

## Merten CONNECT radio system

Conventional electrical installation within a building is wired. Where wiring becomes too complicated or is simply impossible, radio is used. Using radio systems makes sense when

- customer requirements change and functions for example are to be upgraded.
- a house or flat is to be modernised.
- flexibility of the installation site is required.

Practically all functions of a conventional electrical installation can be performed with the Merten CONNECT radio system:

- Switching lights on/off and dimming
- Blind control
- Heating control
- ...

„Scenes“ can also be programmed. Not only one function is carried out at the push of a button but several different ones (for example switching on lights and simultaneously moving roller shutters).

An additional advantage of the CONNECT radio system is that it is a bi-directional radio network. That means that all devices can transmit and receive signals simultaneously. It is possible for signals to be routed or for alternative radio transmission paths to be found (e. g. during temporary faults).

Other properties:

- Secure transmission using frequency range 868 MHz
- Clear addressing enables interference-free operation of multiple radio systems side by side
- Very flexible installation and configuration
- Implementation of groups, scene control options and central functions
- The extensive range of products covers the following areas of application, for instance:
  - Lighting control
  - roller shutter control
  - timer functions
  - staircase lighting function
  - Scenes
  - heating control
- No cable routing required, due to battery-powered transmitters
- Extension of existing installations
- Extremely flat battery-powered push-button e.g. for attaching to glass
- Indoor transmission range: around 30 m (depending on installation site and building characteristics such as materials and wall strengths)
- Range in free field: approx. 100 m

### Configuration

You have two configuration possibilities according to requirements:

- The EASY CONNECT method:  
For connecting max. five devices which are in the direct vicinity of one another (e.g. in one room). Configuration is carried out manually.
- Using the CONNECT radio configurator:  
For systems between different rooms with up to 100 devices and extensive functions (scenes, central switching function, switching times, individual push-button assignments etc.). To do this, you will need the CONNECT radio configurator which offers configuration, documentation and diagnostic tools. Configuration is carried out using a PC.

### System administrator

For both configuration methods, a device must always be integrated as a „system administrator“. Information is saved in the system administrator, for instance routing tables, the functions of all integrated devices as well as a defined network ID and device IDs. A system administrator **must** therefore be available when programming or carrying out changes.

The device allocated the system administration function must be in a fixed location which is easily accessible. We therefore recommend you use a push-button (e. g. radio push-button 1-gang/2-gang) as a system administrator. You can see which devices may be used as system administrators in the following tables.

The push-button which is to adopt the system administrator function is referred to as the „system administrator“ in the following.

## EASY CONNECT

The EASY CONNECT configuration method is used when the radio network consists of maximum five devices, which are located in direct reception range of each other (e. g. in a room).

### Requirements

- With new radio systems, the push-button, on which a receiver is firstly programmed, manages the system administration. The system administrator is installed last of all as you will need to be able to move it near the devices which are to be programmed.
- Install all devices, except for the system administrator, at their final installation locations and connect them.
- Connect the load to the receiver. Some receivers use the load to display confirmation of commands received during the programming procedure.

### Programming devices

Connections between devices are established by firstly programming all receivers individually to the system administrator.

Subsequently, additional transmitters are programmed to the system administrator. During this procedure, the connections and functions of the system administrator are copied to the transmitters. That means the transmitters carry out the same functions as the system administrator.

### The programming procedure

Only three steps are necessary to carry out the programming procedure. The following applies:

- ① Move the (prospective) system administrator into the vicinity of the device which is to be programmed.
- ② First of all press the key on the (prospective) system administrator three times within approximately 1.5 seconds.
  - If a system administrator does not yet exist, the LED will start to flash for approximately 6 seconds and then will light up continuously for approximately 30 seconds.
  - If a system administrator already exists, the LED will then immediately light up for 30 seconds.You have time to program a different device during the 30-second period when the LED lights up continuously.
- ③ Now press the key/programming button/sensor surface on the (prospective) system administrator three times within approximately 1.5 seconds. This is confirmed by the LED lighting up for approximately 1 second.

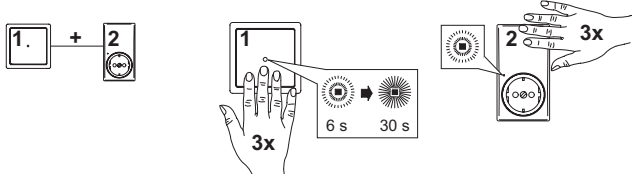
The system administrator and the device which is to be programmed are now connected to each other. If you want to program additional devices, repeat the three steps.

## Example

Installation of a two-way circuit with two receivers:

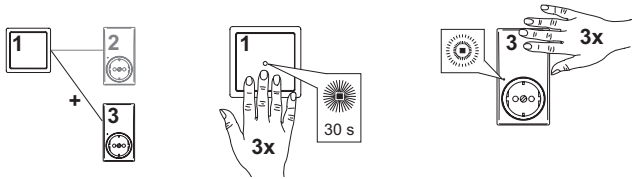
### Step 1:

Program receiver 2 to the system administrator.



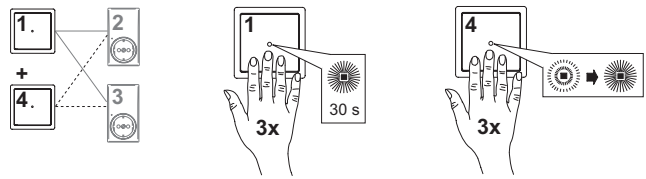
### Step 2:

Program receiver 3 to the system administrator.

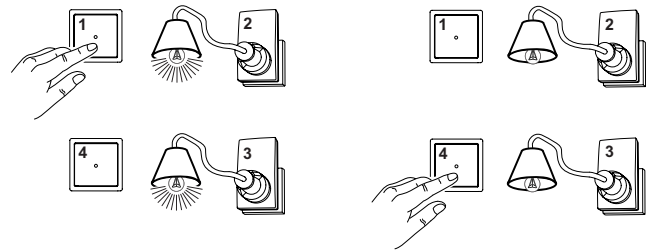


### Step 3:

Program transmitter 4 to the system administrator.




Result: You have installed a two-way circuit with two transmitters (push-buttons) and two loads.





# 3


## Symbols


The following symbols can be found in the following circuits and device tables:

 The device can assume the functions of the system administrator. We recommend you use only fixed devices as system administrator (e.g. CONNECT radio push-button, 1-gang).

 The device has a routing function. It automatically relays signals and maintains fault-free operation.

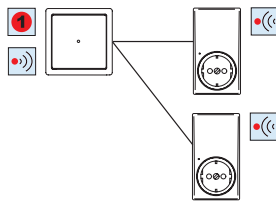
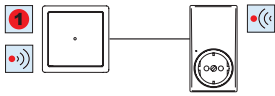
 The device transmits signals.

 The device receives signals and switches accordingly e.g. light or roller shutter.

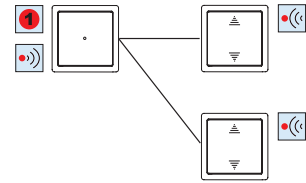
 Z-Wave standard  
The device is compatible with z-wave products from other manufacturers.

## Circuits (examples)

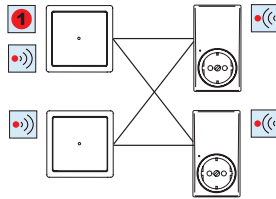
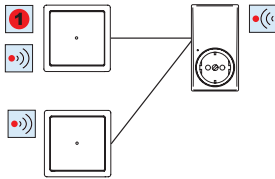
### On-off circuit



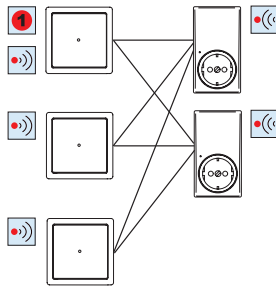
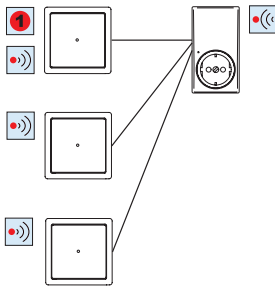
### Roller shutter control



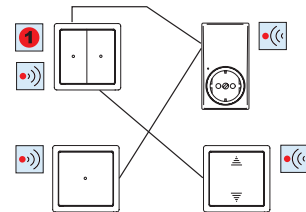
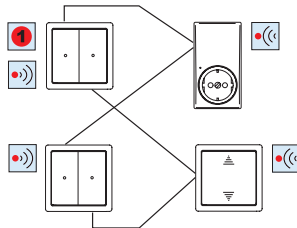
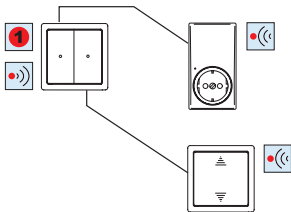
### Two-way circuit



### Intermediate switch circuit

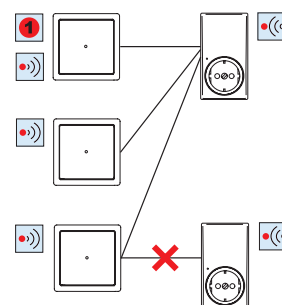
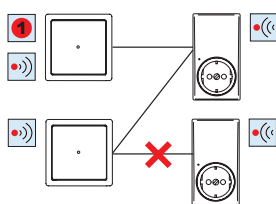
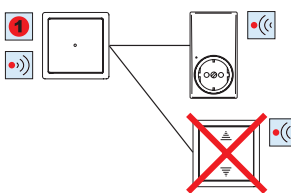


### Series circuit and combinations



**i** The CONNECT 1-gang radio push-button always adopts the function of the left key on the system administrator.

### Combinations that are not permitted



## CONNECT radio configurator

You select this configuration method when you want to set up a radio network between rooms with a wide range of functions (scenes, central switching function, switching times, individual stored key functions to name but a few). The system is capable of managing up to 100 devices.

### Requirements

- You need a laptop, the „CONNECT radio configurator“ software and the „CONNECT radio USB data interface“.
- Ensure there is a good distribution of receivers throughout the building.  
Receivers can route radio commands. If a radio transmission path is temporarily disrupted by furniture for instance, other receivers within range can forward the radio commands. The more receivers in range of the transmitter and of each other, the more reliable and stable the operation will be.
- Reduce your time and effort by simply installing a CONNECT radio system in your building. If a CONNECT radio system already exists, you should delete it and reset the device to its factory settings. Then you can integrate the device into a new CONNECT system and create the corresponding connections there.

## Installing a new CONNECT radio system

The following applies:

- ① Installing devices
- ② Connecting the configurator/programming the system administrator
- ③ Capturing devices
- ④ Inserting function channels in the „Building view“
- ⑤ Connecting devices
- ⑥ Programming devices

### Installing devices

Install all the devices at their final installation locations and connect them. This is necessary even during capturing as the devices recognise where the other devices are which can forward radio commands (routing).

Connect the load to the receiver. Some receivers use the load in order to confirm commands that have been received.

### Connecting the configurator/programming the system administrator

The configurator must be connected to the network in order to capture new devices or to change an existing radio network. The connection is always made via the system administrator. Therefore you are prompted to actuate the system administrator or the prospective system administrator (three times within approximately 1.5 seconds). The system administration is then transferred to the configurator so that you may set up or change the system.

As soon as the configurator is disconnected from the radio network, the system administration is transferred back to the original system administrator.

### Capturing devices

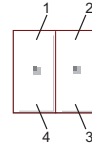
If the configurator is connected to the radio network, you must capture devices. Here the configurator reads out all of the device information in order to be able to integrate them into the radio network.

Capture all receivers first and then capture all transmitters in a room. Only receivers are able to forward radio commands. The transmitters know which receivers can do this. The sequence in which devices are captured is therefore important.

In order to capture a device you must actuate it three times within 1.5 seconds. In order to confirm this, put the receiver briefly into its current switching state once; when it is transmitting, the LED in the push-button flashes. The device to be captured must be located in the direct vicinity of the „CONNECT radio USB data interface“ connected to the laptop.

### Inserting function channels in the „Building view“

A device has one or more function channels which are used to carry out functions. A 2-gang push-button has up to four channels for instance:



Each of these channels can be allocated a function via a connection. The functions available depend on the properties of the device.

Individual function channels are shown in the „Building view“ as a tree structure according to their logical classification (place of actuation/operation). The logical arrangement is usually the same as the installation location.

In the case of flush-mounted devices, it is possible that the installation location and the actuation/operation location are different. Thus, a flush-mounted receiver can be located on a distribution board in the hallway but switches a lamp in the living room. In this case, the installation location of the flush-mounted receiver is the hall. The later assignment in the „Building view“ is however to the living room.

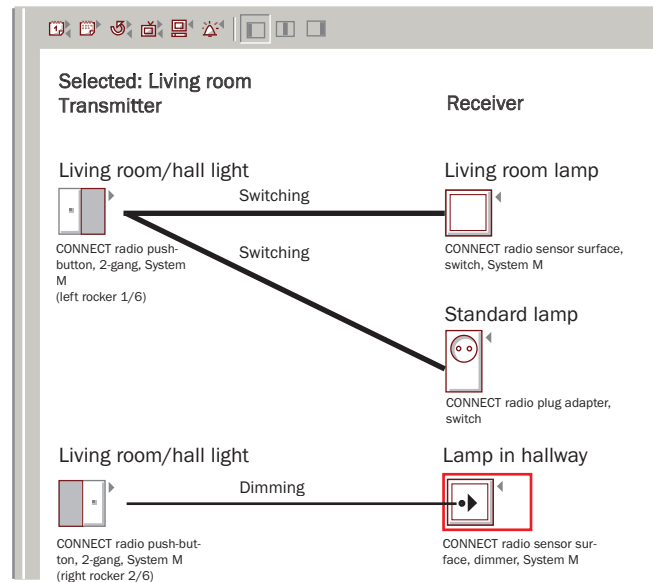
### Connecting devices

If the devices have been captured and the function channels have been inserted in the „Building view“, you have to link the individual devices or their function channels. This is done graphically by simply dragging a line from the transmitter to the receiver.

The configurator automatically detects which functions are available for the connected channels and sets a logical function for this connection.

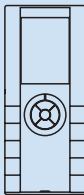

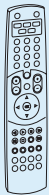














Example: If you connect a push-button to a dimmable plug adapter, the dimmer function is then automatically set.

The channels are pre-set for each device but can be changed.

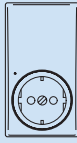

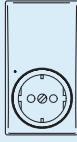

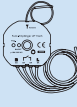





### Programming devices

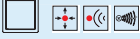
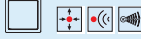
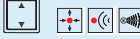
In the final step the information must be supplied to the individual devices. This is done by programming the individual devices. The laptop must be connected to the radio system and be in direct reception range of the device which is to be programmed.

Radio transmitters		
Function	Channels	Transmitter
<ul style="list-style-type: none"> <li>- CONNECT radio system, central control and visualisation</li> <li>- Eight freely programmable operating buttons</li> <li>- Administration of central functions of the radio system (32 scenes, time switch with 20 weekly and 12 annual time switch programs, 1 history function)</li> <li>- IP address: adjustable or can be assigned dynamically via DHCP</li> <li>- Integrated web server for PC, touch panel, PDA operation with merten@home</li> <li>- Integrated real-time clock with reserve power of 4 hrs.</li> <li>- Piezo loudspeaker for acoustic alarm</li> <li>- Alarm/message display and additional e-mail forwarding</li> <li>- Signalling when e-mails arrive</li> <li>- Multimedia application: Control of network mp3 players or streaming clients</li> <li>- JPG image slide shows (FTP server on the Internet)</li> <li>- Displaying current news (RSS feeder)</li> <li>- Interface for the Microsoft Multimedia Center edition</li> <li>- Radio range: up to 50 m outdoors, up to 20 m indoors</li> </ul>	<p>8 fixed + 1,000 that are configura- ble via soft- ware</p>	 <p>CONNECT radio central unit, merten@home, colour 5059..</p> <p>CONNECT radio central unit, merten@home, monochrome 5050..</p> 
<ul style="list-style-type: none"> <li>- Radio remote control and IR remote control of the radio receivers and TV, VCR/DVD, SAT, AMP in the Merten CONNECT radio system.</li> <li>- Update via the Internet</li> <li>- IR functions are programmable via code input or via direct programming</li> <li>- Macro functions</li> <li>- 20 scenes</li> <li>- Radio range: up to 100 m outdoors, up to 30 m indoors</li> <li>- IR range: up to 15 m</li> </ul>	20	 <p>CONNECT radio universal remote control 506922</p> <p>Battery: 4 microcells (IEC LR 03, AAA)</p>  <p> The device can assume the features and characteristics of a system administrator. As it concerns a mobile device, we recommend that you select a fixed device as system administrator. Instead, use for example a CONNECT radio push-button, 1-gang.</p>
<ul style="list-style-type: none"> <li>- Battery-powered radio transmitter for controlling the Merten CONNECT radio system's radio receiver.</li> <li>- Radio range: up to 100 m outdoors, up to 30 m indoors</li> </ul>	2	 <p>CONNECT radio push-button, 1-gang System M 5061..., 5051.. System Design 5071.. Battery: 1 lithium button cell (CR 2450)</p> 
<ul style="list-style-type: none"> <li>- Battery-powered radio transmitter for controlling the Merten CONNECT radio system's radio receiver.</li> <li>- Radio range: up to 100 m outdoors, up to 30 m indoors</li> </ul>	4	 <p>CONNECT radio push-button, 2-gang System M 5062..., 5052.. System Design 5072.. Battery: 1 lithium button cell (CR 2450)</p> 
<ul style="list-style-type: none"> <li>- Battery-powered radio transmitter for connecting up to 4 floating switch contacts (e.g. standard push-buttons).</li> <li>- For the remote control of other receivers from the Merten CONNECT radio system via push-buttons from the Merten switch ranges.</li> <li>- Automatic recognition of the connected devices, for example sensor, switch or push-button.</li> <li>- Radio range: up to 100 m outdoors, up to 30 m indoors</li> </ul>	4	 <p>CONNECT radio transmitter flush-mounted, 4-gang 506004</p> <p>Battery: 1 lithium button cell (CR 2450)</p> 
<ul style="list-style-type: none"> <li>- Mains-supplied radio transmitter for controlling the Merten CONNECT radio system's radio receiver.</li> <li>- Radio range: up to 100 m outdoors, up to 30 m indoors</li> </ul> <p>Note: The device is rounded off by the electronic switch insert, art. no. 576799 or the relay switch insert, art. no. 576897.</p>	1	 <p>CONNECT radio sensor cover, for switch inserts System M: 5034..., 5024.. System Design: 5044..</p> 
<ul style="list-style-type: none"> <li>- Mains-supplied radio transmitter for controlling the Merten CONNECT radio system's radio receiver.</li> <li>- Radio range: up to 100 m outdoors, up to 30 m indoors</li> </ul> <p>Note: The device is rounded off by a universal super dimmer insert, art. no. 577099.</p>	1	 <p>CONNECT radio sensor cover for dimmer inserts System M: 5036..., 5026.. System Design: 5046..</p> 
<ul style="list-style-type: none"> <li>- Mains-supplied radio transmitter for controlling the Merten CONNECT radio system's radio receiver.</li> <li>- Radio range: up to 100 m outdoors, up to 30 m indoors</li> </ul> <p>Note: The device is complemented by a blind control insert, art. no. 580698 or by a blind control insert with extension input, art. no. 580699.</p>	1	 <p>CONNECT radio roller shutter push-button with sensor connection System M: 5035..., 5025.. System Design: 5045..</p> 



## Radio receiver complete devices

Function	Receiver
<ul style="list-style-type: none"> <li>- For switching external loads with SCHUKO plug.</li> <li>- Manual operation is possible via the sensor surface and can be controlled remotely via Merten CONNECT radio system transmitters.</li> <li>- Radio functions: Switch on, switch off, scene.</li> </ul>	 <p><b>CONNECT radio plug adapter, switch</b> 508519 AC 230 V, 50 Hz 16 A, <math>\cos \phi = 1</math>, max 35 <math>\mu</math>F</p> 
<ul style="list-style-type: none"> <li>- For switching and dimming external loads with SCHUKO plug.</li> <li>- Manual operation is possible via the sensor surface and can be controlled remotely via Merten CONNECT radio system transmitters.</li> <li>- For ohmic, inductive and capacitive loads, e.g. incandescent lamps, dimmable wound transformers or electronic transformers.</li> <li>- Phase control or phase alignment</li> <li>- Memory function that can be switched off</li> <li>- Automatic load detection.</li> <li>- Radio functions: Switch on, switch off, dim, scene.</li> </ul> <p><b>Caution!</b> Only suitable for dimmable lights. Do not plug in any other loads like TV, vacuum cleaner etc. Observe maximum load.</p> <p><b>Caution!</b> Do not connect any mixed loads.</p>	 <p><b>CONNECT radio plug adapter, universal dimmer</b> 508619 AC 230 V, 50 Hz 40 VA - 350 VA</p> 
<ul style="list-style-type: none"> <li>- For switching a load via a floating make contact.</li> <li>- Can be controlled remotely via transmitters in the Merten CONNECT system.</li> <li>- Radio functions: Toggle, on, off, push-button operation.</li> </ul> <p><b>Caution!</b> Contact scanning should be regarded just like a 230 V connection. Take appropriate measures to prevent direct contact.</p>	 <p><b>CONNECT radio receiver, flush-mounted, 1-gang switch</b> 507001 AC 230 V, 50 Hz 10 A, <math>\cos \phi = 1</math>, max 35 <math>\mu</math>F</p> 
<ul style="list-style-type: none"> <li>- For manually adjusting the desired room temperature locally.</li> <li>- with the CONNECT radio central unit, it is possible to reduce/increase the temperature by about 4 °C.</li> <li>- Functions: Toggling between comfort and standby</li> </ul>	 <p><b>CONNECT radio valve drive for heaters, comfort/standby</b> 509201 Battery: 2 Mignon 1.5 V (IEC LR 6, AA)</p> 



## Radio receiver for flush mounting

Function	Design covers	Inserts
	<p>Manual operation is possible via the sensor surface and can be controlled remotely using Merten CONNECT radio system transmitters.</p>   	<p>System M System Design</p> <p>5034... 5024... 5044...</p> <p>5036... 5026... 5046...</p> <p>5035... 5025... 5045...</p>



### Electronic switch (2 conductors - neutral conductor is not required)

<p><b>Switching of ohmic loads</b></p> <ul style="list-style-type: none"> <li>- Incandescent lamps, 230 V halogen lamps</li> </ul>	 <p><b>Electronic switch insert</b> 576799 (40 - 300 W)</p> 	■		
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

### Relay switch (3 conductors - neutral conductor is required)

<p><b>Switching of ohmic, inductive or capacitive loads</b></p> <ul style="list-style-type: none"> <li>- Incandescent lamps, fluorescent lamps, energy-saving lamps, LV halogen lighting etc.</li> </ul>	 <p><b>Relay switch insert</b> 576897 0 - 1000 W/VA, max. 140 <math>\mu</math>F</p> 	■		
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### Dimmer (2 conductors - neutral conductor is not required)

<p><b>Dimming of ohmic, inductive and capacitive loads</b></p> <ul style="list-style-type: none"> <li>- Incandescent lamps, 230 V halogen lamps, dimmable wound transformers, electronic transformers</li> <li>- Phase control or phase alignment</li> <li>- Extension input for push-buttons and extension TELE inserts</li> </ul>	 <p><b>Universal super dimmer insert</b> 577099 at 50 Hz: 25 - 420 VA; at 60 Hz: 25 - 340 W</p> 	■		
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### Roller shutter

<p><b>Controlling a blind/roller shutter drive</b></p> <ul style="list-style-type: none"> <li>- Local operation of a blind/roller shutter motor with limit switch.</li> <li>- Motor protection by interlocked relay contacts.</li> <li>- Neutral conductor required</li> </ul>	 <p><b>Standard blind control insert</b> 580698 (max. 1 motor 1000 VA)</p>		■	
<p><b>Controlling a blind/roller shutter drive</b></p> <ul style="list-style-type: none"> <li>- Local operation of a blind/roller shutter motor with limit switch.</li> <li>- Extension input for roller shutter switch/push-button or additional blind control insert for group/central control.</li> <li>- Wind alarm function can be implemented</li> <li>- Motor protection by interlocked relay contacts</li> <li>- Neutral conductor required</li> </ul>	 <p><b>Blind control insert with extension input</b> 580699 (max. 1 motor 1000 VA)</p>			■