 Z-Wave Plus specific information

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

7.3.1 Z-Wave specific device information

MATRIX ZBA reports following Z-Wave specific device information.

Property	Reported value
Device Type	Wall Controller
Basic Device Class	ROUTING_SLAVE
Generic Device Class	GENERIC_TYPE_WALL_CONTROLLER
Specific Device Class	SPECIFIC_TYPE_NOT_USED
Z-Wave Plus Node Type	NODE_TYPE_ZWAVEPLUS_NODE
Z-Wave Plus Role Type	ROLE_TYPE_SLAVE_SLEEPING_REPORTING
Z-Wave Plus Icon Type	ICON_TYPE_GENERIC_WALL_CONTROLLER
Z-Wave Plus User Icon Type	ICON_TYPE_GENERIC_WALL_CONTROLLER

Manufacturer specific device information:

Property	Reported value
Manufacturer ID	0x0234
Product Type ID	0x0004
Product ID	0x0129

7.3.2 Z-Wave specific information.

	Description
Supported Command Classes	Central Scene, Indicator
Controlled Command Classes	Central Scene, Basic, Switch Multilevel

Supported command classes:

Supported Command Classes	Insecure Inclusion	Insecure on Secure Inclusion	Secure on Secure Inclusion
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 (V3)	Yes		Yes
COMMAND_CLASS_CONFIGURATION (V4)	Yes		Yes
COMMAND_CLASS_DEVICE_RESET_LOCALLY (V1)	Yes		Yes
COMMAND_CLASS_FIRMWARE_UPDATE_MD (V5)	Yes		Yes
COMMAND_CLASS_MANUFACTURER_SPECIFIC (V2)	Yes		Yes
COMMAND_CLASS_MULTI_CHANNEL_ASSOCIATION (V3)	Yes		Yes
COMMAND_CLASS_POWERLEVEL (V1)	Yes		Yes
COMMAND_CLASS_VERSION (V3)	Yes		Yes
COMMAND_CLASS_WAKE_UP (V2)	Yes		Yes
COMMAND_CLASS_BATTERY (V1)	Yes		Yes
COMMAND_CLASS_CENTRAL_SCENE (V3)	Yes		Yes
COMMAND_CLASS_INDICATOR (V3)	Yes		Yes

8 Factory reset

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

MATRIX ZBA can be factory reset by holding the switch (I) for at least 10 seconds, the LEDs will give a short flash.

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.
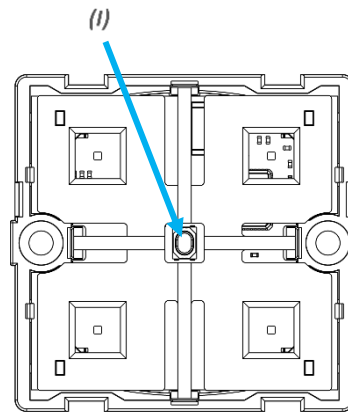
9 Association groups

From a Z-Wave controller's point of view, MATRIX ZBA will only consist of a single root device.

9.1 Association groups

Below is an overview of the different association groups.

Root endpoint

Group 1	*Lifeline*.
	Sends **Device Reset** notifications, **Battery Reports**, **Indicator Reports**, **Central Scene Configuration Reports** and **Central Scene notifications**.
	Max. nodes in the group: 5

Pushbutton 1

Group 2	Nodes in this group receives **Basic Set** when pushbutton 1 is activated, the on or off status is decided by the internal button status and is toggled between each activation.
	Max. nodes in the group: 5
Group 3	Nodes in this group receives **Switch Multilevel Set / Switch Multilevel Start Level Change / Switch Multilevel Stop Level Change** when pushbutton 1 is operated. It can, as an example, be used for controlling light dimmers.
	Max. nodes in the group: 5

Pushbutton 2

Group 4	Nodes in this group receives **Basic Set** when pushbutton 2 is activated, the on or off status is decided by the internal button status and is toggled between each activation.
	Max. nodes in the group: 5
Group 5	Nodes in this group receives **Switch Multilevel Set / Switch Multilevel Start Level Change / Switch Multilevel Stop Level Change** when pushbutton 2 is operated. It can, as an example, be used for controlling light dimmers.
	Max. nodes in the group: 5

Pushbutton 3

Group 6	Nodes in this group receives **Basic Set** when pushbutton 3 is activated, the on or off status is decided by the internal button status and is toggled between each activation.
	Max. nodes in the group: 5
Group 7	Nodes in this group receives **Switch Multilevel Set / Switch Multilevel Start Level Change / Switch Multilevel Stop Level Change** when pushbutton 3 is operated. It can, as an example, be used for controlling light dimmers.
	Max. nodes in the group: 5

Pushbutton 4

Group 8   Nodes in this group receives **Basic Set** when pushbutton 4 is activated, the on or off status is decided by the internal button status and is toggled between each activation.

Max. nodes in the group: 5

Group 9   Nodes in this group receives **Switch Multilevel Set / Switch Multilevel Start Level Change / Switch Multilevel Stop Level Change** when pushbutton 4 is operated. It can, as an example, be used for controlling light dimmers.

Max. nodes in the group: 5

10 Configuration parameters

Z-Wave products 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. Enable Central Scene notifications.

This parameter can be used for enabling or disabling Central Scene notifications.

Value	Description
0	Central Scene notifications are disabled.
1	Central Scene notifications are enabled. (Default)

Parameter 2, Parameter size 2 byte. Pushbutton press threshold time.

Specifies the time that a pushbutton must be activated before it is detected as pressed. This parameter also affects the detection of double- and triple-activations, as a new activation must be detected within this specified time for the repeatedly detection. Be aware that this parameter must be lower than the value in Parameter 3. Therefore, change this parameter with caution.

Resolution is in milliseconds.

Value	Description
1 – 1000	1 – 1000 milliseconds. Default is 400 milliseconds

Parameter 3, Parameter size 2 byte. Pushbutton held threshold time.

Specifies the time that a pushbutton must have been activated before it is accepted as "held-down". This value must be higher than the value set in Parameter 2. Resolution is milliseconds.

Value	Description
1 – 5000	1 – 5000 milliseconds. Default is 600 milliseconds.

Parameter 4, Parameter size 1 byte1. LED mode.

This parameter specifies the mode of the LED indication.

Value	Description
0	LED indication is turned off.
1	LEDs indicates the current level of the battery, when the device is included. (Default)
2	LED colour is set by configuration parameter 5.

Parameter 5, Parameter size 4 bytes. LEDs colour indication.

This parameter specifies the colour levels for the red, green and blue colours in the 4 RGB LEDs. This parameter is not used unless configuration parameter 4 is set to the value 2. The default configuration is a white light, where red level value must be higher than the two other colours in order to get a white light.

Value	Description
Byte 1: Red colour level.	
0 - 255	Specifies the level for the red colour. (Default is 255)
Byte 2: Green colour level.	
0 – 255	Specifies the level for the green colour. (Default is 85)
Byte 3: Blue colour level.	
0 - 255	Specifies the level for the blue colour. (Default is 85)
Byte 4: Not used.	
0	This byte is not used and must be set to 0.

Parameter 6, Parameter size 2 bytes. Associations groups, transmission when included secure.

This parameter specifies if commands are transmitted as a secure message for each of the association groups.

This parameter is only used when the device is included in security mode (either S0 or S2).

Value	Description
0	All messages in all groups are sent as insecure.
1	Messages in association group 2 are sent as secure.
2	Messages in association group 3 are sent as secure.
4	Messages in association group 4 are sent as secure.
8	Messages in association group 5 are sent as secure.
16	Messages in association group 6 are sent as secure.
32	Messages in association group 7 are sent as secure.
64	Messages in association group 8 are sent as secure.
128	Messages in association group 9 are sent as secure.
255	All messages in all groups are sent as secure. (Default)

NB. *The above values are bitmasks and can be added up to select several options.*

Parameter 7, Parameter size 1 byte. Pushbutton 1 functionality.

This parameter specifies the functionality of pushbutton 1. For a further description, see chapter 6.4.

Value	Description
0	Standard toggle-function, the state is switched between on and off, dimming up and down. (Default)
1	Always turn on or dim up. Using this parameter, the pushbutton can only send 'on' or 'dim up' commands. Use this in pair with another pushbutton with value 2.
2	Always turn off or dim down. Using this parameter, the pushbutton can only send 'off' or 'dim down' commands. Use this in pair with another pushbutton with value 1.
3	When the pushbutton is down; an on command is sent, and when the pushbutton is released; an off command is sent.

Parameter 8, Parameter size 4. **Switch Multilevel Set** single-activation values for pushbutton 1.

This parameter specifies the value that are sent to the devices in the **Switch Multilevel** association group (group 3) when the pushbutton is single-pressed.

Value	Description
Byte 1: Enable / Disable	
0	Disabled – A single activation of the pushbutton will not send commands to devices in the association group.
1	Enabled – A single activation will send commands to devices in the association group. Devices will receive commands with the values set in 3 following bytes. (Default)
Byte 2: Upper switch value	
0 – 99, 255	When single pressing the pushbutton for ON, a **Switch Multilevel Set** with this value will be send to devices in the association group. (Default = 255)
Byte 3: Lower switch value	
0 - 99	When single pressing the pushbutton for OFF, a **Switch Multilevel Set** with this value will be send to devices in the association group. (Default = 0)
Byte 4: Duration	
0 - 255	When single pressing the pushbutton the **Switch Multilevel Set** with this duration value will be send to devices in the association group. 0 : Use dimmer default timer value. (Default) 1 – 127 : Duration in seconds. 128 – 255 : Duration in minutes (minus 127) from 1 – 128 minutes, where 128 is 1 minute.

Parameter 9, Parameter size 4. **Switch Multilevel Set** double-activation values for pushbutton 1.

This parameter specifies the value that are sent to the devices in the **Switch Multilevel** association group (group 3) when the pushbutton is double-pressed.

Value	*Description*
Byte 1: Enable / Disable	
0	Disabled – A double activation of the pushbutton will not send commands to devices in the association group.
1	Enabled – A double activation will send commands to devices in the association group. Devices will receive commands with the values set in 3 following bytes. (Default)
Byte 2: Upper switch value	
0 – 99, 255	When double pressing the pushbutton for ON, a **Switch Multilevel Set** with this value will be send to devices in the association group. (Default = 99)
Byte 3: Lower switch value	
0 - 99	When double pressing the pushbutton for OFF, a **Switch Multilevel Set** with this value will be send to devices in the association group. (Default = 99)
Byte 4: Duration	
0 - 255	When double pressing the pushbutton the **Switch Multilevel Set** with this duration value will be send to devices in the association group. 0 : Use dimmer default timer value. (Default) 1 – 127 : Duration in seconds. 128 – 255 : Duration in minutes (minus 127) from 1 – 128 minutes, where 128 is 1 minute.

Parameter 10, Parameter size 1 byte. Pushbutton 2 functionality.

This parameter specifies the functionality of pushbutton 2. For a further description, see chapter 6.4.

Value	Description
0	Standard toggle-function, the state is switched between on and off, dimming up and down. (Default)
1	Always turn on or dim up. Using this parameter, the pushbutton can only send 'on' or 'dim up' commands. Use this in pair with another pushbutton with value 2.
2	Always turn off or dim down. Using this parameter, the pushbutton can only send 'off' or 'dim down' commands. Use this in pair with another pushbutton with value 1.
3	When the pushbutton is down; an on command is sent, and when the pushbutton is released; an off command is sent.

Parameter 11, Parameter size 4. **Switch Multilevel Set** single-activation values for pushbutton 2.

This parameter specifies the value that are sent to the devices in the **Switch Multilevel** association group (group 5) when the pushbutton is single-pressed.

Value	Description
Byte 1: Enable / Disable	
0	Disabled – A single activation of the pushbutton will not send commands to devices in the association group.
1	Enabled – A single activation will send commands to devices in the association group. Devices will receive commands with the values set in 3 following bytes. (Default)
Byte 2: Upper switch value	
0 – 99, 255	When single pressing the pushbutton for ON, a **Switch Multilevel Set** with this value will be send to devices in the association group. (Default = 255)
Byte 3: Lower switch value	
0 - 99	When single pressing the pushbutton for OFF, a **Switch Multilevel Set** with this value will be send to devices in the association group. (Default = 0)
Byte 4: Duration	
0 - 255	When single pressing the pushbutton the **Switch Multilevel Set** with this duration value will be send to devices in the association group. 0 : Use dimmer default timer value. (Default) 1 – 127 : Duration in seconds. 128 – 255 : Duration in minutes (minus 127) from 1 – 128 minutes, where 128 is 1 minute.

Parameter 12, Parameter size 4. **Switch Multilevel Set** double-activation values for pushbutton 2.

This parameter specifies the value that are sent to the devices in the **Switch Multilevel** association group (group 5) when the pushbutton is double-pressed.

Value	*Description*
Byte 1: Enable / Disable	
0	Disabled – A double activation of the pushbutton will not send commands to devices in the association group.
1	Enabled – A double activation will send commands to devices in the association group. Devices will receive commands with the values set in 3 following bytes. (Default)
Byte 2: Upper switch value	
0 – 99, 255	When double pressing the pushbutton for ON, a **Switch Multilevel Set** with this value will be send to devices in the association group. (Default = 99)
Byte 3: Lower switch value	
0 - 99	When double pressing the pushbutton for OFF, a **Switch Multilevel Set** with this value will be send to devices in the association group. (Default = 99)
Byte 4: Duration	
0 - 255	When double pressing the pushbutton the **Switch Multilevel Set** with this duration value will be send to devices in the association group. 0 : Use dimmer default timer value. (Default) 1 – 127 : Duration in seconds. 128 – 255 : Duration in minutes (minus 127) from 1 – 128 minutes, where 128 is 1 minute.

Parameter 13, Parameter size 1 byte. Pushbutton 3 functionality.

This parameter specifies the functionality of pushbutton 3. For a further description, see chapter 6.4.

Value	Description
0	Standard toggle-function, the state is switched between on and off, dimming up and down. (Default)
1	Always turn on or dim up. Using this parameter, the pushbutton can only send 'on' or 'dim up' commands. Use this in pair with another pushbutton with value 2.
2	Always turn off or dim down. Using this parameter, the pushbutton can only send 'off' or 'dim down' commands. Use this in pair with another pushbutton with value 1.
3	When the pushbutton is down; an on command is sent, and when the pushbutton is released; an off command is sent.

Parameter 14, Parameter size 4. Switch Multilevel Set single-activation values for pushbutton 3.

This parameter specifies the value that are sent to the devices in the **Switch Multilevel** association group (group 7) when the pushbutton is single-pressed.

Value	Description
Byte 1: Enable / Disable	
0	Disabled – A single activation of the pushbutton will not send commands to devices in the association group.
1	Enabled – A single activation will send commands to devices in the association group. Devices will receive commands with the values set in 3 following bytes. (Default)
Byte 2: Upper switch value	
0 – 99, 255	When single pressing the pushbutton for ON, a **Switch Multilevel Set** with this value will be send to devices in the association group. (Default = 255)
Byte 3: Lower switch value	
0 - 99	When single pressing the pushbutton for OFF, a **Switch Multilevel Set** with this value will be send to devices in the association group. (Default = 0)
Byte 4: Duration	
0 - 255	When single pressing the pushbutton the **Switch Multilevel Set** with this duration value will be send to devices in the association group. 0 : Use dimmer default timer value. (Default) 1 – 127 : Duration in seconds. 128 – 255 : Duration in minutes (minus 127) from 1 – 128 minutes, where 128 is 1 minute.

Parameter 15, Parameter size 4. **Switch Multilevel Set** double-activation values for pushbutton 3.

This parameter specifies the value that are sent to the devices in the **Switch Multilevel** association group (group 7) when the pushbutton is double-pressed.

Value	*Description*
Byte 1: Enable / Disable	
0	Disabled – A double activation of the pushbutton will not send commands to devices in the association group.
1	Enabled – A double activation will send commands to devices in the association group. Devices will receive commands with the values set in 3 following bytes. (Default)
Byte 2: Upper switch value	
0 – 99, 255	When double pressing the pushbutton for ON, a **Switch Multilevel Set** with this value will be send to devices in the association group. (Default = 99)
Byte 3: Lower switch value	
0 - 99	When double pressing the pushbutton for OFF, a **Switch Multilevel Set** with this value will be send to devices in the association group. (Default = 99)
Byte 4: Duration	
0 - 255	When double pressing the pushbutton the **Switch Multilevel Set** with this duration value will be send to devices in the association group. 0 : Use dimmer default timer value. (Default) 1 – 127 : Duration in seconds. 128 – 255 : Duration in minutes (minus 127) from 1 – 128 minutes, where 128 is 1 minute.

Parameter 16, Parameter size 1 byte. Pushbutton 4 functionality.

This parameter specifies the functionality of pushbutton 4. For a further description, see chapter 6.4.

Value	Description
0	Standard toggle-function, the state is switched between on and off, dimming up and down. (Default)
1	Always turn on or dim up. Using this parameter, the pushbutton can only send 'on' or 'dim up' commands. Use this in pair with another pushbutton with value 2.
2	Always turn off or dim down. Using this parameter, the pushbutton can only send 'of' or 'dim down' commands. Use this in pair with another pushbutton with value 1.
3	When the pushbutton is down; an on command is sent, and when the pushbutton is released; an off command is sent.

Parameter 17, Parameter size 4. **Switch Multilevel Set** single-activation values for pushbutton 4.

This parameter specifies the value that are sent to the devices in the **Switch Multilevel** association group (group 9) when the pushbutton is single-pressed.

Value	Description
Byte 1: Enable / Disable	
0	Disabled – A single activation of the pushbutton will not send commands to devices in the association group.
1	Enabled – A single activation will send commands to devices in the association group. Devices will receive commands with the values set in 3 following bytes. (Default)
Byte 2: Upper switch value	
0 – 99, 255	When single pressing the pushbutton for ON, a **Switch Multilevel Set** with this value will be send to devices in the association group. (Default = 255)
Byte 3: Lower switch value	
0 - 99	When single pressing the pushbutton for OFF, a **Switch Multilevel Set** with this value will be send to devices in the association group. (Default = 0)
Byte 4: Duration	
0 - 255	When single pressing the pushbutton the **Switch Multilevel Set** with this duration value will be send to devices in the association group. 0 : Use dimmer default timer value. (Default) 1 – 127 : Duration in seconds. 128 – 255 : Duration in minutes (minus 127) from 1 – 128 minutes, where 128 is 1 minute.

Parameter 18, Parameter size 4. **Switch Multilevel Set** double-activation values for pushbutton 4.

This parameter specifies the value that are sent to the devices in the **Switch Multilevel** association group (group 9) when the pushbutton is double-pressed.

Value	*Description*
Byte 1: Enable / Disable	
0	Disabled – A double activation of the pushbutton will not send commands to devices in the association group.
1	Enabled – A double activation will send commands to devices in the association group. Devices will receive commands with the values set in 3 following bytes. (Default)
Byte 2: Upper switch value	
0 – 99, 255	When double pressing the pushbutton for ON, a **Switch Multilevel Set** with this value will be send to devices in the association group. (Default = 99)
Byte 3: Lower switch value	
0 - 99	When double pressing the pushbutton for OFF, a **Switch Multilevel Set** with this value will be send to devices in the association group. (Default = 99)
Byte 4: Duration	
0 - 255	When double pressing the pushbutton the **Switch Multilevel Set** with this duration value will be send to devices in the association group. 0 : Use dimmer default timer value. (Default) 1 – 127 : Duration in seconds. 128 – 255 : Duration in minutes (minus 127) from 1 – 128 minutes, where 128 is 1 minute.

11 Technical specifications

Power supply: Coin cell battery CR2032 3V 230 mAh

Battery life: Estimated 10 years @ max 10 activations pr. day and default settings.

Power consumption: Approximately 2 µA in sleep mode.

Operating temperature: 10 – 40°C

Humidity: 20 % - 95%, non-condensing

Protection class: IP20

Radio protocol: Z-Wave®: EU 868.4MHz – 700 Series.

Approvals: CE
                           Z-Wave Plus

Explorer Frame Support: No

SDK: 7.13.06

Device type: Slave without repeater functionality.

Generic Device Class: Wall Controller

Specific Device Class: None

Routing: No

FLiRS: No

Z-Wave Plus: Yes

Firmware Version: 1.08

Security: Security S0, Security S2

Inclusion: SmartStart Inclusion or Classic Inclusion