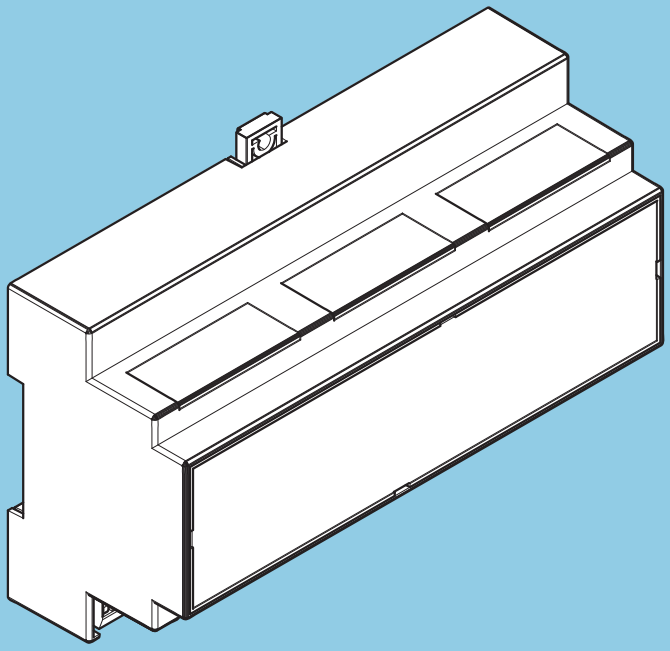
Escape route technology

www.assaabloy.com/de



TSB-Controller II

effeff
ASSA ABLOY

User manual

D0126604

Experience a safer
and more open world

EN

Read this manual thoroughly before use and keep it in a safe place for later reference. The manual contains important information about the product, particularly for the intended use, safety, installation, use, maintenance and disposal.

Hand the manual over to the user after installation and pass the manual on to the purchaser together with the product if the product is sold.

Firmware version	4.0.1220
***FT Manager*version**	4.0.1220
Open Source Licenses	*ASSA ABLOY Sicherheitstechnik GmbH* has the source code of the software used in the scope of Open Source licenses (such as FreeRTOS™, newlib, lwIP) available on request: http://www.assaabloy.com/com/global/opensourcelicense/

Publisher
ASSA ABLOY Sicherheitstechnik GmbH
Bildstockstrasse 20
72458 Albstadt
Germany
Phone: +49 (0) 7431 / 123-0
Email: albstadt@assaabloy.com
Internet: www.assaabloy.com/de

Document number and date
D0126604 06.2022

Table of contents

Notes

About this manual

This manual was written for electricians and appropriately trained personnel. The manual was designed to enable you to install and operate the device safely and make full use of the permitted range of applications the control terminal has to offer.

Meaning of the symbols

Danger!

Safety notice: Failure to observe these warnings will lead to death or serious injury.

Warning!

Safety notice: Failure to observe these warnings may lead to death or serious injury.

Caution!

Safety notice: Failure to observe these warnings may lead to injury.

Important!

Note: Failure to observe these warnings can lead to property damage and impair the function of the product.

Note!

Note: Additional information on operating the product.

Safety instructions

Warning!

Danger arising from modification of the product: The safety features of this product are an essential requirement for its conformity with EltVTR. No changes which are not described in this manual may be undertaken.

Danger due to faulty commissioning: In order to ensure the safety of the product, commissioning must be performed by a qualified person. *ASSA ABLOY Sicherheitstechnik GmbH* offers training for qualification in the requisite skills.
Any work on electrical connections may only be carried out on the *TSB Controller* and control devices when they are in a de-energised state to eliminate any risk of physical injury or damage to the equipment. Observe VDE regulations in this respect.

Danger due to faulty maintenance: The owner is responsible for correct installation and functional inspection of the product and connected components. The safe function must be tested by a trained qualified expert at least once per year. Requirements established by inspection authorities must be complied with. *ASSA ABLOY Sicherheitstechnik GmbH* offers training for qualification in the requisite skills.

Caution!

Risk of injury due to damage: The device must not be used if it is damaged. Damaged cables and connector assemblies also represent a safety hazard and must not be used.

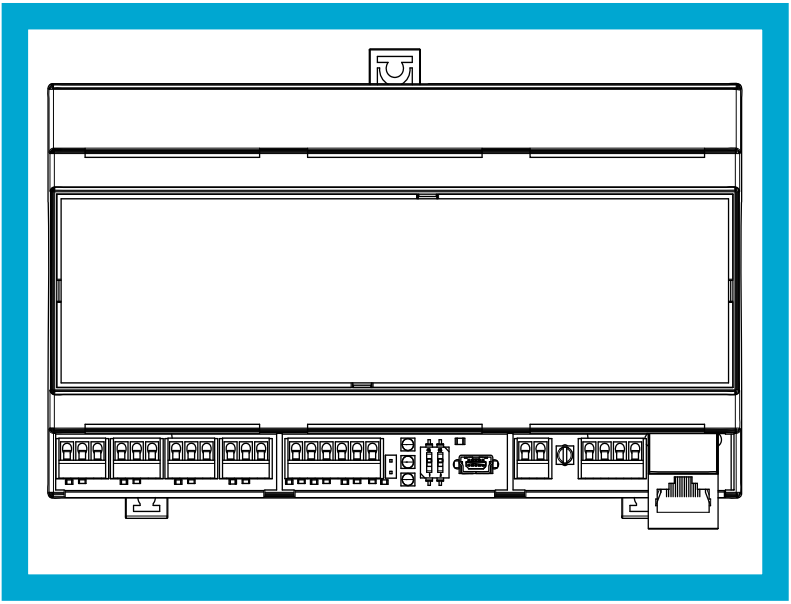
Intended use

The *TSB Controller II* serves as a link between a PC and *the TS bus*. Data transfer between the PC and *TSB Controller II* takes place via Ethernet. Data transmission between the *TSB Controller II* and the individual escape door control units or control terminals (peripherals) takes place via the *TS bus*.

The *TSB Controller II* must be mounted on top-hat rails in accordance with DIN EN 60715 TH35. The wiring takes place via screw-type terminals.

The *TSB Controller II* is suitable for installation and use in accordance with this manual. It is not intended for any other type of use.

Fig. 1:
TSB Controller II



Operation

General description

TS bus (door control bus)

Bus technology is primarily used in modern control technology in equipment where a larger number of individual devices are monitored and controlled.

The *TS bus* uses two-wire technology to ensure that installation between the individual devices and a central control point is restricted to a two-wire bus line.

Up to 110 peripherals can be controlled and monitored on the PC via the two-wired bus line.

Usage and range of functions

110 peripherals

- Use in systems with up to 110 peripherals.
- Minimum installation work when using effeff *TS bus*.
- Interface for OPC and visual display of building layout.
- *FT Manager* web interface
  - Configuration and parametrisation for systems and devices
  - Events logging
  - Maintenance module

As a central interface, the *FT Manager* web interface offers the system integrator the option of integrating configuration and administration functions by linking them into its user interface. No special software must be installed and maintained on the computer except a standard web browser (Internet Explorer 7 and above, Mozilla Firefox 3 and above). A service PC is directly connected using a crossover cable (included in the supply package). The system can also be integrated into the building network. A patch cable must be used to connect to a building network (not included in the supply package). System security is assured thanks to password protection, a backup function and encrypted transmission to the PC.

Note!

Functionality in the event of PC failure: If the PC should crash, the *TS bus* will continue to function. The doors can be controlled using an optional control panel instead. If the *TS bus* fails, the safety functions in escape door control units or escape door control terminals and connected components, such as escape door strikes and emergency open switches, remain operative for safety reasons.

Control and monitoring

970-VIS and FT Manager

Peripherals and escape doors are controlled and monitored from the PC, preferably using the *effeff escape route visual display 970-VIS*. System status messages and statistics are configured and displayed on the integrated web application *FT manager*.

Installation

Warning!

Danger due to faulty Installation: The bus controller module and connected devices may only be installed and set up for operation by a qualified electrician.

Danger due to non-compliance with the applicable regulations: You must observe and comply with the German Electrical Engineering Association (VDE) and local electricity company regulations when installing equipment.
You must also comply with safety regulations regarding work on electrical systems..

Important!

Components at risk of electrostatic discharge: Electronic components in equipment should not be touched to ensure that electrostatic discharge does not cause injury or damage. If you cannot avoid touching electronic components, you should use a suitable anti-static tool.
To ensure that the risk of electrostatic discharge is kept to a minimum, the person who is working on the system should ensure that they are not carrying an electric charge. They should take suitable measures such as wearing an anti-static wrist strap.

Lines and wiring

Connect TS bus

You must comply with a few installation requirements to ensure that the system functions correctly. Please follow the instructions below and carry out installation and connection work carefully.

TS bus installation

Important!

Disturbances due to excessive total line length and line resistances: The total length of the bus line should be no longer than 1,000 m and resistance in the line to peripherals should be no greater than 65 ohm. This ensures that no problems arise due to high interconnect capacitances and resistances. We recommend using *bus repeater 901-35* for projects where longer line lengths are required.

- You must install a separate, shielded line which is used exclusively to connect peripherals to the bus. We recommend using telecommunications cable type J-Y(St)Y with a cross-section of 0.28 mm² or 0.5 mm².
- Do not use free wires in the bus line for additional control tasks or power supply to external peripherals, since this may interfere with data transmission.
- Install only one wire for the data line and one wire for ground in the bus connection for the whole system. Never connect two or more wires in parallel to increase the cross-section size, as this can cause malfunctions.

Connecting peripherals to the *TS bus*

Important!

Damage due to short circuit: The bus line is poled. If the bus line is connected incorrectly, it will short-circuit and block the whole bus system, possibly damaging connected devices permanently.

Each peripheral features two connecting terminals for the *TS bus*, to which the bus line is connected:

- *TS bus data* terminal: for connecting the data cable
- *TS bus GND* terminal: for the system ground

Bus controller installation

The *TSB Controller II* is intended for installation in a suitable electrical distributor.

It is mounted on top-hat rails according to DIN EN 60715 TH35. The wiring takes place via screw-type terminals.

Installation location

The installation location of the *TSB Controller II* distributor must meet the following conditions:

- It must be on the inside of the building.
- It must not be exposed to any unusual environmental conditions, such as aggressive vapours or high humidity.
- The *TSB Controller II* should be easily accessible in a protected area and not be exposed to direct sunlight.
- When mounting the *TSB Controller II*on the wall, take care not to damage any wiring or pipes inside the wall itself. The module rack for the *TSB Controller II* and fastening screws must not come into contact with conductive elements in the building's structure.

Power supply

external power supply

The *TSB Controller II* must be powered by an external power supply.

The power supply unit must comply with the specifications described in chapter "Technical data", page 22.

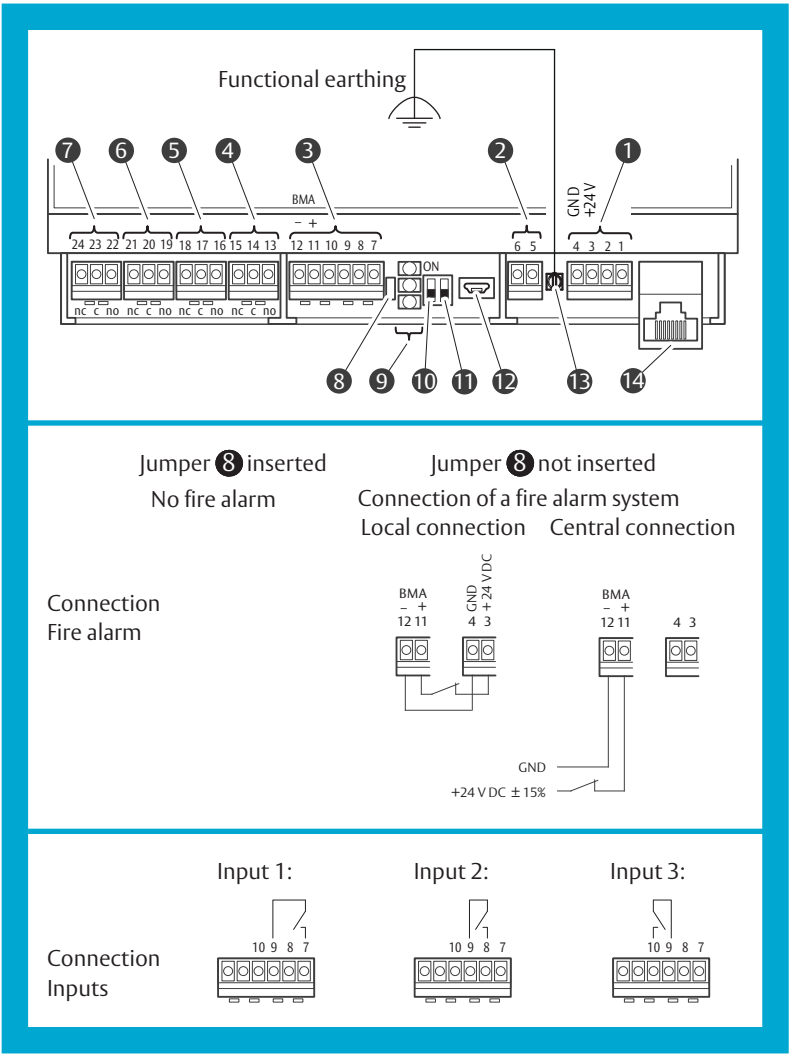
Battery

In the event of a power failure, the battery buffers the RTC (real-time clock).

The battery only needs to be removed when the device is taken out of operation and sent for disposal ("Disposal", page 24).

Connections

Fig. 2: Terminal strip



Tab. 1: Key for Fig. 2

Pos.	No.	Description
❶	1 2 3 4	reserved reserved supply + 24V supply 0V
❸	7 8 9 10 11 12	Input 1 Input 2 Ground Input 3 Fire alarm system + Fire alarm system -
❺	16 17 18	Relay 2 no Relay 2 c Relay 2 nc
❼	22 23 24	Relay 4 no Relay 4 c Relay 4 nc
❾		LED signalling: (page 15) LED red LED yellow LED green
⓫		DIP switch 2 – For factory reset
⓭		Functional earthing FE

Pos.	No.	Description
❷	5 6	TSB ground TSB data
❹	13 14 15	Relay 1 no Relay 1 c Relay 1 nc
❻	19 20 21	Relay 3 no Relay 3 c Relay 3 nc
❽		Jumper (plug connector) for deactivating a fire alarm system Jumper set: Fire alarm system off
❿		DIP switch 1 – Reserved for expansions at a later date
⓬		Port – Reserved for expansions at a later date
⓮		Ethernet

Resetting to factory settings

Resetting to factory settings will lose all changes to the operating data.

Reset to factory settings

The factory settings are reset from the basic state or from a fault.

1 Set DIP switch 2 *to OFF* if necessary (Fig. 2– ⓫).
⇨ DIP switch 2 is now in the *OFF* position.
2 Set DIP switch 2 from *OFF* to *ON*.
⇨ *Red LED*, *yellow LED* and *green LED* flash (1 : 1).
3 Wait at least 10 seconds.
⇨ *Red LED* continues to flash (1 : 1), *yellow LED* and *green LED* are off.
4 Set DIP switch 2 from *ON* to *OFF* again.
⇨ *Red LED*, *yellow LED* and *green LED* are on.
⇨ Factory settings are applied.
This resets the IP address.
⇨ After a pause of 3 seconds, a restart takes place automatically.
⇨ The *TSB Controller II* is back in its basic state.
5 Perform a commissioning (“Set-up operation”, page 16).

LED signalling

The LEDs are used for status indication. Start, basic state (normal operation), data traffic, faults and the reset to factory settings are indicated and documented by the behaviour of the LEDs.

Tab. 2: LED signals

LED red	LED yellow	LED green	
After switching on/ booting			
On	On	On	Booting procedure after switching on
Booting takes about 20 seconds. Only then will the controller take control of the LEDs.			
Off	On	On	Reference run (bus scan)
Normal operation			
Off	Off	On	Basic state – no data traffic
Off		Flashes 5: 1	Data traffic via TS bus
Off	Flashes 5: 1		Data traffic via network bus
Off	Flashes 5: 1	Flashes 5: 1	Data traffic via network bus and TS bus
Faults			
On			Malfunction
On	Off	Off	No device on the bus (only during restart)
On	Flashes 1: 1	Off	Device on bus is missing
On	Off	Flashes 1: 1	New device on the bus (only during restart)

Check list

Inspecting

Check installation

- Is the power supply to the peripherals secured?
- Are all peripherals, escape door strikes and contacts connected?
- Is the bus line connected to the peripherals?
- Is the power supply connected to the controller?
- Is the bus line connected to the controller?

Check the settings on the 970 TSB Controller and peripherals

- Have the system settings been configured?
- Are all peripherals set to *Bus operation*?
- Has each peripheral been assigned a peripheral address?

Turning on the system

Commissioning

Initial operation of peripheral devices

1 Switch on the power supply to each individual peripheral.
2 Check each individual peripheral at its installation location to verify that it is fully functional.
3 There must be no alarm active on peripherals once they are checked. If an alarm is active, it must first be switched off and the cause of the alarm eliminated before continuing.

Initial operation of the *970 TSB Controller*

1 Turn on the power supply.
⇨ After switching on, the operating status is signalled via the LEDs (“LED signalling”, page 15).
2 Switch on your PC and make the required settings in *FT Manager*.

Network connection

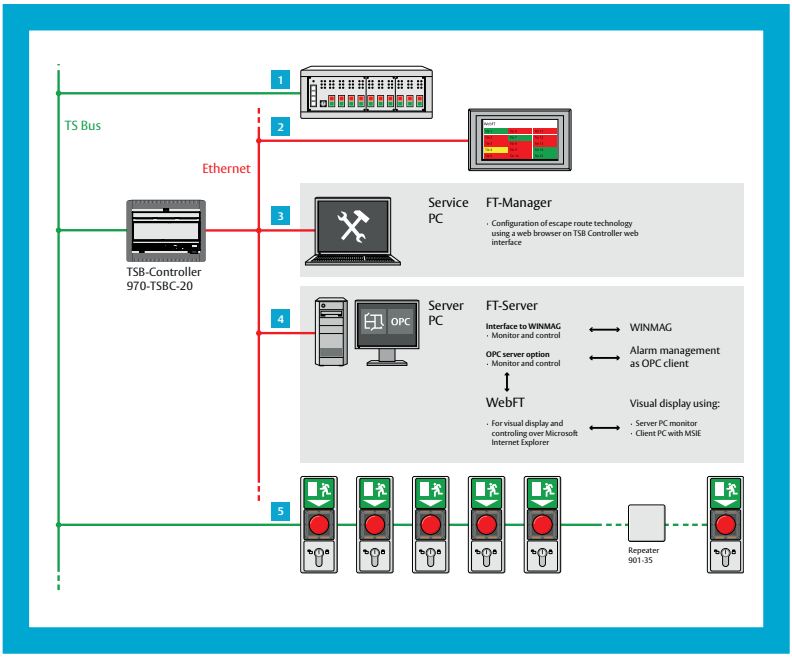
You need to establish a network connection between the *TSB Controller* and your PC, so that you can access the web interface in the *FT Manager* .

This can be done in several ways:

- Direct network connection using a cross-over cable (included in supply package)
  - Initial/set-up operation using service PC
- A patch cable to connect to a building network (not included in the supply package).
  - Coordination with the network administrator required
  - Configuration for use in the network.

Escape route technology network structure

Fig. 3:
Network structure



FT Manager

FT Manager

Connection to service PC

The network connection between the *TSB Controller* and a service PC is established using a cross-over cable.

The escape route technology is configured under Windows® 10 using *FT Manager* and a web browser.

System settings

System settings

The system settings on the controller, such as TCP/IP address assignment, are made via the *FT Manager*'s web interface.

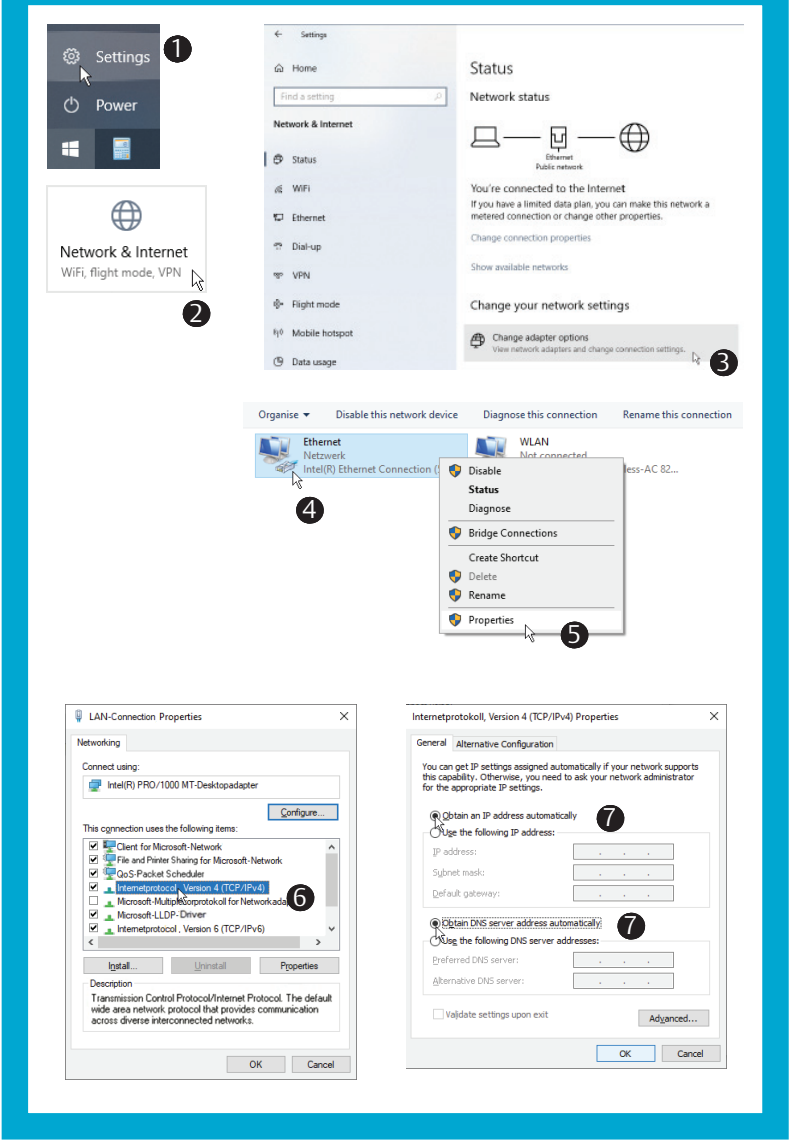
Configuring the network connection

You need to check the LAN settings on the network card and adjust if necessary to ensure that the *TSB Controller* can communicate with your PC.

The bus controller's DHCP server is active ex works.

1 Open the *Windows settings* window (Fig. 4 – ❶).
2 Click *Network and Internet* (– ❷).
⇨ The *Settings* window opens.
3 Click *Change adaptation options* (– ❸).
4 Double-click on *Ethernet* (– ❹).
5 Click on *Properties* (– ❺). Depending on the configuration of your PC, you may need to confirm your authorization with a password.
6 Select *Internet Protocol version 4 (TCP/IPv4)* (– ❻) and confirm with *OK*.
7 Select the options *Obtain IP address automatically* and *Obtain DNS server address automatically* (– ❼) and confirm with *OK*.
⇨ The network connection is configured.

Fig. 4: Configuring the network connection



Opening the FT Manager

Web browser

Once configuration is complete, you can then open up the *FT Manager* in a web browser.

1 Start your web browser.
2 Enter the following URL in the address bar:
https://1.1.1.1 and confirm the entry.

⇨ A security notice will appear.

Note!

Unknown security certificate warning message: The security certification encrypts communication between the computer and the *970-TSBC*. This security certification is trustworthy, but the web browser won't recognise it

3 You will therefore need to select *Continue to load this website* ... (Fig. 5 – ❶).

⇨ The *FT Manager* will now open in the browser window (Fig. 6).

Use in the network

Connection to server PC

If the *TSB Controller* is to be used in a network, you will need to coordinate with the network administrator.

Configuration for use in a network
You can permanently assign IP addresses in a network or obtain them automatically.

The *TSB Controller* requires a permanent address. The required settings should be configured in *FT Manager*.

Fig. 5
Note on the safety certificate

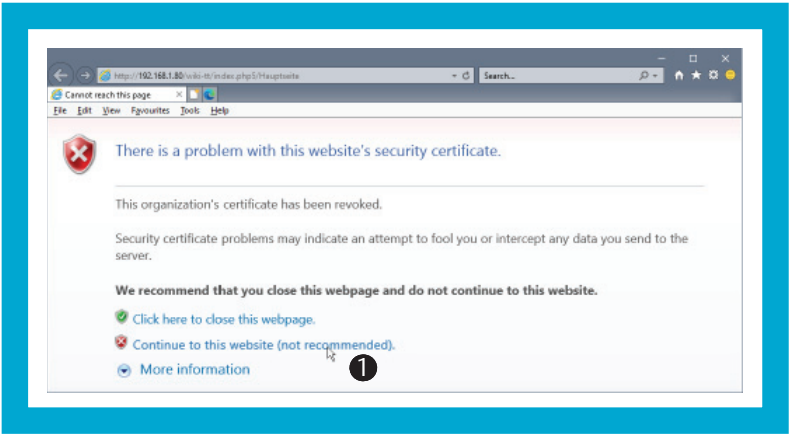
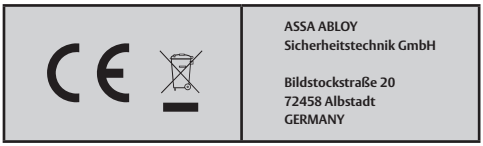


Fig. 6
Start interface of the FT Manager

Technical data

Feature	Characteristic
Input voltage range	12 V DC (–10 %) bis 24 V DC(+10 %) SELV optimal voltage = 24 V DC
Maximum current consumption: · at 24 V · at 12 V	 250 mA 500 mA
Application site	for use in indoor areas
Protection rating	IP 30 (when completely mounted)
Operating temperature	0 °C – 40 °C
Battery	CR2032 Lithium coin cell, 3 V 210 mAh
Battery life	approx. 5 years - varies depending on the quality of the coin cell used
Ethernet interface	RJ45 Transmission rate 100 MBit/s IEEE standard 802.3.-100BASE-TX
TS bus interface	2-wire twisted pair cable
Length of line max.	1000 m
Housing	Distributor installation top-hat rail in accordance with DIN EN 60715 TH35

Certification



The EU declaration of conformity is available in the download area of www.assaabloy.com/de

Warranty, disposal

Latest news

The latest information is available at: www.assaabloy.com/de

Warranty

The statutory warranty periods and *ASSA ABLOY Sicherheitstechnik GmbH's* Terms and Conditions of Sale and Delivery (www.assaabloy.com/de) apply.

Disposal

The following applies to products marked with the symbol  (crossed out dustbin):

The applicable environmental protection regulations must be observed. Do not dispose of lamps, disposable and rechargeable batteries, electrical devices or personal data in the household waste.

Lamps and used disposable and rechargeable batteries must be removed from the device without damaging them and then disposed of separately.

Packaging

Packaging materials must be recycled. You can also give packaging material to the distributor or trade professional for disposal free of charge at the place of handover.

Batteries

CR 2032 button cell

The product contains disposable or rechargeable batteries. Batteries must be removed from the product (“Remove battery before disposal”, page 25) and disposed of separately.

Li

Battery contains lithium

Used batteries should not go in household waste and can be returned to any local collection point free of charge. You are legally obliged to recycle used batteries.

Personal data

Personal data must be deleted before disposing of the product. For this purpose, reset the device to the factory settings (“Resetting to factory settings”, page 14). The end user is responsible for this.

Remove battery before disposal

Important!

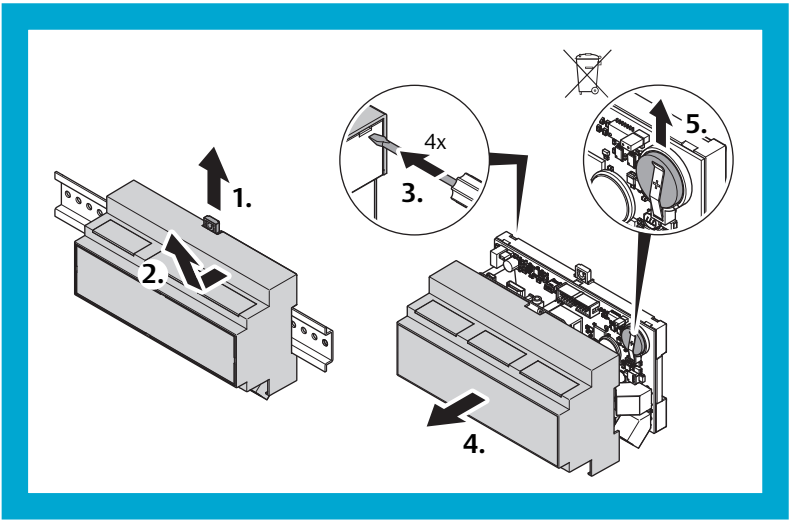
Material damage may result from removing the battery: It is not necessary to remove the battery during normal use of the device. Opening the housing can damage the device.

· Only open the housing before disposing of the battery

1 Disconnect all clamps.

2 Follow the instructions shown (Fig. 7).

Fig. 7: Remove battery



Product

WEEE reg. no. DE 69404980
You must dispose of the product correctly as electronic scrap after use and take it to a local collection point for recycling free of charge.

You have the following additional options for free disposal through the distributor[1)]:

- Return an old device with similar functions at the place where the new device is delivered.
- Return a maximum of three similar old appliances (max. edge lengths 25 cm) to a retail store with no obligation to purchase a new one.

The take-back obligation applies to distributors of electrical appliances with a sales area of over 400 m² or to distributors of foodstuffs that offer electrical appliances several times a calendar year or continuously with a total sales area of 800 m². In the case of online providers, the total storage and shipping areas for electrical appliances are considered retail space. For further details, see German Electrical and Electronic Equipment Act Section 17 (1)(2) [ElektroG3 §17 (1)(2)].

Distributors using means of remote communication must, upon delivery, collect or take away free of charge heat exchangers, screens, monitors and devices containing screens with a surface area greater than 100 square centimetres and devices in which at least one of the external dimensions is greater than 50 centimetres. For lamps and smaller devices in particular, they must ensure suitable return options at a reasonable distance.

The ASSA ABLOY Group is the global leader in access solutions. Every day we help people feel safe, secure and experience a more open world.

ASSA ABLOY
Opening Solutions

ASSA ABLOY
Sicherheitstechnik GmbH
Bildstockstrasse 20
72458 Albstadt
GERMANY
Tel. +49 7431 123-0
albstadt@assaabloy.com
www.assaabloy.com/de