



InWand™
TouchWand™
TW303100 (AC) /
TW303200 (24VDC)
DOUBLE MICRO
MODULE SWITCH



Address

ARLOZOROV 2
RAANANA 4360801
ISRAEL



Phone

Israel: +972-747-146-360



Online

info@sweetchon.com
www.sweetchon.com





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General

This device is a Z-Wave Plus™ enabled transceiver fully compatible with any Z-Wave™ enabled network. Its miniature size allows the module to be easily hidden in a wall box, making home design easier and slicker than ever. The module has many applications switching AC/DC power on and off, e.g., controlling lights, window shutters and much more. Our technology can handle the inrush current caused by the load and lets the module work with many kinds of lights, such as incandescent, fluorescent and LED.

When the module is installed behind a wall switch, the wall switch no longer controls the connected loads directly. Instead, the switches on the wall serve as inputs for the module, which has internal relays to control the connected loads. The relays transfer commands to the loads from the wall switch or from a Z-Wave remote control. On the top side of the module, there is a configuration button that is used to perform various actions and the LED which indicates the state of the device. The LED color can be green, red, or orange. These are all described below.

Part Number	240Vac	110Vac	24Vdc	Frequency	Energy Meter
TW303100-916	X			916	No
TW303100-916-E	X			916	Yes
TW303100-868	X			868.42	No
TW303100-868-E	X			868.42	Yes
TW303100-908		X		908.4	No
TW303200-908-E		X		908.4	Yes
TW303200-916-E			X	916	Yes
TW303200-868-E			X	868.42	Yes
TW303200-908-E			X	908.4	Yes

Safety Precautions

- Verify part number before installation to avoid miss-match of operating voltage
- Choosing a Suitable Location
- Do not locate the device facing direct sunlight, or in a humid or dusty place.
- Suitable ambient temperature for the device is 0°C-40°C.
- Do not locate the device near any combustible substances or source of heat, e.g. fires, radiators, boiler, etc.
- In use, the device casing may become a little hot to the touch. This is normal.
- For easier installation it is recommended not to have irrelevant wires in the installation box and to use flex wires connected to the terminal blocks of the unit. If must have extra wires due to conjunction box preferable to have deeper Gewiss 3 electricity box.
- Must have neutral and line wires to connect to the unit.
- Installation must be performed by a licensed electrician.
- Observe country-specific regulations.
- Avoid installing the unit in storming or rainy weather.
- Turn off the power to the wall switch at the circuit breaker or fuse box before installing or maintenance.
- The power supply circuit must be protected by a 10A circuit breaker or equivalent fuse.
- Install the device in a wall switch box of adequate size.

Installation Procedure

- Connect the device according to one of the wiring diagrams shown below, as appropriate for your application.
- Make sure the controller is **NOT** in inclusion mode and turn on the power for the device.
- Configure the device as desired (lights / shutter mode), as described below and turn the device power off when finished.
- Place the controller in inclusion mode and power on the device. It will enter auto-inclusion mode.
- Close the junction box where the device should be put. The antenna should not stick out of the junction box.

Wiring Diagrams

Six possible wiring diagrams are shown:

1. One light switch
2. Two light switches
3. Window shutter control
4. Scenario only. In this mode, the device acts as a scenario activator for other devices. It can also function as a signal repeater (amplifier) allowing the controller to communicate with other devices over greater distance.
5. Two way switching
6. Three way switching

Legend

- SW1 - Switch terminal 1
- SW2 - Switch terminal 2
- NO1 - Normally Open terminal 1
- NO2 - Normally Open terminal 2
- N - Neutral lead
- L - Live lead

<p style="text-align: center;">One Light circuit</p>	<p style="text-align: center;">Two Light circuits</p>
<p style="text-align: center;">Shutter</p>	<p style="text-align: center;">Scenario / Repeater</p>
<p style="text-align: center;">Two Way Switching</p>	<p style="text-align: center;">Three Way Switching</p>

Adding to Z-Wave Network

To work with other Z-Wave enabled devices, the device needs to be assigned a node ID by the network controller. When power is applied, and the device does not have a node ID (such as when it is activated for the first time or after it has been reset to factory default settings), its LED starts to blink at half-second intervals according to the following:

- First, the LED flashes 6 times:
 - Red for lights mode
 - Green for shutter mode
- Then, the LED flashes 4 times:
 - Red means the device is unpaired
 - Green means the device is paired
- If the device is unpaired, it will enter auto-inclusion mode and the LED will blink green for 2 minutes. Note: in auto-inclusion mode, the device is trying to communicate with controller to be given a node ID.

When it is assigned with a node ID or after two minutes, whichever comes first, the LED goes off and the device enters the idle state.

Note: Auto-inclusion will succeed best if the controller has been placed in inclusion mode prior to connecting the device to power. Also, if during pairing process the controller will report with pairing fail popup the user have to reset the device and initiate the inclusion procedure again.

Terminology

Function	Description
Inclusion	Add device to Z-Wave network
Exclusion	Remove device from Z-Wave network
Reset	Restore the device settings to factory default

Manual Inclusion and Exclusion

The device can also be manually added to or excluded from the network. See the instructions for your Z-Wave Controller how to access the setup function to include and exclude devices.

Inclusion	1. Put Z-Wave controller into inclusion mode. 2. Press configuration button three times.	Green LED will blink alternatively for 2 minutes
Exclusion		Red LED will blink alternatively for 2 minutes

Success in including/excluding the node ID can be viewed from the Z-Wave controller in the end of the process.

Z-Wave multichannel endpoints

- Binary switch

In binary switch mode, the device shall identify itself with two identical multichannel endpoints for each physical relay.

- Shutter

In shutter mode the device is single channel and identifies itself with only root endpoint.

Basic command

- **Binary switch**

Both endpoints support basic command class. Basic command value 0 shall turn off the relay. Valid non-zero values (1-99, 255) shall turn the relay on.

- **Shutter**

Supports basic command class. The values (0-99, 255) are used as a percentage for the shutter. The value 255 shall open the shutter fully.



Normal State LED Indications

In the Normal state, the LED indicates which relays are active as follows:

- If Relay 1 is on, the LED is Red.
- If Relay 2 is on, the LED is Green.
- If both Relay 1 and Relay 2 are on, the LED is Orange.
This state can occur only in Lights mode, not in Shutter mode.
- If no relay is on, the LED is off.

Device Configuration

The device is configured by default (factory settings) to lights mode with toggle switch mode. Device configuration can be changed as shown below. It is important to configure the device before adding it to the network.

The device type can't be changed once it is included.

Each configuration action is activated by pressing the configuration button for the time specified. The LED lights up as specified in the right column after the configuration button is released.

Action	Configuration Button	LED Activity and Results
Send Meter Report	Press 1 time within 1 second	Sends Meter Report.
Enter/Exit inclusion/ exclusion mode	Press 3 times within 1 second	Sends Node ID. LED blinks green - unpaired LED blinks red - paired
Change between toggle and momentary mode	Hold 3 seconds, release and press again within 1 second to confirm	LED flashes orange 3 times. Toggle - for every switch state change, the output state will change. Momentary - as long as the switch is pressed, the output will be on. (default is toggle mode)
Change between Lights and Shutter mode	Hold 7 seconds, release and press again within 1 second to confirm	1. Lights - LED blinks red 6 times, pauses and blinks another 4 times. 2. Shutter - LED blinks green 6 times, pauses and blinks another 4 times. (default is lights mode)
Enter/Exit shutter calibration mode	Hold 12 seconds, release and press again within 1 second to confirm	When press up button, the red LED blinks until no current is detected. When press down button, the green LED blinks until no current is detected. After calibration was done, exit mode.
Reset settings to factory defaults	Hold more than 16 seconds, release and press again within 1 second to confirm	LED flashes red 6 times pause and another 4 times. After reset the device behaves as if power was applied for first time.



Security

This device is a security enabled Z-Wave Plus product (S2), which is able to use encrypted Z-Wave Plus messages to communicate to other security enabled Z-Wave Plus products.

This device must be used in conjunction with a Security Enabled Z-Wave Controller to fully utilize all implemented functions.

Compatibility with Z-Wave network devices

The device can operate 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.

Configuration Parameters (Decimal Values)

No.	Function	Size	Value	Default	Description
1	Toggle/ Momentary for Switch #1	1 Byte	1-2	1	Send 1 for Toggle mode Send 2 for Momentary mode
2	Toggle/ Momentary for Switch #2	1 Byte	1-2	1	
5	Shutter up time*	1 Byte	0-255	40	Measure the time (sec.) it takes the shutter to go up from the moment it lifts from the ground until it reaches maximum height
6	Shutter down time**	1 Byte	0-255	40	Measure the time (sec.) it takes the shutter to go down from maximum height until it touches ground
7	Shutter light up time	1 Byte	0-255	5	Measure the time (sec.) it takes to close light slots
8	Shutter light down time	1 Byte	0-255	5	Measure the time (sec.) it takes to open light slots
9	24VDC / AC	1 Byte	0-1	0	Send 0 to enter AC mode Send 1 to enter DC mode
10	Current Threshold	1 Byte	0-240	130	A lower value will increase current measurement sensitivity.
11	Shutter Calibration	1 Byte	0-1	0	Send 1 to start calibration, press up, wait for the shutter to stop, press down, wait for the shutter to stop, press up, wait for shutter to stop. Send 0 to end calibration.
12	Shutter Auto Stop	1 Byte	0-1	1	Send 1 to activate meter Send 0 to deactivate meter
13	Meter Report Timing	1 Byte	0-255	60	The value, in minutes, will be the interval time for the device to send meter report. Value 0 is for half minute intervals

* The total up time is the sum of parameter 5 and parameter 7 values + 2 seconds.

** The total down time is the sum of parameter 6 and parameter 8 values + 2 seconds.

If meter is enabled, the relays will be turned off when no current is detected.

Association groups

- **Double Switch**

No.	Maximum number of nodes	Description
Group 1	5	Sends binary switch report when switch state is changed, Meter reports every 2 hours
Group 2	5	Sends Basic Set when switch state is changed

- **Shutter**

No.	Maximum number of nodes	Description
Group 1	5	Sends Multilevel switch reports when window cover position is changed, Meter reports every 2 hours

Specifications & Part Numbers

Dimensions	42.7 x 42 x 17.2 mm
Weight	48g
Operating Voltages	240 Vac, 50 Hz, 5mA 110 Vac, 60 Hz, 6mA 24 Vdc, 12mA
Maximum Load (240 Vac)	Incandescent: 1150W/channel Fluorescent: 144W/channel LED: 120W/channel
Range	Up to 50m outdoors, Up to 30m indoors
Operating Temp.	0°C - 40°C
Frequency	868.42MHz; 908.4MHz; 916MHz
Warranty	1 year

Specifications are subject to change and improve without notice.



The manufacturer TouchWand Ltd. declares under our sole responsibility that the product:

Marketing model: Double Micro Module Switch

Part number model: TW303100 (Vac) / TW303200 (24Vdc)

Trade/Brand name: InWand™

Changes or modifications not expressly approved by TouchWand Ltd. for compliance could void the user's warranty of the equipment.

This equipment radiates radio frequency energy. If not installed and used in accordance with the instructions, may cause interference to radio communications.

Troubleshooting

Symptom: Device not working

Cause of Failure:

1. Unit is not responding and appears as malfunction
2. Unit is malfunction

Recommendation:

1. Check the power connection or turn off the electricity main switch and turn it on again.
2. In case when the device is malfunction, a technician should replace the unit and activate "Replacement" functionality in the controller application.

Symptom: Unit does not change between Shutter and Light.

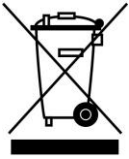
Cause of Failure:

Unit is paired, cannot change between shutter and light when unit is paired.

Recommendation:

1. Unpair unit from the controller and perform the desired action
2. Reset the unit to factory defaults and perform the desired action

Warning:



This symbol on the product or packaging means that according to local laws and regulations, it needs to be disposed of separately from household waste. Once this product has reached the end of its life, please take it to a collection point (recycle facilities) designated by your local authorities. 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 ones, the retailer is legally obligated to take back your old appliance for disposal free of charge.

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