Zoe (Power)

ORDERING CODE	Z-WAVE FREQUENCY
HZ06000	868,4 MHz
HZ06100	921,4 MHz
HZ06200	908,4 MHz

This Z-Wave™ module is used for switching on or off two electrical devices (e.g. lights or fans,..). The module can be controlled either through Z-Wave network or through the wall switches.The module is designed to be mounted inside a “flush mounting box”, hidden behind a traditional wall switch. Module measures power consumption of two electrical devices and supports connection of digital temperature sensor. It is designed to act as repeater in order to improve range and stability of Z-Wave network.

Product overview

Zoe is a line-powered Z-Wave interface for 2 loads (OUT) and 2 push buttons/switches (IN).Compatible with any Vesta board HM03000 or HM02000+HA06900. Supports protected mode(Z-Wave network security mode) with AES-128 encryption. Advanced microprocessor control. Works with various types of inputs (switches, pushbuttons, two-way switches).To be installed in wall switch boxes of dimensions allowing for installation, conforming to provisions of applicable regulations. Zoe can work as stand-alone device, and can be connected to a Z-Wave network.

Supported switches

Module supports **mono-stable** switches (push button) and **bi-stable** switches. The module is factory set to operate with bi-stable switches.

Installation

- To prevent electrical shock and/or equipment damage, disconnect electrical power at the main fuse or circuit breaker before installation or any servicing.
- Make sure, that no voltage is present in the installation.
- Prevent the disconnecting device from being switched on accidentally.
- Connect the module according to electrical diagram.
- Locate the antenna far from metal elements (as far **as** possible).
- Do not shorten the antenna.

Danger of electrocution!

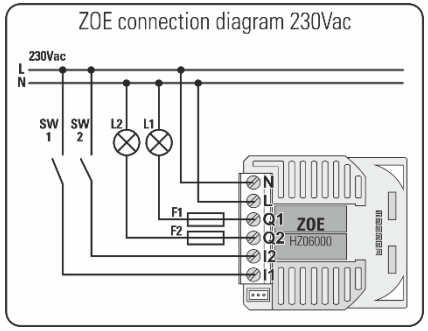
- Module installation requires a great degree of skill and may be performed only by a qualified and licensed electrician.
- Even when the module is turned off, voltage may be present on its terminals.

Note!

Do not connect the module to loads exceeding recommended values. Connect the module only in accordance to the below diagrams. Improper connections may be dangerous.

Electrical installation must be protected by directly associated over current protection fuse 4A, gG or Time lag T, rated breaking capacity 1500A (ESKA 522.723) must be used according to wiring diagram to achieve appropriate overload protection of the module. The fuse must be installed in fuse holder type: Adels contact 503Si/1DS.

Electrical diagram 230VAC



Notes for the diagram:

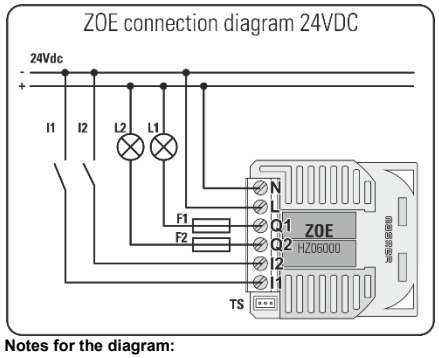
N	Neutral lead
L	Live lead
Q1↑	Output for electrical device no. 1
Q2↑	Output for electrical device no. 2
I2	Input for switch to control electrical device no.2
I1	Input for switch to control electrical device no.1
TS	Terminal for digital temperature sensor (only for Zoe Power module compatible digital temperature sensor, which must be ordered separately).

Wago 221-413 splicing connectors for L and N connection must be used.

Factory reset

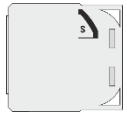
1. Connect the device to the power supply
2. Within the first minute (60 seconds) the device is connected to the power supply, toggle the switch connected to the I1 terminal 5 times within 3 seconds (5 times change switch state) OR if the device is powered by 24 V SELV supply, press and hold the S (Service) button for more than 6 seconds. By resetting the device, all custom parameters previously set on the device will return to their default values, and the node ID will be removed. Use this reset procedure only when the main gateway (hub) is missing or otherwise inoperable.

Electrical diagram 24VDC



Notes for the diagram:

N	+VDC
L	-VDC
Q1↑	Output for electrical device no. 1
Q2↑	Output for electrical device no. 2
I2	Input for switch to control electrical device no.2
I1	Input for switch to control electrical device no.1
TS	Terminal for digital temperature sensor (only for Zoe Power module compatible digital temperature sensor, which must be ordered separately).



S Service button (used to add or remove module from the Z-Wave network in case of 24 V SELV power supply).

WARNING: Service button S **must NOT be used** when module is connected to 110-230V power supply.

Durability of the device depends on applied load. For resistive load (light bulbs, etc.) and 4A current consumption of each individual electrical device, the durability exceeds 70.000 switches of each individual electrical device.

Package contents

- Zoe Power board

Module Inclusion (Adding to Z-Wave network)

- Connect module to power supply (with temperature sensor connected - if purchased),
- enable add/remove mode on main controller
- auto-inclusion (works for about 5 seconds after connected to power supply) or
- press push button I1 three times within 3s (6 times change switch state within 3 seconds) or
- press service button S (only applicable for 24 V SELV supply voltage) for more than 2 second.

NOTE1: For auto-inclusion procedure, first set main controller into inclusion mode and then connect module to power supply.

NOTE2: When connecting temperature sensor to module that has already been included, you have to exclude module first. Switch off power supply, connect the sensor and re-include the module.

Module Exclusion/Reset (Removing from Z-Wave network)

- Connect module to power supply
- bring module within maximum 1 meter (3feet) of the main controller,
- enable add/remove mode on main controller,
- press push button I1 5 times within 3s (10 times change switch state within 3 seconds) in the first 60 seconds after the module is connected to the power supply or
- press service button S (only applicable for 24 V SELV supply voltage) for more than 6 second.

By this function all parameters of the module are set to default values and own ID is removed.

If push button I1 is pressed 3 times within 3s (6 times change switch state within 3 seconds) (or service button S is pressed more than 2 and less than 6 seconds) module is excluded, but configuration parameters are not set to default values.

Associations

Associations enables Zoe (Power module to transfer commands inside Z-Wave network directly (without main controller) to other Z-Wave modules.

Associated Groups:

Root device:

Group 1: Lifeline group (reserved for communication with the main controller), 1 node allowed.

Group 2: basic on/off (triggered at change of the output Q1 state and reflecting its state) up to 16 nodes.

Group 3: switch binary report (triggered at change of the output Q1 state and reflecting its state) up to 16 nodes.

Group 4: power meter report (triggered at change of the output Q1 state) up to 16 nodes.

Group 5: basic on/off (triggered at change of the output Q2 state and reflecting its state) up to 16 nodes.

Group 6: switch binary report (triggered at change of the output Q2 state and reflecting its state) up to 16 nodes.

Group 7: power meter report (triggered at change of the output Q2 state) up to 16 nodes.

Group 8: multilevel sensor report (triggered at change of temperature sensor) up to 16 nodes.

End point 1:

Group 1: Lifeline group, 0 nodes allowed.

Group 2: basic on/off (triggered at change of the output Q1 state and reflecting its state) up to 16 nodes.

Group 3: switch binary report (triggered at change of the output Q1 state and reflecting its state) up to 16 nodes.

Group 4: power meter report (triggered at change of the output Q1 state and reflecting its state) up to 16 nodes.

End point 2:

Group 1: Lifeline group, 0 nodes allowed.

Group 2: basic on/off (triggered at change of the output Q2 state and reflecting its state) up to 16 nodes.

Group 3: switch binary report (triggered at change of the output Q2 state and reflecting its state) up to 16 nodes.

Group 4: power meter report (triggered at change of the output Q2 state and reflecting its state) up to 16 nodes.

End point 3:

Group 1: Lifeline group, 0 nodes allowed.

Group 2: multilevel sensor report (triggered at change of temperature sensor) up to 16 nodes.

Configuration parameters

Parameter no. 1 – Input 1 switch type

Available configuration parameters (data type is 1 Byte DEC):

- default value 1
- 0 - mono-stable switch type (push button)
- 1 - bi-stable switch type

Parameter no. 2 – Input 2 switch type

Available configuration parameters (data type is 1 Byte DEC):

- default value 1
- 0 - mono-stable switch type (push button)
- 1 - bi-stable switch type

Parameter no. 10 - Activate / deactivate functions ALL ON/ALL OFF

Available configuration parameters (data type is 2 Byte DEC):

- default value 255
- 255 - ALL ON active, ALL OFF active.
- 0 - ALL ON is not active ALL OFF is not active
- 1 - ALL ON is not active ALL OFF active
- 2 - ALL ON active ALL OFF is not active

Zoe Power module responds to commands ALL ON / ALL OFF that may be sent by the main controller or by other controller belonging to the system.

Parameter no. 11 - Automatic turning off output Q1 after set time

When relay Q1 is ON it goes automatically OFF after time defined by this parameter. Timer is reset to zero each time the module receive ON command regardless from where it comes (push button, associated module, controller,..). Available configuration parameters (data type is 2 Byte DEC)

- default value 0
- 0 - Auto OFF disabled
- 1 - 32535 = 1second (0,01s) - 32535 seconds (325,35s) Auto OFF enabled with define time, step is 1s or 10ms according to parameter nr.15.

Parameter no. 12 - Automatic turning on output Q1 after set time

When relay Q1 is OFF it goes automatically ON after time defined by this parameter. Timer is reset to zero each time the module receive OFF command regardless from where it comes (push button, associated module, controller,..). Available configuration parameters (data type is 2 Byte DEC):

- default value 0
- 0 - Auto ON disabled
- 1 - 32535 = 1second (0,01s) - 32536 seconds (325,35s) Auto ON enabled with define time, step is 1s or 10ms according to parameter nr.15.

Parameter no. 13 - Automatic turning off output Q2 after set time

When relay Q2 is ON it goes automatically OFF after time defined by this parameter. Timer is reset to zero each time the module receive ON command regardless from where it comes (push button, associated module, controller,..). Available configuration parameters (data type is 2 Byte DEC):

- default value 0
- 0 - Auto OFF disabled
- 1 - 32535 = 1second (0,01s) - 32535 seconds (325,35s) Auto OFF enabled with define time, step is 1s or 10ms according to parameter nr.15.

Parameter no. 14 - Automatic turning on output Q2 after set time

When relay Q2 is OFF it goes automatically ON after time defined by this parameter. Timer is reset to zero each time the module receive OFF command regardless from where it comes (push button, associated module, controller,..). Available configuration parameters (data type is 2 Byte DEC):

- default value 0
- 0 - Auto ON disabled
- 1 - 32535 = 1second (0,01s) - 32535 seconds (325,35s) Auto ON enabled with define time, step is 1s or 10ms according to parameter nr.15.

Parameter no. 15 - Automatic turning off / on seconds or milliseconds selection

Available configuration parameters (data type is 1 Byte DEC):

- default value 0
- 0 – seconds selected
- 1 – milliseconds selected

Note that parameter is valid for both outputs Q1, Q2 and is the same for turning off or on.

Parameter no. 30 - Saving the state of the relays Q1 and Q2 after a power failure

Available configuration parameters (data type is 1 Byte DEC):

- default value 0
- 0 - Zoe Power module saves its state before power failure (it returns to the last position saved before a power failure)
- 1 - Zoe Power module does not save the state after a power failure, it returns to "off" position.

Parameter no. 40 – Power reporting in Watts on power change for Q1

Set value means percentage, set value from 0 – 100 = 0% - 100%. Available configuration parameters (data type is 1 Byte DEC):

- default value 10
- 0 - reporting disabled
- 1 - 100 = 1% - 100% Reporting enabled. Power report is send (push) only when actual power in Watts in real time changes for more than set percentage comparing to previous actual power in Watts, step is 1%.

Parameter no. 41 – Power reporting in Watts on power change for Q2

Set value means percentage, set value from 0 – 100 = 0% - 100%. Available configuration parameters (data type is 1 Byte DEC):

- default value 10
- 0 - Reporting Disabled
- 1 - 100 = 1% - 100% Reporting enabled. Power report is send (push) only when actual power in Watts in real time changes for more than set percentage comparing to previous actual power in Watts, step is 1%.

NOTE: if power changed is less than 1W, the report is not send (pushed), independent of percentage set.

Parameter no. 42 – Power reporting in Watts by time interval for Q1

Set value means time interval (0 – 32535) in seconds, when power report is send. Available configuration parameters (data type is 2 Byte DEC):

- default value 300 (power report in Watts is send each 300s)
- 0 - reporting disabled
- 1 - 32535 = 1 second - 32535 seconds. Reporting enabled, Power report is send with time interval set by entered value.

Parameter no. 43 – Power reporting in Watts by time interval for Q2

Set value means time interval (0 – 32535) in seconds, when power report is send. Available configuration parameters (data type is 2 Byte DEC):

- default value 300 (power report in Watts is send each 300s)
- 0 - reporting disabled
- 1 - 32535 = 1 second - 32535 seconds. Reporting enabled, Power report is send with time interval set by entered value.

Parameter no. 63 – Output Q1 Switch selection

Set value means the type of the device that is connected to the Q1 output. The device type can be normally open (NO) or normally close (NC). Available configuration parameters (data type is 1 Byte DEC):

- default value 0
- 0 - When system is turned off the output is 0V (NC).
- 1 - When system is turned off the output is 230V (NO).

Parameter no. 64 – Output Q2 Switch selection

Set value means the type of the device that is connected to the Q2 output. The device type can be normally open (NO) or normally close (NC). Available configuration parameters (data type is 1 Byte DEC):

- default value 0
- 0 - When system is turned off the output is 0V (NC).
- 1 - When system is turned off the output is 230V (NO).

Parameter no. 110 – Temperature sensor offset settings

Set value is added or subtracted to actual measured value by sensor. Available configuration parameters (data type is 2 Byte DEC):

- default value 32536
- 32536 - offset is 0.0C
- From 1 to 100 - value from 0.1 °C to 10.0 °C is added to actual measured temperature.
- From 1001 to 1100 - value from -0.1 °C to -10.0 °C is subtracted to actual measured temperature.

Parameter no. 120 – Temperature sensor reporting

If digital temperature sensor is connected, module reports measured temperature on temperature change defined by this parameter. Available configuration parameters (data type is 1 Byte DEC):

- Default value 5 = 0,5°C
- 0 – Reporting disabled
- 1- 127 = 0,1°C – 12,7°C, step is 0,1°C

Technical Specifications

Power supply	110 - 230 VAC ±10% 50/60Hz, (24-30VDC)
Rated load current of AC output (resistive load)*	2 X 4A / 230VAC
Rated load current of DC output (resistive load)	2 X 4A / 30VDC
Output circuit power of AC output (resistive load)	2 X 920W (230VAC)
Output circuit power of DC output (resistive load)	2 X 96W (24VDC)
Power measurement accuracy	P=0-200W, +/-2W P>200W, +/-3%
Digital temperature sensor range (sensor must be ordered separately)	-50 ~ +125°C
Operation temperature	-10 ~ +40°C
Distance	up to 30 m indoors (depending on building materials)
Dimensions (WxHxD) (package)	42x17x46mm (52x70x95mm)
Weight (Brutto with package)	34g (55g)
Electricity consumption	0,4W
For installation in boxes	Ø ≥ 60mm or 2M, depth≥ 60mm
Switching	Relay (2x)

*In case of load other than resistive, pay attention to the value of cos φ and if necessary apply load lower than the rated load. Max current for cos φ=0,4 is 2A at 250VAC, 3A at 24VDC.

Supported loads:

- Electric motor
- Conventional incandescent and halogen lights
- LED bulb, compact fluorescent bulb (CFL), low voltage halogen bulbs with electronic transformer
- Low voltage halogen bulbs with conventional transformer

Z-Wave Device Class:

ZWAVEPLUS_INFO_REPORT_ROLE_TYPE_SLAVE_ALWAYS_ON
GENERIC_TYPE_SWITCH_BINARY
SPECIFIC_TYPE_POWER_SWITCH_BINARY

Z-Wave Supported Command Classes:

COMMAND_CLASS_ZWAVEPLUS_INFO_V2
COMMAND_CLASS_VERSION_V2
COMMAND_CLASS_MANUFACTURER_SPECIFIC_V2C
OMMAND_CLASS_DEVICE_RESET_LOCALLY_V1
COMMAND_CLASS_POWERLEVEL_V1
COMMAND_CLASS_BASIC_V1
COMMAND_CLASS_SWITCH_ALL_V1
COMMAND_CLASS_SWITCH_BINARY_V1
COMMAND_CLASS_METER_V4
COMMAND_CLASS_SENSOR_MULTILEVEL_V7
COMMAND_CLASS_MULTI_CHANNEL_V4
COMMAND_CLASS_ASSOCIATION_V2
COMMAND_CLASS_MULTI_CHANNEL_ASSOCIATION_V3
COMMAND_CLASS_ASSOCIATION_GRP_INFO_V2
COMMAND_CLASS_CONFIGURATION_V1
COMMAND_CLASS_MARK
COMMAND_CLASS_BASIC_V1

Endpoint 1 (I1)

Device Class:

GENERIC_TYPE_SWITCH_BINARY
SPECIFIC_TYPE_POWER_SWITCH_BINARY

Command Classes:

COMMAND_CLASS_ZWAVEPLUS_INFO_V2
COMMAND_CLASS_VERSION_V2
COMMAND_CLASS_SWITCH_BINARY_V1
COMMAND_CLASS_BASIC_V1
COMMAND_CLASS_SWITCH_ALL_V1
COMMAND_CLASS_ASSOCIATION_V2
COMMAND_CLASS_MULTI_CHANNEL_ASSOCIATION_V3
COMMAND_CLASS_ASSOCIATION_GRP_INFO_V2
COMMAND_CLASS_METER_V4
COMMAND_CLASS_MARK
COMMAND_CLASS_BASIC_V1

Endpoint 2 (I2):

Device Class:

GENERIC_TYPE_SWITCH_BINARY
SPECIFIC_TYPE_POWER_SWITCH_BINARY

Command Classes:

COMMAND_CLASS_ZWAVEPLUS_INFO_V2
COMMAND_CLASS_VERSION_V2
COMMAND_CLASS_SWITCH_BINARY_V1
COMMAND_CLASS_BASIC_V1
COMMAND_CLASS_SWITCH_ALL_V1
COMMAND_CLASS_ASSOCIATION_V2
COMMAND_CLASS_MULTI_CHANNEL_ASSOCIATION_V3
COMMAND_CLASS_ASSOCIATION_GRP_INFO_V2
COMMAND_CLASS_METER_V4
COMMAND_CLASS_MARK
COMMAND_CLASS_BASIC_V1

Endpoint 3:

Device Class:

GENERIC_TYPE_SENSOR_MULTILEVEL
SPECIFIC_TYPE_ROUTING_SENSOR_MULTILEVEL

Command Classes:

COMMAND_CLASS_ZWAVEPLUS_INFO_V2
COMMAND_CLASS_VERSION_V2
COMMAND_CLASS_SENSOR_MULTILEVEL_V7
COMMAND_CLASS_ASSOCIATION_V2
COMMAND_CLASS_MULTI_CHANNEL_ASSOCIATION_V3
COMMAND_CLASS_ASSOCIATION_GRP_INFO_V2

NOTE: The above list is valid for the product with a temperature sensor connected to TS terminal. In case the sensor is not connected then the following command class is not supported:
COMMAND_CLASS_SENSOR_MULTILEVEL_V7

This product can be included and operated in any Z-Wave network with other Z-Wave certified devices from any other manufacturers. All constantly powered nodes in the same network will act as repeaters regardless of the vendor in order to increase reliability of the network.

Important disclaimer

Z-Wave wireless communication is inherently not always 100% reliable, and as such, this product should not be used in situations in which life and/or valuables are solely dependent on its function.

Warning!

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. When replacing old appliances with new once, the retailer is legally obligated to take back your old appliance for disposal at least for free of charge.This user manual is subject to change and improvement without notice

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