



BEYOND SECURITY **KABA®**

Kaba access manager 92 32

Technical Manual

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1 About this Document

1.1 Validity

This document describes the product:

Product name:	Kaba access manager 92 32
Item number	04079232
Terminal software:	EX-AM xx.xx.xx
Manufacturing date:	As of November 2015

This document describes all device versions and optional equipment and functions. Options need to be paid for and are therefore only available if they have been purchased. Additional equipment and functions may not yet be available at the time of issuing the document and, possibly, can only be purchased at a later stage.

1.2 Target group

This document is exclusively intended for specialist personnel.

The descriptions require specialist personnel trained by the manufacturer. The descriptions do not replace product training.

For reasons of device safety, the installation and maintenance operations described in this document must be carried out only by service persons according to EN 60950-1 (Information technology equipment - Safety).

Service persons are persons having adequate technical training and sufficient experience to be aware of and to minimize the possible risks for themselves or other persons, which may occur when carrying out these operations. The service persons are responsible for adhering to the instructions given by the manufacturer and to the applicable standards and regulations during execution of their work.

This document is also used as information for persons with the following tasks:

- Project planning and implementation
- Commissioning the product within the network
- Connecting the product to the user software by programming customer applications
- Customer-specific adjustment by setting the parameters of the product

1.3 Contents and purpose

The content is limited to the assembly, installation, start-up, and basic operation of the hardware.

1.4 Availability of Documents

All documents can be obtained from our sales partners.

1.5 Orientation in the document

This document contains the following orientation aids to facilitate finding of specific topics:

- The table of contents at the beginning of the manual gives an overview of all topics.
- The header always contains the respective main chapter.
- Cross references always indicate the number of the chapter in which the supplementary information can be found. Example [▶ 5.7].
- An index in the alphabetical order is given at the end of the manual.

1.6 Complementary documents

The planning guideline "exivo" contains details on the optimum use of the device.

Supplementary documentation is available on the Kaba website. The technical manuals are located in a secured area of the website.

- Access is only possible after logging in.
- An account will need to be created before logging in for the first time.

Access and login:

1. In the browser, access the Kaba page <http://www.kaba.com>.
2. Select the language in the top right.
3. Under "Products", select the "Access Management" or "Workforce Management" product division.
4. In the top right section of the screen, click on the following symbol:



5. Enter your e-mail address and password and login or create an account (see below).

⇒ The technical manuals can be found under "Downloads".

Create account:

1. Click "Create account".
2. Complete the data fields and confirm.
 - ⇒ A confirmation link will be sent to your e-mail address.
3. To activate your account, click on the confirmation link in your e-mail.

1.7 Warnings

Warnings containing information/instructions and prohibitions to prevent injury to persons and damage to property are specially labeled.

Please pay attention to warnings. They are intended to help prevent accidents and avoid damage.

1.7.1 Hazard Categories

Warnings are split into the following categories:



CAUTION

Slight Risk

Describes a potentially hazardous situation that could result in minor physical injuries.



NOTICE

Information on how to handle the product correctly.

Failure to comply with these warnings may result in malfunctions. The product or something in its vicinity could be damaged.

1.7.2 Symbols

Depending on the source of the hazard, symbols are used for the warnings, and these have the following meanings:



General danger



Danger for electronic components from electrostatic discharge

1.8 Notes

Particular attention must be paid to notes identified with the symbol!



Tips and useful information. These help you to make best use of the product and its functions.

2 Grouped safety messages

This product has been built in accordance with state-of-the-art standards and the recognized safety rules. Nevertheless, its use may constitute a risk to persons and cause damage to material property.



Read and observe the following safety instructions before using the product.

2.1 Use as directed

The product is only intended for use as described in chapter "Product description". Any use beyond that is considered contrary to its designated use. The manufacturer cannot be held liable for damage resulting from such use. Such use is at the sole risk of the user/operator.

2.2 Mounting and installation

Mounting and installation may only be carried out by service persons (see chapter 1 "Target group").

Mains voltage installations may only be carried out by a certified specialized company or authorized electricians.

Installation may only be carried out in places that fulfill the climatic and technical conditions stated by the manufacturer.

The manufacturer is not liable for damages resulting from improper handling or incorrect installation.

2.3 Service and Maintenance

Maintenance work / troubleshooting

Only the service person (see chapter 1 "Target group") is entitled to remove faults and carry out maintenance work.

Reconstruction and modification

Any alteration or modification to the device may only be performed by the service person (see chapter 1 "Target group"). Any alteration or modification performed by unauthorized persons shall render void any liability.

2.4 Accessories and spare parts

Accessories and spare parts must comply with the technical requirements specified by the manufacturer. This is guaranteed when using original accessories and spare parts from Kaba.

2.5 ESD (electrostatic discharge) protective measures



NOTICE

Danger for electronic components due to electrostatic discharge.

Improper handling of printed circuit boards or components can cause damages that lead to complete failures or sporadic errors.

- During installation and repair of the product, the ESD protective measures must be considered.
 - Wear an ESD wristband when handling electronic components. Connect the end of the wristband to a discharge socket or an unvarnished grounded metal component. This way, static charges are discharged from your body securely and effectively.
 - Touch only the edges of circuit boards. Do not touch the circuit board nor the connector.
 - Place all dismantled components on an antistatic surface or in an antistatic container.
 - Avoid contact between circuit boards and clothing. The wristband only protects the printed circuit boards against electrostatic discharge from your body, but there is still a risk of damage through electrostatic discharge from your clothing.
 - Transport and dispatch dismantled modules only in electrostatically shielded protective bags.
-

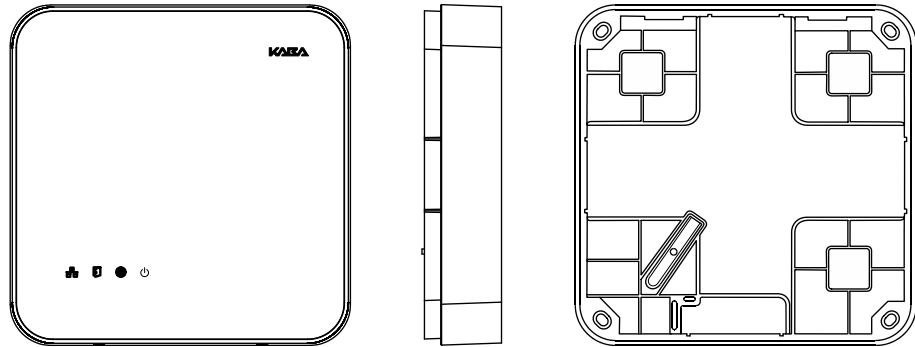
2.6 Environmental protection

It is prohibited to dispose of the device in your domestic waste.

Used devices contain valuable materials that should be recycled. Properly dispose of used devices.

3 Product Description

3.1 Overview



The Kaba access manager 92 32 is designed specifically for access control of an individual door (access/exit).

This is why the device is installed in secure indoor locations near the access. The device is designed for direct mounting on the wall. However, it can also be mounted in suspended ceilings, wall recesses etc.

Up to two registration units can be connected directly to the access manager. A registration unit allows contact-free reading and writing of RFID media in LEGIC technology.

Communication with the superior Internet platform takes place via an Ethernet interface 10BASE-T/100BASE-TX/1000BASE-T.

Power is supplied over PoE (Power over Ethernet). As an alternative the power supply can also be performed via an external 24 V DC power supply unit.

For control and sensors of the door management, the device has 4 inputs and 3 outputs.

3.2 Areas of application

Access control

Based on various criteria, the access manager checks whether a booking made on a registration unit is authorized or not.

Door management

- Door activation
- Monitoring of door opening
- Monitoring of door opening time
- Access monitoring

Alarm Management

The access manager reports irregularities in access control or door management to the Internet platform.

3.3 Technical Data

3.3.1 System

Access manager processor

- ARM926, system clock 454 MHz
- NOR flash memory: 64MB
- RAM: 64 MB
- Operating system: WIN CE

exivo processor

- ARM Cortex A5, system clock 536 MHz
- NAND flash memory: 256 MB
- RAM: 256 MB
- Operating system: Linux

3.3.2 Power supply

For power supply of the device, there are the following alternative options:

- PoE (Power over Ethernet)
- External 24 V DC power supply unit

PoE (Power over Ethernet)

Power supply via the 8-wire Ethernet cable (max. 100 m, min. Cat-5e)

- Acc. to IEEE 802.3af (12.95 W) and IEEE802.3at (25.5 W=> PoE+)

24 V DC input

Power supply via the 24 V DC input using an external power supply unit.

- Input voltage: 24 V DC $\pm 10\%$
- Current consumption: max. 2.5 A
- Power of the power supply unit: 12-60 W

For supply of the device, a power output of approx. 12 W is necessary. Depending on the required power for output voltages, additionally up to 48 W for external consumers.

Use only power supply units that fulfill the requirements of EN/UL/CSA 60950-1 as LPS (Limited Power Source).

3.3.3 Output voltages

Use	Terminals	Performance figures
Power supply for external readers	12 V DC OUT	12 V DC; max. 3 W ¹ respectively
Power supply for door opener etc.	Switchable to OUT1 Selection via jumper	12 V DC; max 7 W (PoE)
		12 V DC; max. 17 W (PoE+)
		24 V DC; max. 48 W ²

- 1 The power specification requires that the permissible maximum impulse power for PoE supply is not exceeded.
 - IEEE 802.3af (PoE) = 12.95 W
 - IEEE802.3at (PoE+) = 25.5 W
- 2 The output voltage 24 V DC is available only for power supply via an external power supply unit. Not for PoE power supply.

The power specification refers to the contact loading capacity of the relay. The actual available power depends on the power of the external power supply unit.

3.3.4 Outputs

3 relay outputs

- OUT1: Switches one of the following power sources to the terminal (can be selected via jumper):
 - 12 V DC
 - 24 V DC (external device power supply)
 - External relay voltage (can be fed in via the terminals)
- OUT2 + OUT3: Potential-free change-over contact
- Contact rating: 30 V AC/DC; 2 A max.
- LED status display

3.3.5 Inputs

4 digital inputs

- With integrated power supply and common ground to connect potential-free contacts.
- Optional line monitoring
- LED status display

Tamper

- Switching contact for removal of the housing cover
- Switching contact for removal of the device from the wall (bridge using jumper)

3.3.6 Interfaces

Ethernet interface

- IEEE802.3 compatible 10BASE-T/100BASE-TX /1000BASE-T Auto sensing, Auto MDIX.

RS-232

- Serial interface for specific applications
- Transmission parameters can be set via the terminal software.

HF-RFID

- 2 registration units with or without PIN keypad (connections Ant. A and Ant. B)
- Coaxial cable, impedance 50 Ohm
- Encrypted data transmission

Wiegand

- The Wiegand 1 + 2 interfaces are not supported at the moment

RS-485

- The RS-485 interface is not supported at the moment

3.3.7 LEGIC reader

- RFID standard: ISO 14443A
- Supported badge media:
 - LEGIC advant

3.3.8 Ambient conditions

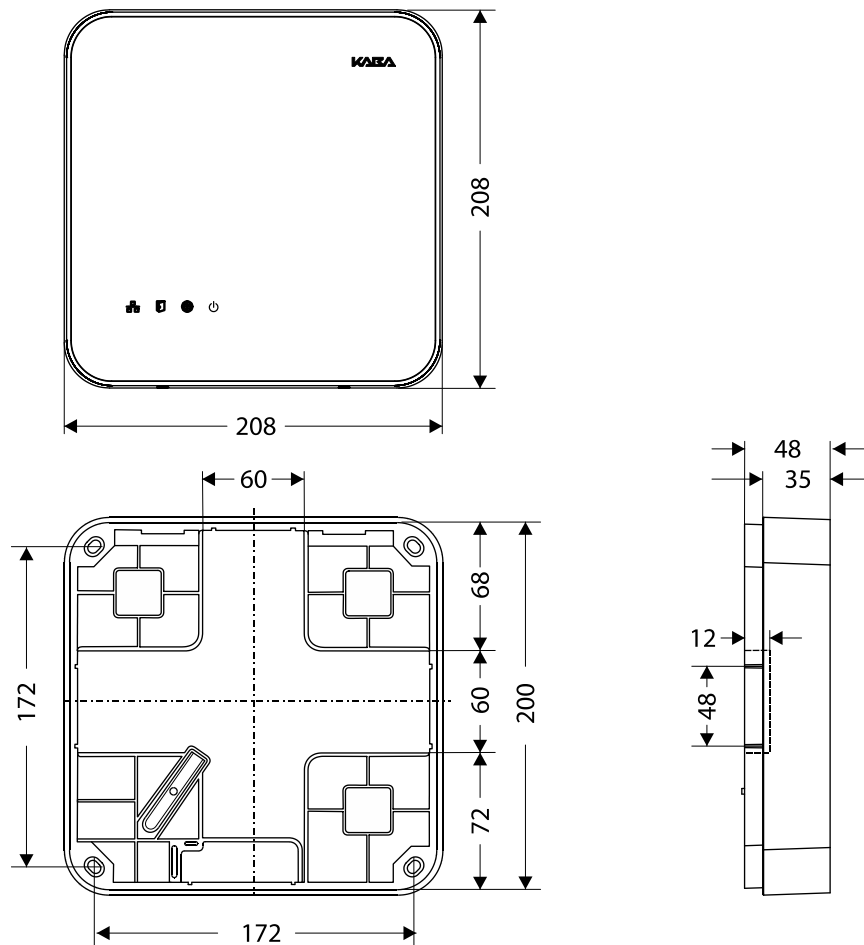
- Ingress protection according to IEC 60529: IP40
- Relative humidity: 5% to 85%, non-condensing
- Ambient temperature:
 - 0 °C – +50 °C (operation)
 - -20 °C – +65 °C (storage)

3.3.9 Dimensions/Weight

- Length: 208 mm
- Width: 208 mm
- Depth: 48 mm
- Weight: approx. 0.6 kg

3.3.10 Dimensional drawings

Dimensions in mm



3.4 Conformity



This product conforms to the following standards:

EN 60950-1:2006 + A11:2009 + A1:2010 + A12:2011

EN 300 330-1 V1.7.1

EN 300 330-2 V1.5.1

EN 301 489-1 V1.9.2

EN 301 489-3 V1.6.1

EN 55022:2010, Class B

EN 55024:2010

according to the regulations of the EC Directive

1999/5/EC R&TTE Directive

FCC FCC Code of Federal Regulations, CFR 47, Part 15, Sections 15.205, 15.207, 15.215 and 15.225

FCC ID NVI-KAM9232-K5

FCC § 15.19

This device complies with Part 15 of the FCC rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

FCC § 15.21 (Warning Statement)

[Any] changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

FCC § 15.105

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules.

These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

IC Industry Canada Radio Standards Specifications RSS-GEN Issue 4, Sections 8.8, 8.9 and 8.10 and RSS-210 Issue 8, Section A2.6 (Category I Equipment)

IC:11038A-KAM9232K5

ICES-003

This Class A digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada.

Canada RSS-GEN 8.4

This device complies with Industry Canada's licence-exempt RSSs. Operation is subject to the following two conditions:

(1) This device may not cause interference; and

(2) This device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes :

- 1) l'appareil ne doit pas produire de brouillage;
- 2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

RoHS

This device complies with the regulations of the Directive **2011/65/EU** of the European Parliament and of the Council of June 8, 2011, on the restriction of the use of certain hazardous substances in electrical and electronic equipment.

In addition, the product also conforms to the following standards:

UL 60950-1

UL 294, security performance level 1



The original Declaration of Conformity can be downloaded from **www.kaba.com/conformity** in PDF format.

3.5 Labeling

The identification plate is located on the rear of the device.

The identification plate contains:

- Device name
- Item number
- Serial number
- Connection data (power supply)
- CE marking
- WEEE labeling acc. to DIN EN 50419

QR code (QRC)

In addition, an adhesive label with a QRC is located on the device. The QRC contains the serial number of the device for identification. It is used to put the device into operation in its designated network.

4 Design and function

4.1 Opening the housing



NOTICE

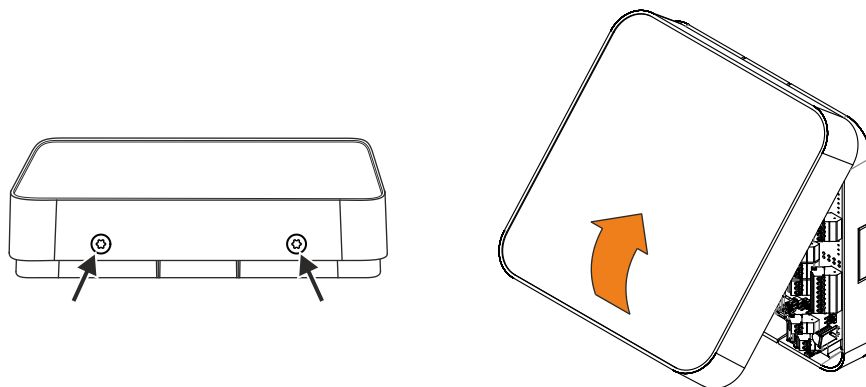
Danger for electronic components due to electrostatic discharge.

Improper handling can damage or destroy electrostatically sensitive components on printed circuit boards (PCB).

- General ESD protective measures must be observed and applied.

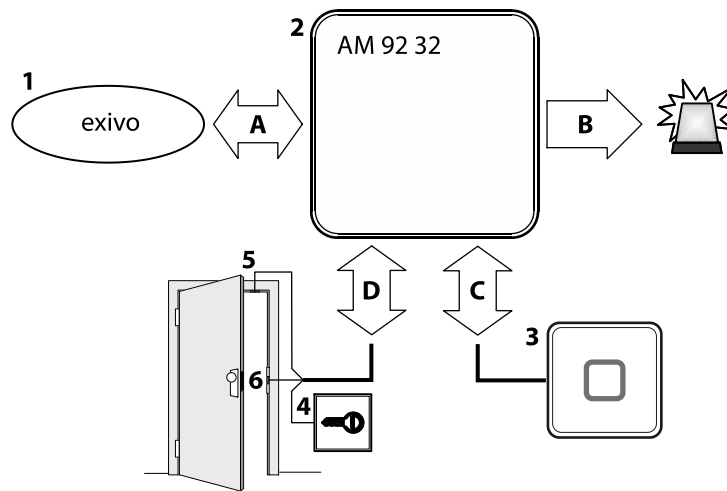
Remove the housing cover in the following way:

1. Remove two screws M3x8 (TORX 8) on the device bottom side.
2. Swivel the bottom side of the cover and disengage it at the top.



4.2 Functional principle

Example of the functional principle of an access manager



- 1 Internet platform
- 2 Kaba access manager 9232
- 3 Registration unit
- 4 Door opener key
- 5 Door frame contact
- 6 Door opener
- A Communication with the Internet platform
- B Alarm signals
- C Badge data and user guidance
- D Signals for door opening and monitoring

4.3 Superior system

Communication with the superior system (Internet platform) takes place via the Ethernet network.

The superior system serves for centralized management of authorizations, access and room profiles, system configuration and alarm management.

4.4 Structure of the registration unit

The data collection of identification data is performed via external registration units.

Type and number of registration units that can be connected:

- Max. 2 units
- Connection individually via HF antenna connection (HF-RFID)
- Data collection of identification data
- Control of optical and acoustic signal generators
- Power supply via the access manager

4.5 Function of the inputs

The function of the inputs depends on the configuration. Some examples of possible functions are listed below:

Door frame contact

The door frame contact is used to transmit the door status (open/closed) to the access manager. If the maximum allowed door-opening time defined for the door has elapsed and the door is still open, the access manager sends an alarm record to the Internet platform.

Door opener key

A door-opener key can be connected if no registration unit is connected in the interior and if the door is not equipped with a door handle. If the door-opener key is pressed the respective door-opener relay is activated.

Bolt contact

With the bolt contact, the access manager can identify the current bolt position of the door lock. If the bolt is not in the expected position after the end of the allowed time, the access control manager sends an alarm message to the Internet platform.

Door handle contact

With the door handle contact, the access manager can identify the door handle's current position. If the door frame contact responds without previous activation of the door opener or pressing of the door handle, the access manager sends an alarm record to the Internet platform.



The functions of the door frame contact and door opener key can be optionally configured in the door templates of the partner application.

4.6 Function of the outputs

The function of the individual outputs depends on the configuration. Important functions are:

Door-opener relay

A door opener can be connected to the door opener relay. The door-opener relay is activated if the access manager releases access, e.g., after an authorized booking.

Alarm relay

Depending on the configuration, the alarm relay can be activated in case of an authorized booking or alarm (e.g. door breakup).

4.7 Terminal software



This documentation describes the complete hardware equipment of the access manager and its performance features.

The functions of the terminal software used EX-AM xx.xx.xx are not described in this document and can be found in the specific software documentation, in the online help and the descriptions saved in the software itself.

The terminal software is designed for the access control via an Internet platform. It supports the connection of the following components to the access manager:

- Kaba registration units
- Various closing mechanisms

4.8 Registration units

Two registration units can be connected to the access manager via coaxial cables (connections Ant. A and Ant. B). Make sure that the connection A is always connected first and the connection B is connected after that.

Supported registration units

- Kaba registration unit 90 00
- Kaba registration unit 90 01
- Kaba registration unit 90 02 (with PIN keypad)
- Kaba registration unit 90 03
- Kaba registration unit 90 04

The registration units to be used are assigned to the device when planning the system in the Kaba exivo software via a door template.

Functional features

- A registration unit allows contact-free reading of RFID media in LEGIC technology.
- The registration units are supplied with power via the coaxial cable.

Parameterization

The parameterization of the registration units is defined via the "door templates" in the partner application (software).

Parameterizing information

For the two registration units, it is not possible to determine different configurations. The configuration can be established via address A or address B and is valid for both registration units.

External inputs, relays and vandal contact are not available.

4.9 Door templates

The access manager can be parameterized using different door templates.

Supported door templates



The number of available door templates is constantly expanded. The current door templates are listed in the Kaba exivo partner application.

The following components can be connected to the access manager via the corresponding door template:

- Door opener
- Magnetic lock
- Automatic door
- Electric lock
- Motor lock

Functional features

- In the Kaba exivo software, various door templates with the above-mentioned components are predefined. The door template to be used is selected via the Kaba exivo software and assigned to the corresponding access manager.
- The components are supplied with power by the access manager.

Parameterization

The access manager is parameterized via the "door templates" in the partner application (software).

4.10 Light emitting diodes

The housing front contains 4 light emitting diodes for status display. The light emitting diodes have the following symbols.

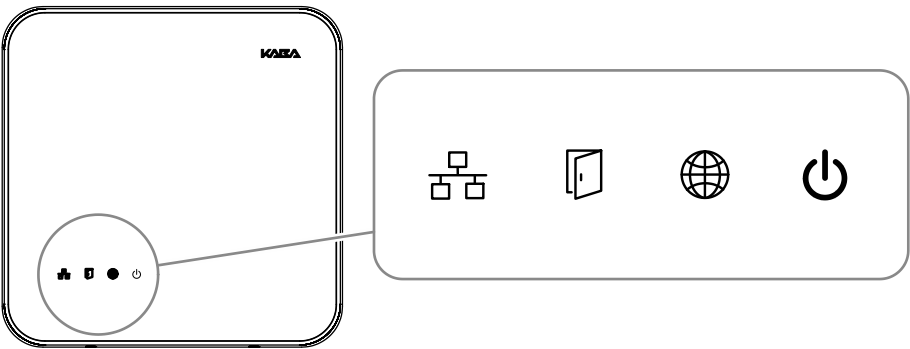


Fig. 1: Light emitting diodes

Symbol	Designation	Signal	Meaning
	Ethernet	Lit/flashing in yellow	Data transfer active
	Device status (state)	see chapter 4.10.1	see chapter 4.10.1
	exivo network	see chapter 4.10.1	see chapter 4.10.1
	Power	Lit in green	Power good
		Lit in red	Power fail
		Off	Power off

Explanation of the power states

State	Meaning
Power good	Device power supply is stable
Power fail	Load of the device power supply is within the limits. Application of further load leads to the switch-off due to overload.
Power off	No power supply

4.10.1 Device status

The status of the device is indicated by the LED labeled **State**.

Signaling depends on the terminal software used.

4.10.1.1 Connection establishment

The terminal software EX-AM xx.xx.xx indicates various states and processes via the LEDs "Device status" and "exivo network".

"Device status" LED

After starting the device, the system performs several steps until it is ready for use. They are indicated by means of the "Device status" LED as follows:

Signal	Meaning
Yellow (approx. xx sec.)	The operating system is started
Flashing in yellow (approx. xx sec.)	Waits for possible key actuation (cold start)
Red (approx. xx sec.)	Waits for possible key actuation (default IP)
Green, then flashing in green	The terminal software is started

Status and error states after system start

Signal	Meaning
Green	Terminal software was started successfully
Red/flashing in green	1-click installation active The device is waiting for registration by the Internet platform
Flashing in yellow	Terminal software was not started
Flashing in red	Terminal software could not be started Reason:

"exivo network" LED

Signal	Meaning
Lit in red	No connection with the exivo platform
Flashing in yellow	Connection with the exivo platform has been established
Blinking in green	The device has been assigned to a system
Lit in green	The device has been successfully assigned to a door

5 Installation

5.1 Installation conditions

5.1.1 General

An accurate installation of all components is a basic requirement for a properly functioning device. The following installation instructions must be adhered to.

5.1.2 Installation site

The access manager is installed near the access. The device is designed for the direct mounting on the wall. Depending on the conditions, the device can also be mounted in suspended ceilings, wall recesses etc.

The access manager should be installed in the interior of the area to be secured.

The access manager must be installed exclusively in interiors.

Electromagnetic fields

The device must not be installed in the area of strong electromagnetic fields caused by switching power supply, power lines, phase controllers, etc.!

5.1.3 Connections

The following connectors must have been prepared at the installation site of the access manager:

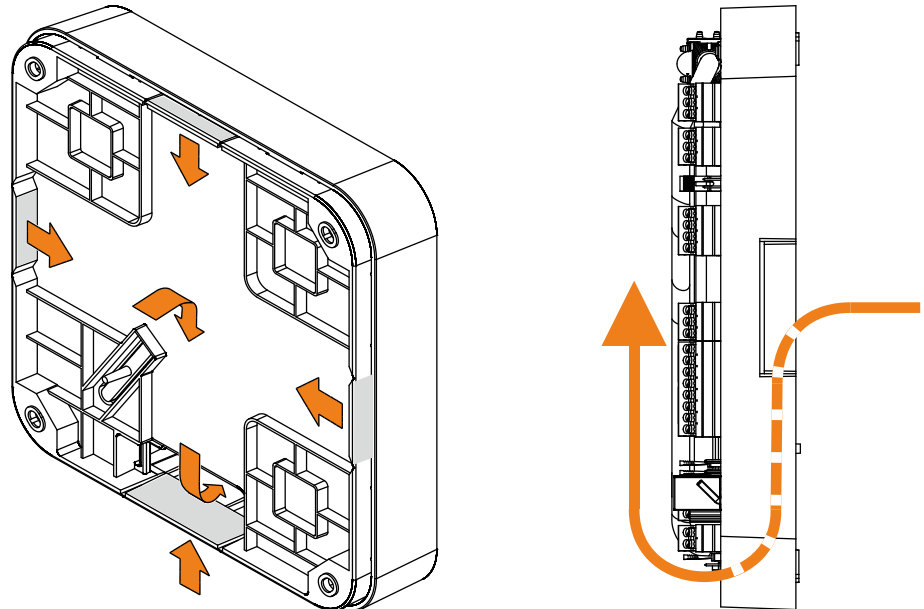
- Ethernet network connection for communication with the Internet platform and power supply of the access manager via PoE
- Power supply for the access manager (only for external 24 V DC power supply)
- Signal lines to door openers and contacts
- Coaxial lines to the registration units and/or data lines to the readers.



The installation lines have to be flush with the surface or be laid in the vandal-proof area.

5.1.4 Cable entry

The installation lines can be routed to the device from behind, from the side, from above and below.



There are holes in the bottom part of the housing, on the sides and on the top and bottom; they can be removed if necessary,

The lines are routed in a duct in the lower part of the rear side, there is the gland to the connections on the front side.



NOTICE

Ensure sufficient line lengths on the installation site.

When inserting the lines from the rear (center of the housing), the installation lines and network cable with the plug protrude from the wall for approx. 35 cm.

5.2 Installation diagram

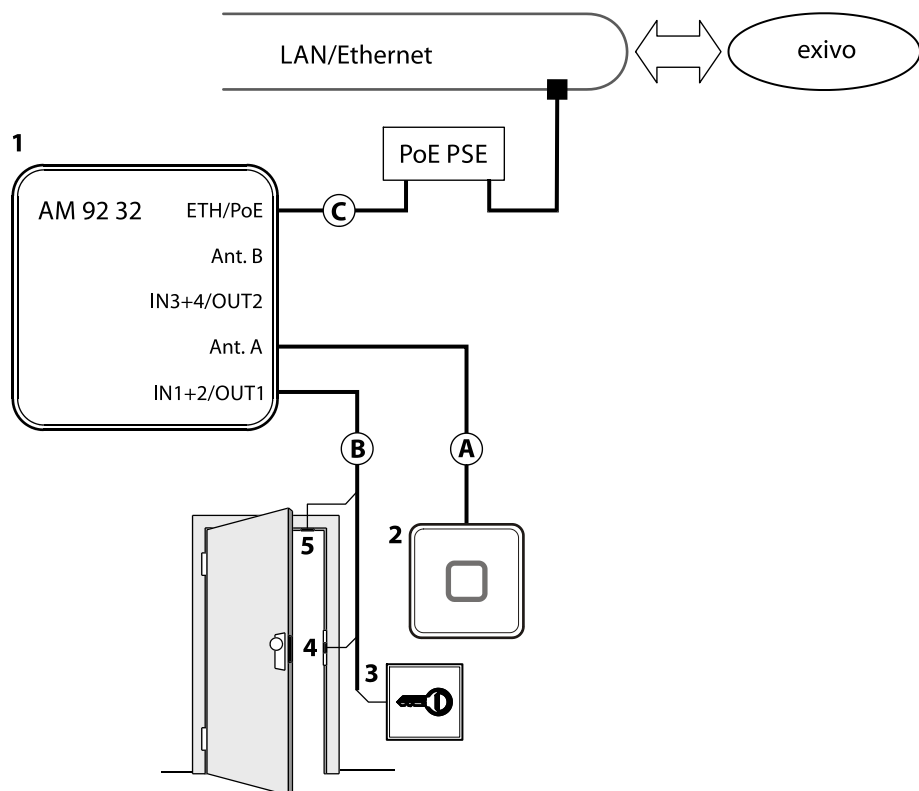
5.2.1 Access control with registration unit

Example:

- Access control with RFID registration units
- PoE power supply of the access manager

Method for feeding in the power supply via the PSE (Power Sourcing Equipment):

- End span (direct supply, e.g. via PoE switch)
- Midspan (supply via intermediate sources, e.g. PoE injector)



- 1 Kaba access manager 92 32
- 2 Registration unit
- 3 Door opener key
- 4 Door opener
- 5 Door frame contact

Installation lines

- A Coaxial cable to the registration unit
- B Line to the door contact, the door opener key, and the door opener
- C Ethernet network cable

5.3 Installation lines

5.3.1 Ethernet

Network cable with RJ45 plug, line requirement: CAT.5 S-UTP 4 x 2 AWG 24 oder AWG 22 (according to EIA/TIA568) or higher quality.

5.3.2 Line to the door opener, the door opener key, and the door contacts

Line requirements: Cable diameters from 0.5 mm to 0.8 mm.

Recommended cable: CAT.5 S-UTP 4 x 2 AWG 24 or AWG 22 (according to EIA/TIA568) or higher.

5.3.3 Coaxial cables to registration units

Registration units are connected to the access manager via coaxial cables The coaxial cable transfers the HF signals from the RFID antenna, keyboard data and trigger data for the optical and acoustic signal generators.

Line requirements: Coaxial cable 50 ohms, type RG174/U.

Maximum cable length: 30 m

Recommended cable length: < 10 m

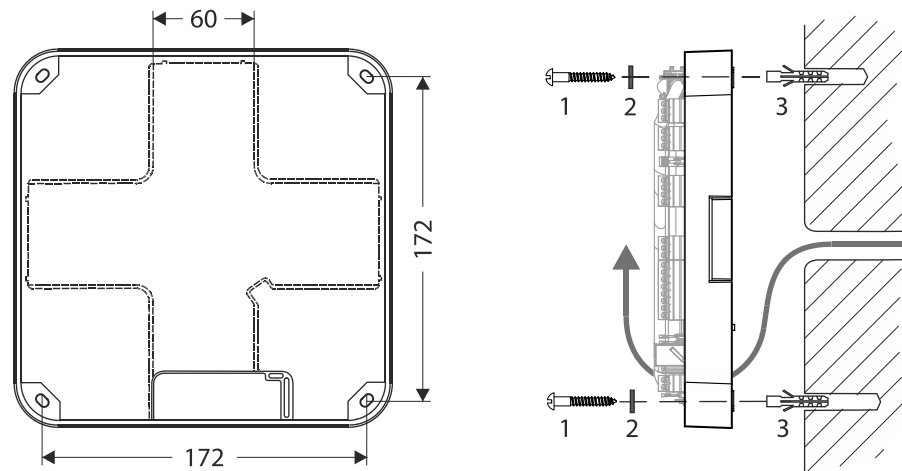
5.4 Wall mounting

When feeding the cable from the side, top or below, first, provide holes for the entry of the installation lines. Not necessary for cable entry from the rear.

The housing is mounted directly to the wall using screws/dowels. There are three oval fastening holes for fastening in the housing.

Fastening material (included in the delivery):

- 4 round-head wood screws DIN 96, diam. 4.5 x 35 (1)
- 4 washers (2)
- 4 dowels S6 (3)



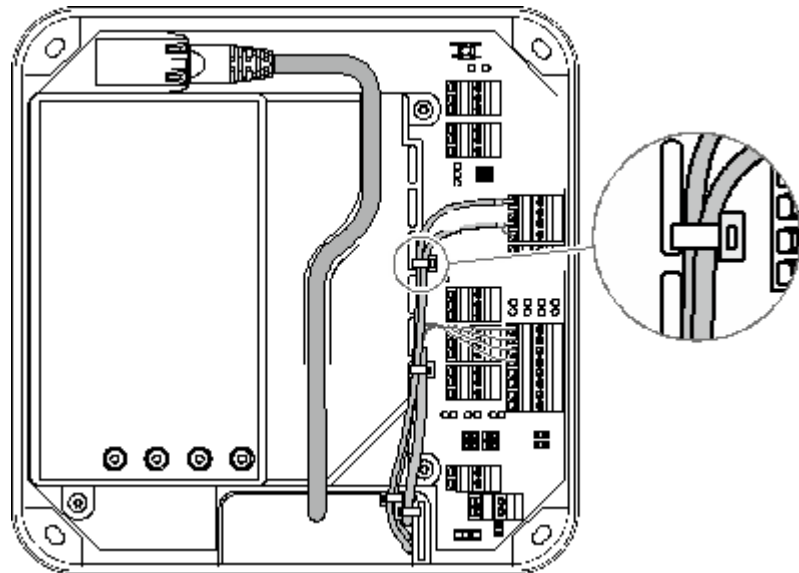
The washers absorb mechanical tensions in case of slightly uneven surfaces and cover the fastening hole completely once the screw has been tightened. The delivered washers must also be used if you use other fastening screws (depending on the mounting surface).

In case of soft mounting surfaces, make sure that the housing is not pressed into the surface when mounting it. The unevenness of the mounting surface may not exceed 0.5 mm. The unevenness of the mounting surface may have to be compensated for or adjusted by means of suitable measures (e.g. washers).

The installation lines are led down in the duct on the rear side of the device and then to the front side of the device with connections. Make sure that the lines are not squeezed or buckled during mounting.

5.5 Cable routing

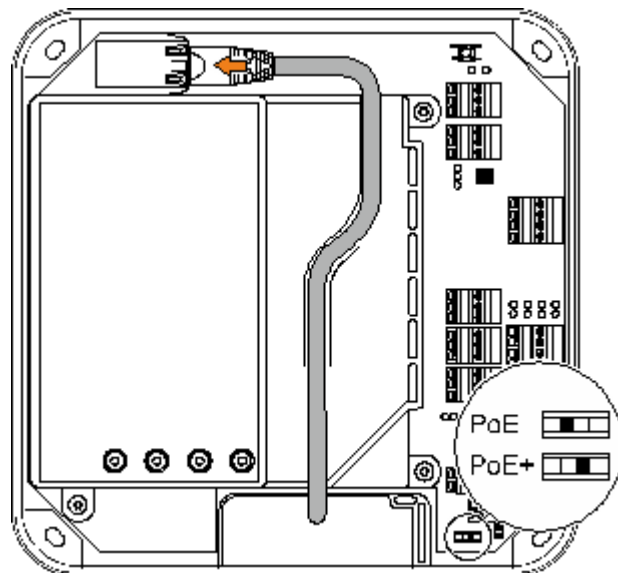
The installation lines are guided through an opening on the bottom side of the device from the rear side to the front side of the device.



The cable passage and the internal cover have eyelets for fastening of installation lines by means of cable ties (not included in the scope of delivery).

For the network cable, there is a routing duct on the inner cover.

5.6 Setting the PoE switches



Depending on the power supply type, the PoE switch must be set as described below.

Power supply	Standard/Power	Switch position
PoE	IEEE 802.3af (12.95 W)	PoE
PoE+	IEEE802.3at (25.5 W)	PoE+
External 24 V DC power supply unit	12-60 W	PoE+

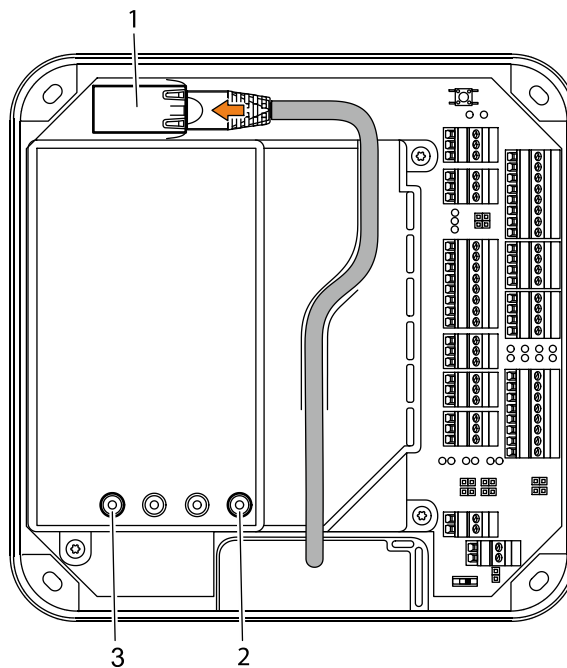
In case of power supply via an external power supply unit, the switch position PoE+ is required to prevent the access manager from limiting the power for external consumers.

5.7 Connections

5.7.1 Network connection

Establishing the network connection

Plug in the network cable into the Ethernet receptacle (1) and fasten it in the gland on the cover.

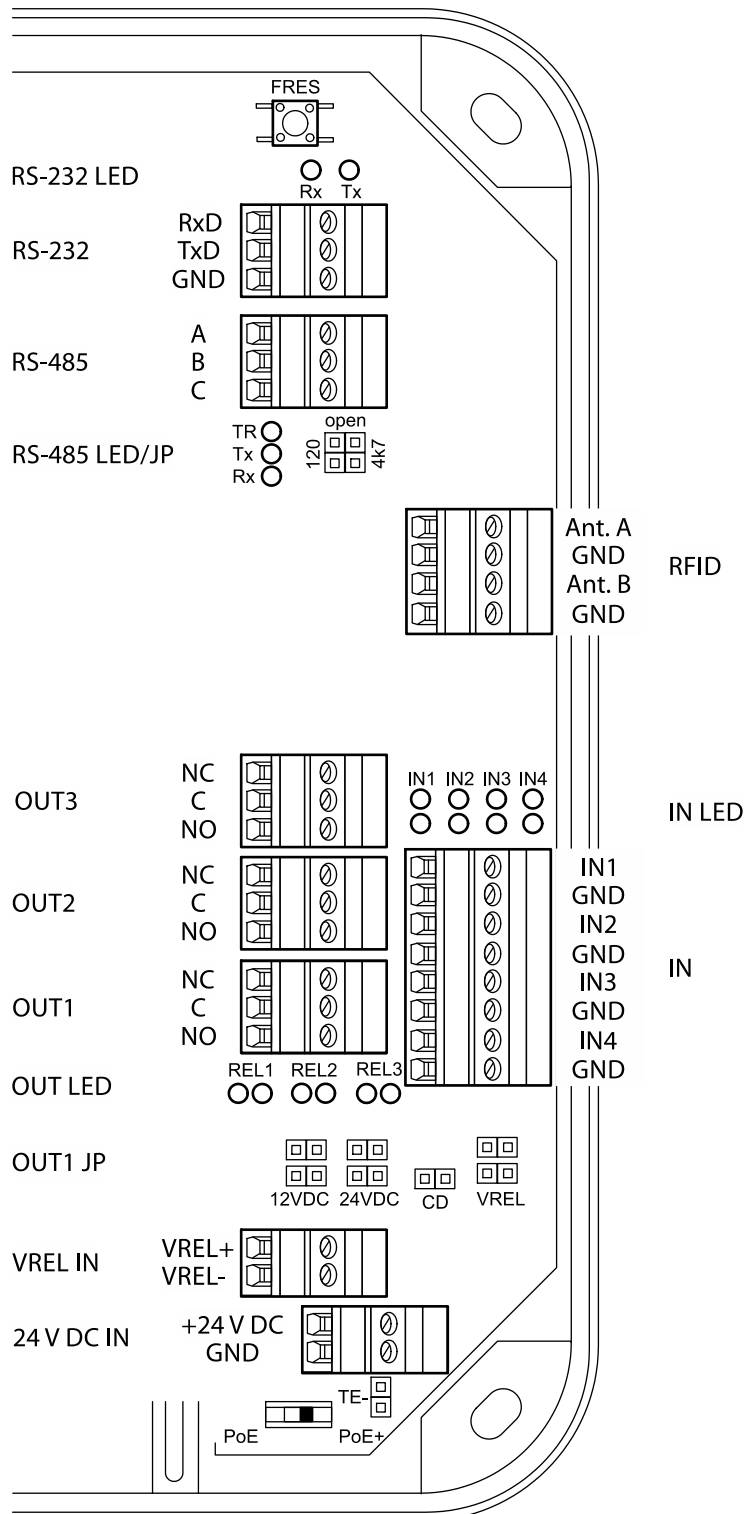


If the power supply is correct, the Power LED (2) lights up in green after a short time.

Once the network connection has been established, the Ethernet LED (3) is flashing in yellow.

5.7.2 Overview of terminals

The following terminals are located in the connection area of the device.



5.7.3 External 24 V DC power supply

As an alternative to the PoE power supply, the access manager can also be supplied via an external 24 V DC power source.

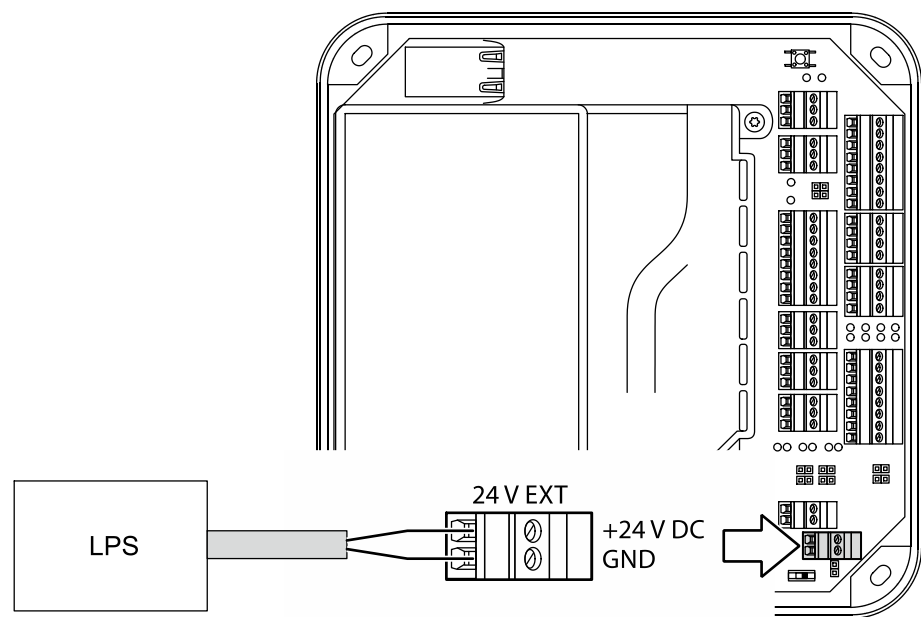


NOTICE

Possible damage in case of simultaneous power supply via PoE and 24 V DC

The device can be damaged in case of simultaneous power supply via PoE and external supply.

- Before connecting the external supply, make sure that the device is not supplied with power via PoE.



Use only power supply units that fulfill the requirements of EN/UL/CSA 60950-1 as limited power source (LPS).

Also see about this

- 📄 5.7.1 Network connection [► 28]

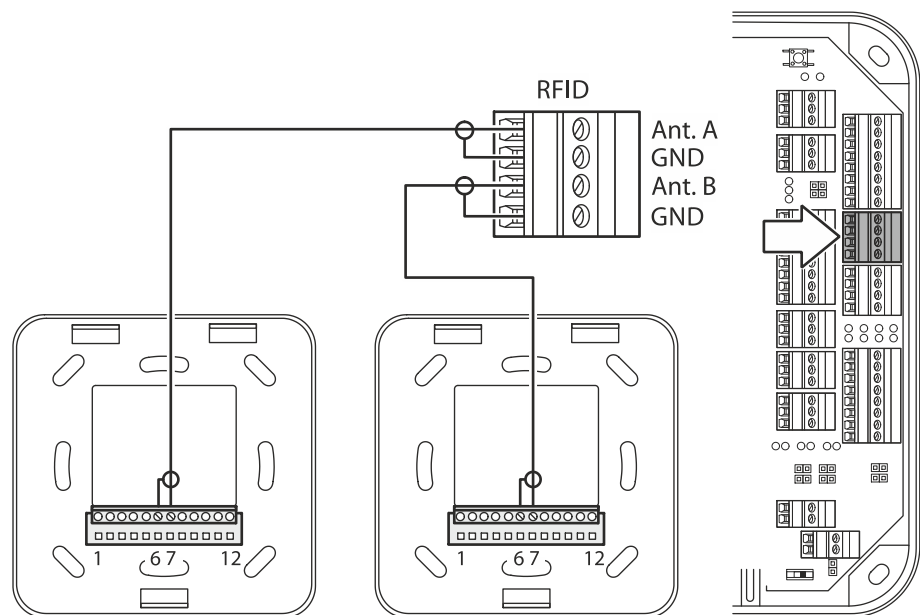
5.7.4 Registration units

Up to 2 registration units can be connected. The registration units A + B are connected by means of the coaxial cable to the RFID input terminal.



Make sure that antenna A (Ant.A) is connected first and antenna B (Ant. B) is connected after that.

Example: Connection of Kaba registration unit 90 01.



Connection designation	Assignment
Ant. A/B	Central conductor of coaxial cable
GND	Shield of coaxial cable

5.7.5 Inputs

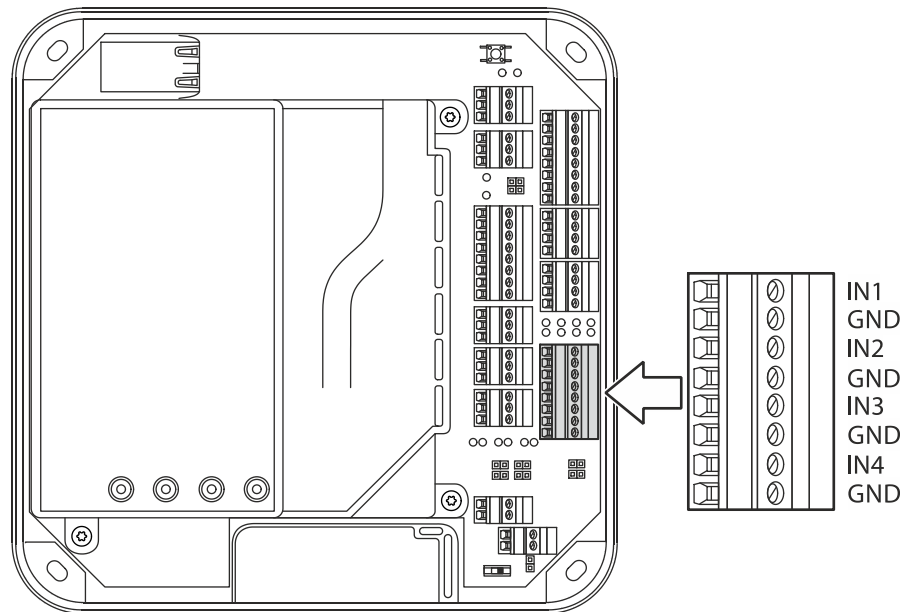
The access manager has 4 inputs IN1 to IN4.

Function of the inputs

The inputs are used for the inquiry of sensors such as door-opener key, door handle contact, door frame contact, bolt contact, vandal contact, passage control (e.g., turnstile, light barrier), etc.



The function of the individual inputs depends on the selected door template.



Principle

The inputs (IN1-IN4) are activated by means of a potential-free contact (switch or relay contact). An open input is recognized as "high" due to the internal pull-up resistor.

5.7.5.1 Line monitoring

The inputs can be designed as follows:

- Without line monitoring
- With line monitoring (if supported and activated by the terminal software)

Line monitoring allows the terminal software to detect the states short circuit and interruption, in addition to the states active (input closed) and not active (input open) and report them to the higher-level system.

The current states of the inputs are indicated by light emitting diodes (see chapter Light emitting diodes [► 4.10]).

5.7.5.2 Non-line-monitored inputs

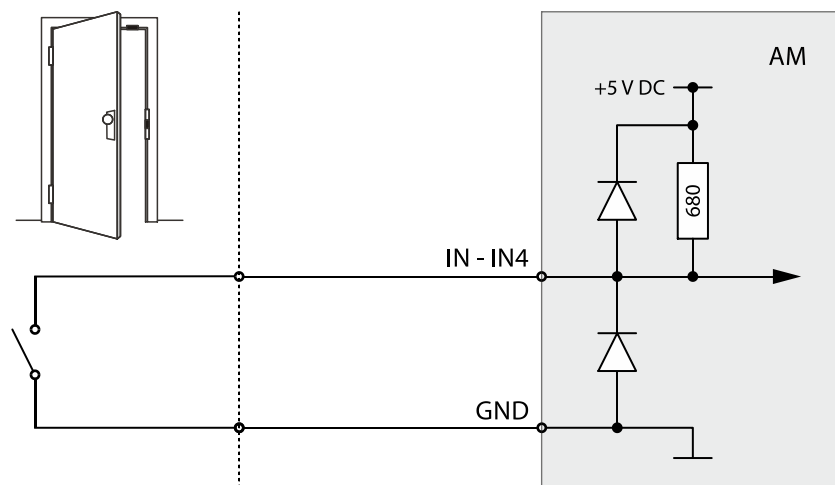


Fig. 2: Non-line-monitored inputs

Example: Connection to door frame contact not line-monitored.

Tampering to lines between access manager and door frame contact is not detected.

5.7.5.3 Line-monitored inputs

With line monitoring activated, resistors (680 Ω , 0,25 W, 2 %) must be connected in series and in parallel to the respective contact. The resistors must be attached in a vandal secure manner directly to the external contact.

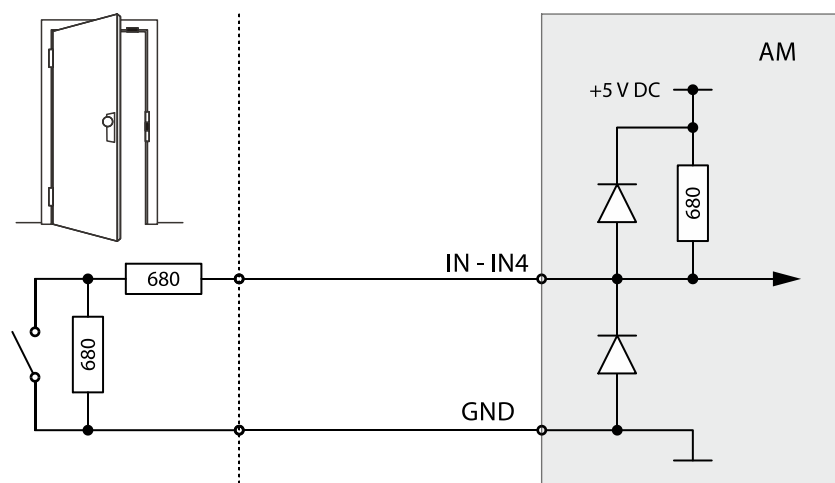


Fig. 3: Line-monitored inputs of access manager AM 9232

Example: Connection to door frame contact line-monitored.

Tampering to lines between access manager and door frame contact is detected.

5.7.5.4 Status display

Above the terminal for the inputs, there are light emitting diodes for status display of the inputs.

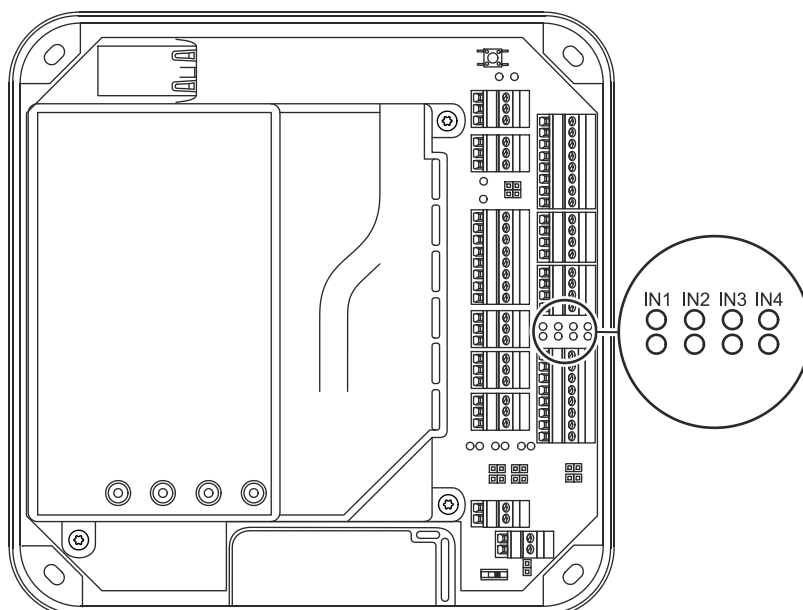


Fig. 4: Status display Inputs of access manager AM 9232

The current status of the inputs is indicated by a red and green LED respectively as follows.

Designation	Signal	Meaning
IN1 - IN4	Off	Input is not active (open)
	lit green	Input is active (closed)
	red and green lit	Short circuit*
	red lit	Interruption*

* only with active line monitoring

5.7.6 Outputs

The access manager has 3 relay outputs OUT1 to OUT3.

Contact rating: 30 V AC/DC; 2 A max.

The outputs can be used for the activation of motor locks, door openers, turnstile drives, technical alarm day/night, security alarm day/night etc.

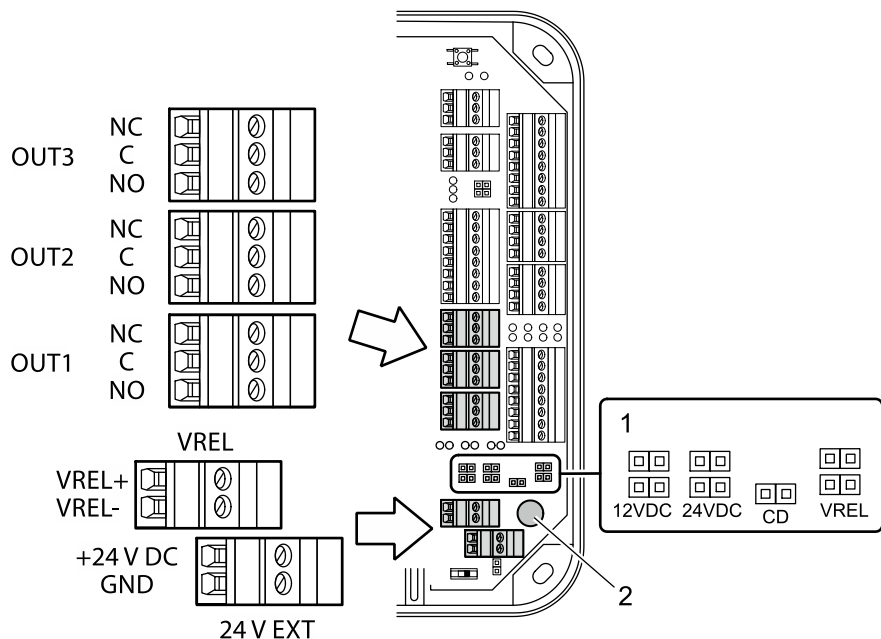


The function of the individual outputs depends on the selected door template.

The wiring of the output OUT1 can be adjusted via jumper (1). The following variants are possible as an alternative:

- OUT1 is used as a potential-free contact
- The internal 12 V DC power supply is switched to the output OUT1.
- A power supply (max. 24 VAC) applied to the VREL terminal is switched to the output OUT1
- The external 24 V DC power supply (24 V EXT terminal) is switched to the output OUT1.

The outputs OUT2 and OUT3 are designed permanently as potential-free relay outputs with one switching contact each.



- 1 Jumper for the wiring of output OUT1
- 2 Fuse F1 for protection of the power supply via OUT1
Fuse value: T2.5 A

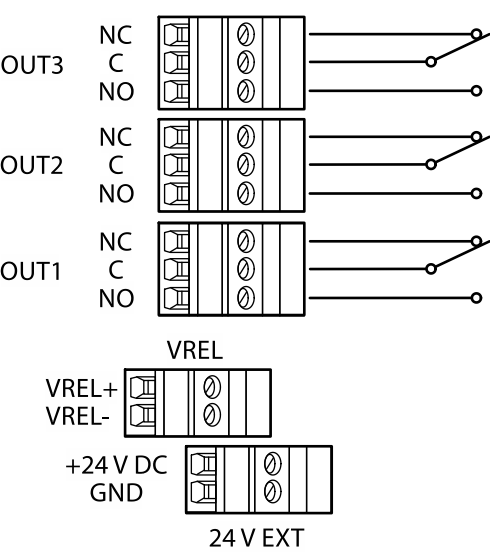
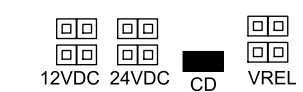
The fuse is plugged in and can be replaced without problems.



The fuse F1 may only be replaced with fuses of the same type.

5.7.6.1 OUT1 as potential-free switching contact

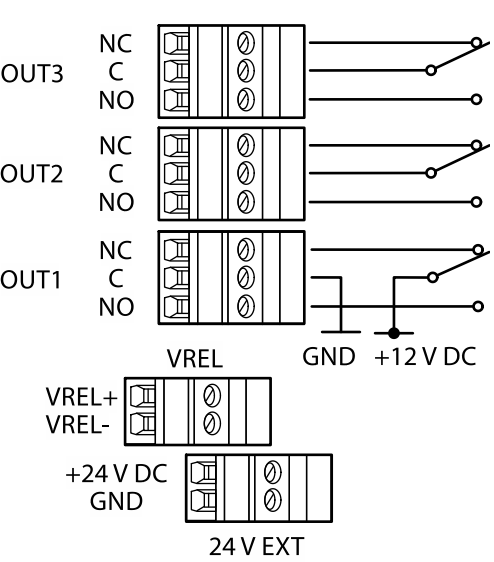
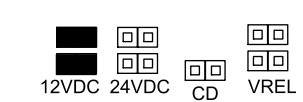
By setting the jumper with the designation CD, the OUT1 output can be used similarly to the outputs OUT2 and OUT3 as potential-free switching contact.

Principle of output wiring	Jumper position
	 IMPORTANT: Only the CD jumper may be set. All other jumpers may not be set.

5.7.6.2 Switching 12 V DC to OUT1

By setting the jumper with designation 12 V DC, the internal 12 V DC power supply is switched to the OUT1 output. Consumers, for example door openers which are operated with 12 V DC can be directly connected to OUT1 in this way.

This variant can be used both with device power supply via PoE and device power supply via an external 24 V DC power supply unit.

Principle of output wiring	Jumper position
	 IMPORTANT: Only the jumper pair 12 V DC may be set. All other jumpers may not be set.

5.7.6.3 Switching the external DC power supply to OUT1

By setting the jumper pair with designation VREL, a DC power supply connected via the VREL terminal (max. 30 V DC, 2 A) is switched to the OUT1 output.

This variant can be used both with device power supply via PoE and device power supply via an external 24 V DC power supply unit.

Principle of output wiring	Jumper position
	IMPORTANT: Only the jumper pair VREL may be set. All other jumpers may not be set.

5.7.6.4 Switching 24 V DC to OUT1

By setting the jumper pair with designation 24 V DC, the 24 V DC power supply (terminal 24 V EXT) is switched to the OUT1 output. Consumers, for example door openers which are operated with 24 V DC, can be directly connected to OUT1 in this way.

This variant can be used only with device power supply via an external 24 V DC power supply unit. Not for power supply via PoE.

Principle of output wiring	Jumper position
	IMPORTANT: Only the jumper pair 24 V DC may be set. All other jumpers may not be set.

5.7.6.5 Connecting door openers

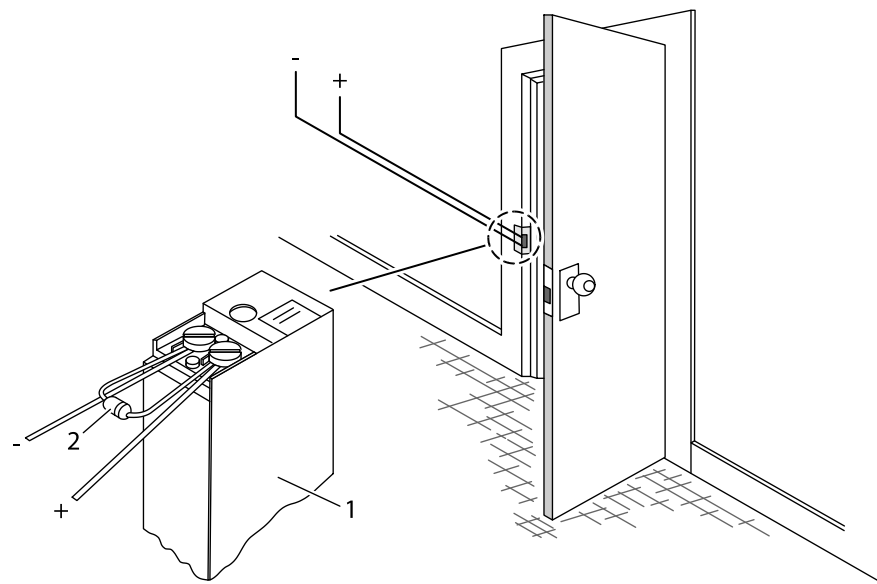
Closed-circuit door-openers and open-circuit door-openers can be used.

For door openers that are supplied with DC voltage, a diode (a freewheeling diode) must be connected in parallel to the door opener to suppress interference. In doing so, make sure that the diode is connected in reverse-bias direction and check the polarity of the connected voltage.

When using an alternating voltage power supply, a varistor or a bipolar suppressor diode must be connected in parallel. As regards the dimensioning and type, observe the specifications of the door opener manufacturer.

The diode or varistor must be connected directly to the door opener and may not be fitted to the access manager.

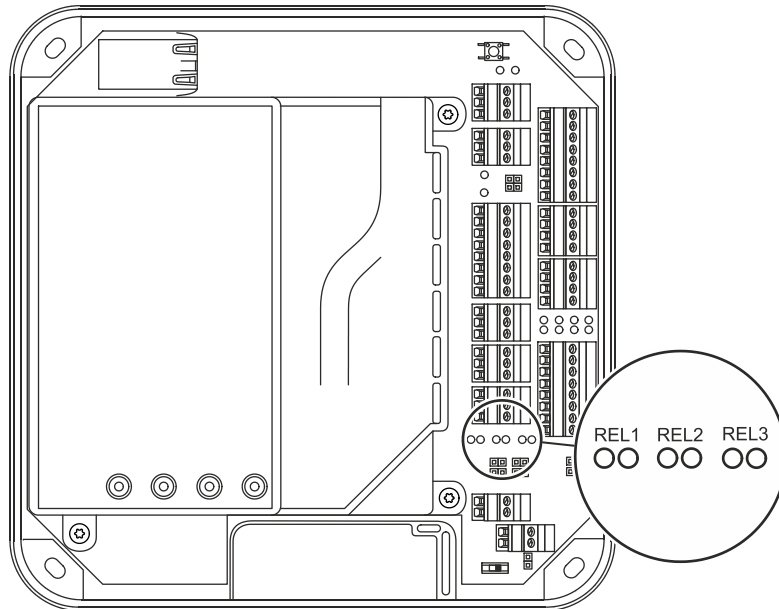
This step is not required if a door opener with internal varistor or diode is used.



- 1 Door-opener
- 2 Freewheeling diode or varistor

5.7.6.6 Status display

Below the terminals for the outputs, there are light emitting diodes for status display of the outputs.



The current status of the outputs is indicated as follows.

Designation	Signal	Meaning
REL1-3	Off	Relay is not pulled-in
	lit green	Relay is pulled-in

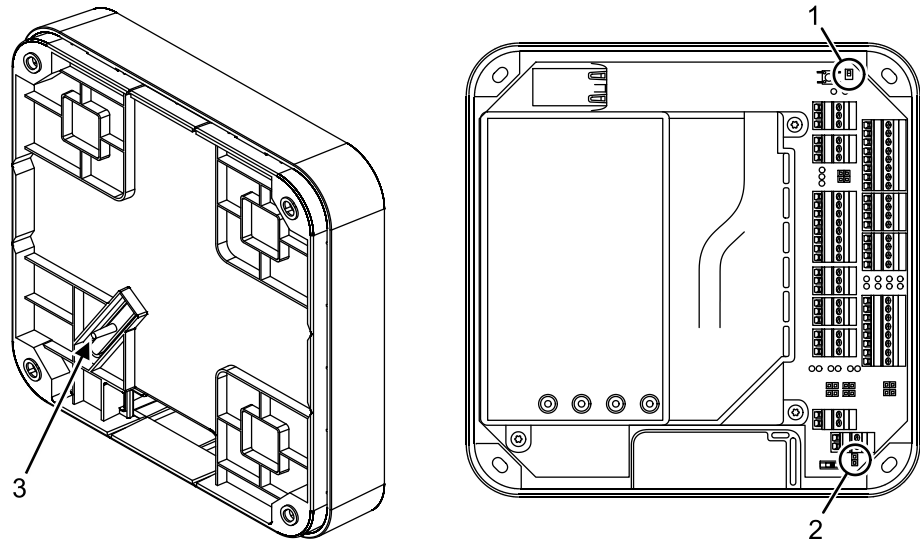
5.8 Vandal contact

The device has two vandal contacts (tamper).

A switching contact (1) is opened if the housing cover is removed.

Another switching contact (3) is opened if the device is removed from the wall.

Switching contact (3) is deactivated by the jumper with designation TE- (2) in the delivery state. To activate the switching contact (3), the jumper TE- (2) must be removed.

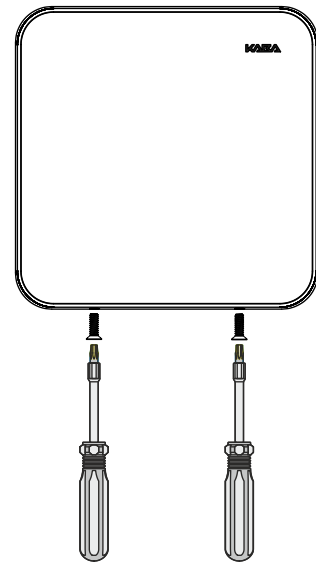
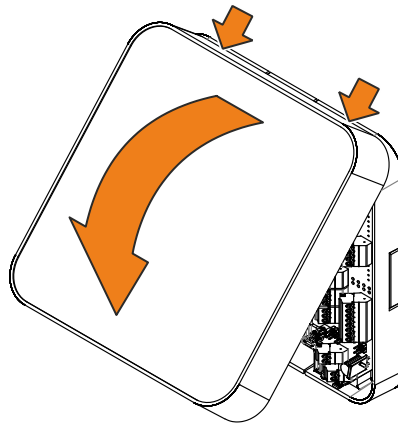


Opening of one or both switching contacts leads to the status indication of the internal input 5.

5.9 Fastening the cover

Fasten the housing cover in the following way:

1. Hang the mounting lugs of the housing cover at the top of the bottom part of the housing.
2. Pivot the housing cover down and close the housing.
3. Fasten the housing cover by means of two screws M3x8 (TORX 8) on the bottom part of the housing.



6 Commissioning

The device can be put into operation largely automatically only if the following requirements are met:

- A functioning DHCP server is available
- When connecting to the Ethernet, the device automatically receives an IP address from the DHCP server and thus an access to the Internet via ports 80 and 443.

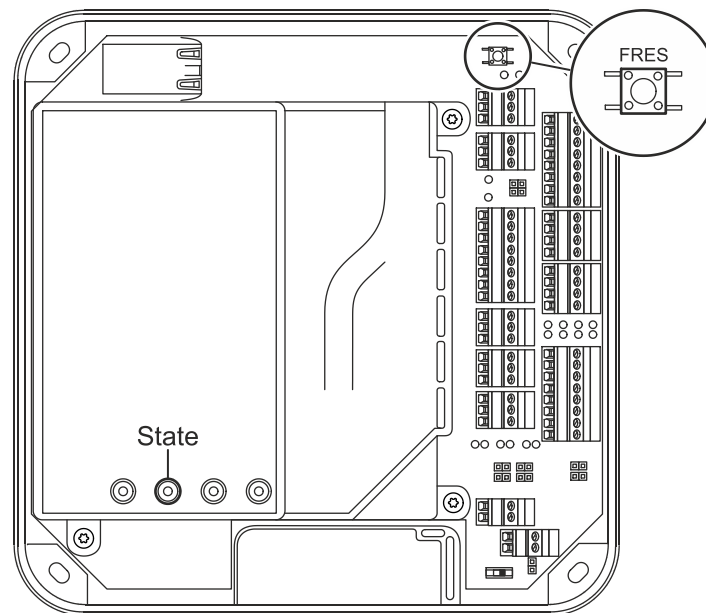
If the device does not obtain access to the Internet or no functioning DHCP server is available, the Ethernet interface must be manually configured using Service Tool before putting the device into operation.

6.1 Start options

6.1.1 Reset key and status LED

The device includes a reset key, designated **FRES** and a status LED (State).

The reset key allows a system start with execution of the start options described below. The status LED signals the current phase of the execution.



6.2 Performing a cold start



NOTICE

When performing a cold start, parameters are reset to their default values. Master records and booking records are deleted.

Network settings as well as group and terminal addresses remain unchanged.

1. Turn off the device.
 2. Turn on the device.
 - ⇒ The yellow status LED is lit.
 - ⇒ After approx. 40 seconds, the yellow status LED starts flashing.
 3. Within 10 seconds, press the reset key and keep it depressed.
 - ⇒ The status LED flashes faster for 5 seconds.
 - ⇒ The status LED lights up in green for 2 seconds.
 - ⇒ A cold start was performed.
 4. Release the reset key again.
 - ⇒ The status LED lights up in red for 5 seconds.
 - ⇒ The status LED is lit in green.
- ⇒ The system is ready for use, a cold start was performed.

6.3 Commissioning procedure

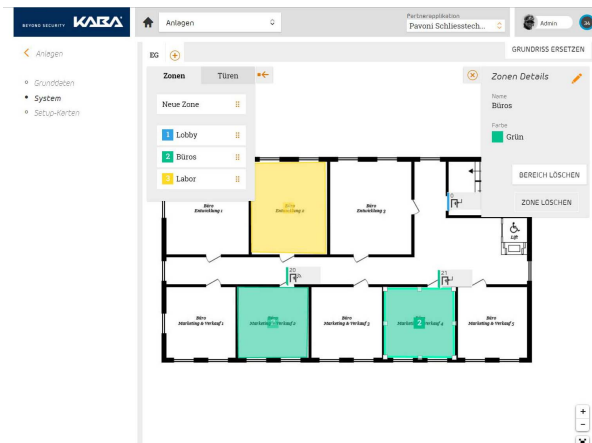
Commissioning

The device is put into operation in 5 work steps:

- 1 Planning the system in partner application
- 2 Adding setup medium in partner application
- 3 Connecting the device to the power supply
- 4 Configuring the Ethernet interface using Service Tool, if required
- 5 Connecting at least one registration unit to the device
- 6 Putting the device into operation by means of the setup medium via a registration unit

6.3.1 Planning the system in partner application

Before putting the device into operation, at least the door to be connected must be planned in the partner application. The device is configured by assigning its installation site and the additional hardware components in this software.



For information on the planning of the system, see online help of the partner application.

6.3.2 Registering the setup medium in partner application

After the system has been planned in the partner application, a setup medium for this system - also in the partner application - must be registered. This setup medium is then used for commissioning the individual components used for the system, i.e. for connecting them to the Internet platform.

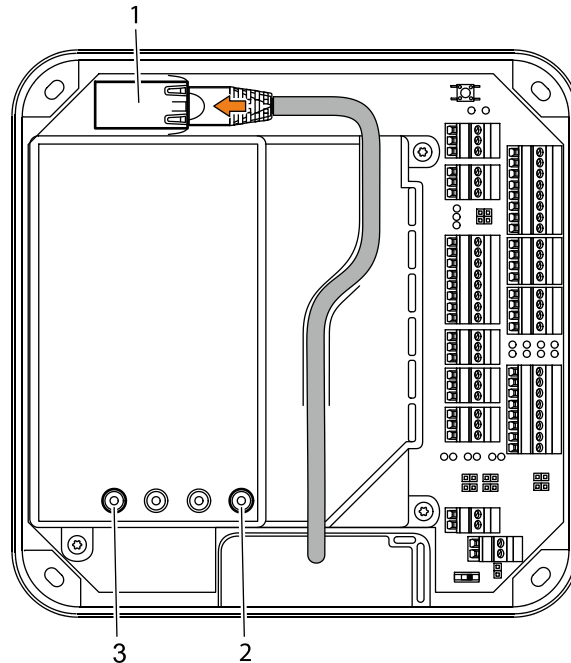


A setup medium is a card with a code which must be activated in the partner application for the corresponding system (add setup medium).

For information on the registration of a setup medium in the partner application, refer to the online help of the partner application.

6.3.3 Connecting the device to the power supply

Once the registration unit(s) is/are connected, the access manager must be connected to the power supply. If the device is supplied with current via the Ethernet (PoE), it is sufficient to connect the Ethernet cable. Otherwise, an external 24 V DC supply must be connected (see External 24 V DC power supply [► 5.7.3]).



6.3.4 Configuring the Ethernet interface using Service Tool

If no functioning DHCP server is available or a manual parameterizing of the Ethernet interface is desired, the Ethernet interface must be put into operation using Service Tool. For this, a computer with an USB connection and a SSH terminal program, for example **PuTTY** which can be downloaded from the Internet is required.

Requirements

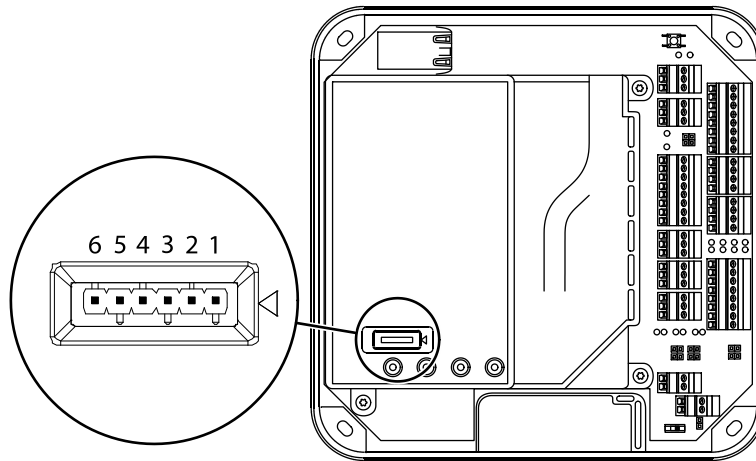
The following work steps must be carried out to meet the requirements for the use of the Service Tool.

- 1 Install a SSH terminal program (e.g. PuTTY) on the computer.
- 2 Download FTDI driver (can be obtained from Kaba) and install on the computer.
- 3 Connect the FTDI debug cable (can also be obtained from Kaba) to the computer via USB. The FTDI debug cable is detected by the system and shown in the device manager as virtual COM port (e. g. COM3).
- 4 After that, connect the connector on the other end of the FTDI debug cable to the device as described below.
- 5 Start the SSH terminal program and enter the configuration parameters described below.

Connecting the FTDI debug cable to the device



Ensure correct polarity! The black cable at the connector must be connected to pin 1. Pin 1 is marked on the cover by an arrow.



Configuration parameters for the SSH terminal program

Start the SH terminal program, for example by double-clicking on putty.exe and make the following settings:

- Connection type: serial
- Serial interface: COM <n> (according to device manager)
- Speed: 115200 Baud
- Character set: ISO-8859-1
- Data flow control: off/no parity bit

After entering these parameters, click on "Save" to **save** the settings made as **standard settings**.

Starting the Service Tool



Before starting the Service Tool, make sure that the FTDI debug cable is correctly connected to the device and the device is switched on.

To start the Service Tool, proceed as follows:

- 1 Click on "Open" to start the Service Tool
- 2 A login screen requesting user name and password will appear. The user name and password for all access managers are identical:
User name = admin
Password = 1234
- 3 After successful login, the main menu of the Service Tool opens. Various functions are available here.



The user interface must be operated in a secure environment. An unauthorized access must be excluded!

Functions of the Service Tool

The Service Tool allows you to use various functions:

- 1 Configuring the network settings
- 2 Displaying the characteristics of the device
- 3 Displaying the system logs
- 4 Resetting to the factory settings

5 Starting the firmware update

Configuring the network settings

The following network parameters can be configured here:

- Static IP address (instead of DHCP)
- Network mask
- Device address
- IP address of the domain name server 1 and possibly also 2
- Proxy server

Displaying the characteristics of the device

The following characteristics can be displayed:

- Firmware version (OS, AML, OSGI Bundles)
- Device ID
- Serial number, date of manufacture
- IP address
- MAC address
- Certificate information
- Routing table
- ARP table
- Uptime
- Load average
- Network interface statistics
- Firewall rules
- Device statistics
- Statistics of the connected (wireless) devices

Displaying the system logs

The following logs can be displayed:

- Logs created by the application
- Logs created by the OS
- Logs created by the device

6.3.5 Installing the registration unit

The actual commissioning of the device is carried out via a registration unit assigned to it in the partner application. Therefore, at least one registration unit must be installed and connected to the device before the commissioning of the device.

6.3.6 Commissioning the device with setup medium

After the system has been planned and the setup medium has been detected in the partner application, the registration units have been connected to the access manager on site, the access manager has been connected to the network (Ethernet) on site and power supply has been provided, it can be put into operation after a waiting period of approx. 4 minutes by means of the setup medium as follows:

- Hold the setup medium at a registration unit



For commissioning of the device by means of the setup medium, only a reader without PIN can be used!

- The access manager will produce 2 consecutive acoustic signals. This means that it has detected the setup medium and begins now to communicate with the Kaba exivo Internet platform. After registration in the Internet platform, the green status LED is lit
- The access manager is displayed in the partner application
- The ID of the access manager appears in the partner application in a drop-down list with all access managers available in the system with the same template type
- Now, the access manager to be used must be assigned to the corresponding door in the partner application
- The configuration determined in the partner application is loaded now to the access manager
- After that, the access manager is ready for use

7 Packaging/Return

Incorrectly packaged assemblies and devices may cause expenses due to damage during transport.

Please observe the following information when sending Kaba products.

Kaba shall not be liable for damage to products which can be attributed to insufficient packaging.

7.1 Complete Devices

The original packaging is specially adapted for the device. It offers the greatest possible protection against transport damage.



Always use the original packaging for returns.

If this is not possible, then ensure the packaging prevents damage to the device.

- Use a stable, thick-walled transport crate or a box. The transport crate should be large enough that there is 8–10 cm space between the device and the container wall.
- Wrap the device in suitable film or put in a bag.
- Pad generously around the device e.g. using foam padding or bubble wrap. It must be ensured that the device does not move within the packaging.
- Only use dust-free environmentally-friendly filling material.

7.2 Electronic Assemblies



Electronic assemblies sensitive to ESD, such as circuit boards, readers, etc., must be stored, transported and sent in suitable ESD protective packaging. The packaging of electronic assemblies may only be carried out in ESD-protected workplaces by persons who are familiar with and follow the general ESD protective regulations.

The return of electronic assemblies in packaging with sufficient ESD protection is a condition for

- making guarantee claims in the event of malfunctions of any kind.
- replacement delivery of electronic circuit boards and components when an exchange is provided.

In order to guarantee a high quality standard, electronic components supplied in packaging without sufficient ESD protection will be neither analyzed nor repaired, but instead disposed of directly.

7.3 Marking

Complete return papers and correct labeling allow us to process matters quickly. Please ensure that a delivery note is included with the package. The delivery note should include the following information:

- Number of devices or components per package.
- Item numbers, serial numbers, designations.
- Address of your company/contact.
- Reason for the return, e.g. repair exchange.
- Informative description of the fault.

In the event of returns from outside of the EU, a customs invoice with the real customs value and customs tariff no. will also be required.

8 Disposal



This product meets the requirements of the WEEE Directive and, in accordance with DIN standard EN 50419, is labeled with the WEEE crossed-out garbage can symbol.

The symbol indicates the separate disposal of electric and electronic equipment in EU countries.

Do not dispose of the device with household waste under any circumstances.

Used devices contain valuable recyclable materials that should be recycled. Used devices should therefore be disposed of via the collection system used in your country.

Disposal in Germany:

After use, Kaba GmbH undertakes to carry out the proper disposal of the supplied goods in line with legal requirements (such as the ElektroG law in Germany). All costs incurred for the transport of goods to the manufacturer's plant will be borne by the owner of the used electronic equipment.

Disposal in Switzerland:

Send the device to an electronic equipment collection facility as per the VREG regulation.

In the EU, electrical devices should be disposed of in accordance with national waste disposal and environmental directives.

The erasure of personal data before disposal must be carried out self-dependent.



Dispose of packaging in an environmentally-friendly manner.

The packaging materials are recyclable. Please do not put the packaging in with household waste, instead dispose of with waste for recycling.

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