Radio configurator CONNECT

Help

Introduction

The CONNECT radio configurator enables you to create and configure a CONNECT radio system quickly and easily. Most of the **menu commands and program instructions are self-explanatory, ensuring you quickly become familiar with the program.**

To understand all functions however, we recommend you read these instructions prior to planning and installation.

Conventions used in this help manual

References to program menus, windows or views are represented in the following in the form <Menu/Menu command>.

You can open this help guide at any time via the <Help/Help> menu command or using the F1 function key.

For particular questions, you can open up the chapter concerned or else enter a search string under <Search> and then go to the chapters listed. When entering a search string, we recommend entering a "*" (i.e. wildcard) at the start and end of the term you are looking for.

The CONNECT radio system

The CONNECT radio system is an intelligent, flexible radio network in which the individual devices not only transmit and receive one-way signals but also communicate with one another. The system uses functions such as routing.
Device-specific addressing of the radio commands also enables multiple radio systems to operate side by side (for example in the neighbourhood).

These functionalities make the CONNECT radio system highly reliable, resistant to interference and flexible-to-use.

The section below contains explanations of some terms and functions related to the CONNECT radio system and the devices.
These are very helpful for understanding the principle and for both avoiding and detecting errors during installation and configuration.

Principle of the CONNECT radio system

A CONNECT radio system functions according to the principle of a network.

Addressing

Each device in the radio network has a unique address. This is made up of the (unique) network address and the (unique) device address.
These addresses are generated by the configurator and assigned when the devices are captured.

During programming (via the radio configurator), each transmitter is sent the addresses of the destination receiver to which it needs to send commands (according to the configuration).

Based on these unique addresses, multiple CONNECT radio systems can be operated in parallel without any problem (e.g. in apartment buildings).

Routing

Each device in the network can communicate directly with all participants within its range. Participants not within its immediate range can be reached via what is known as routing. With this, the radio command is sent from one receiver to the next until it reaches the destination receiver (via no more than 3 devices). Should this route fail, the next alternative route is chosen.
The number of possible alternative routes depends on the number and spatial distribution of receivers in the radio system.

The more receivers are positioned effectively in the radio system, the more routes will be available.

Bad: too far apart and no routes
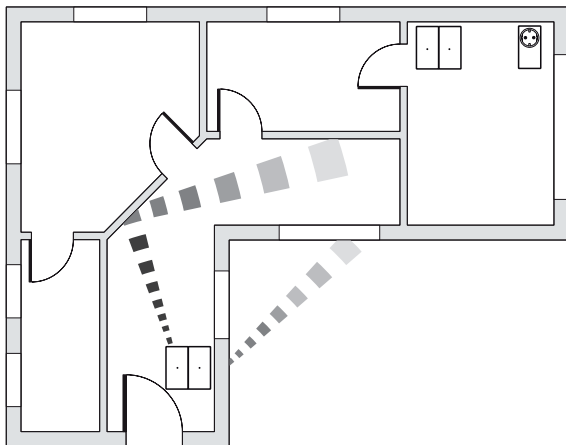
Bad: One route only
-> No alternative routes

Bad: Receivers not distributed
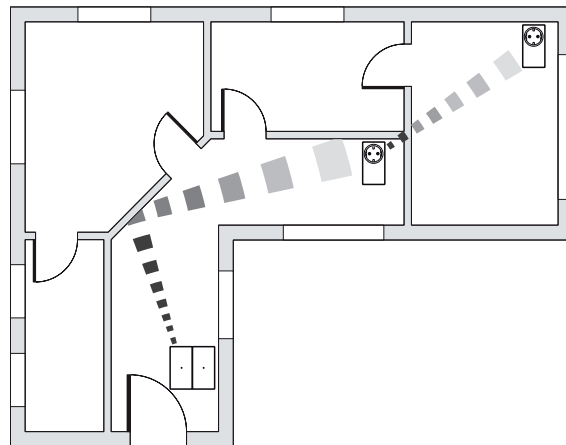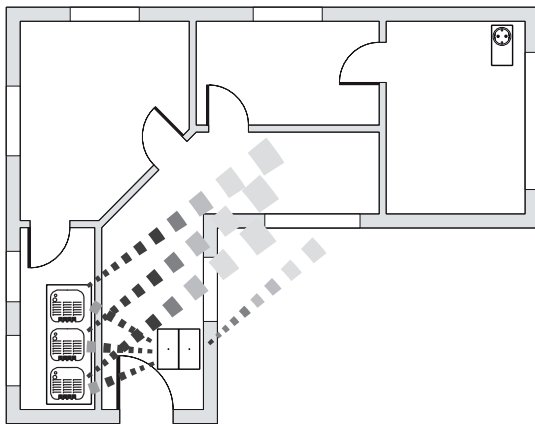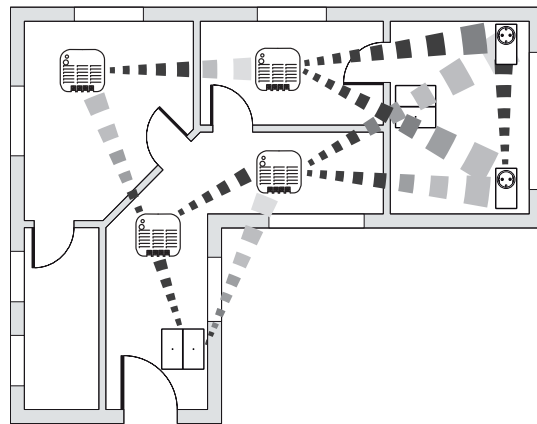-> No alternative routes.

Good: Uniform distribution of many receivers
-> Many alternative routes

➜ **The better the distribution of the participants in the building and the more participants there are, the more secure and reliable the radio system will be.**

The transmitter calculates which receivers can be used for a route based on a routing table. This table shows which receivers are in direct reception range of one another.

When programming the devices (and hence creating the routing table), it is important that transmission and reception conditions correspond to later operation.
If changes are made to the transmission and reception conditions after the routing table has been created (e.g. by subsequent installation in a flush-mounted box), the table will no longer be correct. In this case, radio commands will be sent to devices for which there is no longer a radio transmission path. For this reason, each time the transmission and reception conditions are changed, the routing table for this device needs to be redetermined and updated in the transmitters (Reprogram transmitters).

The system administrator device

The device that is the system administrator handles administration and storage of the device addressees and the routing table (system data). Only the system administrator device can add or remove new devices to the network or make changes to the routing table. This prevents device addresses being assigned twice for instance.

In every CONNECT radio system, there is there always one device that is the system administrator. Usually this is the first device to be set to learning mode (when a CONNECT radio system is newly created with devices in factory settings). When a device is specified as the system operator, a memory area for the system data is provided inside this device. Using this data, the radio system can be changed again at any time (e.g. when adding new devices and connections).

In order to change a radio system using the configurator, this data and hence system administration needs to be transferred to a device which has a connection to the PC/laptop. This device is the USB radio data interface.

➜ **The system administrator device is important only for configuration. A CONNECT radio system will also operate without the system administrator device (e.g. when battery is empty or a device fails)**

Not all devices can act as the system administrator. On the device's packaging and in the catalogue you will find markings telling you which devices can act as system administrator.

Info

> The device acting as system administrator should be easy to trace again (for later disconnection from or connection to the radio system).
> If you no longer know which device is the system administrator, you can check this. The LED of the device that is the system administrator will light up permanently in learning mode (the LEDs of all the other devices will flash).

Learning mode

CONNECT devices are unprogrammed in their factory settings. Programming (allocation of device addresses, actions to be carried out etc.) can only take place in the device's learning mode. Activation of learning mode on devices is device-specific (special key sequence, programming button etc.)

You can find out how to set a device to learning mode in the device's operating instructions.

Characteristics of radio transmissions

Transmission of radio signals is always influenced by various environmental conditions. The ranges and radiation characteristics in particular depend on installation conditions and the various constructions and designs of the devices.

It is therefore important to take these radio characteristics into account accordingly too during installation.

> **➔ Take radio characteristics into account during installation.**

Ranges

Details on ranges for radio devices always depend on the measurement conditions. Even some minor changes e.g. the mounting height or position of the antenna, will influence the range considerably.

The following table indicates possible ranges (free field, in device axis) for some devices for different mounting heights.

	Range			
Mounting height:	2.0 m	1.5 m	1.0 m	0.2 m
Plug adaptor	approx. 70 m	approx. 65 m	approx. 35 m	approx. 10 m
Flush-mounted transmitter	approx. 70 m	approx. 65 m	approx. 35 m	approx. 10 m
Sensor covers	approx. 50 m	approx. 45 m	approx. 25 m	approx. 10 m
Push-button	approx. 30 m	approx. 25 m	approx. 15 m	approx. 5 m
CONNECT central unit	approx. 30 m	approx. 25 m	approx. 15 m	approx. 5 m
CONNECT remote control	approx. 30 m	approx. 25 m	approx. 15 m	approx. 5 m

The degree to which the range is dependent on the mounting heights is clear to see - the greater the mounting height, the greater the range.

In order to reach distant receivers outdoors for instance, it is often helpful to install an additional receiver (as a router) at a great height (e.g. on an outside wall).

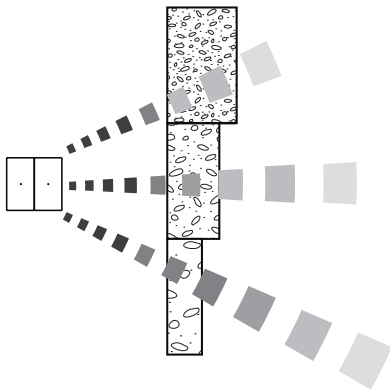Influence of mounting height on range
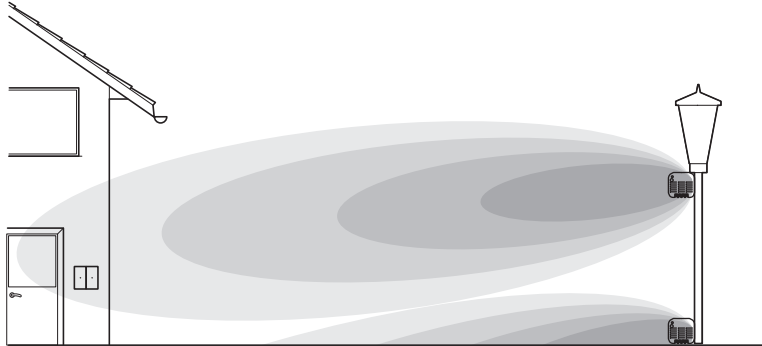
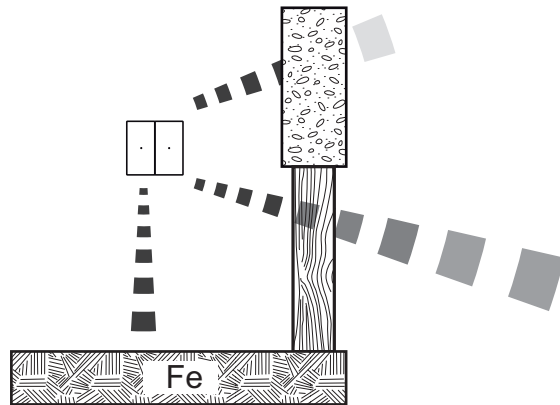> ➔ **Mount devices as high as possible outdoors.**

Attenuation

In inside areas, other factors influence the range, particularly attenuation of the radio signal by walls and ceilings.

Influence of material thickness

Influence of material type

The materials that need to be penetrated will have greatly varying attenuating characteristics.

| Material of wall/ceiling	Reduces range by
wood, plaster, plasterboard	approx. 10%
brick, chipboard	approx. 30%
reinforced concrete	approx. 70%
metal, metal matrix, laminated aluminium	approx. 90%

The thicker the material, the greater the attenuation.
If radio waves have to pass through several walls for instance, this may lead to the radio signal being attenuated entirely.

> ➔ **Attenuation of radio waves: The greater the material thickness to be penetrated and the more attenuating the material types, the less the range will be.**

Reflections

Radio signals are also reflected by walls and objects. Range and accessibility is improved very significantly in some cases. As a result, connections around corners are also possible.
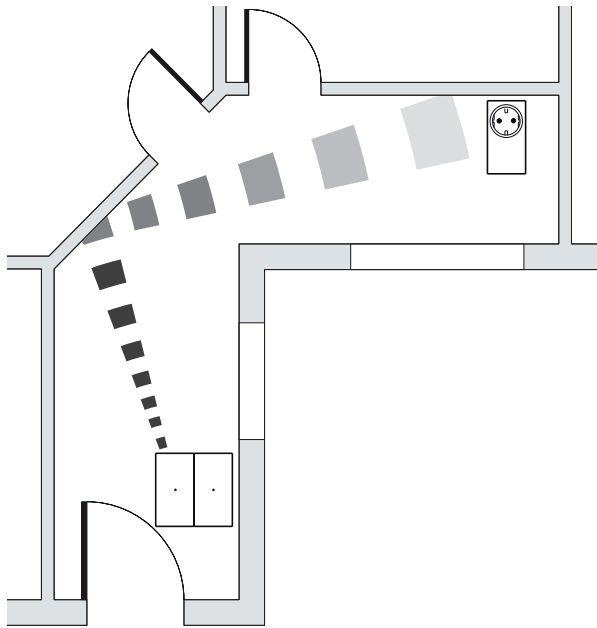
> ➔ **Radio waves are also reflected (e.g. through walls).**

Mounting of devices with an external antenna (flush-mounted devices)

Radio signals are transmitted via antennae. On many devices, the antenna is integrated in the housing. Some devices have external antennae however, the position of which influences how the radio signal is transmitted.
Electrical cables in the direct vicinity will disturb the radio signal, lowering its range or preventing it entirely.

When installing flush-mounted devices, ensure the electrical cables in the flush-mounted box are as tidy as possible and as far away as possible from the device front i.e. its antenna.

Good: Antenna and electrical cables laid separately.
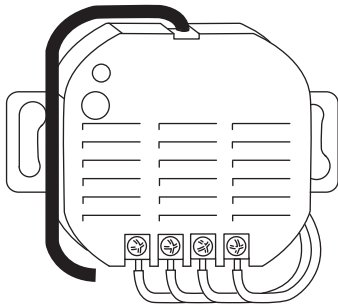
Bad: Antenna is lying over the electrical cables

Info:
In certain cases, range and reception characteristics will improve even more if you place the antenna outside the flush-mounted box.

➔ **Position radio antennae so they are as free as possible and far away from electrical cables and metal surfaces.**

Radiation characteristics

Owing to the various designs and installation conditions, the individual CONNECT devices have different emission characteristics.
Below is schematic diagram of the radiation characteristics of various devices:

Flush-mounted devices/plug adapters/push-buttons:
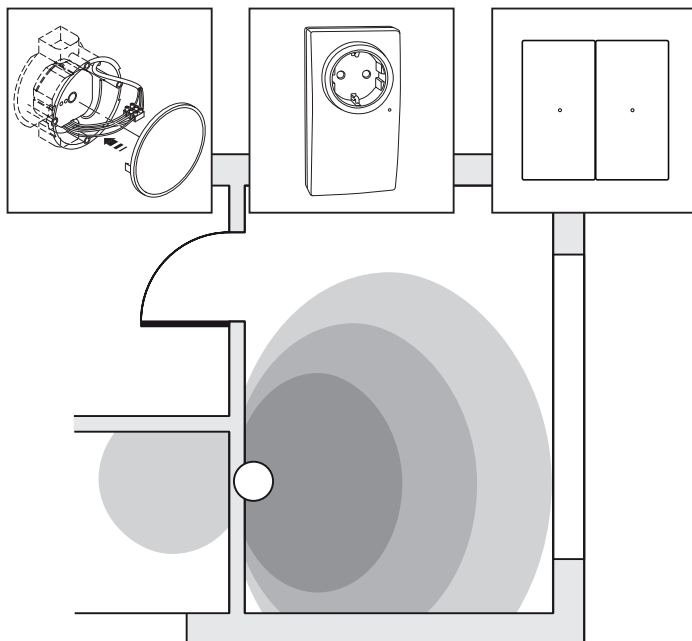
With a flush-mounted device and plug adapters, the radio signal is determined by the installation conditions and with the flush-mounted device also by the position of the wire antenna. The material of the surrounding wall attenuates the radio signal here as it passes through the wall.

Sensor surfaces/radio central unit:
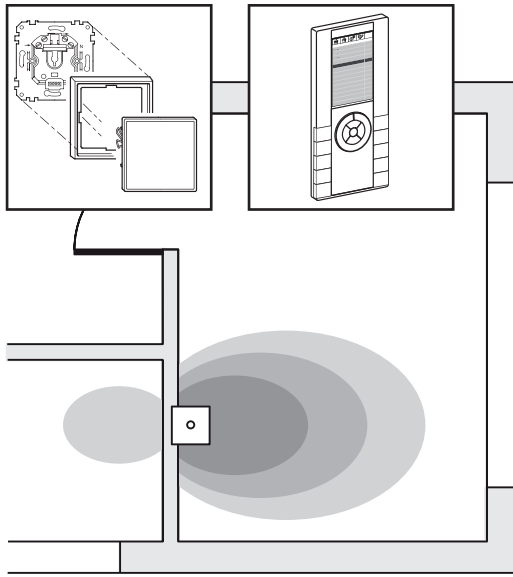
The sensor surface and the radio central unit are mounted on a flush-mounted insert. The insert's metal mounting frame and the materials of the surrounding wall attenuate the radio signal as it passes through the wall.

Tips for installation

➔ **Effective distribution of receivers in the building.**
   Ensure devices are distributed as uniformly as possible inside the building. More devices (particularly receivers) will make the CONNECT system more reliable and secure.

➔ **Lay antennae so they are not obstructed (with flush-mounted devices).**
   Never place the radio antenna next to electrical cables or behind metal covers. Ensure there is a space separating the radio antenna and the electrical cables. Do not mount any metal covers in front of radio antennae.

➔ **Mount devices outdoors so they are as high as possible in order to obtain the greatest possible range.**

Radio configurator CONNECT

The radio configurator can also enable you to create and configure a wide range of radio systems simply and conveniently. The program will assist you in all steps required for configuration.

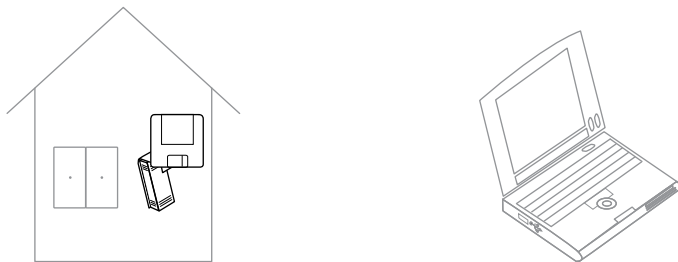**Planning the system administrator device**

With a new project, you determine a device from the radio system as the system administrator device at the start (e.g. a push-button). Inside this device, a memory area is made available for the system data (-> "The system administrator device"). To change a radio system using the configurator (add or remove new devices to the network or make changes to the routing table), the USB radio data interface has to be the system administrator. For this reason, system administration is transferred to the USB radio data interface when connecting with the radio system.
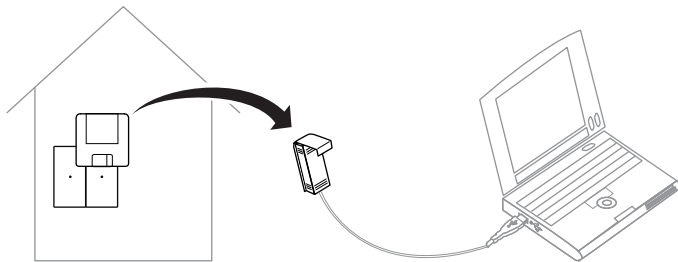
When configuration is finished, you need to ensure that the system data that was changed during configuration (routing table, device list etc.) is retained in the radio system.

You then decide whether you transfer this data to the device in the radio system again (Transfer system administration) or whether you leave this data in the USB radio data interface (Exit configurator without disconnecting from the radio system and without transferring system administration).
The USB radio data interface must remain in the radio system and in the building in such cases.

During planning, you should decide whether you are going to leave the USB radio data interface as a device in the radio system later on or not.

Info:
>   If the USB radio data interface is the system administrator, you will not be able to configure any other radio system with it.

Info:
>   This help guide primarily describes the approach where the radio system is disconnected and system administration is transferred to the device in the radio system.

User interface and menus

As with most Windows programs, the CONNECT radio configuration tool is mainly operated interactively via menus and mouse control. Many program functions can be selected using context menus (right click).

Various views are assigned to the individual program functions in which the user interface and areas are modified accordingly.

Areas

1. View bar (selection of view)

2. Building view

3. Devices area

4. Connections/function channels area
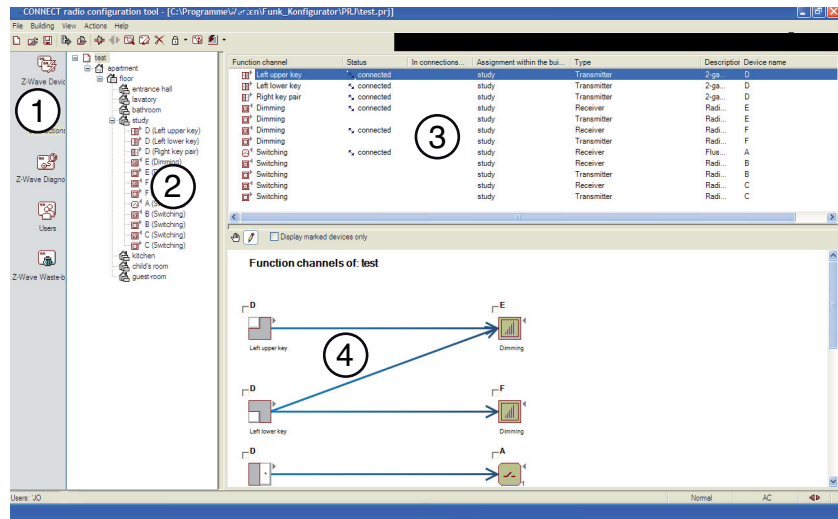
Select the required view via <View/Views> or using the icons in the View bar:

Devices
for capturing the devices.

Connections
for capturing the devices.

Diagnostics
for measuring the connection quality.

Users
for administrating the user accounts.

Recycling bin
for device symbols deleted from the radio system (not for devices removed/deleted from the radio system).

You can change the size of the individual areas within a view using the mouse. With larger projects, it also helpful if you hide the view bar and building view (<View/View bar>, <View/Building view>). This will provide you with more space to display the devices, particularly in the Connections view.

Certain status information in shown in the bottom line of the program window:

The current user

Normal/demo
This shows whether a normal radio system is configured or a demo system.

AC/Battery
Indicates whether the laptop is connected with the mains network or is running on its battery.

Symbol for:
whether the configurator is connected with the radio system or not.

User administration

You can create multiple users for working with the program. In the program log, the individual configurations of the radio system are saved along with details of the user. This enables tracking of who the project was processed by later on (-> *"Program log"*).

➔ **New users can only be added by the administrator (logon "admin").**

You can change the user any time even when a program is running.

Program log

All important changes to the radio system are logged in a file while the program is running. The individual operations are saved with details of the user and the date/time. This enables individual changes to the radio system to be tracked more easily.

You open the current log by going to <Actions/Display log>.

Report

You can create a report for the current project under <File/Report/Create...>.

All devices, connections and functions of the radio system are documented here. You can generate this report at the end of a project and then print it out.

Configuring the radio system (Quick Guide)

In order to configure a **new** CONNECT radio system, carry out the following steps in turn:

1. Install all devices at your installation site.
2. Create a new project -> *"Creating a new radio system"*
3. Connect the USB radio data interface to your laptop.
4. Connect the configurator with the radio system -> *"Connecting the configurator with the radio system"*
5. Capture the radio devices -> *"Scanning devices"*
6. Insert the devices into the Building view -> *"Adding the function channels to the building structure"*
7. Create the required connections between the devices -> *"Establishing connections"*
8. Program all devices -> *"Programming devices"*
9. Test all functions of the radio system. Should any functions not be working, -> *"Diagnostics"*
10. Disconnect the configurator from the radio system -> *"Disconnecting the configurator from the radio system"*

After following these steps, your radio system will be configured. You can exit the configurator and switch off the laptop.

In order to configure an **existing** radio system, carry out the following steps in turn:

1. Open the project file for this project <File/Open/....>
2. Connect the configurator with the radio system -> *"Connecting the configurator with the radio system"*
3. Carry out the desired changes.
4. Program all devices -> *"Programming devices"*
5. Test all functions of the radio system. Should any functions not be working as required, -> *"Diagnostics"*
6. Disconnect the configurator from the radio system -> *"Disconnecting the configurator from the radio system"*

After these steps, the changes in your radio system will have been configured. You can exit the configurator and switch off the laptop.
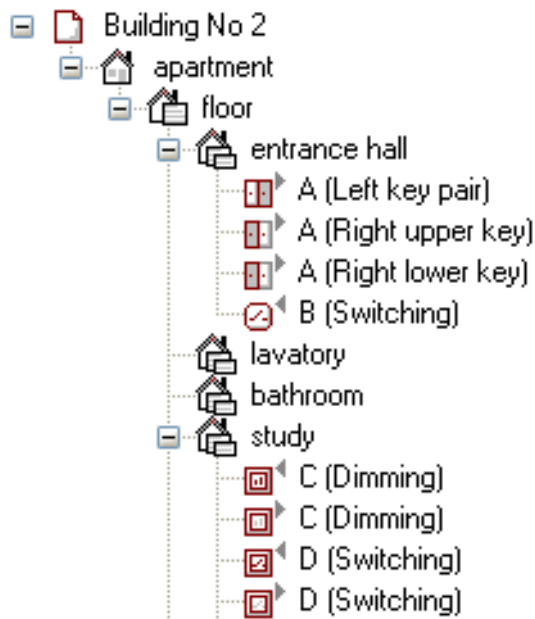

Info
> The configurator will guide you through configuration of your project with corresponding messages and comments. Please read these and follow them. This will ensure configuration of your CONNECT radio system is simple and also completed quickly.

Creating a new radio system

To integrate the devices you have installed into a radio system and configure them, you first need to create a new project (<File/New>).
When you have done this, you define the building structure (floors, rooms and areas) in which the devices and their functions are installed.

To do so, go to <Building>, open/modify a building template, or go to the Building view directly via <Building Part/Insert> and create the house area and other floors, rooms or areas .

Info

> The function channels appear in the building structure in a hierarchical tree structure according to their logical arrangement (place of actuation/operation).

Once you have created the building structure, you can connect the laptop with the radio system and create a new radio system -> *"Connecting the configurator with the radio system"*

Info

> You can also create your own building templates. This is a good idea if you often create projects in buildings which are structurally similar: Create a building structure and save it in the "TPL" directory.

Connecting the configurator with the radio system

To enable the configurator to change data for the devices (Add devices, Create connections), the USB radio data interface needs to become the system administrator (-> *"The system administrator device"*) i.e. be connected with the radio system.

Connecting the configurator with the radio system:
Select <Actions/Connect with radio system> or the corresponding icon.

After a short time, you will be requested to set the device that is the system administrator to learning mode.
The system data is then transferred to the USB radio data interface.

The configurator is now connected with the radio system.
You can now capture other devices or program any changes you have made -> *"Scanning devices"* -> *"Programming devices"*

Info:
If the USB radio data interface is already the system administrator for the project, the configurator will detect this. In such cases, you will not be requested to transfer system administration.

Scanning devices

In order to integrate devices into a project (and also therefore into a CONNECT radio system), the devices must first be captured.

During capturing, the configurator (or the USB radio data interface) reads the information for the devices and searches for the appropriate file (DVC file).
The DVC file contains further details for configuration.
If no DVC file is found for a device captured, it will appear as an unknown device. You will be able to use it in the radio system but its functionality will be restricted.

Capturing

1. Select <Actions/Capture devices> or the corresponding icon.
    A corresponding user action will appear.

2. Activate learning mode for the device to be captured (press sensor cover, programming key or sensor surface three times briefly in succession).

As soon as the device is in learning mode, this user action will disappear from the screen.

The Characteristics window with the details detected appears once the device has been detected. You will now need to assign it a name (① as shown below) and select the installation location (② as shown below). You select the installation location from a list according to the building structure created earlier.

Info:
> You should give it a descriptive name which also indicates its assignment within the building and its function (e.g. light living room). This makes the device easier to detect later in the Connection view.

Info:
> If a device is detected as an unknown device during capturing, repeat capturing one more time without resetting the device to factory settings beforehand.
> When repeating capturing, the configurator will recognise that the device already has an address in this radio system and read the corresponding information again. See -> "Unknown devices in radio project".

➔ **As soon as a device has been captured, it will have a unique address in the radio system.**

Mount the device at its ultimate installation location after it has been captured (e.g. in the flush-mounted socket, under a lampshade etc.).

➔ **Mount the devices in their ultimate installation location once they have been captured.**

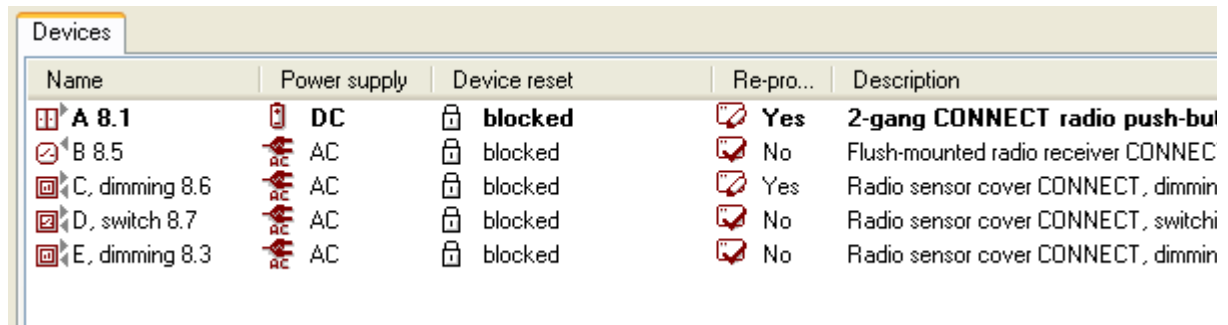Carry out this capturing procedure for each device in turn.

When you have captured all devices, end capturing using the corresponding button in the window.

Info:

When all devices have been captured and mounted (end of "Capture"), the devices which are in direct transmission/reception range of one another are determined. This overview is saved in what is known as a routing table. See -> Principle of the CONNECT Radio System.

➔ **Once all devices have been captured, the program will determine the routing table. This can take some time.**

The captured devices are listed in the Devices view.

Explanation of information in Devices view

Name

Name of device.

Power supply

AC (network) or DC (battery) supply voltage.
Devices with an AC power supply can route signals.

Device reset

Resetting of device to factory settings at location on device "allowed", "not allowed" or "not possible".
By using "not allowed", you can prevent accidental resets to factory settings by the user.
By using "allowed" the device can be reset to factory settings at the location (e.g. by clicking a push-button three times and keeping it pressed down for a longer period).

> ➔ **You cannot reset devices integrated in a project with the radio configurator to factory settings on the devices themselves in order to integrate them into other CONNECT systems.**
> **If you were to do this, the project structure would no longer match the actual devices installed. Once the devices are programmed, this device is expected to be at the address assigned for this project.**
> **Resetting the device to the factory settings deletes this address and it cannot be restored.**

Reprogramming

If changes have been made to the project in the configurator that require the device to be reprogrammed, this is shown here:

Yes: Programming required -> *"Programming devices"*

No: Programming not required

Routing table: Update routing table

Configuration: Transfer radio central unit configuration via network connection, -> *"CONNECT radio central unit"*

Description

Manufacturer's product name.

Installation location

Installation location of device according to building structure.

Address

Address of device.

Order of capturing

Shows the number of devices captured so far in this project.

Programming order

Shows how many devices are still to be programmed -> *"Programming devices"*. You can change this order: Context menu <Set programming order...>.

Display of device types in the program

The transmitters and the receivers are indicated by the arrow at top right:

Transmitter: The arrow points away from the device

Receiver: The arrow points towards the device

This enables you to quickly check if the corresponding transmitters and receivers are located in all rooms.

After all devices in all rooms and areas have been captured, you can enter the function channels for these in the Building view. -> *"Adding the function channels to the building structure"*
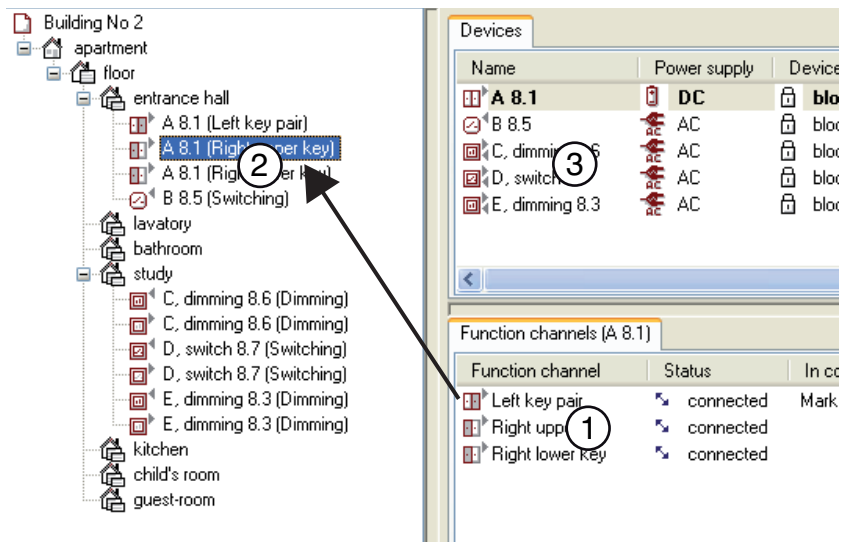
Establishing connections

In order to control functions using the radio system (e.g. switching on living room lamp using the bottom left sensor surface), you need to connect the devices and configure the functions you wish to execute. To do this, you first need to add the function channels for the devices you want to connect up to the building structure.

Adding the function channels to the building structure

Drag the function channels from the <**Function channels**> area (①) as shown below) to the desired room/area (②) as shown below) in Building view.

Info:

When you drag a device from the <**Devices**> area (③ below) to the desired room/area, all function channels for this device will be added to this room/area.

Once you have integrated the function channels, you now need to establish the connections and configure the functions you require.

Connecting the devices and configuring the functions

1. Change to Connection view.

2. In the Building view, select the floor, room or area where the function channels you want to connect are located.

3. In the top line of the Connection view, choose "Tool connections".

4. Keeping the left mouse button pressed, drag a line from the transmitter to the receiver.
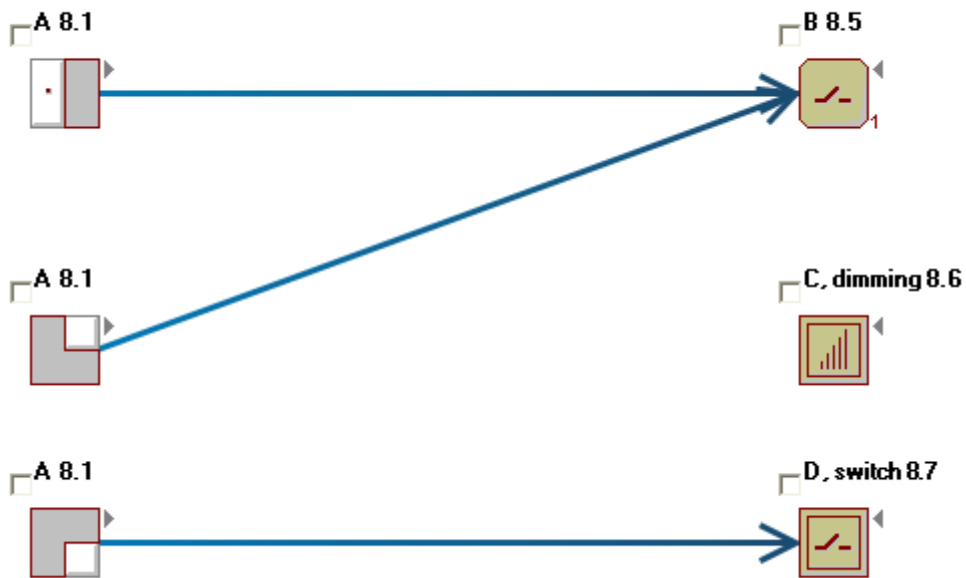
As soon as the line is created, a window in which you can define the properties of this connection appears.

After you have established the connections, you will need to program this information into the devices.
-> *"Connecting the configurator with the radio system" -> "Programming devices".*

Info:

With some functions, you will see a "**?**" icon. Selecting this icon will see provide with more detailed explanations of the settings.

Info:

The selection made in the Building view behaves like a filter for the devices and connections which are to be displayed. If you wish to create a connection bet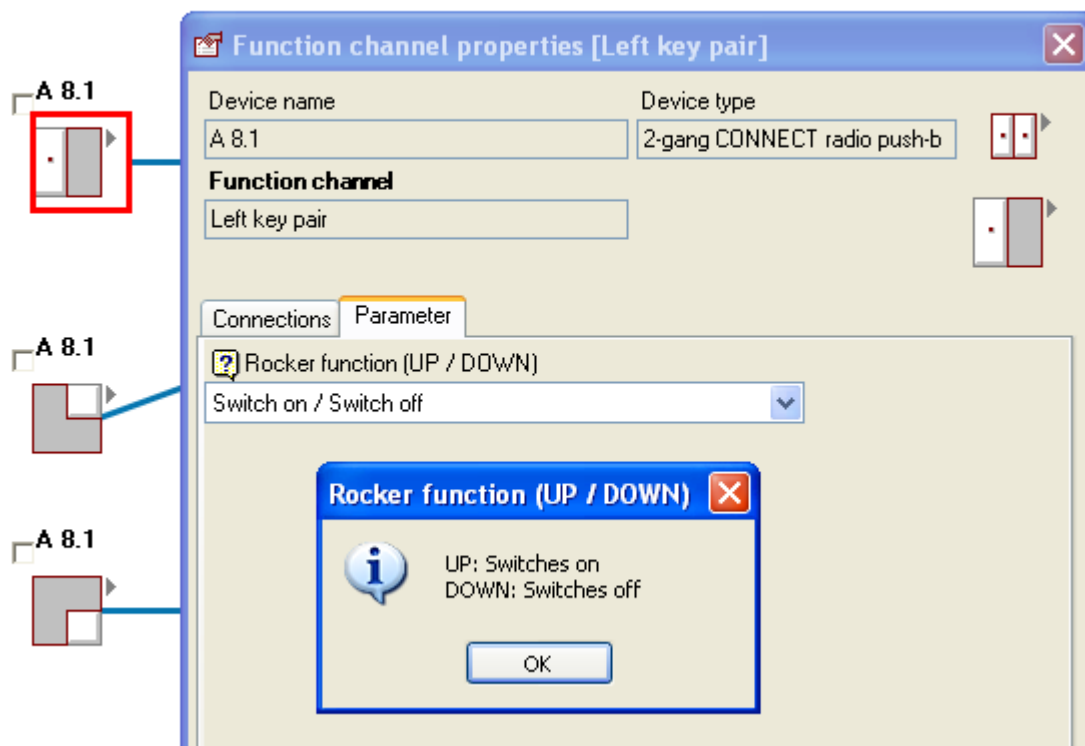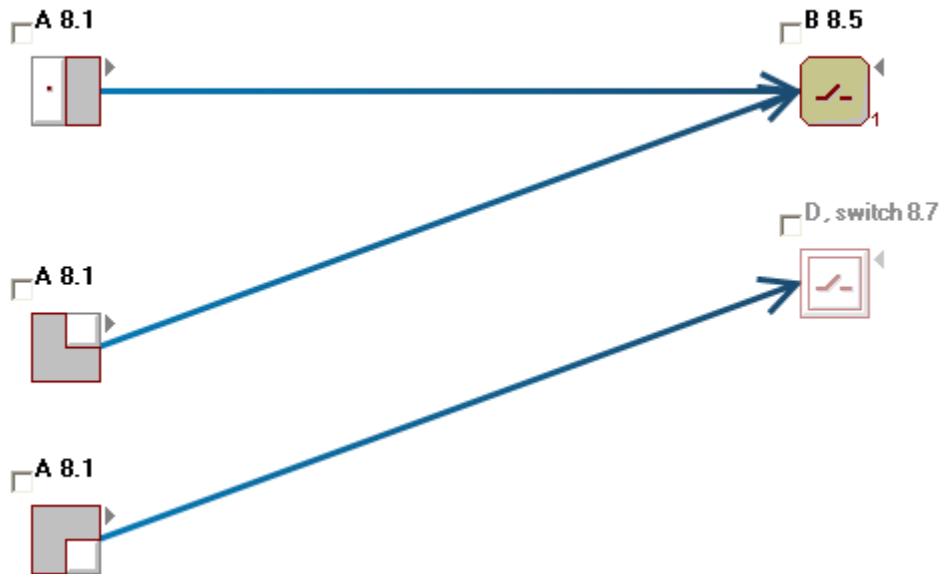ween different rooms, select the next highest level in the Building view or select the relevant rooms together (select with the shift key held down).

Info:

Function channels not contained in the area/floor/room currently selected but which have a connection to a function channel in this area will be shown in a light grey colour (see Receiver D, Switch 8.7 in the diagram).

Connections when a radio central unit is contained in the radio system

If a radio central unit is available, its modules (for general functions such as switching times and scenes) are shown in the top line.
Explanations of modules and their connections -> *"CONNECT radio central unit"*.

Notes and tips on the Connections view

Integration into building structure

Generally speaking, integration of a function channel into the building structure corresponds to the installation location. With flush-mounted devices, the installation location and the location of actuation/ operation may be different however.
Example: With an exterior luminaire, the receiver is typically located inside the building but the luminaire itself outside. In this case, the installation location would be a room inside the building. It will be integrated into the building structure in the garden however.

Tools

In the top line of the Connection view, you will see various tools which you can select:

🖐 Move tool

✏️ Connections tool

☐ Display selected devices only (choice box)

Positioning function channels in the Connection view

1. Select the "Move" tool

2. Hold down the left mouse button and drag the selected device to the desired position.

To move several devices simultaneously, select the "Move" tool beforehand then drag a frame around the devices while keeping the left mouse button pressed down. You can now move all your selected devices at once.

For greater clarity, you can hold down the CTRL key when moving the devices or modules in the Connections view. This is particularly useful for connections which extend beyond the visible window area.

Info:
> The following Windows keyboard commands:
> "CTRL +A" (Select all),
> "CTRL+ Mouse" (multiple-select)
> "SHIFT+Mouse" (Select multiple columns)
> can also be used in the Connection view.

Displaying selected devices only (View filter)

You can also mark devices individually (using the choice box to the left of the icon). In the top line you will see a choice box. When this is activated, only the marked devices will be displayed.
In addition, you can right-click to mark selective device types/modules and then display these.
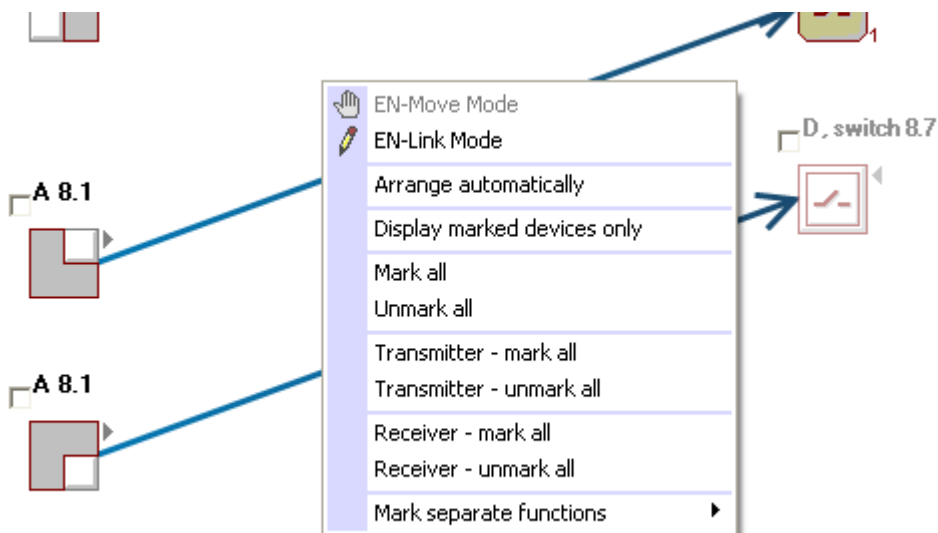
You may for instance wish to display the devices required for a central function (Central OFF).

To display the push-button and all receivers in this case, you will need to proceed as follows:

1. Select the topmost level in the building structure.

2. In the Connection view, open the context menu and select "Unmark all".

3. In the context menu, select "Receiver- Mark all".

4. Mark the push-button too.

5. In the top line, select "Display marked devices only".

6. In the context menu, select "Arrange automatically".

You will then see the push-button and all receivers and can configure the connections.

Programming devices

After you have made all the connections and settings, you will need to transfer this information to the individual devices.
This is done by "programming" the individual devices:

1. Select <Actions/Program devices>.
    Programming takes place automatically.
    You no longer need to set all devices to learning mode. The configurator will show you which device needs to be set to learning mode in a window.

2. Move your laptop close to the device and set the device to learning mode.

Info:
When programming some transmitters, you will need to move your laptop (and the USB radio data interface) within immediate reception range of the devices and also set these to learning mode in order to transfer the routing table.
Some transmitters will not be sent the full routing table but just fixed defined routes that have been calculated by the configurator. These transmitters also be sent their information via routing and will no longer need to be set to learning mode during programming.

Info:
You can change the programming order any time you wish: Context menu <Set programming order...>.

Info:
You can also program individual devices only (Context menu <Program selection>).

Disconnecting the configurator from the radio system

Once configuration of the radio system is finished **and** has been **tested**, you can transfer system administration to a device in the radio system again.

Transfer of system administration to a device in the radio system is **not** necessary when:

- configuration is interrupted (e.g. overnight)...

- the USB radio data interface remains in the radio system (i.e. at the customer).

- another diagnosis of the radio system is to be carried out in the foreseeable future.

Info:
> As long as the USB radio data interface remains the system administrator, you will not be able to configure any other radio system with it.

Ending configuration when system administration is transferred:
> <Actions/Disconnect from radio system>.

After a short time you will be requested to set the device that is the system administrator to learning mode. System data will then be transferred from the USB radio data interface to the device in the radio system.

Ending configuration without transferring system administration:
> Choose <File/End>

After a short time you will be asked whether you wish to exit the configurator. Click YES.
You will then be asked whether you wish to transfer system administration. Click NO.
System administration will remain with the USB radio data interface. The USB radio data interface is not necessary for the radio system to function. You can store this in a cupboard or another room if you wish - it is only required for configuration.

Info:
> System administration and the device that is the system administrator is only important for configuration. If system administration cannot be transferred by the USB radio data interface due to, for instance, a system crash or a laptop's rechargeable battery being empty, this is not a problem. The data is stored in the USB radio data interface in all cases.

Diagnostics

The functions in Diagnostics help you locate and rectify errors and problems in the radio system.
You can also use diagnostics for an initial estimation of the reliability and quality of the connections after you have captured the devices.

To use the diagnostics results effectively, an understanding of the CONNECT radio system is required.
Before performing diagnostics, you should therefore read the chapter *"The CONNECT radio system"*.

Quality of a connection

Two parameters are used to determine the quality of a connection:

- Transmission capacity, enabling a radio command to arrive at the receiver.

- Number of possible routes for the connection.

In order to measure the required transmission capacity for a connection, a radio command with a constantly rising signal strength is transmitted by each device participating in the connection to a receiver. As soon as the receiver receives the signal, it sends back an acknowledgement of receipt. The transmitter will now know which transmission capacity is required in order to reach the receiver.

The number of possible routes is determined during capturing of the devices. The device captured detects which other devices are located within its immediate reception range.
By the time the last device is captured, all possible routes within the radio system will be known.

Using this information, the configurator can then calculate how reliably a radio command will arrive using these routes.

Display of routing table

The information about which devices are located within immediate reception range of one another is saved in the routing table (see *"Routing"*).

You can view this table in Diagnostics (<Routing Table> in list in footer).

Using this routing table, you can see immediately after all devices have been captured whether individual devices have sufficient direct radio connections to other receivers and hence whether spatial distribution of the devices in the building is effective (from a radio technology perspective).
Ideally, each line should contain at least three crosses.

Display of connection table

A quality will already be shown for the individual connections in the connection table (<Connection table> in the list shown in the footer).
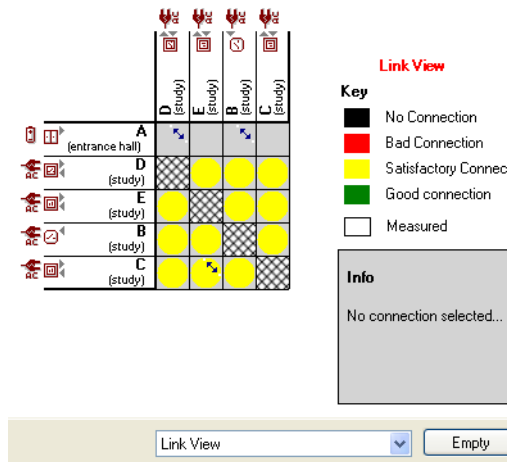
The connection qualities shown here are not measured but determined based merely on the number of possible alternative routes.

The colour of the cells shows the connection quality determined:

Black:	No connection exists between the transmitter and receiver, not even via other receivers (routing).
Red:	Only a few radio transmission paths exist for the connection and the signal that arrives at the receivers will be very weak.
Yellow:	Sufficient radio transmission paths/routes exist for the connection. The signal that arrives at the receivers will be sufficiently strong.
Green:	Sufficient radio transmission paths exist for the connection. The signal that arrives at the receivers will be very strong.

As long as no measurement has been made and therefore only the results from capturing of the devices are available, circles will appear in the cells.

Info:
> The routing table created when the devices are captured will not yet contain any information about the connections of mobile devices (e.g. push-buttons, remote control, flush-mounted transmitters).
> In order to obtain a statement about the connection quality from these devices too, their connections will need to be actually measured (Context menu: <Determine routing data: .....>).

If the quality is sufficient or even good (i.e. yellow or green), the connections should work reliably. In such cases, it is not necessary to measure these connections.

With devices for which a bad connection quality or no connection is shown (i.e. red or black), insufficient alternative routes exist.
The placement and transmission/reception characteristics of these devices should be checked and, if possible, other devices placed within their vicinity.

If problems occur with a connection despite it having sufficient or good quality, this is probably due neither to its placement nor the spatial distribution of the devices.
With such connections, you will need to measure the quality in order to isolate the problem.

Info
> In most cases, you will only need to measure individual connections. Measuring all connections takes a very long time and should only be done in exceptional cases.

Measuring an individual connection

Double-click the cell in the table for the connection you want to measure.
Measurement will commence and after a short while all possible connections between the two devices will be shown in a graphic.
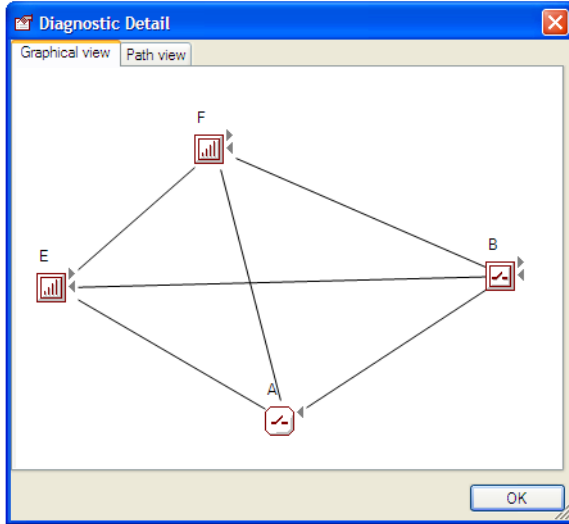
You will see the direct radio transmission paths, the routes via other devices and their quality.

The colour of the lines indicates the quality of the connection. If you move the cursor over a line, the connection quality will appear as a percentage.

After measurement, the cells measured will be shown in full in the connection table in the colour of their corresponding quality (no more circles).

Using the context menu for a cell, you can show the diagram again for the connection any time you wish.

Info:
> Devices are placed in the window merely for schematic purposes and their positions do **not** correspond to their spatial placements or the distances between the devices in the building. You can move the devices about using the mouse too.

Measuring multiple connections/routing data

Multiple connections can also be measured simultaneously using the context menu (right-click).

Info:
You can also initiate measurement of all connections or missing connections using the <Measure...> menu button in the footer in Diagnostic view.

Saving the diagnostics results

You can save the diagnostics results. Should problems occur later in the radio system, you can use the diagnostics results you have saved to make a comparison.

The diagnostics results will be saved in the project file with the project data and can also be sent by e-mail.

Example uses of diagnostics

Detecting a bad range using the routing table

In the example, individual functions no longer work since the signal from a device that arrives at the receivers is only very weak or else no signal arrives at all. This may be caused by, for instance, the antenna for a flush-mounted receiver being laid poorly (device Ⓒ below).
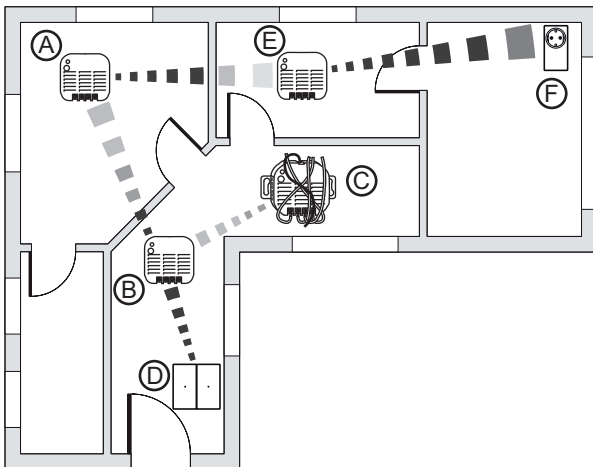
Check the routing table for the device whose functions are not being executed (Routing Table view).

As you can see, device Ⓒ has only one connection.

After correcting the layout of the antenna and installation of this device, determine the routing table for this device again (Context menu <Determine: Routing data...>).

After determining it, you will see that device Ⓒ now has sufficient connections. The problem is solved and you now merely need to transfer this new routing table to all devices in the radio system (<Program devices>).

Detecting a bad range using the connection table

In the example, individual functions no longer function reliably since the signal from a device arriving at the receivers is only very weak. The cause of this might be the antenna on a flush-mounted receiver being laid poorly (device Ⓒ below).

This device is still connected to several devices however so the routing table shows sufficient connections for this device.

In the Connections table, you will see connections for this device are only satisfactory (yellow circles). This indicates a bad connection quality for this device.
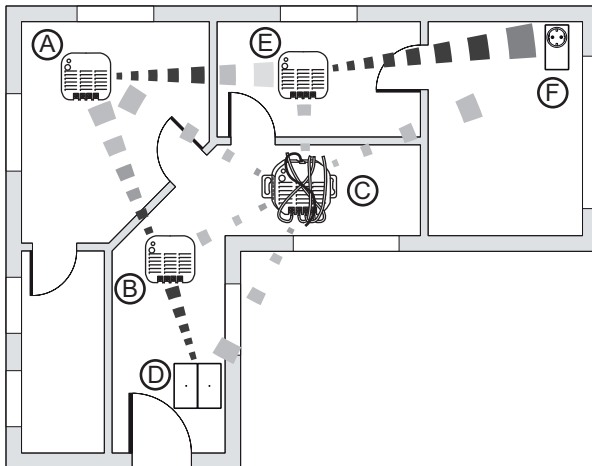

After correcting the layout of the antenna and installation of this device, determine the routing table for this device again (Context menu <Determine: Routing data...>).

After determining this, you will see that connections for this device are now good (green circles). The problem is solved and you now merely need to transfer this new routing table to all devices in the radio system (<Program devices>).

Settings

You can adjust the program's behaviour to suit your preferences under <Actions/Options>.

- Menu and display text language of the program

- Demo/simulation: You can use this menu command to change to the program's demo mode. After a restart, you can try out the program and its functions without creating a radio system.
  During programming, virtual sample devices are captured for simulation.

- Start in maximum size: The program starts full-screen and not as a moveable window.

- Display all after opening: All levels are displayed in the Building view when the program is started or after a project has been opened.

- Display tool tips: Shows explanatory texts on the individual menu commands when you hover over the menu command.

- Subsequently change function: Device functions can be changed later on, e.g. from switching to dimming (only possible when the connected devices support also these functions).

- Save project every (minutes):

- Block device reset automatically: This automatically protects each device captured against being returned to factory settings accidentally.

Using the other tabs, further settings can be made.

Service programs

Restoring system administration and allocating it to another device

If the device acting as the system administrator is defective or no longer available, you an restore the necessary information for system administration and allocate it to another device using a USB radio data interface, version 1.4 or above.

1. Select <Actions/Service Programs/Restore System Administration> and follow the instructions on the screen.
   System administration is restored and allocated to the USB radio data interface.

2. Now choose <Actions/Service Programs/Allocate System Administration> and follow the instructions on the screen.
   System administration is allocated from the USB radio data interface to another device.

Depending on the version of your USB radio data interface, you will next need to recreate the routing table.

Recycling bin

The recycling bin is used for storing device symbols (and their corresponding addresses) which are no longer used but also not removed from the project.

A physical device in the radio system is assigned to each device symbol via a unique address. To remove the device symbol and hence the address from the project (and the radio system), you need to remove the device from the radio system (<Actions/Remove Device from Radio System>.) To do this, you will need to activate learning mode on the device.
Subsequently the device will be removed from the radio system (including for routing) and its symbol will no longer appear in any configurator views.

If a device is no longer available (e.g. defective), learning mode can no longer be activated so that the device can be removed from the radio system and hence the device symbol cannot be removed from the configurator views. The address is also retained and continues to be used in the routing table for instance. This can lead to problems with connections of other devices.
In such cases, you need to place the device symbol (and hence the relevant address) in the recycling bin.

The device symbols and the relevant address are retained in the recycling bin but are no longer taken into account during configuration of the radio system.

Info:
   You can also reallocate the device symbol and the address to the relevant device (e. g. after a repair or relocation).

FAQ

This section contains notes and tips on installing and configuring the CONNECT radio system.

Device not being captured

Device not in learning mode

During configuration (connecting with the radio system, capturing, programming, diagnostics), you will need to set radio devices to learning mode (press sensor cover, programming button or sensor surface briefly three times in succession). A request to set a certain device to learning mode will appear on the screen in the form of a user action (see below).
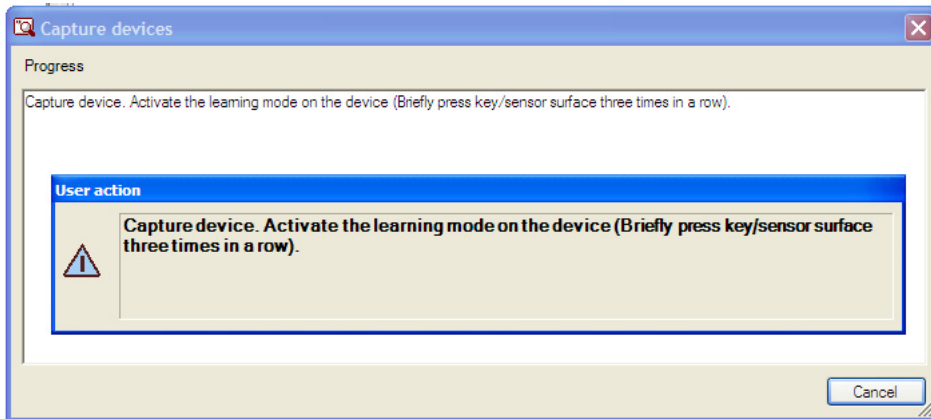
Once the relevant device is in learning mode, this user action will disappear from the screen again.

Should the user action remain visible, the corresponding device is not in learning mode or the configurator is not detecting learning mode.

Wait for a few seconds and then try again. You may have to change the speed at which you makes the three presses. This should be approximately the same speed as when you double-click (or triple-click) a computer mouse (three times within approx. 1.5 seconds).

Learning mode not being detected by the configurator

If the user action is still visible on the screen, this may also be because the configurator is not detecting learning mode for the device.
This may have several reasons:

- a bad connection between USB radio data interface and the device in learning mode: Move the laptop closer to the device.

- Device in learning mode has a low battery. Replace the battery on the device.

- Device defective/missing: Move the device symbol of the defective/missing device into the recycle bin in Devices view.

Info:
    Device addresses whose device symbols are in the recycle bin are removed from the radio system. This has the advantage that the radio system no longer needs to manage any addresses not required (routing tables etc.).
    The device symbols can also be fetched out of the recycle bin again if the relevant device becomes available again.

Device is integrated into another radio system

If the device is integrated in another radio system, activation of learning mode for the device will be shown (e.g. flashing LED) but the message will remain visible on the screen.

No physical device exists for the device symbol

If the physical device for a device symbol in the project no longer exists in the radio system (device addresses are assigned twice), you will need to place the device symbol into the recycle bin in Devices view.

Bad connection

If the quality of the connection diminishes during operation, this may happen for several reasons:

- The battery on the device is low.
  Replace the battery on the device.

- The devices are too far apart/attenuating materials in the radio transmission path:
  Try repositioning the devices or insert additional receivers into the radio transmission path for routing (see below). For analysis of the error -> see *"Diagnostics"*.
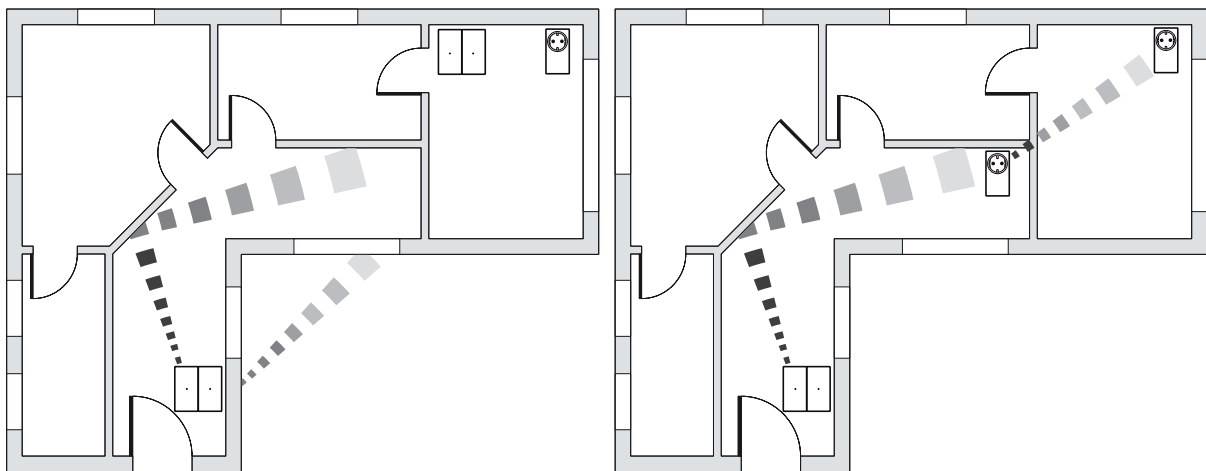
Unknown devices in radio project

In rare cases, the device may be recognised as an unknown device even though it is indeed a CONNECT device.

This may happen for one of the following reasons.

- Bad radio connection to the device.
  Move the USB radio data interface closer to the device and repeat capturing without activating the device in the meantime.
  When repeating capturing, the configurator will detect that the device already has an address in this radio system and will read the corresponding information again.

- Low battery:
  Replace the battery and repeat capturing of the device without activating it in the meantime.
  When repeating capturing, the configurator will detect that the device already has an address in this radio system and will read the corresponding information again.

- Missing DVC file:
  Contact the device manufacturer (e.g. go to their download portal) and execute the instructions on installing the DVC file contained there.
  When repeating capturing, the relevant information will be assigned to the device automatically.

Info:
 Once a device is shown in the configurator, it will have a unique address in the radio system.
 If you return the device to factory settings afterwards (device reset) and capture it again, the device will be given a new address. The old address and device symbol will still be retained in the project however. Since the device now has a new address, the old device symbol (and relevant address) can no longer be removed from the project/radio system.
 In such cases you will need to place the device symbol in the recycle bin -> see *"Recycling bin"*.

Info:
 Devices which correspond to the Z-Wave standard but which are not CONNECT devices can also be added into a CONNECT radio system. These will be captured as unknown devices in such cases. Depending on the device, you may not be able to use all functions.

Removing a device from the radio system

To remove a device and hence its address from the project/radio system, carry out the following steps in turn:

1. Select <Actions/Remove device from the radio system>.

2. Activate learning mode on the device in order to identify it.

3. Activate learning mode a second time to remove the device once and for all.

The device will now be removed from the radio system (including for routing) and its symbol will no longer appear in any configuration views.

Info:
 You cannot reset devices that are integrated in a project with the radio configurator to factory settings on the device itself.
 If you were to, the project structure would no longer match the actual devices installed. After the devices were programmed, this device is expected to be at the address assigned for this project.
 Resetting the device to the factory settings will delete this address so it can no longer be restored.

CONNECT radio central unit

The CONNECT radio central unit allows you to operate your radio system from one central location. It has eight push-buttons which can be connected as radio push-buttons and a display via which you can control your radio system using a combination of clickwheel and cursor keys.
It also makes available some central functions for the radio system (e.g. switching times and scenes).

In addition, a web server is integrated in the radio central unit, which makes the radio system functions available in networks.
This enables you to control your radio system via a PC or smart phone for instance.
In such cases, operation takes place in a web browser via a user-friendly graphical user interface.

Saving the project data on the radio central unit

When you save the project data, it will be stored in the program directory or in another location on your laptop's hard drive. You will need this project file in the future for all other changes or inspections of the radio system and should make sure it remains available for the long term.
If there is a radio central unit in the radio system, you can also save the project data on the radio central unit (Context menu <Save Project on Radio Central Unit>).

To load the project data from a radio central unit, you will need to connect your laptop with the network containing the radio central unit. Load the data by going to <Actions/CONNECT radio central unit/Load project from radio central unit>.

Display in configurator

If a radio central unit is available in the radio system, icons for the modules are shown in the upper line of the Connection view (for general functions such as switching times and scenes).

The following functions are available:

Annual switching times
automatic actuation at annually recurring switching times

Weekly switching times
automatic actuation at weekly recurring switching times

Info
You can define up to two times for each day in the switching time settings. You can define which function is executed at which switching time in the connections settings.
Which settings you can make depends on the possibilities of the function channel in each case.

Scenes
Simultaneous actuation of several devices, even with differing functions/settings

Control of multimedia applications
Triggering of multimedia applications using the radio central unit network interface

Alarms
Alarms which are automatically displayed on the central unit or can be sent by e-mail when certain conditions are present.
Alarms need to be acknowledged.

Signals
Signals which are automatically displayed on the central unit using a bell symbol (top right).
When the signal is no longer applicable, the bell symbol will disappear.

Info

Alarm or signal modules can only be connected to one transmitter and one receiver each. However, these modules can also be connected to other modules.

Which module acts as the transmitter or receiver depends on the order when the connection is created.

This allows an alarm to be activated using a push-button, for example, and the alarm to be connected to a scene, which is then connected to multiple receivers (e.g. multiple lamps and roller shutters).

Recording history
Switching states and values are recorded and stored in a file
(in CSV format)

In order to use one of these modules, select the desired icon, name and configure it and then click <OK>.

The corresponding symbol is automatically displayed in the Connection view and can be connected with the function channels.

The modules are placed between the transmitters and receivers since, depending on the module, they require connections to transmitters as well as to receivers. For example, you might connect a scene to the push-button which calls it up and to several receivers that are controlled by the scene.

Info:

You can also connect scenes with switching times and weekly switching times with annual switching times too. In such cases, the associated weekly switching times are only executed on days in these annual switching times.

Displaying radio system functions on displays and web browsers

Once there is a radio central unit in the radio system, setting options for the connections are increased. You can also select whether the connection (or the function for this connection) is shown on devices with a display or on a web browser and how this is displayed.

You define which functions and menus you can see and operate via a choice box. With the modules, you can define these settings under <Parameters>.
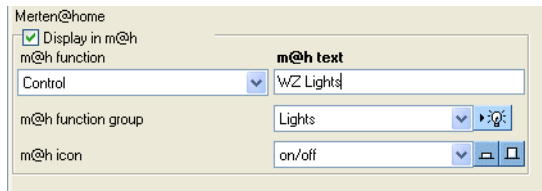
Info:

These settings cannot be made with the reception connections for a module.

For notes on the icons, see section "Icons for use in displays and in a web browser"

Radio central unit settings

With the radio central unit characteristics, you can configure the settings for the radio central unit yourself in the various windows:

- General
  This window shows you the IP address for this radio central unit and enables you to select the language used in the display as well as which start screen appears in a web browser.

- SMTP (for sending e-mails)
  In this window you change the settings for sending e-mails (for alarm signals). Enter the data in accordance with the information of the provider or the e-mail account to which the e-mails generated are to be sent.

- Users
  This window allows you to configure e-mail queries for displaying the subject lines of e-mails for the account set up. The account is queried in POP3 format. The details required are generally contained in the documentation or information for the e-mail account.

- Slide show
  This window allows you to configure the settings for a slide show on the radio central unit's display. Further information on configuration can be found in the separate section "Configuring the slide show and camera images".

- Newsfeed (RSS)
  You can configure settings for a newsfeed in this window.

- Camera
  You can display the image from a network camera via the PC connection in a web browser using Microsoft® Media Center software.
  For configuration, see the separate section "Configuring the slide show and camera images".

- Screensaver
  You can change the settings for the screensaver in this window. The display will be blue if you select "Blue screen".

- Display brightness
  In this window you can change the settings for the brightness of the display and its standby state.

- Favourites
  In this window you assign a function to the favourites key in the central unit and the favourites to be displayed via the Internet.

Network connection

News from news feeds (RSS/RDF), information about incoming e-mails (from an e-mail account) and a slide show can be shown on the radio central unit display.
For some of these functions, the radio central unit will need to be connected to an IP network.

To make connection to an IP network straightforward, the radio central unit is set to DHCP (Dynamic Host Control Protocol, automatic assignment of network settings by the server) on delivery. As a result, it should be detected automatically soon after being connected to the network.

You can see the current IP address of the radio central unit in the Devices view under Characteristics (after selecting the radio central unit). You can also select the language and a building symbol to be displayed in a browser on a PC or on smart phones.

Info
  A DHCP server must be available to connect the radio central unit to an IP network. A preconfigured DHCP server is integrated into many commercially available routers.
  With this, the radio central unit is detected immediately and incorporated as a network participant. For further information, please refer to the operating instructions of the relevant manufacturer.

Configuring the slide show and camera images

Slide show

With a slide show on the radio central unit's display, images are loaded via an FTP transfer in the network and then displayed. The images must all be located in a directory (FTP directory path) and have a common file identifier (file prefix) with consecutive numbering e.g. Image001.jpg, Image002.jpg etc. Only jpg or bmp files not larger than 30 KB and with a size 240 x 320 pixels (W x H) are recognised.

Camera images

You can display the image from a network camera in a web browser (or its images in the relevant directory) via the radio central unit connection to a PC using Microsoft® Media Center software. The necessary information (file name, server name, directory/URL and port) is entered under "Camera". The format of the images saved must also be specified (e.g. "jpg").

Note on configuring the slide show and camera images

Many Internet providers offer their customers space on an FTP server. You can obtain further information from your Internet provider regarding directory paths and access.
Some network routers will also allow you to set up an FTP directory. For the necessary information, please refer to the operating instructions of the relevant manufacturer.

To access an FTP directory, you will generally need to enter an FTP user name and password as well as the URL of the FTP server.
Take care with upper and lower case when entering these details.

Configuring the radio central unit

The radio central unit is configured using radio commands and IP commands For this reason, you will need to be connected with a PC and integrated in a radio system for configuration. Configuration via radio takes place via <Program devices>. To transfer the configuration via IP commands, choose <Radio Central Unit Configuration/Transfer Settings> in the radio central unit's context menu.

Connecting with the PC

The easiest way to connect to a PC is via a network. See Section "Network connection".

You can also connect the radio central unit with the PC directly using what is called a cross-link cable. With this, you will need to make the required entries, e.g. IP address, subnet and gateway, manually via the radio central unit.

1. Press the upper left button on the radio central unit.

2. Press the upper, lower and centre clickwheel buttons briefly in succession (activates settings, the user icon at the top right changes to a user with a PC),

3. Move the cursor in the radio central unit menu to Programs/Settings/IP Settings.

4. Press the upper, lower and centre clickwheel buttons briefly again in turn (additional access protection against accidental adjustments).

5. Press the right clickwheel button (to select IP settings).
   You can make network settings in the usual manner here (using the clickwheel). See also the quick guide "Changing IP settings" provided with the device.

6. When you have made all entries, move the cursor to Save and reset and press the centre clickwheel button. The radio central unit will save the settings and carry out a reset.

Connecting to the radio system

For integration in a radio system, the central unit is taught using the configurator. Learning mode for the central unit is activated under Programs/Settings/Radio system settings in the radio central unit menu:

1. Press the upper left button on the radio central unit.

2. Press the upper, lower and centre clickwheel buttons briefly in succession (activates the settings).

3. Move the cursor of the radio central unit menu to Programs/Settings/Radio system settings.

4. Press the upper, lower and centre clickwheel buttons briefly again in succession (additional access protection against accidental adjustments).

5. Press the right clickwheel button (to select Radio system settings).

6. Select Learning mode. See also the quick guide provided with the radio central unit, "Activating learning mode".

Info:
> You cannot protect the radio central from being returned to factory settings by the user accidentally using the menu command <Device reset>. Only return the radio central unit to factory settings if it is not connected to a radio system/project.

Icons for use in displays and in a web browser

Functions are shown on displays (e.g. that of the radio central unit) or in a web browser using icons. This icon also determines the operating options (via buttons, inputting of values etc.).
The icon must be suitable for the function. For example, a switching connection cannot be operated with a value input.
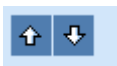
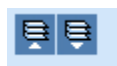The most important icons and their functions are as follows:

On/Off - Switching
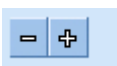
Activate/Deactivate - Switching

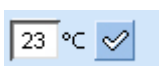Up/Down - Move roller shutters or Brighter/Darker - Dimming
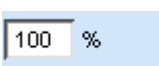
Brighter/Darker - Dimming
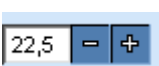
Roller shutters up/down - Move roller shutters

Plus/Minus - Lower/raise value

Value input - Temperature settings, for example

Value display - Status, display only

Value entry - Raise/lower values e.g. for temperature settings

Comfort mode/Standby - Toggling for heating control

Radio central unit FAQ

Certain radio central unit functions are not working

For certain functions, the radio central unit will need to be connected to an IP network:

Check the radio central unit network connection. See section "Network connection".

### Some radio commands of the radio central unit are not being executed

Configuration of the radio central unit is via radio (routing table) and via the IP network (scenes, switching times, signals etc.).

Make sure the radio central unit has been programmed via radio (<Program devices>) and configuration has been transferred via the IP network (Context menu: <Radio central unit configuration/Transfer settings>).

Functions are not being shown in the web browser or on the radio central unit's display.

Functions are not shown automatically in the web browser or on the radio central unit display and need to be activated separately.

Check the characteristics for the relevant connection or function channel to find out whether display in ..@.. is activated (checkmark in box).
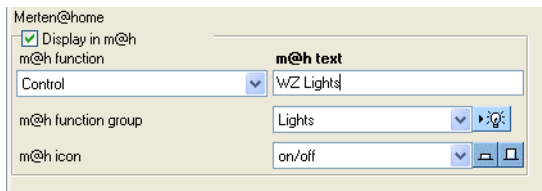
Values for weekly and annual switching times or for scenes cannot be changed.

To change these values, the relevant module for display in a web browser or the radio central unit's display must be activated.

Check the characteristics for the relevant module as to whether display in ..@.. is activated (checkmark in box).
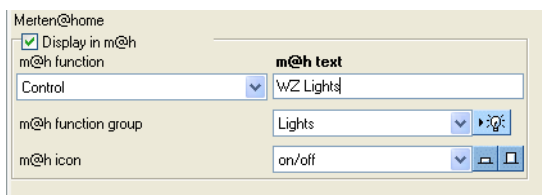
Project data cannot be loaded from the radio central unit

Check the network connection and the firewall settings for the router and laptop.

If the radio central unit is recognised as a network participant by the configurator, the project data may also not have been backed up on the radio central unit after configuration.