HEATIT
Z-DIN 616

Installation- and user manual

01.01.2018

DIN-rail module

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Ver 2018-C

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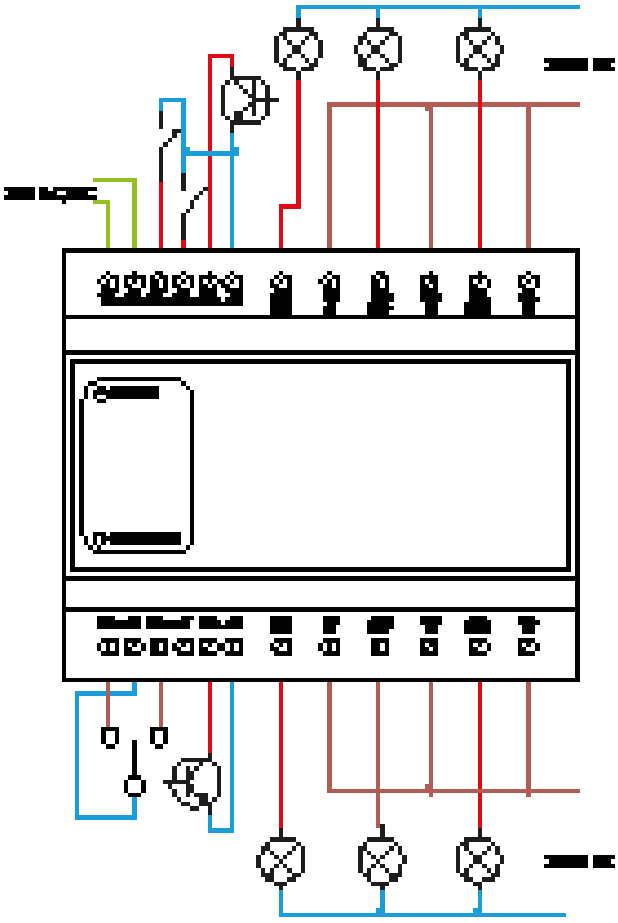
1. PRODUCT DESCRIPTION

The Heatit Z-DIN 616, which is built upon the wireless Z-Wave communication protocol, has 6 relay driven outputs and 6 digital inputs. The unit is a multi-purpose Z-Wave I/O module, which can be used for many applications. E.g. Heatit Z-DIN 616 provides the possibility to control other systems via the Z-Wave network, by utilizing the 6 outputs as a kind of hand-over function to another automation system.

The relay outputs, which can be controlled from the Z-Wave network, is suitable for switching up to 6 pcs. 230Vac loads. In connection with simultaneous connection to SELV (Safety Extra Low Voltage) and 230Vac power circuits for relay outputs, relays must be considered as two groups, where the first group includes output 1 to 3 and the second group includes the outputs 4 to 6. This ensures complete separation between the SELV and 230Vac circuits. If one of the relays in the group is connected to a SELV circuit, the remaining outputs are not allowed to be connected to 230Vac or another circuit which is not a SELV circuit. For example, the relay outputs of the Heatit Z-DIN 616 module can be used to control the 230Vac power supply outlet, making it possible to turn on and disconnect the electrical outlets directly through the Z-Wave network. For safety reasons, however, it is recommended not to use the Heatit Z-DIN 616 to plug electrical outlets that are normally used for hazardous tools and machinery.

The 6 digital inputs of the Heatit Z-DIN 616 are useful for various purposes, where potential-free contacts, or Open Collector outputs, can be connected. The inputs can be configured to different trigger modes; leading edge, trailing edge or level triggered. The Heatit Z-DIN 616's inputs can be programmed to control other Z-Wave devices when the inputs are activated, by sending Z-Wave commands over the Z-Wave network to e.g. Z-Wave relay modules, dimmer units etc. Heatit Z-DIN 616 allows sending different types of Z-Wave commands by utilizing the different association groups for the 6 inputs. In addition, the Heatit Z-DIN 616 also acts as a repeater, thus extending the range of the Z-Wave network. By default, the Heatit Z-DIN 616's inputs and outputs are set to operate as toggle-relays. Input 1 controls the output 1, input 2 controls the output 2, etc. This functionality can be modified via the configuration parameters 3-8 and 13-18

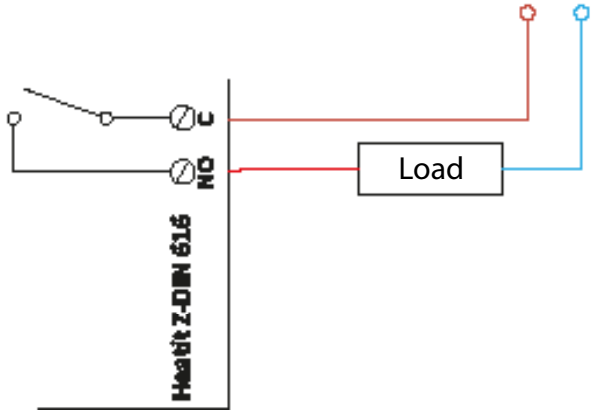
2. MOUNTING



The Heatit Z-DIN 616 must be connected to a 24 Volt AC or DC power supply via the terminals labeled "Vin". The polarity is of no importance. The supply must be dimensioned to allow the supplied module with enough power to enable all relays to be activated. Regarding power consumption: see the technical details section.

2.1. Relay Outputs

The 6 outputs of the Heatit Z-DIN 616 module consist of 1-pole SPST connectors (Single-Pole Single-Throw).



As default the outputs are configured to be controlled by its corresponding input (output 1 is controlled by input 1, etc.).
This functionality is changeable via configuration parameter 13 to 18.

2.2. Inputs

The digital inputs of the Heatit Z-DIN 616 module can be connected to different types of control signals - switches, relays, open-collector outputs, etc.

The inputs IN1, IN2, IN3, IN4, IN5 and IN6 which operates as active low, are pr. default pulled up to 3V DC and must be pulled low in order to work, by mounting e.g. a contact between [IN1..IN6] and 0V. The inputs can be configured to different trigger functions using configuration parameters 3 to 8. The default setup of the inputs is switching between the modes on/off, or off/on the leading edge of the input signal, i.e. on each activation of the input, the mode will change (toggle relay function).

3. FACTORY RESET

Heatit Z-DIN 616 can be reset to factory settings, i.e. all configurations and device address will be reset to default settings.
The device must then be reconnected to the Z-Wave network.

Resetting is performed by activating the small pushbutton marked "INCLUSION" located on the front for at least 10 seconds until the LED flashes briefly. E.g. slide a needle pin or a toothpick through the small hole to activate the pushbutton.

This procedure only applies to cases where the primary network controller is not available or not operational.

4. Z-WAVE NETWORK ENROLLMENT

Upon delivery, the Heatit Z-DIN 616 module has not been enrolled into any Z-Wave network. In order to communicate with other devices in the Z-Wave network, Heatit Z-DIN 616 must be enrolled in the network. This process is called to include the device in the Z-Wave network. Devices can also be removed from the Z-Wave network if they are to be used in another installation. This is called to exclude the device from the Z-Wave network.
Both processes are initiated by setting the central network controls in either inclusion or exclusion mode. Please refer to the network controller's manual how to set the central controls in either inclusion or exclusion mode.
Then, the inclusion mode / exclusion mode on the Heatit Z-DIN 616 device is activated by pressing the small button through the hole in the front of the module, marked "INCLUSION", after which the status LED will start flashing.

IF THE DEVICE ALREADY BELONGS TO A NETWORK, THE DEVICE MUST BE EXCLUDED BEFORE IT CAN BE INCLUDED IN THE CURRENT NETWORK, OTHERWISE THE INCLUSION PROCESS WILL FAIL.

5. ASSOCIATION GROUPS

Heatit Z-DIN 616 consists of 12 virtual devices (endpoints), as well as a basic virtual device; I.e. basic device (root device or endpoint 0), as well as 12 sub devices (endpoint 1 to 12). The base device is used by the Controllers which does not support Multichannel communication, hence providing a very limited use of this module. The 12 endpoints consist of 6 devices for controlling module outputs and 6 units for reporting module inputs. Shown below is an overview of the various association groups for each individual unit. 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 (END POINT 1)	**RELAY OUTPUT 1**
Group 1 / 1	Lifeline. Lifeline group for the entire module. 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 to let the Controller visualize the output in its user interface. Max. nodes in the group: 1
DEVICE 2 (END POINT 2)	**RELAY OUTPUT 2**
Group 1 / -	Lifeline. Lifeline group for the entire module. 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 to let the Controller visualize the output in its user interface. Max. nodes in the group: 1
DEVICE 3 (END POINT 3)	**RELAY OUTPUT 3**
Group 1 / -	Lifeline. Lifeline group for the entire module. 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 to let the Controller visualize the output in its user interface. Max. nodes in the group: 1
DEVICE 4 (ENDPOINT 4)	**RELAY OUTPUT 4**
Group 1 / -	Lifeline. Lifeline group for the entire module. 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 to let the Controller visualize the output in its user interface. Max. nodes in the group: 1
DEVICE 5 (ENDPOINT 5)	**RELAY OUTPUT 5**
Group 1 / -	Lifeline. Lifeline group for the entire module. 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 to let the Controller visualize the output in its user interface. Max. nodes in the group: 1
DEVICE 6 (ENDPOINT 6)	**RELAY OUTPUT 6**
Group 1 / -	Lifeline. Lifeline group for the entire module. 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 to let the Controller visualize the output in its user interface Max. nodes in the group: 1
DEVICE 7 (ENDPOINT 7)	**DIGITAL INPUT 1**
Group 1 / -	Lifeline. Sends **Basic Report On / Off** when input 1 is activated. Max. nodes in the group: 1

Group 2 / 2	Sends **Basic Set On / Off** when input 1 is activated. For example, used to control relay modules or for visualization in the central controller unit (e.g., Fibaro Home Center). Max. nodes in the group: 5
Group 3 / 3	Sends **Binary Switch Set On / Off** when input 1 is activated. For example, used to control relay modules. Max. nodes in the group: 5
Group 4 / 4	Sends **Multilevel Switch Set / Multilevel Switch Start Level Change / Multilevel Switch Stop Level Change** when input 1 is activated. Typically used to control dimmers, curtain controls, etc. Max. Number of units in the group: 5
DEVICE 8 (ENDPOINT 8)	**DIGITAL INPUT 2**
Group 1 / -	Lifeline. Sends **Basic Report On / Off** when input 2 is activated. Max. Number of units in the group: 1
Group 2 / 5	Sends **Basic Set On / Off** when input 2 is activated. For example, used to control relay modules or for visualization in the central controller unit (E.g. Fibaro Home Center). Max. Number of units in the group: 5
Group 3 / 6	Sends **Binary Switch Set On / Off** when input 2 is activated. For example, used to control relay modules. Max. Number of units in the group: 5
Group 4 / 7	Sends **Multilevel Switch Set / Multilevel Switch Start Level Change / Multilevel Switch Stop Level Change** when input 2 is activated. Typically used to control dimmers, curtain controls, etc. Max. Number of units in the group: 5
DEVICE 9 (ENDPOINT 9)	**DIGITAL INPUT 9**
Group 1 / -	Lifeline. Sends **Basic Report On / Off** when input 3 is activated. Max. Number of units in the group: 1
Group 2 / 8	Sends **Basic Set On / Off** when input 3 is activated. For example, used to control relay modules or for visualization in the central controller unit (E.g. Fibaro Home Center). Max. Number of units in the group: 5
Group 3 / 9	Sends **Binary Switch Set On / Off** when input 3 is activated. For example, used to control relay modules. Max. Number of units in the group: 5
Group 4 / 10	Sends **Multilevel Switch Set / Multilevel Switch Start Level Change / Multilevel Switch Stop Level Change** when input 3 is activated. Typically used to control dimmers, curtain controls, etc. Max. Number of units in the group: 5
DEVICE 10 (ENDPOINT 10)	**DIGITAL INPUT 4**
Group 1 / -	Lifeline. Sends **Basic Report On / Off** when input 4 is activated. Max. Number of units in the group: 1
Group 2 / 11	Sends **Basic Set On / Off** when input 4 is activated. For example, used to control relay modules or for visualization in the central controller unit (E.g. Fibaro Home Center). Max. Number of units in the group: 5
Group 3 / 12	Sends **Binary Switch Set On / Off** when input 4 is activated. For example, used to control relay modules. Max. Number of units in the group: 5
Group 4 / 13	Sends **Multilevel Switch Set / Multilevel Switch Start Level Change / Multilevel Switch Stop Level Change** when input 4 is activated. Typically used to control dimmers, curtain controls, etc. Max. Number of units in the group: 5
DEVICE 11 (ENDPOINT 11)	**DIGITAL INPUT 5**
Group 1 / -	Lifeline. Sends **Basic Report On / Off** when input 5 is activated. Max. Number of units in the group: 1
Group 2 / 14	Sends **Basic Set On / Off** when input 5 is activated. For example, used to control relay modules or for visualization in the central controller unit (E.g. Fibaro Home Center). Max. Number of units in the group: 5
Group 3 / 15	Sends **Binary Switch Set On / Off** when input 5 is activated. For example, used to control relay modules. Max. Number of units in the group: 5

Group 4 / 16	Sends **Multilevel Switch Set / Multilevel Switch Start Level Change / Multilevel Switch Stop Level Change** when input 5 is activated. Typically used to control dimmers, curtain controls, etc. Max. Number of units in the group: 5
DEVICE 12 (END POINT 12	**DIGITAL INPUT 6**
Group 1 / -	Lifeline. Sends **Basic Report On / Off** when input 6 is activated. Max. Number of units in the group: 1
Group 2 / 17	Sends **Basic Set On / Off** when input 6 is activated. For example, used to control relay modules or for visualization in the central controller unit (E.g. Fibaro Home Center). Max. Number of units in the group: 5
Group 3 / 18	Sends **Binary Switch Set On / Off** when input 6 is activated. For example, used to control relay modules. Max. Number of units in the group: 5
Group 4 / 19	Sends **Multilevel Switch Set / Multilevel Switch Start Level Change / Multilevel Switch Stop Level Change** when input 6 is activated. Typically used to control dimmers, curtain controls, etc. Max. Number of units in the group: 5

6. CONFIGURATION PARAMETERS

Z-Wave devices should be able to work directly after they have been included in the Z-Wave network, but by use of different configuration parameters, the device functionality can be changed to better match individual wishes or needs, as well as allow for additional features.

Parameter 1, Parameter size: 1 byte. Status of LED.

This parameter can be used to change the mode of the front-mounted status LED.

VALUE	DESCRIPTION
0	The LED is Off.
1	The LED is steadily lit-up. (Standard)
2	The LED flashes in 1 second interval (1 Hz).
3	The LED flashes in 1/2 second interval (1/2 Hz).

Parameter 2, Parameter size: 1 byte. Brightness of status LED.

Determines the brightness of the status LED.

VALUE	DESCRIPTION
0	Switch off LED.
1 - 99	Brightness level (%). (Standard 50%)

Parameter 3, Parameter size 1 byte. Function setup of input 1.

Select the value from the table below. Please refer to the section reg. input functions.

VALUE	DESCRIPTION
0	Inactive.
1	Mode 1, level-controlled input.
2	Mode 2, falling-edge controlled input.
3	Mode 3, rising-edge controlled input. (Standard)

Parameter 4, Parameter size: 1 byte. Function setup of input 2.

Select the value from the table below. Please refer to the section reg. input functions.

VALUE	DESCRIPTION
0	Inactive.
1	Mode 1, level-controlled input.
2	Mode 2, falling-edge controlled input.
3	Mode 3, rising-edge controlled input. (Standard)

Parameter 5, Parameter size: 1 byte. Function setup of input 3.

Select the value from the table below. Please refer to the section reg. input functions.

VALUE	DESCRIPTION
0	Inactive.
1	Mode 1, level-controlled input.
2	Mode 2, falling-edge controlled input.
3	Mode 3, rising-edge controlled input. (Standard)

Parameter 6, Parameter size: 1 byte. Function setup of input 4.

Select the value from the table below. Please refer to the section reg. input functions.

VALUE	DESCRIPTION
0	Inactive.
1	Mode 1, level-controlled input.
2	Mode 2, falling-edge controlled input.
3	Mode 3, rising-edge controlled input. (Standard)

Parameter 7, Parameter size: 1 byte. Function setup of input 5.

Select the value from the table below. Please refer to the section reg. input functions.

VALUE	DESCRIPTION
0	Inactive.
1	Mode 1, level-controlled input.
2	Mode 2, falling-edge controlled input.
3	Mode 3, rising-edge controlled input. (Standard)

Parameter 8, Parameter size: 1 byte. Function setup of input 6.

Select the value from the table below. Please refer to the section reg. input functions.

VALUE	DESCRIPTION
0	Inactive.
1	Mode 1, level-controlled input.
2	Mode 2, falling-edge controlled input.
3	Mode 3, rising-edge controlled input. (Standard)

Parameter 9, Parameter size: 1 byte. Input Snubber-filter time constant.

Specifies the time used to define the time constant of the input snubber-filter. (Increments in 0.01 second resolution.)

VALUE	DESCRIPTION
0 - 255	0 – 2,55 seconds. The standard value is 5, which corresponds to a snubber-filter-time constant of 50 milliseconds (0,05 seconds).

Parameter 10, Parameter size: 1 byte. Threshold value for activation of inputs.

Specifies the time that an entry must be stable before it is accepted as active / idle in 0.01 second resolution.

VALUE	DESCRIPTION
0 - 255	0 – 2,55 seconds. The standard value is 20, which corresponds to 200 milliseconds (0,2 seconds).

Parameter 11, Parameter size: 1 byte. Threshold for input in latched mode.

Indicates the time that an input must be activated before it accepts the button latched mode. (Increments in 0.01 second resolution.)

VALUE	DESCRIPTION
0 - 255	0 – 2,55 seconds. The standard value is 50, which corresponds to 500 milliseconds (0,5 seconds).

Parameter 12, Parameter size: 1 byte. Deactivate Central Scene notifications.

It is possible to enable Central Scene notifications when the 6 inputs are activated.

VALUE	DESCRIPTION
0	Central Scene notifications enabled. (Standard)
1	Central Scene notifications disabled.

Parameter 13, Parameter size: 1 byte. Output function, Output 1.

Choose parameter value from the scheme below.

VALUE	DESCRIPTION
0	Output is controlled via Z-Wave messages.
1	Output is controlled by input 1. (Standard)

Parameter 14, Parameter size: 1 byte. Output function, Output 2.

Choose parameter value from the scheme below.

VALUE	DESCRIPTION
0	Output is controlled via Z-Wave messages.
1	Output is controlled by input 2. (Standard)

Parameter 15, Parameter size: 1 byte. Output function, Output 3.

Choose parameter value from the scheme below.

VALUE	DESCRIPTION
0	Output is controlled via Z-Wave messages.
1	Output is controlled by input 3. (Standard)

Parameter 16, Parameter size 1 byte. Output function, Output 4.

Choose parameter value below.

VALUE	DESCRIPTION
0	Output is controlled via Z-Wave messages.
1	Output is controlled by input 4. (Standard)

Parameter 17, Parameter size 1 byte. Output function, Output 5.

Choose parameter value below.

VALUE	DESCRIPTION
0	Output is controlled via Z-Wave messages.
1	Output is controlled by input 5. (Standard)

Parameter 18, Parameter size 1 byte. Output function, Output 6.

Choose parameter value below.

VALUE	DESCRIPTION
0	Output is controlled via Z-Wave messages.
1	Output is controlled by input 6. (Standard)

7. COMMAND CLASSES

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)
- Power level (version 1)
- Firmware Update (version 2)
- Basic (version 2)
- Binary Switch (version 2)
- Security Command Class (version 1)
- Security 2 (version 1)
- Supervision Command Class (version 1)
- Central Scene (version 3)

CONTROLLED COMMAND CLASSES

- Basic (version 2)
- Binary Switch (version 2)
- Multilevel Switch (version 4)
- Central Scene (version 3)

8. TECHNICAL SPECIFICATIONS

Power supply	10 - 24V DC, 8 – 24V AC
Relay outputs	AC1: 16A 250V AC AC3: 750W (motor) AC15: 360VA Inrush: 80A/20ms (Max)
Inputs	Digital potential free, input impedance 22Kohm.
Terminals	Screw terminals: 0,2 – 2,5 mm2 Outputs: 6 x 2 pole connection; 6 x 1-pole NO contacts. Inputs: 2 x 6 pole connection; 6 x inputs, 4 x 0V.
Power consumption	Standby: 0,6 W. All relays activated: 3,5 W.
Radio protocol	Z-Wave®: EU 868.4MHz – 500 Series.
Approvals	CE
Explorer Frame Support	Yes
SDK	6.71.00
Device type	Slave with router / repeater functionality.
Generic Device Class	Binary Switch.
Specific Device Class	Power Binary Switch.
Routing	Yes
FLiRS	No
Z-Wave Plus	Yes (pending)
Firmware Version	0.7

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Product specificationsmay change without further notice.

All electrical installations must be carried out by a licensed electrician.

The product must be installed in accordance with national building codes and our installation guides.