

Z-Home Control

ZHC5002

Z-Wave coupler module for GIRA® installations.

Firmware Version: 2.02



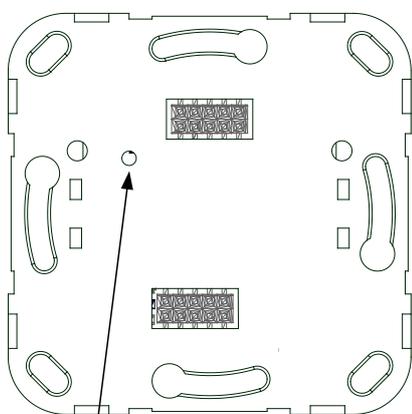
Quick Start

ZHC5002 is a Z-Wave coupler module for GIRA pushbuttons. The module is designed for interfacing a GIRA push button sensor module (GIRA push button sensor 2, type 2003 100) with two 10 pole connectors to a Z-Wave network.

The ZHC5002 module contains a built-in relay that will allow you to control a local load and turning the module into a wall switch. The module can control Z-Wave connected devices in up to six Z-Wave groups

Pushing the upper left button 3 times, (triple click) will **activate Inclusion Mode on the device**. It is also possible to activate Inclusion Mode by triple clicking the switch inside the module (through a little hole in the front of the module).

Please refer to the following chapters for a detailed information about all aspects of the products usage.



Inclusion button



Product Description

The Z-Home Control ZHC5002 with a GIRA pushbutton module is a Z-Wave wall switch device that can both control other Z-Wave devices and activate scenes. Although it is controlling other devices, the device cannot act as Z-Wave network controller and will always need a Z-Wave network controller to be included into a Z-Wave network.

The device can work in different modes and with different functionality, which can be selected by means of various configuration parameters.

- Control of groups of other Z-Wave devices using 'ON', 'OFF' and 'DIM' commands.
- Activation of scenes in Gateways or other Z-Wave devices (configurable scene numbers).
- The LEDs can be controlled in a numbers of ways.

ZHC5002 contains a relay output that allows the module to control a local load. The relay is controllable by means of the modules different buttons or by other Z-Wave devices.

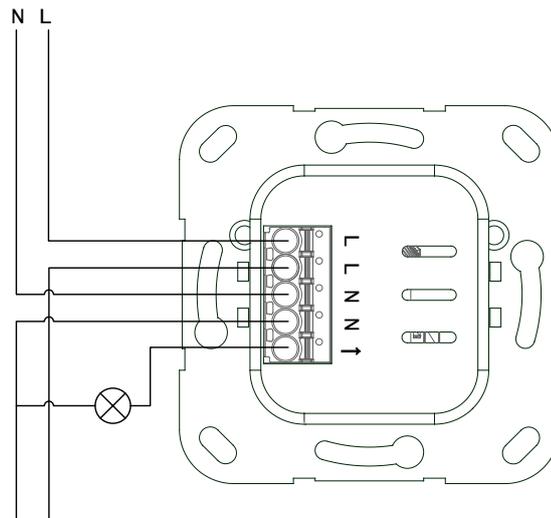
ZHC5002 can act as a Scene Controller by transmitting different Scene Notifications, when the buttons are pressed, long-pressed and double-pressed (the last one requires that House Cleaning Mode isn't disabled).

Installation Guidelines

ATTENTION: only authorized technicians under consideration of the country-specific installation guidelines/norms may do works with 230 Volt mains power. Prior to the assembly of the product, the voltage network has to be switched off and ensured against re-switching.

The ZHC5002 insert is constructed to fit into standard EURO wall boxes (60 mm). To fasten the insert in the wall box, fasten the four screws when the insert has been mounted in to the wall box. When ZHC5002 is installed in the wall box, then the GIRA pushbutton module can mounted by clicking the GIRA module into to ZHC5002 insert. The two screws, which are delivered together with GIRA module, can then be used to fasten the GIRA module.

The schematics below shows how to wire ZHC5002. The two wires from the mains distribution panel are connected to the inserts contacts **N** and **L**. The contact marked with **↑** is for the switched output; internally connected to **L** through the switching relay. Contacts with same markings (**N** and **L**) are internally connected and can be used for cable looping.



Factory Reset

ZHC5002 can be factory reset by pressing the small button inside the module (through the small hole in the plastic cover) for at least 10 seconds.

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 controllers 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.

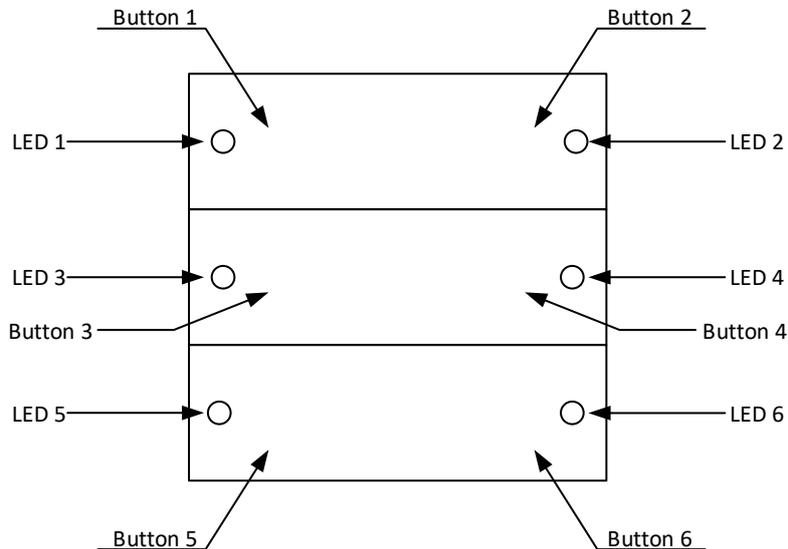
If the device already belongs to a network, follow the remove process before adding it in your network. Otherwise, the adding of this device will fail.

Place your primary controller in Adding Mode by following the manufacturer's instructions, then activate the add mode on the device by triple-clicking the upper left button on the GIRA module, or by triple-clicking the little button inside the module (through the small hole in the plastic cover). The device is removed in the same manner, when the controller is in Removing Mode.

Operating the Device

Depending on the operating modes, configured using the configuration parameters, the 6 buttons can be used in different ways.

Buttons and LEDs:



Multi Channel Mode:

ZHC5002 has support for the **Multi Channel Command Class**, and therefore be seen as seven logical devices by the Z-Wave Controller that supports this; one root device and six Binary Switch devices. Each of the six buttons Binary Switch devices has six Association Groups:

- First group is for the Lifeline group.
- Second group is for **Basic Command Class - Basic Report**.
- Third group is for **Basic Command Class – Basic Set**.
- Fourth group is for **Binary Switch Command Class – Binary Switch Set**.
- Fifth group is for **Binary Toggle Switch Command Class – Binary Toggle Switch Set**.
- Sixth group is for **Multilevel Switch Command Class – Multilevel Switch Set**.

Commands sent to each of the logical devices will be interpreted according to the description in the section: Supporting Command Classes. Commands sent to the root device will be forwarded to device 1.

No Multi Channel Mode:

If the Z-Wave Controller, or the Z-Wave devices that shall be associated to ZHC5002, does not support the **Multi Channel Command Class** (Multichannel encapsulation), then only the association groups in the root device is used. This device will contain all 31 association groups needed to send standard notification commands to the associated Z-Wave nodes when the buttons are used. For further information, see the chapter concerning association groups.

All commands sent to the root device (the only device when not using Multichannel encapsulation), will be interpreted as it was sent to the logical device 1 (button #1). Therefore, if Multichannel encapsulation is NOT used, then it is not possible to send commands to the other five logical devices (buttons #2, #3, #4, #5, #6).

Central Scene Notifications:

ZHC5002 supports Central Scene Command Class and when a button is pressed, held or double-pressed, it will transmit a scene notification. It is possible to configure the scene numbers that will be transmitted through **Central Scene Notification Command Class**; default is scene one transmitted for button #1, scene two for button #2, etc. Central Scene notification commands are sent with corresponding attribute information; when the button is pressed, button is released, button is held and when the button is double-pressed. To disable Central Scene notifications, see configuration parameter #11.

Supporting Command Classes:

Besides the mandatory command classes, ZHC5002 has support for following command classes:

- **Basic Command Class.**

It is possible to send a **Basic Set** command to each of logical devices, by means of the Multichannel encapsulation. When a command is received, it will give the same result as if the corresponding button was activated, according to the **Basic Set** value sent, i.e. the LED will be controlled and the nodes programmed in the association groups will be notified, also a scene notification will be transmitted. A **Basic Set** value of 0x00 (0 decimal) corresponds to a button state OFF, a **Basic Set** value of 0xff (255 decimal) corresponds to a button state ON. It is possible to disable the control of the association groups by means of configuration parameters #19 - #24.

- **Binary Switch Command Class.**

When a **Binary Switch Set** command is received in each of the logical devices, by means of the Multichannel encapsulation, it corresponds to that the logical devices button was activated, the nodes in the association groups will be notified and a scene notification will be transmitted. Furthermore, the LED will be controlled according to the actual state and the LED configuration. It is possible to disable the control of the association groups by means of configuration parameters #19 - #24.

- **Binary Toggle Switch Command Class.**

When a **Binary Switch Toggle Set** command is received in each of the logical devices, by means of the Multichannel encapsulation, it corresponds to that the logical devices button was activated (the state of the logical device will reversed), the nodes in the association groups will be notified and a scene notification will be transmitted. Furthermore, the LED will be controlled according to the actual state and the LED configuration. It is possible to disable the control of the association groups by means of configuration parameters #19 - #24.

- **Multilevel Switch Command Class.**

When a **Multilevel Switch Set** command is received by a logical device, by means of the Multichannel encapsulation, it corresponds to that the button for the logical device was activated; the nodes programmed in the association groups will be notified and scene notification will be transmitted. Furthermore, the LED will be controlled according to actual state and the configuration of the LED. If **Multilevel Switch Start Level Change** or **Multilevel Switch Stop Level Change**

commands are received, then the nodes programmed in association group 4 will be notified with a corresponding Multilevel Start/Stop Level Change command. This can be useful to control several nodes by only sending one command to the wall switch. It is possible to disable the control of the association groups by means of configuration parameters #19 - #24.

- **Indicator Command Class.**

It is possible to control the backlight and the LEDs in each of the logical devices by means of sending different **Indicator Set** commands. ZHC5002 supports **Indicator Command Class** version 2, which also makes it possible to set ON periods and cycles in order to make different indication patterns. A level with value 0 turns off the LED and levels in the range of 1 – 99 turns the LED on. If only the Indicator Command Class is requested to control a LED, then the internal LED handling, in each of the logical devices, can be disabled by means of configuration parameters #4 - #9.

NB! Commands received by the logical root device will be forwarded to logical device #1.

Pair Mode:

The ZHC5002 buttons can be configured to work together in Pair Mode so that the upper two buttons (button #1 and #2), the middle two button (button #3 and #4), and the lower two buttons (button #5 and #6) will work together in pairs. Pair Mode for each of the three paddles (upper paddle, middle paddle and lower paddle) can be configured independently.

In Pair Mode, then when the left side buttons are held, they will send **Multilevel Switch Command Class Start Level Change** – up commands and the right side buttons will send **Multilevel Switch Command Class Start Level Change** – down commands.

For the **Binary Switch Command Class** and **Basic Command Class**; then the left side buttons will send ON commands when they are pressed, and OFF when the right side buttons are pressed.

If Pair Mode is configured for the upper button pair (button #1 and #2), then only the association groups for device 1 (button #1) will be used – device 2 (button #2) association groups will be inactive. Only commands to device 1 will control the switch function, so if it is required to turn off the switch pair, then an off command has to be sent to device 1, as a command sent to device 2 will not have any effect on the switch function (it will only control any associations for device 2).

If Pair Mode is configured for the middle button pair (button #2 and #3), then only the association groups for device 3 (button #3) will be used – device 4 (button #4) association groups will be inactive. Only commands to device 3 will control the switch function, so if it is required to turn off the switch pair, then an off command has to be sent to device 3, as a command sent to device 4 will not have any effect on the switch function (it will only control any associations for device 4).

If Pair Mode is configured for the lower button pair (button #5 and #6), then only the association groups for device 5 (button #5) will be used – device 6 (button #6) association groups will be inactive. Only commands to device 5 will control the switch function, so if it is required to turn off the switch pair, then an off command has to be sent to device 5, as a command sent to device 6 will not have any effect on the switch function (it will only control any associations for device 6).

See configuration parameters #1 - #3.

LED modes:

It is possible to configure the operation of each of the LEDs.

A LED is able to indicate the status of the corresponding button function or, in pair mode, the status for the corresponding paddle function.

Furthermore, it is possible to select inverted functionality, i.e. night mode.

The LEDs can also be configured to only show a short 5 seconds confirmation indication when a button is pressed.

The individual LED is also controllable by other Z-Wave devices by means of sending commands to the **Indicator Command Class**. ZHC5002 supports **Indicator Command Class** version 2 and it is therefore possible to send advanced **Indicator Set** commands with both an activation period and cycles, in order to make different indication patterns.

When **Indicator Set** commands are sent to the root device, then it is possible to control all LEDs and the backlight. ZHC5002 supports following indicator IDs:

ID	Definition	Description
0x30	LCD_BACKLIGHT	Controls the backlight in the GIRA pushbutton module.
0x41	BUTTON1_INDICATION	Controls the light in LED1.
0x42	BUTTON2_INDICATION	Controls the light in LED2.
0x43	BUTTON3_INDICATION	Controls the light in LED3.
0x44	BUTTON4_INDICATION	Controls the light in LED4.
0x45	BUTTON5_INDICATION	Controls the light in LED5.
0x46	BUTTON6_INDICATION	Controls the light in LED6.

And has support for following commands:

Property	Definition	Description
0x02	Binary	Turn indication ON or OFF 0x00 = OFF 0x01 – 0x63, 0xFF = ON
0x03	ON_OFF_PERIOD	The period in seconds of one ON/OFF period 0x00 – 0xFF = 0 - 25,5 seconds.
0x04	ON_OFF_CYCLES	Number of ON_OFF_PERIOD to run 0x00 – 0xFE = 0 – 254 times 0xFF = Run until stopped by binary ON or OFF.

If **Indicator Set** commands are sent to the logical devices (not the root device), then only the LED in the actual device are able to be controlled. Therefore, the backlight can only be controlled by sending **Indicator Set** commands to the root device.

It is also possible to control the backlight by means of **Basic Set** commands to the root device, if configuration parameter #26 is set to “1”.

For the configuration of the internal LED logic, see configuration parameters #4 - #9.

Built-in relay:

The built-in relay is able to be controlled by each of buttons, configurable. Furthermore, the relay can also be controlled by sending Set command to the **Basic Command Class** or **Binary Switch Command Class** for the logical device that controls the relay, see configuration parameter #10.

It is possible to configure the relay to have a short activation of one second, so that it can be used to control impulse relays, see configuration parameter #10.

The state of the relay will be remembered after a power-down or reset situation.

House Cleaning Mode:

In the so-called “House Cleaning Mode”, ZHC5002 is able send a dimming command to set the level of the lights to 100%.

In the standard mode, a double-press on a button will issue a **Multilevel Switch Set** command, with a level value of 100%, to be sent to the nodes in **Multilevel Switch Command Class** association group.

In Pair Mode, when the left button is pressed a second time (first press just sends a **Multilevel Switch Set** on) will send a **Multilevel Switch Set** command with a level value of 100%.

This functionality can be disabled by means of configuration parameter #12.

Node Information Frame

The Node Information Frame is the business card of a Z-Wave device. It contains information about the device type and the technical capabilities. The inclusion and exclusion of the device is confirmed by sending out a Node Information Frame. Beside this, it may be necessary for certain network operations to send out a Node Information Frame.

Triple clicking the button inside the module through a little hole (normally covered by GIRA module) or the upper left button will issue a Node Information Frame.

Associations

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 a common wireless command.

Association Groups (Multi Channel Mode):

When using ZHC5002 in Multi Channel Mode, then the root device is normally not to be used, the communication should be through the six Binary Switch devices (except for the Lifeline).

Association Groups (NOT Multi Channel Mode):

When using ZHC5002 without Multi Channel support, then only one device is seen by the network controller and the associations groups are as follows:

Binary Switch Root Device

Group 1	Lifeline. Max. nodes in group: 1
Group 2	Send Basic Report (On/Off) when button #1 is used. Max. nodes in group: 5
Group 3	Sends Basic Set (On/Off) when button #1 is used. Max. nodes in group: 5
Group 4	Sends Binary Switch Set (On/Off) when button #1 is used. Max. nodes in group: 5
Group 5	Send Binary Toggle Switch Set when button #1 is used. Max. nodes in group: 5
Group 6	Sends Multilevel Switch Set / Multilevel Switch Start Level Change / Multilevel Switch Stop Level Change when button #1 is used. Max. nodes in group: 5
Group 7	Send Basic Report (On/Off) when button #2 is used. Max. nodes in group: 5
Group 8	Sends Basic Set (On/Off) when button #2 is used. Max. nodes in group: 5
Group 9	Sends Binary Switch Set (On/Off) when button #2 is used. Max. nodes in group: 5
Group 10	Send Binary Toggle Switch Set when button #2 is used. Max. nodes in group: 5
Group 11	Sends Multilevel Switch Set / Multilevel Switch Start Level Change / Multilevel Switch Stop Level Change when button #2 is used. Max. nodes in group: 5
Group 12	Send Basic Report (On/Off) when button #3 is used. Max. nodes in group: 5
Group 13	Sends Basic Set (On/Off) when button #3 is used. Max. nodes in group: 5
Group 14	Sends Binary Switch Set (On/Off) when button #3 is used. Max. nodes in group: 5
Group 15	Send Binary Toggle Switch Set when button #3 is used. Max. nodes in group: 5
Group 16	Sends Multilevel Switch Set / Multilevel Switch Start Level Change / Multilevel Switch Stop Level Change when button #3 is used. Max. nodes in group: 5
Group 17	Send Basic Report (On/Off) when button #4 is used. Max. nodes in group: 5
Group 18	Sends Basic Set (On/Off) when button #4 is used.

	Max. nodes in group: 5
Group 19	Sends Binary Switch Set (On/Off) when button #4 is used. Max. nodes in group: 5
Group 20	Send Binary Toggle Switch Set when button #4 is used. Max. nodes in group: 5
Group 21	Sends Multilevel Switch Set / Multilevel Switch Start Level Change / Multilevel Switch Stop Level Change when button #4 is used. Max. nodes in group: 5
Group 22	Send Basic Report (On/Off) when button #5 is used. Max. nodes in group: 5
Group 23	Sends Basic Set (On/Off) when button #5 is used. Max. nodes in group: 5
Group 24	Sends Binary Switch Set (On/Off) when button #5 is used. Max. nodes in group: 5
Group 25	Send Binary Toggle Switch Set when button #5 is used. Max. nodes in group: 5
Group 26	Sends Multilevel Switch Set / Multilevel Switch Start Level Change / Multilevel Switch Stop Level Change when button #5 is used. Max. nodes in group: 5
Group 27	Send Basic Report (On/Off) when button #6 is used. Max. nodes in group: 5
Group 28	Sends Basic Set (On/Off) when button #6 is used. Max. nodes in group: 5
Group 29	Sends Binary Switch Set (On/Off) when button #6 is used. Max. nodes in group: 5
Group 30	Send Binary Toggle Switch Set when button #6 is used. Max. nodes in group: 5
Group 31	Sends Multilevel Switch Set / Multilevel Switch Start Level Change / Multilevel Switch Stop Level Change when button #6 is used. Max. nodes in group: 5

Setting and Removing Associations

Associations can be assigned and removed via Z-Wave commands.

ZHC5002 Included secure.

When ZHC5002 is included secure in a controller/gateway, then all commands sent to devices in the ZHC5002 association groups will be sent secure (encrypted). If the receiving device is NOT included secure, or isn't able to interpret secure commands, then ZHC5002 contain configuration parameters where it is possible to set that commands for an association group shall be sent non-secure. See configuration parameters #27 - #32.

These configuration parameters are made as a bit patterns, for each logical device, where a bit in the pattern represent an association group. Bit number 1 (first bit) represent association group 1, bit number 2 represent association group 2, etc.

So, as an example; If it is required that the **Multilevel Switch Command Class** commands to devices in association group 6 shall be sent non-secure for logical device 2, then configuration parameter #28 must be set to the hexadecimal value 20 (0x20), i.e. bit number 6 is set, decimal value 32.

Parameter	Definition	Description
27	Non-secure commands for devices in logical device 1 association groups.	0x00 = No commands are sent non-secure. 0x01 = Not used 0x02 = Basic Report is sent non-secure 0x04 = Basic Set is sent non-secure 0x08 = Binary Switch Set is sent non-secure. 0x10 = Binary Toggle Switch Set is sent non-secure 0x20 = Multilevel Switch commands are sent non-secure
28	Non-secure commands for devices in logical device 2 association groups.	0x00 = No commands are sent non-secure. 0x01 = Not used 0x02 = Basic Report is sent non-secure 0x04 = Basic Set is sent non-secure 0x08 = Binary Switch Set is sent non-secure. 0x10 = Binary Toggle Switch Set is sent non-secure 0x20 = Multilevel Switch commands are sent non-secure
29	Non-secure commands for devices in logical device 3 association groups.	0x00 = No commands are sent non-secure. 0x01 = Not used 0x02 = Basic Report is sent non-secure 0x04 = Basic Set is sent non-secure 0x08 = Binary Switch Set is sent non-secure. 0x10 = Binary Toggle Switch Set is sent non-secure 0x20 = Multilevel Switch commands are sent non-secure

30	Non-secure commands for devices in logical device 4 association groups.	0x00 = No commands are sent non-secure. 0x01 = Not used 0x02 = Basic Report is sent non-secure 0x04 = Basic Set is sent non-secure 0x08 = Binary Switch Set is sent non-secure. 0x10 = Binary Toggle Switch Set is sent non-secure 0x20 = Multilevel Switch commands are sent non-secure
31	Non-secure commands for devices in logical device 5 association groups.	0x00 = No commands are sent non-secure. 0x01 = Not used 0x02 = Basic Report is sent non-secure 0x04 = Basic Set is sent non-secure 0x08 = Binary Switch Set is sent non-secure. 0x10 = Binary Toggle Switch Set is sent non-secure 0x20 = Multilevel Switch commands are sent non-secure
32	Non-secure commands for devices in logical device 6 association groups.	0x00 = No commands are sent non-secure. 0x01 = Not used 0x02 = Basic Report is sent non-secure 0x04 = Basic Set is sent non-secure 0x08 = Binary Switch Set is sent non-secure. 0x10 = Binary Toggle Switch Set is sent non-secure 0x20 = Multilevel Switch commands are sent non-secure

The bit patterns can be combined by adding them together, if several groups require that command are sent non-secure.

Configuration Parameters

Z-Wave products are supposed to work *out of the box* after inclusion, however certain configuration of a device can alter the functionality to better serve the users needs or unlock further enhanced features.

Parameter Number 1, Parameter Size 1. Upper paddle buttons mode.

Configuration of Pair Mode for the upper two buttons (button #1 and #2).

Value Description

- 0 Separate mode (toggle mode). (Default)
- 1 In pair mode, left side sends on/up commands, right side sends off/down commands.

Parameter Number 2, Parameter Size 1. Middle paddle buttons mode.

Configuration of Pair Mode for the middle two buttons (button #3 and #4).

Value Description

- 0 Separate mode (toggle mode). (Default)
- 1 In pair mode, left side sends on/up commands, right side sends off/down commands.

Parameter Number 3, Parameter Size 1. Lower paddle buttons mode.

Configuration of Pair Mode for the lower two buttons (button #5 and #6).

Value Description

- 0 Separate mode (toggle mode). (Default)
- 1 In pair mode, left side sends on/up commands, right side sends off/down commands.

Parameter Number 4, Parameter Size 1. LED #1 mode.

Configuration of the internal operation of LED #1.

Value Description

- 0 LED indication is disabled (LED can be controlled by **Indicator Command Class Set** commands).
- 1 LED indicates the status of the corresponding button. (Default)
- 2 LED indicates the status of the corresponding button, with inverted indication.
- 3 LED indicates the status of corresponding paddle (in pair mode).
- 4 LED indicates the status of the corresponding paddle (in pair mode), with inverted indication.
- 5 LED indicates the status of the built-in relay.
- 6 LED indicates the status of the built-in relay, with inverted indication.
- 7 LED show a 5 seconds indication when the corresponding button is pressed.
- 8 LED indication is disabled, it is only controlled by **Command Class Basic Set** commands.

Parameter Number 5, Parameter Size 1. LED #2 mode.

Configuration of the internal operation of LED #2.

Value Description

- 0 LED indication is disabled (LED can be controlled by **Indicator Command Class Set** commands).
- 1 LED indicates the status of the corresponding button. (Default)
- 2 LED indicates the status of the corresponding button, with inverted indication.
- 3 LED indicates the status of corresponding paddle (in pair mode).
- 4 LED indicates the status of the corresponding paddle (in pair mode), with inverted indication.
- 5 LED indicates the status of the built-in relay.
- 6 LED indicates the status of the built-in relay, with inverted indication.
- 7 LED show a 5 seconds indication when the corresponding button is pressed.
- 8 LED indication is disabled, it is only controlled by **Command Class Basic Set** commands.

Parameter Number 6, Parameter Size 1. LED #3 mode.

Configuration of the internal operation of LED #3.

Value Description

- 0 LED indication is disabled (LED can be controlled by **Indicator Command Class Set** commands).
- 1 LED indicates the status of the corresponding button. (Default)
- 2 LED indicates the status of the corresponding button, with inverted indication.
- 3 LED indicates the status of corresponding paddle (in pair mode).
- 4 LED indicates the status of the corresponding paddle (in pair mode), with inverted indication.
- 5 LED indicates the status of the built-in relay.
- 6 LED indicates the status of the built-in relay, with inverted indication.
- 7 LED show a 5 seconds indication when the corresponding button is pressed.
- 8 LED indication is disabled, it is only controlled by Command Class Basic Set commands.

Parameter Number 7, Parameter Size 1. LED #4 mode.

Configuration of the internal operation of LED #4.

Value Description

- 0 LED indication is disabled (LED can be controlled by **Indicator Command Class Set** commands).
- 1 LED indicates the status of the corresponding button. (Default)
- 2 LED indicates the status of the corresponding button, with inverted indication.
- 3 LED indicates the status of corresponding paddle (in pair mode).
- 4 LED indicates the status of the corresponding paddle (in pair mode), with inverted indication.
- 5 LED indicates the status of the built-in relay.
- 6 LED indicates the status of the built-in relay, with inverted indication.
- 7 LED show a 5 seconds indication when the corresponding button is pressed.
- 8 LED indication is disabled, it is only controlled by Command Class Basic Set commands.

Parameter Number 8, Parameter Size 1. LED #5 mode.

Configuration of the internal operation of LED #5.

Value Description

- 0 LED indication is disabled (LED can be controlled by **Indicator Command Class Set** commands).
- 1 LED indicates the status of the corresponding button. (Default)
- 2 LED indicates the status of the corresponding button, with inverted indication.
- 3 LED indicates the status of corresponding paddle (in pair mode).
- 4 LED indicates the status of the corresponding paddle (in pair mode), with inverted indication.
- 5 LED indicates the status of the built-in relay.
- 6 LED indicates the status of the built-in relay, with inverted indication.
- 7 LED show a 5 seconds indication when the corresponding button is pressed.
- 8 LED indication is disabled, it is only controlled by Command Class Basic Set commands.

Parameter Number 9, Parameter Size 1. LED #6 mode.

Configuration of the internal operation of LED #6.

Value Description

- 0 LED indication is disabled (LED can be controlled by **Indicator Command Class Set** commands).
- 1 LED indicates the status of the corresponding button. (Default)
- 2 LED indicates the status of the corresponding button, with inverted indication.
- 3 LED indicates the status of corresponding paddle (in pair mode).
- 4 LED indicates the status of the corresponding paddle (in pair mode), with inverted indication.
- 5 LED indicates the status of the built-in relay.
- 6 LED indicates the status of the built-in relay, with inverted indication.
- 7 LED show a 5 seconds indication when the corresponding button is pressed.
- 8 LED indication is disabled, it is only controlled by Command Class Basic Set commands.

Parameter Number 10, Parameter Size 1. Relay mode.

This parameter configures which of the buttons that shall control the built-in relay, or if the relay only will be activated for one second, each time button #1 is used.

Value Description

- 0 Relay is disabled.
- 1 Relay is controlled by button #1 or by upper paddle when pair mode is active. (Default)
- 2 Relay is controlled by button #2 or by upper paddle when pair mode is active.
- 3 Relay is controlled by button #3 or by middle paddle when pair mode is active.
- 4 Relay is controlled by button #4 or by middle paddle when pair mode is active.
- 5 Relay is controlled by button #5 or by lower paddle when pair mode is active.
- 6 Relay is controlled by button #6 or by lower paddle when pair mode is active.
- 5 Relay is activated for one second and is controlled by button #1 or by upper paddle when pair mode is active.

Parameter Number 11, Parameter Size 1. Disable Central Scene notification.

Disables or enables the sending of Central Scene notifications.

Value Description

- | | |
|---|--|
| 0 | Central Scene notifications are enabled. (Default) |
| 1 | Central Scene notifications are disabled. |

Parameter Number 12, Parameter Size 1. Disable House Cleaning Mode.

Disable or enables that a double-press on a button will send a command to activate 100% light.

Value Description

- | | |
|---|--|
| 0 | House Cleaning Mode is enabled (Default) |
| 1 | House Cleaning Mode is disabled; double-press button scene notifications will be disabled too. |

Parameter Number 13, Parameter Size 4. Multilevel Switch on single press for device 1 (button #1)

Configuration of the initial ON or OFF values sent to an associated Multilevel Switch device when button # 1 is activated.

Value Description**Byte 1: Enable / Disable**

- | | |
|---|---|
| 0 | Disabled – When single pressing the button, nodes associated to group 6 won't be switched. |
| 1 | Enabled – When single pressing the button, nodes associated to group 6 will be switched between the configured upper and lower switch values. (Default) |

Byte 2: Upper switch value

- | | |
|-------------|---|
| 0 – 99, 255 | When single pressing the button for ON, a Multilevel Switch Set with this value will be send to devices in association group 6. (Default = 255) |
|-------------|---|

Byte 3: Lower switch value

- | | |
|--------|--|
| 0 - 99 | When single pressing the button for OFF, a Multilevel Switch Set with this value will be send to devices in association group 6. (Default = 0) |
|--------|--|

Byte 4: Not used – must be set to 0.

Parameter Number 14, Parameter Size 4. Multilevel Switch on single press for device 2 (button #2)

Configuration of the initial ON or OFF values sent to an associated Multilevel Switch device when button # 2 is activated.

Value Description**Byte 1: Enable / Disable**

- | | |
|---|---|
| 0 | Disabled – When single pressing the button, nodes associated to group 6 won't be switched. |
| 1 | Enabled – When single pressing the button, nodes associated to group 6 will be switched between the configured upper and lower switch values. (Default) |

Byte 2: Upper switch value

- | | |
|-------------|---|
| 0 – 99, 255 | When single pressing the button for ON, a Multilevel Switch Set with this value will be send to devices in association group 6. (Default = 255) |
|-------------|---|

Byte 3: Lower switch value

- | | |
|--------|--|
| 0 - 99 | When single pressing the button for OFF, a Multilevel Switch Set with this value will be send to devices in association group 6. (Default = 0) |
|--------|--|

Byte 4: Not used – must be set to 0.

Parameter Number 15, Parameter Size 4. Multilevel Switch on single press for device 3 (button #3)

Configuration of the initial ON or OFF values sent to an associated Multilevel Switch device when button # 3 is activated.

Value Description**Byte 1: Enable / Disable**

- | | |
|---|---|
| 0 | Disabled – When single pressing the button, nodes associated to group 6 won't be switched. |
| 1 | Enabled – When single pressing the button, nodes associated to group 6 will be switched between the configured upper and lower switch values. (Default) |

Byte 2: Upper switch value

- | | |
|-------------|---|
| 0 – 99, 255 | When single pressing the button for ON, a Multilevel Switch Set with this value will be send to devices in association group 6. (Default = 255) |
|-------------|---|

Byte 3: Lower switch value

- | | |
|--------|--|
| 0 - 99 | When single pressing the button for OFF, a Multilevel Switch Set with this value will be send to devices in association group 6. (Default = 0) |
|--------|--|

Byte 4: Not used – must be set to 0.

Parameter Number 16, Parameter Size 4. Multilevel Switch on single press for device 4 (button #4)

Configuration of the initial ON or OFF values sent to an associated Multilevel Switch device when button # 4 is activated.

Value Description**Byte 1: Enable / Disable**

- | | |
|---|---|
| 0 | Disabled – When single pressing the button, nodes associated to group 6 won't be switched. |
| 1 | Enabled – When single pressing the button, nodes associated to group 6 will be switched between the configured upper and lower switch values. (Default) |

Byte 2: Upper switch value

- | | |
|-------------|---|
| 0 – 99, 255 | When single pressing the button for ON, a Multilevel Switch Set with this value will be send to devices in association group 6. (Default = 255) |
|-------------|---|

Byte 3: Lower switch value

- | | |
|--------|--|
| 0 - 99 | When single pressing the button for OFF, a Multilevel Switch Set with this value will be send to devices in association group 6. (Default = 0) |
|--------|--|

Byte 4: Not used – must be set to 0.

Parameter Number 17, Parameter Size 4. Multilevel Switch on single press for device 5 (button #5)

Configuration of the initial ON or OFF values sent to an associated Multilevel Switch device when button # 5 is activated.

Value Description**Byte 1: Enable / Disable**

- | | |
|---|---|
| 0 | Disabled – When single pressing the button, nodes associated to group 6 won't be switched. |
| 1 | Enabled – When single pressing the button, nodes associated to group 6 will be switched between the configured upper and lower switch values. (Default) |

Byte 2: Upper switch value

- | | |
|-------------|---|
| 0 – 99, 255 | When single pressing the button for ON, a Multilevel Switch Set with this value will be send to devices in association group 6. (Default = 255) |
|-------------|---|

Byte 3: Lower switch value

- | | |
|--------|--|
| 0 - 99 | When single pressing the button for OFF, a Multilevel Switch Set with this value will be send to devices in association group 6. (Default = 0) |
|--------|--|

Byte 4: Not used – must be set to 0.

Parameter Number 18, Parameter Size 4. Multilevel Switch on single press for device 6 (button #6)

Configuration of the initial ON or OFF values sent to an associated Multilevel Switch device when button # 6 is activated.

Value Description**Byte 1: Enable / Disable**

- | | |
|---|---|
| 0 | Disabled – When single pressing the button, nodes associated to group 6 won't be switched. |
| 1 | Enabled – When single pressing the button, nodes associated to group 6 will be switched between the configured upper and lower switch values. (Default) |

Byte 2: Upper switch value

- | | |
|-------------|---|
| 0 – 99, 255 | When single pressing the button for ON, a Multilevel Switch Set with this value will be send to devices in association group 6. (Default = 255) |
|-------------|---|

Byte 3: Lower switch value

- | | |
|--------|--|
| 0 - 99 | When single pressing the button for OFF, a Multilevel Switch Set with this value will be send to devices in association group 6. (Default = 0) |
|--------|--|

Byte 4: Not used – must be set to 0.

Parameter Number 19, Parameter Size 1. Control of association groups for device 1 (button #1)

Enable or disable if received commands are relayed to the nodes in the association groups.

Value Description

- | | |
|---|--|
| 0 | When commands are received by device 1, nodes in the association groups will <u>not</u> be switched, button activations will still send switch values. |
| 1 | When commands are received by device 1, nodes in the association groups will be switched. (Default) |

Parameter Number 20, Parameter Size 1. Control of association groups for device 2 (button #2)

Enable or disable if received commands are relayed to the nodes in the association groups.

Value Description

- | | |
|---|--|
| 0 | When commands are received by device 2, nodes in the association groups will <u>not</u> be switched, button activations will still send switch values. |
| 1 | When commands are received by device 2, nodes in the association groups will be switched. (Default) |

Parameter Number 21, Parameter Size 1. Control of association groups for device 3 (button #3)

Enable or disable if received commands are relayed to the nodes in the association groups.

Value Description

- | | |
|---|--|
| 0 | When commands are received by device 3, nodes in the association groups will <u>not</u> be switched, button activations will still send switch values. |
| 1 | When commands are received by device 3, nodes in the association groups will be switched. (Default) |

Parameter Number 22, Parameter Size 1. Control of association groups for device 4 (button #4)
 Enable or disable if received commands are relayed to the nodes in the association groups.

Value Description

- 0 When commands are received by device 4, nodes in the association groups will not be switched, button activations will still send switch values.
- 1 When commands are received by device 4, nodes in the association groups will be switched. (Default)

Parameter Number 23, Parameter Size 1. Control of association groups for device 5 (button #5)
 Enable or disable if received commands are relayed to the nodes in the association groups.

Value Description

- 0 When commands are received by device 5, nodes in the association groups will not be switched, button activations will still send switch values.
- 1 When commands are received by device 5, nodes in the association groups will be switched. (Default)

Parameter Number 24, Parameter Size 1. Control of association groups for device 6 (button #6)
 Enable or disable if received commands are relayed to the nodes in the association groups.

Value Description

- 0 When commands are received by device 6, nodes in the association groups will not be switched, button activations will still send switch values.
- 1 When commands are received by device 6, nodes in the association groups will be switched. (Default)

Parameter Number 25, Parameter Size 1. Backlight control.
 Configuration of backlight control.

Value Description

- 0 Backlight is only controlled by **Indicator Command Class** – commands send to endpoint 0.
- 1 Backlight is turned on for 5 seconds when a button is pressed. (Default)

Parameter Number 26, Parameter Size 1. Basic Set for endpoint 0.
 Enable or disable that Basic Set commands to the root device will be able to control the backlight.

Value Description

- 0 Basic Set commands to endpoint 0 is forwarded to endpoint 1 (Default).
- 1 Basic Set commands to endpoint 0 controls backlight (on/off).

Parameter Number 27, Parameter Size 1. Non-secure commands for AG in logical device 1.

Specifies that commands to devices in the association groups for logical device 1 is sent non-secure. This parameter is only relevant if ZHC5002 is included secure. See chapter regarding ZHC5002 included secure.

Value	Description
0	No commands are sent non-secure.
0x01	Not used.
0x02	Basic Report is sent non-secure.
0x04	Basic Set is sent non-secure.
0x08	Binary Switch Set is sent non-secure.
0x10	Binary Toggle Switch Set is sent non-secure.
0x20	Multilevel Switch commands are sent non-secure.

Parameter Number 28, Parameter Size 1. Non-secure commands for AG in logical device 2.

Specifies that commands to devices in the association groups for logical device 2 is sent non-secure. This parameter is only relevant if ZHC5002 is included secure. See chapter regarding ZHC5002 included secure.

Value	Description
0	No commands are sent non-secure.
0x01	Not used.
0x02	Basic Report is sent non-secure.
0x04	Basic Set is sent non-secure.
0x08	Binary Switch Set is sent non-secure.
0x10	Binary Toggle Switch Set is sent non-secure.
0x20	Multilevel Switch commands are sent non-secure.

Parameter Number 29, Parameter Size 1. Non-secure commands for AG in logical device 3.

Specifies that commands to devices in the association groups for logical device 3 is sent non-secure. This parameter is only relevant if ZHC5002 is included secure. See chapter regarding ZHC5002 included secure.

Value	Description
0	No commands are sent non-secure.
0x01	Not used.
0x02	Basic Report is sent non-secure.
0x04	Basic Set is sent non-secure.
0x08	Binary Switch Set is sent non-secure.
0x10	Binary Toggle Switch Set is sent non-secure.
0x20	Multilevel Switch commands are sent non-secure.

Parameter Number 30, Parameter Size 1. Non-secure commands for AG in logical device 4.

Specifies that commands to devices in the association groups for logical device 4 is sent non-secure. This parameter is only relevant if ZHC5002 is included secure. See chapter regarding ZHC5002 included secure.

Value	Description
0	No commands are sent non-secure.
0x01	Not used.
0x02	Basic Report is sent non-secure.
0x04	Basic Set is sent non-secure.
0x08	Binary Switch Set is sent non-secure.
0x10	Binary Toggle Switch Set is sent non-secure.
0x20	Multilevel Switch commands are sent non-secure.

Parameter Number 31, Parameter Size 1. Non-secure commands for AG in logical device 5.

Specifies that commands to devices in the association groups for logical device 5 is sent non-secure. This parameter is only relevant if ZHC5002 is included secure. See chapter regarding ZHC5002 included secure.

Value	Description
0	No commands are sent non-secure.
0x01	Not used.
0x02	Basic Report is sent non-secure.
0x04	Basic Set is sent non-secure.
0x08	Binary Switch Set is sent non-secure.
0x10	Binary Toggle Switch Set is sent non-secure.
0x20	Multilevel Switch commands are sent non-secure.

Parameter Number 32, Parameter Size 1. Non-secure commands for AG in logical device 6.

Specifies that commands to devices in the association groups for logical device 6 is sent non-secure. This parameter is only relevant if ZHC5002 is included secure. See chapter regarding ZHC5002 included secure.

Value	Description
0	No commands are sent non-secure.
0x01	Not used.
0x02	Basic Report is sent non-secure.
0x04	Basic Set is sent non-secure.
0x08	Binary Switch Set is sent non-secure.
0x10	Binary Toggle Switch Set is sent non-secure.
0x20	Multilevel Switch commands are sent non-secure.

Command Classes

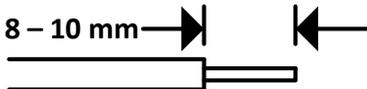
Supported Command Classes

- Association (version 2)
- Association Group Information (version 1)
- Multi Channel Association (version 2)
- Version (version 2)
- Security (version 1)
- Configuration (version 1)
- Manufacturer Specific (version 2)
- Z-Wave Plus Information (version 2)
- Device Reset Locally (version 1)
- Multilevel Switch (version 1)
- Powerlevel (version 1)
- Firmware Update (version 2)
- Multi Channel (version 4)
- Basic (version 2)
- Binary Switch (version 1)
- Binary Toggle Switch (version 1)
- Multi Level Switch (version 4)
- Indicator (version 2)
- Central Scene (version 2)

Controlled Command Classes

- Basic (version 2)
- Binary Switch (version 1)
- Binary Toggle Switch (version 1)
- Multilevel Switch (version 4)

Technical Data

Power Supply	230V 50 Hz
Power Consumption	0.8 W / 0.3 W standby
Attachable Load	1000 W resistive / 200 VA inductive
Fuse	T5A (not replaceable by customer)
Wire sizes	0.25 ... 2.5 mm ² / 24 ... 12 AWG
Stripping length	
Micro-gap	μ
Approvals	CE EN 50491-3: 2009 EN 60669-2: 2004
Explorer Frame Support	Yes
SDK	6.61.00
Device Type	Slave with routing capabilities
Generic Device Class	Binary Switch
Specific Device Class	Binary Power Switch
Routing	Yes
FLiRS	No
Security	Yes, S0
Firmware Version	2.01

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 bringing 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 is able to communicate.
- **Node Information Frame** — is a special wireless message issued by a Z-Wave device to announce its capabilities and functions.

Disposal Guidelines

Do not dispose of electrical appliances as unsorted municipal waste, use separate collection facilities. Contact your local government for information regarding the collection systems available. If electrical appliances are disposed of in landfills or dumps, hazardous substances can leak into the groundwater and get into the food chain, damaging your health and well-being.