myTEM
SmartHome

myTEM Radio RGBW module
MTRGB-100-WL

The myTEM Radio RGBW MTRGB-100-WL is a module for controlling and dimming 4-coloured LED strips. In addition to the red-green-blue-white color control, a warm white setting can be realized if the LED strip supports this function.

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

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 installation in a control cabinet. After installation, it must not be openly accessible.

DISCLAIMER

The manufacturer, TEM AG, is not liable for any loss or damage caused by failure to follow the instructions in the manual.

Typographical and printing errors cannot be excluded. However, the information contained in this manual is reviewed on a regular basis and any necessary corrections will be implemented in the next edition. We accept no liability for technical or typographical errors or the consequences thereof. Changes may be made without prior notice as a result of technical advances. TEM AG reserves the right to make changes to product design, layout and driver revisions without notice to its users. This version of the manual supersedes all previous versions.

Trademarks

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 RGBW module 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.

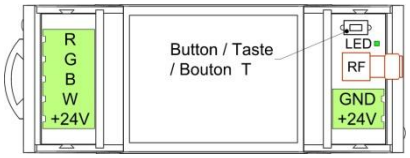
For more information about frequency regulations please refer to the homepage of Silicon Labs. For more information about Z-Wave technology, devices, tutorials, etc. please refer to www.z-wave.info.

Product description

The myTEM Radio RGBW module MTRGB-100-WL is a Z-Wave device of the type **Light Dimmer Switch** for use in **Europe / Switzerland**. It can be used for controlling and dimming 4-coloured LED strips. In addition to the red-green-blue-white color control, a warm white setting can also be realized if the LED strip supports this function.

The load is no longer switched directly via a (possibly existing light) switch, but a signal is sent to a controller like the myTEM Smart Server or the myTEM Radio Server, which in turn controls the myTEM Radio RGBW module via radio.

The myTEM Radio RGBW module must be powered by a 24 VDC power supply and can control 24 VDC RGBW LED strips or lamps. The device is installed in a control cabinet, mounted on a 35 mm DIN rail.



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 RGBW module 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 press the button (**T**) 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. **WARNING!** Make sure that the device is disconnected from the power supply.
2. **CAUTION!** Connect the myTEM Radio RGBW module as shown above.
3. **CAUTION!** The device shall only be operated with stabilized power supplies (24 VDC). Connecting higher voltages will damage the device.
4. Turn on the power.
5. Include (Add) the module into the Z-Wave network.

- **CAUTION!** The myTEM Radio RGBW module must be operated with the same voltage supply as the connected LED strips.
- **CAUTION!** When connecting long LED strips, there may be a loss of power. This can cause the luminosity to decrease with lights farther away from the RGBW outputs. To avoid this effect, several short, parallel LED strips are recommended instead of a long, serially connected LED strip. It is also recommended to connect LED strips with a maximum length of 10 m to the RGBW outputs.

  Please also note the instructions of the respective LED strip manufacturer.

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, press the button **T** four times in quick succession. When the device is in 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**

Color and dimming settings

The command class **Color Switch** is used to set the desired color.

The command class **Multilevel Switch** is used to set the desired intensity (value for dimming).

CAUTION! By default, the values for the color and intensity are 0, resp. set to OFF. To turn on the LED strip **BOTH** values must be set.

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. If a connection cannot be established, the control cabinet may reduce the radio signal. **Please use in this case an external antenna**, such as, for example, the myTEM MTANT-100-WL.
4. 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.
5. Make sure you have enough mains powered devices to benefit from the meshing network.
6. Never use "sleeping" battery powered devices without a central controller.
7. Do not poll battery powered devices.
8. Make sure you have set color and intensity values, otherwise the LED strip will stay turned off.

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 RGBW module:

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)

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

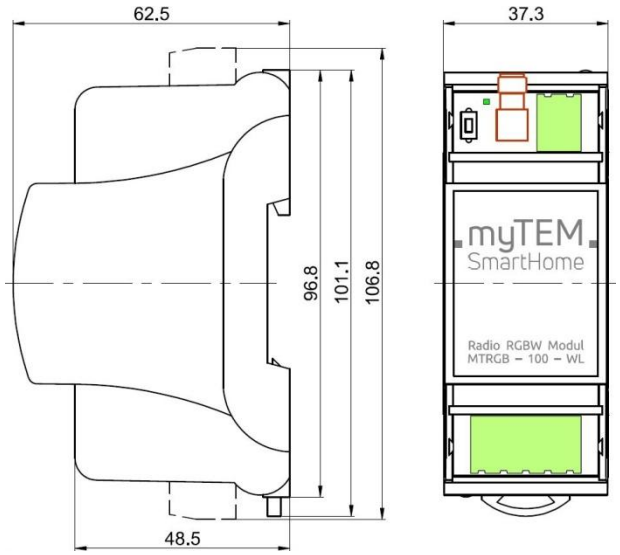
Z-Wave configuration parameter

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 the following parameter:

Par#	Description	Unit	Min	Max	Default	Precision	R/W	Size
1	Heartbeat rate	min	1	1440	60	0	r/w	2 bytes

Technical specifications

Dimensions (W × H × D)	37.3 × 101.1 × 62.5 mm (height with connectors 106.8 mm)	
Installation / mounting	On 35 mm DIN rail	
Operating voltage	24 VDC ± 10%	
Power consumption in standby	Continuous operation for wireless network, therefore no standby operation	
Power consumption in operation	0.3 W (MTRGB-100-WL only, without external LED strips)	
RGBW outputs	Max. 50 W per LED channel	
Ambient temperature for operation	0 °C – 50 °C	
Ambient temperature for storage	-20 °C – 60 °C	
Ambient humidity	5 %RH – 85 %RH (non condensing)	
Wire cross-section connectors	0.25 mm² – 2.5 mm²	
Stripping length for connectors	ca. 7 mm	
Tightening torque for connectors	0.5 Nm	
Degree of protection provided by enclosure	IP 20 (after installation)	(according to EN 60529)
Protection class	III	(according to EN 60730-1)
Overvoltage category	I	(according to EN 60730-1, resp. EN 60664-1)
Pollution degree	2	(according to EN 60730-1)
Safety main unit	EN 60730-1:2016 + A1:2019	
EMC main unit	EN 60730-1:2016 + A1:2019 EN IEC 61000-6-2:2019	 EN 61000-6-3:2007 + A1:2011 / AC:2012
Safety radio part	EN 62368-1:2014 / AC:2017	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	2014/30/EU (EMC) 2011/65/EU (RoHS)	2014/53/EU (RED)
Z-Wave hardware platform	ZM5101	
Device Type	Light Dimmer 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
Color Switch CC	Support	Support		Support
Configuration CC	Support	Support		Support
Firmware Update Meta Data CC	Support	Support		Support
Manufacturer Specific CC	Support	Support		Support
Multilevel Switch 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	

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.