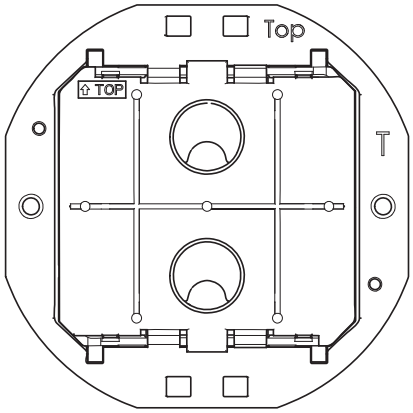
1473-1-8600 | 27.08.2014

Technical Manual

Sensor / Switch actuator 1/1gang; 2/1gang; 2/2gang





1/1gang (SSA-F-1.1.PB.1-508)

2/1gang (SSA-F-2.1.PB.1-508)

2/2gang (SSA-F-2.2.PB.1-508)

Power and productivity
for a better world™

1 Information about the manual 3
2 Safety 4
2.1 Used symbols 4
2.2 Intended use 5
2.3 Improper use 5
2.4 Target group / qualification of personnel 5
2.5 Safety instructions 6
3 Information on protection of the environment 7
4 Product description 8
4.1 Scope of supply 9
4.2 Type overview 9
4.3 Function overview 9
4.4 Device overview of sensor/switch actuator 1/1gang and 2/1gang 10
4.5 Device overview of sensor/switch actuator 2/2gang 10
5 Technical data 11
5.1 Main overview 11
5.2 Types of load 11
5.3 Dimensions 12
5.4 Circuit diagrams 12
6 Mounting 13
6.1 Planning instructions 13
6.2 Safety instructions for mounting 13
6.3 Mounting / Installation 14
7 Commissioning 15
7.1 Allocation of devices and specifying channels 15
7.2 Setting options per channel 19
7.3 Linking 22
8 Updating options 24
9 Operation 25
10 Maintenance 26
10.1 Cleaning 26

1 Information about the manual

Please read this manual through carefully and adhere to the information contained therein. This will assist you in preventing injury to persons and damage to property and ensure reliable operation and long service life of the device.

Please keep this manual in a safe place.

If you pass the device on, also include this manual.

Busch-Jaeger accepts no liability for failure to observe the instructions in this manual.

If you require additional information or have questions about the device, please contact Busch-Jaeger or visit our Internet site at:

ABB Schweiz AG

www.abb.ch/freeathome

2 Safety

The device has been constructed according to the latest valid regulations governing technology and is operationally reliable. It has been tested and left the factory in a technically safe and reliable state.

However, residual hazards remain. Read and adhere to the safety instructions to prevent such hazards.

Busch-Jaeger accepts no liability for damages resulting from failure to observe the safety instructions.

2.1 Used symbols

The following symbols point to dangers involved in the use of the device and provide practical instructions.



Warning

This symbol in connection with the signal word "Warning" indicates a dangerous situation which could lead to immediate death or to serious injury.



Attention - damage to property

This symbol indicates a possibly damaging situation for the product. Non-observance can lead to damage or destruction of the product.



Note...
This symbol indicates information or references to additional useful topics. This is not a signal word for a dangerous situation.



This symbol indicates information on the protection of the environment.

The following symbols are used in the manual to draw attention to special dangers:



This symbol indicates a dangerous situation due to electric current. If such a sign is ignored, it can lead to serious injuries or even death.

2.2 Intended use

This device is a sensor/switch actuator unit for decentralized flush-mounted installation.

The device is intended for the following:

» operation according to the listed technical data,
» installation in dry interior rooms and suitable flush-mounted boxes,
» use with the connecting options available on the device.

The intended use also includes adherence to all specifications in this manual.

2.3 Improper use

Each use not listed in chapter 2.2 is deemed contrary to intended use and can lead to the injury of persons and damage to property.

Busch-Jaeger is not liable for damages caused by use deemed contrary to the intended use of the device. The associated risk is borne exclusively by the user/operator.

The device is not intended for the following:

» unauthorized structural changes,
» repairs,
» use outdoors or in bathroom areas,
» use with an additional bus coupler.

2.4 Target group / qualification of personnel

Installation, commissioning and maintenance of the device must only be carried out by trained and properly qualified electrical installers.

The electrical installers must have read and understood the manual and follow the instructions provided.

The electrical installers must adhere to the valid national regulations in their country governing the installation, functional test, repair and maintenance of electrical products.

The electrical installers must be familiar with and correctly apply the "Five safety regulations" (DIN VDE 0105, EN 50110):

1. Disconnect from power
2. Secure against being re-connected;
3. Ensure there is no voltage;
4. Connect to earth and short-circuit;
5. Cover or barricade adjacent live parts.

2.5 Safety instructions



Warning

Electric voltage! Risk of death and fire due to electrical voltage of 230 V.

Dangerous currents flow through the body when coming into direct or indirect contact with live components. This can result in electric shock, burns or even death.

» Work on the 230 V supply system may only be performed by authorised and qualified electricians.

» Disconnect the mains power supply before installation / disassembly.

» Never use the device with damaged connecting cables.

» Do not open covers firmly bolted to the housing of the device.

» Use the device only in a technically faultless state.

» Do not make changes to or perform repairs on the device, on its components or its accessories.

» Keep the device away from water and wet surroundings.



Attention - damage to property

Risk of damaging the device due to external factors.

Moisture and contamination can damage or destroy the device.

» Protect the device against humidity, dirt and damage during transport, storage and operation.

3 Information on protection of the environment

All packaging materials and devices bear the markings and test seals for proper disposal.

The products meet the legal requirements, in particular the laws governing electronic and electrical devices and the REACH ordinance (EU Directive 2002/96/EG WEEE and 2002/95/EG RoHS), (EU-REACH Directive and Law for the Execution of the Directive (EG) No.1907/2006).



The device contains valuable raw materials which can be recycled. Used electric and electronic devices must not be disposed of with domestic waste.

» Always dispose of the packaging material and electric devices and their components via the authorized collecting depots and disposal companies.

4 Product description

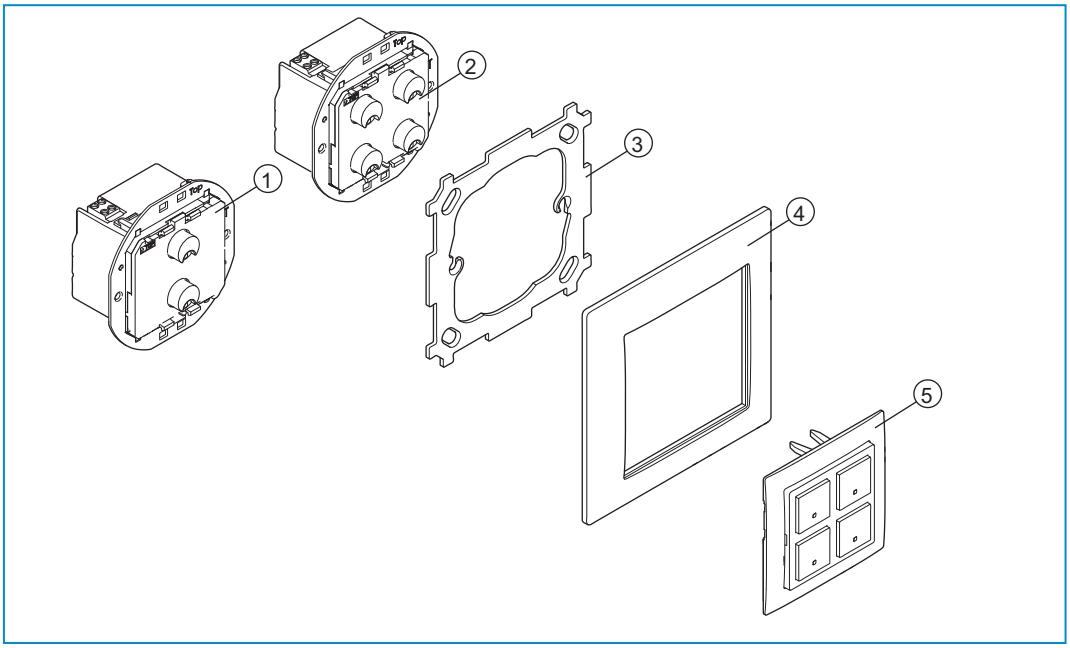


Fig. 1: Product overview

[1] Flush-mounted insert, 1/gang, 2/1gang
[2] Flush-mounted insert, 2/2gang
[3] Fixing plate
[4] Cover frame
[5] Push-button

This device is a sensor/switch actuator unit for decentralized flush-mounted installation. The devices serve both as control element as well as actuator for the activation of electric loads.

Sensor and actuator are combined in a flush-mounted insert [1 or 2]. The sensor and switching channels have been pre-programmed at the point of delivery (button top/bottom: off/on; left push-button). However, this pre-configuration can be adjusted as required.

After activating the bus voltage and connecting the load, it can be switched directly on the control element. The integrated bus coupler makes possible the connection to the free@home bus line.

Additional product features:

» Green LEDs as light for orientation/status indication,
» Exchangeable push-buttons with the corresponding icons.

4.1 Scope of supply

Depending on the model, the scope of delivery includes the flush-mounted insert [1 or 2], the fixing plate [3], the suitable push-buttons [5] and the cover frame [4].

Note...
» Depending on their use, the push-buttons can be selected with different printing.
» Use only the following support rings: Type T: 8388487.

4.2 Type overview

Product name	Sensor channels		Actuator hannels		Switching load
Sensor/switch actuator, 1/1gang	1		1		1 x 2300 W
Sensor/switch actuator, 2/1gang	2		1		1 x 2300 W
Sensor/switch actuator, 2/2gang	2		2		2 x 1200 W

Table 1: Overview of types

4.3 Function overview

The following table provides an overview of the possible functions and applications of the device:

Icon of the operating surface	Information
	**Name:** Sensor **Type:** Sensor **Made available by:** Sensor/switch actuator **Function:** Control element for the control of free@home functions
	**Name:** Switch actuator **Type:** Actuator **Made available by:** Sensor/switch actuator **Function:** Switches connected loads

Table 2: Function overview

4.4 Device overview of sensor/switch actuator 1/1gang and 2/1gang

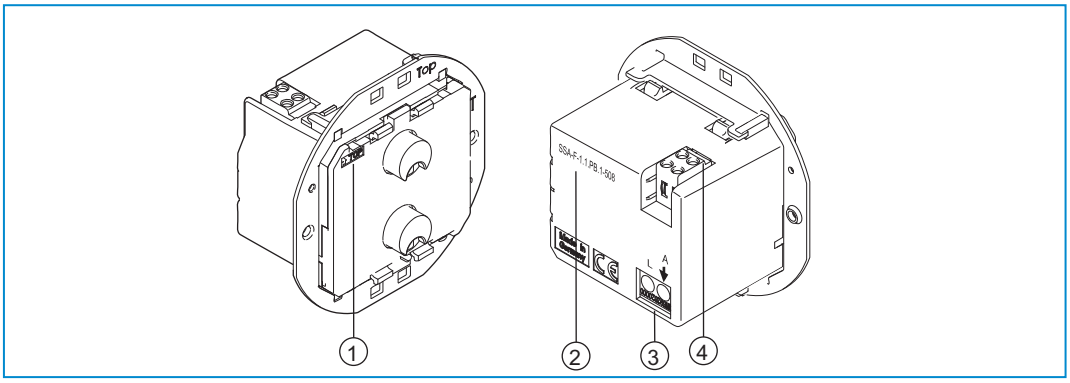


Fig. 2: Device overview of sensor/switch actuator 1/1gang and 2/1gang

[1] Mark TOP
[2] Type plate
[3] Bottom terminal block
[4] Bus connection terminal

4.5 Device overview of sensor/switch actuator 2/2gang

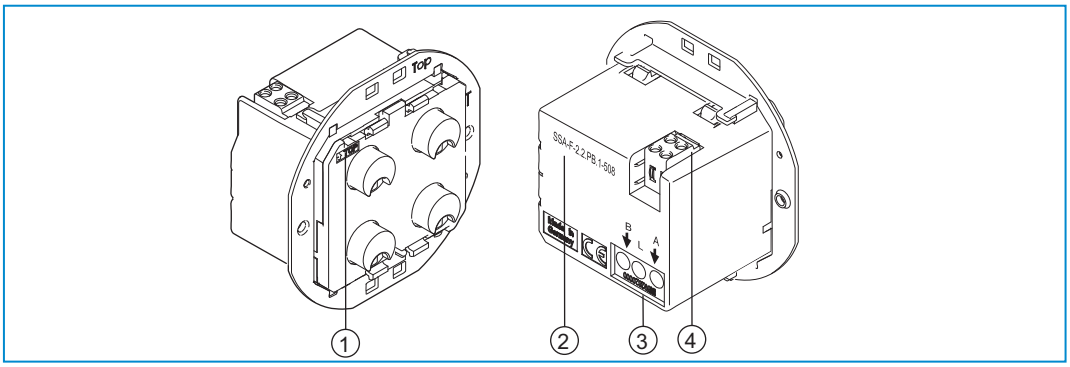


Fig. 3: Device overview of sensor/switch actuator 2/2gang

[1] Mark TOP
[2] Type plate
[3] Bottom terminal block
[4] Bus connection terminal

5 Technical data

5.1 Main overview

Parameters	Value
Power Supply	24 V DC (via bus line)
Bus subscribers	1 (12mA)
Connection	Bus connection terminal: 0.4-0.8 mm
Line type	J-Y(St)Y, 2 x 2x 0.8 mm
Wire stripping	6-7 mm
Maximum load	10 Ax
Switched load line	230 V ~, ± 50 / 60 Hz Screw-type terminals: 2x2.5 mm^2 rigid; 2x1.5 mm^2 flexible
Switching capacity	Switch actuator, 2gang: 2 x 5 A / 4 Ax Switch actuator, 1gang: 1 x 10 Ax
Protection	IP20
Ambient temperature	-5 °C – +45 °C
Storage temperature	-20 °C – +70 °C

Table 3: Technical data

5.2 Types of load

	**Sensor/switch actuator, 1/1gang Sensor/switch actuator, 2/1gang**	**Sensor/switch actuator, 2/2gang**
	2300 W	1200 W
	2300 W	1000 W
	2300 VA	800 VA
CFL	2300 W	920 W
LEDi	Typically 100 W	Typically 2 x 80 W

Table 4: Types of load

5.3 Dimensions

Note...
All dimensions are specified in mm. All device types listed in this manual have the same dimensions.

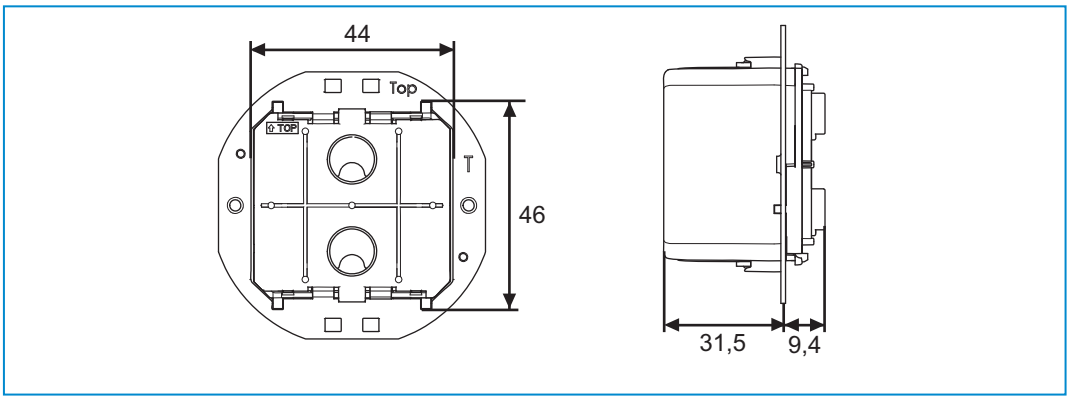


Fig. 4: Dimensions of all described device types

5.4 Circuit diagrams

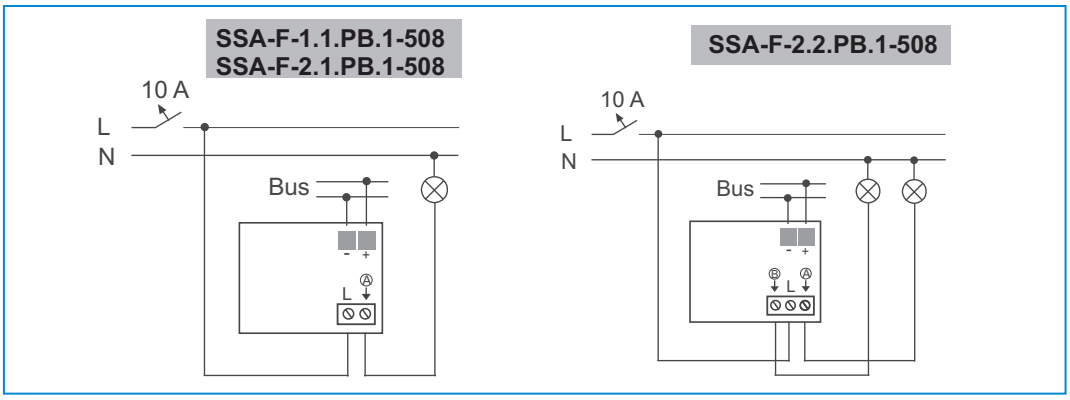


Fig. 5: Electrical connection

6 Mounting

6.1 Planning instructions

Note...
Planning and application instructions for the system are available in the free@home system manual. They can be downloaded at www.abb.ch/freeathome.

6.2 Safety instructions for mounting

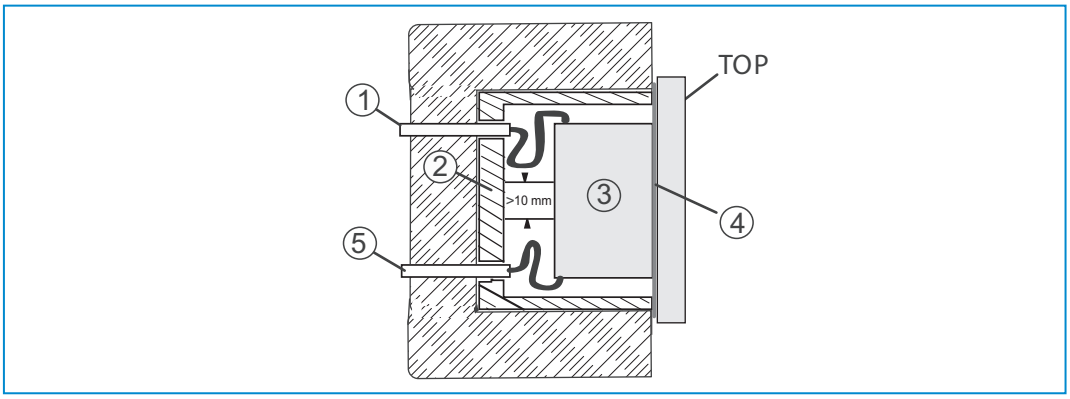


Fig. 6: SELV power circuits

[1] Bus line
[2] Flush-mounted installation box
[3] Device insert
[4] Mounting plate
[5] 230 V power cord



Warning - Risk of death due to short-circuit

Risk of death due to electrical voltage of 230 V during short-circuit in the low-voltage line.

» Observe the spatial division (> 10 mm) of SELV electric circuits to other electric circuits during mounting (see Fig. 6).
» If the minimum distance is insufficient, use electronic boxes or insulating tubes.
» Observe the correct polarity.
» Observe the relevant standards!



Warning - Risk of death due to electrical voltage

Dangerous currents flow through the body when coming into direct or indirect contact with live components. This results in electric shock, burns or even death.

Work improperly carried out on electrical systems is a hazard to one's own life and that of the user. Also fires and serious damage to property can result.

» Install the device only if you have the necessary electrical engineering knowledge and experience (see chapter 2.4).

» Use suitable personal protective clothing.

» Use suitable tools and measuring devices.

» Check the supply network type (TN system, IT system, TT system) to secure the following power supply conditions (classic connection to ground, protective earthing, necessary additional measures, etc.).

6.3 Mounting / Installation

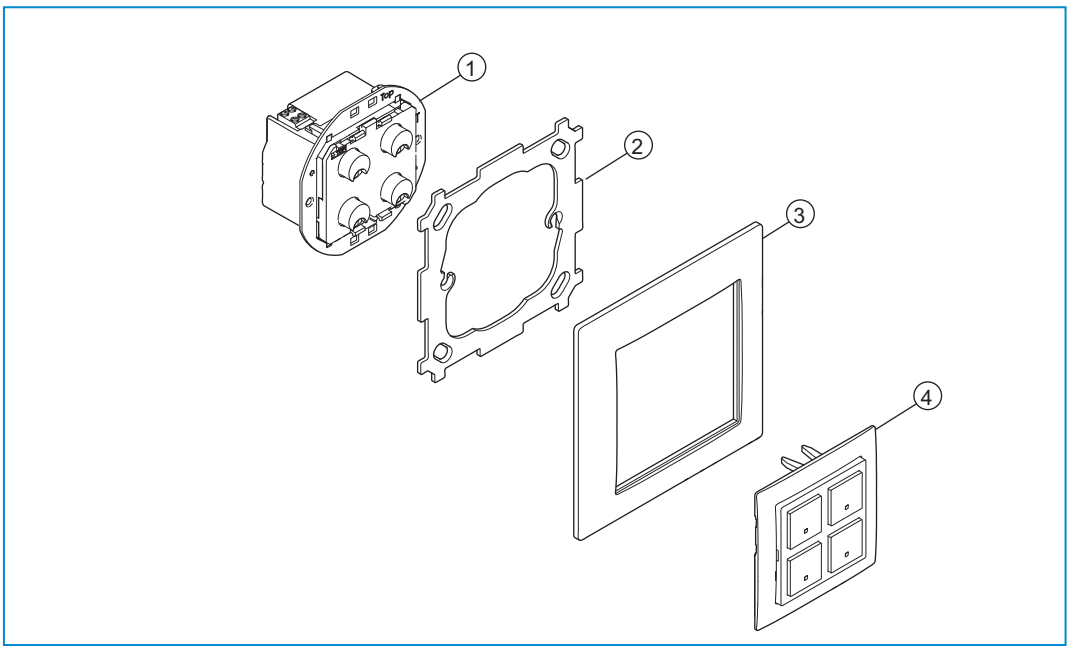


Fig. 7: Mounting

[1] Flush-mounted insert
[2] Fixing plate
[3] Cover frame
[4] Push-button

7 Commissioning

Commissioning is always carried out via the Web-based surface of the System Access Point.

The System Access Point establishes the connection between the free@home participants and the smartphone, tablet or PC. It is used to identify and program the participants during commissioning.

Devices which are physically connected to the free@home bus, log themselves automatically into the System Access Point. They transmit information about their type and supported functions (see Table 2, chapter 4.3).

During initial commissioning all devices are given a generic name (e.g. switch actuator 1, etc.). The user must change this name to a name practical for the system (Example: "Living room light" for an actuator in the living room).

The devices must be parameterised for the use of additional functions.

Commissioning of the sensor / switch actuator units is described in the following chapters. Here it is assumed that the basic commissioning steps of the overall system have already been carried out. General knowledge about the Web-based commissioning software of the System Access Point is assumed.

Note...
General information about commissioning and parameterization is available in the technical reference manual and the online Help of the System Access Point.

7.1 Allocation of devices and specifying channels

The devices connected to the system must be identified, i.e. they are allocated to a room according to their function and are given a descriptive name.



The allocation is made via the Placement function of the Web-based user interface of the System Access Point.

7.1.1 Adding device

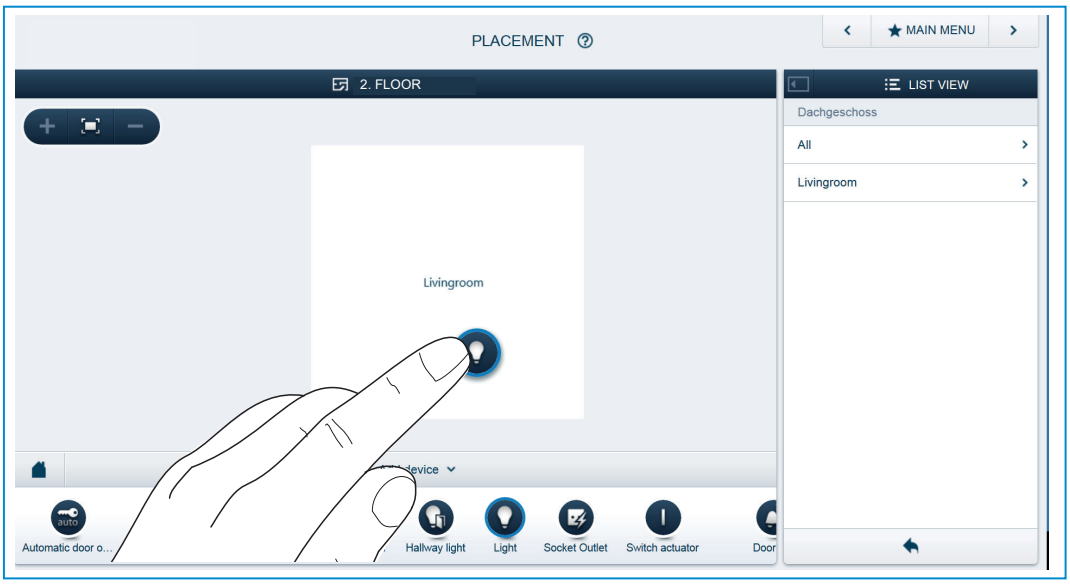


Fig. 8: Adding device

» In the "Add device" bar select the desired application and pull it via drag-and-drop onto the floor plan in the working area.

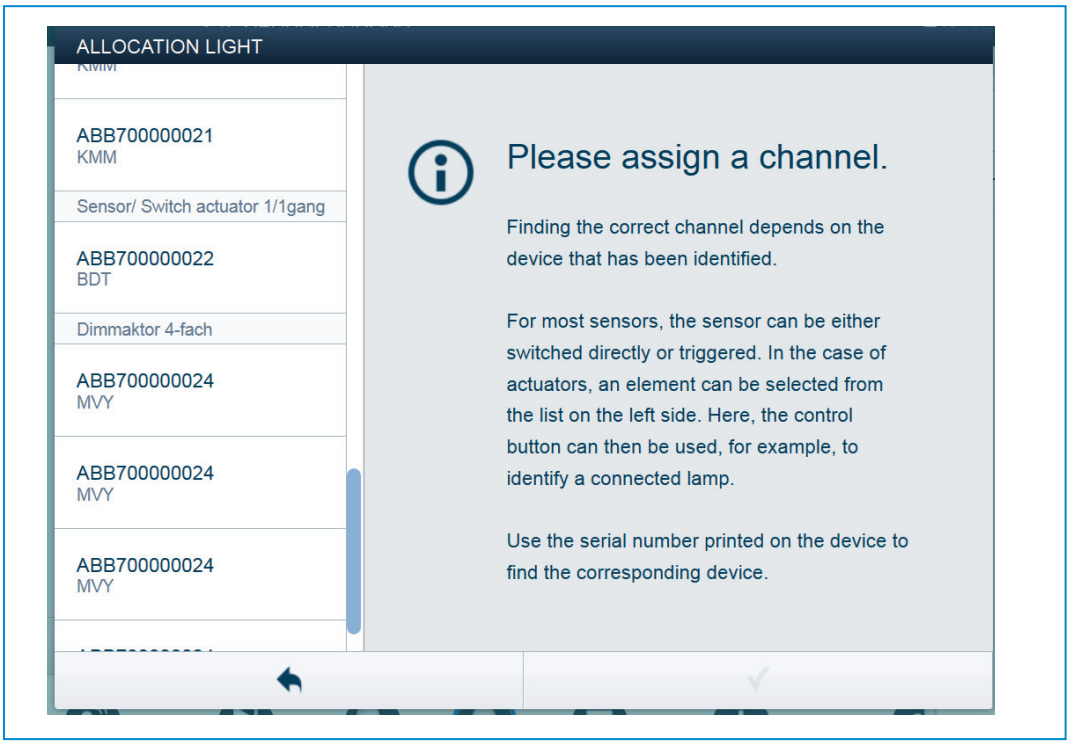


Fig. 9: Allocation

- A pop-up window opens automatically which lists all the devices suitable for the application selected.

The desired device can be identified in 2 ways.

Identification via serial number

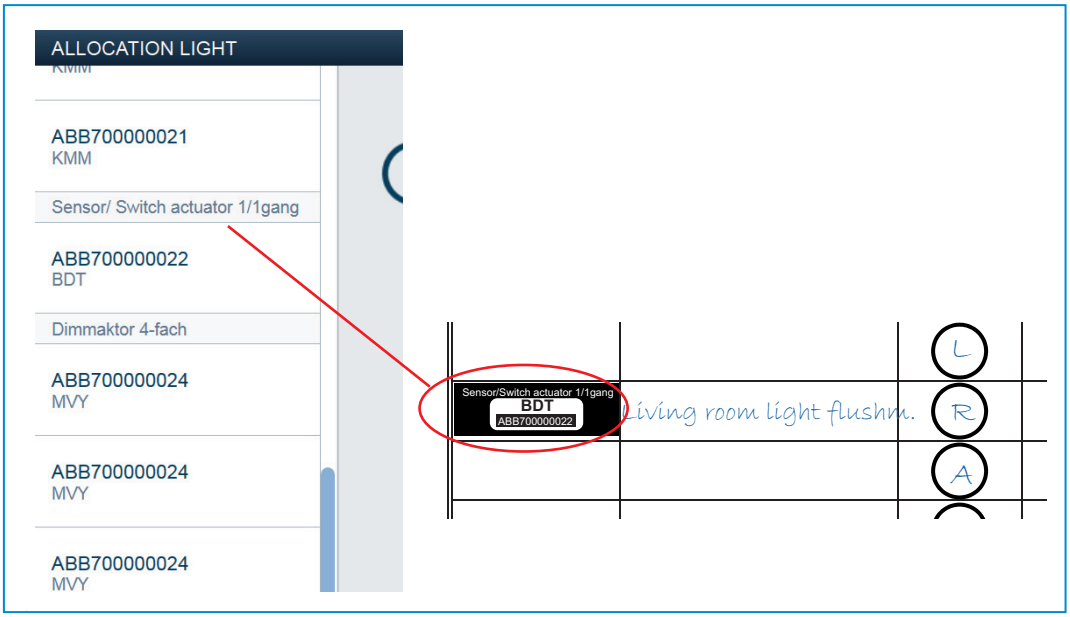


Fig. 10 Identification via serial number

» Compare the short 3-digit number of the identity label, which should be glued to the device plan, with the numbers in the list and in this way identify the device you are searching for and, if necessary, also the channel.

Identification via switching (only suitable for actuators)

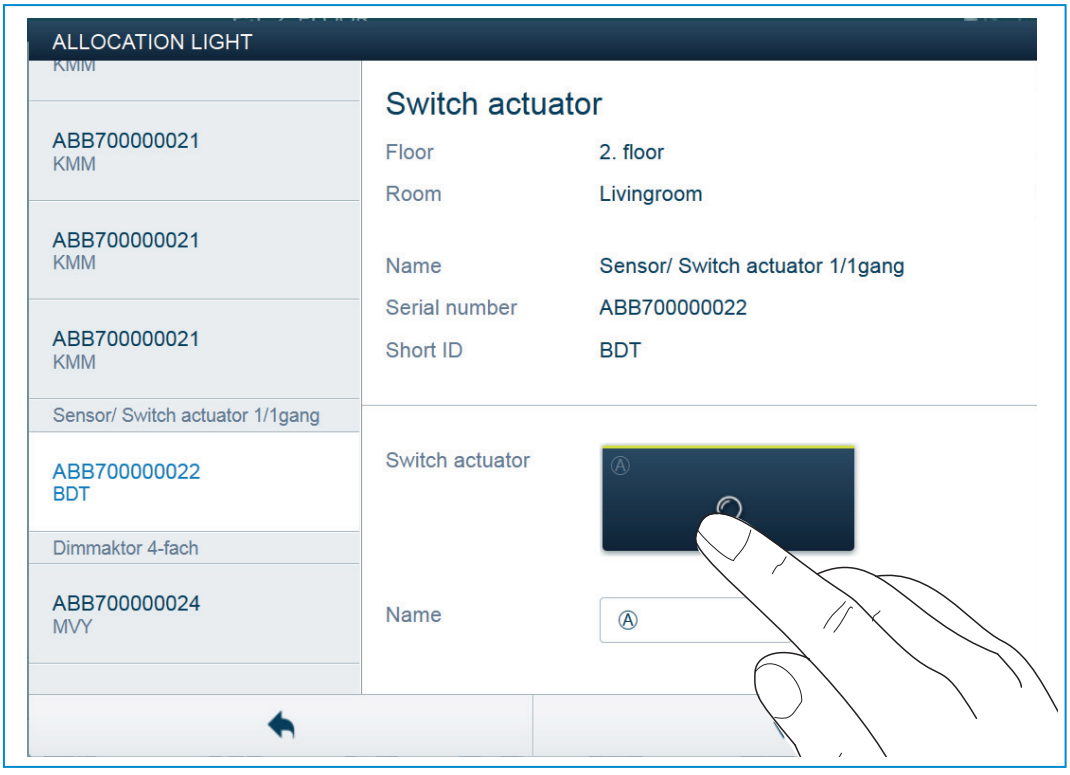


Fig. 11 Identification via switching

» Select a device and a channel from the list.
» Press the button in the detailed view of the device.
- The connected load is switched.
» Continue until you have found the device you are looking for.

Assigning a name

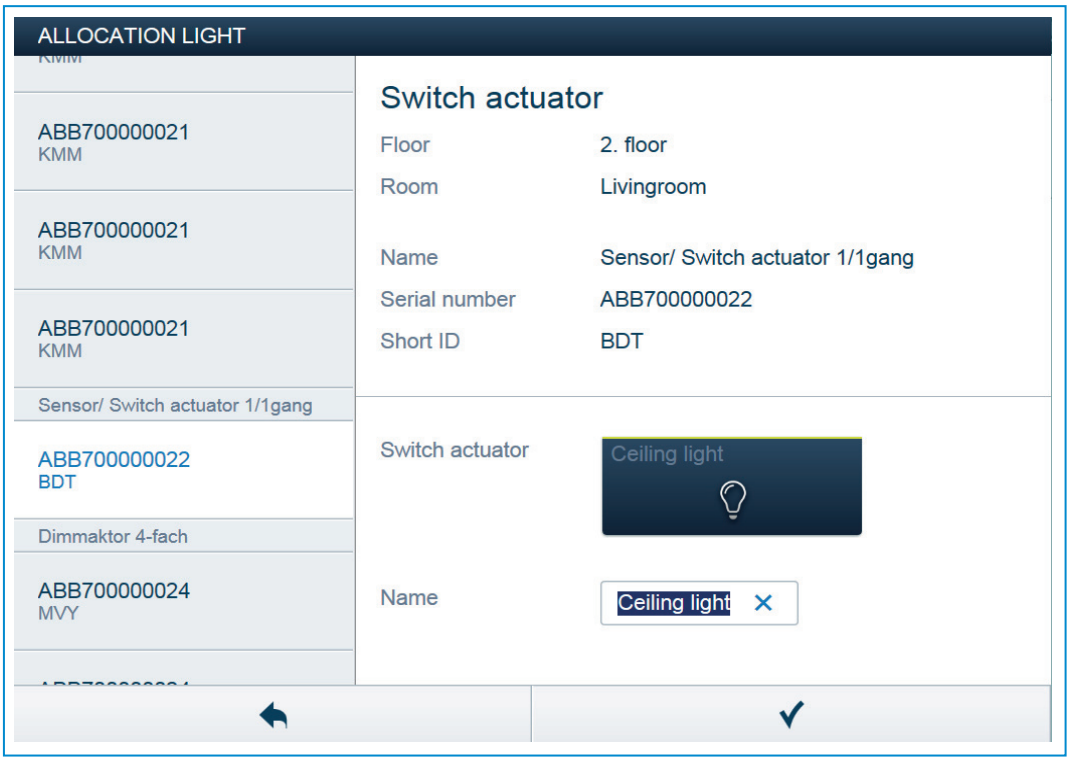


Fig. 12: Assigning a name

» Enter a name that is easy to understand and under which the application is to be displayed later (e.g. "Ceiling light").

» Press the tick at the bottom right to take over the entry.

Note...

The settings of the device can be adjusted via the Web-based user interface of the System Access Point.

For pre-programmed devices (sensor/switch actuator unit) the default settings can be adjusted. This allows the channel selection to be influenced.

These settings, however, can only be made in part with the fitter access (see online Help of the System Access Point). The parameter settings remain as described above.

7.2 Setting options per channel

General settings and special parameter settings can be made for each channel.



The settings are made via the placement function of the Web-based user interface of the System Access Point.

Device selection

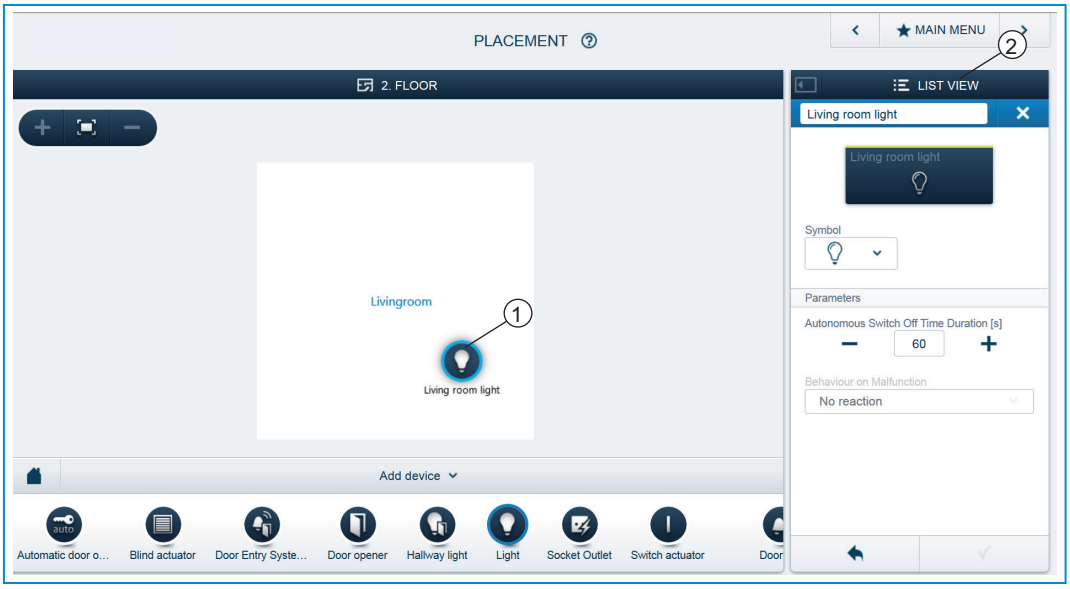


Fig. 13: Device selection

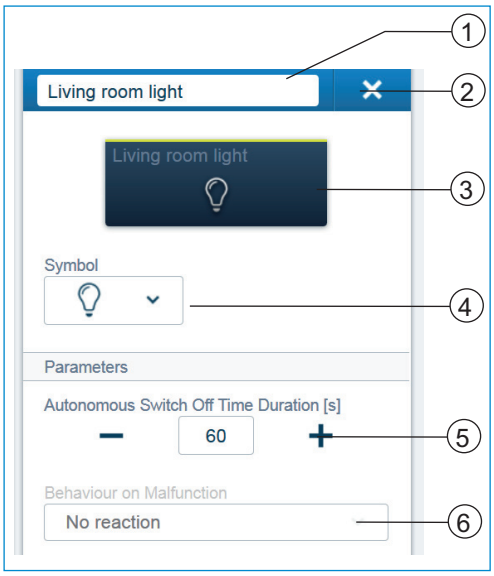
» Select the device icon [1] in the floor plan of the working area view.

- All setting options for the respective channel are displayed in the list view [2]. For push-buttons (sensors) the corresponding push-button must be selected.

The following settings are available.

7.2.1 Settings for sensor/switch actuator 1/1gang

Actuator settings



[1] Changing the name

[2] Deleting the channel via 'X'

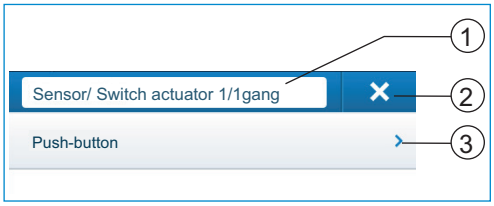
[3] Switching of the actuator via the button

[4] Selection of a different icon

[5] Setting the switch-off delay in seconds
Buttons -/+ can be used to specify, for example, how long the light remains on after the actuator has deactivated the load.

[6] Behaviour during faults:
Display of information only! No settings can be made.

Sensor settings

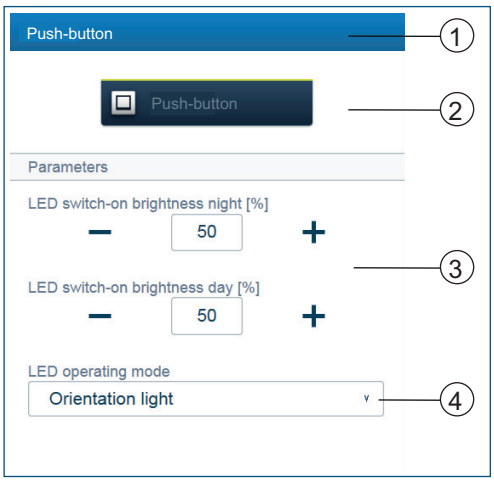


[1] Changing the name

[2] Deleting the channel via 'X'

[3] Selecting the push-button in the list view

Push-button settings:



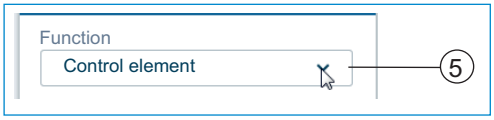
[1] Changing the name

[2] Switching the sensor via the button

[3] Setting the LED night/day switch-on brightness in % via the -/+ buttons:
This parameter can be used to specify how strong the LED lights percentage-wise at night/day.
Attention! The parameter only functions when a time profile with the application "LED day/night switchover" is available. The device (channel) must be linked with this application!
Application symbol:

[4] Selecting the LED operating mode:
Light for orientation: LED lights permanent.
Status display: LED lights when actuated.

The following parameter is available immediately for pre-programmed devices. For all other devices it becomes available only after being linked with an actuator.
The setting in the list view is then made via the linking function of the Web-based user interface of the System Access Point.



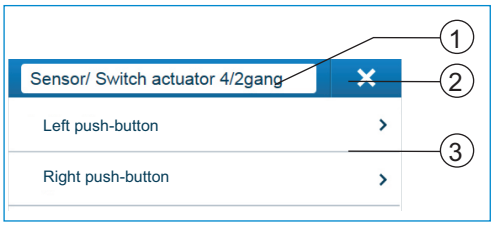
[5] Selecting the function:
Control element; dimming sensor; stairwell light sensor; sensor force-position On/Off

7.2.2 Settings for sensor/switch actuator 2/1gang

Actuator settings:

As for sensor/switch actuator, 1/1gang

Sensor settings:



[1] Changing the name

[2] Deleting the channel via 'X'

[3] Selecting the push-button in the list view

Push-button settings:

As for sensor/switch actuator, 1/1gang

7.2.3 Settings for sensor/switch actuator 2/2gang

Actuator settings:

As for sensor/switch actuator 1/1gang; however, 2 actuator channels are available!

Sensor settings:

As for sensor/switch actuator, 2/1gang

Push-button settings:

As for sensor/switch actuator, 2/1gang

7.3 Linking

The sensor/switch actuator units created via the allocation function can now be linked with each other. This allows simple ON/OFF or 2-way circuits to be implemented.



The linking in the list view is then made via the linking function of the Web-based user interface of the System Access Point.

Note...
For pre-programmed devices (switch actuator units) a link is automatically established between actuator and sensor, since they are combined in the one device.

7.3.1 Connecting actuator and sensor



Fig. 14: Connecting actuator and sensor

» To connect an actuator with a sensor, first click on the desired sensor [1] which is to operate the actuator and then on the actuator [2].

» Press the tick at the bottom right to take over the entry.

- A blue connecting line indicates the link between the two devices. The configuration is now transmitted automatically to the devices. The transmission can (depending on the number of affected devices) take a number of seconds. During the transmission a progress bar is displayed around the devices affected.

7.3.2 Connecting an actuator with an additional sensor

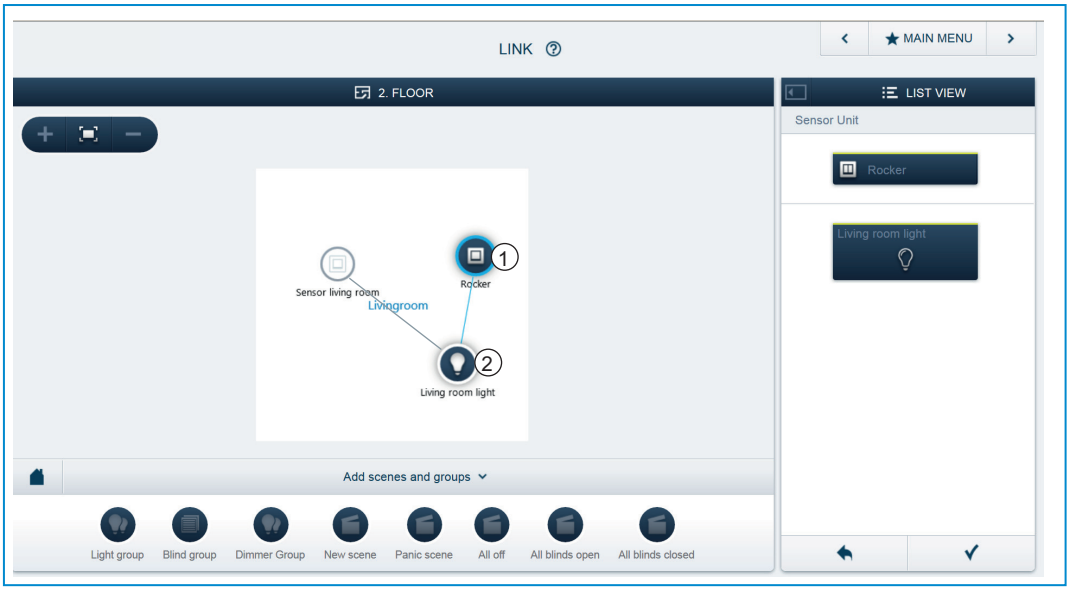


Fig. 15: Connecting an actuator and an additional sensor

» To connect the actuator with an additional sensor, first click on the second desired sensor [1] which is to operate the actuator and then on the actuator [2].

- An additional blue connecting line appears between the second sensor and the actuator.
- After the transmission has been completed the sensor can be operated directly locally.

8 Updating options

A Firmware update is carried out via the Web-based user interface of the System Access Point.

9 Operation

Operation is carried out by pressing the individual push-buttons. Their function is fixed via the assigned application or its pre-programming and its parameter settings.

Extensive applications are available for the push-buttons (control buttons).



Note...

The scope of delivery contains only the electronic insert. It must still be completed with a suitable push-button and a cover frame.

Additional information about the switch ranges is available in the electronic catalogue (www.abb.ch/freeathome).

10 Maintenance

The device is maintenance-free. In case of damage (e.g., during transport or storage), do not perform repairs. Once the device is opened, the warranty is void!

Access to the device must be guaranteed for operation, testing, inspection, maintenance and repairs (according to DIN VDE 0100-520).

10.1 Cleaning

Dirty devices can be cleaned with a dry cloth. If this is not sufficient, a cloth slightly moistened with a soap solution can be used. Caustic cleaning agents or solvents must not be used.

A member of the ABB Group

ABB Schweiz AG
Niederspannungsprodukte
Brown Boveri Platz 3
D-5400 Baden

Tel.: +41 58 586 07 00

ABB Suisse SA
Rue de Grand-Pré 2A,
CH-1007 Lausanne

Tel.: +41 58 588 40 50

www.ABB.ch/gebaeudeautomation

Note
We reserve the right to at all times make technical changes as well as changes to the contents of this document without prior notice. The detailed specifications agreed upon apply for orders. ABB accepts no responsibility for possible errors or incompleteness in this document.

We reserve all rights to this document and the topics and illustrations contained therein. The document and its contents, or extracts thereof, must not be reproduced, transmitted or reused by third parties without prior written consent by ABB.

Copyright© 2014 Busch-Jaeger Elektro GmbH
All rights reserved

1473-1-8600 | 27.08.2014