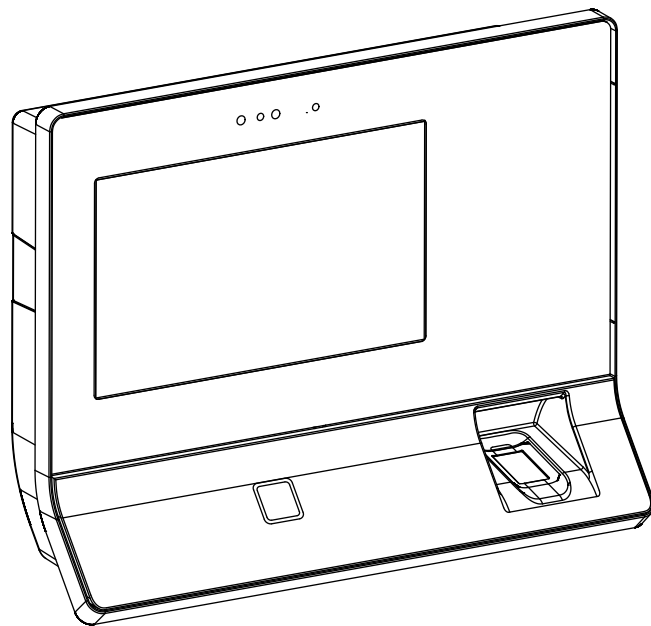




dormakaba Terminal 97 00

Technical Manual

04043552 - 05/2020

EN

dormakaba 

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1 About this document

1.1 Validity

This document describes the product:

Product designation:	dormakaba terminal 97 00
Product ID:	9700-K6
Item number:	04079701
Terminal software:	735-07-X-K00 - B-Client HR30
BaseApp:	771-07-X-K00
Test program:	797-07-X-K00
Date of manufacture:	From January 2020

This document describes all product variants and all optional accessories and functions. Options are subject to a charge and are thus only available if they have been purchased. Additional accessories and functions may not be available on the date of publishing and may only be available for purchase at a later point in time.

1.2 Target group

This quick start guide is intended for skilled persons only.

The descriptions are intended for skilled persons trained by the manufacturer. The descriptions are no replacement for product training.

For reasons of equipment safety, the installation, maintenance and service measures described in this documentation should only be carried out by skilled persons in accordance with EN 62368-1 (Audio/Video, Information and Communication Technology Equipment – Part 1: Safety Requirements).

Skilled person is the designation for people who have the appropriate technical training and experience in setting up the equipment. Skilled persons are expected to use their training and experience to identify any risks to themselves and others that may arise while carrying out these activities, and to minimise these risks as far as possible. It is the skilled person's responsibility to ensure that the conditions stated by the manufacturer and the applicable regulations and standards are complied with when carrying out these actions.

This documentation is also used to provide information for persons with the following tasks:

- Project planning and project implementation
- Commissioning the product within the network
- Connecting the product to user software by programming customer applications
- Customer-specific adjustments with product parametrisation

1.3 Contents and purpose

Contents are limited to the assembly, installation, commissioning and basic operation of the product.

1.4 Orientation in the document

This document contains the following features to help find specific topics:

- The table of contents at the beginning of the document offers an overview of all topics.
- The header contains the associated main section.
- Cross references indicate the number of the section containing additional information. Example [▶ 5.7].
- An index in alphabetical order is given at the end of the document.

1.5 Additional documentation

Specific parametrization of the terminal software:

- B-Client HR30 reference manual

Web interface for commissioning:

- Service interface reference manual

Additional documentation is available on the dormakaba website. Technical manuals and reference manuals can be found in a protected area (extranet). It is possible to access these via the user account of trained specialists. But a temporary account can also be created.

<https://www.dormakaba.com/extranet-emea-en>

1.6 Warnings

Warnings containing information/instructions and prohibitions designed to prevent personal injury or damage are specially marked.

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

1.6.1 Hazard categories

Warnings are divided into the following categories:



DANGER

High risk

Indicates an imminent danger which could cause severe physical injury or death.



WARNING

Medium risk

Indicates a possibly dangerous situation which may lead to severe physical injury or death.



CAUTION

Low risk

Indicates a possibly dangerous situation which may lead to minor physical injury.



NOTICE

Important information on the correct use of the product.

Failure to comply with these instructions could lead to malfunctions. It is possible to damage the product.

1.6.2 Symbols

Symbols with the following meaning are used for warnings, depending on the source of danger.



General hazard



Hazard due to electrical current



Explosion hazard



Risk for electronic components due to electrostatic discharge

1.7 Notes

Notes are indicated by an info symbol.



Tips and useful information.

These help you make the best use of the product and its functions.

1.8 Instructions

Structure and symbols of the instructions are illustrated in the following example:

- ✓ Prerequisite
- 1. Step 1
 - ⇒ Interim result
- 2. Step 2
 - ⇒ Result

2 Basic safety instructions

This product has been built to state-of-the-art standards and in line with established safety regulations. However, hazards for persons and property may arise when handling the product.



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

2.1 Designated use

This product is intended for use as specified and explained in the Product description section only. Any other use is considered non-designated use. The manufacturer is not liable for any damage or injury due to non-designated use. The user/facility operator is the sole person to bear risks for non-designated use.

2.2 Assembly and installation

Check the device for visible damage caused by transport or wrong storage. Do not start up any damaged device!

Assembly and installation of the product may only be done by skilled personnel (see chapter 1 Target group).

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

When installing/inserting the product in end-use equipment all requirements of the mentioned test standards must be fulfilled.

The product should only be installed in locations which fulfil the environmental and technical conditions specified by the manufacturer.

The manufacturer is not liable for damage arising due to improper handling or incorrect installation.

2.3 Service and maintenance

Conversions and modifications to the product may only be done skilled personnel (see chapter 1 Target group). Any conversions and modifications performed by other persons will exempt us from any liability.

The elimination of faults and maintenance work may only be performed by skilled personnel (see chapter 1 Target group).

2.4 Accessories and spare parts

Accessories and spare parts must meet the manufacturer's technical requirements. This is guaranteed if original dormakaba accessories and spare parts are used.

2.5 Electrical hazards

Installations involving the mains power may only be executed by approved specialist companies or authorized skilled electricians.



WARNING

Live connections at the docking station in devices equipped with integrated power supply unit (BEX120 motherboard)

Carelessness can result in an electric shock.

- ✓ The terminal housing may only be removed from the docking station by skilled personnel.
 - Before removing the terminal housing from the docking station, the device must be de-energized.
 - For permanently connected devices, the voltage must be switched off.
 - For devices supplied by a separable connection, the mains plug must be pulled.
 - Secure against being switched on again.
 - Check for absence of voltage.
-

2.6 Handling of lithium batteries

To back up the real-time clock RTC, the device is equipped with a lithium manganese dioxide battery type CR2032.

The battery is located on the rear side of the terminal housing.



CAUTION

Lithium batteries can explode or burst explosively.

Improper handling of lithium batteries may result in fires and explosions.

- Replace lithium batteries only with batteries of the same type.
 - Do not open, drill through or squash lithium batteries.
 - Do not burn lithium batteries or expose them to high temperatures.
 - Do not short-circuit lithium batteries.
 - Do not recharge lithium batteries.
-

2.7 ESD prevention measures



NOTICE

Risk for electronic components due to electrostatic discharge.

Incorrect handling of electronic PCBs or components can result in damage which will cause a complete breakdown or sporadic errors.

- General ESD prevention measures must be observed when installing or repairing the product.
 - Wear an anti-static wrist strap when handling electronic components. Connect the end of the strap to a discharge box or a non-painted, earthed metal component. This way, static discharges are channelled away from your body safely and effectively.
 - Handle a PCB along its edges only. Do not touch the PCB or connectors.
 - Place dismantled components on an anti-static surface or in an anti-static shielded container.
 - Avoid contact between PCBs and clothing. The wrist strap protects PCBs against an electrostatic discharge voltage from the body only. However, damage can also be caused by an electrostatic discharge voltage from clothing.
 - Transport and ship dismantled modules in conductive anti-static bags only.
-

2.8 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.

Dispose of consumed batteries in accordance with state and local regulations.

Carefully store the batteries to be disposed of to avoid short circuits, crushing or destruction of the battery casing.

2.9 Data protection and IT security



NOTICE

Security risk when operating the system with standard access data

Danger due to unauthorized access to data or manipulations on the system.

- Change login data as soon as possible!

This product is delivered with a standard configuration. Among other things, this enables access to the system and its functions via known preset access data, which simplifies commissioning.

However, continued operation with standard access data poses a security risk. The access to the system thus becomes a point of attack for possible unauthorized access to data or manipulations on the system.

In order to reduce this risk, it is recommended to change the following access data at the earliest possible time and to adapt the security guidelines to the respective IT environment.

2.9.1 Set the terminal password

Store the password in the terminal, which will be requested when you exit the device software or call up the local settings.

The password is set with the parameter sets >3X02 respectively >3X12 of the B-Client device software. The password should contain at least eight characters with numbers, letters and / or special characters.



The detailed description of the parameter sets can be found in the reference manual of the B-Client device software.

2.9.2 Change passwords for access to the Service Interface

Change the default passwords for the users "admin" and "root" via the user administration of the Service Interface.



Details can be found in the reference manual of the service interface.

2.9.3 Exchange SSH key

The SSH key is used for SFTP access to the terminal. The key is used to authenticate with the SSH server of the terminal.

The device is factory-equipped with a standard key file.

Via the "SSH key exchange" function of the B-COMM communication software, this can be replaced by a customized single key file.



The detailed description of the "SSH key exchange" function can be found in the B-COMM communication software reference manual.

2.9.4 Enhanced security



NOTICE

Security risk with an active web server

Web servers are a popular target for attacks.

- Switch off web server and SSH server after commissioning!

Disable web server

Via the service interface, functions are available that are required for commissioning the terminal. The service interface is provided via a web server. Web servers are a popular target. To prevent an attack, it is recommended to shut down the Web server after start-up.

The Web Server service can be stopped with the TAWEBSERVER STOP command set and started again with the TAWEBSERVER START command set.

Disable SSH server

The SSH server service enables a secure and encrypted connection via the "Secure File Transfer Protocol" (SFTP). This connection is only required to adjust various settings and can usually be deactivated during normal operation.

The SSH server service can be stopped with the TASSH STOP command set and started again with the TASSH START command set.



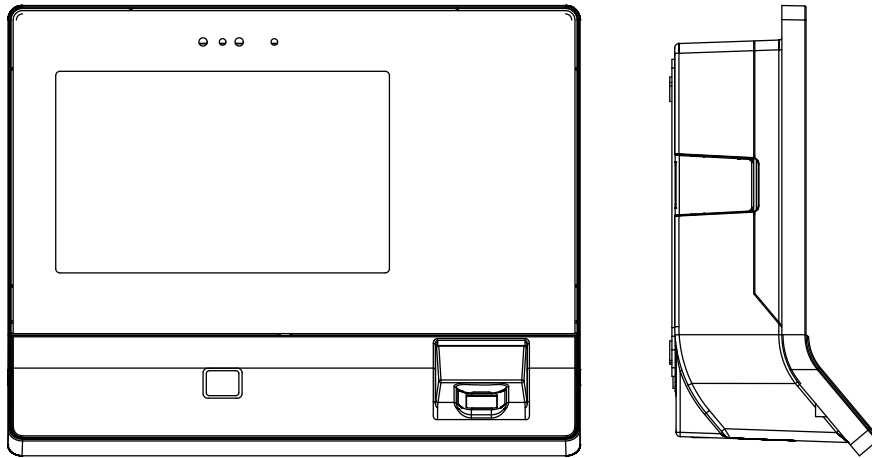
The detailed description of the command sets can be found in the reference manual of the B-Client device software.

2.9.5 Encrypted host communication

The use of the optional data encryption via Ethernet UDP in conjunction with the B-COMM or HTTPS communication software is recommended.

3 Product description

3.1 Overview



The terminal 97 00 can be used for time and attendance and for providing customer-specific information and applications.

The operating system used of the terminal 97 00 is 'Android'. This allows applications, so-called apps, to be used flexibly at the terminal. The system can be expanded at any time to make it suitable for a wide range of tasks or also be supplemented by apps specifically developed for customer requirements.

For time and attendance, the B-Client HR30 terminal software is available. This terminal software makes the device compatible in terms of data records with its predecessor series B-web and B-net, allowing it to be connected to the host system via UDP using the communication software B-COMM. Connecting it to HTTP/HTTPS-based applications, such as b-comm ERP5 or EACM, is also possible.

To display information, the terminal is equipped with a 7" colour display with a resolution of 800 x 480 pixels.

The device is equipped with a touch screen operated by touching the glass front.

The time data is recorded by a RFID proximity reader and/or a biometric CBM reader (depending on design)

A proximity sensor activates the device in the sleep or standby mode.

The terminal is equipped with an integrated microphone and an integrated loudspeaker and, optionally, with a camera system.

Communication takes place via Ethernet. Alternatively and optionally, communication can also take place via UMTS or WLAN.

Optionally, 2 outputs (relays) and 4 digital inputs are available for control functions.

3.2 Technical data

3.2.1 System

Operating system

- Android version 5.0.2 (Lollipop)

CPU

- Freescale i.MX6Dual processor

Memory

- 2 GByte DDR3 RAM
- 8 GByte eMMC Flash
- Card slot for microSD or microSDHC card

Parameters and data records are retained without supply voltage.

RTC

The device has an integrated real-time clock. The function of the RTC is ensured for about 2 years by a lithium battery type CR2032 (on the rear side of the device) even without power supply of the device.

Display

- TFT LCD display module
- Size: 17.8 cm (7.0")
- Resolution: 800 x 480 pixels (16:9/WVGA)
- Luminance: 450 cd/m²
- Colour depth: 24-bit (true colour)
- Backlit with white LED

Touch screen

- 7" PCAP touch screen over the complete display
- 10-finger multitouch support
- Resolution: 30 x 18 (x/y)
- Optional splinter protection

Proximity sensor of biometric reader

- Proximity sensor for activating the biometric reader (option)
- Range 10-50 mm, sensitivity adjustable in 3 steps, can be switched off

Terminal proximity sensor

- Activates the device from the sleep or standby mode when approaching it within approx. 0.5 m

3.2.2 Multimedia

Camera (option)

- Integrated ¼ inch camera; resolution 5 megapixels

Audio

- Integrated microphone
- Integrated loudspeaker with power amplifier (3 W)
- 3.5 mm line-out jack

3.2.3 Interfaces/Communication

Ethernet interface

- IEEE802.3 compatible 10BASE-T/100BASE-TX /1000BASE-T Auto sensing, Auto MDIX
- IEEE802.1x security concept, EAP type MD5

WLAN (option)

- Mini PCIe WLAN adapter conforming to IEEE802.11 a/b/g/n (2,4/5 GHz)
- Encryption: WPA-PSK and WPA2-PSK security

Mobile communication (option)

- Mini PCIe UMTS/HSPA+ module
- UMTS/HSPA: 800/850/900/1900/2100 MHz
- GSM/GPRS/EDGE: 850/900/1800/1900 MHz

Serial interface RS-232 (option)

- Baud rates: 9600/19200/38400/57600/115200
- Hardware handshake (RTS/CTS)

USB

- 1 x USB 2.0 (host); 5 V/500 mA;
for example for connecting an external reader

3.2.4 Reader

Depending on model, the device supports the following readers:

RFID reader

- MRD - LEGIC prime/advant, MIFARE Classic/DESFire
- HID - iCLASS SE, iCLASS, Prox, Prox II
- HITAG - EM4102, HITAG1, HITAG2 (only with add on housing)

Biometric fingerprint reader

- Biometric module (CBM) with integrated database for fingerprints.
- Optionally as CBM-E with extended approvals (PIV-IQS with FBI certification and FIPS 201 approved template evaluation)
- Depending on model, the reader has a storage capacity for 500, 3000 or 5000 persons (2 fingers per person)

Swipe reader in add on housing

- Magnetic stripe tracks 1, 2, 3
- Red light barcode
- Infrared barcode

3.2.5 Booking via Smartphone (optional)

Only in conjunction with MRD reader (SM-6300).

The following technologies are supported:

- NFC (Android Smartphone)
- Bluetooth Low Energy (Android Smartphone + iPhone)

3.2.6 Inputs/Outputs

2 relay outputs (option)

- One potential-free switchover contact each
- Contact loading capacity: 30 V AC/DC; max. 2 A

4 digital inputs (option)

- Galvanically isolated from system
- Input voltage: max. 30 V DC, min. -30 V DC

3.2.7 Power supply

For the power supply of the device, the following alternatives are possible:

- PoE (Power over Ethernet)
- Mains power input (docking station with BEX120 motherboard required)
- 24 V DC power supply (docking station with BEX121 motherboard required)

PoE (Power over Ethernet)

Power supply of the terminal via the 8-wire Ethernet cable (max. 100 m)

- In accordance with IEEE802.3at/type 1 class 0 (0,44-12,95 W)
- In connection with WLAN or mobile communication option:
In accordance with IEEE802.3at/type 2 class 4 (12,95-25,50 W)
- Supported feed processes:
 - Phantom feed
 - Spare pair feed (up to 100 Mbit/s Ethernet)

Mains voltage input

- Voltage range: 100–240 V AC
- Frequency: 50/60 Hz
- Current consumption: max. 200 mA

24 V DC power supply

- Voltage range: 22–30 V DC
- Current consumption: max. 1 A



Only power supply units that fulfil the following requirements may be used for power supply: LPS (Limited Power Source) and SELV (Safety Extra Low Voltage) in accordance with IEC/EN/UL/CSA 60950-1 or ES1 and PS2 in accordance with IEC/EN/UL/CSA 62368-1.

3.2.8 Uninterruptible power supply

UPS610 (option)

The UPS610 consists of an electronic part with charging circuit and a rechargeable battery. The components are housed in a self-contained housing. Uninterruptible operation of the device in case of power supply failure is ensured by an NiMH battery with a capacity of 2100 mAh. The battery is fully charged after a charging time of 10 hours.

The UPS610 ensures operation in case of power supply failure for up to 30 minutes or approx. 200 bookings, whatever occurs first.

Condition: New battery, 100% charged, temperature 20 ° - 25 °C.

3.2.9 Ambient conditions

Ingress protection according to IEC 60529

- IP20
- IP54 (optionally)

Prerequisite: Cable entry from below using the enclosed grommets.

Relative humidity

- 5% - 85%, non-condensing

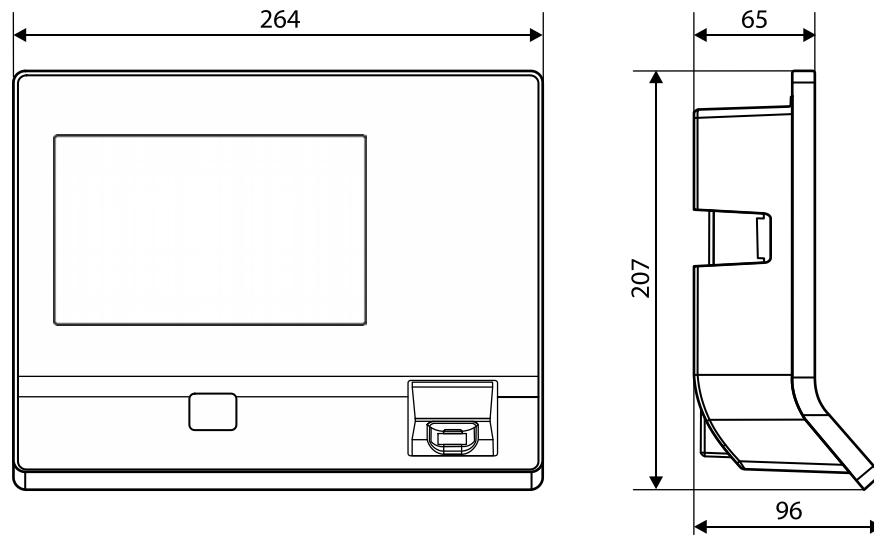
Ambient temperature

- -5 °C – +45 °C (operation without UPS)
- 0 °C – +40 °C (operation with UPS)
- -25 °C – +70 °C (storage without UPS)
- -20 °C – +45 °C (storage with UPS)

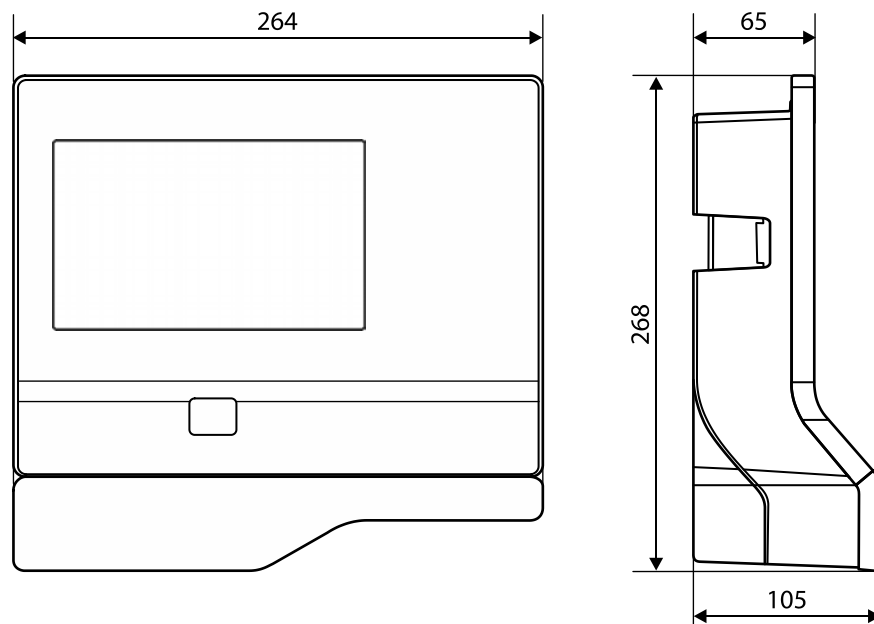
3.2.10 Dimensions

all dimensions are given in mm.

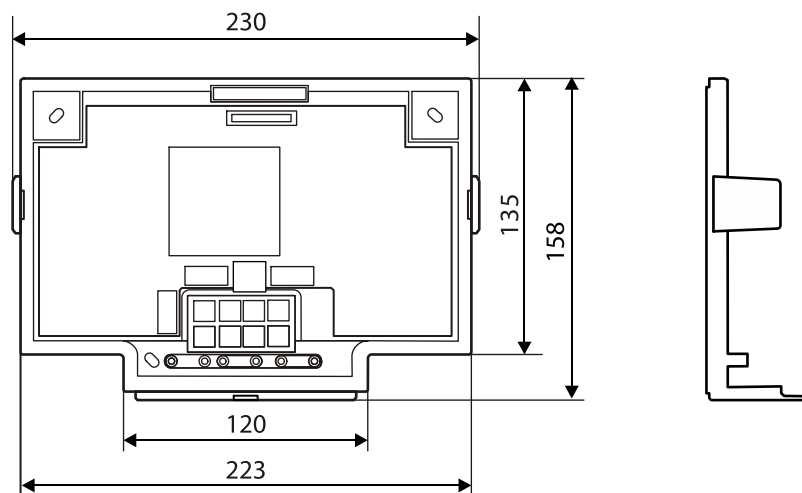
3.2.10.1 Terminal housing



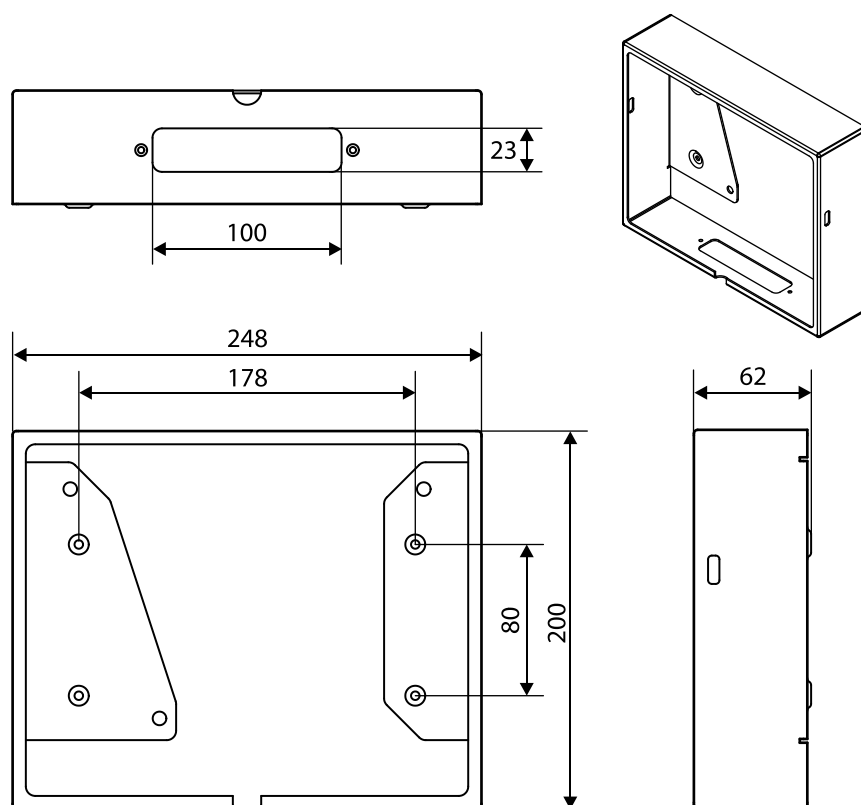
3.2.10.2 Terminal with add on housing



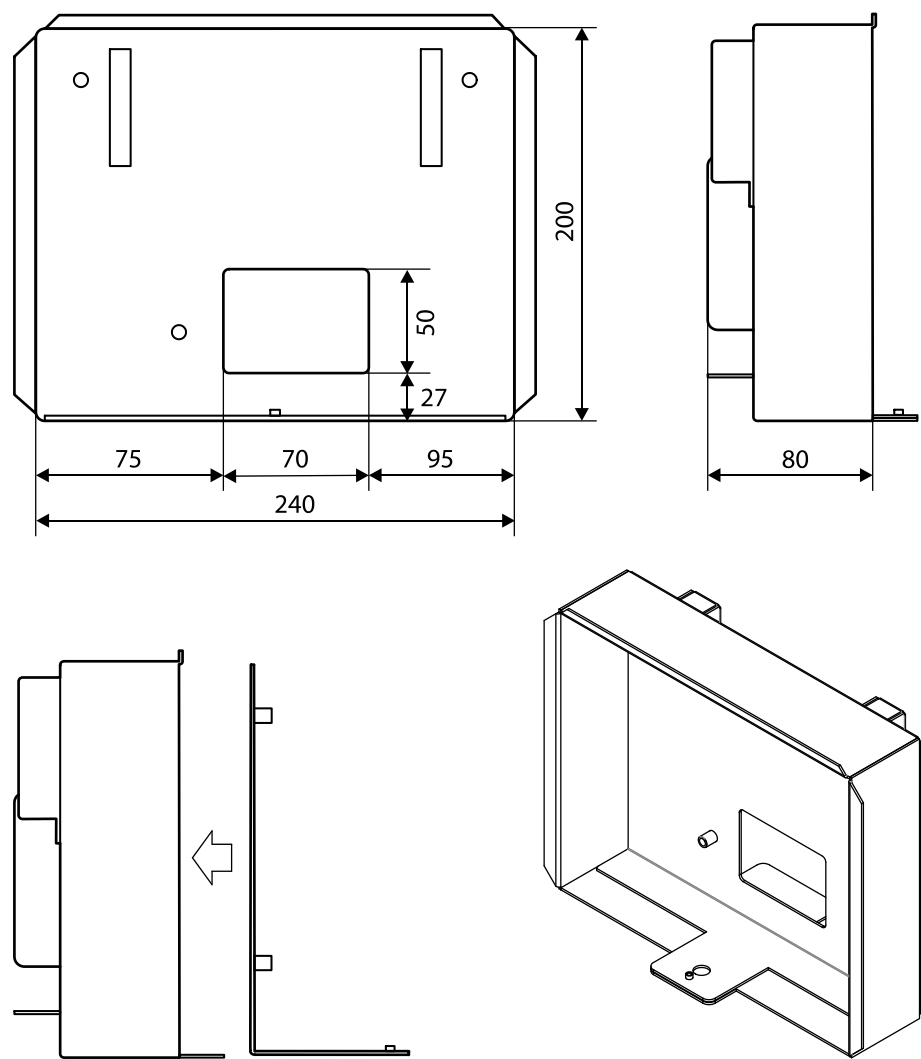
3.2.10.3 Docking station



3.2.10.4 Surface-mounted protective metal housing (accessories)



3.2.10.5 Flush-mounted housing (accessories)



3.3 Conformity



This product complies with the standards

EN 62368-1:2014-08

EN 55032:2015-07

EN 55024:2010-11 + A:2015-06

EN 61000-3-2:2014

EN 61000-3-3:2013

EN 62471:2008

EN 60529:1991-10 + A1:2000-02 + A2:2013-10

according to the provisions of the EU directives

2014/35/EU - Low Voltage Directive (LVD)

2014/30/EU - Electromagnetic Compatibility (EMC)

Devices with Radio (RFID reader, 3G/GSM module, WLAN) additional comply with the following standards

EN 300328 V2.1.1

EN 301489-1 V1.9.2

EN 301489-3 V1.6.1

EN 300330 V2.1.1

EN 62311:2008

EN 62471:2008

EN 50364:2010

according to the provisions of the EU directive

2014/53/EU - Radio Equipment Directive (RED)

RoHS

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



You can download the original declaration of conformity in PDF format at www.dormakaba.com/conformity.

In addition, the product also complies with the following standards

UL62368-1:2014-12

CAN/CSA-22.2 No. 62368-1:2014-12

**FCC Code of Federal Regulations,
CFR 47, Part 15,
Sections 15.107 and 15.109 (Class B)**

**IC Industry Canada Radio Standards Specifications
ICES-003 Issue 5, Sections 5(a)(i) and 5(b)(i) Class B (ITE)**

The RFID readers MRD (LEGIC & MIFARE) and HID iCLASS SE / Prox used in this product comply with the following standards

**FCC Code of Federal Regulations,
CFR 47, Part 15, Sections 15.207, 15.209, 15.215 15.225 and 15.247**

**IC Industry Canada Radio Standards Specifications
RSS-GEN Issue 4, Sections 3.2, 6.13, 8.8, 8.9, 8.10 and
RSS-210 Issue 8, Section A2.6 (Category I Equipment)**

RSS-210 Issue 9, Section 4.3, 4.4**RSS-102 Issue 5, Section A2.5****KDB 447498 D01 General RF Expose Guidance V06, Chapter 4.3.1****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.

Canada RSS-GEN

This device complies with ISED 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'ISED 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.

FCC- and IC-IDs

Module	Type Designation	FCC ID	IC
MRD reader	RM's LEGIC SM-6300	NVI-LEGBLE	11038A-LEGBLE
HID reader	RM's iCLASS SE/Prox	NVI-SE3200	11038A-SE3200
Mobile communication	UC20G (Quectel)	XMR201510UC20	10224A-201510UC20
WLAN	AIRETOS AEH-AR9462 (VoxMicro)	2AE3B-AEH-AR9462	20662-AEHAR9462

FCC statements:

This device complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 2 cm between the radiator & your body.

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.

NOTE:

The manufacturer is not responsible for any radio or TV interference caused by unauthorized modifications or changes to this equipment. Such modifications or changes could void the user's authority to operate the equipment.

Host labelling guidance:

This is an advise for host manufacture to provide a physical / e-label on their host product stating, "Contains FCC ID: XXXXXXXX", "Contains IC: XXXXXXXX" A permanently affixed label must be used. The modular transmitter must be labeled with its own FCC identification number, and, if the FCC identification number is not visible when the module is installed inside another device, then the outside of the device into which the module is installed must also display a label referring to the enclosed module. This exterior label can use wording such as the

following: "Contains Transmitter Module FCC ID: XXXXXXXX" or "Contains FCC ID: XXXXXXXX", "Contains IC: XXXXXXXX" . Any similar wording that expresses the same meaning may be used.

IC Radiation Exposure Statement:

This equipment complies with IC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 2 cm between the radiator & your body.

Déclaration d'exposition aux radiations:

Cet équipement est conforme aux limites d'exposition aux rayonnements IC établies pour un environnement non contrôlé. Cet équipement doit être installé et utilisé avec un minimum de 2 cm de distance entre la source de rayonnement et votre corps.

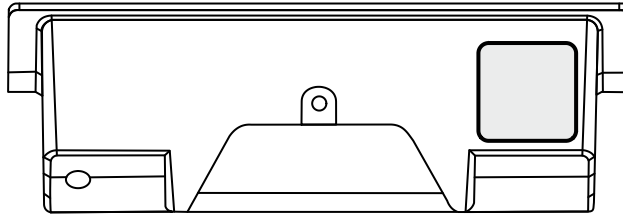
IC

This device complies with ISSED Canada license-exempt RSS standard(s). 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'ISED 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, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

3.4 Marking

The rating plate is located on the underside of the device.

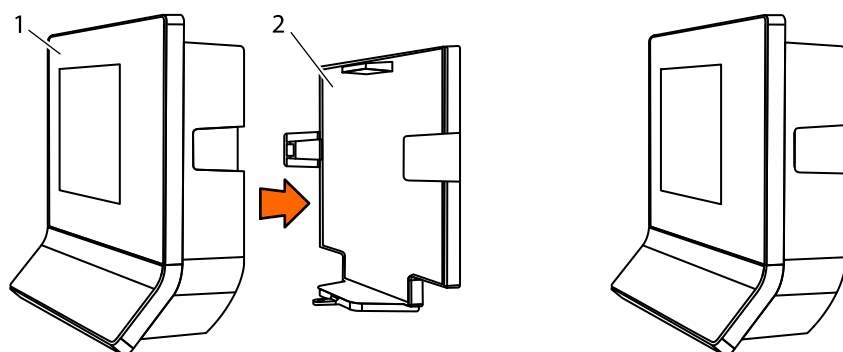


Information given on the rating plate:

- Designation of the device
- Item number
- Serial number
- Date of manufacture
- Connection data (supply voltage)
- CE marking
- WEEE marking according to DIN EN 50419

4 Construction and function

4.1 Device structure

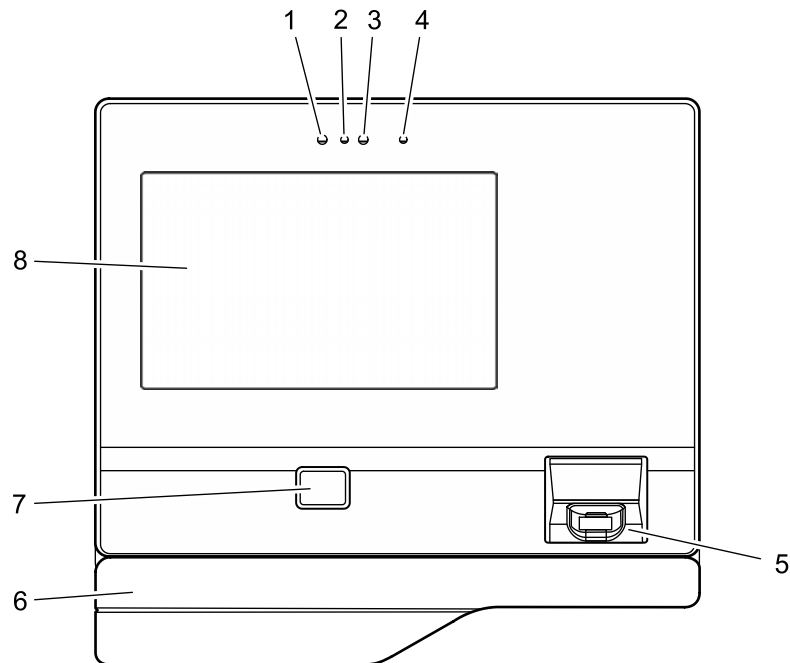


The device consists of the terminal housing (1) and the docking station (2).

The docking station is the wall mounting element of the device and, depending on the equipment, the docking station contains additional electronics.

4.1.1 Terminal housing - Front

The terminal housing is the core device. The terminal housing essentially contains the CPU, the TFT display with touch screen and up to two internal readers.

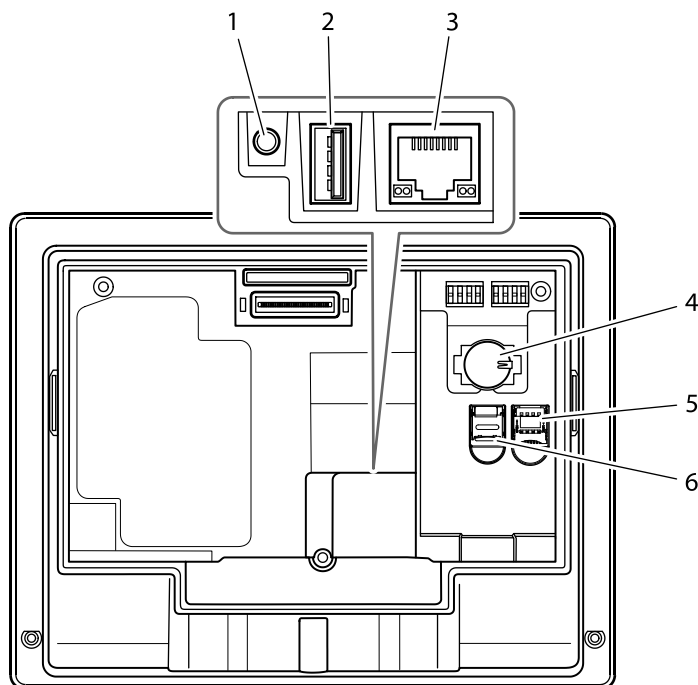


- 1 Integrated camera (option)
- 2 Camera flash (option)
- 3 Proximity sensor
- 4 Infrared LED for proximity sensor
- 5 Biometric reader (option)
- 6 Add on housing with alternative RFID reader or swipe reader (option)
- 7 RFID reader (option)
- 8 TFT LCD display with PCAP touch screen

4.1.2 Terminal housing - Rear side

After removing the terminal housing from the docking station, the terminal rear side becomes accessible.

The rear side of the terminal housing contains, among other things, the connection area and card slots.

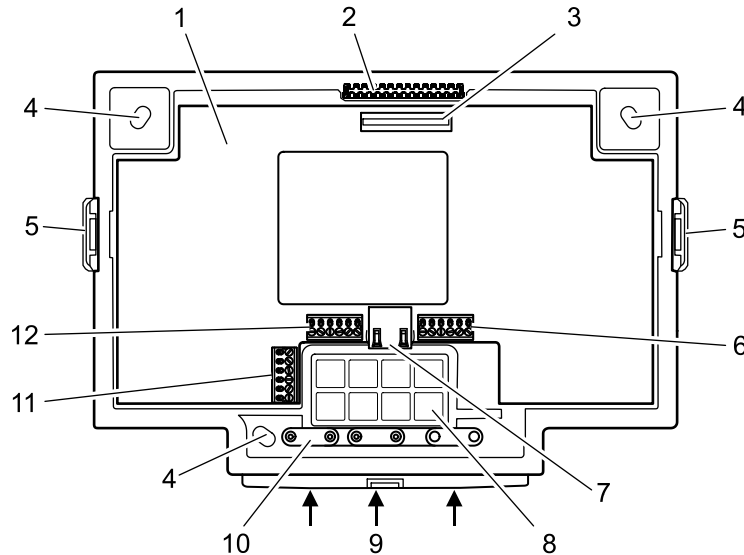


- 1 Audio line-out (3.5 mm jack)
- 2 USB port
- 3 Ethernet port (RJ45 socket)
- 4 CR2032 lithium battery for back-up of the RTC real-time clock
- 5 Card slot for a micro SIM card
- 6 Card slot for a microSD or microSDHC card

4.1.3 Docking station

The docking station is the wall mounting element of the device and is part of the standard equipment. The docking station is fastened to the wall. The terminal housing is placed on the docking station and secured.

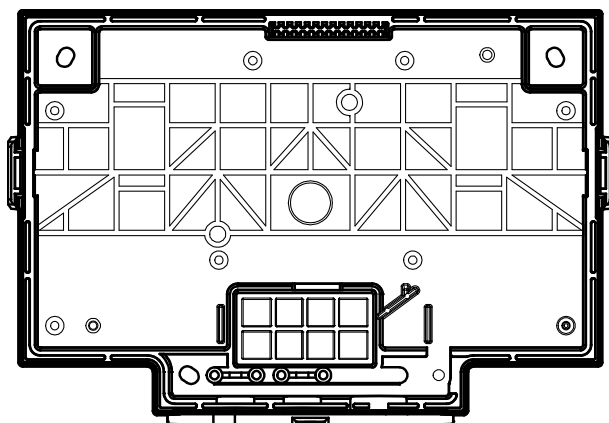
The docking station has cut-outs for entry of the installation cables. The installation cables can be entered from below and from the rear.



- 1 Motherboard (option)
- 2 Locking pin for the terminal housing
- 3 Motherboard/terminal housing contact
- 4 Long holes for wall mounting
- 5 Snap-in retaining tabs for the terminal housing
- 6 Connection terminal for the relay outputs
- 7 RJ45 connection for an external reader via RS-232
- 8 Cut-outs for cable entry from the rear
- 9 Cut-outs for cable entry from below
- 10 Cable clamps
- 11 Connection terminal for the additional interface (option)
- 12 Connection terminal for the inputs

4.1.3.1 Docking station without motherboard

In its basic equipment, the docking station does not include any electronics. In this case, the docking station serves as pure wall mounting element.



Communication takes place via the Ethernet network. The device is supplied with power via PoE (Power over Ethernet). This is why only the network cable has to be connected to the terminal housing.

The network cable can be introduced into the docking station from the rear or from below.

4.1.3.2 Docking station with motherboard

Optionally, the docking station is equipped with a motherboard.

The motherboard is available in 3 different versions. The differences refer to the design of the power supply. Otherwise, the motherboards are identical.

- BEX122 motherboard - no power supply (power supply via PoE just as docking station without motherboard)
- BEX121 motherboard - Power supply by 24 V DC
- BEX120 motherboard - Power supply by mains voltage

In general, the motherboard has the following hardware equipment:

RS-232C interface

The RS-232C interface can be used for connecting an external reader, for example a CCD bar-code scanner.

It is connected to the RJ45 socket of the motherboard.

Additional interface

The motherboard has a slot for an optional interface module. The BEX301 - RS-232C interface or BEX302 - RS-485 interface can be used.

The interface can be used for customized applications. The additional interface is without use in the standard equipment.

The interface signals are connected via a 6-pin terminal on the motherboard.

Outputs

The motherboard has 2 relay outputs with changeover contacts. The relays can be used, for example, for activating door openers or signal generators.

Inputs

The motherboard has 4 digital inputs. The inputs can be used for a door opener key, access control or a customized application.

Sabotage contact

Devices whose docking station is equipped with a motherboard are provided with a sabotage contact.

The sabotage contact is activated when the terminal housing is disconnected from the docking station plus motherboard.

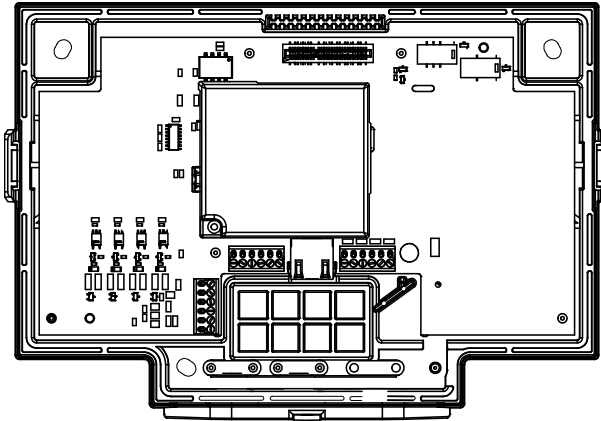
This causes the device to generate an appropriate alarm record. Prerequisite: Device supplied via PoE or via a UPS610. Not possible for devices supplied by the motherboard and not equipped with a UPS, since after removal of the terminal housing from the docking station the power supply is also disconnected.



Whether hardware options are supported, depends in part on the terminal software used and the acquired software options!

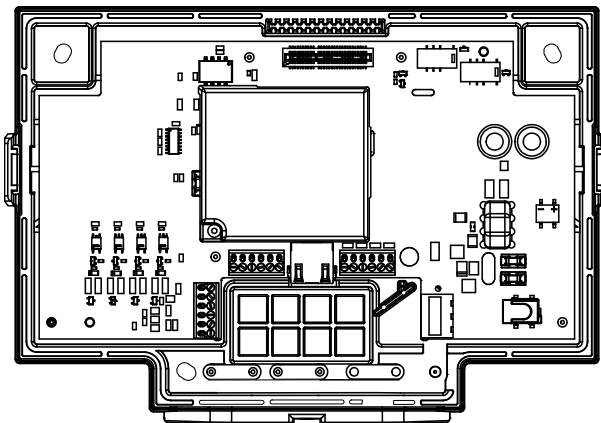
4.1.3.3 Docking station with BEX122 motherboard

The BEX122 motherboard is used in devices whose power supply takes place via PoE. The BEX122 motherboard is not equipped with an additional power supply unit nor with a power supply input.



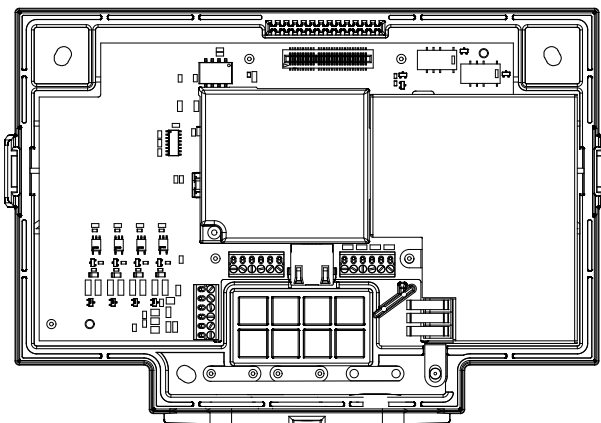
4.1.3.4 Docking station with BEX121 motherboard

For power supply of the device, the BEX121 motherboard has a 24 V DC input with over-voltage protection and transient filter. This motherboard is used when the device is supplied with 24 V DC.



4.1.3.5 Docking station with BEX120 motherboard

The BEX120 motherboard has a 100–240 V AC mains voltage input and an integrated limited power source power supply unit (LPS). This motherboard is used when the device is supplied with mains voltage.



4.1.3.6 Overview of the equipment

Features/Motherboard	none	BEX120	BEX121	BEX122
Power supply				
PoE	X			X
24 V DC			X	
100–240 V AC		X		
Interfaces				
RS-232C interface		X	X	X
Additional interface		X	X	X
Inputs/Outputs				
2 relay outputs		X	X	X
4 digital inputs		X	X	X

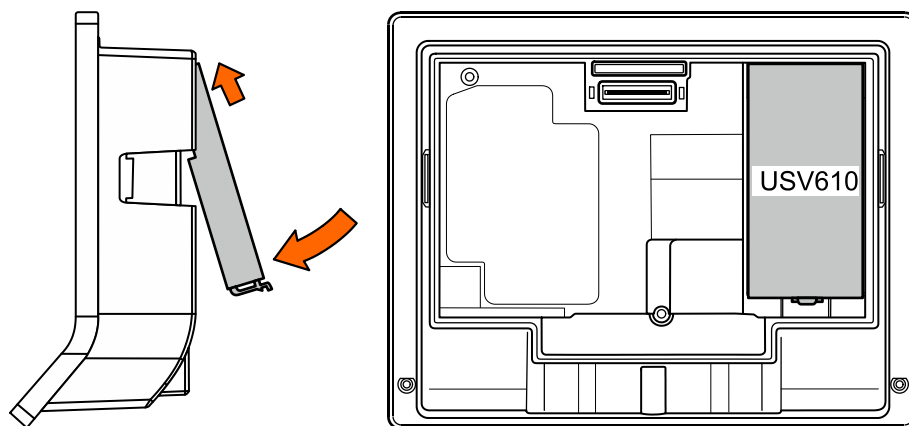
4.1.4 Interface assignment

COM port	Assignment
COM1	Internal reader (integrated into terminal housing)
COM2	Internal reader (integrated into terminal housing)
COM3	Additional interface (docking station motherboard)
COM4	RS-232 for external reader (docking station motherboard)

4.1.5 Uninterruptible power supply UPS610

The uninterruptible power supply UPS610 ensures operation in case of short-term power supply failure.

The UPS610 is snapped into place on the rear side of the terminal housing.



The UPS610 can be retrofitted or replaced at any time.

4.2 Product versions

4.2.1 Basic equipment

Terminal housing

- 7" WVGA display
- 7" touch screen
- Proximity sensor
- Ethernet 10/100/1000
- Power supply via PoE (Power over Ethernet)

Docking station

- Docking station as wall mounting element without electronics

4.2.2 Optional equipment (not retrofittable)

Multimedia

- Camera

Communication

- WLAN
- Mobile radio

Reader integrated into terminal housing

- RFID reader (MRD, HID, HITAG)
- Biometric fingerprint reader (CBM/CBM-E for 500, 3000 or 5000 persons)

Reader in add on housing

- Magnetic card reader
- Barcode swipe reader
- Other RFID readers

Higher protection class

- IP54 (only devices with RFID and CBM reader)

4.2.3 Optional equipment (retrofittable)

Protection in case of power supply failure

- Uninterruptible power supply UPS610

Docking station with motherboard

BEX120, BEX121 and BEX122 motherboards:

- RS-232C interface for connecting an external reader
- Adapter for additional interface
- 2 relay outputs
- 4 digital inputs

BEX121 motherboard:

- Power supply input for external 24 V DC

BEX120 motherboard:

- Power supply connection for mains voltage

4.2.4 Accessories

- Elastic protective frame
- Surface-mounted protective metal housing
- Flush-mounted housing

4.3 Terminal software

4.3.1 BaseApp

The BaseApp is the user interface of the android-based terminal. The BaseApp is part of the basic equipment and forms the platform for all applications (apps) used on the terminal.

The BaseApp essentially performs the following functions:

- Protection of the operating system from unauthorized access (system isolation). Only controlled access to the android operating system is possible.
- Organization and start-up of applications (apps).
- Provision of functions and interfaces for access to the hardware.
- Provision of service functions via a web interface (service interface) for commissioning and maintenance of the device.

4.3.2 Test program

The test program application (TP) has already been installed on the terminal ex works.

The test program app offers the following functions:

- Adjustment of various system settings locally to the device
- Retrieval of system information
- Testing of individual system components

4.3.3 B-Client HR30 terminal software

The B-Client HR30 terminal software allows the device to be used as time and attendance terminal.

The B-Client HR30 terminal software makes the device compatible in terms of data records with terminals of the B-web and B-net series, allowing it to be connected to the host system via the communication software B-COMM. Connecting it to HTTP/HTTPS-based applications, such as b-comm ERP5 or EACM, is also possible.

4.3.4 B-Client HR30 software options

The usable range of functions of the device is given by the options activated in the 'sop.ini' licence file by means of the corresponding licence key.

Some software options require an appropriate hardware equipment.

Upon purchasing an additional software option later on, the existing licence file must be replaced with the new extended licence file.

The **sop.ini** is located in the following directory
/data/data/com.kaba.apps.hr/files/init.

From the parameters, you can determine which functions are active.

The relevant parameters are located in the [BClientHR30] section.

Each parameter has the value true or false.

4.3.4.1 Licence for the B-Client HR30 terminal software.

Entry in the licence file:

```
[BClientHR30]  
BClientHR30Enabled=true
```

4.3.4.2 CardLink

Entry in the licence file:

```
CardLinkEnabled=true
```

Enables CardLink update and CardLink validation in conjunction with LEGIC or MIFARE media and an MRD reader.

4.3.4.3 Data encryption

Entry in the licence file:

```
EncryptionEnabled=true
```

Data encryption via Ethernet UDP in connection with the communication software B-COMM.

Data encryption via HTTPS with XML communication.

4.3.4.4 Door control

Entry in the licence file:

```
AccessControlEnabled=true
```

Hardware prerequisite: Docking station with motherboard

Enables:

- Use of 4 inputs for door surveillance and door opening.
- Use of 2 relay outputs for door opening or break signal control
- Check for time profiles:
- PIN check.
- Check for double access.
- Use of the function key F00

4.3.4.5 LocalEnrollment

Entry in the licence file:

```
LocalEnrollmentEnabled=true
```

Enables the registration of new fingerprints via the biometric reader locally at the terminal.

4.3.4.6 Starting native apps

Entry in the licence file:

```
NativeAppEnabled=true
```

Enables the start of native apps from B-Client HR30.

4.3.4.7 Partner application

Entry in the licence file:

```
PartnerinterfaceEnabled=true
```

Supports partner applications. Partner application is called from B-Client HR30 with data transfer.

4.3.4.8 Memory options

Entry in the licence file (possible values: 0, 1, 2, 3, 4):

BufferConfiguration=

The following overview shows the maximum possible number of data records in the respective memory option.

Record type/Option	0	1	2	3	4*	4
Master records	200	1,000	2,000	10,000	30,000	50,000
Registration records	10,000	10,000	10,000	10,000	30,000	50,000
Update records*	400	2,000	4,000	20,000	60,000	-
Validation records*	200	1,000	2,000	10,000	30,000	-

*in connection with CardLink

4.3.4.9 Browser start

Entry in the licence file:

BrowserEnabled=true

Enables the browser to be started from B-Client HR30. Transferred data can be displayed or web sites can be loaded.

4.3.4.10 Booking via Smartphone

Entry in the license file:

MobileAccessEnabled=true

Enables booking using a smartphone in combination with an MRD reader.

4.3.4.11 Replacement terminal

Entry in the licence file:

ReplacementEnabled=true

Identifies a replacement terminal.

In connection with the communication software B-COMM, the terminal can be easily and comfortably replaced with a device containing the same hardware when servicing is required. The licence file of the replaced device is automatically adapted during commissioning and installed in the replacement terminal.

4.4 System connection

This chapter describes the principle of host host connection and applies exclusively to devices with B-Client terminal software. For detailed descriptions, please refer to the reference manual of the terminal software.

4.4.1 Communication principle

Communication between the terminal 97 00 and a superior host computer takes place via an Ethernet network as standard.

Data exchange between the B-Client HR30 terminal software and the customer application takes place via a communication software. The communication software transmits the data records collected by the terminals to files or transmits them to the customer application via a defined interface.

4.4.2 Parametrization

The varied functions of the terminal depend in particular on the set parameters. Parametrization allows extensive adaptation to a wide range of applications. During parametrization the currently valid parameters are changed and stored in the memory of the terminal. The required parameters are provided by the customer application and transmitted to the terminal in the form of parameter records.

4.4.3 Authorizations

Information relevant to authorizations are provided by the customer application in the form of personnel master records.

All information relating to a certain badge number or group is stored in the master record. The master record contains information on authorizations, time profiles, person-related display texts and the PIN number.

Master records can be stored in the terminal. This allows the terminal itself to decide whether a booking is authorized. Whether a booking is authorized, can also be inquired by the host in the 'online' operating state. In this case, no master records are required in the terminal. Master records can be transmitted to the terminal at any time, resulting in the current master record being overwritten. Individual master records can be deleted by the host. Likewise, master records can be requested by the host.

The number of master records that can be loaded to the terminal depends on the device hardware and on the licensed memory configuration.

4.4.4 Data from the terminal

After a booking, the terminal generates a registration record. The registration records contains the information who has booked when at which terminal by pressing which function key.

At what time this registration record will be transmitted to the host computer, depends on the operating state of the terminal.

Certain states and events result in the generation of alarm records and status records.

4.4.5 Operating states

4.4.5.1 Online

After a booking, the terminal carries out the parametrized tests and enters the test result in the registration data record as error detection. The registration data record is transmitted to the host. Following this, the terminal expects a logical booking response from the host. Along with it, the host communicates to the terminal the decision whether or not the booking is authorized.

If the terminal does not receive a logical booking response from the host, it will switch to the offline operating state and decide itself based on the parametrized tests whether the booking is authorized. As soon as the host can be reached again, all data records saved in the meantime in offline will be transmitted to the host. Then the terminal automatically switches again to the online operating state.

4.4.5.2 Offline

After a booking, the terminal carries out the parametrized tests and decides immediately whether or not the booking was authorized by sending an internal booking response. Depending on the parametrization, registration records are stored in the terminal. As soon as the host can be reached, all data records saved since the last transmission will be transmitted to the host.

4.4.5.3 Autonomous

After a booking, the terminal carries out the parametrized tests and decides immediately whether or not the booking was authorized by sending an internal booking response. Depending on the parametrization, registration records of authorized and unauthorized bookings are stored in the terminal.

If the host can be reached, any error and alarm records that may be available will be transmitted to the host.

The saved registration data records are transmitted to the host on request together with a special data record.

4.4.6 Devices with biometric reader

Biometric software

When communicating via B-COMM, the program package B-COMM - Biometrics option is required for managing and distributing the finger templates.

Communication with the Finger Template Control Service (FTCS) of the biometrics software takes place via Ethernet/UDP and a separate channel.

When connected to HTTP/HTTPS-based applications, the distribution of the finger templates also takes place via the HTTP/HTTPS host channel.

Standalone mode

Alternatively, operation without a biometric host is also possible. In this 'Standalone mode', all fingerprints of persons must be registered by the reader of the terminal. In this case, the finger templates are only saved in the reader's internal database. If they get lost, all persons have to be registered again at the terminal.

This is why the Standalone mode without biometric software is only recommended for very small solutions (max. 20 persons).

4.5 Authentication types

Devices equipped with biometric reader can be operated in 5 authentication modes. Modes 2 to 5 require an additional RFID reader.

4.5.1 Mode 1: Identification

Mode 1 is the typical biometric identification

The biometric features of all persons authorized to book are registered by an enrollment station and distributed to the individual readers.

During a booking the fingerprint of the person is registered. The biometric features are compared to the data records. If a matching reference data record is found, the person has been identified. The associated ID is sent in the registration data record to the superior access control manager.

4.5.2 Mode 2: Verification

Mode 2 is a verification based on time profiles. The person's biometric data is stored on the RFID badge, which is used for verification.

First, a person books using the RFID badge. The ID segment and the biometric segment are read. The master record and biometric time profile check shows whether a biometric verification is required.

If a verification is required, the biometric reader is activated. This is the request for the person to put on the finger. The registered biometric features are now compared to the data saved in the biometric segment. If the features of the fingerprint are identical, the booking is valid.

4.5.3 Mode 3: Verification (ID)

Mode 3 is a verification based on time profiles of two identification features. The ID of the RFID badge is compared to the ID of biometric identification.

First, a person books using the RFID badge. The ID segment is read.

The master record and biometric time profile check shows whether an additional biometric identification is carried out.

If a biometric identification is required, the biometric reader is activated. This is the request for the person to put on the finger. The biometric features are compared to the data records of the reader's internal database. If the matching reference data record is found, the two IDs are compared. If the IDs are identical, the booking is valid.

4.5.4 Mode 4: Combination of modes 1 and 2

Mode 4 allows parallel use of biometric identification and biometric verification based on time profiles. A maximum of 5000 persons can be authenticated per identification. If this capacity is insufficient, further persons can be authenticated by verification.

4.5.5 Mode 5: Combination of modes 2 and 3

Mode 5 allows parallel use of verification based on time profiles and verification (ID). This allows parallel operation of RFID badges with and without biometric segment.

4.5.6 Alternative types of authentication

For people with less defined biometric characteristics an alternative way of authentication can be enabled. This is made possible by storing a biometric identification in the personnel master record, see reference manual of the terminal software.

The following options are possible instead of biometric identification:

- Entry of the ID on the keypad (only mode 1)
- Entry of the ID via the RFID badge

4.5.7 Additional PIN entry

A PIN entry via the keypad can be requested via the time profile for all types of authentication (see reference manual of the B-Client terminal software).



In order to increase security, an additional PIN should be requested, following the alternative entry of the ID number.

4.6 CardLink

Principle

Mechatronic CardLink components, i.e. passage ways without connection to a physical network, are generated and configured together with the online components in a central system. All authorizations can be managed and assigned in a common access profile.

The access rights are stored on the user medium.

Each user medium must be validated at regular intervals at an online reader. If certain conditions (entry-access authorization, participation in CardLink) are met, a type of validity stamp is written onto the medium. Access is only granted on the CardLink component (4) if the corresponding entry-access authorizations are available and the validation is correct. Thanks to this mechanism, a user medium registered as lost is either actively locked (withdrawal of the validation) or loses its authorization automatically after validation expires.

Commissioning of the CardLink components

CardLink components can be digital locking cylinders (actuators), cabinet locks, registration units/readers/terminals, etc.

The Kaba programmer is the link between the system and the standalone component.

The Kaba programmer is used to transmit all basic parametrizations manually to the CardLink components: Generally, the following initialization data are transferred to the CardLink component: Management area number, door number, time zones, validity period of the validation and component name.

Writing authorization profiles to a badge for the first time

With the help of the software, the authorization profiles for employees, visitors, outside companies, etc. are defined and written once to a segment of the badge, for example using an authorization reader.

Validation function

During validation a new 'time stamp' is stored on the badge, while the authorization profiles remain unchanged. Within the time stamp, the badge user can enter certain areas and pass through doors in accordance with his authorization profiles. The 'time stamp' can be written on the badge using an authorization reader or a CardLink-capable terminal. After the time window has expired, the authorization becomes void.



A Bluetooth booking via smartphone at activated CardLink validation results in a reading error.

Update function

An update is carried out whenever authorization profiles on a badge undergo changes. This is the case, for example, when an employee changes in-house to a new area of responsibility and therefore receives other authorizations for doors, rooms, etc. Upon holding her badge in front of the time and attendance terminal and pressing the update key, the new authorization profiles will be written to the badge. The employee can now move freely in the building inside the enabled areas and within the stored time zones.

Media

The following badge technologies are supported:

CardLink Version 1.0	LEGIC prime
CardLink Version 1.1	LEGIC advant, MIFARE Classic and MIFARE DESFire

4.7 Booking via Smartphone

With optional equipment [▶ 4.3.4.10](#), the product enables bookings to be made using a smartphone. The communication for identification, e.g. for an IN or OUT booking, takes place between smartphone and terminal.

The smartphone can also be used to access secured buildings, rooms and areas (Mobile Access). For this, however, the following additional optional equipment of the terminal is required:

- Software option door control [▶ 4.3.4.4](#)
- Docking station mit motherboard [▶ 4.1.3.2](#)

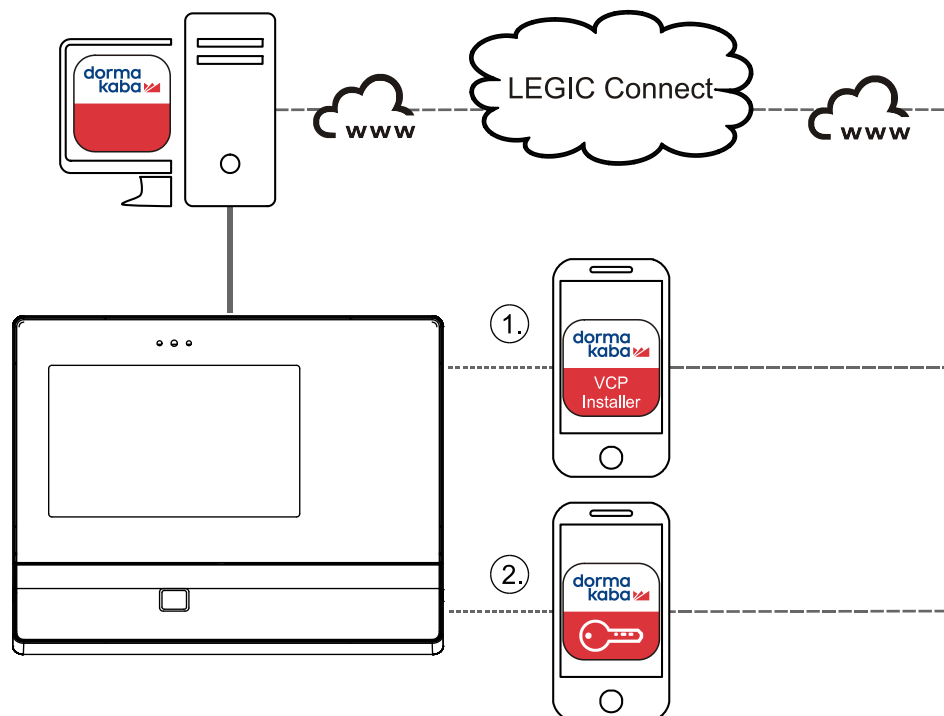
Note: The 'CardLink' function is not supported.

Principle

Authorization-relevant information is distributed to smartphones via the LEGIC Connect software service.

The data is transmitted end-to-end encrypted. The communication between parent system and LEGIC Connect is encrypted (https). LEGIC Connect encrypts authorization relevant information before distribution to smartphones. The smartphone cannot decode this information.

In order to decrypt the authorisation-relevant information in the terminal, LEGIC Connect is used for initialisation. The app 'VCP Installer' distributes the necessary key and configuration information to the terminal (1).



The user needs a smartphone with the dormakaba mobile access app (2) and a connection to the internet (WLAN or mobile data) to transfer authorization relevant information to the smartphone. The transmission of an ID (static credential) is supported. This corresponds to the media number in the RFID environment.

To make a booking, the app must be started and then the key symbol must be touched. Once the booking has been made, the user receives a corresponding response on the smartphone and on the terminal.

Smartphone requirements

For communication between smartphone and terminal, the terminal supports the technologies 'NFC' and 'Bluetooth Low Energy'.

The following overview shows the availability of the apps for different operating systems with the possible technologies.

App	Operating system	NFC	Bluetooth
dormakaba mobile access Execution of bookings	Android from version 6.0	●	●*
	iOS from version 11.0	–	●
VCP Installer Initialization of the terminal	Android from version 6.0	●	●*
	iOS from version 11.0	–	●

* The Smartphone must support the 'BLE Peripheral Mode'

Note on commissioning

The function is configured via the system files mobileact.ini and mobiledef.ini. See the reference manual of the B-Client device software.

5 Installation

5.1 Installation requirements

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 product is designed for the stationary use in buildings. The product is not suitable for the use in vehicles.

This equipment is not suitable for use in locations where children are likely to be present.

Distances

RFID fields which are close together can influence one another, thereby reducing the reading and writing distances. An all-round clearance of 20 cm must be maintained between two devices with RFID readers.

In Mobile Access systems, minimum distances between readers and other Mobile Access components must be observed in order to avoid overlapping the Bluetooth coverage. Details can be found in the Mobile Access Planning Guideline (04046728).

Mounting height

Recommended mounting height 140 cm to the top edge of the terminal.

The mounted height for the terminal should not be higher than 2 meters.

Electromagnetic fields

Do not install the device in the vicinity of strong electromagnetic fields caused, for example, by switched-mode power supplies, electric power lines, phase control etc. Electromagnetic fields can adversely affect read performance or cause malfunctions, especially in the case of contactless RFID readers.

Electromagnetic fields may impair the touch screen functions.

Sun irradiation

Direct sun irradiation leads to reflections within the display area (resulting in poor readability of the display.)

Direct sun irradiation may impair the function of the biometric reader.

Direct sun irradiation may impair the function of the proximity sensors.

Avoid installation at places with direct sun irradiation.

5.1.3 Connections

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

- Power supply for the terminal
- Ethernet network (in case of host communication via Ethernet)
- Signal lines to inputs/outputs (optional).

5.1.4 Power supply

5.1.4.1 PoE power supply

For PoE power supply [▶ 3.2.7](#), a PSE (Power Sourcing Equipment) must be provided on the network cable for power feeding.

Possible methods for feeding the power supply via the PSE:

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

5.1.4.2 24 V DC power supply

Devices with docking station equipped with BEX121 motherboard. It has a 24 V DC input with overvoltage protection and transient filter for supplying power to the terminal.



Only power supply units that fulfil the following requirements may be used for power supply: LPS (Limited Power Source) and SELV (Safety Extra Low Voltage) in accordance with IEC/EN/UL/CSA 60950-1 or ES1 and PS2 in accordance with IEC/EN/UL/CSA 62368-1.

5.1.4.3 Mains voltage supply

Only devices with docking station equipped with BEX120 motherboard. It has a 100-240 V AC mains voltage input and an integrated limited power source power supply unit (LPS).

The mains voltage supply can be designed as stationary wiring or as separable connection. For the terminal, a separate fuse-protected circuit must be provided. If the mains voltage supply is designed as a separable connection, the following applies:

- The mains socket with grounded contact must be in the immediate vicinity of the device.
- The mains plug must be freely accessible.

If the mains voltage supply is designed as stationary wiring, the following applies:

- An easily accessible circuit breaker must be provided.
- The circuit breaker (LS) must be designed for max. 10 A.
- The electrical system of the building must be equipped with an all-pole supply circuit switch.

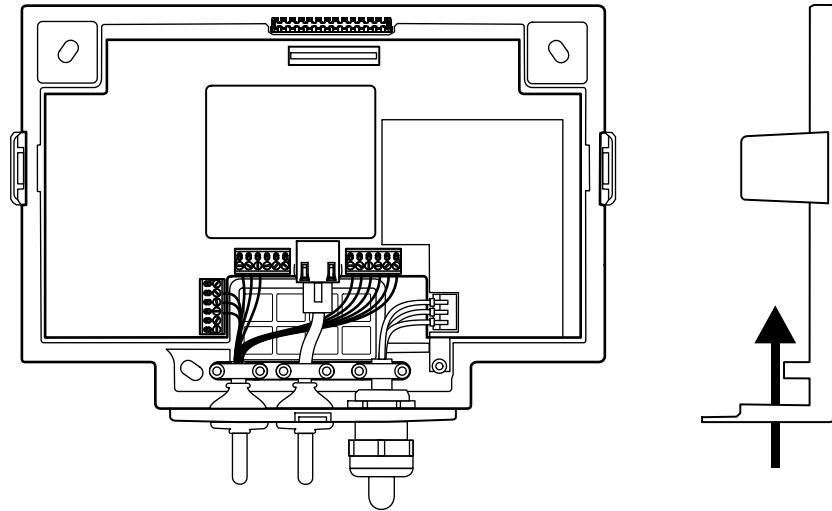
5.1.5 Cable entry

The installation cables can be inserted into the device housing from below or from behind. Cut-outs for inserting the installation cables are available in the docking station.

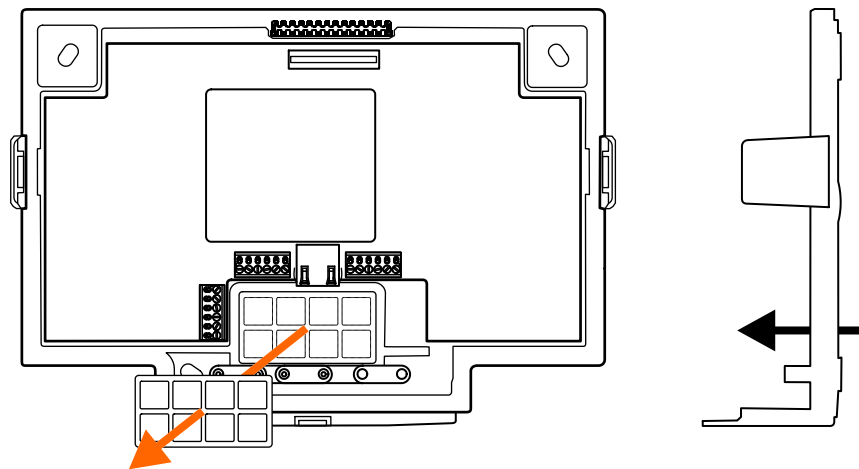


The ingress protection to IEC 60529 specified in the technical data is only guaranteed if the cable is introduced from below by means of the delivered cable grommets or cable glands.

Cable entry from below



Cable entry from the rear



If the cable entry is made from the rear side of the device, the mounting position of the terminal must be defined at an early stage and discussed with the cable installer.

5.2 Installation lines

5.2.1 24 V DC power supply

A 3-wire cable is required for supplying power to the terminal (+24 V/0 V/ground wire).



The housing of the terminal must be connected to earth. Therefore, the ground wire must be carried from the power supply to the terminal.

The terminal is designed for the following max. wire sizes:

Diameter (Ø): 2.7 mm

Cross-section: 2.5 mm²

AWG number: 12



In case of long lines, the voltage drop due to line resistance will have to be taken into account.

5.2.2 Mains voltage supply

A 3-wire cable is required for the mains voltage supply (phase/zero/protective conductor). The terminal is designed for the following max. wire sizes:

Diameter (Ø): 2.7 mm

Cross-section: 2.5 mm²

AWG number: 12

5.2.3 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.

5.2.4 Inputs/Outputs

The terminals for the signal lines are designed for the following max. wire sizes:

Diameter (Ø): 0.3 – 1.4 mm

Cross-section: 0.08 – 1 mm²

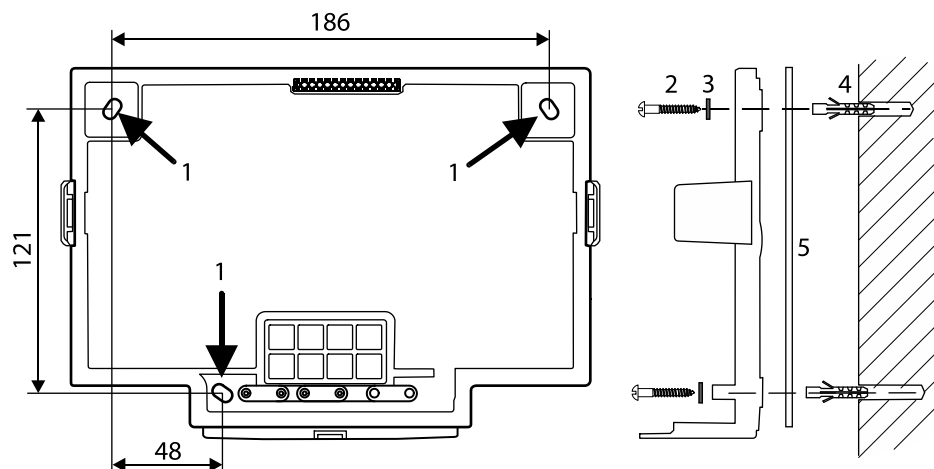
AWG number: 28 - 16

Recommended cable:

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

5.3 Fastening the docking station

First make the required cut-outs for introducing the installation line(s). Introduce the installation lines from below or from the rear.



Fastening the docking station, dimensions in mm.

The docking station is mounted directly to the wall using screws/dowels. There are three oval fastening holes (1) in the docking station for fastening.

Fastening material (included in the delivery):

- 3 wood screws Ø 4.5 x 35 (2)
- 3 washers (3)
- 3 dowels 6 mm (4)

The washers (3) cover the fastening hole (1) completely after tightening the screw. 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).



If the mounting surface is not even, we recommend using the mounting plate (5). It is placed between the wall and the docking station. The relatively rigid mounting plate avoids mechanical distortion of the docking station.

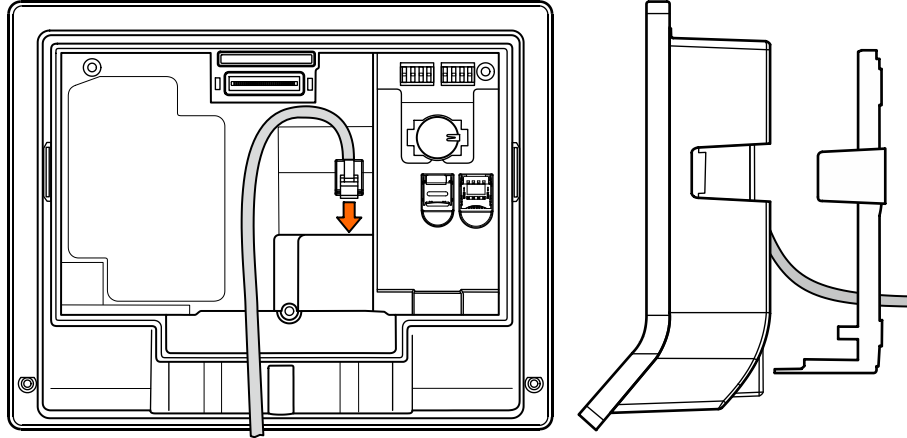
The mounting plate is available as accessory under the order number 04043450.

5.4 Connections



Establish connections in de-energized state only!

5.4.1 Connecting the network cable



The Ethernet connection (RJ45 socket) is located on the rear of the terminal housing.

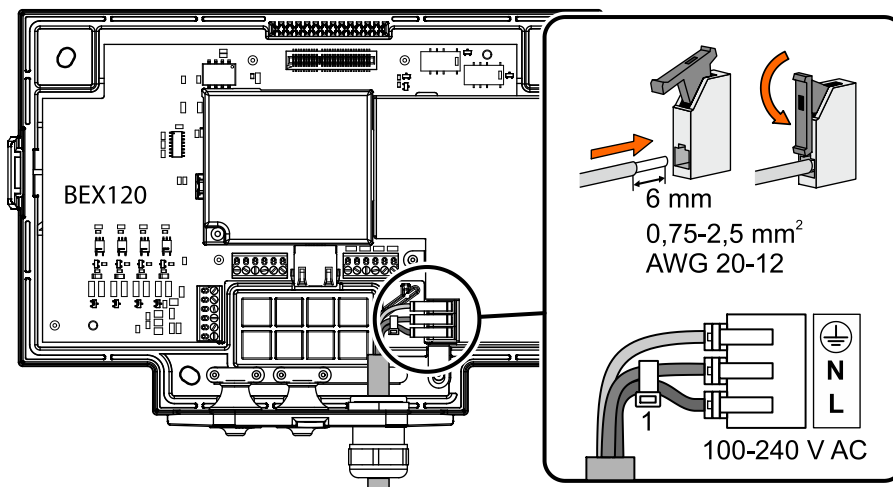
The network cable should protrude approx. 15 to max. 18 cm from the wall so that the distance between docking station and terminal housing is enough to easily plug in the network connector.

The network cable is then stored in a loop in the pocket on the rear of the terminal housing.

5.4.2 Connecting the mains voltage

Only devices with BEX120 motherboard!

- ✓ Installations at the mains voltage may only be executed by a trained electrical specialist.
 - ✓ The mains line is de-energized.
1. Connect the mains line to the terminal.
 2. Secure the N and L wires with a cable binder (1).

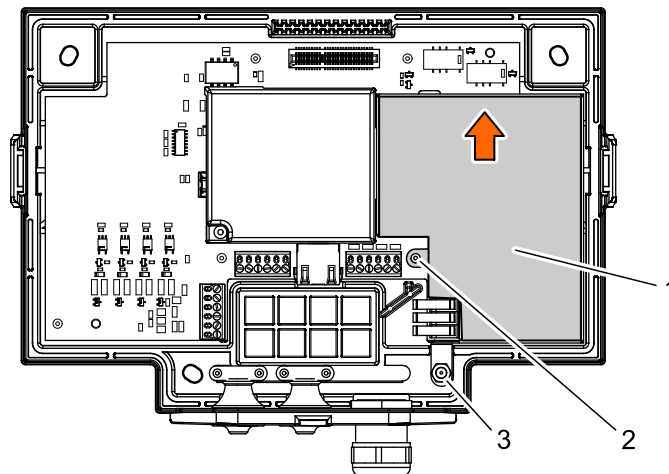


5.4.3 Mains fuses

Only devices with BEX120 motherboard!

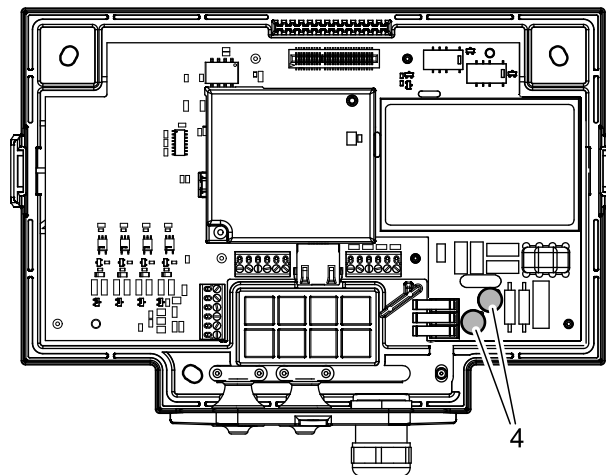
The mains fuses are located under the sheet metal cover (1). Remove the cover in the following way:

- ✓ The mains power supply is off.
- 1. Unscrew the screw (2), TORX T10.
- 2. Unscrew the M4 nut (3) using a wrench with size 7.
- 3. Push the sheet metal cover (1) slightly upwards (unhinge it) and remove it



The mains voltage is secured with fuses on 2 poles.

The fuses (4) are of the plug-in type and can be easily replaced.



4 = 2x subminiature fuse (radial) T 1.0 A/250 V, order number 04037221



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

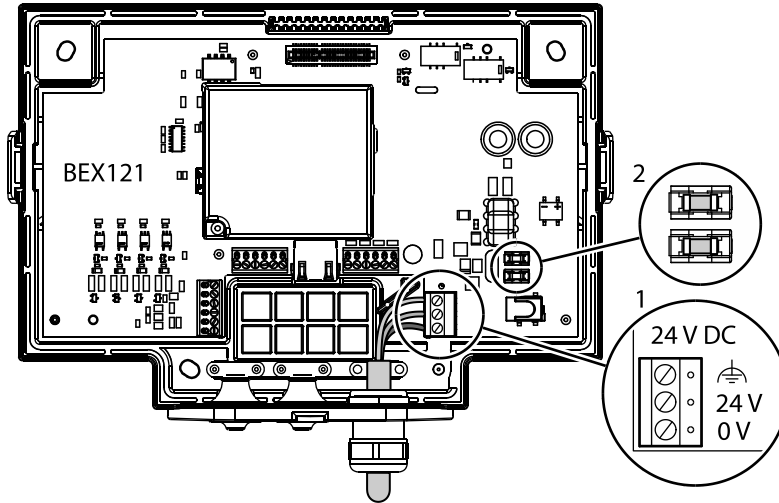
5.4.4 Connecting 24 V DC power supply

Only devices with BEX121 motherboard!



For the power supply of the device, use only power supply units that fulfil the requirements to EN 60950-1:2006 as limited power source.

Connect the 24 V DC power supply and the ground wire to the terminal (1).



Fuses for the 24 V DC power supply

The 24 V DC power supply is secured with fuses on 2 poles. The fuses (2) are of the plug-in type and can be easily replaced.

2 = SMD fuse T 1.0 A/125 V, order number 04036925



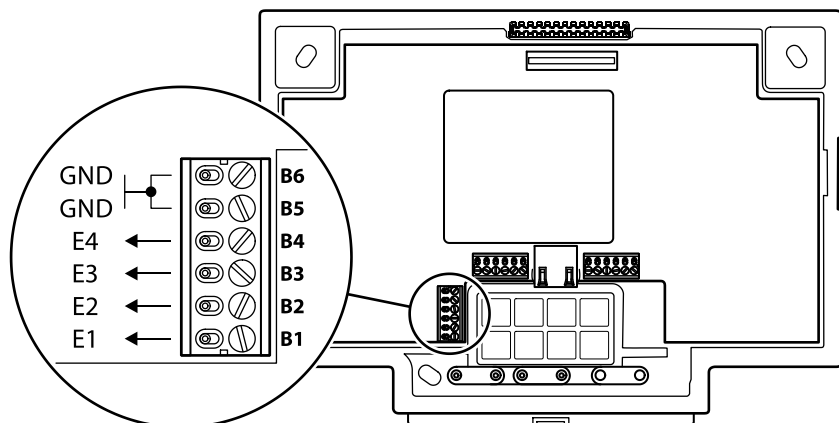
The fuses may only be replaced with fuses of the same type.

5.4.5 Digital inputs

Only devices with optional motherboard and B-Client HR30 'Door control' software option.

4 digital inputs are available. The inputs can be used for a door opener key, access control or a customized application.

Assignment of inputs E1 to E4 depends on the configuration.



The inputs can be controlled by a simple switch or a relay contact. The corresponding input is connected to common ground. An open input is recognized as 'high' due to the internal pull-up resistor. Ground potential equals 'low'.

Level

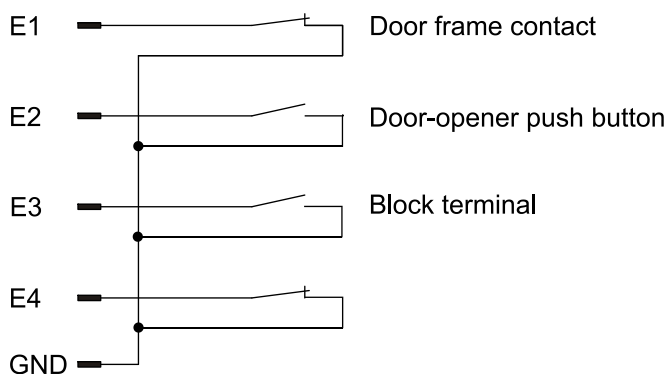
High = + 4.5 V to + 30 V or open

Low = - 30 V to + 1.5 V

Assignment/switching conditions (B-Client HR30)

Input	Function	Open/High	Ground/Low
E1	Door frame contact	Door open	Idle state
E2	Door-opener push button	Idle state	Door opens (relay 2)
E3	Block terminal	Idle state	Terminal blocks
E4	-	-	-

Principle



5.4.6 Relay outputs

Only devices with optional motherboard and B-Client HR30 'Door control' software option.

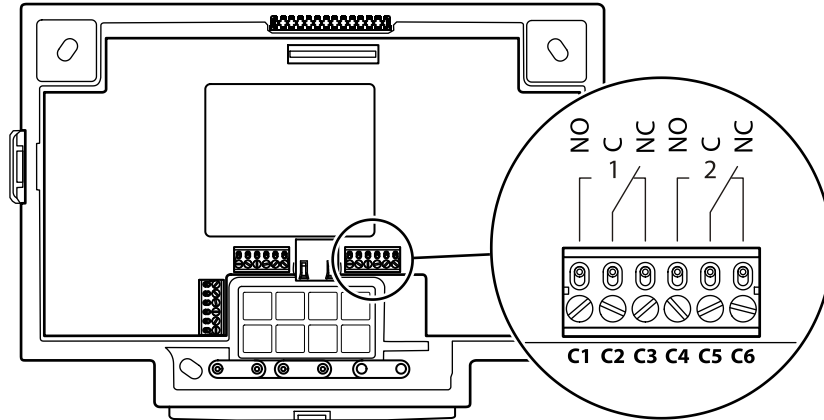
Two potential-free relay outputs with one change-over contact each are available.



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



The function and assignment of relays 1 + 2 depend on the settings of the terminal software.



For inductive loads that are supplied with direct current, the included diode (a freewheeling diode) must be connected parallel to the load to suppress interference. Make sure that the diode is connected in reverse-bias direction. When using an AC voltage power supply, the included varistor type S10K30 must be connected in parallel.

The diode or varistor must be connected directly to the load and must **not** be fitted in the terminal.

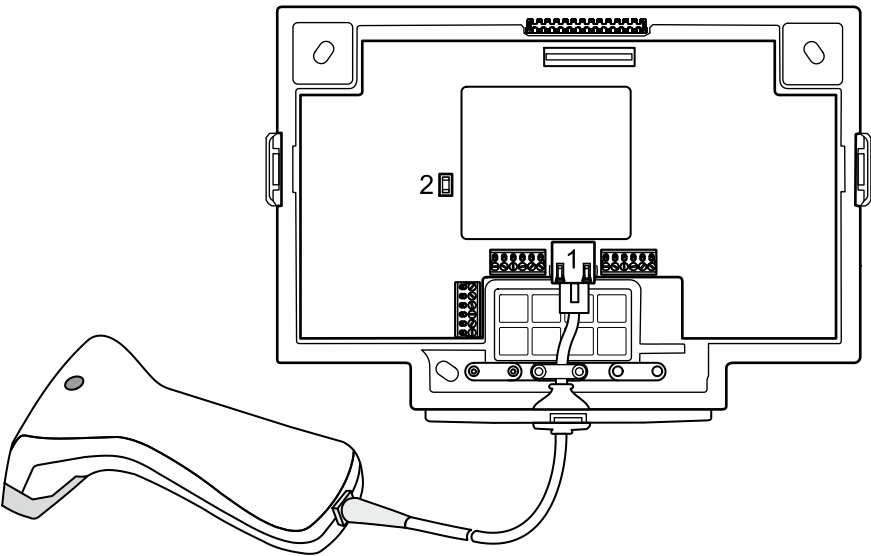
5.4.7 Connecting an external reader

Only devices with optional motherboard!

An additional external reader, for example a CCD barcode scanner, can be connected to the device.

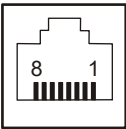
The reader can be connected to the COM4 port of the device. Further hardware and software options are not required.

To ensure correct function, the reader must be configured and activated via the Service interface [▶ 6.5] or the Test program [▶ 6.4.2].



- 1 RJ45 connection for reader with RS-232C levels.
The barcode scanners provided by dormakaba as accessories work with RS-232C levels.
- 2 Fuse for the power supply of the external reader,
SMD fuse T 375 mA, order number 04107874

Assignment of the RJ45 socket (1)



1	5 V DC; max. 300 mA	5	TxD (of the reader)
2	-	6	-
3	GND	7	-
4	-	8	-

Hardware handshake is not supported, no transmission delay for scanner data, communication parameters: 9600, 8, N, 1 (can be set).

Power supply for the reader

The power supply of the external reader can take place via the 5 V DC of the RJ45 socket. The maximum allowed current is 300 mA.

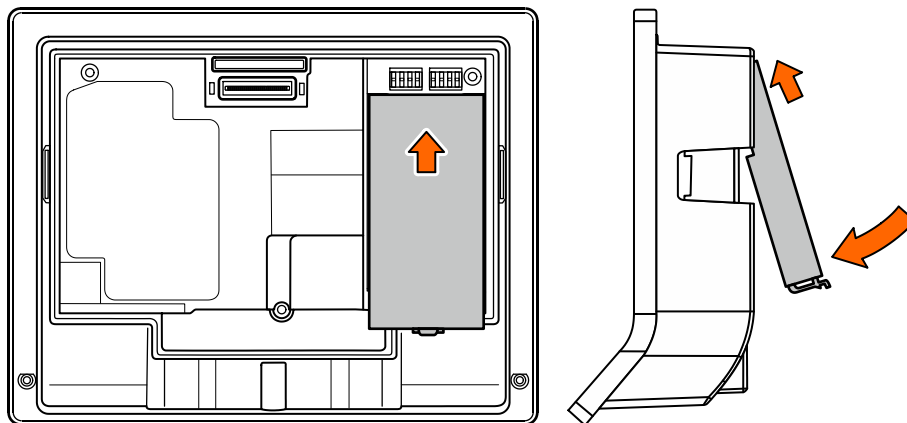
5.5 Uninterruptible power supply UPS610

The device may optionally be equipped with the uninterruptible power supply UPS610. The UPS610 is snapped into place on the rear side of the terminal housing. The UPS610 can be refitted at any time.

Inserting UPS610

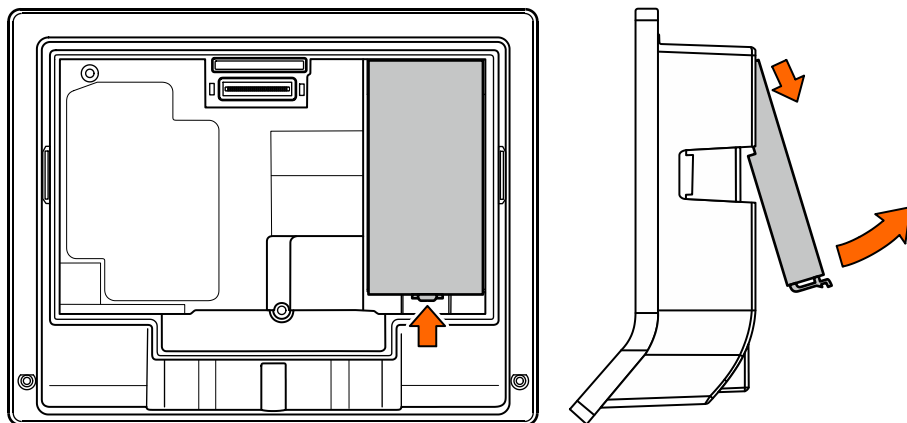
To hold the UPS610, a recess is located on the rear of the terminal. The contact is located in the upper part.

1. Slide the UPS610 with the contact on the underside forward into the recess as far as it will go.
2. Press the lower part of the UPS610 against the terminal until the holder locks into place.



Removing UPS610

1. Unlock UPS610 by pressing the detent lever towards the UPS.
2. Extract the lower part of the UPS610 and then pull it downwards and remove it.



5.6 Fasten the terminal housing to the docking station.



NOTICE

For safety reasons (device safety and personal protection), the electronic components and connections in the docking station may not be openly accessible.

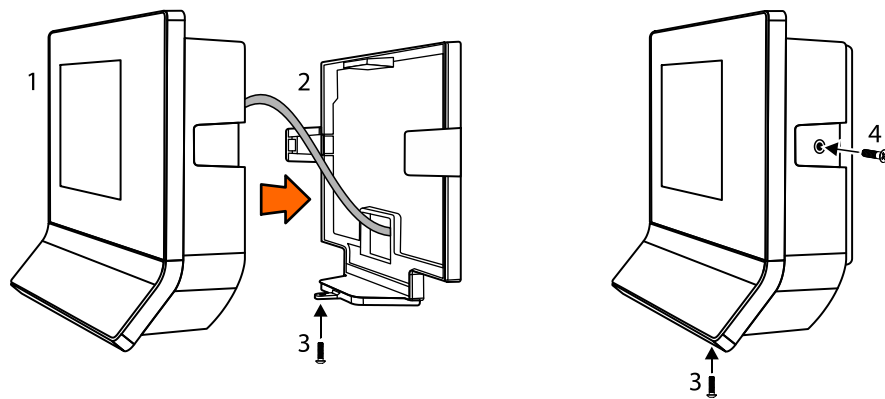
Therefore, the terminal must be installed directly after the docking station if you use devices with optional motherboard in the docking station.



For devices with docking station without motherboard (PoE), the terminal housing may also be installed later on.

Fasten the terminal housing (1) as follows to the docking station (2):

1. Plug the network cable into the RJ45 socket on the rear of the terminal housing and lay the cable in a loop in the pocket on the rear of the terminal housing.
2. Push the terminal housing (1) into the docking station (2) until the lateral tabs (3) lock into place. Make sure that the terminal housing does not get jammed!
3. Secure the terminal housing on the docking station with the safety screw M4x10 TORX-TR (3). This requires a TORX® T20H screwdriver with a bore in the tip for TORX® screws with locking pin.



Only devices with optional 'screw-in wall-mounted version' and higher protection class IP54.

1. Screw countersunk screws (4) into the tabs. This requires a TORX® T8 screwdriver.

6 Commissioning

6.1 Network requirements

Start-up and communication in regular operation are done via an Ethernet network.

To guarantee unhindered and trouble-free data traffic, the ports used for communication must have been enabled.

The firewall configuration must therefore be adapted accordingly.

6.1.1 Communication

The UDP port used for communication between B-COMM and the terminal must have been enabled.

The UDP port is in the range from 7700 hex. to 77EF hex. (30464 dec. to 30703 dec.), depending on configuration.

6.1.2 Comparing finger templates

Devices equipped with a biometric CBM reader require another UDP port for exchanging biometric data.

The UDP port used for the FTCS or BCFTC stream must have been enabled.

The UDP port is in the range from 7800 hex. to 78EF hex. (30720 dec. to 30959 dec.), depending on configuration.

6.1.3 Automatic registration via B-COMM

The network must have been equipped with a working DHCP server.

It must be possible to transfer UDP data packages unhindered to the B-COMM server.

- IP address 239.255.255.250, UDP port 1900 dec. and UDP port 7900 (30976 dec.) must have been enabled.
- The SSDP service has to be enabled in the Windows service management.
- The SFTP connection via the standard port 22 must have been enabled.

6.2 Automatic registration via B-COMM

Start-up of the terminal takes place largely automatically in connection with the communication software B-COMM.



The device is preset at the factory for automatic registration via B-COMM.

For communication via WLAN, the connection must have been previously set up and activated. This is done via the system settings.

System requirements

- B-COMM communication software version 3.17.1 and higher.
- Network with a working DHCP server.

Start-up procedure

1. Connect the power supply for the device.
 - ⇒ After booting, the device cyclically reports to the B-COMMs active in the network.
 - ⇒ At this point, until start-up by a B-COMM is complete, the message **'Waiting for registration'** is displayed on the display.
 - ⇒ Once the device is detected by B-COMM, the relevant data that identifies the device will be queried.
 - ⇒ If the device is not known, it will be entered in B-COMM under the B-COMM Terminal Discovery client under BCTDS (Terminal Discovery Stream).
2. Add device in B-COMM to the desired communication channel.
3. Provide device with the appropriate communication parameters.
 - ⇒ After having assigned the device permanently to B-COMM, B-COMM first updates the settings of the device and then makes a backup of the settings together with the 'sop.ini' licence file.
 - ⇒ The device now reports to the B-COMMs active in the network that registration has been carried out, after which the device will be removed again from the BCTDS stream by the other B-COMMS.
4. Load specific parameters and master records to the device.
 - ⇒ The terminal software is restarted automatically. After that, the device is ready-to-operate.

6.2.1 Cancelling automatic registration

Automatic registration via B-COMM can be cancelled, in order to perform settings, for example, manually.

- ✓ The device is waiting for registration by B-COMM. The message **'Waiting for registration'** is shown on the display.
1. Touch the Back icon ◀ in the navigation bar.
 2. Confirm cancellation.
- ⇒ Cancellation takes place after no more than 10 seconds, followed by starting the terminal software.



The device can be reset to the registration mode via the Service Interface.

6.3 Manual settings

Configuration and parameter setting of the terminal are done largely via the B-COMM communication software.

Manual settings can be made locally on the device or from a remote location.

Settings locally on the device:

- Settings via the Service interface [\[▶ 6.5\]](#)
- Settings via the Test program [\[▶ 6.4\]](#)
- Android system settings [\[▶ 6.6\]](#)

Options for making settings from a remote location:

- Remote setup [\[▶ 6.9\]](#)
- Service Interface [\[▶ 6.5\]](#)

Network settings

To change network settings, for example assignment of a fixed terminal IP address, the following options are available:

- Locally on the device via Android system settings
- Locally on the device via Service interface [\[▶ 6.5\]](#)
- Remote via the Service interface [\[▶ 6.5\]](#)

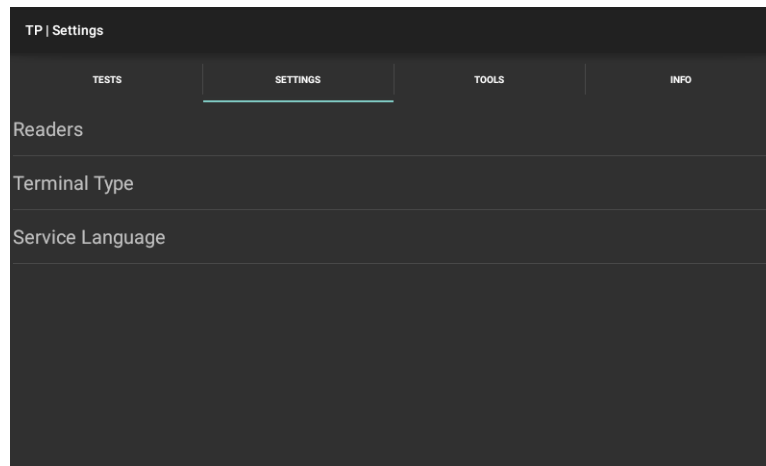
Condition: The device must already have an IP address, which must be known.

6.4 Settings via the test program

The test program is in general installed on the device. Apart from various test and info functions, the test program also offers the option to make system-specific settings, such as the configuration of the readers.

Loading the settings of the test program

- ✓ The start screen of the Base App [\[► 7.10\]](#) is displayed.
- 1. Touch the icon designated 'TP'.
 - ⇒ The test program is started.
- 2. Select 'Settings'.
 - ⇒ The settings of the test program are displayed.



6.4.1 Service language

This function allows you to select the language for service texts and the test program.

6.4.2 Reader settings

Configuration of the internally and externally connected readers.



These reader settings correspond to the device configuration at the time of delivery. The function is usually only required if an external reader is connected at a later stage or if LEGIC is switched over to MIFARE in connection with an MRD reader.

6.4.2.1 Reader type

Depending on the device, up to three readers can be configured. The reader type connected to the respective interface is set under 'Type'. If no reader is available, 'NONE' must be set as reader type.

Type	Supported readers
NONE	No reader connected
LEGIC	MRD reader in LEGIC mode
MIFARE	MRD reader in MIFARE mode
BIOMETRIC_CBM	Biometric CBM reader
HID_ICLASS_SE_PROX	HID iCLASS SE / prox reader
BARCODE	Barcode, CCD barcode scanner
MAGNETIC	Magnetic swipe, Baltech MIFARE, Hitag
SPECIAL2	Reader with serial FLI2/FLI3/FLI4
SPECIAL	Reader with serial FLI
TRANSPARENT	Special applications
LEGIC_4200 (deprecated)	MRD reader in LEGIC mode (see note below)
MIFARE_4200 (deprecated)	MRD reader in MIFARE mode (see note below)

Devices with MRD reader (multi-reader device)

Devices with MRD reader support LEGIC or MIFARE media, depending on the reader type set.

For LEGIC media, the 'LEGIC' reader type has been factory-preset.

For processing MIFARE media, the reader type must be changed to 'MIFARE'.

LEGIC media are configured via the files 'mediaact.ini' and 'mediadef.ini'.

MIFARE media are configured via the 'system.ini' file.

When using older B-COMM versions < 4.1.0, the reader types LEGIC_4200 (deprecated) or MIFARE_4200 (deprecated) must be used.

6.4.2.2 Interface

To set the interface the reader is connected to.

The device supports up to three readers. Depending on options, the reader assignment of the COM ports is as follows:

First internal reader	Second internal reader	External reader
COM2 (RFID)	-	COM4 or COM3 via FLI4
COM2 (reader in add on housing)	-	COM4 or COM3 via FLI4
COM2 (RFID)	COM1 (reader in add on housing)	COM4 or COM3 via FLI4
COM1 (CBM)	-	COM4 or COM3 via FLI4
COM1 (CBM)	COM2 (RFID)	COM4 or COM3 via FLI4
COM1 (CBM)	COM2 (reader in add on housing)	COM4 or COM3 via FLI4

6.4.2.3 Guard time

The guard time is used to avoid accidental double bookings. After a booking, the next badge will not be read until the guard time has expired.

The time is given in ms. Presetting = 2000 ms.

6.5 Service Interface

The service interface provides the functions that are required for start-up, maintenance, and diagnostics of the device.

Operation and a detailed description of the service functions can be found in the following documentation:

- Service Interface reference manual

6.5.1 Remote access

The service interface is provided by the web server integrated into the device. Access takes place via the network connection of the device, either directly or via the network. For direct connection, an Ethernet cross-over cable (crossed RJ45 cable) or an Ethernet patch cable 1:1 can be used (Auto MDIX).

The service interface can be accessed from a service PC via a web browser by typing the device IP address into the address box.

6.5.2 Accessing the service interface locally from the B-Client HR30 terminal software.

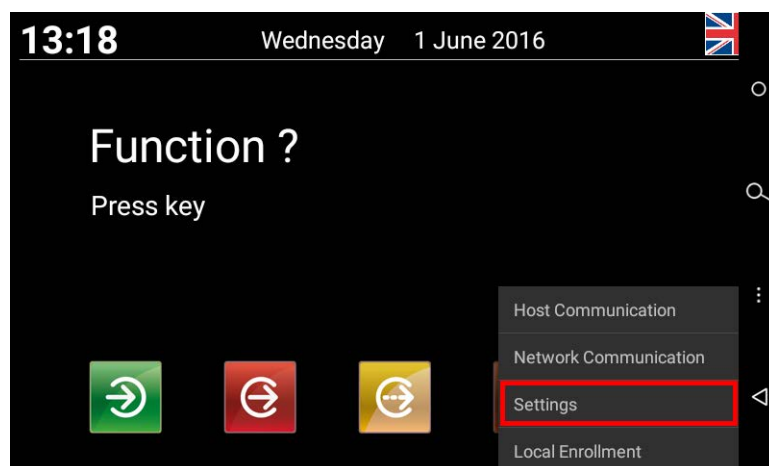
Access the service interface from the B-Client HR30 terminal software

- ✓ B-Client HR30 terminal software has been started [\[7.10.1 \]](#) and is in the Basic view.
- 1. Touch the Menu icon  in the navigation bar [\[7.4 \]](#).
By default, the actuating time is 4 seconds, but can be adjusted to between 1 and 15 seconds.
 - ⇒ After the set actuating time has expired, the password prompt appears.
- 2. Enter a password or leave the field empty if no password has been stored.
NOTE: No password has been stored for the device in its delivery state. A password can be assigned using the parameter records X02/X12. See reference manual of the terminal software.
- 3. Press 'OK' to confirm.



NOTICE! Three invalid password entries will lock the dialog. It must then be unlocked via the parameter record I2.

- 4. Select 'Settings'.



⇒ The start page of the service interface appears on the display.

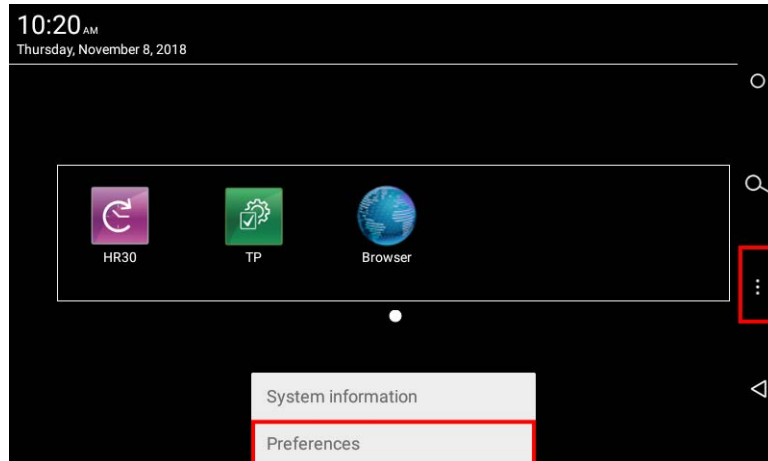


Without any touch interaction, the service interface will be automatically closed again after 3 minutes.

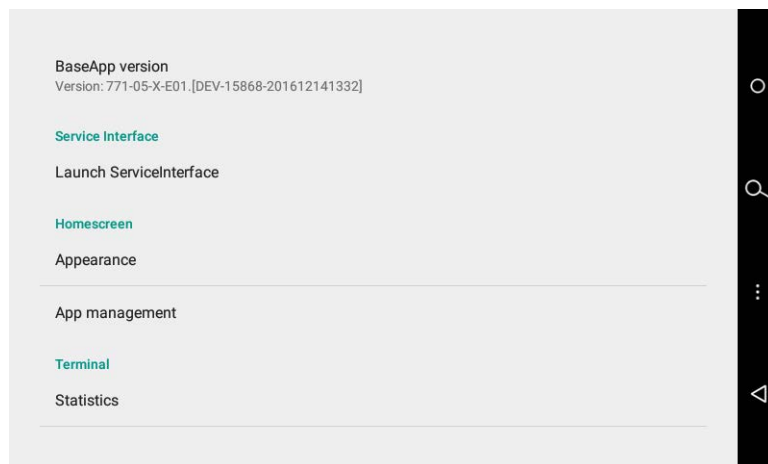
6.5.3 Accessing the service interface locally from the BaseApp

Access the service interface from the BaseApp.

- ✓ The start screen of the Base App is displayed.
- 1. Touch the Menu icon  in the navigation bar [▶ 7.4](#).
 - ⇒ A menu appears in the lower display area.
- 2. Touch 'Preferences'.



- ⇒ A BaseApp function selection is displayed.
- 3. Touch 'Launch Service Interface' under Service Interface.



- ⇒ The start page of the service interface appears on the display.



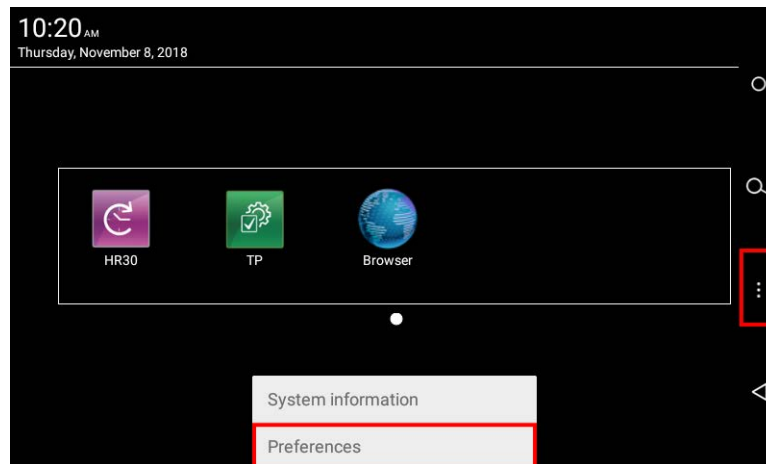
Without any touch interaction, the service interface will be automatically closed again after 3 minutes.

6.6 Android system settings

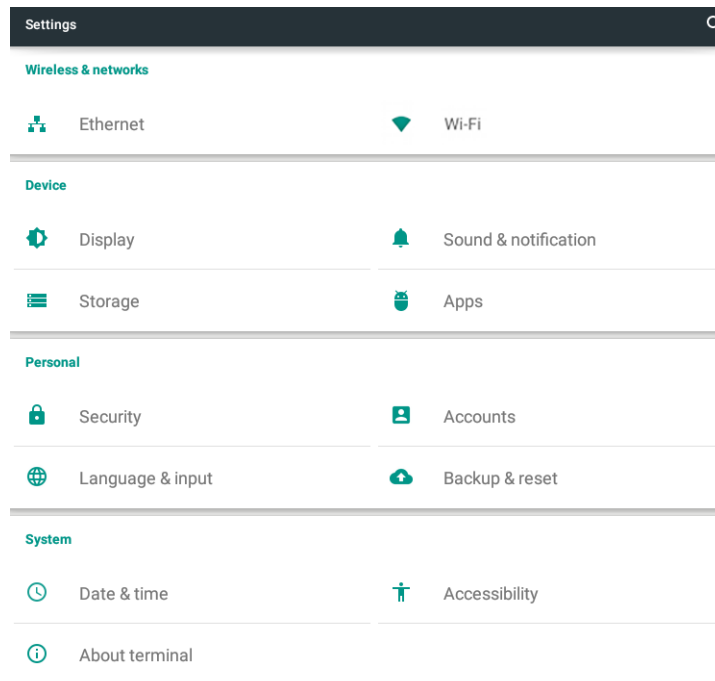
System-specific settings, connection settings, such as assignment of a fixed IP address, can be made via the android system settings.

Access the android system settings

- ✓ The start screen of the Base App is displayed.
- 1. Touch the Menu icon  in the navigation bar [\[▶ 7.4\]](#).
 - ⇒ A menu appears in the lower display area.
- 2. Touch 'Preferences'.



- ⇒ A BaseApp function selection is displayed.
- 3. Touch 'System settings' under System.
- ⇒ The main menu of the android system settings is displayed.



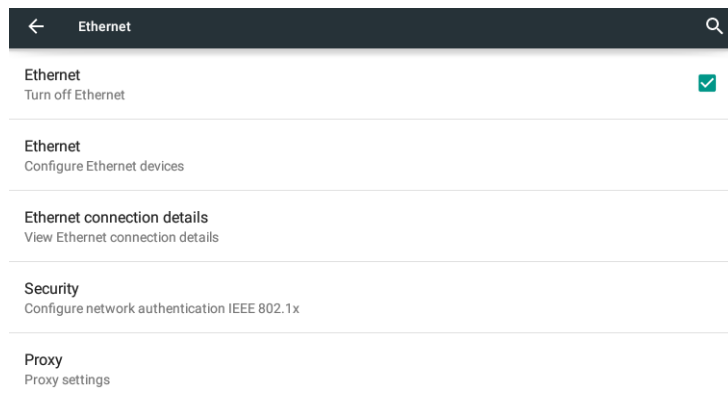
6.6.1 Network settings

Open the Ethernet menu:

✓ The main menu of the android system settings is displayed.

1. Select 'Ethernet' under 'Wireless & networks'.

⇒ The menu containing the Ethernet functions is displayed.



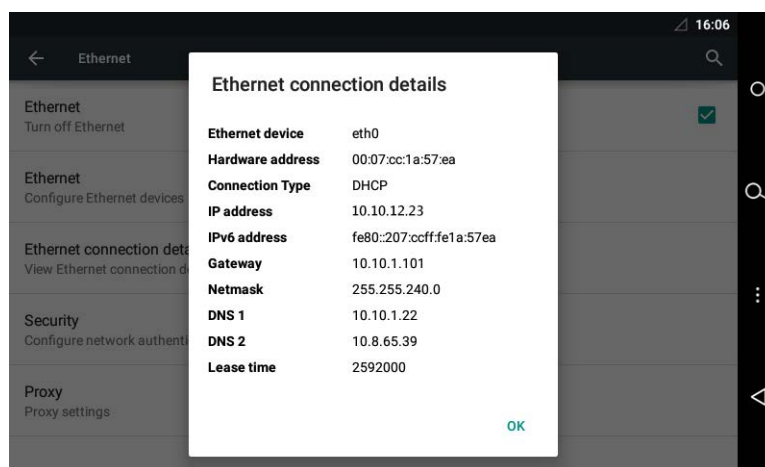
6.6.2 Displaying the current network configuration

✓ The menu containing the Ethernet functions is displayed.

1. Select 'Ethernet connection details'.

⇒ The current network configuration is displayed.

Example:



6.6.3 Adjusting the Ethernet settings

- ✓ The menu containing the Ethernet functions is displayed.
- 1. Select 'Ethernet - configure Ethernet devices'
- ⇒ The Ethernet settings are displayed

Requesting an IP address from the DHCP server

1. Activate 'DHCP'.

Configure Ethernet device

Connection Type

☒ DHCP

☐ Static IP

DISCARD SAVE

2. Apply setting by pressing 'Save' and leave the function.
3. Reboot the terminal.

Static IP configuration

1. Activate 'Static IP'.
2. Enter network parameters.

Configure Ethernet device

Connection Type

☐ DHCP

☒ Static IP

IP Type

☒ IPv4

☐ IPv6

IP address

123.0.0.2

Gateway

123.0.0.1

Netmask

255.255.0.0

DNS 1

0.0.0.0

DNS 2

0.0.0.0

DISCARD SAVE

3. Apply setting by pressing 'Save' and leave the function.
4. Reboot the terminal.

6.6.4 Network security

The terminal supports the following authentication procedure for access to the local network:

- EAP (Extensible Authentication Protocol) according to IEEE 802.1x
- EAP type MD5 with identity and password

Configuration of IEEE 802.1x authentication

- ✓ The menu containing the Ethernet functions is displayed.
- 1. Select 'Configure network authentication IEEE 802.1x' under 'Security'.
- 2. Select EAP method (MD5), enter identity and password.
- 3. Touch 'Start'

6.6.5 WLAN

Activate the WLAN connection:



Only possible if the terminal is provided with an optional WLAN module.



Activating the WLAN connection will deactivate the Ethernet connection.

- ✓ The main menu of the android system settings is displayed.
- 1. Select "Wi-Fi" under "Wireless & networks".
- 2. Activate "Wi-Fi" with the virtual slide switch.
 - ⇒ The available WLAN network types are shown.
NOTE: Only the safe network types are displayed!
- 3. Select the WLAN network and enter the access data.
 - ⇒ The WLAN connection is established.

6.6.6 Settings for adjustment to the environment

Display brightness

The display brightness can be adjusted as follows:

- ✓ The main menu of the android system settings is displayed.
- 1. Select '**Display**' under 'Device'.
 - ⇒ The display functions are displayed.
- 2. Select '**Brightness level**'.
- 3. Use the slide control to set the desired brightness.

Sleep setting

After a defined time without user activity, the display brightness is automatically reduced.

The time until this sleep mode is initiated can be set in a range between 15 seconds and one hour. The sleep mode can also be deactivated.

The sleep setting can be adjusted as follows:

- ✓ The main menu of the android system settings is displayed.
- 1. Select '**Display**' under 'Device'.
 - ⇒ The display functions are displayed.
- 2. Select '**Sleep**'.
- 3. Select desired time or deactivate function (Never).

The sleep mode is finished when the internal motion sensor detects a person or any user activity takes place at the device.

Volume setting

The volume for the acoustic operator guidance via the system loudspeaker can be adjusted as follows:

- ✓ The main menu of the android system settings is displayed.
- 1. Select '**Sound & notification**' under 'Device'.
 - ⇒ The sound settings are displayed.
- 2. Use the 'Media volume' slide control to set the desired volume.

6.6.7 Voice output (text to speech)

The device offers the possibility of a voice output of function key and dialogue texts or booking responses.

The voice output is activated by settings in the terminal software, see reference manual of the terminal software.

Text to speech engine

The voice output is normally generated via "Pico TTS".

A high-quality voice output can be reached by using the "Google text-to-speech engine".

The changeover to the "Google text to speech engine" can only be performed directly on the terminal.

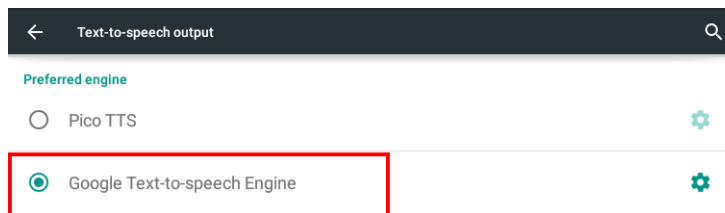
Activation of the "Google text-to-speech engine"



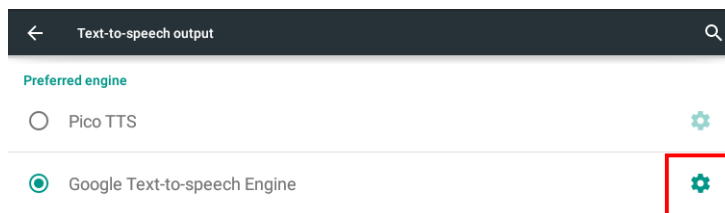
For the activation process described in the following section, an internet connection is required in order to be able to download the voice file.

✓ The main menu of the android system settings ▶ 6.6] is displayed.

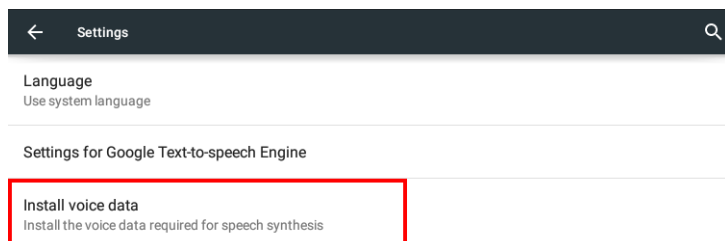
1. Select "Language & input" under "Personal".
 - ⇒ The language and input functions are displayed.
2. Select "Text-to-speech output" under "Speech".
3. Activate "Google-Text-to-speech Engine".



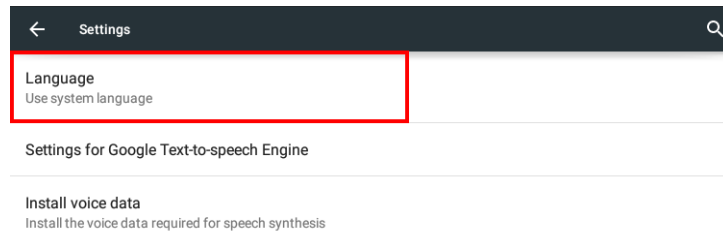
4. Confirm the warning by pressing "OK".
5. Open the settings of the Google text-to-speech engine.



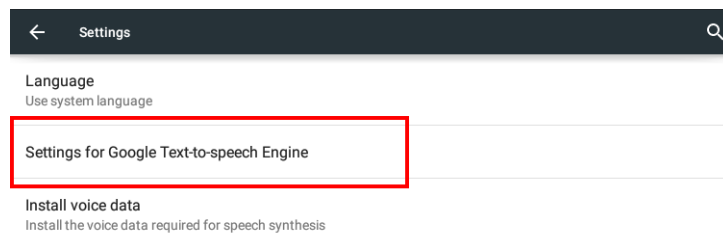
6. Select the desired voice files and download them.



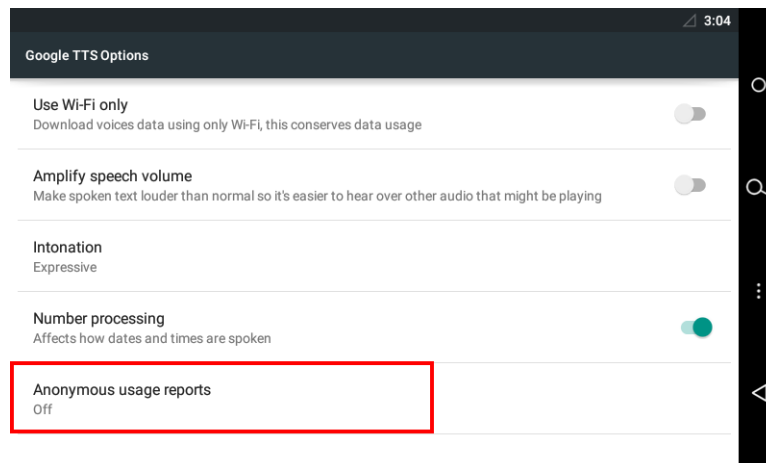
7. Select the language which is mainly to be used for the voice output.



8. Select the extended settings.



9. Deactivate the collection of user data.



10. Quit the settings menu.

⇒ Google-Text-to-speech Engine is activated.

6.7 Reader initialization

Some RFID readers must be initialized during initial start-up.

6.7.1 LEGIC

LEGIC readers require a reader launch in certain cases:

- If a read-protected segment is to be used.
- If writing to a write-protected segment is to be done, for example during a CardLink application.

Reader launch

- ✓ The reader launch requires an SAM 63 card (security card C2) containing the corresponding segment area.
1. Hold the SAM 63 card in front of the reader if the device expects an RFID input in normal operation.
 - ⇒ The start of the sequence is confirmed by means of an acoustic signal.
 - ⇒ Three successive acoustic signals are output if the process cannot be executed, for example if the reader has already been launched.
 2. The SAM 63 card must be present uninterruptedly in the reading area for about 15-20 seconds.
 - ⇒ After a successful launch, 3 short acoustic signals are output.
 - ⇒ Eight successive signals are output when an error occurs.
 3. Remove the SAM 63 card from the field.

Reader delaunch

- ✓ The reader is delaunched using an SAM 64 card.
1. Hold the SAM 64 card in front of the reader if the device expects an RFID input in normal operation.
 - ⇒ The start of the sequence is confirmed by means of an acoustic signal.
 - ⇒ Three successive acoustic signals are output if the process cannot be executed, for example if the reader has already been launched.
 2. The SAM 64 card must be present uninterruptedly in the reading area for about 15-20 seconds.
 - ⇒ After a successful delaunch, 3 short acoustic signals are output.
 - ⇒ Eight successive signals are output when an error occurs.
 3. Remove the SAM 64 card from the field.

6.7.2 MIFARE (ARIOS)

In systems with ARIOS security concept, the site key must be distributed to the individual readers.

The site key can be distributed in two ways.

- Site key distribution via B-COMM.
- Site key distribution via programming master A or B.

For details, please refer to the reference manual of the terminal software.

6.7.3 MIFARE (Baltech)

The MIFARE reader must be activated by a MIFARE configuration card:

1. Turn off the device.
2. Turn on the device.
3. Hold the MIFARE configuration card in front of the reader for about 10 seconds.

6.8 SFTP server

The device provides an SFTP server for a secure, encrypted connection via the 'Secure File Transfer Protocol' (SFTP).



The SFTP server (SSH server service) on the terminal can be enabled- disabled by settings of the terminal software (TA command record) or the 'ssh mode' system setting.

6.8.1 Preconditions

For SFTP access to the terminal, the following is required:

- SFTP client, for example WinSCP. WinSCP (Windows Secure CoPy) is a free 'open source' SFTP and FTP client for Microsoft Windows.
- Key file, the standard key file is available for download on the Internet at the dormakaba site in the secured area (Extranet).
- The SFTP connection via the standard port 22 must have been enabled.

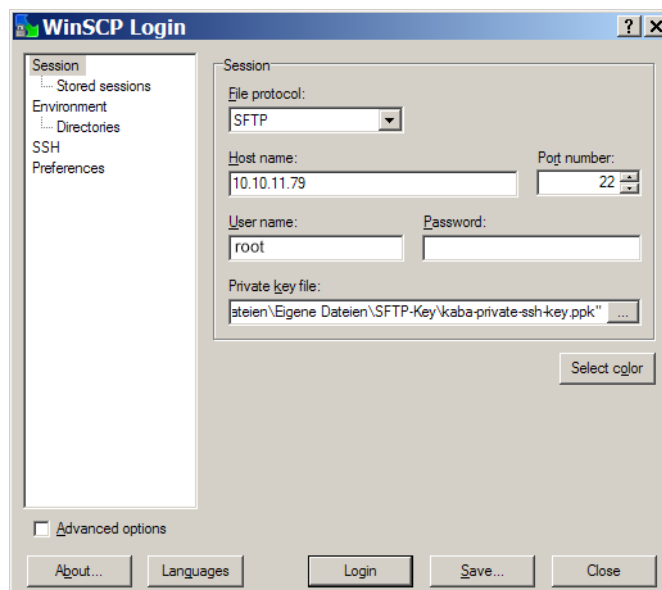
6.8.2 Establishing an SFTP connection

After installation and start of the SFTP client, the login window appears.

Required settings:

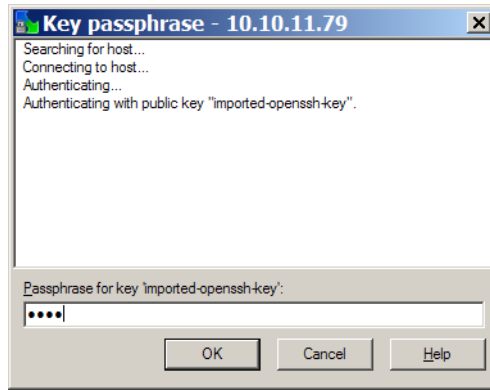
File protocol: SFTP
 Host name: <IP address> e.g. 10.10.11.79
 Port number: 22
 User name: root
 Password: leave blank
 Private key file: Select key file on local computer.

1. Make the following entries and settings
2. Click "Login"

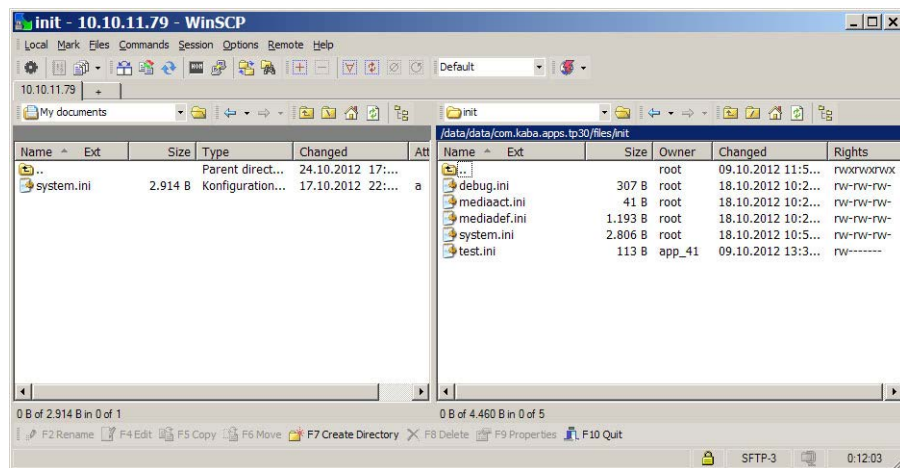


3. Enter pass phrase.
 Pass phrase for standard key = kaba

4. Click "OK"



⇒ The connection to the terminal is being established.



6.8.3 Information on the key file

The device is equipped with a standard key file ex works.

It can be replaced with an adjusted customized key file via the function 'SSH key replacement' of the B-COMM communication software.

The SSH key can be reset to standard via the service interface or the BaseApp settings locally on the device.

6.8.4 Important directories and files

Path: /data/data/com.kaba.apps.hr/files/

Directory	File	Description
	EEPROMsetting	Parameter used for the system start
diagnosis	statisticsHR.dat	Statistics
init	application.ini	Settings of the B-Client terminal software
	b-client_xml.ini	HTTP/HTTPS/XML function parameters
	encoding.ini	Definition of special characters
	interface.ini	B-Client terminal software design
	labelinfo.ini	Info texts
	sop.ini	Software licence file
	text.ini	Texts for dynamic lists
SSL	root.pem	Certificates
	root.crt	
transfer	record.dat	Transfer directory for control files, see chapter 6.9
	input.cmd	
	reboot.cmd	

Path: /data/data/com.kaba.apps.ba/files/

Directory	File	Description
diagnosis	debug.err	Error logfile
	debug.log	System logfile
	debug.bak	Backup of debug.log
init	communication.ini	Communication settings
	debug.ini	Logging settings
	mediaact.ini	Settings for LEGIC reader
	mediadef.ini	
	system.ini	System settings
	terminal.ini	Terminal settings
	mobiledef.ini	Mobile settings
	mobileact.ini	

6.9 Remote setup

The following settings can also be transferred to the device via SFTP [▶ 6.8](#):

- Host configuration
- FTCS host configuration
- Reader settings



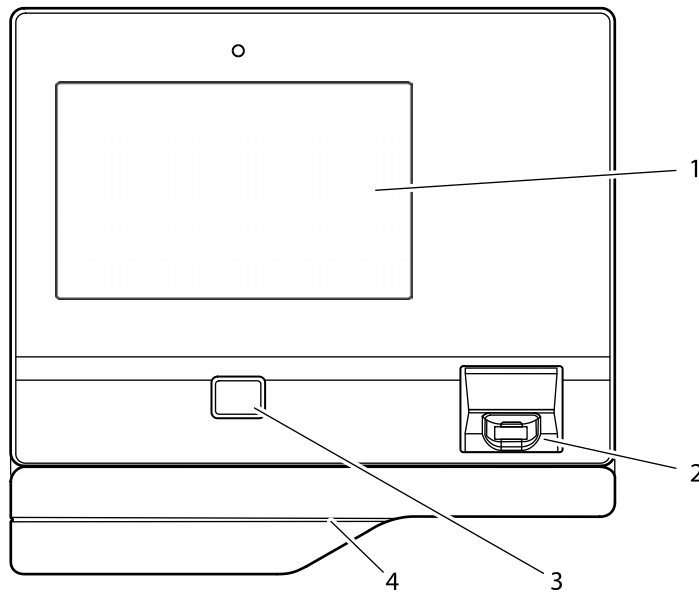
This type of start-up should only be carried out by experienced system specialists.

Procedure:

1. Establish SFTP connection to the device.
2. Load the following file in ASCII mode to the local computer:
/data/data/com.kaba.apps.hr/files/**EEPROMsetting**
This file contains the parameter used for the last start.
3. Rename file to **reboot.cmd**.
4. Adjust the parameter values in the file accordingly.
NOTE: Changes in the sections [General] and [Ethernet] will not be applied!
5. Enter 'RESET' in the first line of the file.
Example:
RESET
[Ethernet]
MAC Addr=00:07:cc:00:62:e4
Terminal Addr=10.10.5.85
...
6. Copy the **reboot.cmd** file to the following directory on the device:
/data/data/com.kaba.apps.hr/files/transfer/
⇒ The file will be identified within approx. 15 seconds and the parameter values will be applied.
⇒ The terminal software is then restarted with the changed settings.

7 Operation

7.1 Operating elements



- 1 Display and touch screen
- 2 Reader window for finger placement (only devices with optional biometric reader)
- 3 Entry field for RFID media (only devices with optional RFID reader)
- 4 Card swipe (only devices with optional swipe reader in add on housing)

7.2 Display

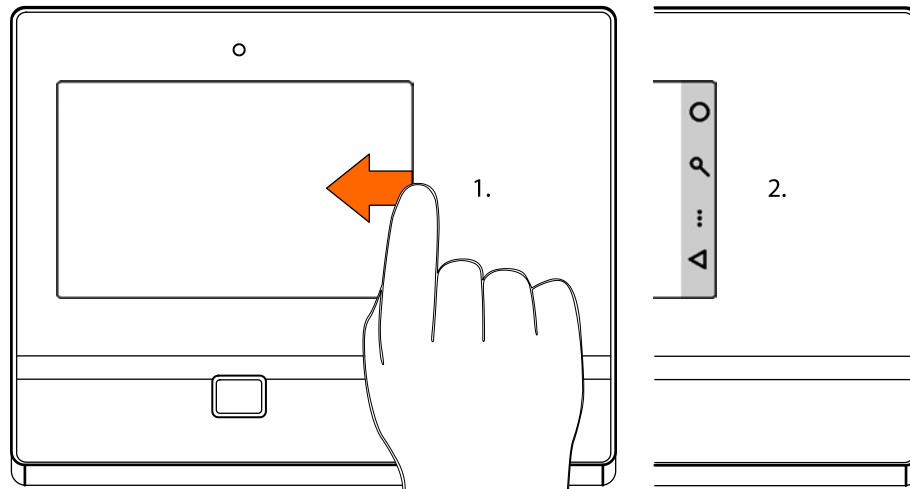
For displaying the user interface and outputting specific information, a 7" colour TFT display is used.

7.3 Touch screen

The device has a 7" touch screen, which extends over the entire display surface. The touch screen is operated by touching the glass surface with a finger.

7.4 Navigation keys

By wiping from the right display edge to the left, the navigation bar is displayed. The navigation bar contains the android navigation keys.



Upon touching the individual symbols, the following functions will be executed:

Upon touching the individual symbols, the following functions will be executed:

- **Home**
Upon touching the Home symbol, the desktop view (start screen) of the device opens. Since the android is capable of multitasking, active programs keep running in the background.
- 🔍 **Search**
Upon touching the search symbol, the search function for each active program is displayed.
- ⋮ **Menu**
Upon touching the menu symbol, a menu is displayed whose options refer to the current program or the current screen display.
- ◀ **Back**
Upon touching the Back icon, it is possible to return to the display view shown last in each case, i.e., for example, from the submenu to the main menu.

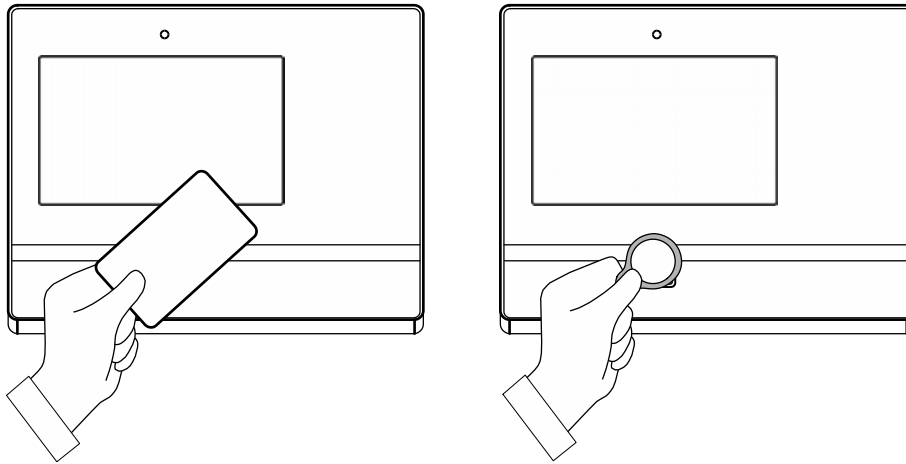
When the system is expecting an input, a virtual keypad is shown on the display. In this input mode, the Back icon points downwards. Upon touching the Back icon, the input mode is finished, and the virtual keypad disappears.



The Home key and Search key are without function within the B-Client terminal software, test program and BaseApp.

7.5 RFID reader

Contact-free media are simply held in front of the entry field of the RFID reader on the terminal.



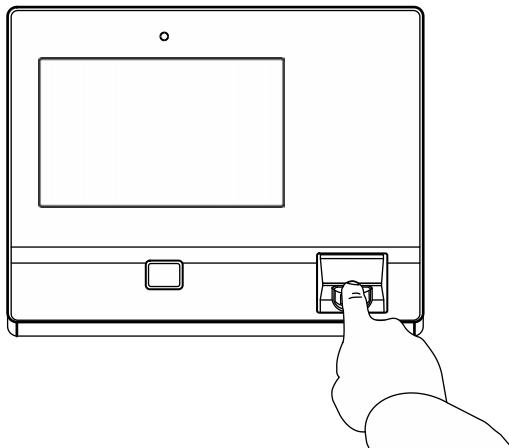
The reading process, in particular in connection with biometric verification or CardLink, can take several seconds. RFIDDo not remove the RFID medium from the input field until successful read-in has been signalled.

7.6 Biometric reader

The biometric reader is ready as soon as the reading window is lit.

The finger must be placed in the centre of the reading window of the biometric reader.

After a valid booking, a short acoustic signal can be heard.



Finger position

Only if finger position and pressure on the reader window are optimal, is a correct fingerprint read-in ensured.

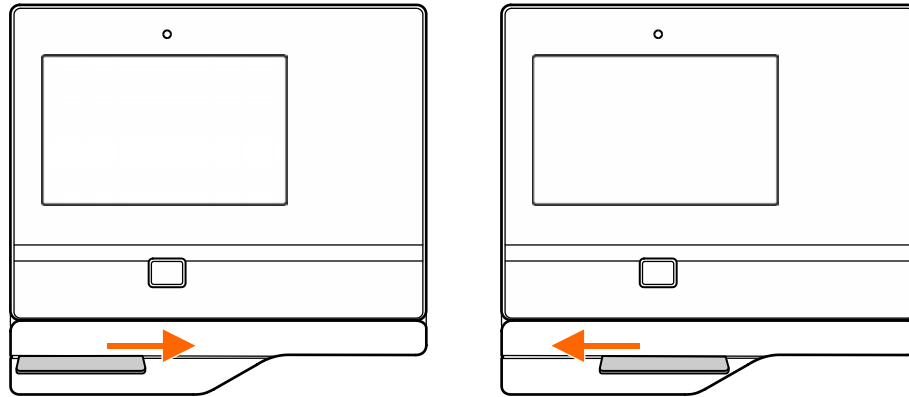
- The finger has to be slightly humid.
- The finger has to be gently pressed onto the window.
- The fingerprint has to be in the centre of the reader window.

7.7 Swipe reader

Swiftly swipe magnetic-stripe badges and barcode badges through the reading bar in any direction.

The magnetic stripe is on the back of the badge, pointing towards the scanning unit.

The barcode is on the front of the badge, pointing towards the scanning unit.



In connection with magnetic-stripe badges, automatic detection of the booking direction is possible.

This function must be enabled by settings in the terminal software.

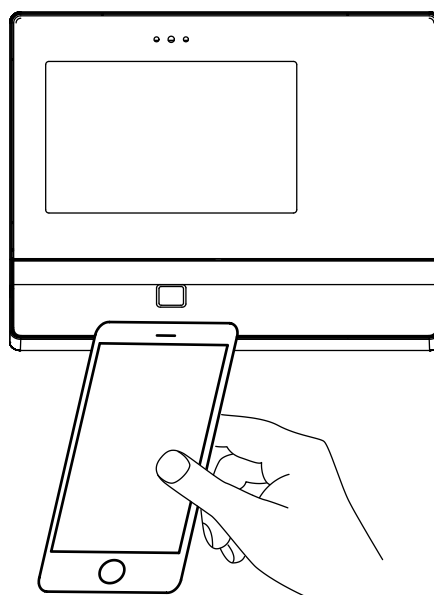
Thus, for example, swiping from left to right can generate an IN booking and swiping from right to left an OUT booking.

7.8 Booking with Smartphone

Start 'dormakaba mobile access' app on the Smartphone and touch the key.

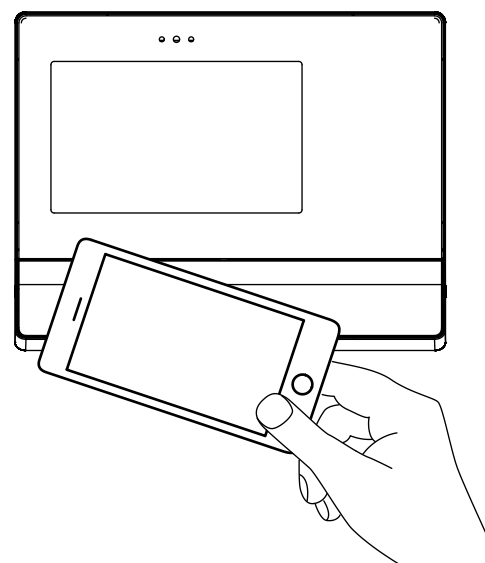
Bluetooth applications

Keep smartphone within Bluetooth range.



NFC applications

Hold the smartphone in front of the input field.



Note the position of the NFC antenna in the smartphone (see manual of smartphone).

7.9 Symbols for user guidance

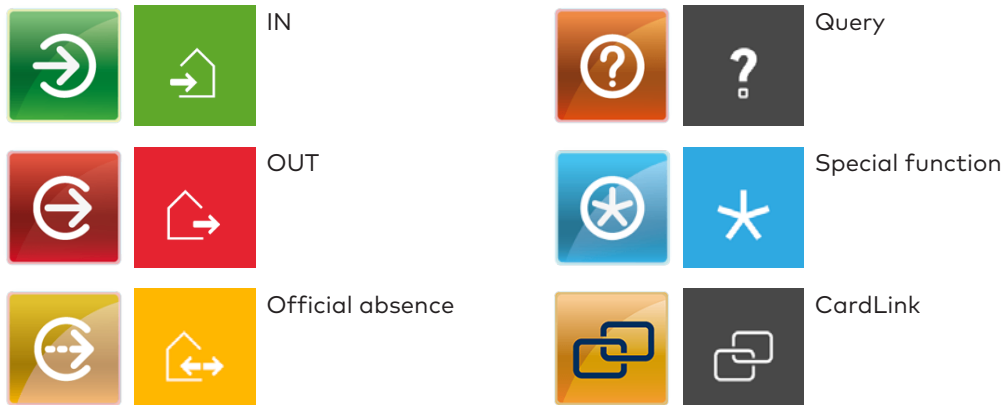
The following standard symbols are available to the terminal software for user guidance. The symbols are part of the BaseApp.



Display contents, functions and operating sequences depend on the terminal software settings.

7.9.1 Function keys

Examples of function key symbols. Further variants and symbols for further functions are available.



7.9.2 Input prompt

The following symbols signal to the operator what entry is currently expected.



Badge entry via RFID reader expected.



Entry of an RFID badge with biometric segment for biometric verification expected.



Finger entry via biometric reader expected.



ID or PIN entry via keyboard expected.

Depending on the system configuration, several entries are possible alternatively. In this case, several symbols for the possible input types are displayed simultaneously.

7.9.3 Error states

The following symbols signal to the operator error states during a booking.



Invalid biometric verification

No biometric segment on badge detected or error while reading finger template.



Invalid biometric verification

Fingerprint is not identical to the finger template on the badge or finger template does not exist.



Invalid biometric identification

The database of the CBM reader does not contain any finger templates (database empty).



Invalid biometric identification

Finger not contained in database.



Reading error



Incorrect entry via the keyboard

7.9.4 CardLink

When using the optional CardLink function, the following symbols are relevant.



A CardLink update is available.



During a CardLink validation or CardLink update, an error has occurred.

7.9.5 Finger entry

While the fingerprint is read in, the user is guided event-driven by the biometric reader.

The following symbols are displayed to signal the error states to the user.



Place finger more to the left.



Place finger more to the right.



Place finger more to the top.



Place finger more to the bottom.



Press finger more strongly.



Latent finger

Clean reading window of the biometric reader



The database of the CBM reader does not contain any finger templates (database empty).

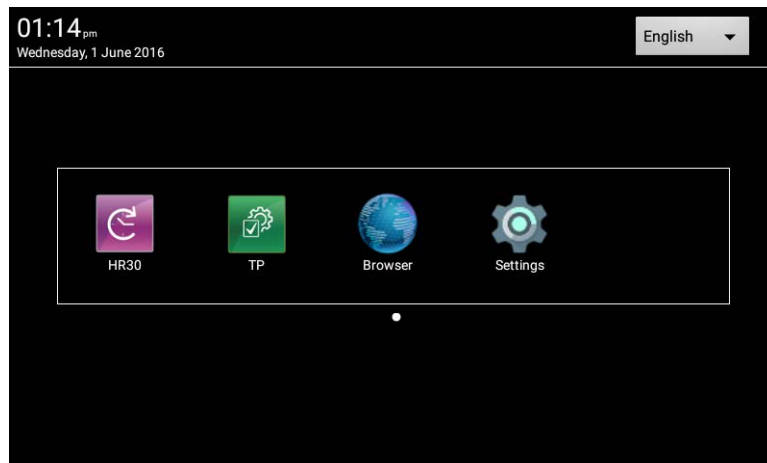
This state is displayed immediately after enabling the reader.

7.10 BaseApp

The BaseApp is the user interface shown after closing an application.

The BaseApp essentially performs the following functions:

- Protection of the operating system from unauthorized access (system isolation).
- Only controlled access to the operating system is possible.
- Organization and start-up of applications (apps).
- Provision of functions and interfaces for access to the hardware.



7.10.1 Starting the application

On the start screen of the BaseApp, the applications (apps) available to the user are shown in the form of symbols (icons).

Depending on the number of applications, this list can run over several pages. The number of pages is indicated by the dots below the list. The active page is characterized by a filled dot.

Upon touching the corresponding icon, the application is started.

For example, dormakaba terminal software:

- Icon HR30 = B-Client HR30 terminal software
- Icon TP = test program

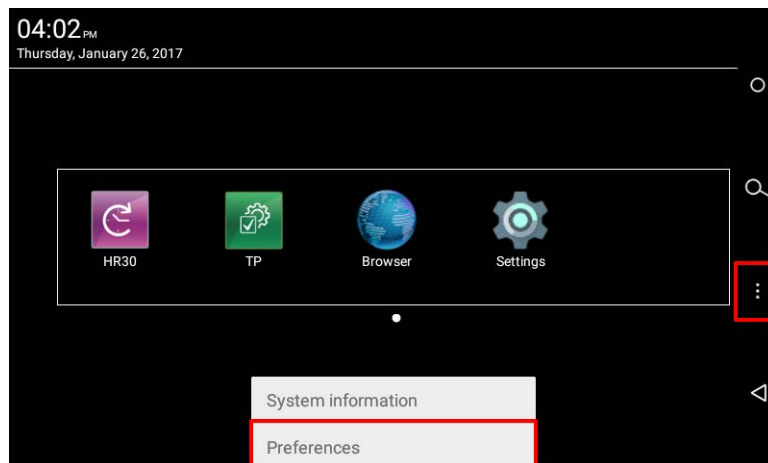
7.10.2 App management

This function determines which applications (apps) are displayed on the start screen and are thus available to the operator. The order of the app icons can also be adjusted.

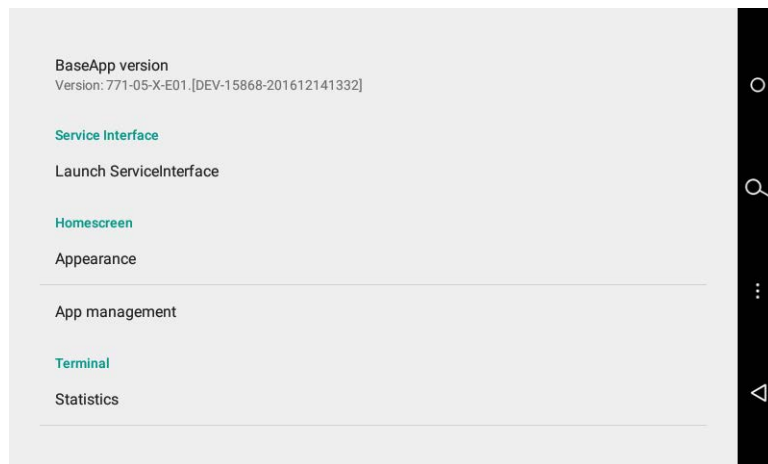
In addition, a default application started automatically with the system can be defined.

Starting app administration

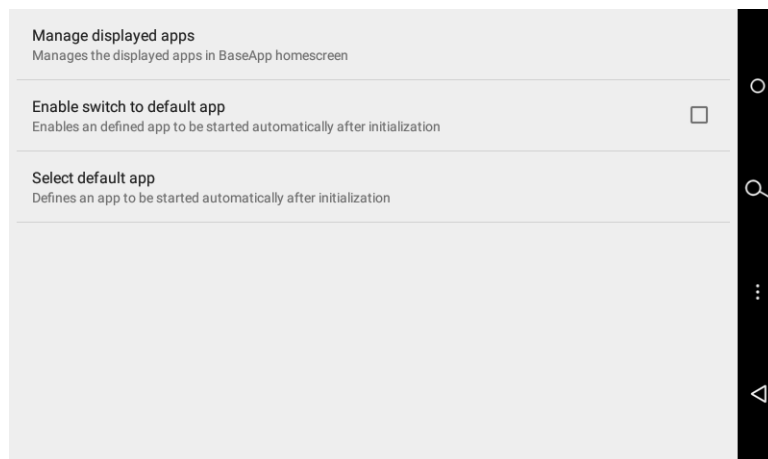
- ✓ The start screen of the Base App is displayed.
- 1. Touch the Menu icon  in the navigation bar [\[▶ 7.4\]](#).
- 2. Select 'Preferences'.



- 3. Select 'App management'.

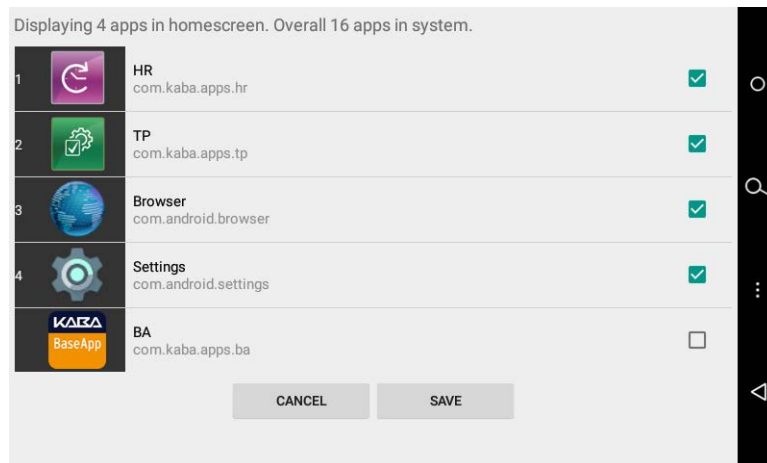


⇒ The submenu of the app management is displayed.



7.10.2.1 Managing the apps displayed

The available applications (apps) are displayed in a list.



To place an app on the BaseApp start screen, the check box on the right must be checked.

On the left next to the app icon, the order number is shown. The order number indicates the order of the apps on the BaseApp start screen. To change the order, touch the icon of the corresponding app and move it to the desired position in the order.

7.10.2.2 Autostart for default app.

If the function 'Enable switch to default app' is active, the application defined under 'Select default app' will be started automatically when starting the device.

7.10.2.3 Selection of the default app

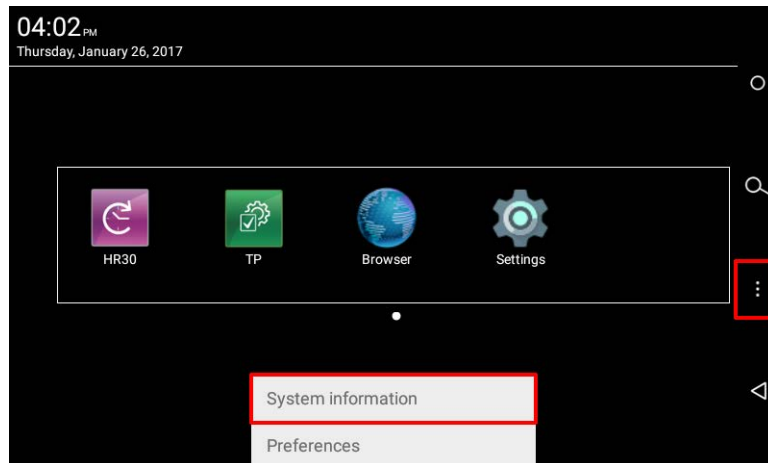
The function 'Select default app' is used to define the default app.

7.10.3 System Information

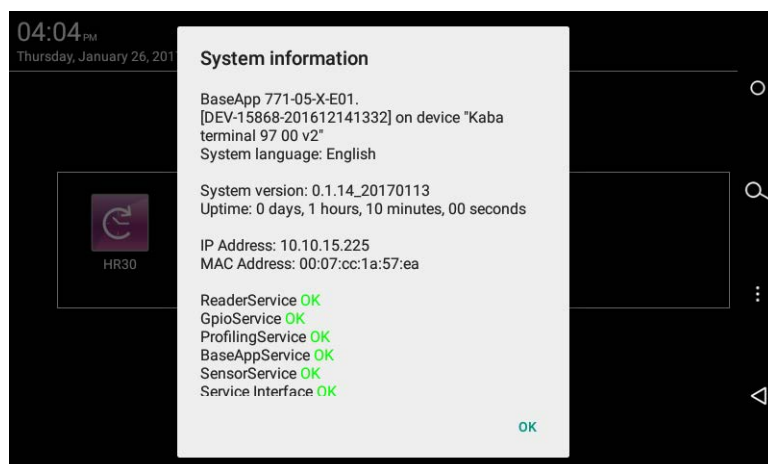
The BaseApp menu can be used to display miscellaneous system information.

Displaying system Information

- ✓ The start screen of the Base App is displayed.
- 1. Touch the Menu icon  in the navigation bar [\[▶ 7.4\]](#).
- 2. Select 'System Information'.



⇒ The system information is displayed.

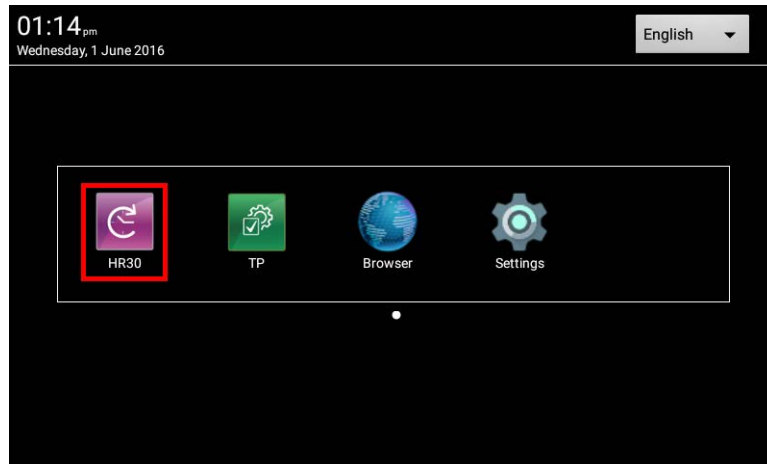


7.11 B-Client HR30 terminal software

7.11.1 Starting the terminal software

In the start screen of the BaseApp [▶ 7.10], the available applications (apps) are displayed.

Touch the icon designated 'HR30' to start the B-Client HR30 terminal software.



The B-Client HR30 user interface is shown on the display of the terminal.



The appearance of the device software can be adjusted specifically for each customer and is therefore variable. Accordingly, the default user interface shown above must be considered an example.

7.11.2 Shutting down the terminal software

Shut down the B-Client terminal software as follows:

1. Touch the Back icon  in the navigation bar [▶ 7.4](#).
NOTE: By default, the actuating time is 4 seconds, but can be adjusted to between 1 and 15 seconds.
⇒ After the set actuating time has expired, the password prompt appears.
2. Enter a password or leave the field empty if no password has been stored.
NOTE: No password has been stored for the device in its delivery state. A password can be assigned using the parameter records X02/X12. See reference manual of the terminal software.
3. Press 'OK' to confirm.



NOTICE! Three invalid password entries will lock the dialog. It must then be unlocked via the parameter record I2.

- ⇒ The terminal software is shut down, and the BaseApp user interface [▶ 7.10](#) is displayed.

7.11.3 Info functions

In the menu of the B-Client HR30 terminal software, two info functions are available.

✓ B-Client HR30 terminal software has been started. [▶ 7.11.1](#)

1. Touch the Menu icon  in the navigation bar [▶ 7.4](#).

⇒ After the set actuating time has expired, the password prompt appears.

NOTE: By default, the actuating time is 4 seconds, but can be adjusted to between 1 and 15 seconds.

2. Enter a password or leave the field empty if no password has been stored.

NOTE: No password has been stored for the device in its delivery state. A password can be assigned using the parameter records X02/X12. See reference manual of the terminal software.

3. Press 'OK' to confirm.

⇒ The menu is displayed.



Host communication

The following information is displayed:

- B-Client HR30 version
- Terminal IP address
- Host IP address and port
- Group identification and device identification
- Current readers

Network communication

The following information is displayed:

- Terminal IP address
- Network mask
- MAC address
- DNS
- Gateway
- DHCP server address

7.11.4 Registering new fingerprints at the terminal

The function '**Local Enrollment**' of the B-Client HR30 terminal software allows new fingerprints to be registered via the biometric reader at the terminal.

Prerequisites:

- Terminal with biometric reader
- B-Client HR30 terminal software with 'Local Enrollment' software option

7.11.4.1 Displaying the function

- ✓ B-Client HR30 terminal software has been started [\[▶ 7.11.1\]](#).
- 1. Touch the Menu icon  in the navigation bar [\[▶ 7.4\]](#).
 - ⇒ After the set actuating time has expired, the password prompt appears.

NOTE: By default, the actuating time is 4 seconds, but can be adjusted to between 1 and 15 seconds.
- 2. Enter a password or leave the field empty if no password has been stored.

NOTE: No password has been stored for the device in its delivery state. A password can be assigned using the parameter records X02/X12. See reference manual of the terminal software.
- 3. Press 'OK' to confirm.
- 4. Select 'Local Enrollment'.



- ⇒ The main menu is displayed. The biometric mode and the current assignment of the internal reader database are additionally displayed.



7.11.4.2 Enroll

This function allows persons to be registered via the biometric reader of the terminal. The fingerprints are stored in the internal reader database.

Operation with biometric software

During normal operation with biometric software, the new finger templates are synchronized directly using the Finger Template Control Service (FTCS).



The function 'Enroll' is only executed if an FTCS connection is already available via the BCFTC stream.

Standalone mode



In standalone mode, the function is also executed without FTCS connection.

Procedure

2 fingers per person are registered. 3 pictures are taken of each finger. To do so, each finger has to be briefly placed on the reader window three times. A quality value is specified for each registration process.

The quality of the registered fingers is subdivided into three levels.

Quality of number	Quality of text
> 120	very good
60-120	good
< 60	poor

Optimal finger position

If the finger position is not ideal during enrollment, symbols to that effect are shown on the display [\[▶ 7.9.5\]](#).

Registering a person

1. Select 'Enroll'.

2. Enter template ID.

NOTE: The person is identified by means of the template ID. The length of the ID is preset by the 'PresetEnroll' parameter.

Local Enrollment - Enroll

Enter Template-ID

0123

1 2 3 . ← →

4 5 6 - CLR ✕

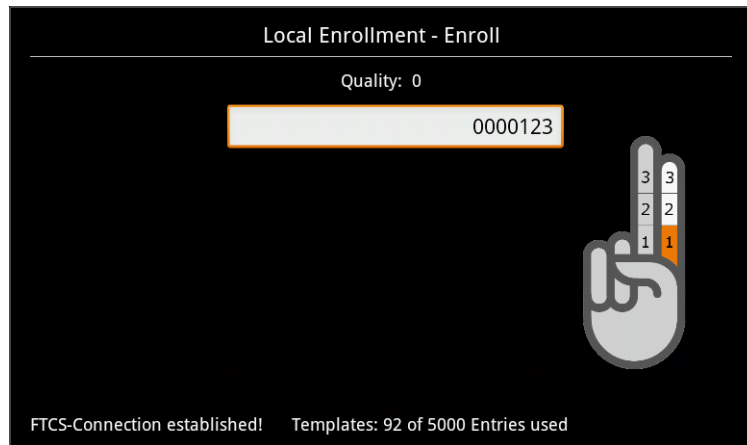
7 8 9 :

0 Cancel OK

FTCS-Connection established! Templates: 92 of 5000 Entries used

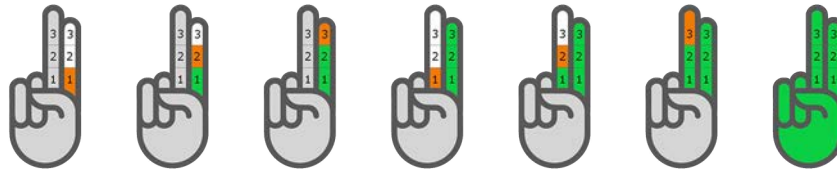
3. Press 'OK' to confirm the template ID.

4. Place first finger on the reading window.



⇒ A successful read-in of a finger is confirmed by means of a short acoustic signal.

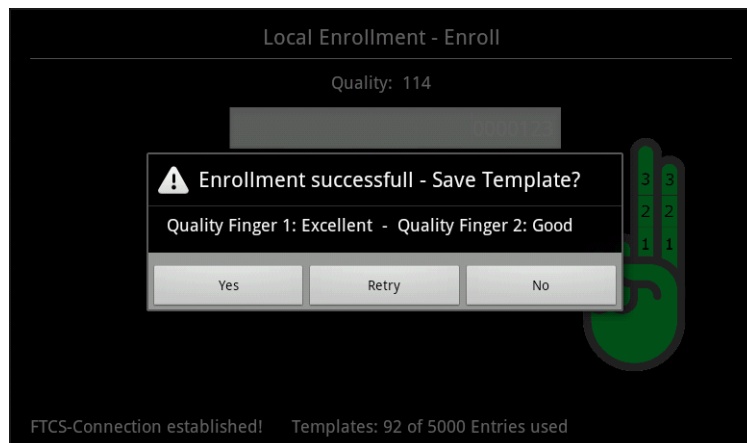
5. Remove finger briefly and then place it again.
The hand symbol on the display signals which finger has to be placed which number of times (orange) and which fingers have been registered how many times (green).



⇒ After successful registration of the 6 (2x3) finger prints, a green hand will be displayed.

⇒ At the end of the procedure, the overall quality of the registered fingers and a prompt will be displayed, asking you whether you want to save the template.

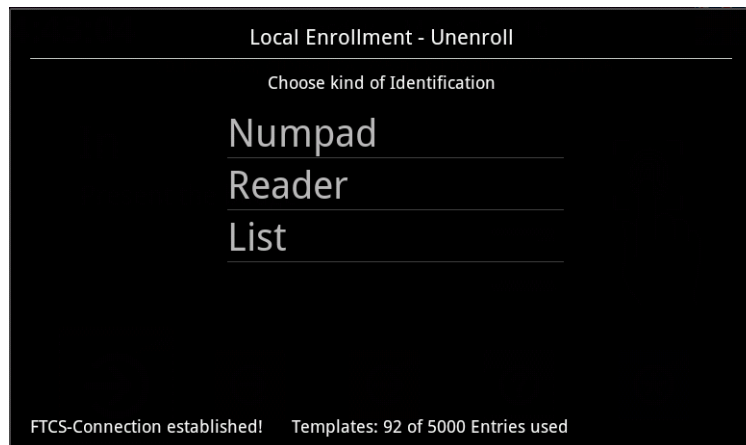
6. If you want the finger template to be saved, press 'Yes' to confirm.



If the quality is poor, the procedure should be repeated. If the quality of a finger is repeatedly poor, a different finger should be registered.

7.11.4.3 Unenroll

This function allows individual finger templates to be deleted from the reader database in standalone mode.



The selection of the finger template to be deleted can take place in one of the following ways.

- **Numpad**
The template ID is entered on the virtual keypad.
- **Reader**
The finger whose template is to be deleted must be placed on the reader.
- **List**
The template ID is selected from a list.

7.11.4.4 Identification

This function allows identification of an individual. After calling the function, the finger has to be placed on the reader window. The associated ID is shown on the display.

7.11.4.5 List

This function lists all template IDs stored in the database.



The function is only available if the database contains fewer than 100 template IDs.

After selecting an ID, it can also be deleted by pressing 'Unenroll'.

7.11.4.6 Erase DB

This function allows all finger templates to be erased from the local database of the reader.

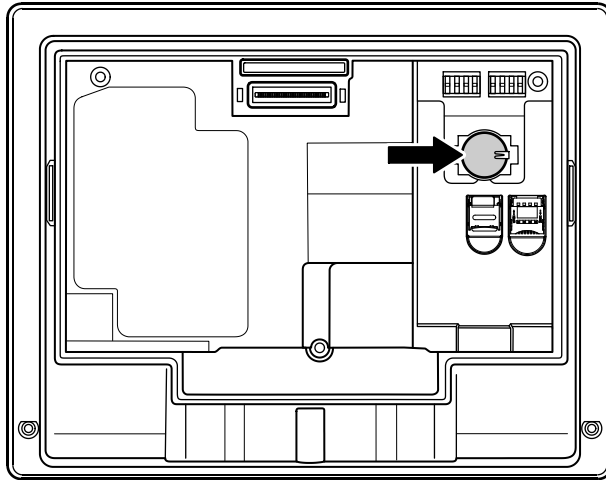
For safety reasons, you are prompted for a code. The Erase PIN is always '439235'.

8 Maintenance

8.1 Backup battery

To back up the real-time clock RTC, the device is equipped with a lithium manganese dioxide battery type CR2032.

The battery is located on the rear side of the terminal housing.



The backup battery must be replaced with a new one every 2 years.

8.1.1 Battery change



⚠ CAUTION

Lithium batteries can explode or burst explosively.

Improper handling of lithium batteries may result in fires and explosions.

- Replace lithium batteries only with batteries of the same type.
- Do not open, drill through or squash lithium batteries.
- Do not burn lithium batteries or expose them to high temperatures.
- Do not short-circuit lithium batteries.
- Do not recharge lithium batteries.

1. Remove the terminal housing from the docking station.
2. Remove UPS610 [▶ 5.5](#) (if present)
3. **NOTE:** Do not use tools such as a screwdriver and the like.
Remove the old backup battery carefully by hand from the battery holder.
4. Push the new battery into the holder until it snaps into place.
5. Mount UPS610 [▶ 5.5](#) (if present) again.
6. Fasten the terminal housing again to the docking station.
7. Reset terminal time.

8.2 Replacement of the uninterruptible power supply UPS610



To guarantee the buffer time as specified in the technical data, the uninterruptible power supply UPS610 has to be replaced every 3 years with a new one.

Perform dismounting and mounting of the uninterruptible power supply UPS610 as described [\[► 5.5\]](#).

8.3 Cleaning the housing

To clean the housing, use a soft, lint-free cloth and a mild window cleaning agent!



NOTICE

Other agents may result in damage to the housing.

Observe the following instructions in order to avoid producing damage to the housing and the reader window of the biometric reader (if present) during the cleaning process:

- Do not use alcohol, such as ethanol and isopropanol
- Do not use aggressive solvents
- Do not use cleaning agents with added powder
- Avoid scratching and abrasive movements

8.4 Installation/Update of the terminal software

For the installation or update of the terminal software on the terminal, an installation tool is available. This so-called SFTP installer can be downloaded for the particular terminal software in the secured area of the dormakaba website (Extranet).

Installation

For initial installation or in order to replace a faulty installation, a complete installation of the terminal software is required.

The installation process will reset any settings already made.

Update

An update is performed in order to update the already existing terminal software to a new version.

During an update process, only the program files will be replaced. Existing settings are retained.

8.4.1 Data backup

Before an update or a new installation of the terminal software is made, the following data must be backed up.

- Device configuration and parametrization
- If specific layout adjustments are made, the 'interface.ini' file and pictures must be backed up on a local drive.

8.4.2 Preparing installation/update

- ✓ Authorization for access to dormakaba Extranet [▶ 1.5](#).
- 1. Download SFTP installer from dormakaba Extranet.
- 2. Unzip ZIP file to a local directory.
- 3. If the SSH key for SFTP access was changed:
Copy relevant key file (*.ppk) to the directory of the SFTP installer.
In the 'Standard_Software.ini' file, enter the file name of the key file under 'Key_Path='.
Format Key_Path='<File name>.ppk'
- 4. Start the installation tool by double-clicking 'SFTP Installer.exe'.
⇒ The first prompt of the user guidance is displayed.

8.4.3 Performing an update

1. Select the device type.
2. Select 'Update'.
3. Select terminal software (B-Client HRxx)
4. Select add-ons (BaseApp + test program)
5. Enter IP address and SFTP access data.
⇒ A summary of the installation data is displayed.
6. Start process.
⇒ The process can take several minutes. Successful execution is confirmed by the installation tool.
7. Restart the device.
⇒ The terminal software is now up-to-date.

8.4.4 Performing the installation

1. Select the device type.
2. Select 'Installation'
3. Select terminal software (B-Client HRxx)
4. Select add-ons (BaseApp + test program)
5. Enter IP address and SFTP access data.
 - ⇒ A summary of the installation data is displayed.
6. Start process.
 - ⇒ The process can take several minutes. Successful execution is confirmed by the installation tool.
7. Restart the device.
8. Start-up of the device:
Perform host configuration, adjust reader settings in accordance with device configuration, and transfer parameter and master records to the device.

8.5 Android update

If an update of the operating system is required, it will be provided by the dormakaba Support in the form of the 'update.zip' file.

The 'update.zip' file is copied to the directory/cache of the terminal via SFTP.

The directory is interrogated by the system once a minute. If the file is detected, the operating system is updated automatically and then the terminal is restarted.

8.6 Reader OS update

The reader OS version can be updated via the communication software B-COMM (see B-COMM Reference Manual).

Requirements:

- IP address 239.255.255.250, UDP port 1900 dec. and UDP port 7900 (30976 dec.) must have been enabled.
- The SSDP service has to be enabled in the Windows service management.
- The SFTP connection via the standard port 22 must have been enabled.

9 Packaging/return

Improperly packed assembly groups and devices may produce extra costs due to damage during transport.

Please observe the following instructions when sending dormakaba products.

dormakaba is not liable for damage to products which is due to inadequate packaging.

9.1 Complete devices

The original packaging is specially made for the device. It provides optimum protection against transport damage.



Always use the original packaging to return the device!

If this is not possible, you must provide packaging which will prevent any damage to the device.

- Use a sturdy, thick-walled transport case or a box. The transport case should be large enough to allow 8–10 cm clearance between the unit and container wall.
- Wrap device in a suitable foil or place in a bag.
- Pad heavily around the device with foam padding or air bags, for example. The device must not be able to move around within the packaging.
- Use dust-free, environmentally friendly fill material.

9.2 Electronic component assemblies



ESD-sensitive electronic component assemblies such as PCBs and readers should be stored, transported and shipped in suitable anti-static packaging. Electronic component assemblies must be packed at ESD-protected workstations. This should be carried out by persons who are familiar with and comply with general ESD protection regulations.

Electronic component assemblies must be returned in packaging with sufficient ESD protection to

- make warranty claims in the event of malfunctions of any type.
- Delivery of replacements for electronic PCBs and components in replacement procedure.

Electronic components shipped in packaging without adequate ESD protection will not be analysed or repaired to maintain a high quality standard; they will be taken directly to disposal instead.

9.3 Labelling

Including all returns paperwork and labelling the package correctly enables us to process your case quickly. Please ensure that a delivery note is enclosed in each package. The delivery note should contain the following information:

- Number of devices or components in each package.
- Article numbers, serial numbers, designations, order number.
- Address of your company/contact person.
- Reason for return, e.g. repair exchange.
- Accurate description of fault.

Returns from countries outside the EU also require a customs invoice with an accurate customs value and customs tariff number.

10 Disposal



This product complies with the WEEE Directive and is labelled with the "crossed-out wheeled bin" WEEE symbol as German Industrial Standards (DIN) EN 50419.

The symbol indicates that electrical and electronic devices must be returned separately in EU member states.



You must not dispose of the device in the household waste as per the European WEEE Directive.

The device's integral components must be separated before they are taken for recycling or disposal. Old and used devices contain valuable recyclable materials which must be recycled. Toxic and hazardous components may cause long-term damage to the environment if you dispose of them incorrectly.

Legislation (such as the Electrical and Electronic Equipment Act [ElektroG] in Germany) dictates that facility operators are obliged to return electrical and electronic devices to their manufacturer, point of purchase or designated public collection points at the end of their life cycle.

Disposal in Germany:

dormakaba EAD GmbH will take responsibility for correct disposal of supplied goods once they are no longer in use as per statutory regulations (ElektroG in Germany). The owner of the used electrical appliance bears any costs incurred for transport to the manufacturer's plant.

Disposal in Switzerland:

the device is to be returned to an electrical appliance return point as per Regulation on Returning, Taking Back and Disposing of Electrical and Electronic Equipment (VREG).

In the EU, electrical appliances should be taken for disposal in accordance with the country's respective disposal and environmental guidelines.

Deletion of personal data

The owner/operator is responsible for deleting their personal data.



Dispose of packaging in an environmentally responsible fashion.

The packaging materials are recyclable. Do not dispose of packaging in the household waste; take it to a recycling point instead.

Lithium batteries



To back up the real-time clock RTC, the device is equipped with a lithium manganese dioxide battery type CR2032.

The battery is located on the rear side of the terminal housing.

Remove battery before returning the device [▶ 8.1](#).

Do not dispose of the batteries in your domestic waste.

Used lithium batteries must be returned to a disposal system according to national and local regulations.

To prevent short circuits and the resulting heating, lithium batteries must not be stored or transported unprotected. Examples of suitable measures against short circuits include:

- Placing the battery in a plastic bag
- Covering poles with adhesive tape

See also safety instructions in Handling of lithium batteries [▶ 2.6](#).



Uninterruptible power supply UPS610

The device is optionally equipped with the uninterruptible power supply UPS610.

The UPS610 contains an NiMH rechargeable battery.

Remove UPS before returning the device [▶ 5.5](#).

Do not dispose of the UPS in your domestic waste!

The UPS must be disposed of according to state and local regulations.

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