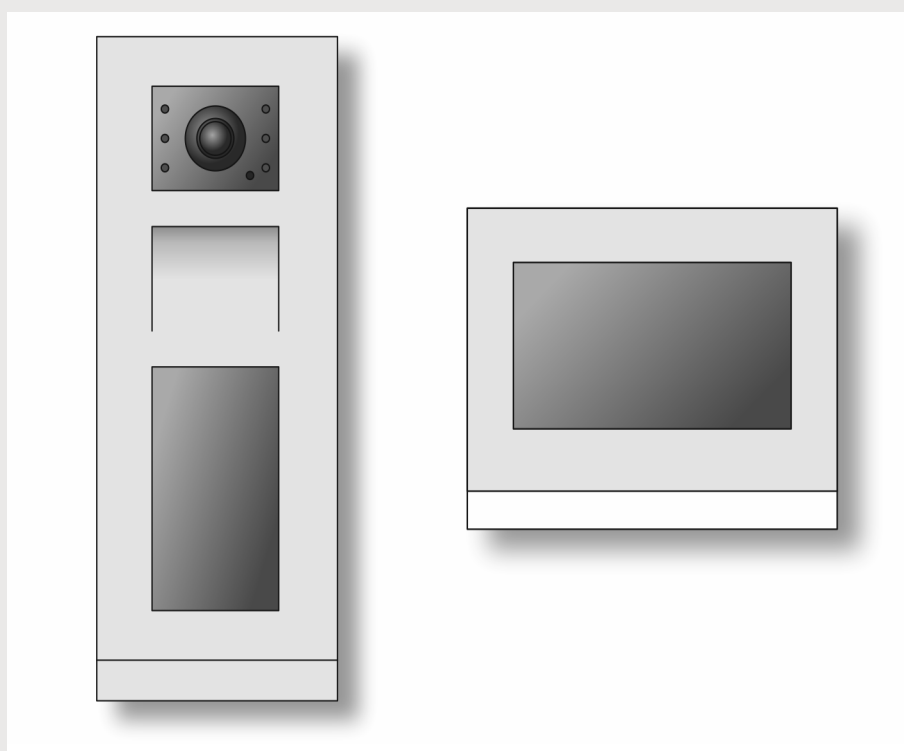


System Manual | 08.04.2019

# ABB-Welcome IP



1	Overview .....	4
1.1	Introduction to ABB-Welcome IP .....	4
1.2	Information on the manual .....	5
1.3	Target group / Qualifications of personnel .....	5
1.3.1	Installation, commissioning and maintenance .....	5
1.3.2	Planning the system and the installation .....	5
1.4	Design lines .....	5
1.5	Basic principles .....	5
2	Overview of product range .....	6
2.1	Calculation of consumption of a ABB-Welcome IP system .....	6
2.2	Selection of the correct PoE (commercially available) .....	7
2.3	Device overview .....	8
2.3.1	Outdoor stations .....	8
2.3.2	IP touch 7" and Guard unit .....	10
2.3.3	System devices .....	12
2.4	Mounting accessories .....	15
2.4.1	Overview .....	15
2.4.2	Mounting boxes for flush-mounted installation .....	18
2.4.3	Mounting boxes for surface mounting .....	19
2.4.4	Support bases for mounting on desktop .....	20
2.4.5	Mounting possibilities .....	21
2.4.6	Mounting in hollow walls .....	21
2.4.7	Mounting in clinker facades .....	22
2.4.8	Mounting in insulated facades .....	22
2.4.9	Mounting with stiff LAN cables .....	24
2.5	Connection / Connecting diagram .....	25
2.6	Prerequisites .....	25
2.7	Installation / Data transmission .....	26
3	Device Functions .....	27
3.1	Functions .....	27
4	Commissioning .....	30
4.1	Overview of commissioning .....	30
4.2	Physical addresses — Preparing and addressing devices manually .....	33
4.2.1	Physical addresses — Preparing addressing .....	33
4.2.2	IP touch 7" and Guard unit .....	34
4.2.3	Outdoor station without display .....	35
4.2.4	Outdoor station with display .....	37
4.2.5	IP actuator .....	39
4.3	Physical addresses — Preparing and addressing devices via ABB-Welcome App .....	41
4.4	Adding devices - Preparation .....	44
4.4.1	Connecting a PC with the "Smart Access Point" system controller .....	44
4.4.2	Adjusting IP address to a PC .....	46
4.4.3	Determining the IP address via router .....	48
4.5	Adding devices .....	49

4.5.1	Project import from ABB-Welcome App .....	49
4.5.2	Add manually .....	51
4.5.3	Adding via automatic search .....	52
4.6	Joining device together .....	53
4.6.1	Linking devices in the management software .....	53
5	Information about planning and application .....	54
5.1	Addressing ABB-Welcome IP (devices networking/connecting) .....	54
5.2	Network / Data transmission .....	56
5.2.1	Ethernet cable / Ethernet network .....	56
5.2.2	Integration ABB-free@home® .....	57
5.2.3	PoE planning (Ethernet, WLAN) .....	58
5.3	Function test .....	60
5.4	IT protection .....	61
5.4.1	Early detection of risks .....	61
5.4.2	Glimpses into the private life .....	61
5.4.3	Foreign control of your house .....	61
5.4.4	Increase of safety .....	61
5.4.5	Minimisation of the risks .....	62
5.4.6	Password manager .....	63
5.4.7	Remote access .....	63
6	Case studies .....	64
6.1	Legend .....	64
6.2	Private apartment .....	65
6.3	Multifamily house .....	71
6.4	Residential building construction project .....	73
7	Glossary .....	78
8	Notes .....	79
9	Index .....	80

# 1 Overview

## 1.1 Introduction to ABB-Welcome IP

The ABB-Welcome IP devices are integrated in existing LAN network cables and form an independent network within it. In contrast to the analogue ABB-Welcome devices they do not require their own interconnected cabling.

Depending on the equipment of the building the ABB-Welcome IP devices for the exchange of information and the power supply share the LAN network cables with other systems. These run parallel.

The connection to the LAN network cables, for example, has the following advantages:

- No separate cabling is required. No new cables need to be installed for the installation of a ABB-Welcome IP system.
- New devices can be added at any time without having to install new cables.

Prerequisite is that sufficient LAN network cables are available in the building.

### Communication and current

All devices communicate via Ethernet networks. A separate power supply is not required with the use of PoE switches. A power supply via the local 230 V mains network is possible as an option.

### Building automation

The system has additional interfaces for the smooth integration into the building automation.

### Connection of parallel networks

The interlacing of several separate networks is carried out via IP gateways. This is practical, for example, if you wish to connect the door system with a home network.

### Expandability

The ABB-Welcome IP system can be expanded as desired within the scope of standard EN 50173-1 (2003) as well as ISO/IEC 11801 (2002) and the options of the network technologies. It is suitable for installation in single or multifamily houses as well as office buildings, high-rise buildings and building complexes. The devices can be networked with an almost endless number and distance. For information about the standards and network technologies, see chapter 5.2 "Network / Data transmission" on page 56.

### Multi-channel technology

The residents of a house are accessible to visitors at all times. Any number of apartments can be contacted simultaneously from different outdoor stations. An apartment can also be called from more than one outdoor station.

## **1.2 Information on the manual**

This manual describes the ABB-Welcome IP system. It supports you in the selection and planning of the correct structure.

It contains an overview of currently available components and provides ideas for practical combination and integration.

For detailed technical information about the individual components please also note the respective product documentation.

In Chapter 6 “Case studies” on page 64 the topics of this document are explained by means of examples. The information in the chapters is structured logically. If you wish to familiarise or re-familiarise yourself again with the topic, read through all the relevant subchapters on this topic.

## **1.3 Target group / Qualifications of personnel**

### **1.3.1 Installation, commissioning and maintenance**

### **1.3.2 Planning the system and the installation**

## **1.4 Design lines**

This system manual serves for the technical planning of the simple to complex installations.

The different design lines (with the respective special colours and shapes of the devices) are not listed in this system manual.

Please obtain the desired current design versions and the corresponding complete article numbers as well as the order numbers from the respective product catalogues or the online catalogue at [www.busch-jaeger-catalogue.com](http://www.busch-jaeger-catalogue.com).

## **1.5 Basic principles**

Information about basic functions and principles of operation of the devices are available at Chapter 5 “Information about planning and application” on page 54.

## 2 Overview of product range

### 2.1 Calculation of consumption of a ABB-Welcome IP system

Device	Power supply: PoE switch	Power supply: Local	Consumption	Recording of power (W)
IP touch 7"	•	•	300 mA / 27 VDC	8.1
IP touch 5" outdoor station	•	•	400 mA / 27 VDC	10.80
Guard unit	•	•	85 mA / 27 VDC	2.30
Smart Access Point Pro	•	•	375 mA / 27 VDC	10.13
IP actuator	•	•	30 mA / 27 VDC	0.81
Lift control	•	•	60 mA / 27 VDC	0.405
Lift relays	•	•	300 mA / 27 VDC	8.1

Table 1: Calculation of consumption

## 2.2 Selection of the correct PoE (commercially available)

For the selection of a PoE switch please observe the following points:

- All ABB-Welcome IP devices "meet" standard IEEE802.3af
- According to IEEE802.3af the PoE loads may each "draw" a maximum of 12.95 Watt.
- The minimum band width amounts to 100 Mbps.
- ABB-Welcome IP devices must be operated with a PoE switch that meets standard 802.3af.
  - During selection observe that the absolute output on the PoE switch is adequate for all devices to be connected. Do not load the PoE switch to its limit. Include a power buffer of at least 20% when calculating the total output.

### Example for the selection of a PoE switch

	Current (A)	Power (W) per necessary port	Number of devices	Total output (W)
IP touch 7"	0.3	8.1	6	48.6
IP touch 5" outdoor station	0.4	10.8	1	10.80
Guard unit	0.085	2.295	1	2.30
Smart Access Point Pro	0.375	10.125	1	10.13
IP actuator	0.03	0.81	1	0.81
			<b>10</b>	<b>88.57</b>

Table 2: Determination of total output of the devices to be connected

Result	
Number of necessary ports:	10
Necessary total output:	88.57 W

Table 3: Result of total output of the devices to be connected

### Switch selection

	IEEE802.3af ready	Total output	Number of ports	Difference (Output to necessary output)
Example of switch 1	Yes	76	10	-12.57 W
Example of switch 2	Yes	112	10	23.34 W

Table 4: Examples of switches

- The example of switch 1 is not sufficient for requirements. Its total output is too small.
- The example of switch 2 meets the requirements and can be used.

## 2.3 Device overview

### 2.3.1 Outdoor stations

ABB-Welcome IP Outdoor stations are installed in the outdoor and indoor areas.

The versatility of the devices makes them suitable for the following areas:

- Building entrances
- Perimeter areas
- Storey areas
- Apartment doors
- Basement garages

Visitors call at the stations when they arrive. For the door call there is also a voice output aside from the classic doorbell buttons. The voice output can be activated as an option.

Outdoor stations are always available with video function.

Outdoor stations are available in the materials stainless steel and white, and aluminium.

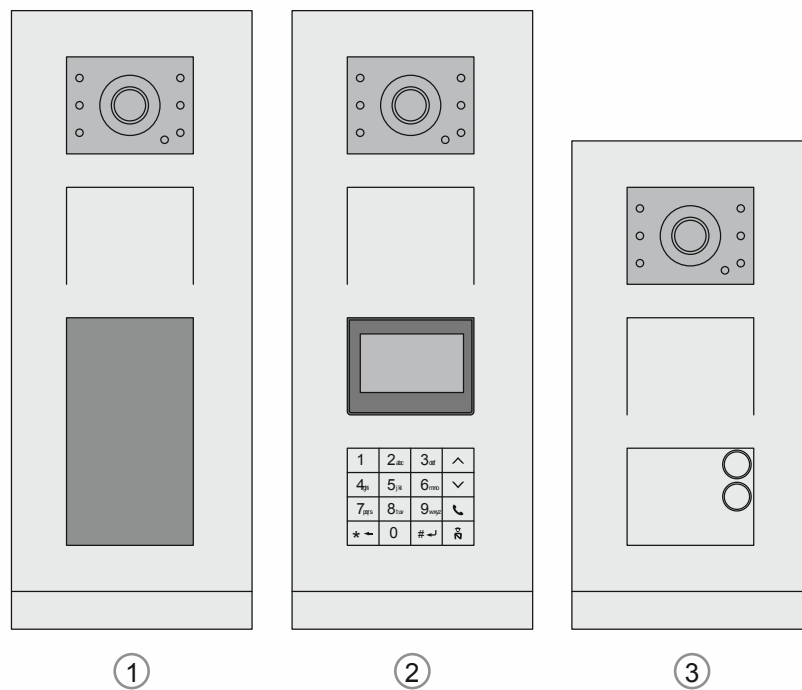


Abb. 1: Outdoor stations



	1	2	3
Article Number	H8138.T.-.	H8138.K.-.	H81381P.-.
Type	IP touch 5" outdoor station	IP keypad outdoor station	IP pushbutton outdoor station
Video image	720P	720P	720P
Camera angle	130°	130°	130°
Anti-mist camera	•	•	•
Automatic day/night switchover	•	•	•
LED display for real-time status	•	•	•
Capacitive touch screen 5 inch	•	—	—
Virtual keypad	•	—	—
Buttons can be programmed as desired (switching on lighting, calling indoor station or protection unit)	—	—	•
Detection of door status	•	•	•
Integrated lighting and automatic background illumination	•	•	•
Transfer of all calls to the indoor station Guard unit	•	•	—
Support of lift control	•	•	—
Integrated RFID reader (MIFARE® DESFire®)	•	—	—
Door opening via encrypted IC or ID card	—	•	•
News and advertising via 5 inch monitor	•	—	—
Suitable for the disabled with induction loop for persons with impaired hearing	•	•	•
Power supply <ul style="list-style-type: none"> <li>▪ PoE</li> <li>▪ Local power supply unit</li> </ul>	• •	• •	• •
Mounting <ul style="list-style-type: none"> <li>▪ Wall mounting</li> </ul>	•	•	•
Protection type	IP 54	IP 54	IP 54
Safe against vandalism	IK 07	IK 07	IK 07

### 2.3.2 IP touch 7" and Guard unit

The door call is signalled at the IP touch 7" or Guard unit. Here the call is received and the door is opened when a visitor arrives. The camera image is displayed directly, to ensure that you immediately see who is at the door and you can communicate with the visitor.

If you are not home at present, the visitor can leave you a message.

The indoor stations can also be used for communication within and between apartments and buildings. The management software (installed on the "Smart Access Point") can be used to administer which stations can call each other directly or be connected with each other by concierge stations.

The integrated blacklist can be used to specify which calls are blocked automatically.

For the Guard unit the the same range of functions is available as for the IP touch 7". The concierge can transfer the call to an IP touch 7" or assign the access authorisation himself.

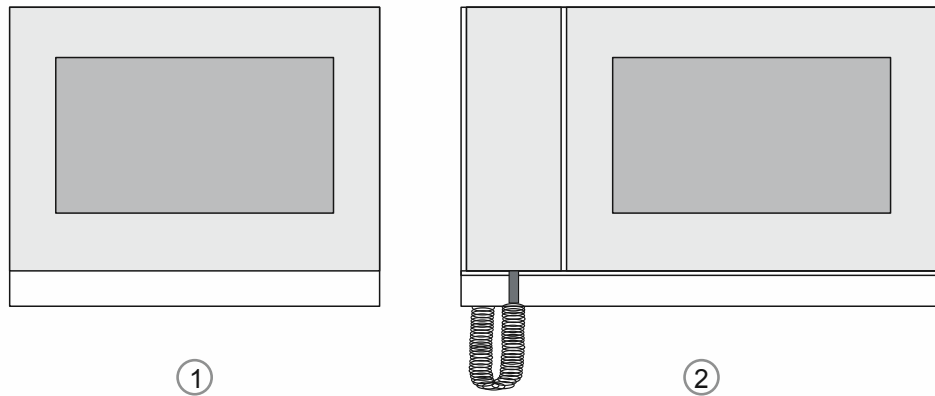


Fig. 2: Indoor stations

	1			2
Article number	H82364	H82365	H82366	H8303
Type	IP touch 7"	IP touch 7"	IP touch 7"	Guard unit
Touch screen	•	•	•	•
Extension on app without additional system equipment (prerequisite is an Internet connection)	•	•	•	—
Central operating field for DES, CCTV, AC and home automation (KNX & F@H)	•	•	•	•
Video doorbell via IP camera	•	•	•	•
LAN interface	1	2	1	1
Wi-Fi interface	1	—	—	1
Remote firmware update	•	•	•	•
Power supply				
▪ PoE	•	•	•	•
▪ Local power supply unit	•	•	•	•
Mounting				
▪ Wall mounting	•	•	•	•
▪ Desktop mounting	—	—	—	•
Call lists	•	•	•	•
Receipt of alarm and emergency call (SOS)	•	•	•	•
Triggering a fire alarm	—	•	—	—
Support of surveillance from outdoor stations or iP cameras.	•	•	•	•

### 2.3.3 System devices

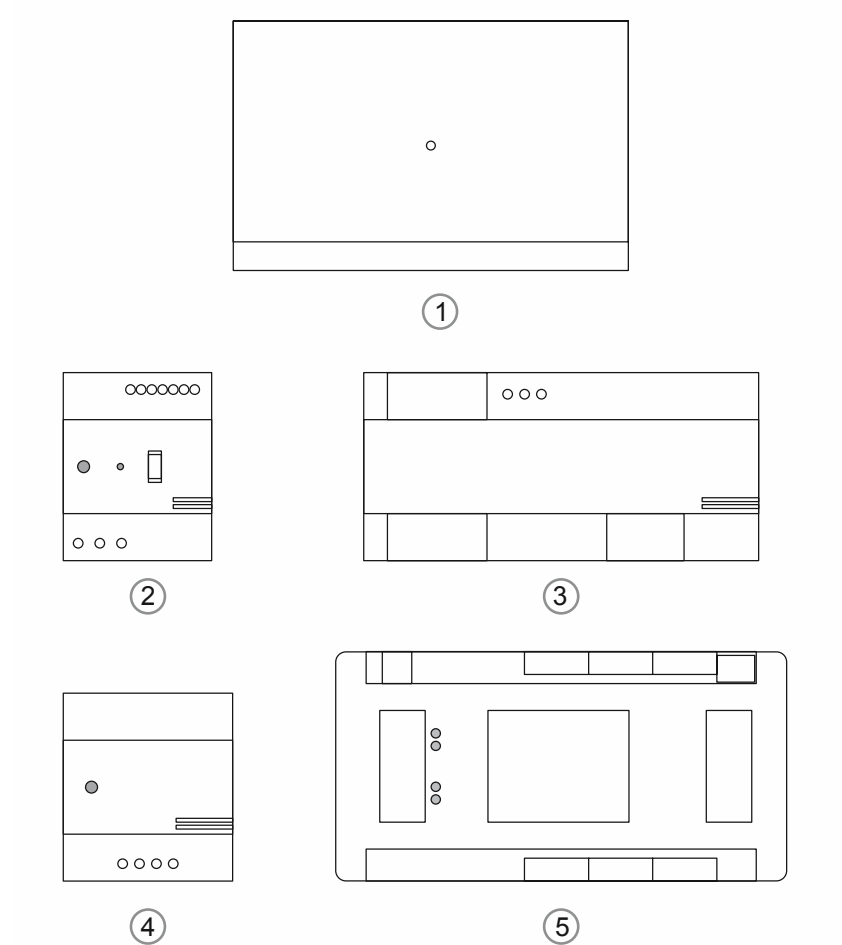


Fig. 3: System devices

**[1] System controller Smart Access Point**

The management software is installed on the Smart Access Point. The management software is operated via the indoor station.

<b>Overview of the versions of the system controller Smart Access Point</b>			
	Smart Access Point Lite D04012	Smart Access Point Pro D04011	PC version * (Management software) (see note)
Control ABB-Welcome IP (Door communication)	•	•	•
Control Busch- VideoControl (Video surveillance)	•	•	—
Control Busch- AccessControl (Access control)	—	•	—
Control for up to 700 apartments	•	•	—
Control for up to 700 to 2000 apartments	—	—	•

Table 5: Overview of system controller versions

\* Availability upon request

**More than 700 apartments (Availability upon request)**

If more than 700 apartments have to be managed via the system controller, a very high computing performance is required.

- In this case, install the management software on a PC, for example, and use it as a system controller.
- The PC version of the management software is available separately on a USB stick.

**[2] IP actuator H8304**

The "IP actuator" carries out the switching commands. The setting is made via the management software.

The "IP actuator" has the following main functions:

- Connection of door openers or light switches.
- Up to 2 blockages of connections.
- The switching duration of the lock release or the activation of the lighting can be set.
- DIN rail mounting
- Firmware can be updated via the management software
- Power supply via PoE or separate power supply adapter

### **[3] Power supply YSM01-PS**

The „Power supply“ supplies the power for system devices in the following cases:

- No power is supplied via the network.
- The number of system devices is high to the extent that the power supply via the network is not sufficient.

### **[4] Lift control module YSM23-LC**

Available only in: China

The „Lift control module“ serves as communication interface for the lift system.

If the home owner wishes to activate the lift control function, a lift control module must be available.

Activation of the lift control function:

- The home owner can call the lift prior to leaving the building, and he can also call and authorise the access to the lift storey for visitors after opening the door.
- During the communication from house to house the home owner can call and authorise the access to the lift storey for neighbours.

### **[5] Lift control relay module 4825-Y**

Available only in: China

The „Lift control relay module“ supplies the relay output of the „4825-Y“, to communicate with the floating contact input of the lift system.

### 2.4 Mounting accessories

#### 2.4.1 Overview

##### Overview of functions mounting boxes

The mounting boxes for surface mounting or flush-mounted installation are available separately in the corresponding size for each device.

The product is packed with accessories to guarantee a high-quality installation.



##### Note

- Mounting boxes for surface mounting or flush-mounted installation must be ordered additionally for the device.
- The mounting box for flush-mounted installation is always supplied as a set together with the associated flush-mounted box.

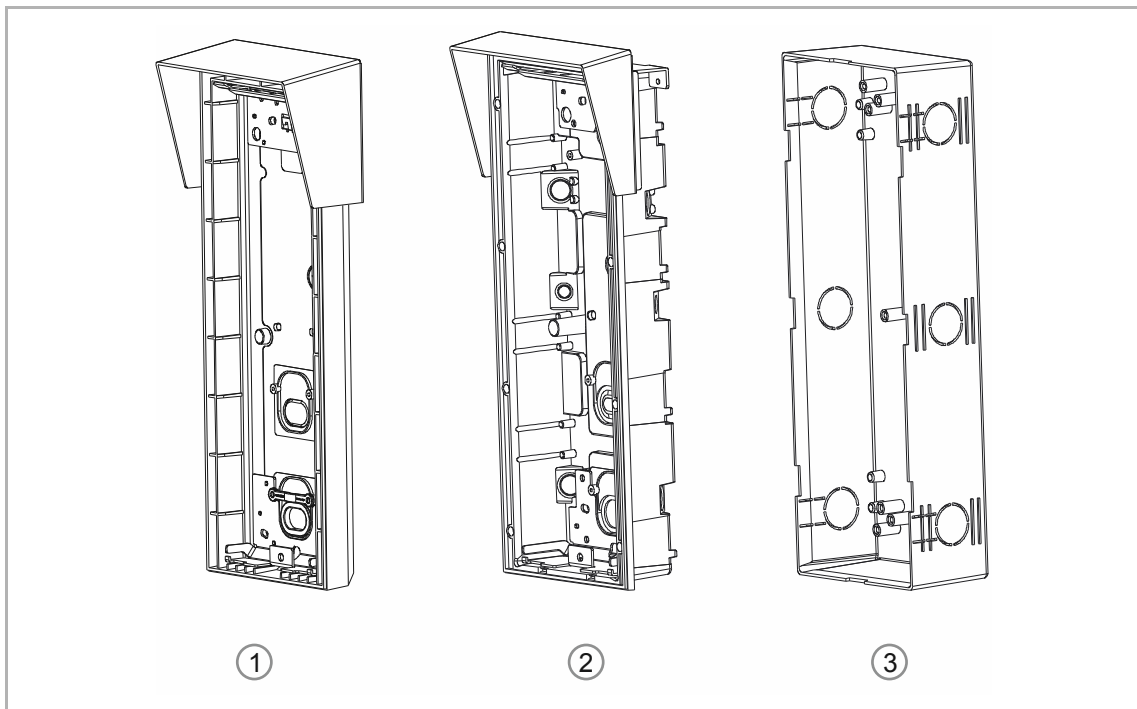


Fig. 4: Mounting boxes / Mounting box accessories

#### Surface mounting

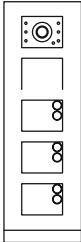
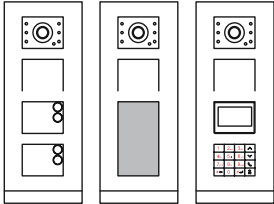
- 1 Mounting boxes for surface mounting
  - Surface mounting box for indoor station „IP touch 7“
  - Surface mounting box for outdoor stations size 1/3, size 1/4, size 1/5, size 2/3

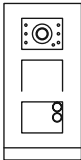
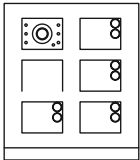
#### Flush mounting

- 2 Mounting boxes for flush-mounted installation
  - The mounting box for flush-mounted installation is always supplied as a set together with the associated flush-mounted box.
  - Flush-mounting box for outdoor stations size 1/3, size 1/4, size 1/5, size 2/3
- 3 Flush-mounting box
  - The flush-mounted box serves as mounting accessory for plastering walls or facades. The flush-mounted box is installed prior to plastering. The flush-mounted box offers mounting points for the flush-mounted installation box.
  - Flush-mounted box for outdoor stations size 1/3, size 1/4, size 1/5, size 2/3



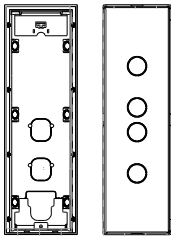
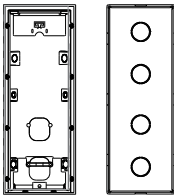
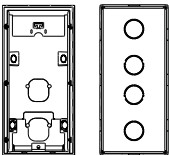
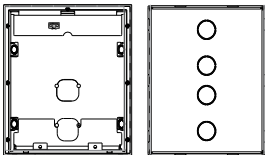
### Sizes for the outdoor station mounting boxes

Outdoor station		
Size	1 x 5	1 x 4

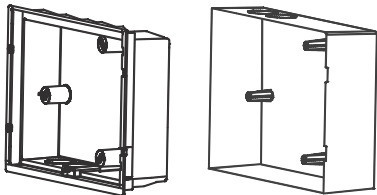
Outdoor station		
Size	1 x 3	2 x 3

## 2.4.2 Mounting boxes for flush-mounted installation

### Mounting boxes for flush-mounted installation: Outdoor station


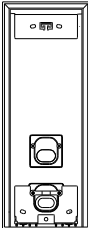
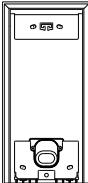
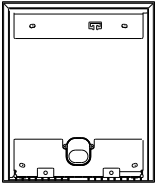
			
1 x 5	1 x 4	1 x 3	2 x 3
41385.F-xxx / 41385.PB-xxx	41384.F-xxx / 41384.PB-xxx	41383.F-xxx / 41383.PB-xxx	41386.F-xxx / 41386.PB-xxx

### Mounting boxes for flush-mounted installation: Indoor station

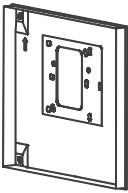

42363.F-xxx

### 2.4.3 Mounting boxes for surface mounting

#### Mounting boxes for surface-mounted installation: Outdoor station

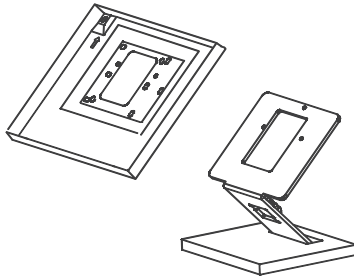
			
1 x 5	1 x 4	1 x 3	2 x 3
41385.S-xxx	41384.S-xxx	41383.S-xxx	41386.S-xxx

#### Mounting boxes for surface-mounted installation: Indoor station


42363.S-xxx

#### 2.4.4 Support bases for mounting on desktop

##### Support base: Indoor stationIP touch 7"



---

42363.S-xxx

---

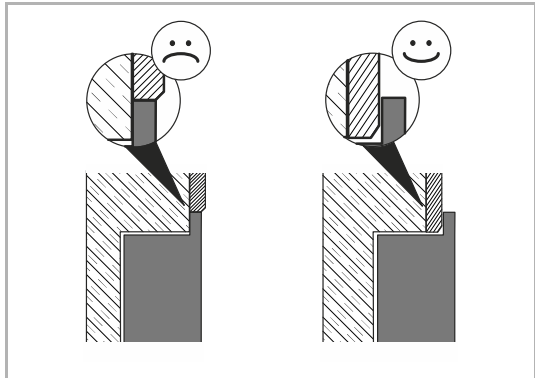
##### Support base: Guard unit

The Guard unit has been designed exclusively for mounting on desktops. No additional accessories are required for mounting on the desktop.

#### 2.4.5 Mounting possibilities

#### 2.4.6 Mounting in hollow walls

Cut a hole according to the size of the outdoor station used into the facade. The suitable template is enclosed with the box. Dimensional drawings, .



#### Note

The encircling "collar" of the flush-mounted box must rest on the facade!

Fig. 5: Mounting instructions for the flush-mounted housing

Use the separately available hollow-wall mounting set to anchor the flush-mounted box in the cut-out (83511-500).



Fig. 6: Cavity wall set 83511-500

### 2.4.7 Mounting in clinker facades

Chisel a hole according to the size of the outdoor station used into the facade provided. The suitable template is enclosed with the box. Dimensional drawings, .

The installation depth of the box is 40 mm.

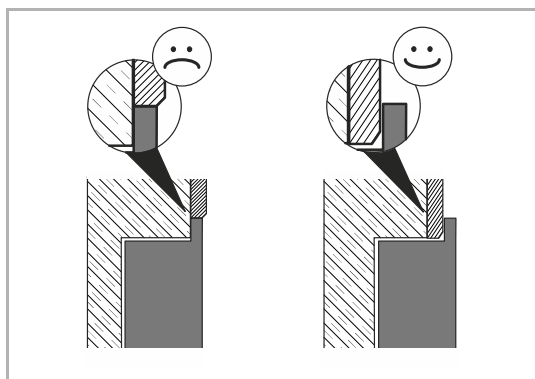


Fig. 7: Mounting instructions for the flush-mounted housing



#### Note

The encircling "collar" of the flush-mounted box must rest on the facade!

Fix the flush-mounted installation box into the cut-out of the facade with the aid of the elongated holes. You can fill the hollow spaces between the box and clinkers with PU foam. Break out the holes in the corners angled at 45°. Insert the extension tube of the PU foam and fill the cavities.



#### Note

Use a low-expansion foam to prevent foam from entering the flush-mounted box. If necessary, use foam cleanser to remove the contaminations.

No additional accessories are necessary for mounting.

### 2.4.8 Mounting in insulated facades

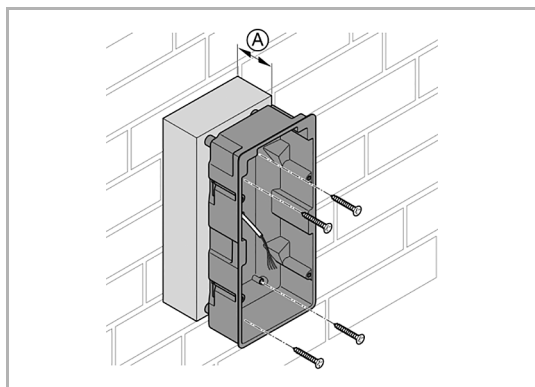


Fig. 8: Fixing the flush-mounted box to the device carrier

1. Fix the flush-mounted box to a device carrier that is suitable for the insulated exterior facades (e.g. universal device supports, from Kaiser).

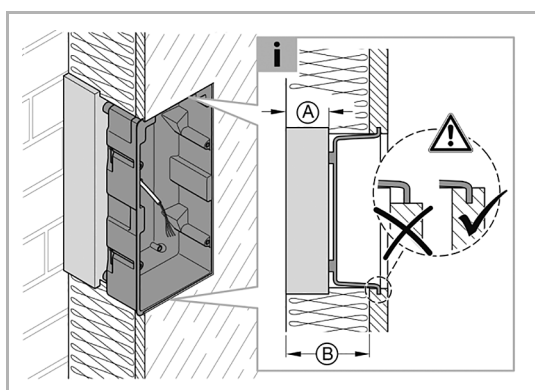


Fig. 9: Mounting height of the device carrier and the flush-mounted box



## Note

Ensure that the installation height of the device carrier and the flush-mounted box matches the thickness of the planned exterior insulation (e.g. 160 mm exterior insulation).

2. Insert the cable through a suitable hole in the flush-mounted box.
3. Insert the enclosed plaster cover as protection against the plaster.



## Note

Ensure that no cavities are created, to prevent heat bridges from forming. Fill any existing cavities with suitable insulation material.

## After the insulation and plastering:

4. Carefully remove the plaster located over the box.



## Note

Ensure that a sufficient amount of plaster remains so that the hole can later be completely covered by the encircling collar of the flush-mounted installation box.

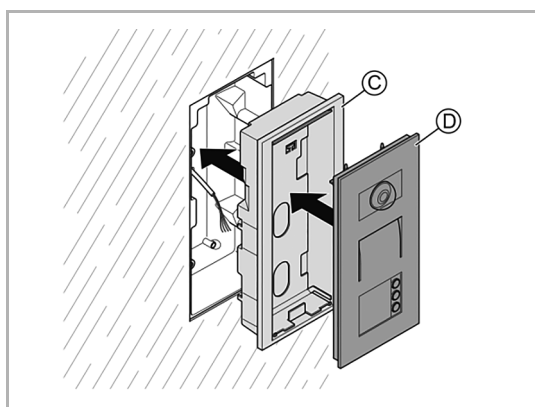


Fig. 10: Inserting the installation box and outdoor station

5. Insert the flush-mounted installation box [C] into the flush-mounted box and tighten it with the enclosed screws.
  - For this, use the four elongated holes in the bottom of the flush-mounted installation box.
  - Use the shorter or longer screws depending on the thickness of the plaster.
6. Connect the outdoor station [D] and insert it into the flush-mounted installation box [C].

#### 2.4.9 Mounting with stiff LAN cables

Cat. 6 cables (and higher) are very stiff and thick. To handle the partly tight flush-mounted boxes with these cables can be a problem.

A proven solution has been to use a flat LAN cable for the last short piece in front of the device and fit it to the actual LAN cable with a universal LAN module (e.g. ABB0219-101-500).

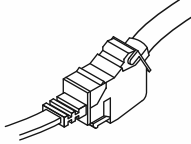


Fig. 11: Adapter 0219-101-500



#### **Note**

The flat LAN cable must be suitable for a power transmission via PoE from the transmission standard Cat5e.



## 2.5 Connection / Connecting diagram

The ABB-Welcome IP devices are suitable for surface mounting and flush-mounted installation. All devices are available separately and can therefore be integrated into existing systems without any problem.

This section informs about prerequisites and procedures for the installation and mounting of selected system components.

## 2.6 Prerequisites

The prerequisites for the installation of the ABB-Welcome IP system are listed in the following:

### Network

- Own physical network or VLAN with Quality of Service (QoS).
- Setup of the active network components in Ethernet technology.
- Minimum demands on the network: 100Base Tx.
- Consistent multicast network.

### Wiring

- Structured wiring according to DIN 50173-1/2/2/3/3/4/4.
- Wiring at least Cat. 5/5e.

### Services in the network

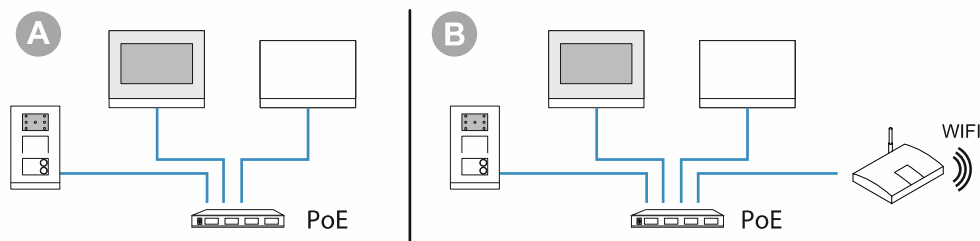


Abb. 12: Switch with Routing Service [A] / Switch without Routing Service [B].

All ABB-Welcome IP devices have static IP address in IPv4 address block 10.0.0.0/8.

The Smart Access Point Lite / Smart Access Point Pro has at least one static IP address from the IPv4 address block 10.0.0.0/8 and can additionally receive a IPv4 address allocated dynamically from outside.

### **2.7 Installation / Data transmission**

Information about basic functions and principles of operation of the components for data transmission is available at Chapter 5 “Information about planning and application” on page 54.

## 3 Device Functions

### 3.1 Functions

#### Door communication

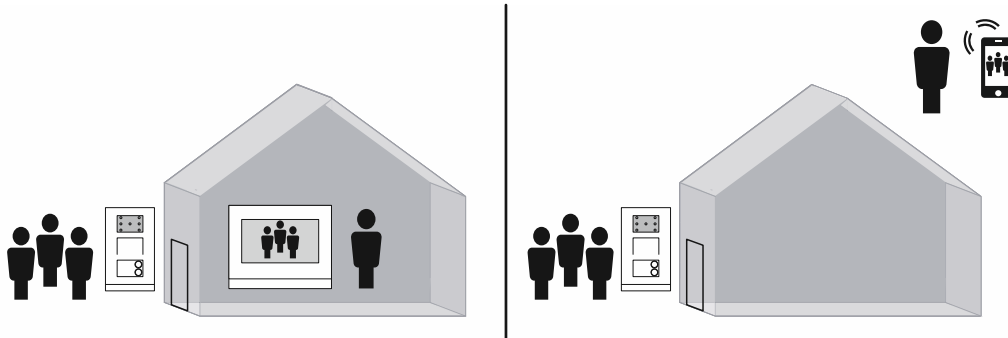


Fig. 13: Door communication

All visitors are received at outdoor stations. Depending on the outdoor station used, call the desired indoor station via modern or more classic methods such as bell buttons.

The call is signalled at the desired indoor station. From here the call can be received and the door opened. The camera image is displayed directly at the indoor station, to ensure that you immediately see who is at the door. You can communicate with the visitor via the audio module. Any type assembly arrangement of modules is possible for an outdoor station due to the modular system.

If you are not home at present, the visitor can leave you a message.

The ABB-Welcome App turns your smartphone or tablet into a virtual indoor station while you are travelling. As is normal, you are informed about all visitors, talk to them and open the door for them.



#### Note

The creation and storing of photos as well as user data can infringe on personal rights!

- Ensure that the applicable legal provisions are adhered to when setting up and operating devices.

#### Concierge function

Calls can also be answered at a concierge station. Here the the same range of functions is available as for the indoor stations.

The concierge can transfer the call to an indoor station or assign the access authorisation himself.

#### Automatic door opener

If necessary, the indoor station can be configured to allow visitors to enter automatically. During the set times the door opens automatically as soon as someone rings the bell.

### Internal communication

The indoor stations can be used as video telephone for communication within and between apartments and buildings. The PC software can be used to administer which stations can call each other directly or be connected with each other by concierge stations.

The integrated blacklist can be used to specify at every indoor station which calls are blocked automatically.

### Image in image

If a second video call is received, both video images are displayed simultaneously. Additional calls received during this time are automatically cancelled and are displayed in the list of unanswered calls.

### Video surveillance

You can integrated any number of surveillance cameras into the network. These can be displayed additionally, for example, during the door communication.

### Multimedia player

The indoor stations play video and audio files that are located on an inserted SD card. Image files can be displayed as slide show or used as screen saver.

SD cards:

- Type: Micro SDHC
- Storage size: 4 - 32 GB
- Speed class: Class10
- File system: FAT32
- Use a card that corresponds to the SDHC standard. Some cards may not function correctly. It is recommended to use SDHC cards from ScanDisk, Kingston and Transcend that have been fully tested and checked.
- While images are recorded or copied on the card, do not remove the SD card nor restart the indoor station again. Otherwise the replay of images may not be able to be carried out.
- ABB is not liable for the performance of an SDHC card.

Audio files can be used in .mp3 and \*.wav format as door call tone.

### Management software

Detailed programming is possible via the management software.

### Remote access via ABB-Welcome App

You do not miss a visitor also when you are not at home. With the ABB-Welcome App for iOS and Android you have an indoor station always with you.

### Integration into building automation

The system can be smoothly integrated into automation systems such as free@home or KNX. Here all indoor stations serve simultaneously as control unit for the free@home network.

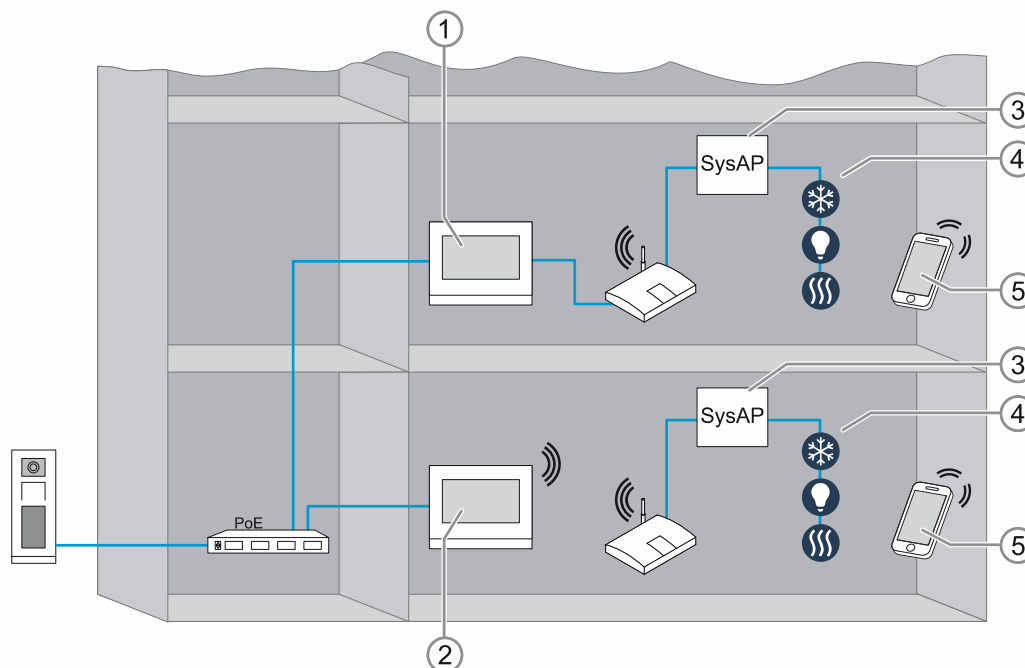


Fig. 14: Overview of integration into building automation

- [1] H82365 IP touch 7"
- [2] H82364 IP touch 7"
- [3] System Access Point
- [4] free@home
- [5] Option: Smartphone with ABB-Welcome App

## 4 Commissioning

### 4.1 Overview of commissioning

Commissioning of the system is carried out in three partial sections.

Section 1	Preparing the devices. Here the physical addresses are assigned.
Section 2	Adding the devices in the system.
Section 3	Joining the devices together (which outdoor station can communicate with which indoor station).

The basic procedure for commissioning is described in the following tables.

The precise procedure of the individual steps is contained in the following chapters. The respective links in the tables refer to the respective chapter.

The examples for application in Chapter 6 “Case studies” on page 64 are selected detailed procedures based on standard situations.

<b>Section 1</b> <b>Preparing devices and assigning the physical addresses.</b> <b>(Detailed information on the system of the addresses, see chapter 5.1 “Addressing ABB-Welcome IP (devices networking/connecting)” on page 54)</b>	
There are two ways for assigning the addresses.	
<ul style="list-style-type: none"> <li>Assigning the physical addresses manually.</li> </ul>	see chapter 4.2 “Physical addresses — Preparing and addressing devices manually” on page 33
<ul style="list-style-type: none"> <li>Assigning the physical addresses automatically.               <ul style="list-style-type: none"> <li>For this the devices with ABB-Welcome App and a smartphone, for example, are scanned in and stored in a project.</li> </ul> </li> </ul>	see chapter 4.3 “Physical addresses — Preparing and addressing devices via ABB-Welcome App” on page 41
Stumbling blocks <ul style="list-style-type: none"> <li>Xxxxx</li> <li>xxxxx</li> </ul>	see chapter 4.4.1 “Connecting a PC with the “Smart Access Point” system controller” on page 44

## Section 2

### Setting up devices in a system

The devices are integrated in the management software of the system. The management software is installed on the "Smart Access Point" system controller.

#### Section A: Connecting system controller "Smart Access Point" with a PC

Before the devices can be integrated in the system, the "Smart Access Point" system controller must, for example, be connected with a PC via LAN. The further steps in commissioning follow from the PC. For this a browser must be available on the PC.

<ul style="list-style-type: none"> <li>▪ Connect a PC, laptop or similar with the "Smart Access Point" system controller and log into the management software of the system controller.               <ul style="list-style-type: none"> <li>– To ensure that the PC can communicate with the "Smart Access Point" system controller, the IP address of the PC must be placed into the same area as the IP addresses of the devices.</li> </ul> </li> <li>▪ After the login select the mode: "Functional".               <ul style="list-style-type: none"> <li>– The system controller "Smart Access Point" is called up later by a browser via the static IP address 10.0.0.1.</li> </ul> </li> <li>– After the login select the mode: "Residential".               <ul style="list-style-type: none"> <li>– The later IP address of system controller "Smart Access Point" must be determined on a router.</li> </ul> </li> </ul>	<p>see chapter 4.4.2 "Adjusting IP address to a PC" on page 46</p> <p>see chapter 4.4.3 "Determining the IP address via router" on page 48</p> <p>see chapter 4.5.1 "Project import from ABB-Welcome App" on page 49</p>
<p>Stumbling blocks</p> <ul style="list-style-type: none"> <li>▪ Xxxxx</li> <li>▪ xxxxx</li> </ul>	<p>see chapter 4.5.2 "Add manually" on page 51</p>

#### Section B: Adding devices

If the PC is connected with the "Smart Access Point" system controller, there are three ways for setting up and adding the devices to the system.

<ul style="list-style-type: none"> <li>▪ Project import from ABB-Welcome App               <ul style="list-style-type: none"> <li>– Import the project with the previously scanned devices into the "Smart Access Point" via the management software.</li> <li>– The devices are automatically added to the system.</li> </ul> </li> </ul>	<p>see chapter 4.5.3 "Adding via automatic search" on page 52</p>
<ul style="list-style-type: none"> <li>▪ Manual adding of the devices in the in the management software and entering the devices manually.               <ul style="list-style-type: none"> <li>– Enter device type, serial number and address manually.</li> </ul> </li> </ul>	<p>see chapter 4.6 "Joining device together" on page 53</p>
<ul style="list-style-type: none"> <li>▪ Manual adding of the devices in the in the management software and allowing the devices to be found automatically.               <ul style="list-style-type: none"> <li>– Device type, serial number and address are entered automatically.</li> </ul> </li> </ul>	
<p>Stumbling blocks</p> <ul style="list-style-type: none"> <li>▪ Xxxxx</li> <li>▪ xxxxx</li> </ul>	

---

**Section 3**

**Joining the device together**

---

The devices are joined in the management software of the "Smart Access Point" system controller.

- Call up the system controller again via the browser of the PC if there is no longer a connection.
- 

Joining the device together.

- The indoor stations are assigned to each outdoor station they are to communicate with.
-



## 4.2 Physical addresses — Preparing and addressing devices manually

If the devices have a display, the addressing is carried out on the device itself.

If the devices do not have a display, the addressing is carried out via the indoor station.

### 4.2.1 Physical addresses — Preparing addressing

For commissioning you are located in:	Section 1 (Preparing the devices)
Overview of commissioning:	see chapter 4.1 “Overview of commissioning” on page 30

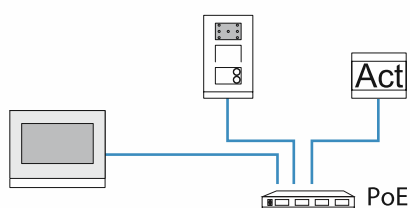


Fig. 15: Preparation of commissioning

1. Connect the devices to the indoor station via a PoE switch.
  - As soon as the devices are supplied with voltage via the PoE switch, the device boots up automatically.

### 4.2.2 IP touch 7" and Guard unit

For commissioning you are located in:	Section 1 (Preparing the devices)
Overview of commissioning:	see chapter 4.1 "Overview of commissioning" on page 30

First address stations IP touch 7" or Guard unit. Addressing is carried out in the same way for all versions.

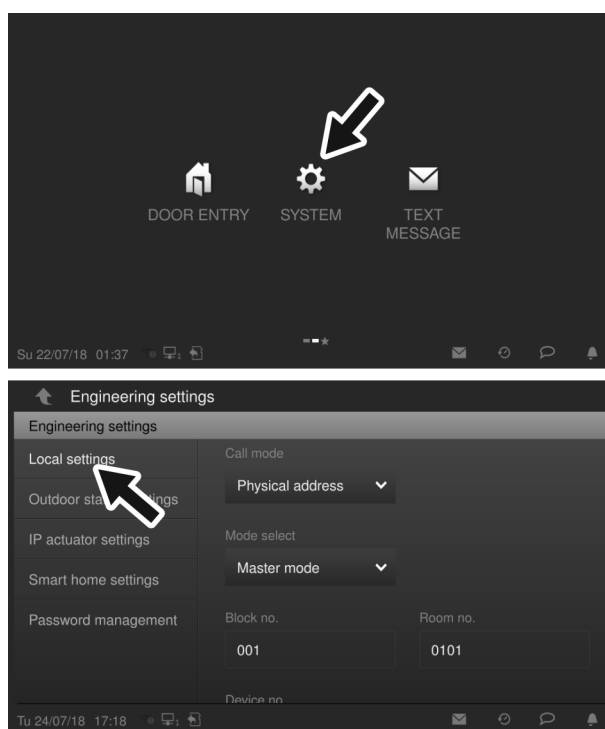


Fig. 16: Addressing station IP touch 7" or Guard unit

The wizard is displayed after the device has booted up automatically and will guide you through the first setup. If the device has already been setup, the main menu is displayed directly.

To address the device, perform the following steps:

1. Follow the steps of the wizard for the first commissioning.
2. Enter the address of the device in the technical menu.

Station IP touch 7" or Guard unit is addressed.

Do not switch station IP touch 7" or Guard unit off or separate them from the other devices.

### 4.2.3 Outdoor station without display

For commissioning you are located in:	Section 1 (Preparing the devices)
Overview of commissioning:	see chapter 4.1 "Overview of commissioning" on page 30

The LEDs light up permanently during the automatic boot up.

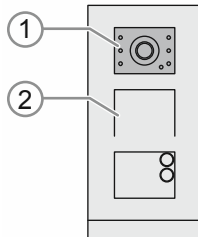


Fig. 17: Outdoor station without display: Engineering mode

To address the device, perform the following steps:

1. Activate "Engineering mode":
  - After the LED icons [1] in the camera have stopped being lit up, keep the top doorbell button pressed for 11 seconds. In case of several bell spaces, the first doorbell button below the audio shell [2].
  - The LEDs flash green.
2. Switch to the indoor station.

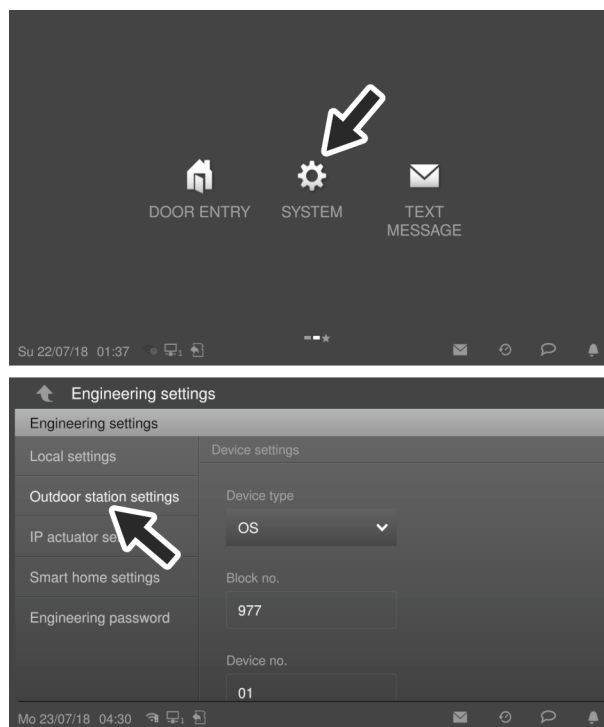


Fig. 18: Outdoor station without display: Addressing via indoor station

3. Switch to the engineering menu at the indoor station.
  - Start function "Outdoor station settings".
    - The outdoor station is searched for automatically.
    - Address the outdoor station and save the entries.
4. Restart the outdoor station.

The outdoor station is addressed.

#### 4.2.4 Outdoor station with display

For commissioning you are located in:	Section 1 (Preparing the devices)
Overview of commissioning:	see chapter 4.1 "Overview of commissioning" on page 30

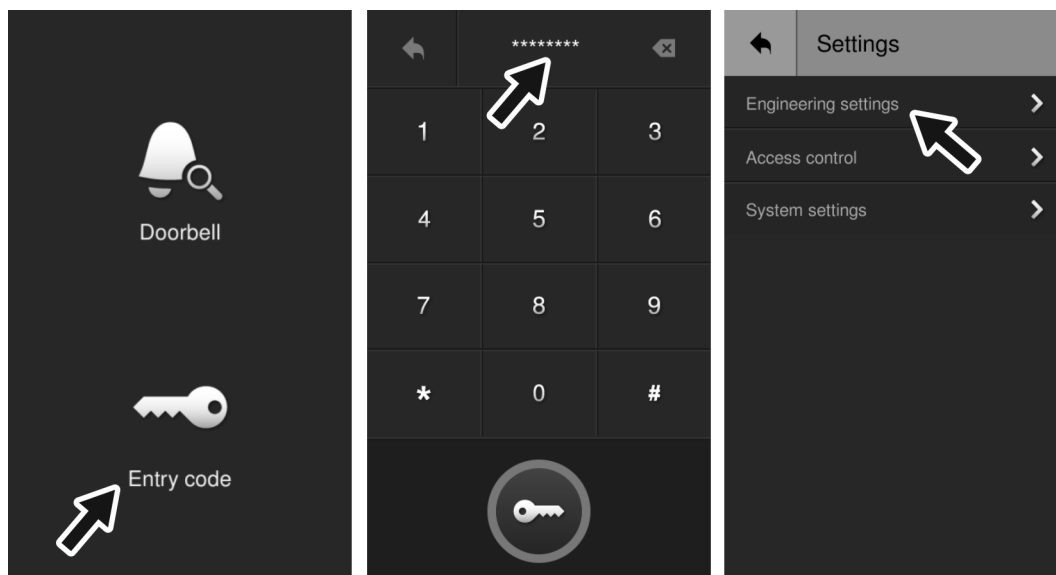


Fig. 19: Outdoor station with display: Engineering settings

To address the device, perform the following steps:

1. Open the "Entry code" function in the standby mode.
2. In window "Password" enter the following: [#\*] + settings password + [#]
  - The device switches automatically to window "Settings".
  - On the password, see the information at the end of this section.
3. Open the "Engineering settings" function.
4. In the area "Engineering settings" assign the physical address of the device.

The outdoor station is addressed.

**Note**

The engineering password must be changed the first time you access the engineering settings.

- The basic setting is 345678.
- This password should only be used for the first setup and changed to a different password. It cannot be used as actual password.

**Note**

If a wrong engineering password is entered 10 times within 5 minutes, no further tries are possible for the next 5 minutes.

**Password rule**

The password must not contain consecutively rising or falling numbers (e.g. 123456, 654321), and three consecutive identical numbers are also inadmissible (e.g. 123444, 666888).

### 4.2.5 IP actuator

For commissioning you are located in:	Section 1 (Preparing the devices)
Overview of commissioning:	see chapter 4.1 "Overview of commissioning" on page 30

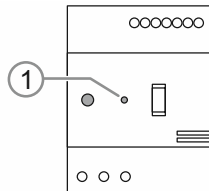


Fig. 20: IP actuator: Engineering mode

To address the device, perform the following steps:

1. Activate "Engineering mode":
  - After the device has booted, press button "Reset".
  - The LED flashes. The flashing signals that the device is in "Engineering mode".
  - If no entry is made within the next 5 minutes, the device exits the "Engineering mode" automatically.
2. Switch to the indoor station.

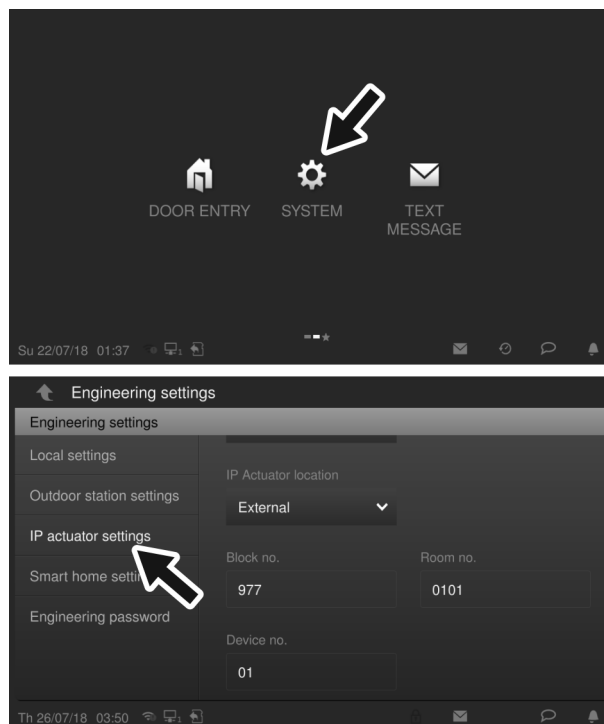


Fig. 21: Addressing IP actuator

3. Switch to the technical menu at the indoor station.
  - Start function "IP actuator settings".
    - The IP actuator is searched for automatically.
  - Address the IP actuator and save the entries.

4. Restart the IP actuator.

The IP actuator is addressed.



### 4.3 Physical addresses — Preparing and addressing devices via ABB-Welcome App

For commissioning you are located in:	Section 1 (Preparing the devices)
Overview of commissioning:	see chapter 4.1 "Overview of commissioning" on page 30

On the rear side of each device are 2 stickers with the serial numbers of the device. One of them is fitted with a QR code. This is necessary for the preparation of the device with the ABB-Welcome App.

To add the devices, perform the following steps:

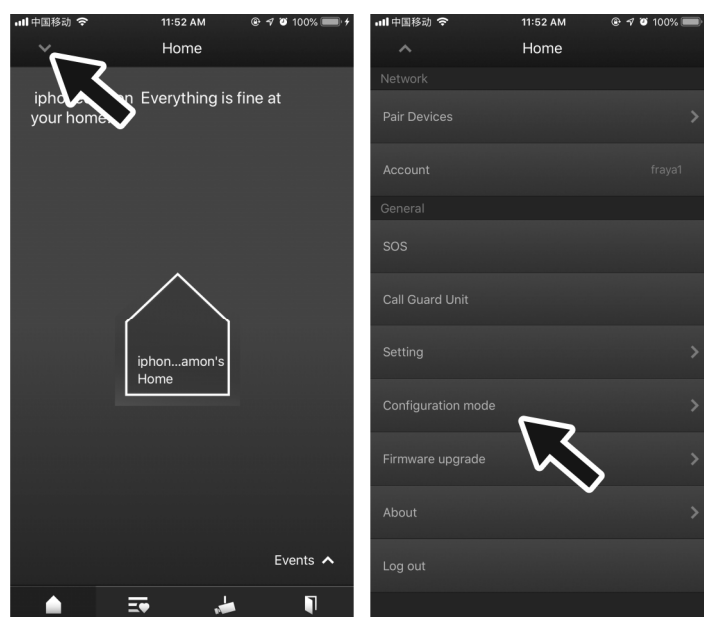


Fig. 22: Configuration mode

1. Switch to "Configuration mode" in the ABB-Welcome App.

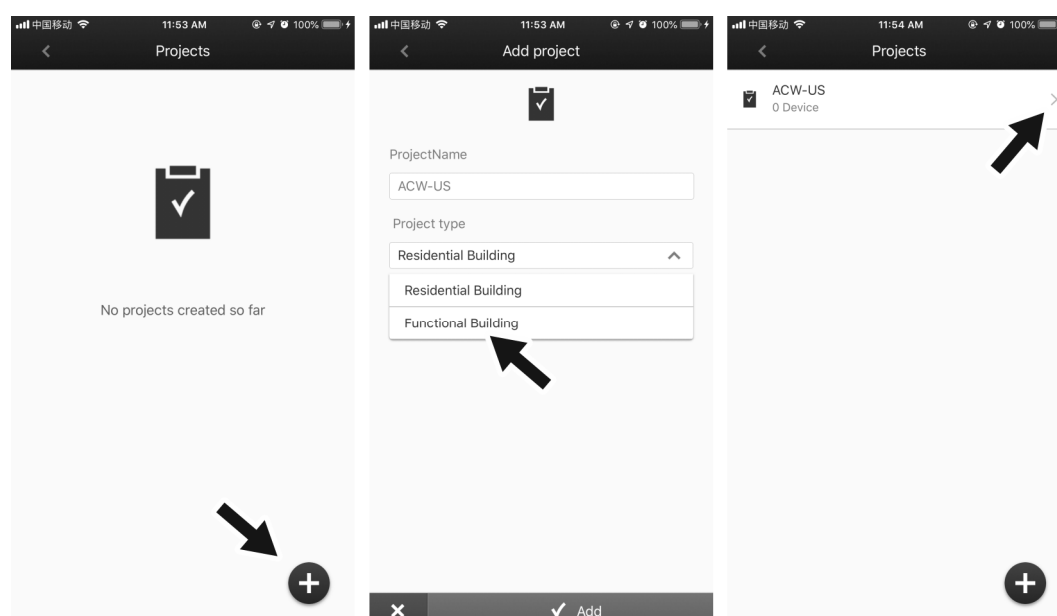


Fig. 23: Start creation of the building structure

2. Add a building structure the ABB-Welcome App, if this has not yet been created.
3. In the ABB-Welcome App in the building structure switch into the room to which the device is to be added.

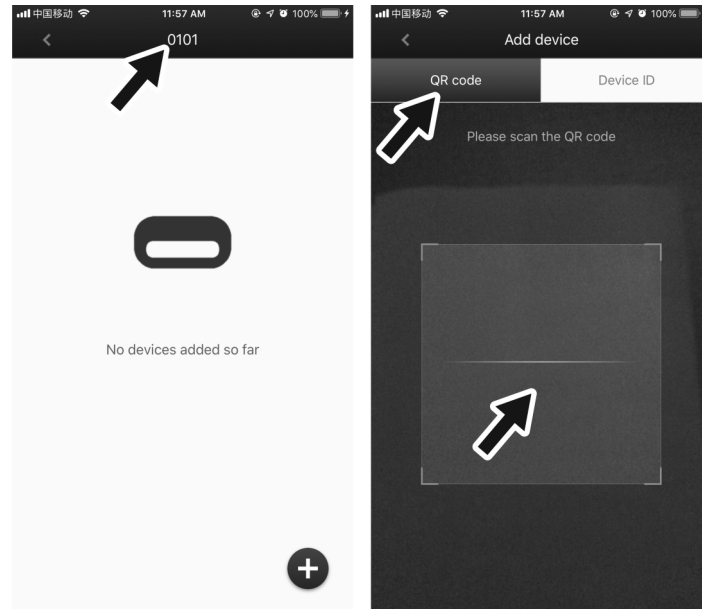


Fig. 24: Adding devices

4. In the ABB-Welcome App start the adding of devices.
5. On the rear side of the device scan the QR code on the sticker with the serial number.
  - The information of the device is stored in the project in the ABB-Welcome App. This information is transferred in a later step into the " Smart Access Point" for the commissioning process.

The device is prepared for commissioning in the management software.

6. Prepare all additional devices in the same manner.

All devices are prepared for commissioning in the management software.

## 4.4 Adding devices - Preparation

### 4.4.1 Connecting a PC with the "Smart Access Point" system controller

For commissioning you are located in:	Section 2 (Adding devices in the system) – Section A: (Connecting system controller with a PC)
Overview of commissioning:	see chapter 4.1 "Overview of commissioning" on page 30

Two modes are available for the later addition of the devices into the system. One mode must be selected for the connection with the PC during the course of the steps.

- "Residential" mode:
  - The later IP address of system controller "Smart Access Point" must be determined on a router.
- "Functional" mode:
  - The system controller "Smart Access Point" is called up by a browser via the static IP address 10.0.0.1.
  - For this the IP address of the PC must be located in the same address location.

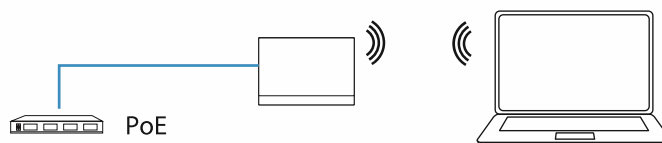


Fig. 25: Connecting the system controller "Smart Access Point" with the PC

As soon as system controller "Smart Access Point" is supplied with voltage via the PoE switch, the device boots up automatically.

Use the following steps to connect with the PC:



Fig. 26: System controller "Smart Access Point" in network list of the PC

1. Connect the PC with the WLAN of system controller "Smart Access Point".
  - The WLAN access data are located on the device.
  - Remove the cover of the device.

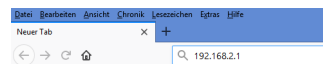


Fig. 27: Entering the IP address in a browser

2. Call up the start page of system controller "Smart Access Point" in the browser.
  - For this, enter the IP address in the address line of the browser.
  - The IP address is located next to the WLAN access data.
3. Follow the steps of the wizard.
  - Select the matching mode during the course of the steps: "Residential" or "Functional", see the introduction of the chapter.

After the successful run-through of the wizard, the WLAN of system controller "Smart Access Point" is no longer active.

#### 4.4.2 Adjusting IP address to a PC

For commissioning you are located in:	Section 2 (Adding devices in the system) – Section A: (Connecting system controller with a PC)
Overview of commissioning:	see chapter 4.1 “Overview of commissioning” on page 30

The IP address of the connection must be put on the same area on the PC / laptop as that of the device (only required once). Otherwise the Web browser does not establish a connection to the device.

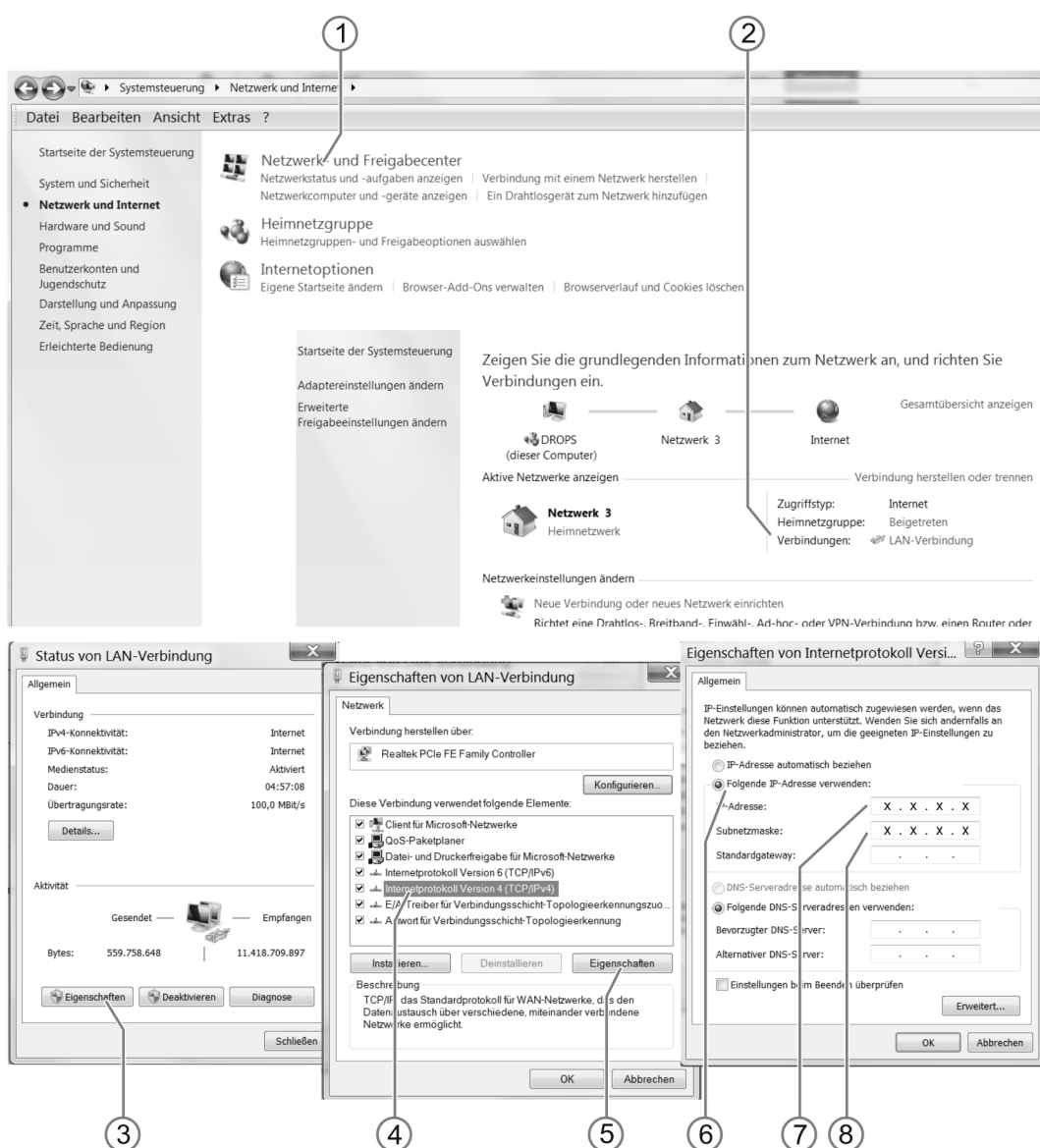


Fig. 28: Setting the IP address in the PC (example Windows 10)

Setting of the IP address according to the example of Windows 10 operating system.

Use the following steps to set the IP address:

1. Switch to the system controller.
2. Open: The network and the enabling centre [1].
3. Open: Connections [2].
  - Dialogue field "Connections" is displayed.
4. Open in dialogue field: Characteristics [3].
5. Mark in dialogue field: "Internet protocol Version 4 (TCP/IPv4)" [4].
6. Open in dialogue field: Characteristics [5].
7. Activate in dialogue field: Use the following IP address [6].
8. Enter the correct IP address at "IP address" (example: 120.168.0.100) [7].
9. At "Subnet mask": Only enter a click [8].
  - The address is located automatically.
10. Confirm and close all windows.

The device can now be called up via Web browser.

#### 4.4.3 Determining the IP address via router

For commissioning you are located in:	Section 2 (Adding devices in the system) – Section A: (Connecting system controller with a PC)
Overview of commissioning:	see chapter 4.1 “Overview of commissioning” on page 30

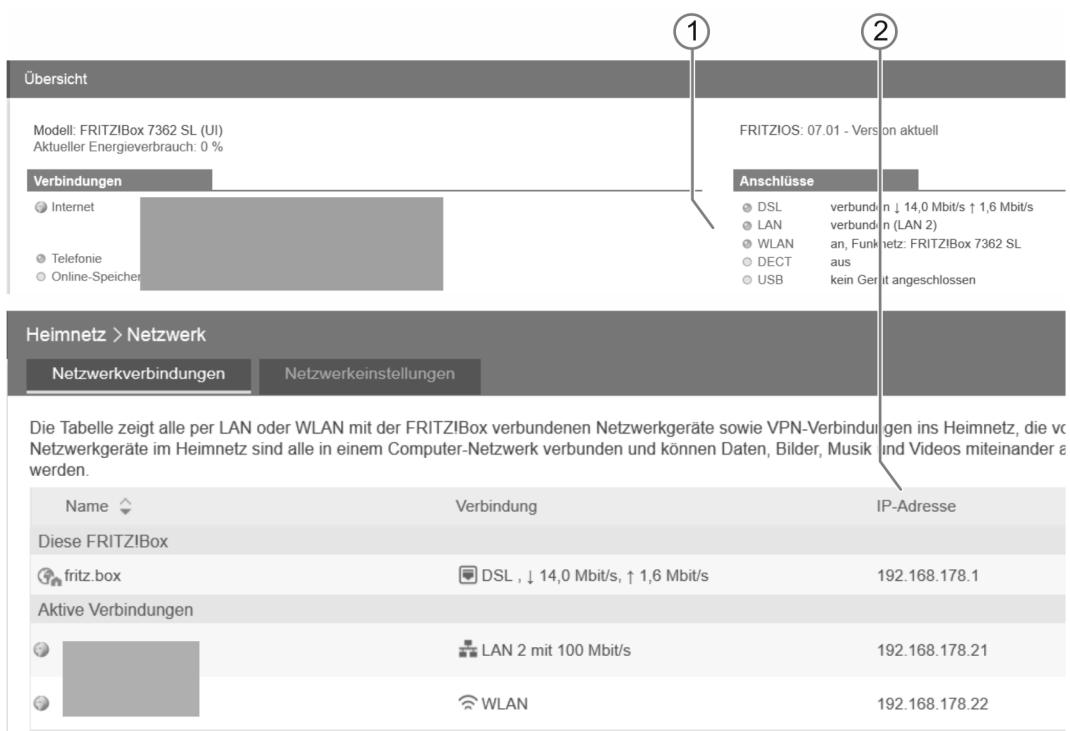


Fig. 29: Determining the IP address via router

Determining the IP address with the example of a Fritz!Box router.

Use the following steps to determine the IP address:

1. Connect the device to the router with the determined IP address.
2. Log into the router on the PC via a browser.
3. Open the network connection "LAN" or "WLAN" in area "Overview / Connections" [1].
  - All devices connected with the router are displayed together with the IP address [2].

The IP address has been determined.



## 4.5 Adding devices

### 4.5.1 Project import from ABB-Welcome App

For commissioning you are located in:	Setion 2 (Adding devices in the system) – Section B: (Adding devices)
Overview of commissioning:	see chapter 4.1 “Overview of commissioning“ on page 30

Two modes are available for the connection. One mode must be selected during the course of the steps.

"Residential" mode:

- The ABB-Welcome App must be connected with the same router as the system controller "Smart Access Point".
  - In this case the ABB-Welcome App locates the available system controller "Smart Access Point" automatically.

"Functional" mode:

- The smartphone is connected to system controller "Smart Access Point" via WLAN.
  - Here the smartphone must be located in the same address location [10.0.0.xx] as system controller "Smart Access Point" [Error source].

To upload the project, perform the following steps:

1. Connect a PC with system controller "Smart Access Point" and call up system controller "Smart Access Point" via a browser.

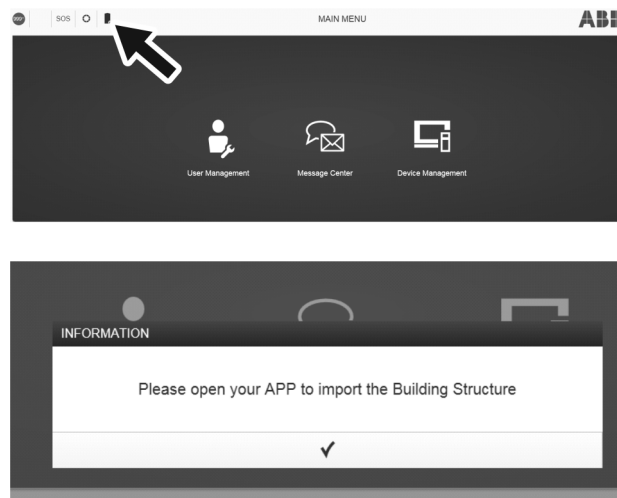


Fig. 30: Main menu of system controller: Requesting project import

2. Start function "Upload" in the main menu.

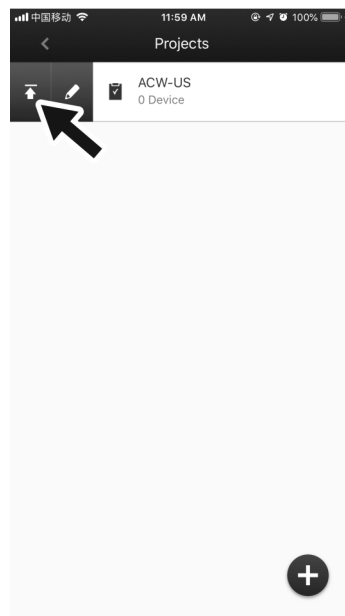


Fig. 31: App: Project export

3. Select the desired project on the smartphone and upload it into system controller "Smart Access Point".



Fig. 32: System controller: Project selection for project import

4. On system controller "Smart Access Point" select the project to which the devices are to be added, and confirm the project.
  - The upload of the project starts.
  - The upload can take several minutes, depending on the scope.

### 4.5.2 Add manually

For commissioning you are located in:	Setion 2 (Adding devices in the system) – Section B: (Adding devices)
Overview of commissioning:	see chapter 4.1 “Overview of commissioning” on page 30

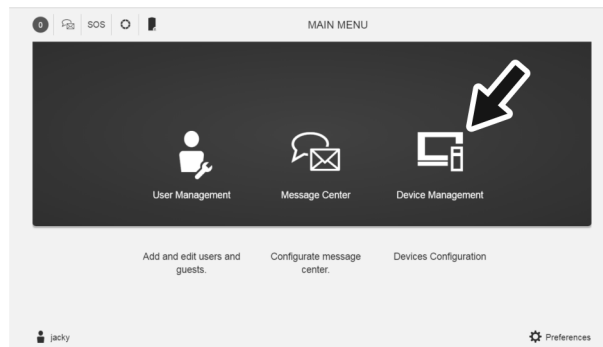


Fig. 33: Main menu: Device Management

Use the following steps to add devices manually:

1. Connect a PC with system controller "Smart Access Point" and call up system controller "Smart Access Point" via a browser.
2. Start the "Device Management" function in the main menu of system controller "Smart Access Point".
3. Select add devices.
  - All located devices are displayed.
4. Enter the following data:
  - Device type
  - Addressing
  - Serial number

### 4.5.3 Adding via automatic search

For commissioning you are located in:	Setion 2 (Adding devices in the system) – Section B: (Adding devices)
Overview of commissioning:	see chapter 4.1 “Overview of commissioning” on page 30

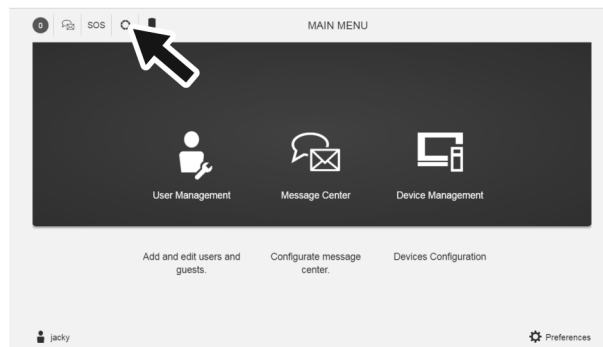


Fig. 34: Main menu: Start search

Use the following steps to search for devices automatically:

1. Connect a PC with system controller "Smart Access Point" and call up system controller "Smart Access Point" via a browser.
2. Start the "Add manually" function in the main menu of system controller "Smart Access Point".
3. Start the search.
  - All located devices are displayed.

## 4.6 Joining device together

### 4.6.1 Linking devices in the management software

For commissioning you are located in:	Section 3 (Joining device together)
Overview of commissioning:	see chapter 4.1 "Overview of commissioning" on page 30

Outdoor stations, indoor station and the IP actuators must be joined to each other. This is important for the door opener. Here, for example, the bell on an outdoor station is specified that is to communicate with which indoor station.

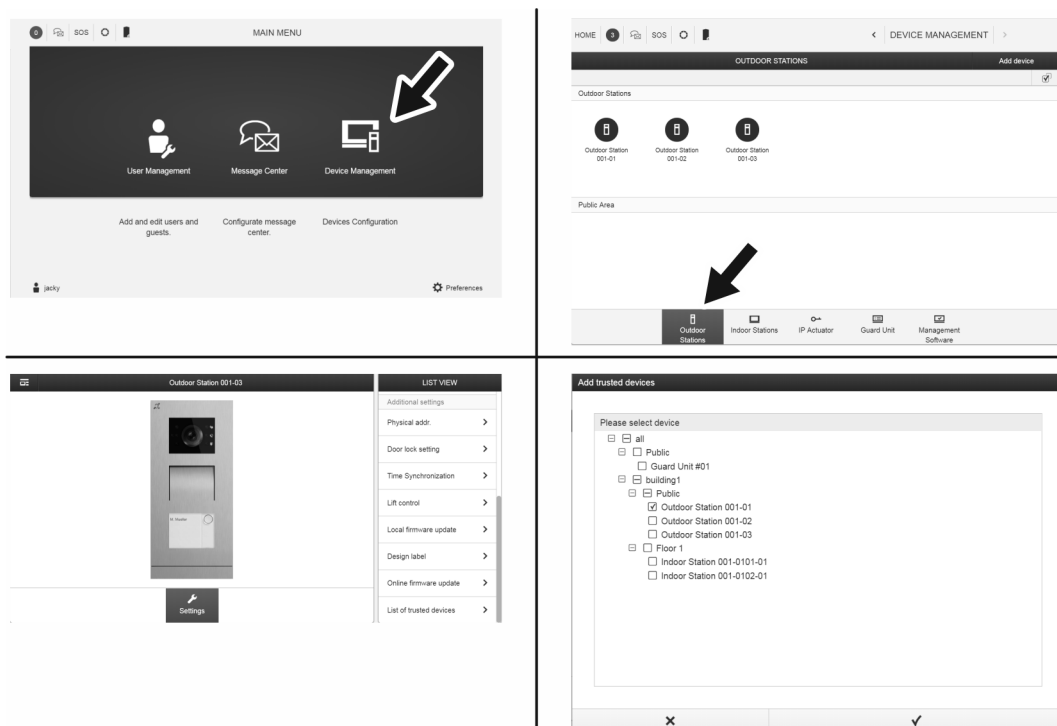


Fig. 35: Joining device together

To join the devices, perform the following steps:

1. Connect a PC with system controller "Smart Access Point" and call up system controller "Smart Access Point" via a browser.
2. Start the "Device Management" function in the main menu of system controller "Smart Access Point".
3. Navigate to the desired outdoor station.
4. Select the indoor stations that are to communicate with this outdoor station.

The devices are joined together.

## 5 Information about planning and application

### 5.1 Addressing ABB-Welcome IP (devices networking/connecting)

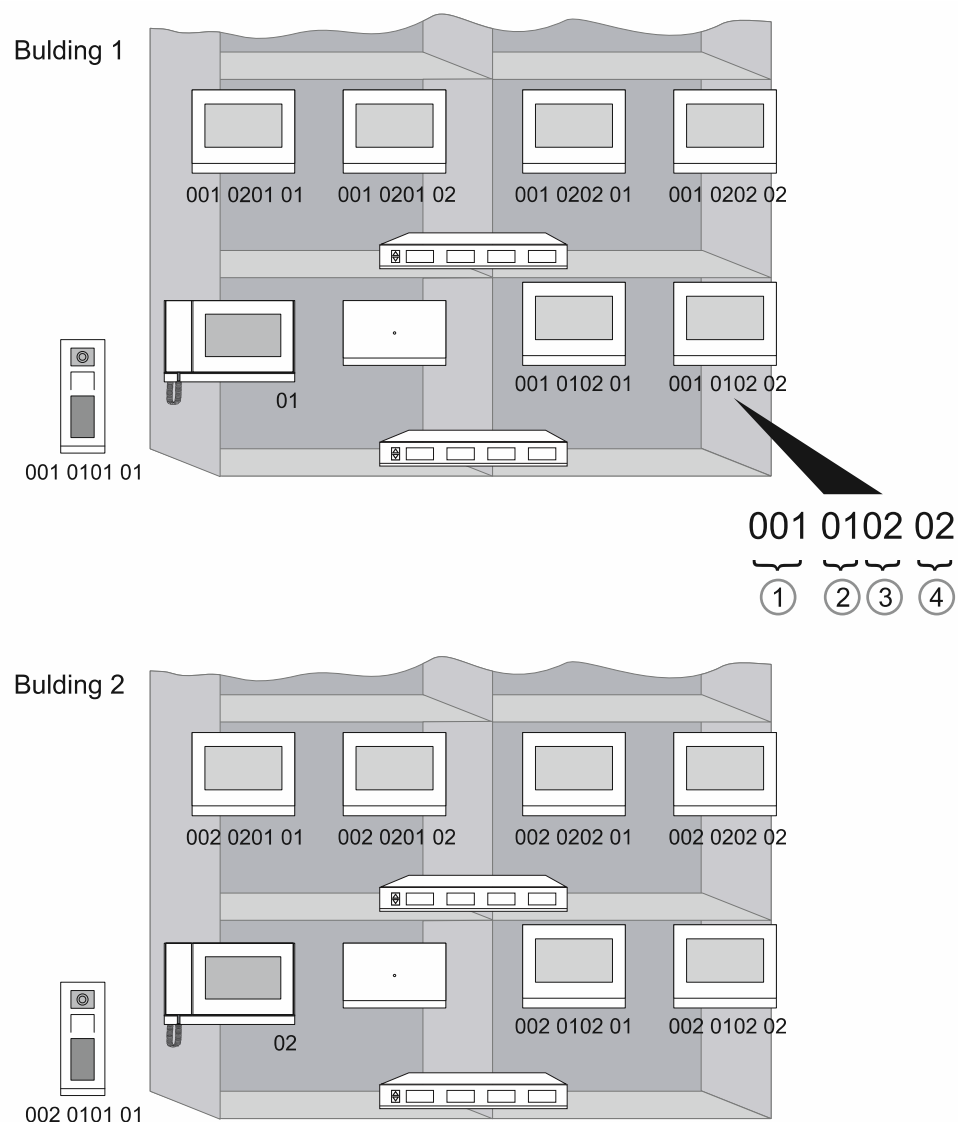


Fig. 36: Principle of addressing

1	Buildings
2	Floors
3	Apartment
4	Device in an apartment

The address of a device is principally the same for all devices. The address consists of 4 parts. Part 1 designates the building, part 2 the floor, part 3 the apartment on a floor and part 4 the device in a private apartment.

When buildings, floors or apartments are added, the address for the devices is counted upwards.

	Building Address	Floor Address	Apartment Address	Device Address
Indoor station	1 ... 999	01 ... 63	01 ... 32	01 ... 08
Public outdoor station	000 ... 999	—	—	01 ... 64
Private outdoor station	1 ... 999	01 ... 63	01 ... 32	01 ... 64
Guard unit	—	—	—	1 ... 32
Management Software	—	—	—	—
IP actuator (H8304)	000 ... 999	—	—	01 ... 64

### 5.2 Network / Data transmission

#### 5.2.1 Ethernet cable / Ethernet network



##### **Attention! - Malfunctions**

There is the danger of device malfunction if the network cables are not correctly installed.

- The installation of the network cables must comply with DIN EN 50173.

Ethernet is the standard for the IP-based, cable-bound data transmission. It defines the requirements for cables and plugs. It also defines different protocols for data transmission.

Ethernet is possible both via twisted pair cable (copper cables) and also as OWG (glass fibre). The connection to ABB-Welcome IP devices is made via twisted pair cables of category 5 or higher with RJ-45 plugs.

##### **Cabling according to DIN EN 50173**

The European standard DIN EN 50173 "Information Technology - Generic Communication Cabling Systems" describes general requirements of the structure and components of cable-bound networks. It represents recognised regulations of technology. In contrast to demand-oriented cabling, here the structure of a general network that meets all requirements also in the long term is aimed at.

The cabling is divided into the areas of site cabling (primary area), vertical storey cabling (secondary area) and horizontal storey cabling (tertiary area). The areas can be planned and installed independent of each other.

The site cabling is the networking between different buildings. From here the net is distributed to the individual storeys via the vertical storey cabling. The individual connecting sockets are finally reached via the horizontal storey cabling to which the terminal devices are connected via patch cables.

In individual cases it is to be decided at which point sub-distributions are actually to be set up and how they are to be linked together. Each additional distribution node in the path between two devices increases the latency period and the probability of failure. In addition, bundling results in higher demands made on the transmission rate between adjacent nodes. That is why a star topology is to be generally preferred for which, if possible, all devices are connected directly to the main distribution point. For multifamily houses again it is practical to equip each apartment with its own distribution.



### Types of cables, differences

For new installations the cables with the highest possible data throughput should be used to guarantee its future. For the distribution in the secondary area OWG or Cat 6A cables or higher should be used if possible, while in the tertiary area Cat 5e cables would be sufficient for most applications.

The ABB-Welcome IP devices are designed for connection with Cat 5e cables.

Cat 5e is the globally most used installation cable. It makes transmission rates of up to 1,000 Mbits/s possible. It exists in loadings TIA-568 A and TIA-568 B. These two types must not be combined in a system. It should therefore be ensured that when selecting new components, they match the remaining components in the system. For new installations, almost TIA-568 A have been used exclusively. Many devices recognize the connection type used automatically and adjust accordingly.

High data rates can be attained by means of cable shields, short distances and high-quality devices. The maximum cable length between two devices must not exceed 100 m.

If higher transmission rates are required, Cat 6A cable can be used. This makes transmission rates up to 10 Gbit/s possible.

OWG are mainly used for the distribution between buildings. This makes longer transmission distances possible. It can also be used for the distribution in the building, especially for the vertical storey distribution. The transmission of the data between OWG and copper cables is made via media converters.

### 5.2.2 Integration ABB-free@home®

Next to door communication, the indoor stations are also the interface to different additional systems. All compatible systems are perfectly integrated into the user interface. Their functions can be combined system-linking via the indoor station and with the door communication.

#### ABB-free@home®

The connection of the ABB-free@home® system to the simple building control is made per LAN or WLAN via a router to the System Access Point (SysAP).

The indoor station makes system-linking applications possible. Actions can be triggered, sensors monitored and rules programmed.

For cable-bound versions all devices are connected via two-wire busline. The two wires are used both for data transmission and energy supply. The wireless version builds up a coded mesh radio network automatically and can therefore, at a corresponding distribution of the devices, respond well to the changes of the compilation.

Commissioning of ABB-free@home® is carried out via the Web interface of the indoor station.

After the login with your myABB account you can also access all functions outside the home network.

### 5.2.3 PoE planning (Ethernet, WLAN)

#### Functioning

The necessary Ethernet cable can also be used for the energy supply of network devices. Aside from the data, it can also transmit current, which cancels a separate power supply.

The network devices can be sub-divided into supplying (PSE: Power Source Equipment) and supplied (PD: Powered Devices) devices.

This mechanism is already integrated in many devices. To upgrade devices without PoE functionality, additional devices can be used as power supply system (PoE injectors) and intake (PoE splitter).

#### Devices as power supply system (Endspan/Switch, Midspan)

For the PoE power supply system, the availability of the power supply, any PSE device can be used. It must only be ensured that the necessary performance class is supported.

PSE devices are usually Endspan devices such as PoE switches. For the later integration of PoE loads into existing networks, Midspan devices such as PoE injectors are often used.

The voltage is fed in from the last device before the load. It can not be distributed by conventional switches.

#### Performance classes / Consumption

PoE exists in two different versions.

Designation	802.3af (PoE)	802.3at (PoE+)
Supply voltage	48 V	48 V
Maximum power consumption	350 mA	600 mA
Maximum power output	15.4 W	25.5 W

Table 6: PoE performance classes

Version 802.3at is the successor of 802.3af. It is downward compatible to 802.3af, i.e. all 802.3at PSE devices can also supply power to 802.3af PD devices. For operating ABB-Welcome IP devices the performance of 802.3af is already fully adequate.

### **Transmission ranges**

With regard to the transmission ranges of the voltage transmission there are generally no further restrictions. Here, too, the maximum cable length between two devices must not exceed 100 m.

However, it should be noted that a Cat 5e cable exhibits a higher generation of heat due to its low cable cross section. This can, among others, have a negative effect on the reachable transmission range.

### **Compatibility (with foreign devices)**

The ABB-Welcome IP devices are exclusively compatible with standardised PoE versions.

### 5.3 Function test

#### Electric connection

If the device starts, the power supply is guaranteed.

If the device does not start:

For the supply via PoE, ensure that both interfaces support PoE. Individual devices or extension modules can not be supplied by PoE.

For the supply via auxiliary power supply, ensure that the auxiliary power supply is supplied with power and both devices are correctly interconnected. Precise details for the connection of a device to the auxiliary power supply is available in the respective instruction manual of the device.

#### Signal test

If the device does not receive a signal, ensure that both ends of the data line are connected with a device, that both devices are supplied with power and are switched on.

Whether the indoor station is correctly connected to the network can be seen by means of the network icons at the bottom edge of the screen.

#### Coupling and recognition test

The devices are recognised automatically and are displayed for selection in the respective user interfaces.

### 5.4 IT protection



**The more complex the technical systems and the further the advancement of digital networking, the more critical must the connected safety aspects be considered.**

#### **The entire building under control**

Aside from extended control options, the system can be continuously adapted to changing requirements. This guarantees a safe future.

#### 5.4.1 Early detection of risks

Today intelligent building automation is an integral part of modern electrical installation. The building is to be adapted to the individual requirements. Important also is the proper protection of one's own data in order to minimise risks.

For ABB the safety of its customers is of the utmost importance. That is why we continuously test the IP safety of components for the ABB-Welcome IP system technology in different test configurations. However, to really reduce the risks of a Smart Home to a minimum, it additionally requires the cooperation of the electrical fitter and the end customer, since the correct installation and the choice of passwords are an integral part of safety.

#### 5.4.2 Glimpses into the private life

As soon as the basic elements of privacy, such as doors, windows or cameras are connected with each other via the Internet, comprehensive protection is of vital importance. Especially when the user is travelling and can gain access to the surveillance cameras, there is the danger that also third-parties can read the data. Also the trapping of simple control signals bears the risk of disclosing your habits, which can be used by burglars.

#### 5.4.3 Foreign control of your house

If a third-party succeeds in hacking himself into a ABB-Welcome IP system, there is the risk of foreign control and reprogramming. This would result in the loss of a large part of the added value of the electrical installer and the system may have to be reprogrammed.

#### 5.4.4 Increase of safety

ABB-Welcome IP systems make planning, installation and programming necessary by qualified specialist staff. It is generally recommended to commission an electrical installer or system integrator with the planning and installation of the IP products. Several matters about safety are to be observed in the implementation.

##### **Installation of cables and devices**

- Applications and devices should as a rule be firmly installed to prevent their easy removal and access to the system by unauthorised persons.
- The cable ends must not be visible or project from the wall, either inside or outside of the building.

### **Anti-theft devices**

Anti-theft devices should be used (protection with screws, only removable with a tool, high resistive forces against removal).

### **Device password**

Use a password if it is supported by the device. A password prevents unauthorised access to the device.

### **Areas with limited protection**

- Bus lines in outdoor areas represent an increased risk. Here the physical access to the IP cable should be made exceptionally difficult.
- If possible, no network lines should be installed in the open.
- Outdoor devices should be protected against unauthorised dismantling.

## **5.4.5 Minimisation of the risks**

### **Separate LAN-/WLAN network**

- For building automation a separate LAN or WLAN network with its own hardware (router, switches, etc.) should be used.
- Provide an adequate WLAN cover.

### **Using safety mechanisms for IP networks**

- Use anti-virus software and firewall.
- Encryption of wireless networks (WPA2 or higher)
- Use safe passwords.
- Use MAC filter

### **Safe password**

Passwords protect numerous data that originate from us. Misuse is often difficult or even impossible to correct. The characters of a safe one are described in the following.

The rules for a safe password:

- The password must consist of at least 8 characters.
- It should contain at least 2 special characters, a number, a small letter and a capital letter.

### 5.4.6 Password manager

If you find it difficult to remember numerous passwords, password managers can serve as a memory assistant.

Password managers use a safe method to store the user names and passwords you use for access to websites. Password managers also enter the user names and passwords automatically during your next visit.

Aside from a safe password, also the multi-factor authentication should be used. For this a second - temporary - code is mostly used. Apple, Facebook, PayPal and other Internet providers offer this option.

### 5.4.7 Remote access

Routing and IP tunnelling are not safe for use on the Internet since they use a protocol that is not encrypted.


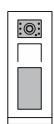
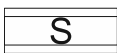
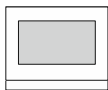
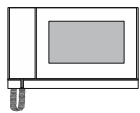








No ports of routers are to be opened in the direction of the Internet: this prevents KNX communication from becoming visible on the Internet.

For the remote access a VPN tunnel or the Living Space Portal MyBuildings is recommended. The portal MyBuildings is a service of ABB which guarantees the utmost operating comfort for remote access with smartphone and tablet. The end customer does not need a DynDNS account. The registration and login on MyBuildings: <https://my.abb-livingspace.com> establishes a connection via a Cloud.

## 6 Case studies

### 6.1 Legend

Legends in the graphics:

	Outdoor station: Mini video outdoor station H8131Px-A
	Outdoor station: H8138.T-. IP touch 5" outdoor station
	System controller: Smart Access Point D0401.
	Indoor station: IP touch 7" H8236.-.
	Indoor station: Guard unit H8303
	Auxiliary power supply: Power supply YSM01-PS
	IP actuator: H8304 IP actuator
	Lift control: Lift control module YSM23-LC
	Lift control: Lift control relay module 4825-Y
	Switch: Commercially available
	Router: Commercially available
	Network cable
	Power supply cable



## 6.2 Private apartment

In the following examples different situations of simple installations in apartments are illustrated. The main purpose of the examples is to become familiar with the topics.

### Apartment (Switch with PoE and Routing):

The PoE switch and routing are enabled in the apartment. That is why no additional devices are necessary for this function.

The indoor station in the version is intended for LAN connection.

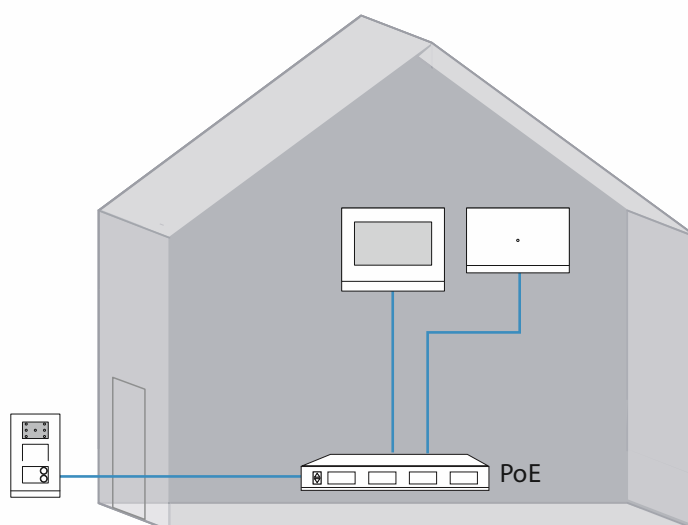


Fig. 37: Overview: Apartment (Switch with PoE and Routing)

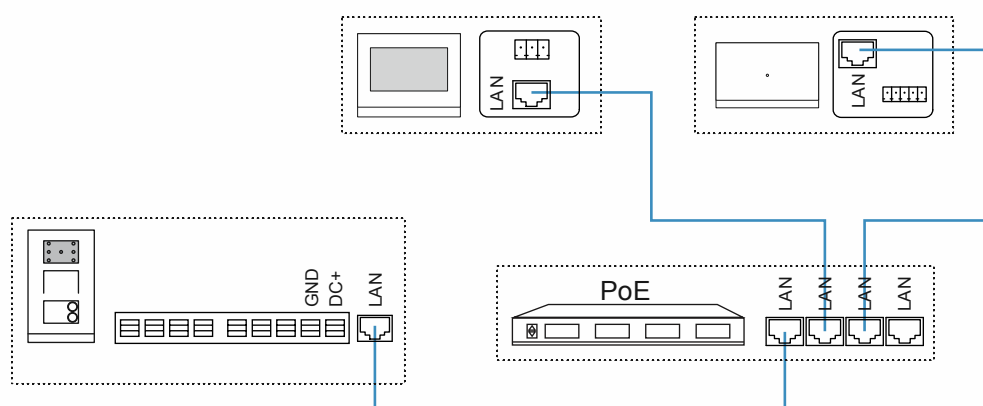


Fig. 38: Connection: Apartment (Switch with PoE and Routing)

### Apartment (Switch without PoE):

The switch is not PoE-capable in the apartment. That is why an additional power supply is required.

The indoor station in the version is intended for LAN connection.

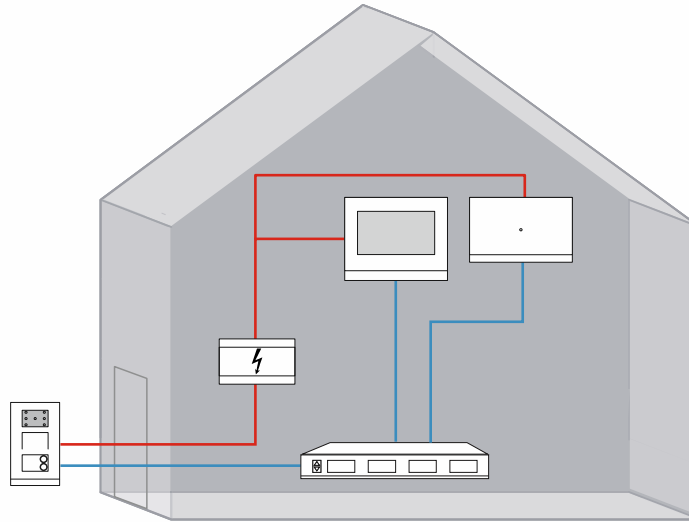


Fig. 39: Overview: Apartment (Switch without PoE)

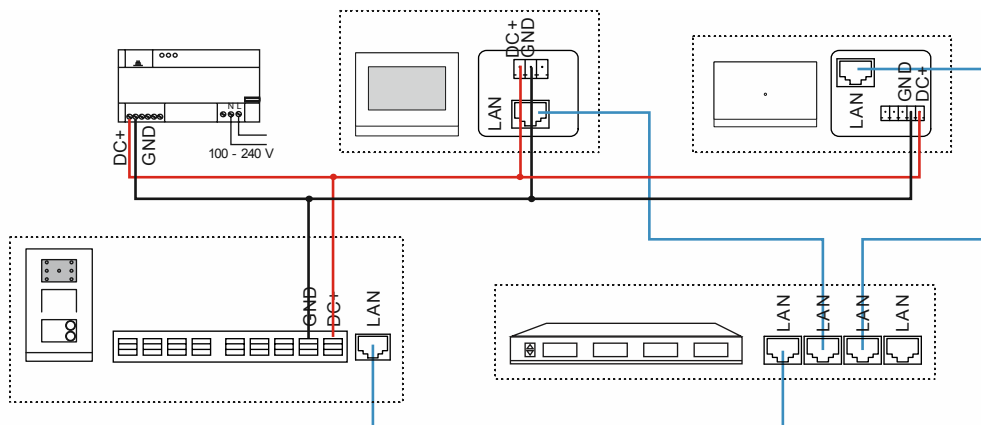


Fig. 40: Connection: Apartment (Switch without PoE)

**Apartment (Switch without Routing):**

The switch is not routing-capable in the apartment. That is why an additional router is required.

The indoor station in the version is intended for LAN connection.

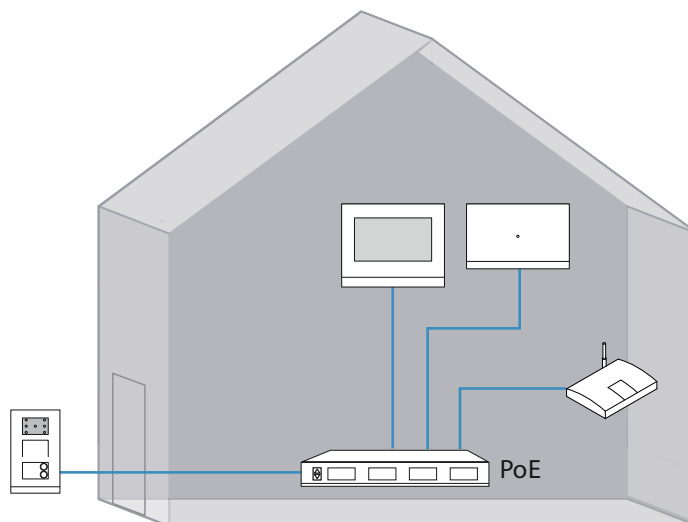


Fig. 41: Overview: Apartment (Switch without routing)

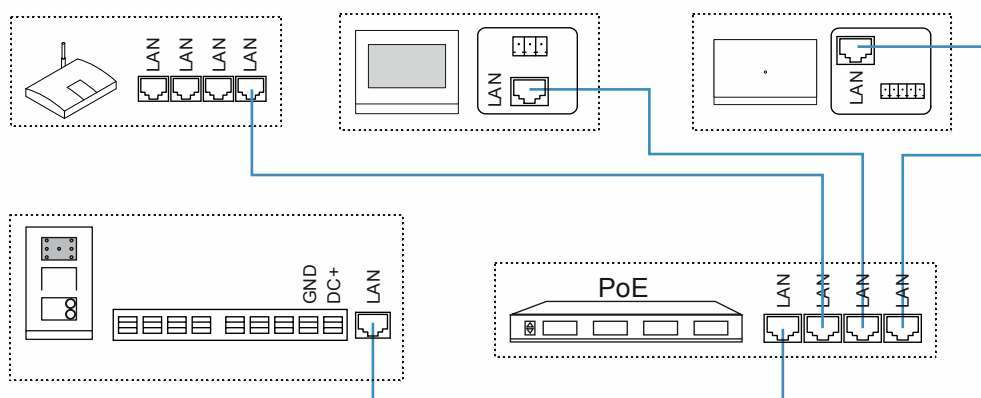


Fig. 42: Connection: Apartment (Switch without routing)

**Apartment (no switch / router no PoE):**

No switch is available in the apartment. The connection is made via a router. The router is not PoE-capable. That is why an additional power supply is required.

The indoor station in the version is intended for LAN connection.

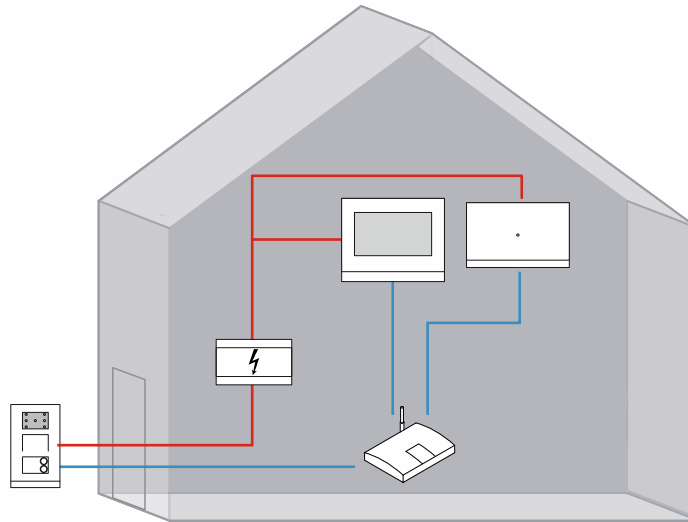


Fig. 43: Overview: Apartment (no switch / router no PoE)

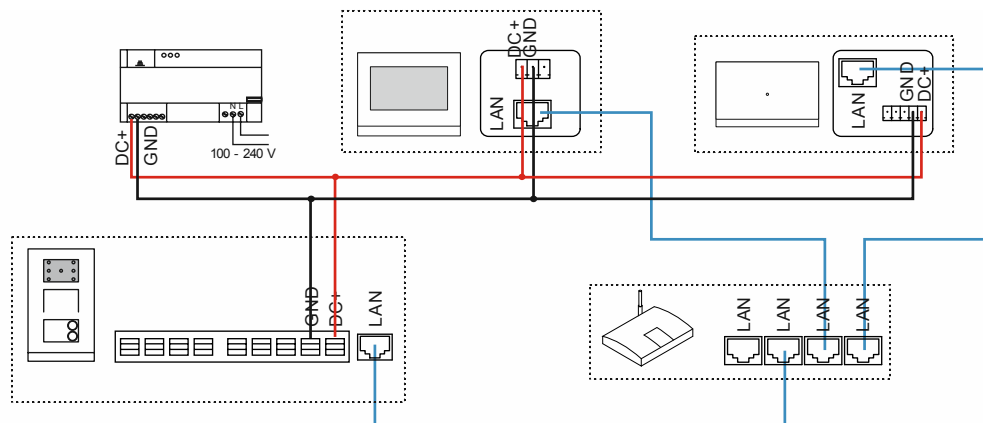


Fig. 44: Connection: Apartment (no switch / router no PoE)

**Apartment (indoor station with WLAN):**

The PoE switch and routing are enabled in the apartment. That is why no additional devices are necessary for this function.

The indoor station in the version is intended for WLAN connection. This, for example, makes a later extension possible for access control for inputs. This is activated via WLAN.

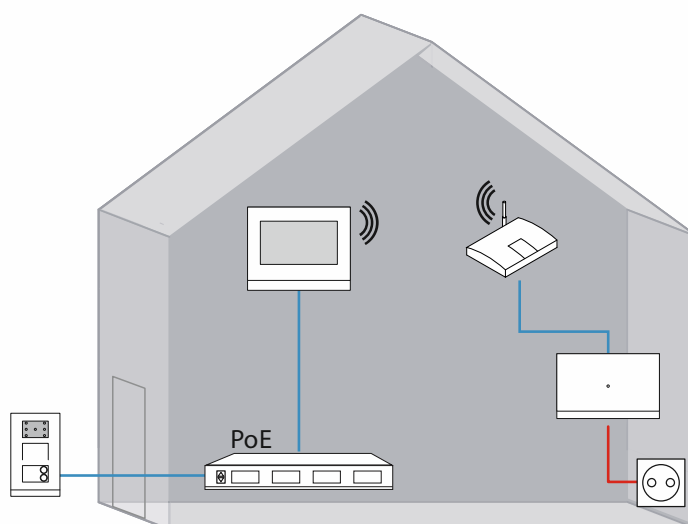


Fig. 45: Overview: Apartment (indoor station with WLAN)

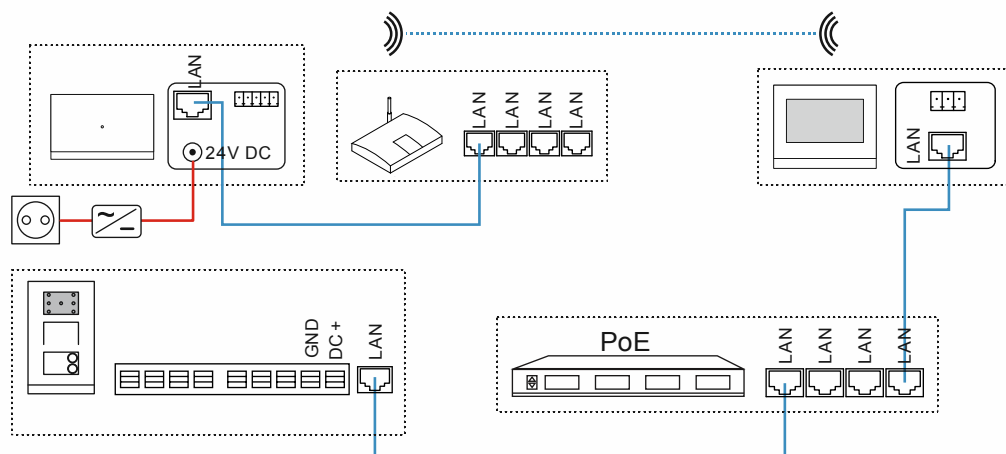


Fig. 46: Connection: Apartment (indoor station with WLAN)

**Apartment (with actuator):**

The PoE switch and routing are enabled in the apartment. That is why no additional devices are necessary for this function.

The indoor station in the version is intended for LAN connection.

The entrance door is equipped only with an automatic door opener. That is why an IP actuator is required which accepts the digital opening command and switches the door opener.

Also the light in a room is to be switched via the IP actuator.

- If the light is to be switched in additional rooms via IP actuators, additional actuators are required (one each for 2 switching connections).

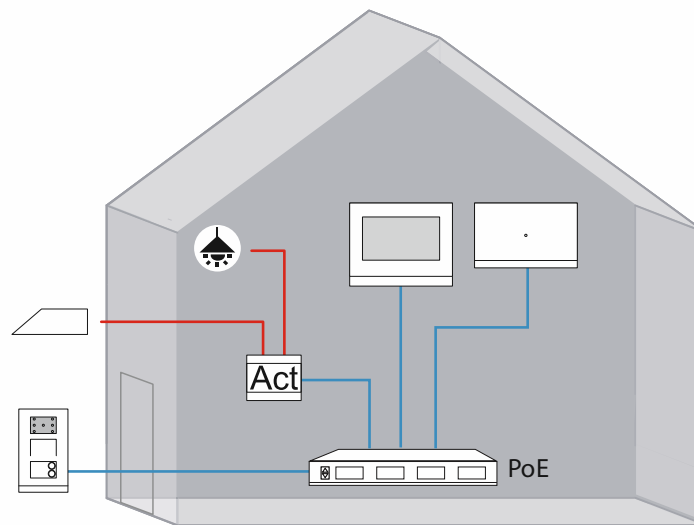


Fig. 47: Overview: Apartment (with actuator)

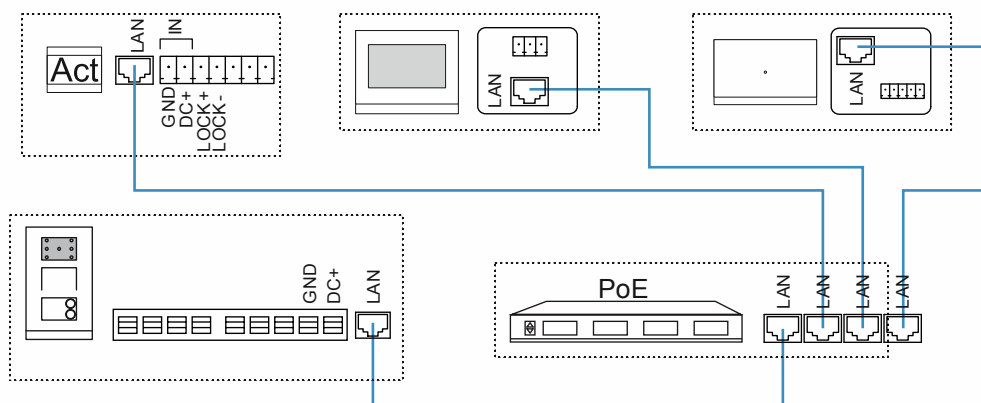


Fig. 48: Connection: Apartment (with actuator)

### 6.3 Multifamily house

An extended simple installation with several apartments are illustrated in the following.

#### Multifamily house (Switch with PoE and Routing):

In the multifamily house the switch is PoE- and routing-capable. That is why no additional devices are necessary for this function.

The indoor station in the version is intended for LAN connection.

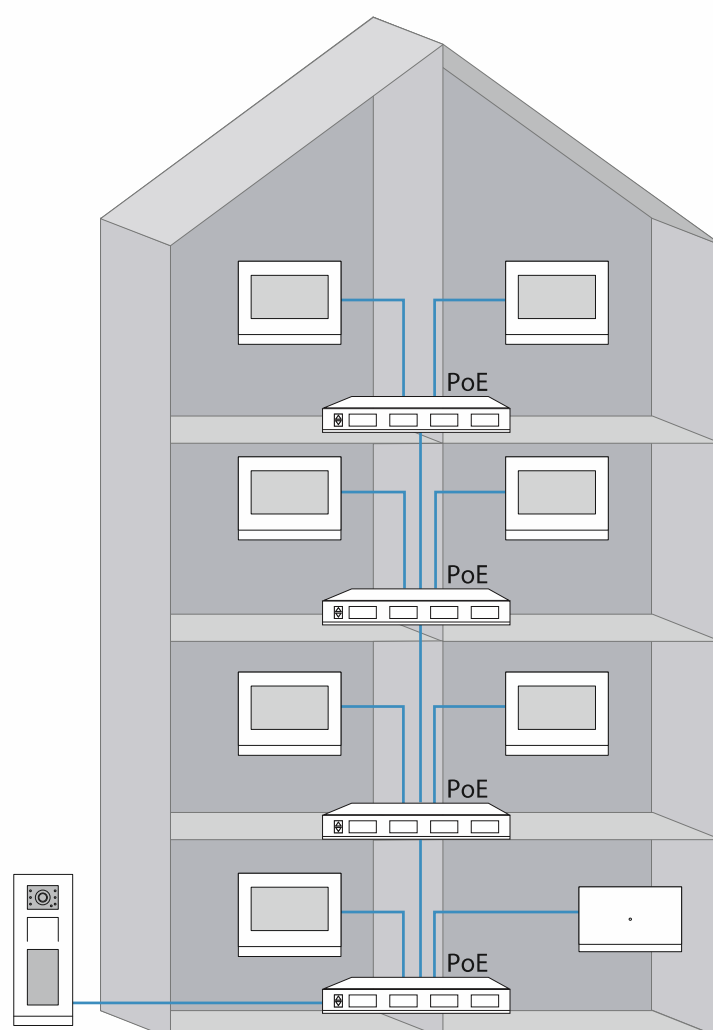


Fig. 49: Overview: Multifamily house (Switch with PoE and Routing)

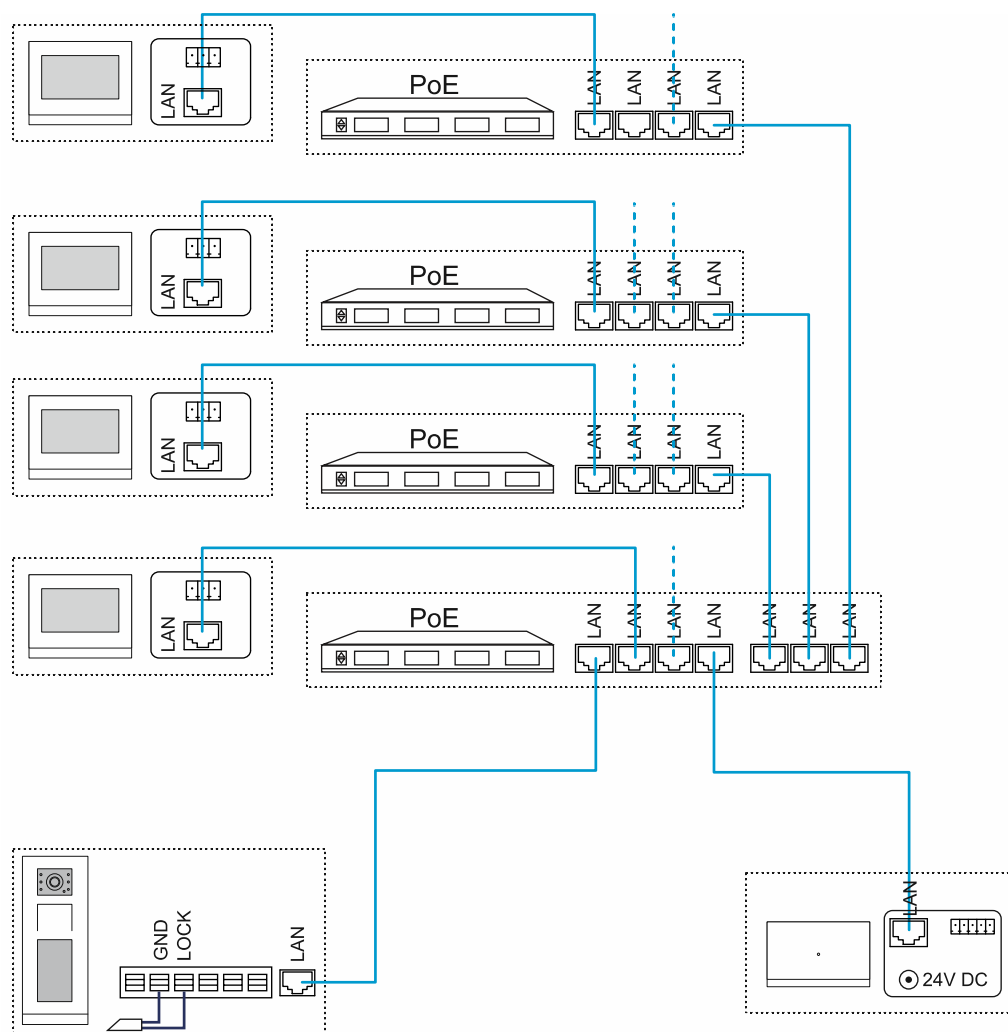


Fig. 50: Connection: Multifamily house (Switch with PoE and Routing)



#### **6.4 Residential building construction project**

##### **Residential building construction project with numerous apartments and separate safety lift**

###### **Task:**

The door communication is to be carried out via ABB-Welcome IP in a large residential building construction project. The lifts are to be connected with it. A separate safety lift is to be controlled via an own ABB-Welcome IP system.

System Manual 2CKA000073B9795

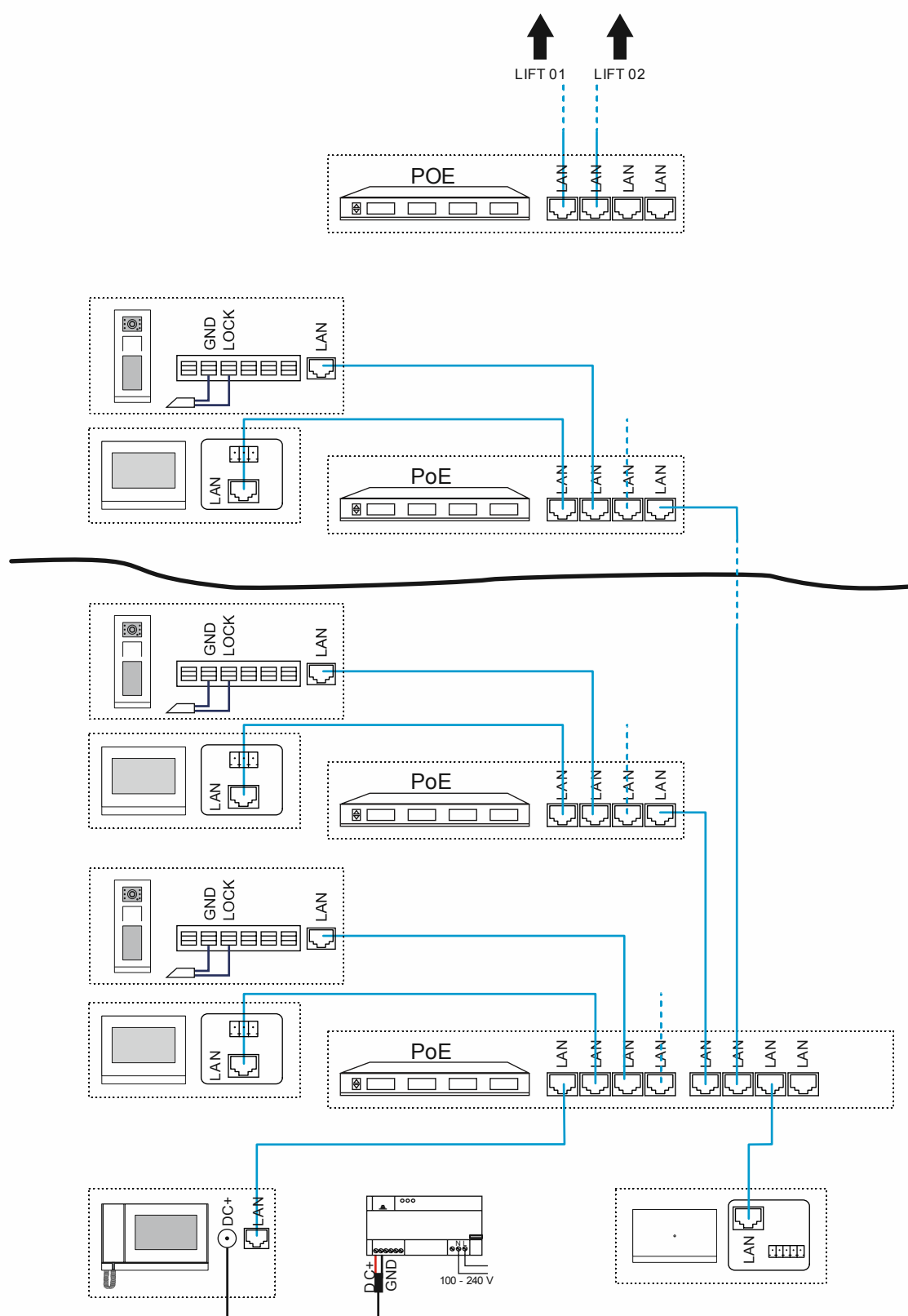


Fig. 52: Connection: Apartments of the building

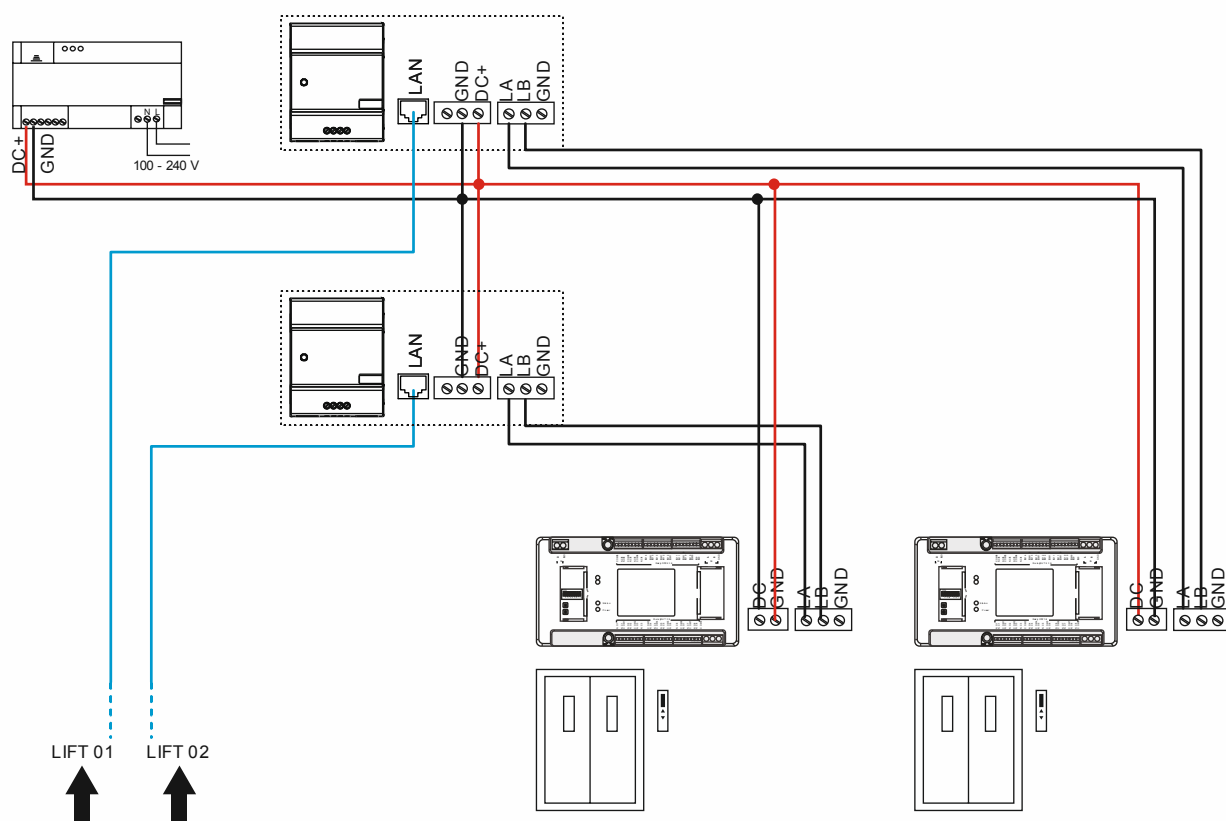


Fig. 53: Connection: Lifts of the building

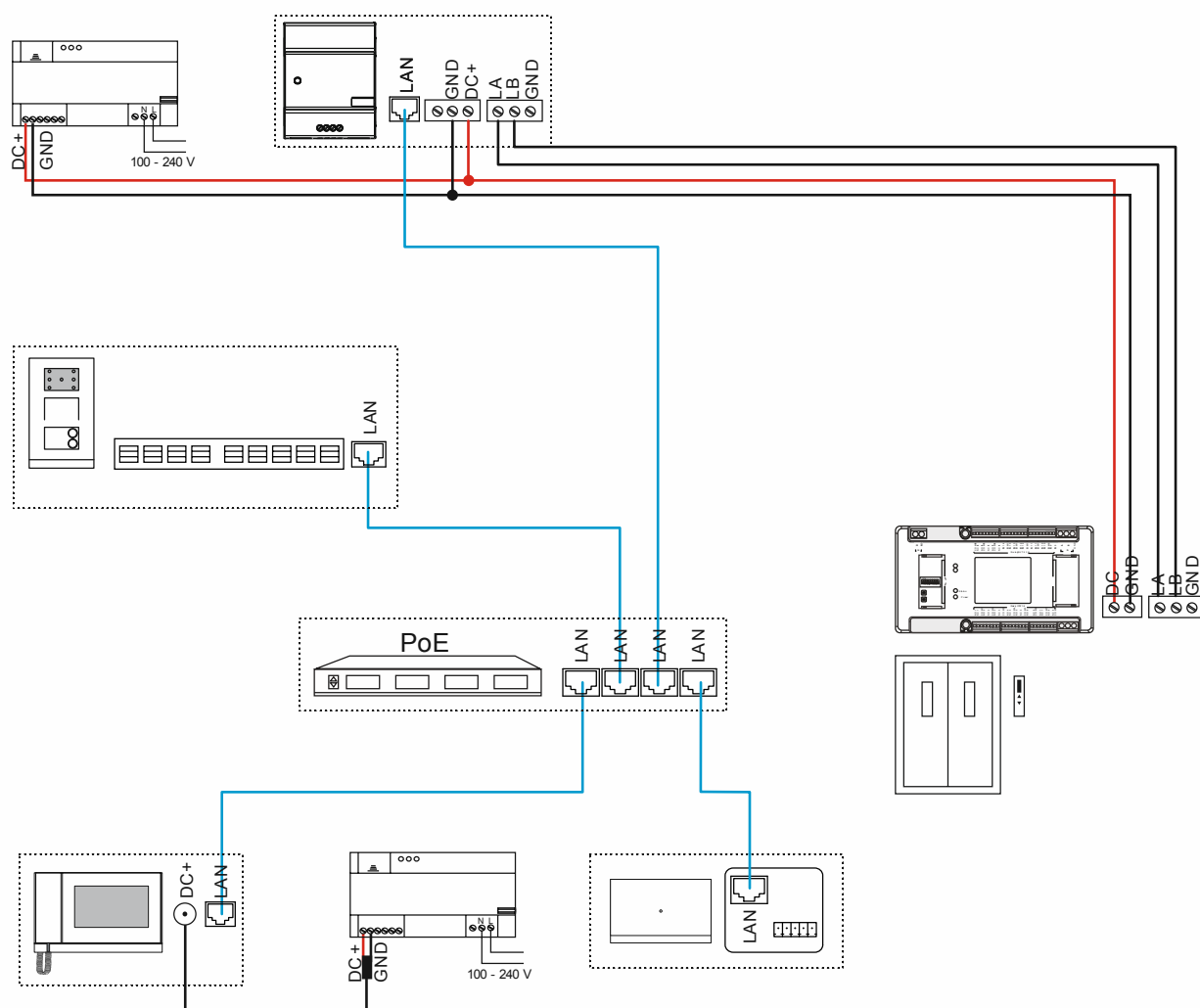


Fig. 54: Connection: Separate safety lift

## 7 Glossary

Cloud memory	The data is stored on an external server. – In the ABB-Welcome IP system on the server of Busch-Jaeger.
DHCP	Dynamic Host Configuration Protocol – In a network, every device requires its own address so as to be able to be recognised in the network. These addresses are allocated automatically via the DHCP.
Guard unit	
Gateway	Interface between two systems
Multicast network	The transmitter can simultaneously deliver IP data flows to many recipients in a single step.
PoE	Power over Ethernet – With PoE, network cables supply network-capable devices with current via an existing data connection. Only one cable is required for the transmission of the current and data.
PSE	Power Sourcing Equipment – Devices for the infeed of PoE. E.g. PoE switches.
PD	Powered Device – Device that is supplied via PoE.
QoS	Quality of Service – Optimisation of connection through automatic prioritisation of applications.
Routing	A device, a computer for example, can normally communicate only within its own network. To enter a different network, a device is required that transmits and distributes the data packages. This process is called routing. The device that takes over this task is the router.
Slideshow	Picture series or picture collections for which many photos or other graphics are consecutively illustrated.

Table 7: Glossary

## 8 Notes

## 9 Index

### A

ABB-free@home® .....	57
ABB-Welcome IP .....	4
Add manually .....	31, 51
Adding devices .....	49
Adding devices - Preparation .....	44
Adding via automatic search .....	31, 52
Addressing .....	30, 33, 41, 54
Addressing devices manually .....	30, 33
Addressing devices via ABB-Welcome App .....	30, 41
Adjusting IP address to a PC .....	31, 46

### B

Basic principles .....	5
------------------------	---

### C

Calculation of consumption .....	6
Commissioning .....	30
Connecting diagram .....	25
Connecting the PC with the system controller .....	30, 44
Connection .....	25

### D

Data transmission .....	4, 26, 56
Design lines .....	5
Determining the IP address via router .....	31, 48
Device Functions .....	27
Device overview .....	8
Devices networking/connecting .....	30, 54
Door communication system	
Calculation of consumption .....	6

### E

Early detection of IT risks .....	61
Early detection of risks .....	61
Ethernet .....	56
Ethernet cable .....	56
Ethernet network .....	56
Example of application for private apartment .....	65

### F

Foreign control of your house .....	61
Function test .....	60
Functions .....	27

### G

Glimpses into the private life .....	61
Glossary .....	78
Guard unit .....	10, 34

### I

Increase of safety .....	61
Indoor station .....	10, 34
Information about planning and application ..	5, 26, 54
Information on the manual .....	5
Installation .....	26
Integration of ABB-free@home® .....	57

Introduction to ABB-Welcome IP .....	4
IP actuator .....	39
IP touch 7 .....	10, 34
IT protection .....	61
IT safety .....	61

### J

Joining device together .....	31, 53
-------------------------------	--------

### L

Legend .....	64
Linking devices .....	53

### M

Management software - Linking devices .....	53
Manual .....	5
Minimisation of the risks .....	62
Mounting accessories .....	15
Mounting boxes for flush-mounted installation .....	18
Mounting boxes for surface mounting .....	19
Mounting in clinker facades .....	22
Mounting in hollow walls .....	21
Mounting in insulated facades .....	22
Mounting possibilities .....	21
Mounting with stiff LAN cables .....	24
Multifamily house .....	71

### N

Network .....	4, 56
Network and information safety .....	61
Network fundamentals .....	4, 56
Notes .....	79

### O

Outdoor station with display .....	37
Outdoor station without display .....	35
Outdoor stations .....	8
Overview .....	4, 15
Overview of commissioning .....	30, 33, 34, 35, 37, 39, 41, 44, 46, 48, 49, 51, 52, 53
Overview of commissioning .....	30
Overview of commissioning .....	33
Overview of commissioning .....	34
Overview of commissioning .....	35
Overview of commissioning .....	37
Overview of commissioning .....	39
Overview of commissioning .....	41
Overview of commissioning .....	44
Overview of commissioning .....	46
Overview of commissioning .....	48
Overview of commissioning .....	49
Overview of commissioning .....	51
Overview of commissioning .....	52
Overview of commissioning .....	53
Overview of product range .....	6



**P**

Password manager .....	63
Physical Address .....	30, 33, 41
Planning the installation.....	5
Planning the system .....	5
PoE planning.....	58
PoE switch criteria .....	7
PoE switch selection .....	7
Preparing addressing .....	33
Prerequisites .....	25
Private apartment .....	65
Project import from the ABB-Welcome App.....	31, 49

**Q**

Qualification of personnel .....	5
----------------------------------	---

**R**

Remote access .....	63
Residential building construction project .....	73

**S**

Stiff LAN cables.....	24
Support bases for mounting on desktop .....	20
System devices .....	12

**T**

Target group .....	5
--------------------	---



---

**Busch-Jaeger Elektro GmbH**  
**A member of the ABB Group**

PO box  
58505 Lüdenscheid

Freisenbergstraße 2  
58513 Lüdenscheid

[www.BUSCH-JAEGER.com](http://www.BUSCH-JAEGER.com)  
[info.bje@de.abb.com](mailto:info.bje@de.abb.com)

Central sales service:  
Tel.: +49 2351 956-1600  
Fax: +49 2351 956-1700