

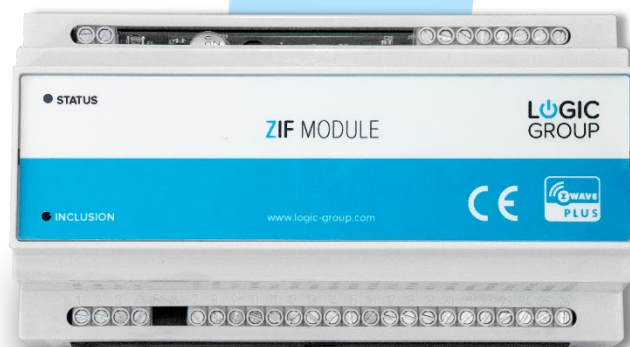


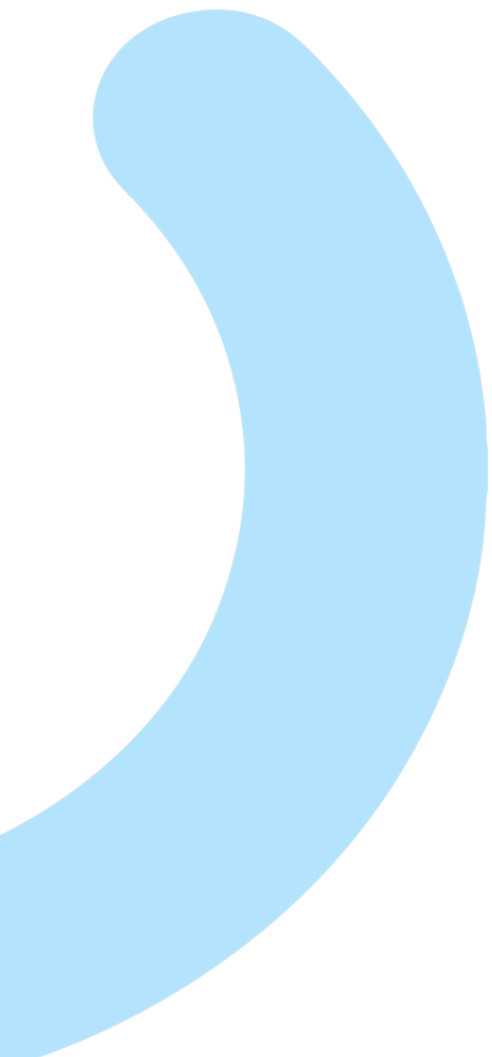
# ZIF5030

## Interface for Automation Systems

Z-Wave DIN-rail module Type ZIF5030

Installation Guide and User's Manual





Logic Group A/S

Theilgaards Allé 7

DK-4600 Køge

+45 7060 2080

[info@logic-group.com](mailto:info@logic-group.com)

[www.logic-group.com](http://www.logic-group.com)

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## 1 Product description

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ZIF5030 Z-Wave DIN rail module, is a module that clips right onto a DIN rail to add a variety of functions to your wireless Z-Wave network.

ZIF5030 is equipped with 10 relay outputs and 4 multi-purpose inputs, and a Z-Wave radio for interfacing to the wireless Z-Wave network. The module can be power supplied from a 230V AC mains connection and is able to deliver an output supply of 24V DC.

ZIF5030 relay outputs can be freely controlled from the Z-Wave network, and can be used for several purposes, e.g. on/off control of light, control of valve actuators for an underfloor heating system, or control of other home automation systems.

ZIF5030 inputs can be configured to function as either digital inputs or as analogue inputs for interfacing simple temperature sensors; NTC, PT1000, etc. When the inputs are used as digital inputs, they can be connected to potential free contacts, open-collector outputs, and will be able to control other Z-Wave devices; switches, dimmers, etc.

It is possible to configure the level- and the indication of the status indicator LED in the front of the ZIF5030 module.

## 2 Installation guidelines

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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.

Use the following procedure to install ZIF5030:

1. Use a flat object (such as a flat-head screwdriver) to pull the DIN rail release tab downward.
2. Place the top of the ZIF5030 rail mount over the top of the DIN rail.
3. Tilt the bottom of the ZIF5030 toward the DIN rail until it snaps into place.

NOTE: When mounting DIN rail products, use a flat-head screwdriver to pull the DIN rail release tab while snapping the device onto the DIN rail.

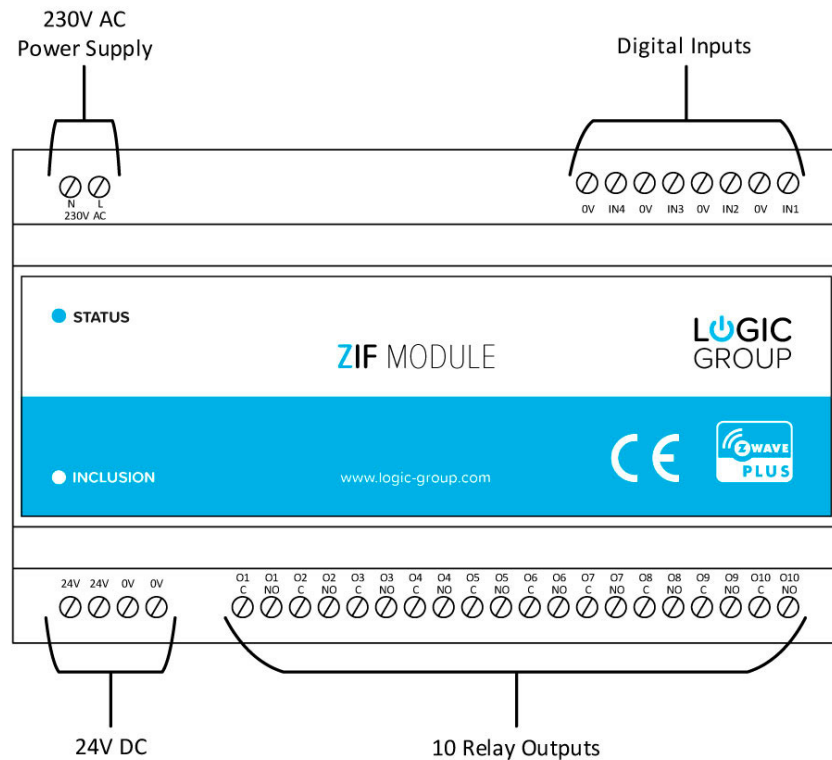
Make any necessary connections to the device and apply power after all connections have been made.

### 2.1 Preparing and Connecting Wires

When making connections, strip the ends of the wires approximately 6 mm. Use care to avoid nicking the conductors. Tighten the connector to 0.5 Nm. The wire gauge should be 12 to 30 AWG.

## 2.2 Connections

In the drawing below the different module connections are shown.



### 2.2.1 230V AC Power Supply

Terminals for connecting the 230V AC mains power supply. The module has an internal fuse that can be replaced by opening the cover of the module, please see Technical Specification section for which type of fuses that can be used.

### 2.2.2 Analog/Digital Inputs

Terminals for the 4 analogue / digital inputs.

### 2.2.3 24V DC Supply Outputs

Terminals for the 24V DC power supply output that can be used to be switched through the relay outputs.

### 2.2.4 Relay Outputs

Terminals for the 10 relay outputs, with 2 screw terminals for each output, a Common and Normally Open terminal.

## 2.3 Inputs

The inputs of ZIF5030 is designed to be used as either a digital- or an analogue input, the type is selected by means of configuration parameters. See configuration parameter 10, 20, 30 and 40.

When an input is configured as digital input, it can be used for controlling other Z-Wave devices by means of transmitting different command class messages. See the association groups for the input devices.

The trigger level of the digital input can be configured to either be level-, positive edge- or negative edge triggered.

When an input is configured as analogue input, it can be used for measuring temperatures by connecting different kind of temperature sensors to the input. Currently PT1000 and different kind of NTC temperature sensors are supported.

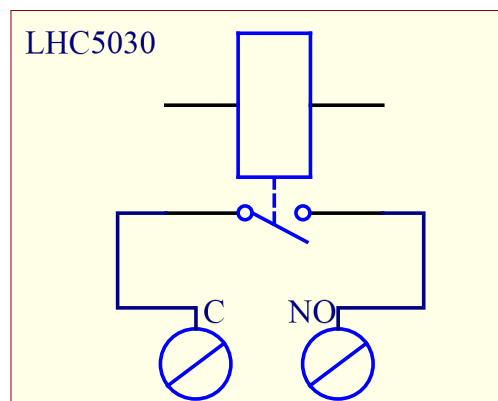
When a NTC sensor is used, then the characteristics of the NTC sensor must be supplied in the configuration parameters for the actual input. This information is requested:

- *The nominal temperature for the NTC sensor (typically 25°C).*
- *The resistance at the nominal temperature (for example 10,000 Ohm).*
- *The Beta (25/85) constant for the NTC sensor (for example 3,977).*

When these parameters are supplied in the configuration parameters for the input, then the input will be able to be used as a temperature measuring input, and the sensor devices in ZIF5030 will be able to report the temperatures as Multilevel Sensor values.

## 2.4 Relay Outputs

ZIF5030 relay outputs are Normally-Open relay contact outputs, that can be used to switch the supply voltage to different kind of loads, see the technical specification for types of supported loads.

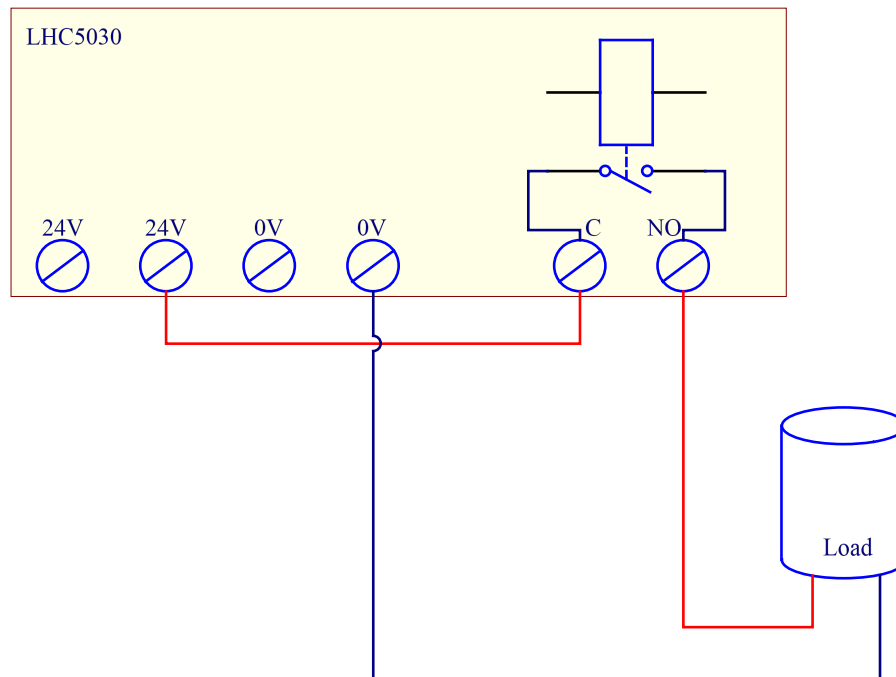


Above schematic outlines how the relay outputs are implemented internally.

## 2.5 24V DC Output

ZIF5030 is supplied with a 24V DC output that can be used for supplying power to the loads that can be connected to relay outputs. The supply can, for example be used for powering 24V valve actuators.

See the section with technical specifications for the performance of the 24V power supply.



Above schematic outlines an example of how the 24V supply output, together with a relay output, can be used to control a load.

### 3 Behaviour within the Z-Wave Network

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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. Place your primary controller in Adding Mode by following the manufacturer's instructions, then activate the add mode on the device by clicking the small button through the little hole, marked with the text "INCLUSION", in front of the ZIF5030 module. The Adding Mode is indicated by ZIF5030 status LED is blinking until a timeout occurs after 10 seconds or if the module has been added to the Z-Wave network.

The device is removed in the same manner, when the controller is put into Removing Mode.

### 4 Factory Reset

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ZIF5030 can be factory reset by pressing the small button through the little hole, marked with the text "INCLUSION", in front of the ZIF5030 module for at least 10 seconds.

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

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From a Controller's point of view, ZIF5030 will consists of a root device and 18 endpoint devices - if the Controller is supporting Multichannel devices, otherwise is only the root device seen by the Controller (endpoint 0).

The devices are:

- *Root device; an intersection of all the devices (endpoint 0).*
- *10 switch devices to control each of the relay outputs (endpoint 1 – 10).*
- *4 switch devices representing the digital inputs (endpoint 11 – 14).*
- *4 sensor devices representing the analogue inputs (endpoint 15 – 18).*

Below is an overview of all the devices and the association groups for each device.

The first number in the association group number indicates the group number for actual device, and the second number is the group number on the root device (endpoint 0).

### Device 1 (*endpoint 1*)

#### Relay output 1

Group 1 / 1

*Lifeline.* Lifeline group for the entire module.

Max. nodes in the group: 1

Group 2 / 2

Sends **Basic Report On / Off** when relay output 1 is activated.

This group is typically used for reporting the actual status of the output to the Controller in order for the Controller to visualize the output in its user interface.

Max. nodes in the group: 5

### Device 2 (*endpoint 2*)

#### Relay output 2

Group 1 / -

*Lifeline.*

Max. nodes in the group: 0

Group 2 / 3

Sends **Basic Report On / Off** when relay output 2 is activated.

This group is typically used for reporting the actual status of the output to the Controller in order for the Controller to visualize the output in its user interface.

Max. nodes in the group: 5

### Device 3 (*endpoint 3*)

#### Relay output 3

Group 1 / -

*Lifeline.*

Max. nodes in the group: 0

Group 2 / 4 Sends **Basic Report On / Off** when relay output 3 is activated.  
This group is typically used for reporting the actual status of the output to the Controller in order for the Controller to visualize the output in its user interface.  
Max. nodes in the group: 5

**Device 4 (endpoint 4)****Relay output 4**

Group 1 / - *Lifeline.*  
Max. nodes in the group: 0

Group 2 / 5 Sends **Basic Report On / Off** when relay output 4 is activated.  
This group is typically used for reporting the actual status of the output to the Controller in order for the Controller to visualize the output in its user interface.  
Max. nodes in the group: 5

**Device 5 (endpoint 5)****Relay output 5**

Group 1 / - *Lifeline.*  
Max. nodes in the group: 0

Group 2 / 6 Sends **Basic Report On / Off** when relay output 5 is activated.  
This group is typically used for reporting the actual status of the output to the Controller in order for the Controller to visualize the output in its user interface.  
Max. nodes in the group: 5

**Device 6 (endpoint 6)****Relay output 6**

Group 1 / - *Lifeline.*  
Max. nodes in the group: 0

Group 2 / 7 Sends **Basic Report On / Off** when relay output 6 is activated.  
This group is typically used for reporting the actual status of the output to the Controller in order for the Controller to visualize the output in its user interface.  
Max. nodes in the group: 5

**Device 7 (endpoint 7)****Relay output 7**

Group 1 / - *Lifeline.*  
Max. nodes in the group: 0

Group 2 / 8 Sends **Basic Report On / Off** when relay output 7 is activated.  
This group is typically used for reporting the actual status of the output to the Controller in order for the Controller to visualize the output in its user interface.  
Max. nodes in the group: 5

**Device 8 (endpoint 8)****Relay output 8**

Group 1 / - *Lifeline.*  
Max. nodes in the group: 0

Group 2 / 9 Sends **Basic Report On / Off** when relay output 8 is activated.  
This group is typically used for reporting the actual status of the output to the Controller in order for the Controller to visualize the output in its user interface.  
Max. nodes in the group: 5

**Device 9 (endpoint 9)****Relay output 9**

Group 1 / - *Lifeline.*  
Max. nodes in the group: 0

Group 2 / 10 Sends **Basic Report On / Off** when relay output 9 is activated.  
This group is typically used for reporting the actual status of the output to the Controller for the Controller to visualize the output in its user interface.  
Max. nodes in the group: 5

**Device 10 (endpoint 10)****Relay output 10**

Group 1 / - *Lifeline.*  
Max. nodes in the group: 0

Group 2 / 11 Sends **Basic Report On / Off** when relay output 10 is activated.  
This group is typically used for reporting the actual status of the output to the Controller in order for the Controller to visualize the output in its user interface.  
Max. nodes in the group: 5

**Device 11 (endpoint 11)****Digital input 1**

Group 1 / - *Lifeline.*  
Max. nodes in the group: 0

Group 2 / 12 Sends **Basic Report On / Off** when input 1 is activated.

This group is typically used for reporting the actual status of the input to the Controller for the Controller to visualize the input in its user interface.

Max. nodes in the group: 5

Group 3 / 13

Sends **Basic Set On / Off** when input 1 is activated.

Can be used for controlling other Z-Wave devices, e.g. relay modules.

Max. nodes in the group: 5

Group 5 / 14

Sends **Multilevel Switch Set / Multilevel Switch Start Level Change / Multilevel Switch Stop Level Change** when input 1 is activated.

Is typically used for controlling light dimmers, curtain controllers, etc.

Max. nodes in the group: 5

#### Device 12 (endpoint 12)

#### Digital input 2

Group 1 / -

*Lifeline.*

Max. nodes in the group: 0

Group 2 / 15

Sends **Basic Report On / Off** when input 2 is activated.

This group is typically used for reporting the actual status of the input to the Controller for the Controller to visualize the input in its user interface.

Max. nodes in the group: 5

Group 3 / 16

Sends **Basic Set On / Off** when input 2 is activated.

Can be used for controlling other Z-Wave devices, e.g. relay modules.

Max. nodes in the group: 5

Group 5 / 17

Sends **Multilevel Switch Set / Multilevel Switch Start Level Change / Multilevel Switch Stop Level Change** when input 2 is activated.

Is typically used for controlling light dimmers, curtain controllers, etc.

Max. nodes in the group: 5

#### Device 13 (endpoint 13)

#### Digital input 3

Group 1 / -

*Lifeline.*

Max. nodes in the group: 0

Group 2 / 18

Sends **Basic Report On / Off** when input 3 is activated.

This group is typically used for reporting the actual status of the input to the Controller for the Controller to visualize the input in its user interface.

Max. nodes in the group: 5

Group 3 / 19

Sends **Basic Set On / Off** when input 3 is activated.

Can be used for controlling other Z-Wave devices, e.g. relay modules.

Max. nodes in the group: 5

Group 5 / 20	Sends <b>Multilevel Switch Set / Multilevel Switch Start Level Change / Multilevel Switch Stop Level Change</b> when input 3 is activated. Is typically used for controlling light dimmers, curtain controllers, etc. Max. nodes in the group: 5
<b>Device 14 (endpoint 14)</b>	
Group 1 / -	<b>Digital input 4</b> <i>Lifeline.</i> Max. nodes in the group: 0
Group 2 / 21	Sends <b>Basic Report On / Off</b> when input 4 is activated. This group is typically used for reporting the actual status of the input to the Controller for the Controller to visualize the input in its user interface. Max. nodes in the group: 5
Group 3 / 22	Sends <b>Basic Set On / Off</b> when input 4 is activated. Can be used for controlling other Z-Wave devices, e.g. relay modules. Max. nodes in the group: 5
Group 5 / 23	Sends <b>Multilevel Switch Set / Multilevel Switch Start Level Change / Multilevel Switch Stop Level Change</b> when input 4 is activated. Is typically used for controlling light dimmers, curtain controllers, etc. Max. nodes in the group: 5
<b>Device 15 (endpoint 15)</b>	
Group 1 / -	<b>Analog input 1</b> <i>Lifeline.</i> Max. nodes in the group: 0
Group 2 / 24	Sends <b>Multilevel Sensor Report</b> for input 1 when it is configured as a temperature sensor input. Max. nodes in the group: 5
<b>Device 16 (endpoint 16)</b>	
Group 1 / -	<b>Analog input 2</b> <i>Lifeline.</i> Max. nodes in the group: 0
Group 2 / 25	Sends <b>Multilevel Sensor Report</b> for input 2 when it is configured as a temperature sensor input. Max. nodes in the group: 5
<b>Device 17 (endpoint 17)</b>	
Group 1 / -	<b>Analog input 3</b> <i>Lifeline.</i>

Max. nodes in the group: 0

Group 2 / 26

Sends **Multilevel Sensor Report** for input 3 when it is configured as a temperature sensor input.

Max. nodes in the group: 5

**Device 18 (endpoint 18)**

**Analog input 4**

Group 1 / -

*Lifeline.*

Max. nodes in the group: 0

Group 2 / 27

Sends **Multilevel Sensor Report** for input 4 when it is configured as a temperature sensor input.

Max. nodes in the group: 5

## 6 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 configuration of a device can alter the functionality to better serve the needs of the user's or unlock further enhanced features.

### Parameter 1, Parameter size 1 byte. Status LED.

Configuration of the status LED.

#### **Value Description**

- |   |  |
|---|--|
| 0 | LED turned off.                            |
| 1 | LED turned on. (Default)                   |
| 2 | LED flashing at 1 second intervals (½ Hz). |
| 3 | LED flashing at ½ second interval (1 Hz).  |

### Parameter 2, Parameter size 1 byte. Status LED brightness level.

Configure the percentage of light in the status LED, when the LED is turned on

#### **Value Description**

0 - 100 Specifies the brightness level of the LED when it is on. Default is 50.

### Parameter 3, Parameter size 1 byte. Loop voltage on input 1.

Can be used to turn off the loop voltage on input 1.

#### **Value Description**

- |   |                                   |
|---|-----------------------------------|
| 0 | Loop voltage turned off.          |
| 1 | Loop voltage turned on. (Default) |

### Parameter 4, Parameter size 1 byte. Loop voltage on input 2.

Can be used to turn off the loop voltage on input 2.

#### **Value Description**

- |   |                                   |
|---|-----------------------------------|
| 0 | Loop voltage turned off.          |
| 1 | Loop voltage turned on. (Default) |

### Parameter 5, Parameter size 1 byte. Loop voltage on input 3.

Can be used to turn off the loop voltage on input 3.

#### **Value Description**

- |   |                                   |
|---|-----------------------------------|
| 0 | Loop voltage turned off.          |
| 1 | Loop voltage turned on. (Default) |

Parameter 6, Parameter size 1 byte. Loop voltage on input 4.

Can be used to turn off the loop voltage on input 4.

**Value Description**

- |   |                                   |
|---|-----------------------------------|
| 0 | Loop voltage turned off.          |
| 1 | Loop voltage turned on. (Default) |

Parameter 7, Parameter size 2 bytes. Loop voltage used in analogue calculations.

Configures the actual loop voltage that is used for the calculation of measured impedances.

**Value Description**

- |           |   |
|-----------|---|
| 0 – 1,000 | 0 – 10.00V, the internal voltage that is applied to the internal resistor network in order to measure the external input resistance. This parameter is only used for calibration and is rarely to be changed. (Default value is 865). |
|-----------|---|

Parameter 10, Parameter size 1 byte. Input mode for input 1.

Configures the functionality of input 1, digital or analogue input.

**Value Description**

- |   |   |
|---|---|
| 0 | Input disabled.   |
| 1 | Mode 1, Level controlled digital input. (Default)       |
| 2 | Mode 2, trailing edge triggered digital input.          |
| 3 | Mode 3, <b>leading edge triggered digital input.</b>    |
| 4 | Mode 4, input used as analogue input, see parameter 11. |

Parameter 11, Parameter size 1 byte. Analogue input type for input 1.

Configures the type of thermistor connected to input 1.

**Value Description**

- |   |   |
|---|---|
| 0 | PT100 thermistor. <b>NOT RECOMMENDED.</b>       |
| 1 | PT1000 thermistor.                              |
| 2 | N/A   |
| 3 | NTC thermistor, see parameter 12 -14. (Default) |

Parameter 12, Parameter size 2 bytes. Nominal resistance for NTC on input 1.

Configures the nominal resistance at the nominal temperature (parameter 13) for the NTC thermistor connected to input 1.

**Value Description**

- |            |  |
|------------|--|
| 0 – 65,535 | 0 – 65,535 Ohm. Default value is 10,000 which is equivalent to a 10K Ohm NTC thermistor. |
|------------|--|



Parameter 13, Parameter size 1 byte. Nominal temperature for NTC on input 1.

Configures the nominal temperature at the nominal resistance (parameter 12) for the NTC thermistor connected to input 1.

Value	Description
0 – 255	0 – 255°C. Default value is 25 which is equivalent to 25°C.

Parameter 14, Parameter size 2 bytes. Beta coefficient for NTC on input 1.

Configures the Beta constant for the NTC thermistor connected to input 1. Standard values are usually in the range of 3000 – 4000.

Value	Description
0 – 65,535	0 – 65,535. Default value is 3,977 which is equivalent to the 10KOhm NTC thermistor from TEWA with part number: TT02-10KC3-93D-3000R-TPH.

Parameter 15, Parameter size 1 byte. Temperature offset on input 1.

Configures a temperature offset that can be added to the measured temperature in order to get a more accurate measurement from the thermistor on input 1.

Value	Description
-127 – 128	-12.7 – 12.8°C. Value is added to the temperature measurement. (Default is 0).

Parameter 16, Parameter size 2 bytes. Time interval for reports sent about input 1.

Configures the time interval between when sensor reports are transmitted for input 1.

Value	Description
0 – 65,535	0 – 65,535 seconds. Default value is 300 which will cause reports to be sent every 5 minutes.

Parameter 17, Parameter size 1 byte. Input gain for input 1.

Configures a gain amplifier for the input stage on input 1.

**DO NOT CHANGE THIS, UNLESS INSTRUCTED BY LOGIC HOME CONTROL.**

Value	Description
0	Factor 1 amplification.
1	Factor 2 amplification.
2	Factor 4 amplification.
3	Factor 5 amplification.
4	Factor 8 amplification.
5	Factor 10 amplification.
6	Factor 16 amplification.
7	Factor 32 amplification.
255	Automatic gain tuning. (Default)

Parameter 18, Parameter size 1 byte. Internal offset voltage for input 1.

Configures an input stage offset voltage for input 1.

**DO NOT CHANGE THIS, UNLESS INSTRUCTED BY LOGIC HOME CONTROL.**

Value	Description
0 - 255	Results in an internal offset voltage between 0 - 2.45V. (Default is 0).

Parameter 20, Parameter size 1 byte. Input mode for input 2.

Configures the functionality of input 2, digital or analogue input.

Value	Description
0	Input disabled.
1	Mode 1, Level controlled digital input. (Default)
2	Mode 2, trailing edge triggered digital input.
3	Mode 3, leading edge triggered digital input.
4	Mode 4, input used as analogue input, see parameter 21.

Parameter 21, Parameter size 1 byte. Analogue input type for input 2.

Configures the type of thermistor connected to input 2.

Value	Description
0	PT100 thermistor. <b>NOT RECOMMENDED.</b>
1	PT1000 thermistor.
2	N/A
3	NTC thermistor, see parameter 22 - 24. (Default)

Parameter 22, Parameter size 2 bytes. Nominal resistance for NTC on input 2.

Configures the nominal resistance at the nominal temperature (parameter 23) for the NTC thermistor connected to input 2.

Value	Description
0 – 65,535	0 – 65,535 Ohm. Default value is 10,000 which is equivalent to a 10K Ohm NTC thermistor.

Parameter 23, Parameter size 1 byte. Nominal temperature for NTC on input 2.

Configures the nominal temperature at the nominal resistance (parameter 22) for the NTC thermistor connected to input 2.

Value	Description
0 – 255	0 – 255°C. Default value is 25 which is equivalent to 25°C.

Parameter 24, Parameter size 2 bytes. Beta coefficient for NTC on input 2.

Configures the Beta constant for the NTC thermistor connected to input 2. Standard values are usually in the range of 3000 – 4000.

Value	Description
0 – 65,535	0 – 65,535. Default value is 3,977 which is equivalent to the 10KOhm NTC thermistor from TEWA with part number: TT02-10KC3-93D-3000R-TPH.

Parameter 25, Parameter size 1 byte. Temperature offset on input 2.

Configures a temperature offset that can be added to the measured temperature in order to get a more accurate measurement from the thermistor on input 2.

Value	Description
-127 – 128	-12.7 – 12.8°C. Value is added to the temperature measurement. (Default is 0).

Parameter 26, Parameter size 2 bytes. Time interval for reports sent about input 2.

Configures the time interval between when sensor reports are transmitted for input 2.

Value	Description
0 – 65,535	0 – 65,535 seconds. Default value is 300 which will cause reports to be sent every 5 minutes.

Parameter 27, Parameter size 1 byte. Input gain for input 2.

Configures a gain amplifier for the input stage on input 2.

**DO NOT CHANGE THIS, UNLESS INSTRUCTED BY LOGIC HOME CONTROL.**

Value	Description
0	Factor 1 amplification.
1	Factor 2 amplification.
2	Factor 4 amplification.
3	Factor 5 amplification.
4	Factor 8 amplification.
5	Factor 10 amplification.
6	Factor 16 amplification.
7	Factor 32 amplification.
255	Automatic gain tuning. (Default)

Parameter 28, Parameter size 1 byte. Internal offset voltage for input 2.

Configures an input stage offset voltage for input 2.

**DO NOT CHANGE THIS, UNLESS INSTRUCTED BY LOGIC HOME CONTROL.**

Value	Description
0 - 255	Results in an internal offset voltage between 0 - 2.45V. (Default is 0).

Parameter 30, Parameter size 1 byte. Input mode for input 3.

Configures the functionality of input 3, digital or analogue input.

Value	Description
0	Input disabled.
1	Mode 1, Level controlled digital input. (Default)
2	Mode 2, trailing edge triggered digital input.
3	Mode 3, leading edge triggered digital input.
4	Mode 4, input used as analogue input, see parameter 31.

Parameter 31, Parameter size 1 byte. Analogue input type for input 3.

Configures the type of thermistor connected to input 3.

Value	Description
0	PT100 thermistor. <b>NOT RECOMMENDED.</b>
1	PT1000 thermistor.
2	N/A
3	NTC thermistor, see parameter 32 - 34. (Default)

Parameter 32, Parameter size 2 bytes. Nominal resistance for NTC on input 3.

Configures the nominal resistance at the nominal temperature (parameter 33) for the NTC thermistor connected to input 3.

Value	Description
0 – 65,535	0 – 65,535 Ohm. Default value is 10,000 which is equivalent to a 10K Ohm NTC thermistor.

Parameter 33, Parameter size 1 byte. Nominal temperature for NTC on input 3.

Configures the nominal temperature at the nominal resistance (parameter 32) for the NTC thermistor connected to input 3.

Value	Description
0 – 255	0 – 255°C. Default value is 25 which is equivalent to 25°C.

Parameter 34, Parameter size 2 bytes. Beta coefficient for NTC on input 3.

Configures the Beta constant for the NTC thermistor connected to input 3. Standard values are usually in the range of 3000 – 4000.

Value	Description
0 – 65,535	0 – 65,535. Default value is 3,977 which is equivalent to the 10KOhm NTC thermistor from TEWA with part number: TT02-10KC3-93D-3000R-TPH.

Parameter 35, Parameter size 1 byte. Temperature offset on input 3.

Configures a temperature offset that can be added to the measured temperature in order to get a more accurate measurement from the thermistor on input 3.

Value	Description
-127 – 128	-12.7 – 12.8°C. Value is added to the temperature measurement. (Default is 0).

Parameter 36, Parameter size 2 bytes. Time interval for reports sent about input 3.

Configures the time interval between when sensor reports are transmitted for input 3.

**Value      Description**

0 – 65,535    0 – 65,535 seconds. Default value is 300 which will cause reports to be sent every 5 minutes.

Parameter 37, Parameter size 1 byte. Input gain for input 3.

Configures a gain amplifier for the input stage on input 3.

**DO NOT CHANGE THIS, UNLESS INSTRUCTED BY LOGIC HOME CONTROL.**

**Value      Description**

0	Factor 1 amplification.
1	Factor 2 amplification.
2	Factor 4 amplification.
3	Factor 5 amplification.
4	Factor 8 amplification.
5	Factor 10 amplification.
6	Factor 16 amplification.
7	Factor 32 amplification.
255	Automatic gain tuning. (Default)

Parameter 38, Parameter size 1 byte. Internal offset voltage for input 3.

Configures an input stage offset voltage for input 3.

**DO NOT CHANGE THIS, UNLESS INSTRUCTED BY LOGIC HOME CONTROL.**

**Value      Description**

0 - 255      Results in an internal offset voltage between 0 - 2.45V. (Default is 0).

Parameter 40, Parameter size 1 byte. Input mode for input 4.

Configures the functionality of input 4, digital or analogue input.

**Value      Description**

0	Input disabled.
1	Mode 1, Level controlled digital input. (Default)
2	Mode 2, trailing edge triggered digital input.
3	Mode 3, leading edge triggered digital input.
4	Mode 4, input used as analogue input, see parameter 41.

Parameter 41, Parameter size 1 byte. Analogue input type for input 4.

Configures the type of thermistor connected to input 4.

Value	Description
0	PT100 thermistor. <b>NOT RECOMMENDED.</b>
1	PT1000 thermistor.
2	N/A
3	NTC thermistor, see parameter 42 -44. (Default)

Parameter 42, Parameter size 2 bytes. Nominal resistance for NTC on input 4.

Configures the nominal resistance at the nominal temperature (parameter 43) for the NTC thermistor connected to input 4.

Value	Description
0 – 65,535	0 – 65,535 Ohm. Default value is 10,000 which is equivalent to a 10K Ohm NTC thermistor.

Parameter 43, Parameter size 1 byte. Nominal temperature for NTC on input 4.

Configures the nominal temperature at the nominal resistance (parameter 42) for the NTC thermistor connected to input 4.

Value	Description
0 – 255	0 – 255°C. Default value is 25 which is equivalent to 25°C.

Parameter 44, Parameter size 2 bytes. Beta coefficient for NTC on input 4.

Configures the Beta constant for the NTC thermistor connected to input 4. Standard values are usually in the range of 3000 – 4000.

Value	Description
0 – 65,535	0 – 65,535. Default value is 3,977 which is equivalent to the 10KOhm NTC thermistor from TEWA with part number: TT02-10KC3-93D-3000R-TPH.

Parameter 45, Parameter size 1 byte. Temperature offset on input 4.

Configures a temperature offset that can be added to the measured temperature in order to get a more accurate measurement from the thermistor on input 4.

Value	Description
-127 – 128	-12.7 – 12.8°C. Value is added to the temperature measurement. (Default is 0).

Parameter 46, Parameter size 2 bytes. Time interval for reports sent about input 4.

Configures the time interval between when sensor reports are transmitted for input 4.

**Value Description**

0 – 65,535 0 – 65,535 seconds. Default value is 300 which will cause reports to be sent every 5 minutes.

Parameter 47, Parameter size 1 byte. Input gain for input 4.

Configures a gain amplifier for the input stage on input 4.

**DO NOT CHANGE THIS, UNLESS INSTRUCTED BY LOGIC HOME CONTROL.**

**Value Description**

0	Factor 1 amplification.
1	Factor 2 amplification.
2	Factor 4 amplification.
3	Factor 5 amplification.
4	Factor 8 amplification.
5	Factor 10 amplification.
6	Factor 16 amplification.
7	Factor 32 amplification.
255	Automatic gain tuning. (Default)

Parameter 48, Parameter size 1 byte. Internal offset voltage for input 4.

Configures an input stage offset voltage for input 4.

**DO NOT CHANGE THIS, UNLESS INSTRUCTED BY LOGIC HOME CONTROL.**

**Value Description**

0 - 255 Results in an internal offset voltage between 0 - 2.45V. (Default is 0).

Parameter 50, Parameter size 1 byte. De-bounce timer for digital inputs.

Configures the timer that decides when an input is latched as a stable input (contact de-bounce filter).

**Value Description**

0 - 255 Resolution is in 10 milliseconds, 10 means 100ms. (Default is 5 = 50 milliseconds)



Parameter 51, Parameter size 1 byte. Button pressed timer for digital inputs.

Configures the time that a contact on an input has to be short-circuited in order to be detected as button-press – used for level triggered digital inputs, see parameters 10, 20, 30 and 40.

**Value Description**

0 – 255 Resolution is in 10 milliseconds, 10 means 100ms. (Default is 20 = 200 milliseconds)

Parameter 52, Parameter size 1 byte. Button held timer for digital inputs.

Configures the time that a contact on an input has to be short-circuited in order to be detected as button-held – used for level triggered digital inputs, see parameters 10, 20, 30 and 40.

**Value Description**

0 - 255 Resolution is in 10 milliseconds, 10 means 100ms. (Default is 50 = 500 milliseconds)

Parameter 53, Parameter size 1 byte. Activate Central Scene notifications.

Configures that Central Scene notifications is sent when the inputs are configured as digital inputs and are activated.

**Value Description**

0 Central Scene notifications is turned off. (Default)

1 Central Scene notifications is turned on.

## 7 Command Classes

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Supported Command Classes.

- *Association (version 2)*
- *Association Group Information (version 1)*
- *Multi Channel Association (version 2)*
- *Version (version 2)*
- *Configuration (version 3)*
- *Manufacturer Specific (version 2)*
- *Z-Wave Plus Information (version 2)*
- *Device Reset Locally (version 1)*
- *Powerlevel (version 1)*
- *Firmware Update (version 4)*
- *Multi Channel (version 3)*
- *Security (version 1)*
- *Security 2 (version 1)*
- *Basic (version 2)*
- *Multilevel Sensor (version 5)*

Controlled Command Classes

- *Basic (version 2)*
- *Multilevel Switch (version 4)*
- *Central Scene (version 2)*
- *Multilevel Sensor (version 5)*

## 8 Technical Specifications

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Power supply	100V-240V AC 50/60Hz
Fuse	3.15A Quick-Acting, UMF 250 Schurter Inc., part no.: 3405.0171.11
24V DC output	Maximum 1.17A, 28W
Relay outputs	Rated carry current: 5A Max. switching voltage: 250V AC, 30V DC Max. switching current: 5A Max. load: 5A at 250V AC (1,250W), 5A at 30V DC (150W)
24V DC output	Max. load: 1.1 A (25W)
Inputs	Max. input voltage: 10V DC Input impedance: 10K Ohm Loop output voltage: 5V DC
Connection terminals	Solid wire: 30-12 AWG / 0.05-3.31 mm <sup>2</sup> Stranded wire: 30-12 AWG / 0.05-3.31 mm <sup>2</sup> Torque: 4 Lb. In / 0.5 Nm Wire stripe length: 6 mm Screw: M2.5
Power consumption	0.6 W standby
Radio protocol	Z-Wave®: EU 868.4MHz – 500 Series.
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
Z-Wave Plus	Yes
Firmware Version	0.5