myTEM SmartHome

myTEM Radio Socket
MTSOC-100-WL / MTSOC-100CH-WL

The myTEM Radio Socket is a universal, Z-Wave® compatible switch/adapter for loads up to 3'600 watts (type F, EU), respectively 2'300 watts (type J, CH). The power and energy consumption of the connected device is measured. In addition, a temperature and humidity sensor is integrated. These values are reported to the central controller and can be used to control other functions.

The programmable behavior to the wireless commands allows flexible use in the house.

Further information can be found on our website:
www.mytem-smarthome.com/web/en/downloads/

ATTENTION:
This device is not a toy. Please keep it away from children and animals!

Please read the manual before attempting to install the device!

These instructions are part of the product and must remain with the end user.

Warning and safety instructions

WARNING!
This word indicates a hazard with a risk that, if not avoided, can result in death or serious injury. Work on the device must only be carried out by persons with the necessary training or instruction.

CAUTION!
This word warns of possible damage to property.

SAFETY INSTRUCTIONS

- Operate this device only as described in the manual.
- Do not operate this device if it has obvious damage.
- This device shall not be altered, modified or opened.
- This device is intended for use in buildings in a dry, dust-free location.
- This device is intended for plugging into a power outlet (socket).

DISCLAIMER

Trademarks

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What is Z-Wave?

Z-Wave is the international wireless protocol for communication in the smart home. Z-Wave ensures a reliable communication by reconfirming every message (**two-way communication**) and every mains powered node can act as a repeater for other nodes (**meshed network**) in case the receiver is not in direct wireless range of the transmitter.

Z-Wave **products from different manufacturers can be used together** in a wireless network. Thus, this product with any Z-Wave product from other manufacturers can be used in a common Z-Wave wireless network.

The myTEM Radio Socket is a Z-Wave device with **secure communication (S2)** and uses the radio frequency of 868.4 MHz. If other devices also support the same secure communication, the data is exchanged in this secure mode. Otherwise it will switch automatically to a lower level of security to maintain backward compatibility.

For more information about frequency regulations please refer to the homepage of Silicon Labs. For more information about Z-Wave technology, devices, tutorials, etc. please refer to www.z-wave.info.

Product description

The myTEM Radio Socket is a universal, Z-Wave compatible switch/adapter of the type **On/Off Power Switch** for loads up to 3'600 watts (version type F, Europe) respectively 2'300 watts (version type J, Switzerland). The power and energy consumption of the connected device is measured.

The myTEM Radio Socket can be controlled via the button on the housing or via any Z-Wave controller. The programmable behavior to the wireless commands allows flexible use in the house.

In addition, a temperature and humidity sensor is integrated in the device. These values are reported to the central controller and can be used to control other functions.

Preparation for the installation

WARNING! Depending on national safety standards, only authorized and/or trained technicians may be allowed to make electrical installations on the power supply. Please inform yourself about the legal situation before installation.

In order to include (Add) a Z-Wave device to a network it **must be in factory default state**. Please make sure to reset the device into factory default. After power-up the status is displayed as below:

Status Add (included in a Z-Wave network):
The **LED** lights **green** for 1-2 seconds

Status Remove (not included):
The **LED** flashes **red** for 5-10 seconds

Reset to factory default

If the myTEM Radio Socket shows the status Add, the Remove can be performed with any controller in the network or with the help of a new controller. However it is recommended to use the primary controller of the previous network unless it is no longer available or damaged.

Remove deletes the memory chip, including all Z-Wave network settings.

To start the Remove process, please plug the device into a power outlet and press its button four times in quick succession. The LED flashes **red** and then the new status is:

Add: The **LED** lights up **briefly** in **green**
Remove: The **LED** lights up **briefly** in **red**

Installation

Please install the device according to the following steps:

1. Plug the device into a power outlet (socket) near the load to be controlled.
2. Include (Add) the module into the Z-Wave network.
3. Make sure that the electrical load of the device to be controlled is not above 3'600 watts (type F, EU), resp. 2'300 watts (type J, CH) before plugging it into the myTEM Radio Socket.
4. The myTEM Radio Socket now enables to control the power-on or power-off of the external device.
5. Switching can be done via any Z-Wave compatible controller or manually on the device. If the appliance (e.g. a lamp) has an ON / OFF switch, make sure that it is in position ON.

- **CAUTION!** Only one device shall be plugged into a power outlet (socket); a stacking of several devices is not allowed.
- **CAUTION!** Depending on the type, the device can be plugged into power outlets (sockets) of type F (MTSOC-100-WL) or type J (MTSOC-100CH-WL).
- **CAUTION!** To avoid overheating, do not expose the device to direct sunlight or use it in damp or dusty places.
- **CAUTION!** Do not install the device in places where there are flammable substances or heat sources, e.g. fire, radiator, boiler, etc.
- **CAUTION!** In operation, the device may get slightly warm, which is completely normal.

Inclusion/Exclusion (Add/Remove) of the device

On factory default the device does not belong to any Z-Wave network. In order to communicate with other Z-Wave devices, it must be included into an existing network or a new network has to be established. In Z-Wave this process is called Add.

Devices can also be removed from networks. In Z-Wave this process is called Remove. Both processes are initiated by the primary controller of the Z-Wave network. This controller is put into the Add, respectively the Remove mode. The manual of the controller will contain the information on how to switch it into these modes. Only when the primary controller of the Z-Wave network is in the Add mode can devices be added. Removing a device from the network will reset it to the delivery state.

Inclusion/Exclusion (Add/Remove)

To include/exclude (Add/Remove) the device to/from a Z-Wave network, plug it into a power outlet and press the button four times in quick succession. When the device is in the Add mode, the LED flashes **green**. When finished, the new status is:

Add: The **LED** lights up **briefly** in **green**
Remove: The **LED** lights up **briefly** in **red**

Manual switching

Manual switching between ON/OFF is possible with shortly pressing the button.

With pressing the button for approx. 1 second the socket can be switched ON. This is useful if it is not clear in what condition the socket output was (OFF or ON).

Quick trouble shooting

The following hints may help solving trouble during network installation.

1. Make sure that new devices are in factory reset state. The status is displayed at power up.
2. If a connection cannot be established, check that the controller and the device are working on the same radio frequency.
3. Remove devices that are no longer available in the Z-Wave network from all association groups. Otherwise significant delays in the execution of commands are possible.
4. Make sure you have enough mains powered devices to benefit from the meshing network.
5. Never use "sleeping" battery powered devices without a central controller.
6. Do not poll battery powered devices.

Explanation of some Z-Wave specific terms

Controller ... is a Z-Wave device with the capability to manage a network. They are typically gateways, remote controls or wall controllers.

Primary controller ... is the central administrator of the Z-Wave network. In a Z-Wave network, only one primary controller is allowed.

Slave ... is a Z-Wave device without the ability to manage a network. Slaves can be sensors, actuators and even remote controls.

Add (Inclusion) ... is the process of adding new Z-Wave devices into a network.

Remove (Exclusion) ... is the process of removing Z-Wave devices from the network.

Wakeup Notification ... is a special wireless message issued by battery powered Z-Wave devices to announce that they are awake and able to communicate.

Node Information Frame (NIF) ... is a special wireless message issued by a Z-Wave device to announce its capabilities and functions.

Z-Wave Association - Devices control each other

The Association Command Class is used to manage associations to NodeID destinations. An association group sends commands to the configured destinations when triggered by an event.

Association group of the myTEM Radio Socket:

Group ID	Profile / Name	Max. no of units	Command Class	Type / Event	Description
1	General: NA / Lifeline	5	Notification Report	T: System (0x09) E: Heartbeat (0x05)	Reports to be alive (interval according to configuration)
				T: Power Management (0x08) E: Power has been applied (0x01)	Reports the device had a start-up (sent after each power-up only)
			Meter Report	T: Single electric meter (0x01) S: Kilowatt (0x07)	Actual power (interval according to configuration)
				T: Single electric meter (0x01) S: Kilowatt hours (0x00)	Cumulated energy (interval according to configuration)
			Multilevel Sensor Report	T: Air temperature (0x01) S: Celsius (0x00)	Actual temperature (interval according to configuration)
				T: Humidity (0x05) S: Percentage value (0x00)	Actual humidity (interval according to configuration)
			Binary Switch Report		State of the relay output (can be triggered e.g. with button)

The reports "Heartbeat" and "Power Management" can be activated / deactivated separately via the command class **Notification**.

Z-Wave configuration parameter

Z-Wave products can be used out of the box after inclusion (Add) into the network. However, configuration settings can adapt the behavior of the device better to the needs of your application. This device uses following parameters:
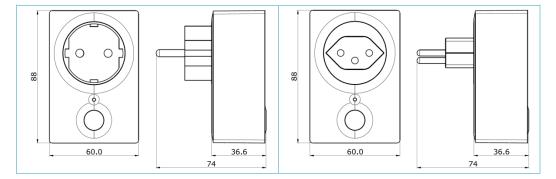
Par#	Description	Unit	Min	Max	Default	Precision	R/W	Size
1	Heartbeat rate	min	1	1440	60	0	r/w	2 bytes
2	Main voltage	V	80	280	230	0	r/w	2 bytes
3	Phase shift - cosines (φ)	–	0.00	1.00	1.00	2	r/w	2 bytes
4	Send interval power	min	1	120	5	0	r/w	2 bytes
5	Minimum delta power send [x)]	%	1	100	40	0	r/w	2 bytes
6	Send interval energy	min	1	120	5	0	r/w	2 bytes
7	Minimum delta energy send [x)]	kWh	0.001	50.000	2.000	3	r/w	2 bytes
8	Send interval temperature	min	1	120	5	0	r/w	2 bytes
9	Minimum delta temperature send [x)]	K	0.1	10.0	0.5	1	r/w	2 bytes
10	Send interval humidity	min	1	120	5	0	r/w	2 bytes
11	Minimum delta humidity send [x)]	%	1.0	100.0	1.0	1	r/w	2 bytes

[x)] Delta value in relation to the last sent value

Technical specifications

Dimensions (W × H × D)	60 × 88 × 74 mm (with plug), depth without plug 36.6 mm
Installation / mounting	Directly into power outlet (socket)
Operating voltage	230 VAC ± 10%
Power consumption in standby	Continuous operation for wireless network, therefore no standby operation
Power consumption in operation	0.35 W (myTEM Radio Socket only, without consumption of external device)
Switchable load	3'600 W (MTSOC-100-WL, version type F, Europe) 2'300 W (MTSOC 100CH WL, version type J, Switzerland)
Power measurement accuracy	P = 0 W − 200 W, ± 3 W; P > 200 W, ± 3%
Ambient temperature for operation	0 °C − 50 °C
Ambient temperature for storage	-20 °C − 60 °C
Ambient humidity	5 %RH − 85 %RH (non condensing)
Degree of protection provided by enclosure	IP 30 (according to EN 60529)
Protection class	I (according to EN 60730-1)
Overvoltage category	II (according to EN 60730-1, resp. EN 60664-1)
Pollution degree	2 (according to EN 60730-1)
Safety plug / socket	VDE 0620-1:2016 (Europe type F) SEV 1011:2009 + A1:2012 / Corr:2012 (Swiss type J)

Safety main unit	EN 60730-1:2016 + A1:2019 EN IEC 60730-2-13:2018 / AC:2018	EN IEC 60730-2-9:2019 + A1:2019
EMC main unit	EN 60730-1:2016 + A1:2019 EN IEC 61000-6-2:2019	EN IEC 60730-2-9:2019 + A1:2019 EN IEC 60730-2-13:2018 / AC:2018 EN 61000-6-3:2007 + A1:2011 / AC:2012
Safety radio part	EN 62368-1:2014/AC:2015	EN 62479:2010
EMC radio part	EN 301 489-1 V2.1.1	EN 301 489-3 V2.1.1
Radio spectrum	EN 300 220-2 V3.2.1	
RoHS	EN IEC 63000:2018	
CE conformity CE	2014/35/EU (LVD) 2014/30/EU (EMC)	2014/53/EU (RED) 2011/65/EU (RoHS)
Z-Wave hardware platform	ZM5101	
Device Type	On/Off Power Switch	
Role Type	Always On Slave (AOS)	

Supported Command Classes

Command Class (CC)	Not added	Non-secure added	Securely added, non-secure CC	Securely added, secure CC
Application Status CC	Support	Support	Support	
Association CC	Support	Support		Support
Association Group Information CC	Support	Support		Support
Basic CC	Support	Support		Support
Binary Switch CC	Support	Support		Support
Configuration CC	Support	Support		Support
Firmware Update Meta Data CC	Support	Support		Support
Manufacturer Specific CC	Support	Support		Support
Meter CC	Support	Support		Support
Multilevel Sensor CC	Support	Support		Support
Notification CC	Support	Support		Support
Powerlevel CC	Support	Support		Support
Security_2 CC	Support	Support	Support	
Supervision CC	Support	Support	Support	
Transport Service CC	Support	Support	Support	
Version CC	Support	Support		Support
Z-Wave Plus Info CC	Support	Support	Support	