Module supports repeater in order to improve range and stability of Z-Wave modules controlled either through a disconnected power supply. The Qubino (disable the fuse). Always performed by disconnected power supply changes related to works on configuration present on its terminals. Any works on configuration Z-module first. Switch off power supply, connect the sensor and re-include the module.

Notes for the diagram:

- +DC (12 - 24VDC)
- -VDC (0V)

Q1 Output for motor UP (open)
Q2 Output for motor DOWN (close)
I2 Input for switch/push button DOWN (close)
I1 Input for switch/push button UP (open)
TS Terminal for digital temperature sensor (only for Flush Shutter DC module compatible digital temperature sensor, which must be ordered separately).

Module Inclusion (Adding to Z-Wave network)
- Connect module to power supply (with temperature sensor connected if purchased).
- Auto-inclusion (works for about 5 seconds after connected to power supply) or press service button 8 for more than 2 seconds or press push button 11 three times within 3s (3 times change switch state within 3 seconds).

Module Exclusion/Reset (Removing from Z-Wave network)
- Connect module to power supply
- bring module within maximum 1 meter (3 feet) of the main controller.
- enable add/remove mode on main controller.
- press service button 8 for more than 6 seconds or press push button 11 five times within 5 s (times change state switch within 3 seconds) in the first 60 seconds after the module is connected to the power supply.

By this function all parameters of the module are set to default values and own ID is deleted. If service button 8 is pressed more than 2 and less than 6 seconds (or if push button 11 is pressed three times within 3s) module is excluded, but configuration parameters are not set to default values.

NOTE: If the module is included with parameters 71 with value different to default and module reset is done, wait at least 30s before next inclusion.

Associations
Association enables Flush Shutter DC module to transfer commands inside Z-wave network directly (without main controller) to other Z-Wave modules.

ASSOCIATED GROUPS:

Root device:
Group 1: default reporting group (reserved for the main controller).
Group 2: basic on/off (triggered at change of the input I1 state and reflecting its state) up to 16 nodes.
Group 3: basic on/off (triggered at change of the input I2 state and reflecting its state) up to 16 nodes.
Group 4: basic on/off (triggered at sensing moving direction of roller: up=FF, down=0) up to 16 nodes.
Group 5: basic on/off (triggered at reaching roller position: bottom=FF, top=0) up to 16 nodes.
Group 6: basic on/off (triggered at reaching roller position: bottom=FF, not bottom=0) up to 16 nodes.
Group 7: multilevel set (triggered at changes of value of the Flush Shutter DC position) up to 16 nodes.
Group 8: multilevel set (triggered at changes of value of the Flush Shutter DC position) up to 16 nodes.
Group 9: multilevel sensor report (triggered at change of temperature sensor) up to 16 nodes.

Module allows connecting of push button/switch (mono-stable) or switches (bi-stable) to I1 and I2 terminals.

End point 2:
Group 1: Lifeline group, 0 nodes allowed.
Group 2: multilevel set (triggered at changes of value of slats tilting position) up to 16 nodes.

End point 3:
Group 1: Lifeline group, 0 nodes allowed.
Group 2: multilevel sensor report (triggered at changes of temperature sensor) up to 16 nodes.

Automatic calibration
Automatic calibration is a process during which the Flush Shutter DC learns the position of the limit switches. Shutter positioning calibration (par. 71 set to 0)

There are two procedures of calibration:

Calibration through main controller UI:
1) Include the module into the Z-wave network, according to module include instructions.
2) Set the parameter 78 (Forced Flush Shutter DC calibration) value to 1.
3) Flush Shutter DC performs the calibration process, completing full cycle - up, down and up again.
4) Set the parameter 78 (Forced Flush Shutter DC calibration) value to 0.

Calibration through the inputs I1 and I2:
1) Include the module into the wireless network, according to module inclusion instructions.
2) Quick press the switch/push button connected to I1 input and wait until the Shutter reach upper limit switch.
3) Quick press the switch/push button connected to I2 input and wait until the Shutter reach lower limit switch.
4) Quick press the switch/push button connected to I1 input and wait until the Shutter reach upper limit switch.

Slats tilting position calibration (par. 71 set to 1)
When enabling venetian blind mode, position calibration for slats tilting must be done. After doing this, position and angle of slates can be set. By default full turn time for slates is set to 1.5s. This value can be changed with parameter 72.
1) Include and make module calibration according to section 'Shutter positioning calibration'.
2) Set parameter 71 to 1 'Venetian blinds'.
3) Exclude the module (without reset).
4) Include the module.
5) After module inclusion beside main Shutter winder, another winder for slates control will appear on UI.
6) By default full sum movement is set to 1.5s. If this time is too long (if after slates full cycle Shutter starts moving up or down), decrease this time defined with parameter 72. If this time is too short (if slats will not turn for full cycle), increase this time defined with parameter 72.

Manual operation for venetian blinds (par. 71 set to 1)

Slats on start position - 0 degree
Clicking push button (for time < full turn slates time-par.72) connected to I1 (up), initiates slates turning towards end - 180 degree position, until push button is released.
Clicking push button (for time < full turn slates time-par.72) connected to I2 (down), initiates Shutter down movement.
When the Shutter is moving, each click of any push-button, will stop the movement.
Keeping pressed push-button (>2s) connected to I1 (up), initiates sum full turn and up movement, until push-button is released.
Keeping pressed push-button (>2s) connected to I2 (down), initiates down movement, until push-button is released.

Slates on start position - 180 degree

Clicking push button (for time < full turn slates time-par.72) connected to I1 (up), initiates Shutter up movement.
Clicking push button (for time < full turn slates time-par.72) connected to I2 (down), initiates slates turning towards start - 0 degree position, until the push-button is released.
When the Shutter is moving, each click of any push-button, will stop the movement.
Keeping pressed push-button (for time < full turn slates time-par.72) connected to I1 (up), initiates Shutter down movement, until the push-button is released.
Keeping pressed push-button (for time < full turn slates time-par.72) connected to I2 (down), initiates slates sum full turn and down movement, until the push-button is released.

Configuration parameters
Parameter no. 10: Activate/deactivate functions ALL ON / ALL OFF
Available config. parameters (data type is 2 Byte DEC):
- default value 255
- 255 - ALL ON active, ALL OFF active.
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. 40 - Power reporting in Watts on power change for Q1 or Q2

Set value means time interval (0 – 32767) in seconds, when power report is send. Available configuration parameters (data type is 2 Byte DEC):
- default value 0
- 0 - reporting disabled
- 1 - 100 % - 100% Reporting enabled. Power consumption is read after one of the relays is switched ON. If there is no power consumption during this max time (motor not connected, damaged or requires higher time to start, motor in end position,...), the relay will switch OFF. Time is defined by entering it manually. Available configuration parameters (data type is 1 Byte DEC):
  - default value 0
  - 3 - 50 ,0..32sec - 32-767,sec,seconds. After that motor is stopped (relay goes to off state)

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 or Q2

Set value means time interval (0 – 32767) in seconds, when power report is send. Available configuration parameters (data type is 2 Byte DEC):
- default value 300s
- 0 - Reporting Disabled
- 1 - 32767 = 1 second - 32767,6 seconds. Reporting enabled, power report is send with time interval set by entered value.

Parameter 1: Operating modes

This parameter defines selection between two available operating modes. Available configuration parameters (data type is 1 Byte DEC):
- default value 0
- 0 - Shutter mode
- 1 - venetian mode (up/down and slat rotation)

NOTE: After parameter change, first exclude module from system (by setting parameters to default value) then wait at least 30s and then re include the module!

Parameter no. 72 – Slats tilting full turn time

This parameter defines the time necessary for slats to make full turn (180 degrees). Available configuration parameters (data type is 2 Byte DEC):
- default value 150 + 1,5 seconds
- 0 - tilting time disabled
- 1 - 32767 = 0,1seconds - 32-767,67 seconds

NOTE: If time set is too high, this will result that after full turn, Shutter will move up/down, for time remaining.

Parameter no. 73 – Slats position

This parameter defines slats position after up/down movement through Z-wave or push-buttons. Available configuration parameters (data type is 1 Byte DEC):
- default value 1
- 0 - Slats return to previously set position only in case of Z-wave control (not valid for shut HID switch positions).
- 1 - Slats return to previously set position in case of Z-wave control, push button operation or when the lower limit switch is reached.

Parameter no. 74 – Motor moving up/down time

This parameter defines Shutter motor moving time of complete opening or complete closing. Available configuration parameters (data type is 2 Byte DEC):
- default value 0
- 0 - moving time disabled (working with limit switches)
- 1 - 32767 = 0,1sec - 32-767,7sec,seconds. After that motor is stopped (relay goes to off state)

NOTE: Important is that the reference position to manually set moving time is always Shutter lower position! (Manual recalibration). Parameter 74 must be set to 0 and repeat the procedure described above.

In case Shutter has limit switches, but anyhow you would like to limit opening/closing position by time, you can still do it. In case you put time that is longer that opening/closing real time limited by limit switches, Shutter will stop at limit switch, but the module relay will switch off after define time, not by Shutter limit switch. Take in consideration that in this condition, the positioning with slider through UI will not show correct Shutter position.

To change Shutter lower position below set already (par. 76), the active output will switch off, means that limit switch is not reached. Available configuration parameters (data type is 1 Byte DEC):
- default value 8 = 800ms
- 3 - 50 ,0..32sec - 32-767,6sec (100ms resolution)

Parameter no. 90 – Time delay for next motor movement

This parameter defines the minimum time delay between next motor movement (minimum time between switching motor on and on again). Available configuration parameters (data type is 1 Byte DEC):
- default value 5 = 500ms
- 1 - 30 ,0..32sec - 32-767,6sec (100ms resolution)

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 1 Byte DEC):
- default value 0 = 0°C
- 32536 = offset is 0,0°C
- 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 local 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: 12-24VDC +/-10%
- Rated load current: 3A
- Overcurrent protection: 5A
- Output circuit power of DC output (resistive load): 48W (24VDC)
- Power measurement accuracy: +/-5%
- Digital temperature sensor range: sensor must be 50 to +125°C

Z-Wave Device Class:

Generic Type: MULTILEVEL SPECIFIC TYPE: _ROUTING_SLAVE
Command Classes:
- COMMAND_CLASS_ASSOCIATION_GRP_INFO
- COMMAND_CLASS_BASIC
- COMMAND_CLASS_BINARY
- COMMAND_CLASS_CONFIGURATION
- COMMAND_CLASS_MARK
- COMMAND_CLASS_SWITCH_ALL
- COMMAND_CLASS_SWITCH_BINARY
- COMMAND_CLASS_SWITCH_MULTILEVEL
- COMMAND_CLASS_VERSION

Z-Wave Supported Command Classes:
- COMMAND_CLASS_ASSOCIATION
- COMMAND_CLASS_ASSOCIATION_GRP_INFO
- COMMAND_CLASS_BASIC
- COMMAND_CLASS_BINARY
- COMMAND_CLASS_CONFIGURATION
- COMMAND_CLASS_SWITCH_ALL
- COMMAND_CLASS_SWITCH_BINARY
- COMMAND_CLASS_SWITCH_MULTILEVEL
- COMMAND_CLASS_VERSION

Z-Wave Multilevel:

Generic Type: MULTILEVEL
Specific Type: _ROUTING_SLAVE
Command Classes:
- COMMAND_CLASS_ASSOCIATION
- COMMAND_CLASS_ASSOCIATION_GRP_INFO
- COMMAND_CLASS_CONFIGURATION
- COMMAND_CLASS_MARK
- COMMAND_CLASS_SWITCH_ALL
- COMMAND_CLASS_SWITCH_BINARY
- COMMAND_CLASS_SWITCH_MULTILEVEL
- COMMAND_CLASS_VERSION

Note: The above list is valid for the product with a temperature sensor connected to TS terminal at the time of inclusion. In case the command class is not connected then the following command class and endpoint are not supported:

endpoint 2 supported by the module only when the parameter no. 71 is set to the value 1 and the module is excluded and re-included into the network.

This product can be included and operated in any Z-Wave network with other Z-Wave enabled 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, 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 ones, 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.

NOTE: User manual is valid for module with SW version S5 (SW version is part of P/N!)
Example: P/N: ZMNHD-i+5SPx

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