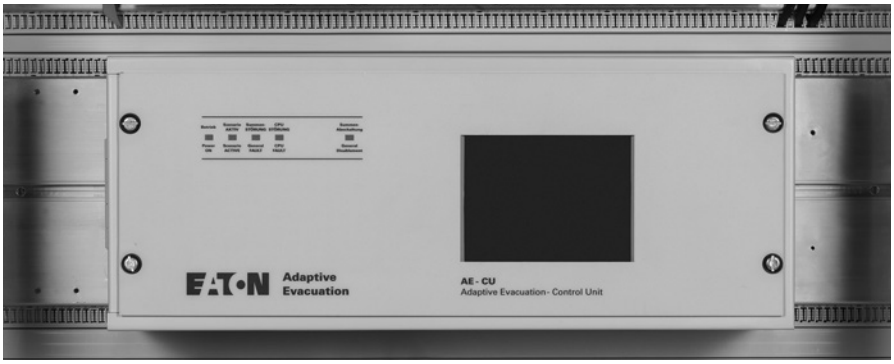
Mounting and Operating Instructions
CEAG AE-CU – Adaptive evacuation control unit

Target group Part 1: Qualified electricians in accordance with EN 501 10-1
Target group Part 2: Trained electricians / CEAG Service Technicians



Powering Business Worldwide

Content Part 1: System configuration and installation

Content Part 2: Commissioning

Introduction to the manual

This manual contains information about the installation, operation and maintenance of the AE-CU

NOTE

Thr AE-CU operating system might be reworked as part of further development.

Possible modification of the software and hardware of the AE-CU may be the result of the constant development of the evacuation guidance system. New editions of this manual are available upon request.

! ATTENTION

Risk of explosion if using wrong battery type! Dispose of old batteries properly, according to the instructions!

Important information

1 General information

1.1 Key to symbols

Important technical safety information in these operating instructions is highlighted by symbols.

The safety information must be complied with.

⚠ WARNING! DANGER! DANGER OF INJURY OR DEATH!

Disregarding the safety information highlighted by this symbol could result in health impairment, injury, permanent physical injury or death.

! ATTENTION! PROPERTY DAMAGE!

Disregarding the safety information highlighted by this symbol could result in damage to property or even to the complete failure of the system.

NOTE!

This symbol denotes tips and information on the operation or the handling of the described appliances and plant components which are important for failure-free operation.

1.2 Information on the operating manual

This operating manual describes how to handle the device safely and correctly. The safety information and isntructions provided as well as the local accident prevention measures for the area of operation and all general safety measures must be complied with.

Before starting any works at the equipment, read the complete operating manual, especially the sections on safety and all safety instructions.

The illustrations and circuit diagrams in this manual are partly for the purpose of illustrating the descriptions. Any time

- exact measurements or
- precise illustrations and circuit diagrams tailored to the specifics of the location are required,

the illustrations and plans that have been specially drawn up for the lighting installation must be followed exactly.

1.3 Applicable documents

Components from other manufacturers are built into the equipment (ex. batteries). These additional component parts are subject to the manufacturer's risk assessments. The compliance of these constructions with the valid European and national regulations has been certified by the manufacturers of these components.

1.4 Liability and warranty

All the information and instructions in this operating manual were drawn up in accordance with the valid provisions, the latest state of technology and our long-term knowledge and experience.

The operating manual must be kept in the immediate proximity of the product, where it must be accessible to everyone who works on or with the system.

Read the operating manual carefully before starting to do any works on and with the product!

CEAG Notlichtsysteme GmbH accepts no liability and/or warranty for any faults that could arise with the delivery and installation of CEAG emergency lighting systems and luminaires based on other norms and regulations that are prescribed in the complete installation package in connection with CEAG products. In addition please observe all laws, norms and guidelines of the country in which the equipment is being set up and operated.

CEAG accepts no liability or warranty for damage or consequential damage that is caused

- by improper use,
- non-compliance with the regulations and rules of conduct concerning the safe operation of the system,
- non-authorized changes or changes carried out by non-specialists to the connections and settings of the system or to the programming,
- operation of unauthorized or inappropriate devices or groups of devices with the product.

1.5 Copyright

All the material information, texts, drawings, pictures and other illustrations are protected within the meaning of copyright law.

1.6 Replacement parts

Only use the manufacturer's original replacement parts.

! ATTENTION!

Incorrect or faulty spare parts can result in damage, malfunctions, or a complete failure of the equipment.

In the event of the use of unauthorized replacement parts all the guarantee, service, compensation and liability claims become null and void.

1.7 Disposal

Packaging materials are not waste material but valuable assets that can be used again or recycled.

CEAG has been awarded the recycling certificate issued by INTERSEROH GmbH. The contract number is 85405. This guarantees that all registered packaging material is reused and all the requirements of the Packaging Ordinance are fulfilled.

INTERSEROH collection points are obliged to dispose of CEAG packaging free of charge.

Batteries and electrical components contain materials that can lead to damage to health and to the environment if they are not disposed of correctly. Please observe the national guidelines and regulations for the disposal of old batteries and electronic components.

2 Safety

At the time of its development and production, the product was manufactured in accordance with the recognized technical rules and is deemed to be operationally safe.

However, the equipment could be dangerous if is not used by specially trained personnel, if it is used for purposes for which it is not intended or if it is used incorrectly.

⚠ WARNING!

When planning a lighting system based on such a system, check in advance whether the planned electrical installations of the application environment is sufficient. Special environmental conditions (ex. potentially explosive atmospheres or areas with aggressive atmospheres) require special setups and installations.

Only use the system and the associated component parts in a technically faultless condition, taking into account

- the safety and hazard information in the assembly and operating instructions,
- the operating and safety instructions for the operator of the equipment
- the installation and operating data set out under "3 Technical data" and the CEAG catalogue "Emergency lighting and emergency lighting systems".

Faults that could inhibit the functioning or safety of the equipment must be reported to the relevant management units immediately and must be rectified.

2.1 Intended use

The products shall be used exclusively for the control of a lighting system with emergency lighting. Operations are controlled by a program. Configuration is performed exclusively by specialist personnel with special knowledge of the legal and technical principles concerning the assembly and operation of a lighting system.

Only lights manufactured by CEAG can be controlled by this system.

Operational safety is guaranteed only in the case of the proper use of the systems.

! ATTENTION!

Any use that exceeds the intended use of the equipment and/or is another type of use of the equipment is prohibited and is deemed to be improper use.

2.2 Contents of the operating manual

Every person who is authorized to carry out work on or with the equipment must have read and understood the operating manual before commencing work on the battery unit. This also applies if the person concerned has worked with the same or similar batteries in the past or was trained by the manufacturer.

2.3 Changes and alterations to the equipment

In order to avoid hazards and to ensure the best possible performance, no modifications, retrofits and add-ons are permitted on the product unless these were expressly approved by the manufacturer.

In the event of enhancements, modifications or the implementation of works that are due, and which are not described in this manual, must be performed by specifically trained specialists and service personnel (either from CEAG as the manufacturer or sales and service companies authorized by CEAG)!

2.4 Responsibility of the operating entity

This operating manual must be kept in the direct vicinity of the equipment and must always be accessible to people working on or with the equipment.

The equipment must only be operated if it is in a perfect and safe operating condition. The integrity of the product must be checked every time before it is put into operation.

The operating instructions as set out in the manual must be complied with in full!

2.5 Personnel requirements

Only authorized and qualified electricians may carry out work on or with the device. The personnel must have been trained in possible hazards that may occur.

A specialist is deemed to be a member of staff who, based on his/her training, expertise and experience as well as his/her knowledge of the relevant provisions, is able to assess the work that he/she has been given and to identify any potential hazards.

If the personnel do not have the necessary knowledge,

- appropriate professional training must be carried out,
- the tasks and activities must be precisely defined and understood,
- the activities must be carried out under the supervision of specialists and experts.

2.6 Work safety

By complying with the safety instructions and notes in this operating manual, operators can avoid personal injury and damage to property during work on and with the equipment.

However, the following organizational measures must be recorded in writing and observed:

- Notification and reporting requirements (start, duration, end of works)
- Safety measures during the performance of works, ex. standby lighting, disconnecting the power supply and securing it against accidental switch-on (ex. remove the fuses, use a key switch, hang out signs)
- Protection and safety devices for the personnel working on the equipment (see section 2.7)
- Protection and safety devices against risks caused by neighboring components of the device (ex. safety grating, guards, securing the transport routes)

ESD protection must be observed when working on the equipment!

The work and safety provisions can be found in this assembly and operating manual as well as

- the organizational measures issued by management (see above for examples)
- and from the general and specialist guidelines and provisions governing health and safety.

2.7 Personal protective equipment

When working on and with the equipment the following must fundamentally be worn:

Protective clothing

Close fitting work clothing (low resistance to tearing, narrow sleeves, no rings or other jewelry, etc.).

Safety shoes

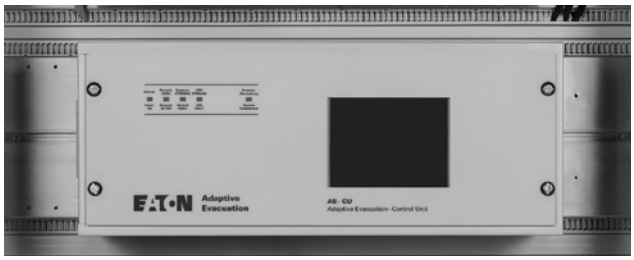
Electrostatically conductive shoes in accordance with Norm EN 345 that protect against any heavy falling objects.

3 System configuration

3.1 Technical specifications of the AE-CU-W wall mounting

Power supply unit	
Nominal voltage	230V AC +10 %, -15 %
Nominal Current	75 mA
Maximum current	750 mA
Rated frequency	50 Hz
Protection rating	IP 30
Protection class	I
Operating temperature	-5°C to +40°C
Nominal system operating voltage	24 V DC
Battery	12 Ah
Max. battery current	3.5 A
Charging characteristics	Constant voltage, temperature compensated
Min. Standby time	30 h
Weight incl. battery	14 kg
Dimensions (H x W x D in mm)	395 x 495 x 180
Material backbox	Mild steel, powder-coated
Material facia	PCB/ABS
Inputs	
Addressable loops	4
Scenario active inputs	2
Maximum loop length	2,000 m / I(ST)Y X x 2 x 0.8 mm
Maximum number of GuideLed DX/DXC luminaires per loop	60
Outputs	
Potential-free changeover contact	1
Contact load	24 V / 1 A
Fuse	1.35 A Polyswitch

3.2 Technical specifications of the AE-CU-E 19" built-in version for ZB-S/18-AE



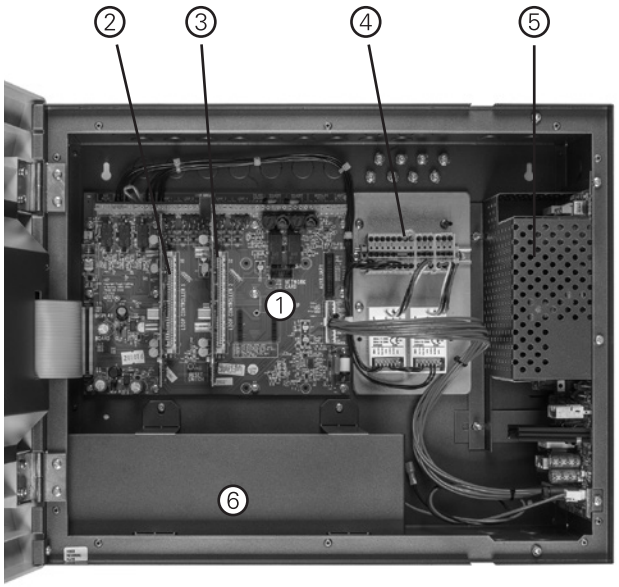
Nominal voltage	28.5 V/DC
Nominal current	4.2 A
Protection rating	IP 20
Protection class	I
Operating temperature	-5°C to +40°C
Weight	8 kg
Dimensions (H x W x D in mm)	200 x 500 x 190
Material	Mild steel, powder-coated
Inputs	
Addressable loops	4
Scenario active inputs	2 (other inputs on request)
Maximum loop length	2,000 m / I(ST)Y X x 2 x 0.8 mm
Maximum number of GuideLed DX/DXC luminaires per loop	60
Outputs	
Potential-free changeover contact	1
Contact load	24 V / 1 A
Fuse	1.35 A Polyswitch

3.3 AE-CU-W for wall mounting

① **LED indicators:** Power On, Scenario Active, General Fault, CPU Fault, Power Fault, General Disablement

② **Touch display, operational messages:** Scenario Active, Fault, Disablement
Fault messages:
Battery fault (AE-CU wall mounting), double address, earth fault, loop short circuit, charging fault (AE-CU wall mounting), mains fault, loop communication fault, loop driver fault, trouble fault relay, CPU fault, loop overload, loopbreak at address, break-loop +loop.

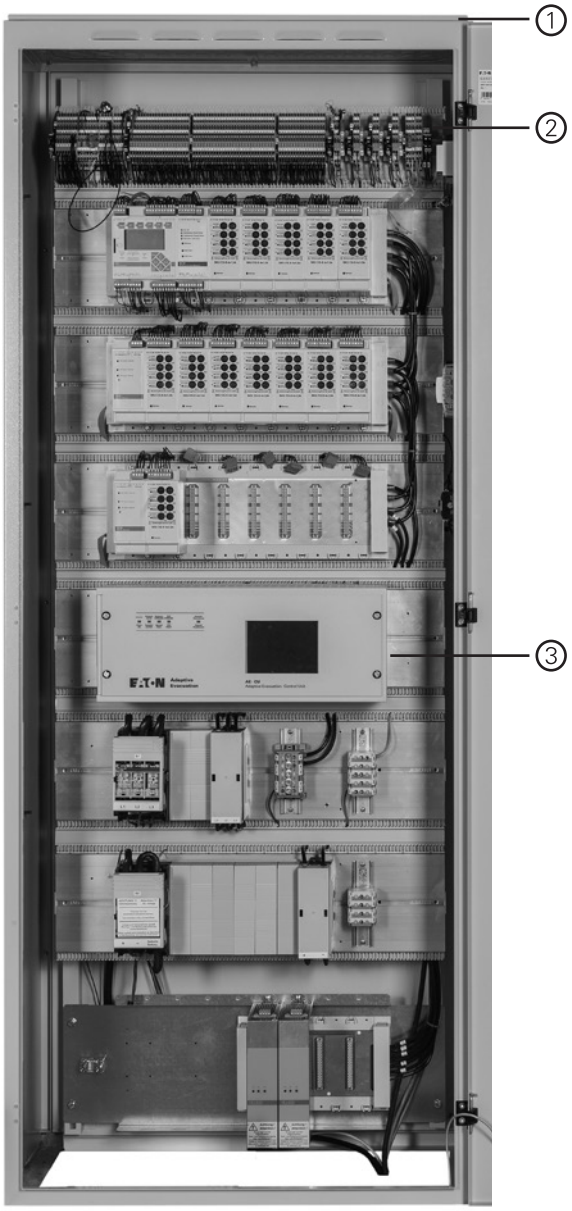
③ **Lock mechanism**



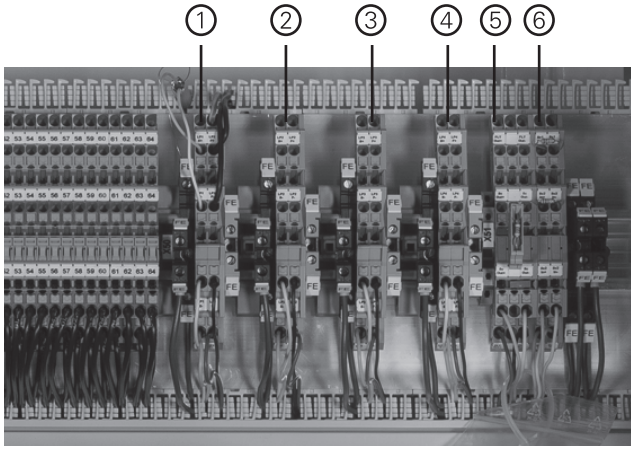
① Motherboard ZPCB2153VDS
② Loop card 1 ZPCB2148
③ Loop card 2 ZPCB2148
④ Connection terminals for loops and peripherals
⑤ Power Supply Unit ZPCB2147CPD
⑥ Battery compartment

For inserting cables, knockouts (M20) are provided at the rear, at the top and at the bottom right, which can be removed as required.

3.4 AE-CU-E built-in version



1. Central battery device ZB-S / 18
2. Connection terminals loop 1-4, scenario 1-2, fault and scenario active.
3. AE-CU 19" built-in version



1. Connection terminals loop 1
2. Connection terminals loop 2
3. Connection terminals loop 3
4. Connection terminals loop 4
5. Connection terminals fault, scenario active
6. Connection terminals scenario 1, 2

4 System assembly and installation

4.1 General notes

The panel should be installed in a clean, dry room with normal ventilation and without direct sunlight. Avoid temperatures above 40°C and below 5°C. Please contact us in case of doubt.

Installation procedure:

- Never carry out insulation tests on cables connected to electronic equipment
- do not over-tighten the terminal screws
- always use the correct cable type
- Always adhere to volt drop limitation when sizing cables
- Always observe polarity throughout
- Screen continuity must be maintained throughout the entire loop circuit including at each junction point and at each device, terminals are provided on each device to facilitate this
- The screen should be earthed at the connection point provided at the backbox of the AE-CU panel and not at any other point. The above applies only for the outgoing wires. The shield of the loop finish is not connected. Care must be taken to avoid connecting the screen to the earthed body of any metal devices, enclosures or cable containment.
- AE-CU utilises intelligent soft addressing technology to greatly simplify the installation and commissioning processes. Once the system has been installed and the autolearn menu selected, the CF3000 control panel will automatically scan the detection loops and allocate each device with an address number corresponding with its position on the loop, this avoids the traditional need for manual addressing of the system devices which is time consuming and provides a potential for error.
- It is of vital importance that accurate details are kept of the exact wiring route in order to determine which address has been allocated to each device.

Read all the installation instructions before commencing with the installation.

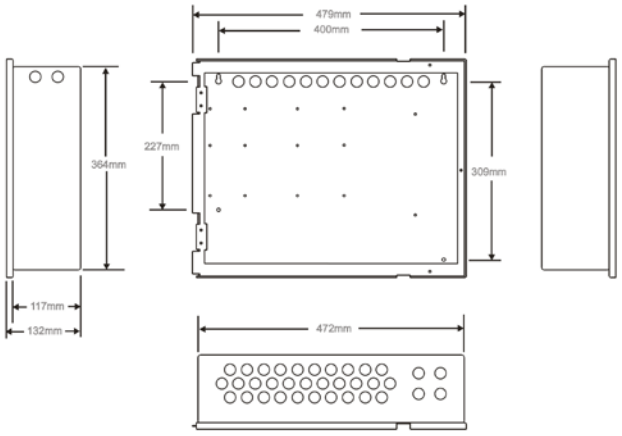
The electronic components within the fire panel are Static Sensitive. Do not touch the electronics directly.

4.2 Mounting

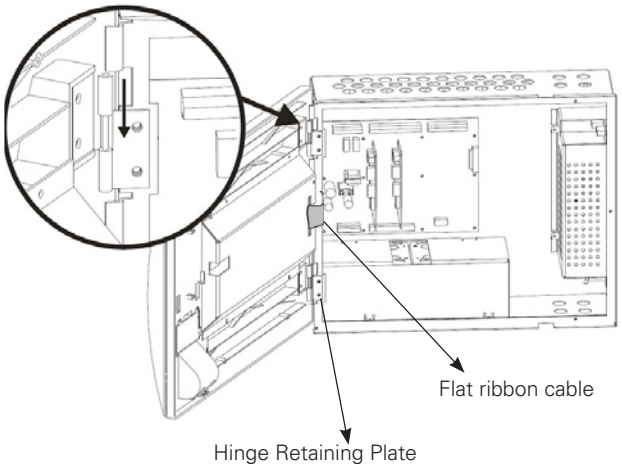
The AE-CU device can be both surface mounted or flush-mounted. Flush mounting the backbox requires a hole (H x W x D in mm): 364 x 472 x 117.

There are four holes available on the back plate for wall mounting. Use the following diagram for the dimensions.

In case of flush-mounting the panel, it is generally advisable to remove the front door in advance.



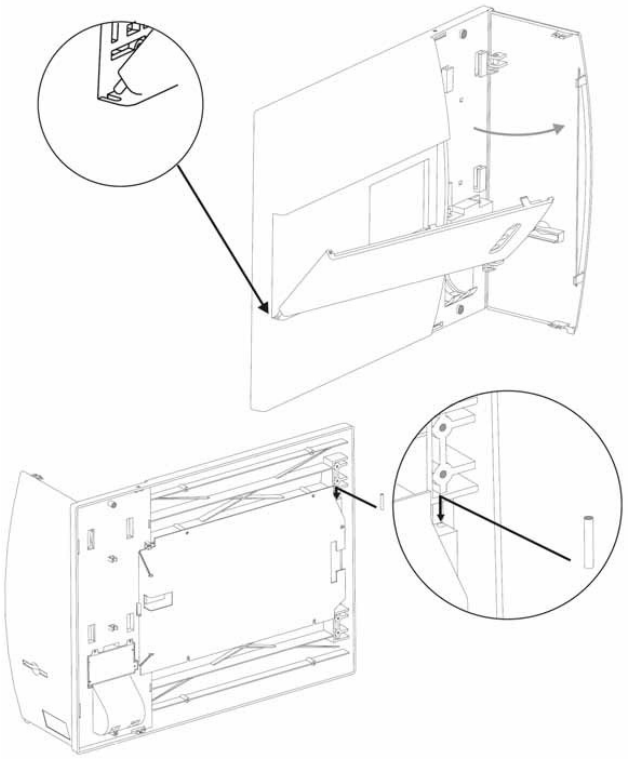
Therefore disconnect the flat ribbon cable connection of the rear circuit board. Then remove the hinge retaining plate. Now you can pull out the doors with careful rotational movement in upward direction from the hinges.



4.3 Hinged protective cover

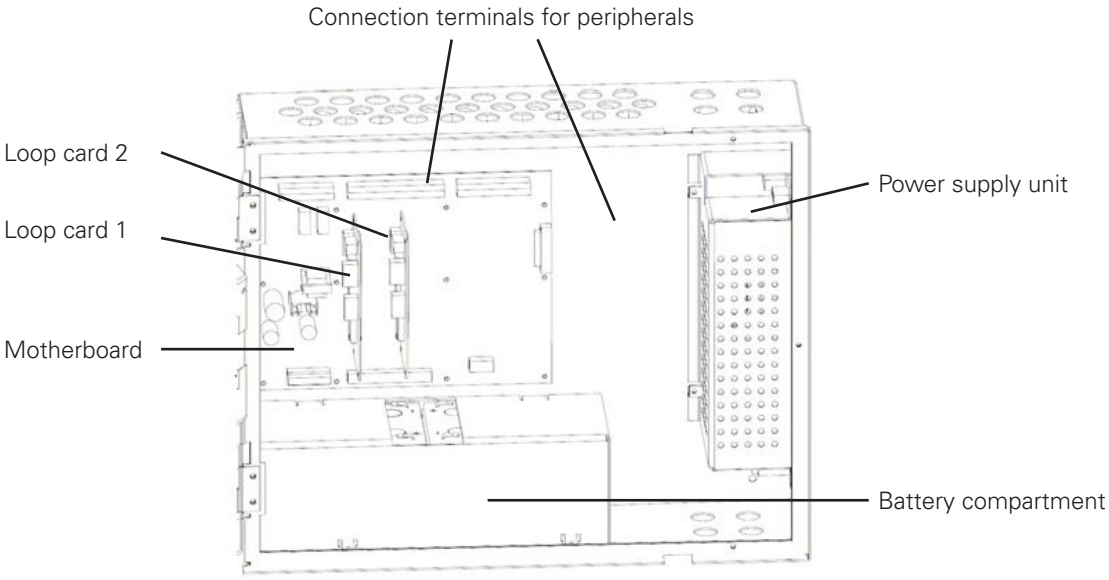
An option hinged cover is available as an optional extra item for AE-CU. This can be fitted as standard equipment prior to despatch or retro-fitted later. The method for fitting a cover is shown below.

First open the right front door. Insert the bottom peg of the hinged cover into the panel as shown and close the hinged cover followed by the right front door. Next from the back of the panel insert second peg though the hole shown below and push into the hinged cover.



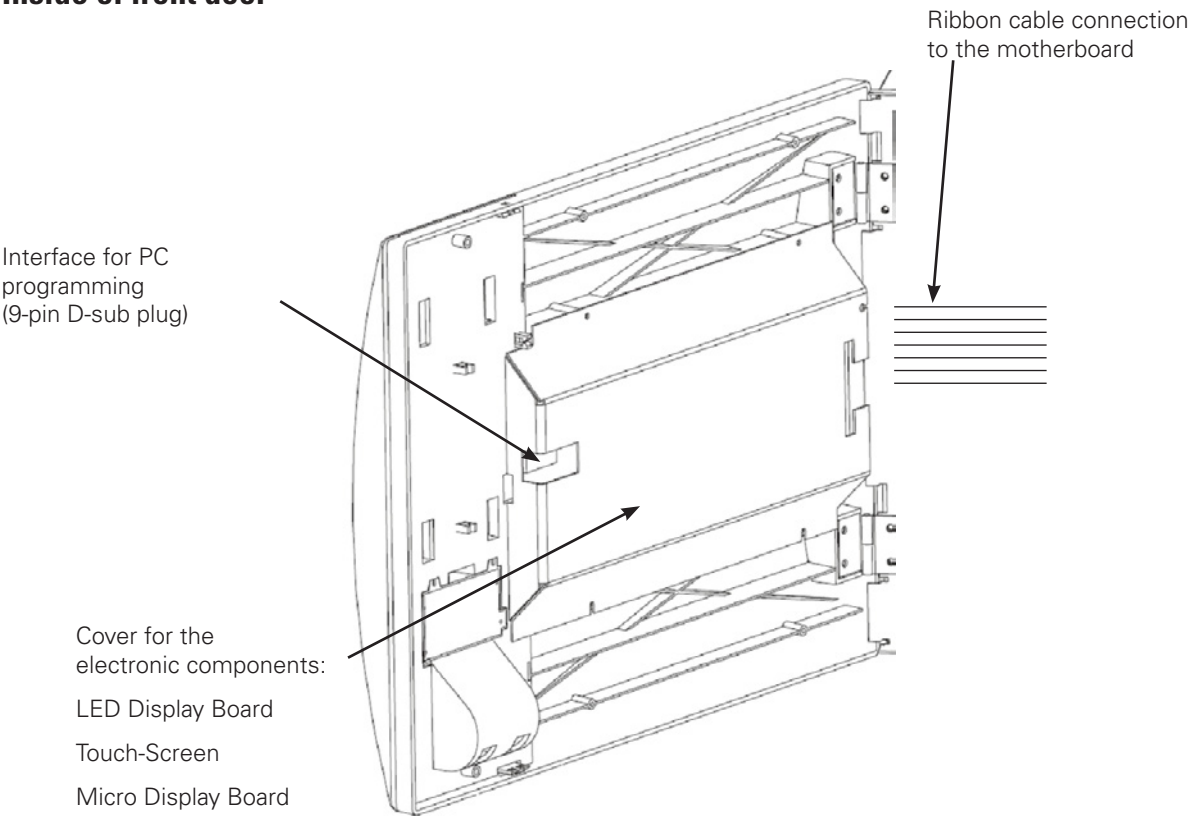
4.4 Panel assembly backbox and inside of front door

Backbox

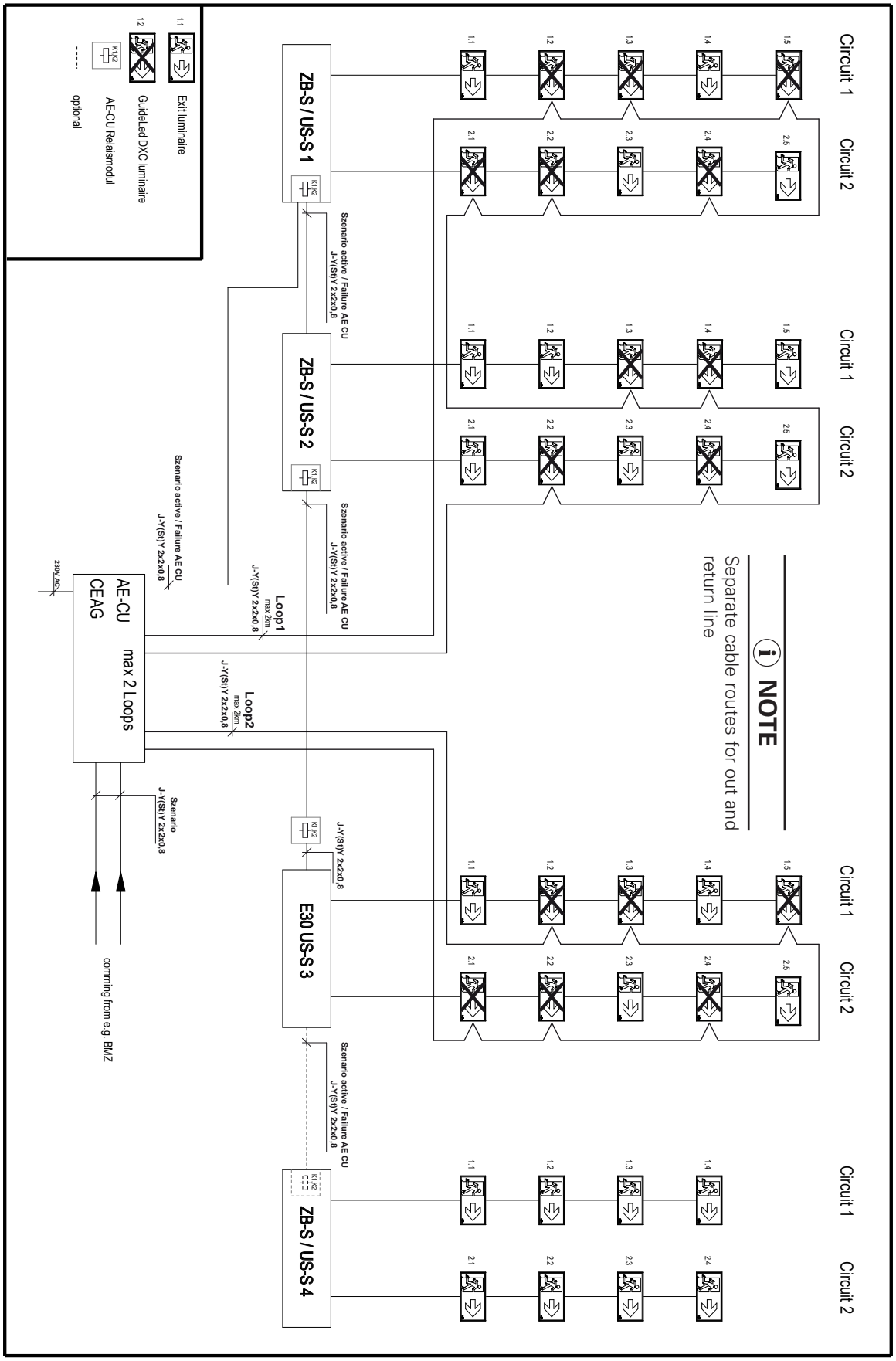


For inserting cables, knockouts (M20) are provided at the rear, at the top and at the bottom right, which can be removed as required.

Inside of front door

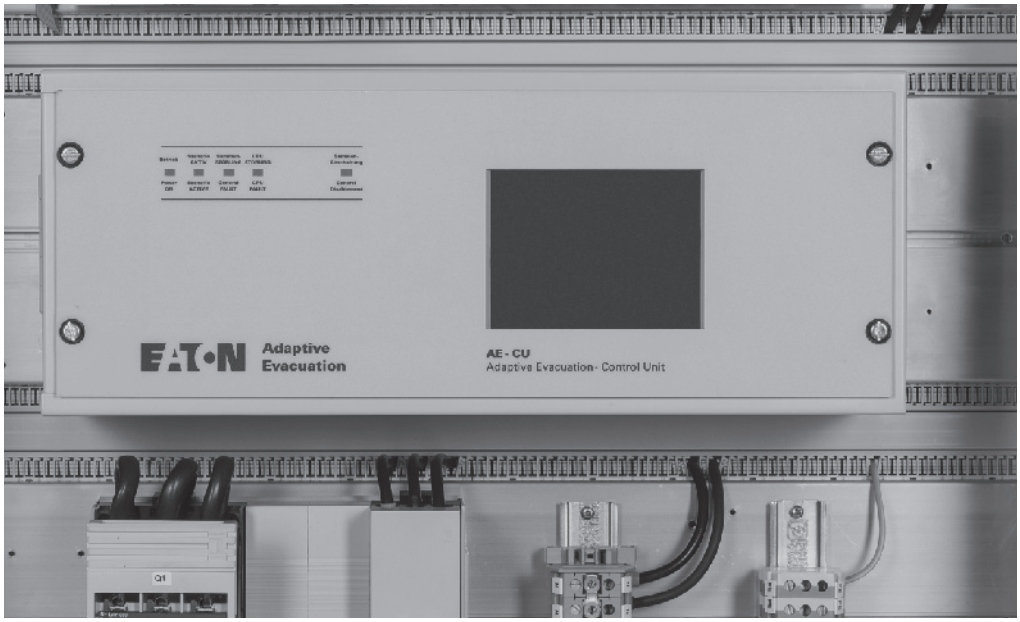


4.5 Layout plan



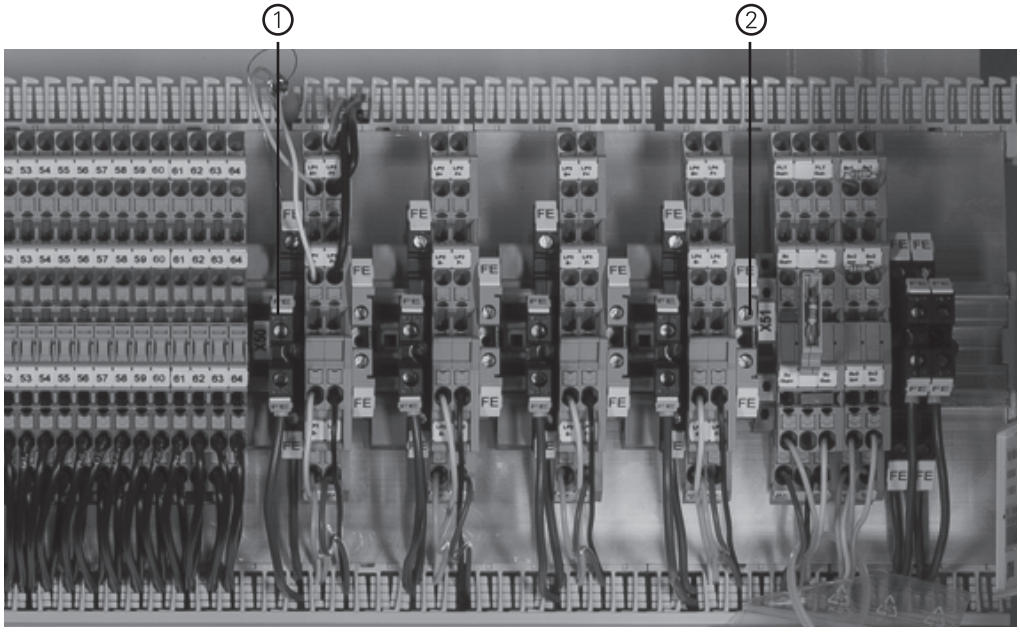
4.6 Panel assembly

4.6.1 Basic enclosure (only AE-CU 19" version installed in ZB-S/18)



The built-in version of the AE-CU 19" is delivered wired and configured by default.

In the upper right area of the ZB-S/18 there are 3-tier installation terminals to connect maximum 4 loop lines for the scenarios and for the fault and scenario active messages.



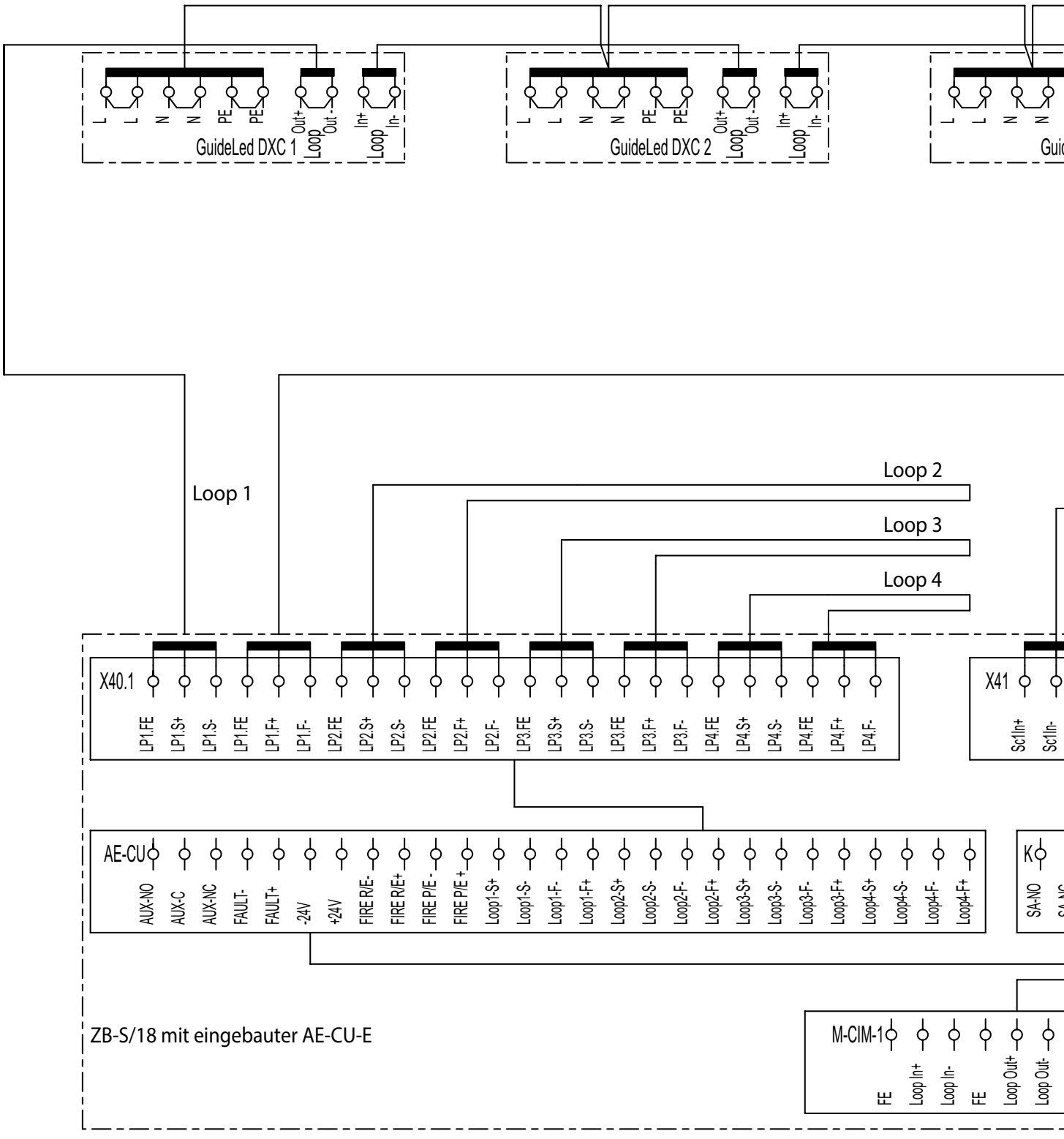
① X50.LP1FE.S+.S-.F+.F-.LP2FE.S+.S-.F+.F-.LP3FE.S+.S-.F+.F-.LP4FE.S+.S-.F+.F-.

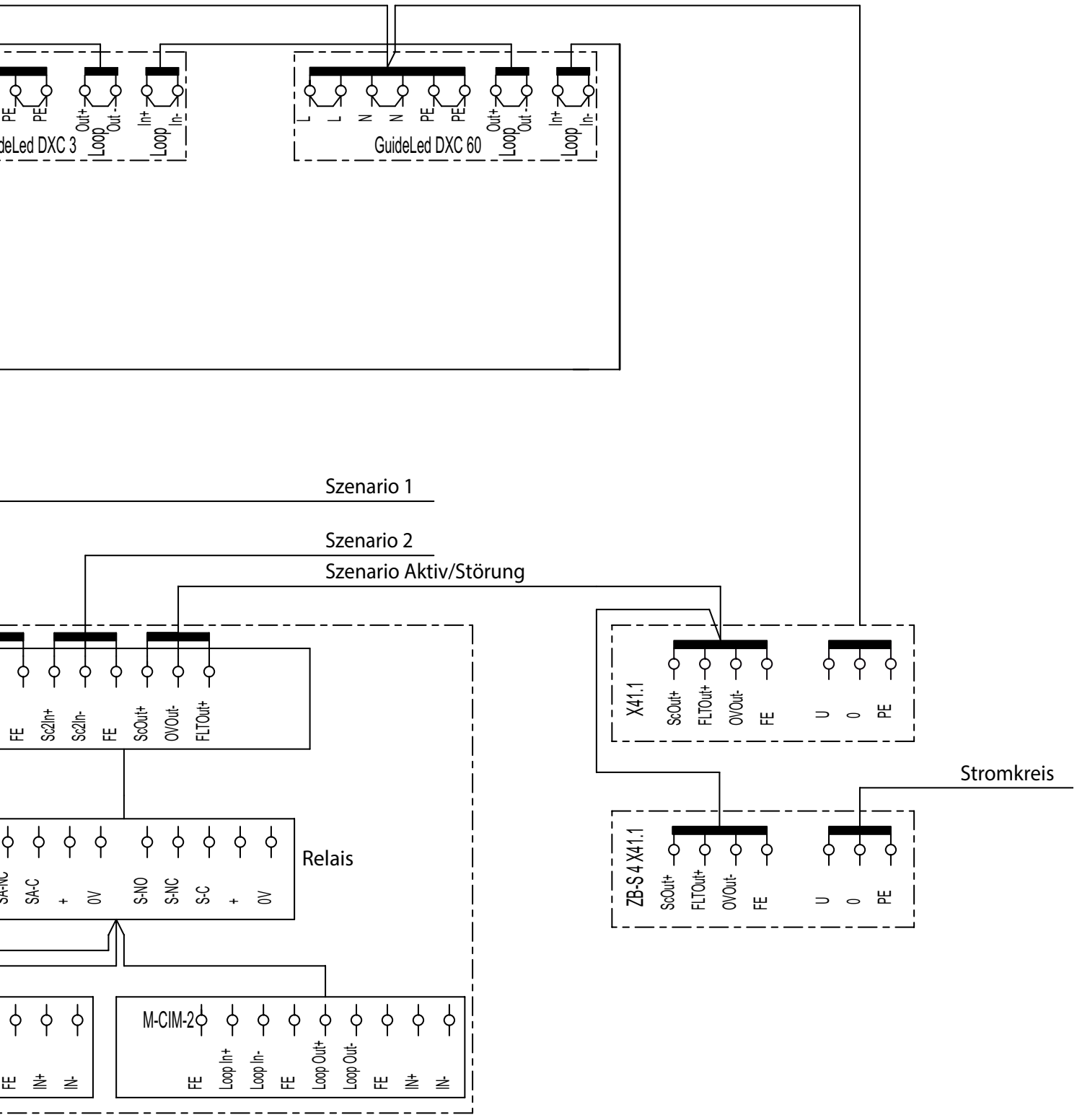
② X51.FLTOut+.SCOut+.FLTOut-.SCOut-.SC1In+.SC2In+.SCIn-.SC2In-.FE.EE.FE.FE.

X50 = Terminal block loop 1-4
X51 = Terminal block scenario 1-2 and scenario and fault messages

5 Installation

5.1 Sample installation of AE-CU-E built-in version

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In-
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GuideLed DXC 60
Szenario 1
Szenario 2
Szenario Aktiv/Störung
FE
Sc2In+
Sc2In-
FE
ScOut+
OVOut-
FLTOut+
X41.1
ScOut+
FLTOut+
OVOut-
FE
U
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PE
Stromkreis
SA-NC
SA-C
+
0V
S-NO
S-NC
S-C
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ZB-S 4 X41.1
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FLTOut+
OVOut-
FE
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0
PE
M-CIM-2
FE
Loop In+
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IN+
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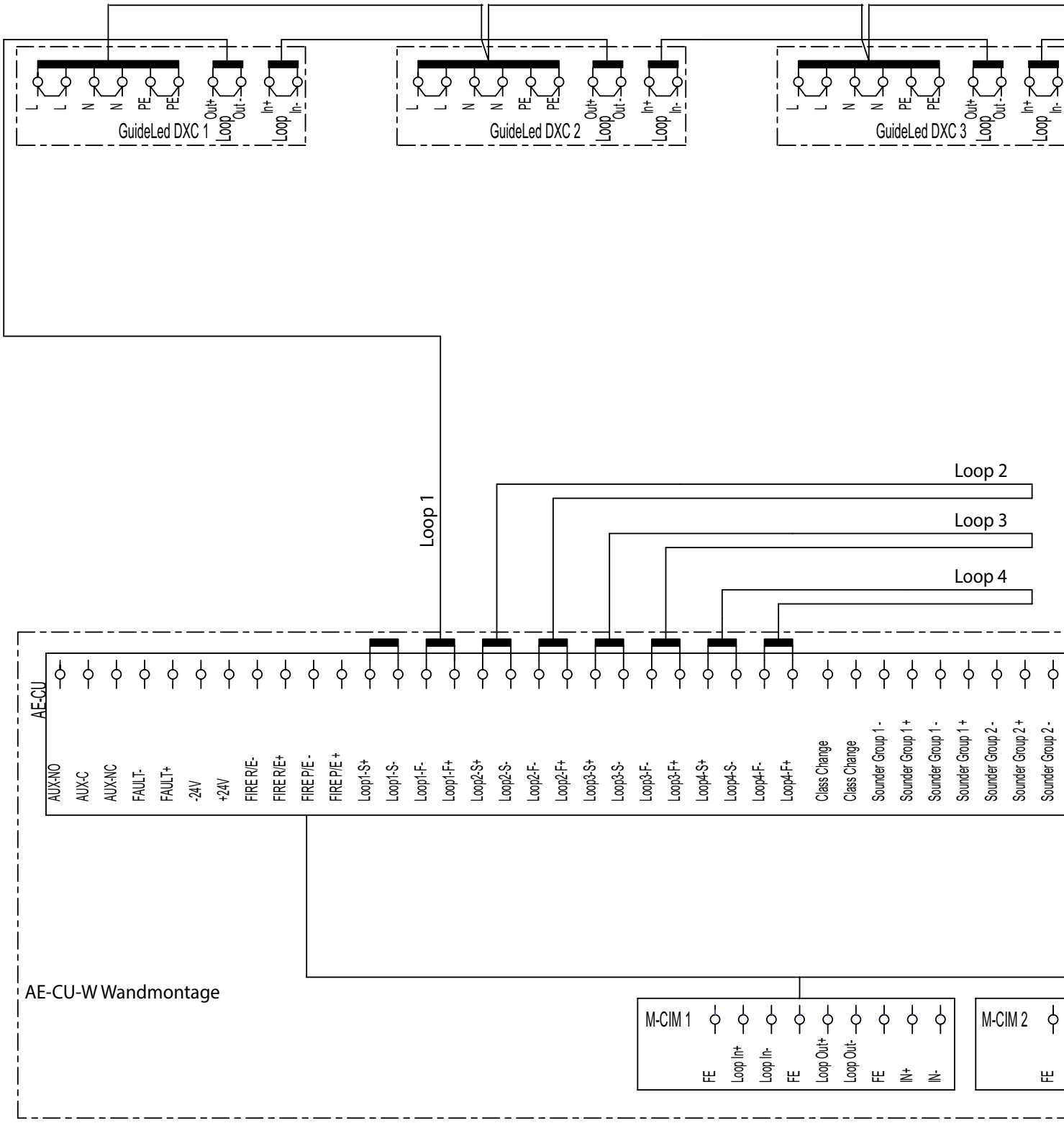
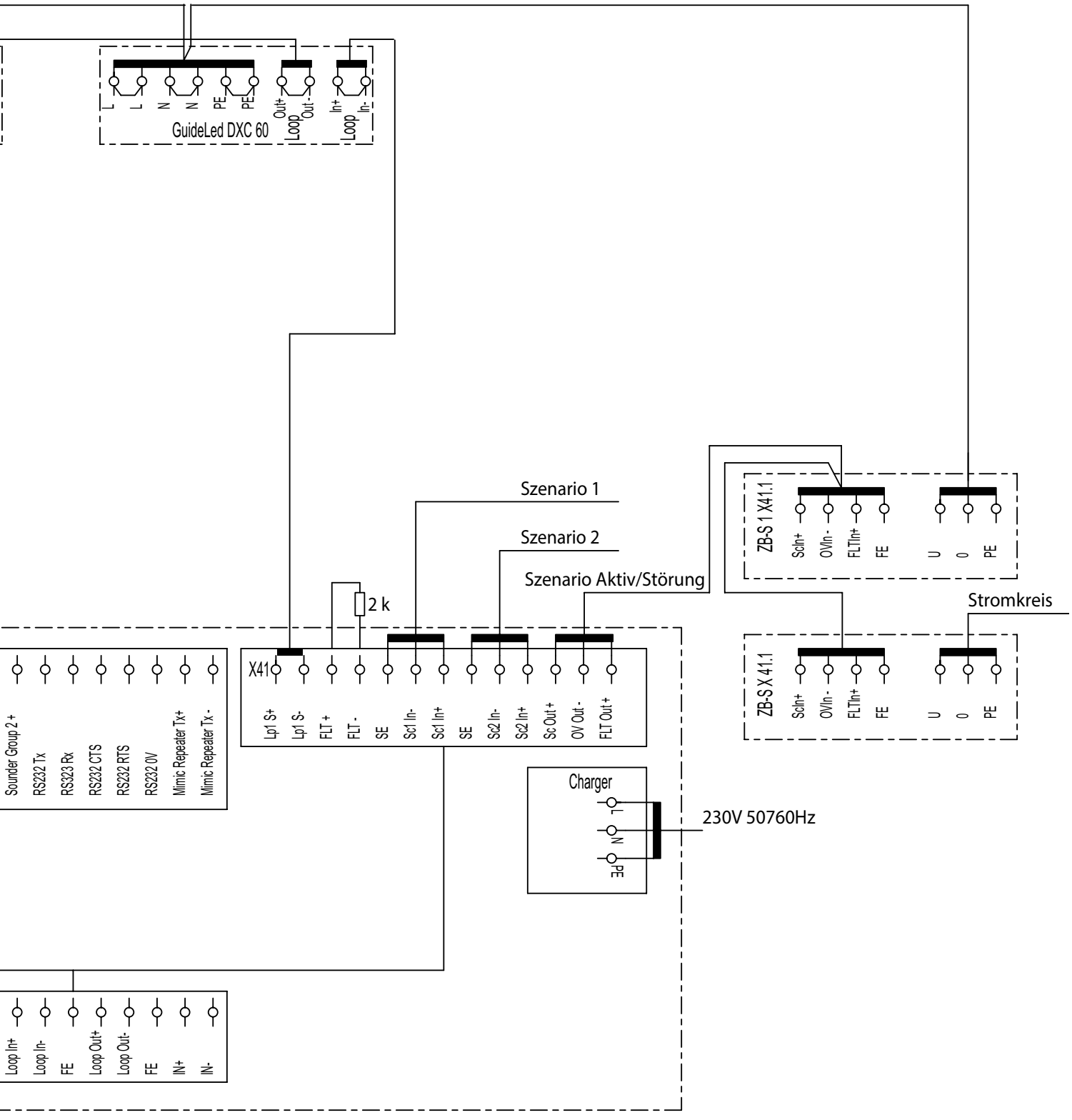
5.2 Sample installation of the AE-CU-W wall-mounted version

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ScIn+
OVIn -
FLTIn+
FE
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0
PE
X41
Lp1 S+
Lp1 S-
FLT +
FLT -
SE
Sc1 In-
Sc1 In+
SE
Sc2 In-
Sc2 In+
Sc Out +
OV Out -
FLT Out +
Sounder Group 2 +
RS232 Tx
RS323 Rx
RS232 CTS
RS232 RTS
RS232 0V
Mimic Repeater Tx+
Mimic Repeater Tx -
Charger
L
N
PE
230V 50760Hz
Loop In+
Loop In-
FE
Loop Out+
Loop Out-
FE
IN+
IN-

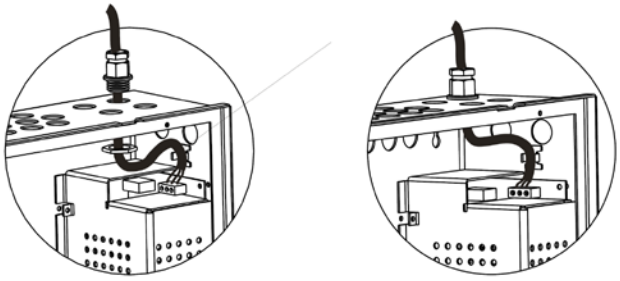
5.3 AE-CU-W for wall mounting

5.3.1 Mains Connection

(Only AE-CU in stand-alone enclosure)

MAINS L / N / E

The mains cable must be fixed securely with a 20mm cable gland. Remove a suitablylocated knockout, feed the cable through the gland and bolt the gland to the backbox as shown. Secure the cable to the side of the box using a cable clip.



NOTE

The cable terminations must be insulated or fitted with a busbar tag shroud.

5.3.2 Connection of adaptive exit sign luminaires GuideLed DXC

The AE-CU provides connection of four loop cables.

Twisted pair cable with static shielding must be used for the loop lines. The maximum loop length is 2,000 m.

ATTENTION

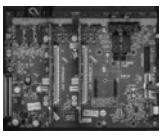
To ensure operational safety, the outgoing and incoming lines of a loop cannot run in the same cable (separate cable routes).

The different loops should run in separate cables, for loops of different loop cards, the above requirement is mandatory for technical purposes to avoid communication faults.

Each unit terminal connector is suitable for clamping a single cable conductor up to a maximum of 1.0mm².

The decision whether cables with circuit integrity are to be used depends on the project design of the equipment, on the local conditions and possible regulatory requirements.

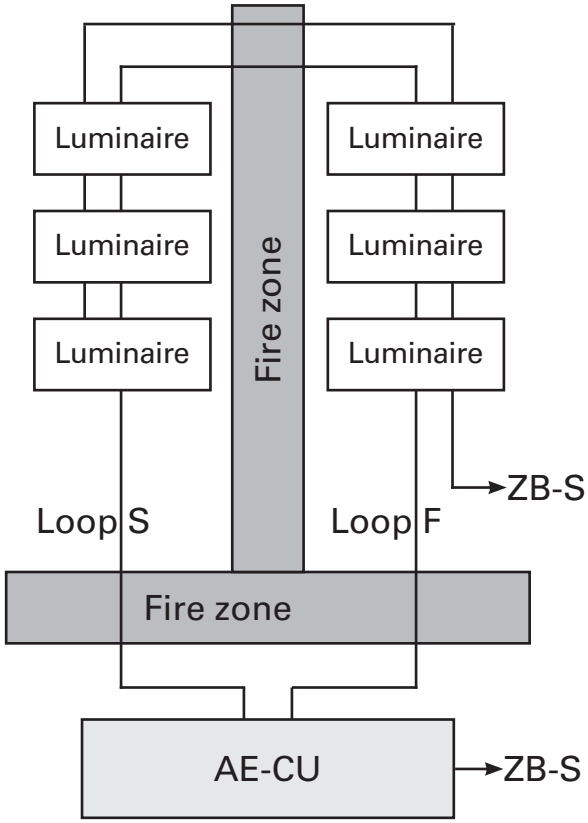
In case of doubt, we recommend consulting with the designer in charge and/or experts before installation.

Terminal block	Terminals	Function
Circuit board 	Loop 1-S+/S-	Loop 1 Start
	Loop 1-F+/F-	Loop 1 Finish
	Loop 2-S+/S-	Loop 2 Start
	Loop 2-F+/F-	Loop 2 Finish
	Loop 3-S+/S-	Loop 3 Start
	Loop 3-F+/F-	Loop 3 Finish
	Loop 4-S+/S-	Loop 4 Start
	Loop 4-F+/F-	Loop 4 Finish
X41 	FLT Out-/+	Fault
	Sc Out-/+	Scenario active
	Sc 1 In-/+	Scenario 1
	Sc 2 In-/+	Scenario 2

NOTE

The start and end section of the loop must be installed at a distance from each other.

Separate cable routes for the loop line!



5.4 AE-CU-E built-in version

5.4.1 Mains Connection

Connection is made in factory.

5.4.2 Connection of adaptive exit sign luminaires GuideLed DXC

The AE-CU provides connection of four loop cables.

Twisted pair cable with static shielding must be used for the loop lines. The maximum loop length is 2,000 m.

ATTENTION

To ensure operational safety, the outgoing and incoming lines of a loop cannot run in the same cable (separate cable routes).

The different loops should run in separate cables, for loops of different loop cards, the above requirement is mandatory for technical purposes to avoid communication faults.

Each unit terminal connector is suitable for clamping a single cable conductor up to a maximum of 1.021 mm².

The decision whether cables with circuit integrity are to be used depends on the project design of the equipment, on the local conditions and possible regulatory requirements.

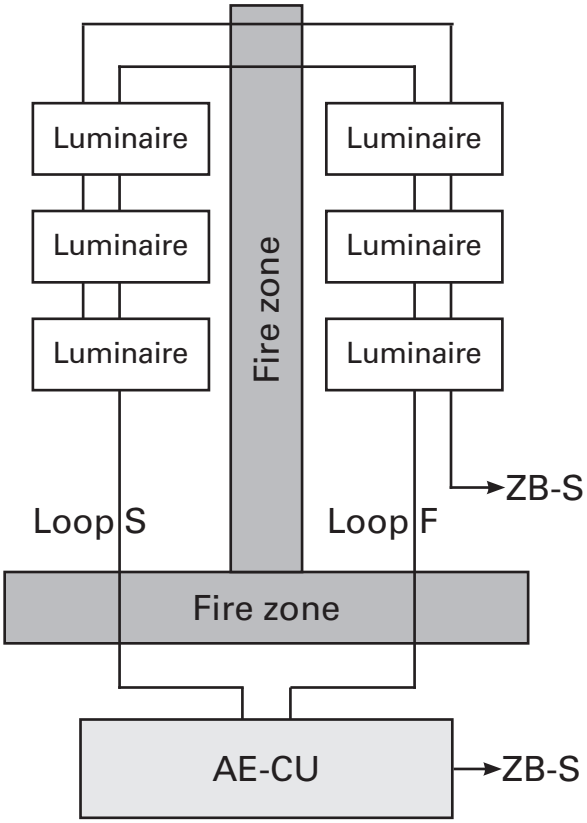
In case of doubt, we recommend consulting with the designer in charge and/or experts before installation.

Terminal block	Terminals	Function
X50	LP1.FE/LP1.S+/LP1.S-	Loop 1 Start
	LP1.FE/LP1.F+/LP1.F -	Loop 1 Finish
	LP2.FE/LP2.S+/LP2.S-	Loop 2 Start
	LP2.FE/LP2.F+/LP2.F -	Loop 2 Finish
	LP3.FE/LP3.S+/LP3.S-	Loop 3 Start
	LP3.FE/LP3.F+/LP3.F -	Loop 3 Finish
	LP4.FE/LP4.S+/LP4.S-	Loop 4 Start
	LP4.FE/LP4.F+/LP4.F -	Loop 4 Finish
X51	ScOut+/ScOut-	Fault
	FLTOut+/FLTOut-	Scenario active
	Sc1In+/Sc1In-	Scenario 1
	Sc2In+/Sc2In-	Scenario 2

NOTE

The start and end section of the loop must be installed at a distance from each other.

Separate cable routes for the loop line!



6 Installation

6.1 Introduction

The AE-CU device provides all complex functions of a control interface to implement the requirements concerning a facility for individual escape route control. Information from all types of building systems are translated as potential-free transmitted information into the required control scenarios of the controlled adaptive escape sign luminaires.

120 addresses can be connected to e.g four loops of an AE-CU device.

60 adaptive escape sign luminaires can be operated per loop. The remaining 60 addresses can be used e.g. for MCIM input modules or other devices.

Up to 4 central battery devices can be connected per AE-CU device.

6.1.1 Cable length values

The maximum admissible cable length of a loop is 2,000 m if using fire alarm cable I(ST)Y Xx2x0.8 mm. There is no requirement on the minimum length.

6.1.2 Loop loading

The total number of admissible addresses per loop is 120. This includes 60 luminaires (MCOM-S) and 60 additional addressable devices.

Short circuit isolators are incorporated into every loop device, therefore in the event of a single fault, none of the devices connected to the loop will fail to operate as the fault will be isolated by the two adjacent devices.

6.2 AE-CU outputs and optional functions

There are the following outputs available on the terminal board from left to right:

- AUX-RELAY general message scenario active, changeover contact, activation by every scenario.
- FAULT RELAY montored output (general fault) 12V/30 inactive, monitoring 2kΩ
- 24V OUTPUT voltage, 24V/200mA
- FIRE R/E monitored output not used, monitoring 2kΩ
- FIRE R/E monitored output (active scenario) 24V/30 mA in case of activation, monitoring 2kΩ
- LOOP1/LOOP2 loop line 1+2, supply through loop card 1 (left)
- LOOP3/LOOP4 loop line 3+4, supply through loop card 2 (right)
- SOUNDER GROUP 1/1 do not use
- SOUNDER GROUP 1/2 not used
- SOUNDER GROUP 2/1 do not use
- SOUNDER GROUP 2/2 not used
- MODEM/PC/RS232 do not use
- MIMC REPEATER do not use
- The monitored outputs FAULT RELAY; FIRE R/E and FIRE P/E can be also used potential-free with the relay board 4xUM12VDSJ.

See Section 3.5 ff.

6.3 General notes

The controller should be installed in a clean, dry room with normal ventilation and without direct sunlight. Avoid temperatures above 40°C and below 5°C. Please contact us in case of doubt.

Up to 4 central battery devices can be connected per AE-CU device.

6.3.1 Installation procedure

- Never carry out insulation tests on cables connected to electronic equipment
- do not over-tighten the terminal screws
- always use the correct cable type
- Always adhere to volt drop limitation when sizing cables
- Always observe polarity throughout
- Screen continuity must be maintained throughout the entire loop circuit including at each junction point and at each device, terminals are provided on each device to facilitate this ensure that the screen wires are insulated in risky location (steel structures!).
- The screen should be earthed at the connection point provided at the backbox of the AE-CU panel and not at any other point. The above applies only for the loop start cable. The shield of the loop finish is not connected. Care must be taken to avoid connecting the screen to the earthed body of any metal devices, enclosures or cable containment in the facility. The resulting transient currents can disturb data transfer due to losing the shielding function. Error messages can result like the above, including faults/alarms or a delayed reaction time of the AE-CU device. The manufacturer bears no responsibility in case of non-compliance with these cable specifications!
- AE-CU utilises intelligent soft addressing technology to greatly simplify the installation and commissioning processes. Once the system has been installed and the autolearn menu selected, the CF3000 control panel will automatically scan the detection loops and allocate each device with an address number corresponding with its position on the loop, this avoids the traditional need for manual addressing of the system devices which is time consuming and provides a potential for error.
- It is of vital importance that accurate details are kept of the exact wiring route in order to determine which address has been allocated to each device.
- Read all the installation instructions before commencing with the installation.
- The electronic components within the fire panel are Static Sensitive. Do not touch the electronics directly.
- The electronic components of the AE-CU device can be replaced exclusively if the device is voltage-free; the device has no hot-plug capability! Non-compliance with the above results in the loss of manufacturer warranty!

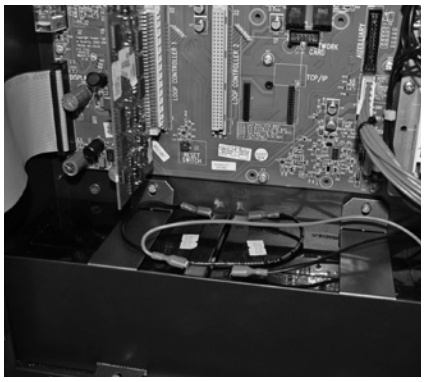
7 Commissioning

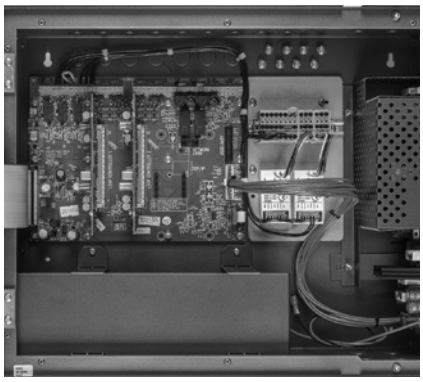
Prior to EATON Service commissioning the AE-CU, the following available information must be present / measures must be performed:

- The installation plan of the adaptive luminaires with the designation of the luminaires exists.
- Transfer of information between the BMA and the AE-CU by the relay contacts (1 relay contact per scenario) is set up, location, cable route installed and documented.
- Control matrix of the scenarios exists-> which scenario is active in which situation?
- The data cable between the AE-CU and ZBS (2x2x0.8mm²) is installed and labelled accordingly.
- The cabling of the data lines (loops) in the direction AE-CU > adaptive luminaires > AE-CU is complete. A shielded cable is laid as a loop here.
- Cable plan or wiring diagram.
- The cables at the AE-CU equipment prepared for connection and labelled accordingly.
- The mains connection is installed. The corresponding mains fuse is known and properly documented at the AE-CU.
- The diameter of data cables (loops) was measured. Values:
  Loop + (max. 75R),
  Loop – (per luminaire 2k5),
  Screen wire is dependent on wire diameter, like loop + or twice as high, the measured values have been recorded.

7.1 Switching On

1. Switch on mains power
2. Connect battery terminal





7.2 Switching On

The AE-CU is switched on automatically with the commissioning of the ZB-S/18.

8 Indications and messages

8.1 Overview of the System LEDs / display

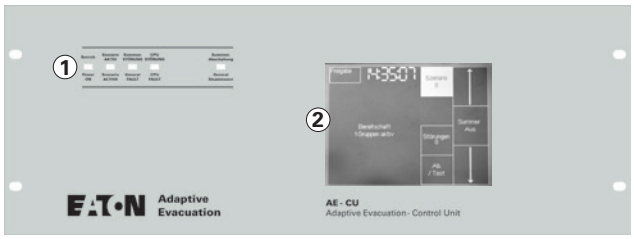
The system indicators are located in the upper row of LEDs on the left side.

When the AE-CU is in idle state, the Power ON LED is lit, the display shows the message System Healthy xx Zones active.

A detailed description of the AE-CU states are available in the appendix of this overview.

A 19" installation housing is used for the installation of the AE-CU in t he ZB-S.

Power is supplied by the ZB-S, so mains component and battery are not used, 28.5V supply voltage is provided through an adapter board built into the AE-CU.



LEDs

1 System indicators

2 Touchscreen display

3 Power ON: The LED is on if device is under mains and / or battery voltage

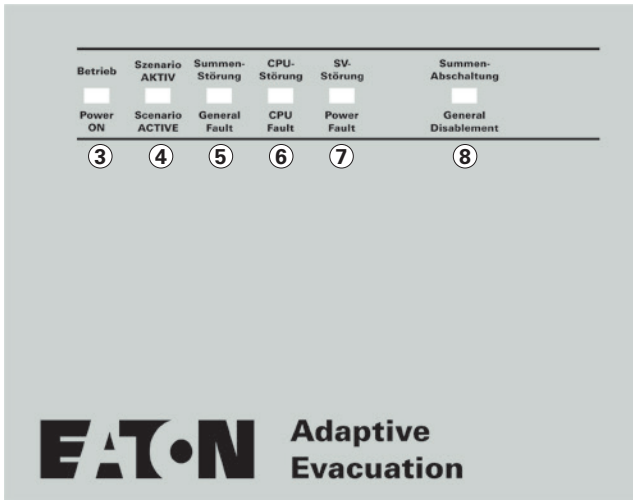
4 Scenario active: Scenario active, additional information: Plain text display

5 General fault: Fault condition, additional information: Plain text display

6 CPU fault: Fault in the data communication process, for troubleshooting read the manual

7 Power fault: Fault in the supply of power

8 General Disablement: Disablement state, additional information: Plain text display



The touchscreen display is located on the right for displaying plain text information and operation of the AE-CU.

A detailed description of the operational messages of AE-CU states are available in the appendix of this overview.

Scenario active:
The button shows scenario active

all messages are listed in this field

Mute buzzer:
Turn off buzzer of the AE-CU

Faults:
Touch the button to view faults

Up/down arrow:
If there are several messages displayed, the user can scroll through the messages using the arrow keys. The message field shows the direction available for scrolling.

Disabled /Test:
Touch the button to view disablements

8.1.1 LED Power ON (green)

The LED is on as soon as power is supplied to the AE-CU (mains or battery) and the equipment is ready for operation. If this LED is off, read the corresponding part of section 9 Troubleshooting.

8.1.2 LED scenario active (red)

The AE-CU is in the active state. All messages are listed on the display. Adaptive escape sign luminaires are controlled (red X).

8.1.3 LED General fault (yellow)

The LED shows that there is/are fault(s) with the AE-CU. Check the fault counter and investigate the cause of the fault(s). After eliminating the cause of the fault, always reset the AE-CU equipment; the still active faults are present in the AE-CU.

8.1.4 CPU fault (yellow)

The CPU fault shows a function disturbance in the system. This can result from different causes. Read the corresponding section of section Troubleshooting about details of resolving the fault.

8.1.5 LED General Disablement (yellow)

The LED shows that there is/are disablement with the AE-CU. Check the counter Disabled/Test and turn on the equipment again using *Supervisor \ User Code \ Others \ Enable/Disable \Address...Zone...I/O*.

8.2 Operational messages on the display

8.2.1 Scenario active

Using the factory settings of the AE-CU, all modules record a message in case of triggering. If other alarm settings are selected for a loop device using Site-Installer software, the selected type of activation is displayed(Fault, Pre-Alarm, etc.).

Messages are shown on the display as

Z: xx, zone:yy, module type, date/time, module text, in addition the first zone alarm and last zone alarm are shown in the fields labeled correspondingly in the upper left part of the display. The counter shows how many zones are in the alarm state.

8.2.2 Disablements

All monitored functions, outputs and devices connected to the loops can be disabled using the AE-CU. The "Disabled/Test" counter shows the number of disablements; all messages are shown on the display by touching the button; use the "Scroll" button to scroll through the messages if there are more disablements than rows available on the display.

By enabling the disabled addresses, zones and outputs, the disabled message is overwritten. If all addresses of a group were disabled, they can only be enabled again using "Enable Zone" or "Enable all".

8.2.3 Faults

All monitored functions, outputs and connected devices can generate fault messages. The "Faults" counter shows the number of faults; all messages are shown on the display by touching the button; use the "Scroll" button to scroll through the messages.

Fault messages are always shown on display as described in the following section. In case of simple operational faults, troubleshooting indications are displayed, more complex problems are treated in section 8.

8.3 Fault messages on the display

8.3.1 Battery fault

(Only AE-CU in stand-alone enclosure)

The charging voltage of the batteries is too low or the internal resistance of the batteries is too high, the measured value of battery charge voltage is ~26V, the voltage is too low

- Check the battery fuse
- Check the battery cable
- Check the batteries, measure the charge -/+ discharge voltage under load of single batteries

8.3.2 Duplicate address

Two stations have the same address on a loop, read details in section 8 Troubleshooting to resolve this fault.

8.3.3 Earth fault

Read the corresponding section of section 8 Troubleshooting about details of resolving the fault.

8.3.4 Short-circuit near/far/middle of loop x

A short-circuit was detected in a loop, check section Troubleshooting for additional instructions.

8.3.5 Charging fault

(Only AE-CU in stand-alone enclosure)

The battery is not charged

- Batteries are missing
- The battery was not connected properly or it failed
- The battery connection cable is broken
- The fuse has failed
- The charging component has failed

8.3.6 Mains fault

(Only AE-CU in stand-alone enclosure)

No mains voltage available, LCD back lighting is off, the AE-CU is battery-operated

- Mains cable not connected, or no mains voltage at the input terminals
- Mains fuse triggered in the sub-distribution system
- No supply voltage coming from the mains component > for troubleshooting see section 7.2. ff. LED operations is off

8.3.7 Fault acoustic 1 / fault acoustic 2

The outputs are not used and they are connected with resistances

Signal encoder output (Sounder Group 1 / Sounder Group 2) for conventional signal encoders on the terminal board has a fault.

- Check the fuse (F1, F3: FF1.6A)
- Connection resistance 200R in series with the diode is missing or incorrect polarity! (see the terminal diagram of the terminal board)
- If there is no recognizable fault at the cabling, put the connection resistance directly on the terminal; if the error is still present, replace loop card 1; if the error is still present, replace the terminal board

8.3.8 Fire event fault (BFS fault)

The output is not used and it is connected with resistances

The fire control output (Fire P/E) on the terminal board has a fault.

- 2k connection resistance is missing or it has an incorrect value
- If there is no recognizable fault at the cabling, put the connection resistance directly on the terminal; if the error is still present, replace loop card 1; if the error is still present, replace the terminal board

8.3.9 Fire relay fault

The output is not used and it is connected with resistances

The main alarm output (Fire P/E) on the terminal board has a fault.

- 2k connection resistance is missing or it has an incorrect value
- Check the correct connection of cables/relays (if present), check for wire breakage or short-circuit
- If there is no recognizable fault at the cabling, put the connection resistance directly on the terminal; if the error is still present, replace loop card 1; if the error is still present, replace the terminal board

8.3.10 Fault G:xx, M:yy, module type, date/time, module text

A station of a loop has a fault. Touch the message row for further details or select *Enable* \ *Installer passcode* \ *Commissioning* \ *Analogue value* \ *Select station* to check the details of the fault and resolve the fault.

For further instructions check section 8 Troubleshooting.

8.3.11 Communication loop x fault

Inadmissible increase of the cable resistance after reading the stations, possible wire breakage.

Check the loop line.

8.3.12 Loop driver 1 / 2 fault

The loop card is monitored; if the loop driver 1 or 2 is shown with a fault, it is faulty or it was removed. A missing card 1 is immediately shown as a fault, because this card implements additional monitoring functions; loop driver 2 fault is shown, if programming with indicators was loaded on loop 3/4.

8.3.13 Fault relays fault

The output fault forwarding (fault relay) on the terminal board has a fault.

- 2k connection resistance is missing or it has an incorrect value

Check the correct connection of cables/relays (if present), check for wire breakage or short-circuit

If there is no recognizable fault at the cabling, put the connection resistance directly on the terminal; if the error is still present, replace loop card 1; if the error is still present, replace the terminal board

8.3.14 CPU fault (system fault)

The fault is displayed if there is a serious fault in the function sequence.

- The Watchdog Reset is additionally shown.
- The AE-CU was switched off and switched on again within 90 seconds. It can be reset using the Reset function; if the fault is triggered again, failure of internal components is expected; call the hotline for details about the repair process.

8.3.15 The type does not fit

Station of incorrect type, without an address or similar were installed. This fault message is triggered if there were manual changes made to a system after automatic addressing or a settings file was loaded with modifications as compared to the installed stations. > Check the last modifications / Revert them / Find stations by test/device

8.3.16 Loop x overload

Check for inadmissible increase of power consumption, expected short-circuit, faulty station, and resistance parallel on the loop line.

8.3.17 Interruption at address

After performing a loop test, this message is shown to the message Interruption + /- loop x to further specify the fault. The next probable missing address is shown as a location. Thus for example in case of 50 correctly read stations and unconnected return line, a fault is shown at address 51, because all stations were found up to address 50.

8.3.18 Interruption minus loop x / interruption plus loop x

The cable (- or +) of a loop has a fault, to find the specific cause *Enable* \ *Operator passcode* \ *Additional* \ *Check config.* \ *Loop test* \ *Auto reading* \ *Yes* to receive the details/ address (interruption at address y) where or after which there is a cable breakage from the AE-CU.

8.3.19 Watchdog Reset

The AE-CU was restarted using the "Reset switch" or it was turned off and turned on again within 90 seconds.

- Reset the AE-CU

The Watchdog is expired, the the AE-CU has performed a self-reset.

- Reset the AE-CU and check if the fault is triggered again; in the latter case call the hotline.

9 Operation

9.1 Passcodes / menu mode

- The AE-CU has 5 menu panes; the installer can use pane 1-4; and in addition pane 5 for the software on-site installer for configuring the AE-CU.
- Pane 1 with no passcode > summing off, scroll messages, start delay (if configured accordingly)
- Pane 2 Operator > Operate by operator + installer
- Pane 3 Installer > Commissioning/Configuration/Test installer
- Pane 4 Installer II > Special functions, Commissioning
- Passcode operator 2214 (default setting)
- The installer performs configuration, or possibly in coordination with the operator, 1..6 digits can be set.
- All consequent operations are available in this pane.
- **From acoustic** in case of an alarm (all signal encoders) with first-up signalling (if configured accordingly)
- **Reset** the AE-CU
- Turn on/off outputs > Fault relays, AUX relays
- Turn on/off zones of specific devices
- Check the Log (storage device)

Enabling Passcode (2214 default setting)		
Switch on/off	Network enable/disable	Panel number
	Enable/disable zone	Select zone
	Enable all Enable/disable address	Fire routing Fire protection Delay Aux relays Fault relays Sounder encoder (all)
Print	Print all records	
	Print last 10 log records	
	Print disablements	
	Print current faults	
	Print current fires	
	Print fire Log	
	Print fault Log	
	Print test Log	
Lamp test	OK/Cancel	
Weekly test		
Show Log	Option list	
Send Log to PC		
Check config.	Check auto config. Replace device	
Send analog value to PC	Select a loop	
Reset	Enable yes/no	The fault will be reset if corrected

9.1.1 Installer 143243 (default setting)

- The installer performs configuration, 1..6 digits can be set incl. "0".
- The installer can find all modifications / settings of the AE-CU in this pane; data can also be transferred here between the PC and the AE-CU.
- Commissioning
- Configuration
- Testing
- Switching on/off devices

Enabling Passcode:	**(143243 default setting)**			
Commissioning	Download data to CU	Continue yes/no		
	Upload data from CU	Continue yes/no		
	Auto learn	No Pre-addressed auto-learn Maintenace auto-learn Yes- autolearn all loops Yes-autolearn loop 1 only Yes-autolearn loop 2 only Yes-autolearn loop 3 only Yes-autolearn loop 4 only		
	Erase Log	Enable yes/no		
	System details			
	Load logo from PC	End		
	Analog level	Device selection		
	Printer settings	Auto Request		
	Change CU address	Input number		
	Number of CUs in network	Input number		
	Screen cover			
	Change date/time cover	Installed Not Required		
Configure	Change passcode	Change engineer code Change user code	Input number Input number	
	Add/delete	Add zone Delete zone Add device Delete device	Yes/No Zone selection list Device selection Device selection	
	Network	Status message filter Command message filter Receive message via network Network Monitoring	CU selection CU selection Selection Yes/No	
	Language	Language selection		
	Network protocol	V1	V2 (FAT/SIT_S)	
Test	Test device Test zone Sound level test mode Global flashing LED ON/OFF			
	One Man Walk Test			
Enable/disable address	Option list			

9.2 Switching on/off

Pane 2, operator and installer

Switch on/off

- Groups
- Outputs

➤ ÜE

➤ Fire control (all relay outputs except for the AUX relay)

➤ Delay

➤ **AUX relays**

➤ **Fault relays**

- Network > Groups / Outputs / Detector of network stations
- Devices (luminaires / modules)
- Switch on all

9.3 Lamp test

Pane 2, operator and installer

All summing LEDs are controlled successively, summer continuous operation.

9.4 Show Log

Pane 2, operator and installer

All messages stored in the background storage can be viewed sorted based on time, fire, fault or test. Messages can be downloaded to the PC.

9.5 Check config.

Pane 2, operator and installer

There are several different checks available:

- Loop test

➤ Fault search in case of wire breakage or short-circuit

➤ Check the data after transfer to the AE-CU if the AE-CU is fault-free to find any possible differences between programming and the AE-CU.

- Replace device

9.5.1 Replace device

We recommend to replace a device using the hand programming device CF800PROG because it ensure a simple and unproblematic modification.

A new (addr. 254) module is required for using the functions of the AE-CU software. If the above is not available, faults/ modifications can occur in the system.

This function can be used to replace faulty components if the device type, device name and group remain unchanged (ex. for replacing faulty components).

Find the ring and address of the faulty detector and replace it with an unused station of the same type and without an address (addr. 254).

Under *Enable* \ *Operator passcode* \ *additional* \ *Check config.* \ *Replace device* select "Loop" and type in the physical address of the (faulty) station, which you intend to replace. The AE-CU searches for a not-addressed station and copies the address of the previous station to the new station.

If the loop / address is incorrect, or the station already has an address, the message "Nothing found" is shown and the detector fault remains triggered and a new fault "Double address" is possibly triggered.

In case of the above, check the loop/address and ensure that the new station is not yet addressed.

If you want to replace a station of a different type use the function "Add/delete".

9.6 Addressing

Pane 3, installer

ATTENTION

All previous addresses on the loop will be overwritten, all assignments in the AE-CU will be reset by this function and they must be sent again to the AE-CU when all loops are addressed! When addressing individual loops (extension) the programming remains unchanged.

The process is started at the start of the loop (Loop x S+/S-), the addresses are issued following the cable layout.

If using stub isolators (CSI350), the stations on the stub are addressed first on the loop, and the other stations are addressed thereafter.

After addressing is completed (duration 2-4 minutes), the AE-CU is reset. The central station can be then operated using the touchscreen display.

If the AE-CU is in auto-learning mode, individual signal encoders cannot be switched off. To avoid an unexpected activation, all outputs can be deactivated in installer pane II using the button "Outputs off". The outputs are turned on again in the operator menu "Switch on all".

The service input Class Change can also be bridged alternatively.

9.7 Add/delete

Pane 3, installer

New stations / groups can be added to the AE-CU and existing station can be deleted.

If you want to add a station without using the automatic addressing function, the programming device CF800PROG is required. This device also performs type and address modifications. We do not recommend using the function "Add" of the AE-CU.

NOTE

Sirens and modules can be added as described in this manual, the actuation of outputs/sirens cannot be modified at the AE-CU. Please use the configuration program Site-Installer.

Groups/stations can be deleted easily; select the group/station in the list, confirm the delete command; the address of the station is deleted and the station is deleted from the constellation of the AE-CU. When deleting groups, check in advance that there are no stations in the group!

ATTENTION

Do not delete address 1 in loop 1 using this function; this station must always be present at the AE-CU!

9.8 Test

The AE-CU has different test functions to facilitate commissioning, maintenance and troubleshooting.

- Check device > this function controls the LED of a station; devices with a relay output activate this until "AE-CU rest" is performed. stations are selected in the list of stations, optionally the previous/next address on the loop can also be controlled. Starting from v3.03.50 the table is sorted based on group/detector number to simplify the selection process.
- Group revision > not used
- Volume test > not used
- Permanently blinking LED > not used

10 Configuration of the AE-CU

Certain settings can be made in the installer pane of the AE-CU, which refer to the operation / display functions of the device.

All settings in the installer menu I and II are stored in the project file after reading the data. If the settings of the AE-CU are changed later, the data must be read again to ensure that the project folder contains the up-to-date version of the programming file.

The settings of the installer pane II are not in use.

Installer pane I, settings only to the AE-CU, storage when reading the data

See Section 5.1.2 and 6.2 ff.

Site Installer

Group structure of stations

Group and station labels, station number in the group (group overview)

Assignment and functionality of inputs and outputs

Extension of existing installation with automatic addressing

10.1 Overview of installer menu Commissioning

Under *Enable* \ *Installer passcode* \ *Commissioning* \ there are the following options available:

- Change CU number (only in the network)
- Number of CUs in the network (only in the network)
- Front cover (always installed)

10.2 Overview of installer menu Configuration

10.3 Change date/time

Set the date/time of the AE-CU in the Date/time menu. Daylight savings time is selected and deselected automatically and displayed (ex. B. MESZ on/off). Verify in this respect that the "DST switchover" item in Installer menu II is activated!

10.4 Change passcode

You can freely set the operator and installer passcode, which should be between 1 and 6 digits long. Under *Enable* \ *Installer passcode* \ *Configuration* \ *Change passcode* \ *Installer code / Operator code* you can make the required changes, see also section 5.1

10.5 Front cover

Under *Enable* \ *Installer passcode* \ *Commissioning* \ *Front cover* select whether a front cover is installed or not.

This setting is recommended because otherwise the button "Summer off" is located in pane 2 and it can only be operated using the operator passcode. (Automatic in case of the German language from v3.03.50)

11 Commissioning

- Mounting and commissioning of the AE-CU according to the following section
- stations groups, functions etc. are then assigned
- For both versions, a PC/notebook with RS232 (COM) interface or an Eaton USBINT1 on the RS232 adapter is required. USB on RS232 adapter of other manufacturers can lead to data transfer problems, using these is not therefore authorized! Use a Laplink or null modem cable (included in USBINT1/2) for connecting the PC and the AE-CU, and install the latest version of the Site Installer configuration software on the PC.
- Use the latest edition of the user manual Site Installer in this respect.

Note:

A complete documentation of the object of the installation is required in general for the commissioning process.

A complete documentation at the start of installation / programming, makes the work processes simple and unproblematic.

Operator action can be performed in panes 1 + 2, available to the installer, there are functions in addition only available for commissioning in panes 3 + 4.

11.1 Overview of commissioning

This overview provides structured assistance for commissioning. Follow the different steps and implement these according to the instructions to ensure a smooth process.

✓ Measuring the loops using a multimeter (for the commissioning protocol see section 12)

✓ Switch on / start AE-CU addressing of connected stations for each loop line or read addresses (only if they were already addressed), see section 5.5

✓ For checking the components see section 5.7

✓ Resolve any deviations or faults

✓ Search sporadic errors (installer menu II)

✓ For reading the data see section 8

✓ Configure components, groups, outputs, text messages

✓ Send data to the AE-CU

✓ Check automatic configuration

✓ Perform a functional test of all components and devices

11.2 Measure the loops with a multimeter

By measuring the loop with a multimeter, you can perform a first quick check of the cable network.

Measure the + cable of each loop start (S+) to the end (F+), the measured value cannot exceed 74Ω.

Use a cable resistance value of 3.7Ω per 100m J-Y(ST)Y 2x2x0.8 mm cable and check whether the installed cable and the measured value match with each other.

Measure the- line of each loop (S- to F-), the measured value is 2500Ω (2k5) per installed station. Compare the measured value with the number of installed devices (not addresses!). Isolator stubs and devices installed on stub lines are not detected with this measurement and they are not included in the resistance calculation. If the line is open, or the measured value is significantly above or below the calculated value, there is a line fault of the- line.

Check the resistance between the + and- lines of each loop at the start S+ to S- and at the end F+ to F-, the measured value should be over 300kΩ, otherwise there is a short-circuit. The measurement is only relevant, however, if the measured values of the + and- lines were OK. Repeat this measurement after the measured value of the + and- lines is correct.

Measure the drain wire of each loop, the cable resistance per 100m cable is between 2.0Ω and 7.5Ω depending on the thickness of the drain wire.

With the loop line not connected yet, measure whether between the S+/S- and F+/F- lines alternating voltage can be measured. The voltage cannot exceed 1.0V AC, otherwise the shielding can be affected or external influence is possible through the supply cables.

Record the measured values in the commissioning protocol, if no interruptions or short-circuits were measured.

NOTE

Wire breakages and short-circuits can be found using the AE-CU or the loop tester LP800 and they must be corrected.

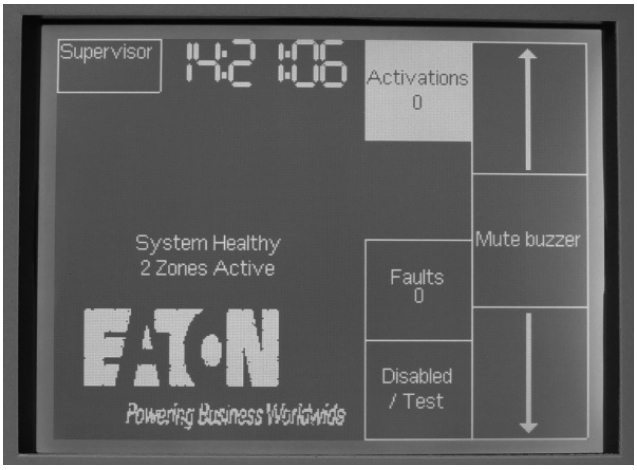
To continue commissioning the AE-CU, close only loop 1 as a stub to the connection terminals S+/S- LOOP 1 and start the AE-CU according to the instructions of the next section.

If all stations on loop 1 were addressed/read, and all errors were corrected, only then connect the end of loop 1 to the terminal F+/F- LOOP 1.

Proceed with each loop one after the other as described above for loop 1.

11.3 Switch on the voltage / system start

After supplying power to the AE-CU using mains or battery supply, the system start begins and the AE-CU boots as a PC. The process takes 1 to 2 minutes, and it includes the following steps:



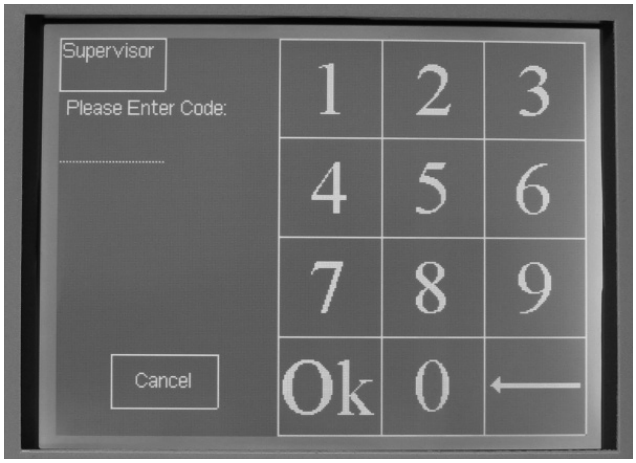
At the end of this boot sequence, all LEDs are tested, and the display shows the first entry screen.

If deviations occur during the start process, or if the AE-CU does not start up, or a significant amount of time has passed, follow the instructions in section Troubleshooting to find and resolve the issue.

11.4 Passcodes

For a simple operation, first set the passcodes for the operator pane (2214) and for the installer pane (143243) to a single-digit passcode (section 4.6) to optimize the operation.

If the passcode "0" is used, after enabling the use can jump directly in the corresponding menu (ex. installer menu).



11.5 Addressing

We have 2 different types of addressing: Reading addresses and automatic addressing.

11.5.1 Read addresses – read already addressed stations

The address and type of all addressed devices/detectors are read. The address structure is not modified and an address is not assigned to detectors without a valid address. This function can be used for example after a hardware replacement or when individual detectors (or detector types) were modified. All detectors must have a valid address, however, duplicated addresses are shown as a fault after completing this function. The AE-CU data must be programmed even after this function.

To use this function, all components must have an address assigned beforehand. Address assignment can be performed using the hand programming device CF800PROG. The addresses of stations should be recorded in the installation plan during installation to facilitate maintenance and service works later.

11.5.2 Addressing – first setup of the loop structure

This function rebuilds the address structure of each loop. All previous detector addresses/types/programming data are deleted. The central station controls the isolator at the output for all stations, so that only the first station in the loop at S+/S- can communicate with the AE-CU. This station receives address 1, the stations closes the isolator in the output and the following station receives address 2 and so on, until the loop ends i.e. there are no more stations available for address assignment.

The addresses are always assigned following the line sequence. Extensions/reduction of the number of stations can be performed using this function. Based on the device setups, in the automatic addressing process, automatic checks of the cable system are performed, the cable sequence can be simply identified based on the addresses. The AE-CU performs addressing in 2- 4 minutes in function of the number of stations. After completing the addressing process, the AE-CU is reset. The central station can be then operated using the touchscreen display.

WARNING:

With the execution of this function, all previous addresses on the loop are overwritten, all assignments within the AE-CU (if already programmed) are reset and they must be sent again to the AE-CU!

If the AE-CU is already in operation and/or if you have not set up the AE-CU yourself or you do not know whether there were subsequent modifications made diverging from the automatic address assignment, only start this function if you have all necessary information!

This function is available under *Enable* \ *Installer passcode* \ *Commissioning* \ *Addressing;* please check this overview below:

Addressing

- No > cancel the selection without affecting the installation
- Read addresses > stations already addressed are read, see above
- Extend addressing > in Germany for ex. the function is not useable
- Yes - Addressing all loops > the automatic addressing process of all loops is started. All addresses/programming data in the AE-CU are deleted, see above
- Yes- Addressing loop 1, 2, 3, 4 > the automatic addressing process of the loops is started, without support by Site Installer only of limited use at this time, because all newly addressed detectors are stored in group 1.

Automatic addressing can be blocked in installer menu II to prevent an unwanted overwriting of the existing addresses.

The addressing process is always started at the start of the loop (LOOP x S+/S-), the addresses are issued following the cable layout. If the line (+ or -) is broken, addressing stops because further stations cannot communicate with the AE-CU.

11.6 Checking components

Compare the addressed stations found by the system with your documentation. You can easily find an overview under *Enable* \ *Installer passcode* \ *Commissioning* \ *System details* with all recognized components on 4/5 pages sorted based on different types, per loop or summed. If there are components missing or there are fault messages at the AE-CU, follow the instructions in section 6.2 Operational messages on the display and in section 8 Troubleshooting to identify and resolve the problem.

First check that all installed components are recognized and they operate flawlessly.

First ensure that the AE-CU works flawlessly before reading data and perform any programming. Check that all settings in the installer pane are correct, otherwise correct hem and read the data again from the AE-CU!

Please be aware that the programming data of the customer are always deleted when performing addressing.

11.7 Adding components

There are different procedures available to add additional stations to an existing AE-CU or to a system under construction. All versions are described below.

1. Retaining the address structure on the loop, adding by addressing all stations. In case of this version, the addresses of devices are shifted starting from the installed station with the number of installed stations.

If outputs in the loop section after the location of adding the stations are controlled in an address-dependent manner, these must be modified manually after the location of addition, if there has been some programming performed before.

Open the loop at the required location, if you are not sure, between which two addresses the loop is opened, find the exact location of the interruption at the AE-CU. Mount the station(s), start the addressing process at the AE-CU and after completing the process, check if the number of the stations with addresses assigned corresponds to the number of stations mounted. Test the newly installed station with a device. If there has already been some programming, extend the program to cover the additional stations, for further information see the relevant sections of Site Installer.

2. Add manually the next free address on the loop using Passcode \ Installer pane I \ Configuration \ Add/delete \ Add device \ Select loop. *If using this function, it is important that the device to be added has no address assigned to it. Devices can be only added one by one, the AE-CU issues the next available address to the station newly recognized on the loop.*

The new address(es) is/ar then shifted to one or several group(s). It is important to know the next free address on the loop, to extend the programming in Site Installer accordingly, because the data read of the loop provide no clue where in the loop the addresses are added.

WARNING:

Addressing by the AE-CU modifies the address assignment performed in this manner according to the cable layout. To avoid the above, block addressing in installer menu II!

3. Manual programming of addresses using the programming device CF800PROG. The programming device can read addresses and analogue values, program addresses and test devices. To use this support feature to add a station to a new loop, the AE-CU has the function Read addresses.

Find the next free address in the loop and set it in the device, which you want to add. Repeat the process for all devices, which you intend to add. Mount the devices on the loop and then start the function Read addresses on the AE-CU. Check if the number of recognized addresses is equal to the number of installed stations. Complete the programming of the AE-CU using Site Installer and then send the program to the AE-CU.

12 Troubleshooting the cable network/components

This section contains a list of different fault states or fault messages and their identification/elimination, which can occur on cable routes, installed components and which can be caused by similar causes at the commissioning of the AE-CU.

12.1 List of analog values

Based on the analogue values of individual stations, conclusions can be drawn about their state:

0: no communication, station failed or missing

4: MCIM fault

20: MCIM in normal state

80: MCIM alarm

OK: MCOM-S in normal state

12.2 Scenario active after automatic learning

Identify the station.

The following causes can lead to this behavior:

- Duplicate address: in case of duplicate addressing, the AE-CU interprets the messages of one or several loop stations incorrectly in certain conditions, and this can lead to alarm message(s).

Resolve the fault, see section 8.5.

- Input actuated
- Module with incorrect resistance value, the contact of the monitored device is activated or connected incorrectly > check the analogue values of the station!

12.3 Scenario active after sending data to the AE-CU

This behavior can occur if the data set sent differs from the sequence of stations/addresses on a loop line. Check the loop topology after automatic addressing and compare it with the file and modify the programming if necessary.

12.4 AE-CU in auto learning process after one station

This behavior can occur in case of a short-circuit or interruption on the loop. If this is not the case, a device error of a station can have occurred. Identify the station and replace it.

To easily identify the fault, interrupt the loop and check the segments one by one until the fault occurs; find out after which station does addressing stop and investigate it in more detail.

12.5 AE-CU in reset function after auto learning

The station recognizes a repeater because of duplicate addressing or an incorrectly connected recessed signalling device; the incorrect detection of stations can also cause this error function. Communication is not possible so the AE-CU device stops every 10 seconds and the reset command is shown on the operator pane.

- Disconnect the loop lines until the AE-CU is working stable
- Search for one/several repeater(s) on the device list
- If no repeaters are shown, a wiring fault at a base sounder can also trigger this behavior
- Check in this case the base signal encoder and other stations on the affected loop
- Delete these in the installer menu using the function Add/delete
- Connect the loops again, find the duplicate address and resolve it
- Start the automatic reading process, if the AE-CU produces the same fault, perform the check again.

12.6 Duplicate address

The AE-CU shows this fault if it finds two addresses with the same value on the loop. The cause for this fault is usually a bridging or malfunction of the separator element in a station. If this fault occurs after automatic reading, the two addresses are usually one after the other or directly together in case of stub branches.

- Cabling error of a station
- The loop was not connected to the correct terminals but connected for example to one terminal (isolator bridged)
- The isolator element of a station has failed (the isolator does not open)

12.7 Earth fault

The earth fault can occur together with other faults, these other faults should be corrected before starting to deal with the earth fault.

Note: If using individual PCs, an earth fault is generated if the RS232 cable is connected in part with the power supply unit, or even without a power supply unit connected to the PC. The fault does not occur after resetting the AE-CU if the cable is disconnected. This fault can be ignored.

To identify the fault, with the AE-CU switched off, measure

- the resistance between PE and 0V, 5V (Vcc), +26V and +26V Raw, the measured values are not in the MOhm range
- Remove all cards, socket connections and connections of the AE-CU until the measured value is correct.
- Find the cause for the earth fault and eliminate the fault

- Switch the AE-CU on and check if the fault was resolved.
- If the resistance is correct with the power turned off, switch the AE-CU on and find out the potential leading to an earth fault message (0V, 26V, 26V Raw, 5V(Vcc), 21V (+Loop), 1,5V (-Loop).
- Remove the card, plug connectors and connections of the AE-CU until finding the cause.

WARNING:

Plug connections, cables and function cards can be removed from the AE-CU only when it is not under voltage!

If there is a high-ohm connection to the PE potential, it is sometimes helpful to disconnect PE monitoring: Remove the fixing screw from the lower right part of the terminal block and isolate the circuit board from the screw sockets. The high-ohm measuring installation is disconnected, the earth fault is not shown as an error. After eliminating the earth fault, screw in the fixing screw to ensure that earth fault monitoring is working.

The connection terminals of loop lines, sirens and ÜE / FBF connections can be modified even during operation.

12.8 Short-circuit loop x start or end

The cause is often the first/last station or the cable from the AE-CU to the first/last station. If this error is not resolved, reading/addressing the detectors on this loop is not performed securely.

- Cabling fault at the first/last station (ex. reverse polarity)
- The cable from the AE-CU to the first station/ from the last station to the AE-CU is faulty
- Short-circuit in the components in the AE-CU
- If the fault is caused by the AE-CU, disconnect the loop, the measured values of the line between the start/end of the +/- loop are in the MOhm range.
- Perform measurements at the connection terminals of the loop in the AE-CU. In case of a short-circuit, remove the loop card and measure it again.
- If the short-circuit is not present, replace the loop card.
- If a short-circuit is still present, check whether it is caused by the remaining cable behind the terminal board or replace the terminal board.

12.9 Short circuit in the middle of loop x (after automatic reading)

- Cabling error at the station
- A station causes too much power consumption

Find the station, repair the cabling, in case of failure, replace the station.

12.10 Faul G:x, M: y

A fault at a station can have different causes. By touching the message row or displaying the analogue value overview of the faulty station, further information are available > compare these values with the list of analogue values in section 8.1.

Overview of possible errors / causes:

- An address was assigned to the station, but the station is not recognizable after that (AW:0)

➤ Cause earth fault

➤ Cable fault, loose contact

➤ Station failed

Station with monitored inputs, MCIM (AW4)

- Termination resistor is missing or the termination resistance has an incorrect value
- Wire breakage of the measurement lines to the monitored contact
- Station failed

12.11 Interruption + or - loop x

This error should have occurred already at the measurement of the cable network, possible causes:

- Cabling error to the station or isolation
- Cable breakage (+/- connection)
- Wire breakage- It can also be caused by a short-circuit in the middle of the loop, not found at the cable measurement (measured value of the +/- loop in the kOhm range)
- Bad cable connection between two or more stations or missing station, and the resulting voltage drop can activate an isolator and disconnect the- line.

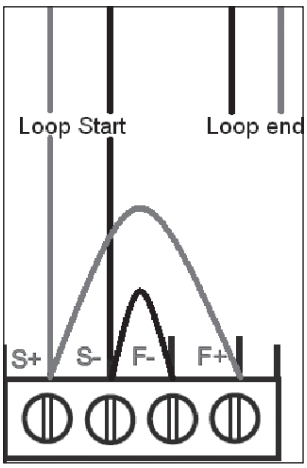
To find the cause of the fault, bridge the output of the affect loop as shown in the picture. Measure the voltage at different stations/locations in the loop, the measured value should be in the range of 18-20V, it should not drop below 15V irrespective of the line length and number of stations. If the fault is caused by a faulty station, it is usually the last addressed station on the cable.

13 Troubleshooting AE-CU components

This section contains a description of different fault states or fault messages and identification/resolution thereof, the cause of which can be traced back to a fault/malfunction of components of the AE-CU.

13.1 The AE-CU startup takes a long time

When a AE-CU with 4 loops starts up (ex. after sending data) a problem can occur with Watchdog synchronization. Then the AE-CU restarts at every ~6 seconds. This can take up to 2 minutes. If the AE-CU does not start up after 2 minutes or if this process should be sped up, a jumper can be installed on loop card 2. on JP2 besides the quartz.



If the cards need to be replaced some time later, it must be ensured that the jumper JP2 is only inserted on loop driver 2 and never on loop driver 1, because the AE-CU cannot start otherwise in certain cases.

13.2 LED operation is off

The LED board in the door is not supplied with voltage. Disconnect the battery if it is connected. The following are possible causes:

1. no mains voltage at the mains module

- Check the input wiring
- Check the mains fuse

2. Connecting wire between the mains component and the terminal board

- The cable is connected properly
- Cable fault, check the cable

3. Battery voltage at the charging cable is ~26V DC, otherwise

- Check/replace the battery fuse (T6,3A), if this is OK
- Disconnect the connection to the terminal board, measure again, if there is no voltage >> replace the mains component
- Check then the proper operation of the battery, the charging voltage, and temperature
- Voltage present >> short-circuit in the terminal board or components connected to it > see section 4.

4. Find the short-circuit on the terminal board/other devices

- Disconnect the ribbon cable to the door, remove all function cards +26V / +26V Raw / +5V measure printer, no voltage >> replace terminal board
- Voltage present >> add function cards one by one until finding the cause >> replace faulty device
- if the problem is caused by the 50-pole ribbon cable, please remove the cover from the inside of the door, disconnect/remove the 4-pole ribbon cable to the LCD, the 20-pole ribbon cable "Data", the 2-pole plug of the inverter of the LCD background lighting and the central computer one after the other to identify the problem. If the cause for the fault is not found, replace the door with all components.

13.3 LED operation is lit up, display off / back lighting off

Connect the PC using the RS232 0-modem cable with the central station and start Site Installer. Open a project, click on the central station and select "Debug Log" on the right side and then start recording. After reset, if data transfer is seen, follow the instructions below. If there is no data transfer, the device is damaged.

- Remove the cover behind the door and check whether the 4-pole ribbon cable to the LCD, the 20-pole ribbon cable "Data" and the 2-pole plug of the inverter for the LCD back lighting are connected properly.
- Check that the central computer is plugged in correctly and it is locked
- If all plug connections are OK, replace the door with all components.

13.4 LED operation is lit, display back lighting is on but nothing is displayed

When the AE-CU is turned off, it takes 1 minute for the display to reset.

- Switch off the AE-CU again for at least 90 seconds
- Start the AE-CU again > display is OK
- If nothing is displayed, connect your PC with the RS232 0-modem cable to the central station and start Hyperlink. After reset data transfer can be observed > check all plug and cable connections in the door.
- If no data or no operation can be observed even with all plug/cable connections correct > replace the door together with all components.

13.5 The touchscreen display does not react or does not properly react to touch

If all plug connections are properly plugged in/locked, or the display reacts poorly, calibration may be required.

Starting from Site Installer 2.4.17.x, the display can be calibrated using Site Installer; the process is described in the Site Installer manual.

- After sending the calibration command, the signs are displayed for calibration successively in the corners of the display, touch the buttons shown. Perform calibration with your finger using average pressure, the touch events are stored. After calibration with the finger, operation is usually very precise using a PDA pencil or ball pen. Do not apply too much pressure, because the button "bounces" when touched. Test the reaction and repeat the configuration if necessary until the display reacts accordingly.

NOTE

Test the display reaction together with the person(s) of the operator to ensure that the personnel of the operator can operate the equipment.

If the AE-CU does not react to the calibration process, contact the hotline.

14 Data transfer

If all mounted stations were read and addresses assigned, and all fault messages on the AE-CU were resolved, the data can be read from the AE-CU and group assignments, group and message texts and programming of outputs and functions can be performed.

Start the PC, connect the AE-CU and the PC using a null modem cable or a Cooper USBINT1/2 USB on RS232 adapter if your PC does not have a serial (COM) interface.

Create a new project file in your project folder or in the folder of Site Installer.

The AE-CU controls the data transfer between the AE-CU and the PC. For this purpose, always switch the AE-CU to data transfer first and then start Read data/Send data on the PC. The AE-CU polls 6 x at an interval of 4 seconds to connect to a computer.

14.1 Read data from the AE-CU

After starting the program Site Installer on your PC, creating a new project file and connecting the AE-CU with the PC, data transfer is enabled under *Enable* \ *Installer passcode* \ *Commissioning* \ *Read data from AE-CU* \ *OK*.

The reading process is started without delay after clicking on the corresponding command field on the PC. Transfer windows are opened on the AE-CU display and on the PC showing the progress of the data transfer process. After completing the data transfer, the corresponding message is shown.

14.2 Configuration

After loading the data of the AE-CU to your PC, the data are configured.

Create the required message groups according to your message group directory and assign the stations.

Program the output functions of relays, the outputs and sirens.

Create group and station labels if this is required or necessary.

Check the data input by creating a list of objects.

After performing all programming tasks, transfer the file to the AE-CU.

14.3 Send data to the AE-CU

After completing programming, the data can be sent to the AE-CU. Connect your PC to the AE-CU and select *Enable* \ *Installer passcode* \ *Commissioning* \ *Send data to the AE-CU* \ *OK*.

The data transfer process is started without delay after clicking on the corresponding command field on the PC. Transfer windows are opened on the AE-CU display and on the PC showing the progress of the data transfer process. After completing the data transfer, the corresponding message is shown.

After completing the data transfer, please check if the programmed data fit to the device setup of the AE-CU (Check config. in the operator menu).

14.4 Check the data

After transferring the programming data to the AE-CU, check if the programmed and actual device setup of the AE-CU is the same. Under *Enable* \ *Operator passcode* \ *Additional* \ *Check config.* \ *Check loop* \ *Automatic read* \ *Yes* start the corresponding test function of the AE-CU. Differences between programming and the AE-CU are shown as faults. Resolve all faults based on the instruction of section Troubleshooting.

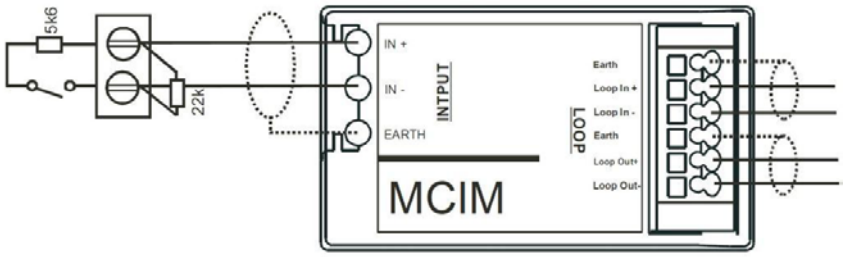
14.5 Function test

After a successful commissioning and programming process of the AE-CU, all installed components (detector, module, displays and signal encoder) and peripheral devices for the fire department are tested.

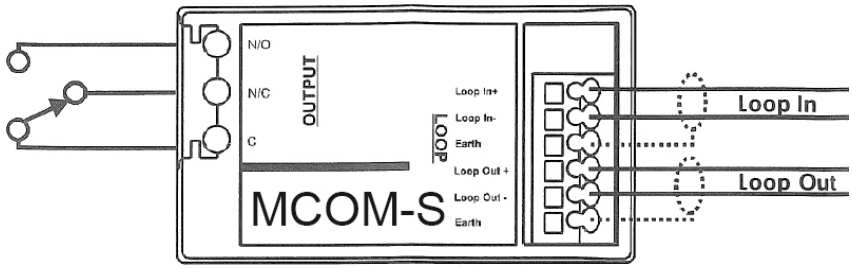
Test the facility-specific controls like dependencies of the ÜE control, delays etc. to ensure that the AE-CU programming is performed correctly and in compliance with the requirements.

15 Connection diagrams

15.1 MCIM



15.2 MCOM-S



16 Maintenance/repair

- Additional procedures must be set up here
- According to these directives, the following works should be performed:

16.1 Maintenance interval is 12 months

In addition to the inspection works after 3 months

- Check all detectors

16.2 Maintenance interval 3 - 5 years

- Replace the lead-acid batteries according to manufacturer specifications in compliance with current disposal requirements

17 Commissioning

Before commissioning the AE-CU equipment, the following information must be available / measures must be performed:

The installation plan of dynamic luminaires with the designation of the luminaires exists.

Transfer of information between the BMA and the AE-CU by the relay contacts (1 relay contact per scenario) is set up, location, cable route installed and documented.

Control matrix of the scenarios exists -> which scenario is active in which situation? This information must be provided to the project engineer.

The data cable between the AE-CU and ZBS (2x2x0.8mm²) is installed and labelled accordingly.

The cabling of the data lines (loops) in the direction AE-CU > dynamic luminaires > AE-CU is complete. A shielded cable is laid as a loop here. There is a cable layout plan or a wiring diagram.

The cables at the AE-CU equipment are prepared for connection and labelled accordingly.

The mains connection is installed. The corresponding mains fuse is known and properly documented at the AE-CU.

The diameter of data cables (loops) was measured.

Values:
Loop + (max. 75R),
Loop – (per luminaire 2k5),
Supplementary wire is dependent on conductor cross-section, like loop + or twice as high, the measured values have been recorded.

17.1 Commissioning protocol

EATON Powering Business Worldwide	Commissioning protocol		AE-CU

Installer:		Technican:	
Object:		Phone:	

Professional cabling in AE-CU Controller	Yes O
All cablings correct plugged	Yes O
All cablings conform to the connection plan	Yes O
Connection of drain wire 1-side in the AE-CU to Earth	Yes O

Note! Please switch AE-CU on after all wirings are proofed and tested.
Note! For measuring disconnect the Loop Bus.

Measuring values via chapter 5.2 installation example

Measurement	Specificaton	Loop 1	Loop 2	Loop 3	Loop 4	´+24V
Start S+ / End F+	1 - 74R					
Start with * marked measurements only if measured value S+/F+ are in line with default.						
Start S+ / PE*	>250k					
End F+ / PE*	>250k					
PE / 24V	>250k					
		Loop 1	Loop 2	Loop 3	Loop 4	0V
Start S-/End F-	2k5 pro Teilnehmer					
Start with * marked measurements only if measured value S+/F+ are in line with default.						
Start S- / PE*	250k - 10M					
End F- / PE*	250k - 10M					
Start S+/Start S-	250k - 10M					
End F+/End F-*	250k - 10M					
PE / 0V Drain wire dependent from Ø	250k - 10M (<250R)					
Please switch the meter to AC for the follow measurements.						
Start S+ / Start S-*	0-1V AC					
End F+ / End F-*	0-1V AC					

Please connect Start Loop 1 with +S1/-S1, switch AE-CU on and start the function >yes address all rings<. By manual addressing of attendees start >Input addresses< in the Installer menu. Crosscheck if the recognized attendees are conform with the documentation. Connect the loop end of loop 1 +F1/-F1. Start the same procedure with the next loop.

	Ring 1	Ring 2	Ring 3	Ring 4
Installation plan	Yes O	Yes O	Yes O	Yes O
Number of devices via installation plan				
Numbers of devices actually installed				

Please use >Installer password\Test\test Device< to test the cable route and attendees.

Device Test	Yes O	Yes O	Yes O	Yes O
Cable route test	Yes O	Yes O	Yes O	Yes O

AE-CU:	CPU Software:		Date:	
Loop card 1:	Software:		Date:	
Loop card 2:	Software:		Date:	

Site-Installer Version: _____

18 General safety instructions

български

Общи инструкции за безопасност

- Уредите не са подходящи за частна употреба.
- Монтирането трябва да се извършва от квалифицирани техници, като се вземат под внимание националните разпоредби за безопасност и предотвратяване на злополуки.
- Уредите трябва да се използват в съответствие с предназначението им, в подходящо и изправно състояние.
- Отстранете всички чужди тела от уредите, преди първото му използване.
- При работа с уредите, първо изключете напълно електрозахранването, уверете се, че не е възможно то да се включи отново и проверете дали уредът не е под напрежение. (Горното се отнася до електрическата мрежа, резервното захранване и евентуално контролно и външно напрежение.) Не изключвайте веригите, докато са под натоварване.
- Внимавайте за падащи части по време на транспортиране.
- Използвайте само оригинални резервни части за подмяна.

Česky

Všeobecné bezpečnostní pokyny

- Zařízení nejsou určeny k soukromému využití.
- Veškerou instalaci musí provádět kvalifikovaný elektrikář seznámený s národními bezpečnostními předpisy.
- Zařízení se smí používat jen k zamýšlenému účelu a musí být v řádném a nepoškozeném stavu.
- Před prvním použitím ze zařízení odstraňte všechny cizí předměty.
- Při práci na zařízení nejprve zcela odpojte napájení, zajistěte, aby nemohlo být znovu zapnuto, a zkontrolujte nepřítomnost napětí. (Výše uvedený pokyn se týká napájení z rozvodné sítě, záložního napájení a případně i přívodů ovládacího a externího napětí.) Neodpojujte okruh pod napětím.
- Při přenosu pamatujte na oddělitelné části.
- K výměně používejte výhradně originální náhradní díly.

Dansk

Generelle sikkerhedsinstruktioner

- Apparaterne er ikke egnet til privat brug.
- En installation skal altid udføres af en kvalificeret elektriker og under hensyntagen til nationale sikkerheds- og ulykkesforebyggende regulativer.
- Apparaterne må kun anvendes i overensstemmelse med den påtænkte brug og i hel og ubeskadiget stand.
- Fjern alle fremmedlegemer fra apparaterne inden første anvendelse.
- Når der arbejdes med apparaterne, så sluk først for al strøm, fastslå at den ikke kan tændes igen og tjek, at de er uden spænding. (Ovennævnte er gældende for strømforsyning, nødstrøm og mulig kontrol og ekstern strøm.) Afbryd ikke kredsløbene under belastning.
- Pas på løsdele under transport.
- Brug kun originale reservedele ved udskiftning.

Deutsch

Allgemeine Sicherheitshinweise

- Die Geräte sind nicht für den privaten Gebrauch geeignet.
- Eine Installation darf nur durch qualifizierte Elektrofachkräfte unter Berücksichtigung der nationalen Sicherheits- und Unfallverhütungsvorschriften erfolgen.
- Die Geräte sind bestimmungsgemäß in unbeschädigtem und einwandfreiem Zustand zu betreiben.
- Alle Fremdkörper müssen vor der ersten Inbetriebnahme aus den Geräten entfernt werden.
- Bei Arbeiten an den Geräten sind diese zuerst komplett spannungsfrei zu schalten, gegen Wiedereinschalten zu sichern und die Spannungsfreiheit festzustellen. (Gilt für Netzspannung, Ersatzstromquelle und evtl. Steuer- / Fremdspannungen.) Stromkreise nicht unter Last trennen.
- Beim Transport mit herunter fallenden Teilen rechnen.
- Als Ersatz dürfen nur Originalteile verwendet werden.

Eesti

Üldised ohutusjuhised

- Need seadmed ei ole mõeldud erakasutuseks.
- Paigaldustööd tuleb jätta kvalifitseeritud elektriku hooleks ning tuleb teha vastavalt siseriiklikele ohutuseeskirjadelete ja õnnetusjuhtumite vältimise reeglitele.
- Seadmeid tuleb kasutada nende ettenähtud eesmärgil korrasolevatena ja kahjustamata seisundis.
- Enne esmakordset kasutamist eemaldage seadmetest kõik võõrkehad.
- Seadmetega töötamisel lülitage kõigepealt kogu toide välja, tagage, et seda ei saa uuesti sisse lülitada ja kontrollige toitepinge puudumist. (Eeltoodu kehtib nii võrgupinge, varutoite kui ka võimaliku kontrollpinge ja välise pinge suhtes.) Ärge ühendage lahti koormuse all olevat vooluringi.
- Transportimisel võtke arvesse kukkuvatest osadest lähtuvat ohtu.
- Vahetamiseks kasutage ainult originaalvaruosi.

ελληνικά

Γενικές οδηγίες για την ασφάλεια

- Οι συσκευές δεν είναι κατάλληλες για ιδιωτική χρήση.
- Η εγκατάστασή τους πρέπει να γίνεται από εξειδικευμένους ηλεκτρολόγους, λαμβάνοντας υπόψη τους εθνικούς κανονισμούς ασφαλείας και πρόληψης ατυχημάτων.
- Πρέπει να γίνεται μόνο η προβλεπόμενη χρήση των συσκευών, στην κατάλληλη κατάστασή τους και χωρίς να παρουσιάζουν βλάβη.
- Πριν από την πρώτη χρήση τους, απομακρύνετε όλα τα ξένα αντικείμενα από τις συσκευές.
- Όταν εργάζεστε με τις συσκευές, κλείνετε τον διακόπτη λειτουργίας, βεβαιώνεστε ότι δεν μπορεί να ανοίξει ξανά και ελέγχετε εάν υπάρχει τάση σε αυτές (το ίδιο ισχύει και για τον γενικό διακόπτη ρεύματος, την εφεδρική πηγή ισχύος και την τυχόν τάση ελέγχου και εξωτερική τάση). Μην αποσυνδέσετε τα κυκλώματα υπό φορτίο.
- Έχετε υπόψη σας τα τμήματα που ενδέχεται να πέσουν κατά τη μεταφορά.
- Χρησιμοποιείτε μόνο γνήσια ανταλλακτικά για αντικατάσταση.

English

General safety instructions

- The devices are not suitable for private use.
- An installation must be performed by qualified electricians taking into account the national safety and accident prevention regulations.
- The devices must be used in accordance with their intended use in a proper and undamaged condition.
- Remove all foreign objects from the devices before their first use.
- When working with the devices, first turn off the power completely, ensure that it cannot be turned back on, and check if they are free of voltage. (The above applies to mains power, backup power and possibly control and external voltage.) Do not disconnect the circuits under load.
- Be aware of falling parts during transport.
- Use only original spare parts for replacement.

Español

Instrucciones generales de seguridad

- Los dispositivos no son adecuados para el uso privado.
- Solo puede instalarlos un electricista cualificado de acuerdo con la normativa de seguridad y prevención de accidentes.
- Los dispositivos deben utilizarse de acuerdo con su uso previsto, en buen estado y sin daños.
- Retire todos los objetos que no pertenezcan a los dispositivos antes del primer uso.
- Cuando se disponga a manipular los dispositivos, desconecte totalmente la corriente eléctrica, asegúrese de que no se pueden volver a conectar y compruebe que no tengan corriente. (Lo anterior se aplica a la red eléctrica, a los grupos electrógenos de emergencia, y posiblemente, también al control y a la corriente externa.) No desconecte los circuitos con una carga conectada.
- Tenga cuidado con los componentes que podrían caerse durante el transporte.
- Use solo piezas de repuesto originales para reemplazar las antiguas.

Français

Consignes générales de sécurité

- Les dispositifs ne conviennent pas à un usage privé.
- L'installation doit être effectuée par des électriciens qualifiés, conformément aux réglementations nationales sur la sécurité et la prévention des accidents.
- Les dispositifs doivent être utilisés conformément à l'usage auquel ils sont destinés, être en bon état et ne pas être endommagés.
- Retirez tous les corps étrangers des dispositifs avant leur première utilisation.
- Lorsque vous travaillez sur les dispositifs, coupez tout d'abord complètement l'alimentation électrique, assurez-vous qu'elle ne peut pas être rétablie et vérifiez que la tension est nulle. (L'énoncé précédent s'applique à l'alimentation du secteur, l'alimentation de secours et peut s'appliquer à la tension de commande et à la tension externe.) Ne déconnectez pas les circuits en charge.
- Faites attention aux pièces pouvant tomber pendant le transport.
- N'utilisez que des pièces de rechange d'origine en cas de remplacement.

Hrvatski

Opće sigurnosne upute

- Uređaji nisu prikladni za privatnu upotrebu.
- Instalaciju moraju provesti kvalificirani električari uzimajući u obzir nacionalne propise za sigurnost i sprečavanje nezgoda.
- Uređaji se moraju upotrebljavati u skladu sa svojom namjenom u ispravnom i neoštećenom stanju.
- Uklonite sve strane predmete iz uređaja prije prve upotrebe.
- Kada radite s uređajima, prvo u potpunosti isključite napajanje, osigurajte da se ne može uključiti i provjerite da nema napona. (Navedeno se odnosi na glavno napajanje, pomoćno napajanje i eventualno kontrolu vanjskog napona.) Nemojte isključivati strujne krugove pod opterećenjem.
- Pripazite na dijelove koji padaju tijekom transporta.
- Upotrebljavajte samo originalne rezervne dijelove za zamjenu.

Italiano

Indicazioni generali sulla sicurezza

- Le unità non sono idonee all'uso privato.
- L'installazione deve essere effettuata da un elettricista specializzato prendendo in considerazione le norme nazionali in materia di sicurezza e prevenzione degli infortuni.
- Le unità devono essere utilizzate conformemente all'uso previsto in condizioni adeguate e senza danni.
- Rimuovere tutti i corpi estranei dale unità prima di utilizzarle per la prima volta.
- Prima di ogni intervento sulle unità, disattivare completamente l'alimentazione elettrica, accertarsi che non possa essere riattivata e verificare che le unità siano prive di tensione. (Quanto sopra vale per la tensione di rete, l'alimentazione di riserva ed eventualmente per la tensione di controllo e la tensione esterna.) Non scollegare i circuiti sotto carico.
- Prestare attenzione alla possibile caduta di pezzi durante il trasporto.
- Utilizzare soltanto pezzi di ricambio originali.

Latviski

Vispārējie drošības norādījumi

- Šīs ierīces nav paredzētas personīgai lietošanai.
- Uzstādīšana jāveic kvalificētiem elektriķiem, ievērojot nacionālos drošības un nelaimes gadījumu novēršanas noteikumus.
- Ierīces jālieto saskaņā ar tām paredzēto lietošanu pareizā un nebojātā stāvoklī.
- Pirms pirmās lietošanas reizes izņemiet no ierīces visus svešķermeņus.
- Rīkojoties ar ierīcēm, vispirms pilnībā izslēdziet barošanu, nodrošiniet, ka tās nevar atkal ieslēgt, un pārliecinieties, ka tās nav zem sprieguma. (Iepriekš minētais attiecas uz barošanu no tīkla, no rezerves barošanas avota, kā arī no iespējama vadības un ārēja sprieguma.) Neatvienojiet ķēdes, kam pievienota slodze.
- Transportējot uzmanieties no krītošām daļām.
- Nomainai izmantojiet tikai oriģinālās rezerves daļas.

Lietuviškas
Bendrieji saugos nurodymai
- Įrenginiai neskirti privačiam naudojimui.
- Įrengti turi kvalifikuoti elektrikai, atsižvelgdami į šalies saugos ir nelaimingų atsitikimų prevencijos taisykles.
- Įrenginiai turi būti naudojami pagal numatytą paskirtį, tinkamos būklės ir nesugadinti.
- Prieš naudodami pirmą kartą, nuo įrenginio pašalinkite visus pašalinius daiktus.
- Dirbdami su įrenginiais pirmiausia visiškai išjunkite maitinimą, pasirūpinkite, kad jis negalėtų būti vėl įjungtas ir patikrinkite, ar neliko įtampos. (Minėti nurodymai taikomi pagrindiniam maitinimui, atsarginiam maitinimui ir galimai valdymo bei išorinei įtampai.) Neatjunkite grandinių, kuriomis teka elektros srovė.
- Veždami saugokite, kad neužkristų daiktai.
- Pakeitimui naudokite tik originalias atsargines dalis.

Magyar
Általános biztonsági utasítások
- A készülékek nem megfelelőek magáncélú használatra.
- A felszerelést csak szakképzett villanyszerelő végezheti a biztonsági és baleset-megelőzési helyi szabályozás betartásával.
- A készülékeket rendeltetésszerűen kell használni, és azoknak megfelelő és sértetlen állapotúnak kell lenniük.
- Az első használat előtt távolítsa el az összes idegen tárgyat a készülékekből.
- Ha a készülékekkel munkálatokat végez, először szakítsa meg teljesen azok áramellátását, biztosítsa bekapcsolás ellen, és ellenőrizze, hogy feszültségmentes állapotban vannak. (A fenti utasítás vonatkozik a tápfeszültségre, készenléti áramellátásra és a vezérlő és külső feszültségre, ha van ilyen.) Ne kapcsolja szét az áramköröket terhelés alatt.
- Figyeljen az esetleg leeső összetevőkre szállítás során.
- Csak eredeti cserealkatrészeket használjon.

Nederlands
Algemene veiligheidsinstructies
- De componenten zijn alleen geschikt voor proffesioneel gebruik.
- Installatie moet worden uitgevoerd door gekwalificeerde elektromonteurs met inachtneming van de nationale regelgeving voor veiligheid en het voorkomen van ongevallen.
- De apparaten moeten worden gebruikt waarvoor deze bedoeld zijn, op juiste wijze en in onbeschadigde toestand.
- Verwijder alle vreemde voorwerpen van de apparaten voordat u deze in gebruik neemt.
- Tijdens werkzaamheden aan de componenten schakelt u eerst alle stroom geheel uit en zorgt u ervoor dat deze niet weer zo maar ingeschakeld kan worden, en controleert u of deze geheel vrij van spanning zijn. (Bovenstaande geldt voor de hoofdspanning, accuspanning en eventuele externe spanning.) Ontkoppel de stroomcircuits niet als deze in gebruik zijn.
- Let op vallende delen tijdens transport.
- Gebruik alleen originele onderdelen bij vervanging.

Norsk
Generelle sikkerhetsinstruksjoner
- Enhetene passer ikke for privat bruk.
- En installasjon må utføres av kvalifiserte teknikere som tar hensyn til nasjonale sikkerhetsforskrifter og ulykkesforebyggende forskrifter.
- Enhetene skal brukes i samsvar med tiltenkt formål, i riktig og uskadet stand.
- Fjern alle fremmedlegemer fra enhetene før første gangs bruk.
- Ved arbeid med enhetene, skal strømmen først slås helt av, og det skal sikres at den ikke kan slås på igjen. Kontroller at de er spenningsfrie. (Det ovennevnte gjelder nettstrøm, ekstrastrøm og mulig kontroll- og ekstern spenning.) Ikke koble fra kretsene under ladning.
- Vær oppmerksom på fallende deler under transport.
- Bruk bare originale reservedeler til erstatning.

Polski
Ogólne instrukcje bezpieczeństwa
- Urządzenia nie nadają się do użytku prywatnego.
- Montaż musi być przeprowadzony przez wykwalifikowanego elektryka z uwzględnieniem krajowych przepisów bezpieczeństwa pracy i zapobiegania wypadkom.
- Urządzeń należy używać wyłącznie zgodnie z ich zamierzonym przeznaczeniem, gdy są one w dobrym i nieuszkodzonym stanie.
- Przed pierwszym użyciem należy usunąć z urządzeń wszystkie obce ciała.
- Podczas pracy przy urządzeniach należy najpierw całkowicie wyłączyć zasilanie, upewnić się, że nie można go włączyć ponownie oraz sprawdzić, czy nie ma napięcia. (powyższe instrukcje dotyczą zasilania sieciowego, zasilania awaryjnego oraz napięcia sterowniczego i zewnętrznego.) Nie wolno odłączać obwodów znajdujących się pod obciążeniem.
- Podczas transportu należy uważać na spadające elementy.
- W przypadku wymiany należy używać wyłącznie oryginalnych części zamiennych.

Português
Instruções gerais de segurança
- Os dispositivos não são adequados para uso privado.
- A instalação deve ser efetuada por um eletricista qualificado e em conformidade com os regulamentos nacionais de segurança e prevenção de acidentes.
- Os dispositivos devem ser utilizados em conformidade com o seu uso previsto e em boas condições, não apresentando danos.
- Remova todos os objetos estranhos dos dispositivos antes de utilizá-los pela primeira vez.
- Ao utilizar os dispositivos, primeiro desligue a eletricidade completamente, certifique-se de que não pode ser ligada e verifique se não existe tensão. (O supramencionado aplica-se à rede elétrica, à energia de reserva e à possível tensão de controlo e externa.) Não desligue os circuitos sob carga.
- Tenha atenção à queda de peças durante o transporte.
- Em caso de substituição, utilize apenas peças sobressalentes originais.

Română
Instrucțiuni generale de siguranță
- Aparatele nu sunt destinate pentru uz personal.
- Instalarea trebuie efectuată de către un electrician calificat în conformitate cu reglementările naționale de siguranță și prevenirea accidentelor.
- Aparatele trebuie utilizate conform destinației lor într-o stare corespunzătoare și nedeteriorată.
- Îndepărtați toate corpurile străine din aparat înainte de prima utilizare a acestuia.
- Dacă efectuați lucrări la aparate, întrerupeți mai întâi alimentarea cu curent, asigurați-le împotriva reporniri și verificați ca să nu fie sub tensiune. (Cele de mai sus se referă la alimentarea de la rețea, alimentarea de rezervă, tensiunea de reglare și curenții de scurgere.) Nu întrerupeți circuitele sub sarcină.
- Fiți atenți la obiecte care pot cădea în timpul transportului.
- Utilizați numai piese de schimb originale.

Русский
Общие инструкции по безопасности
- Устройства не предназначены для бытового использования.
- Монтаж выполняется квалифицированными электриками с учетом государственных норм и правил ТБ и профилактики несчастных случаев.
- Светильники должны использоваться только по назначению, при этом их следует поддерживать в исправном состоянии и оберегать от повреждений.
- Перед началом эксплуатации устройств удалите с их поверхности все посторонние объекты.
- Перед началом выполнения любых работ со светильниками, необходимо полностью обесточить их, обеспечить невозможность несанкционированной подачи питания, а также проверить отсутствие напряжения в цепи. (Подразумевается магистраль питания, резервное питание и, по возможности, напряжение в цепи управления и внешней цепи.) Не разрывайте цепи, находящиеся под нагрузкой.
- Перемещайте аккумулятор с осторожностью, чтобы не уронить.
- При замене вышедших из строя деталей используйте только оригинальные запчасти.

Slovenčina
Splošna varnostna navodila
- Zariadenia nie sú vhodné na súkromné použitie.
- Inštaláciu musí vykonávať kvalifikovaný elektrikár s prihliadnutím na vnútroštátne nariadenia o bezpečnosti a predchádzaní rizikám.
- Zariadenia sa musia používať v súlade s plánovaným používaním v riadnom a nepoškodenom stave.
- Pred prvým použitím odstráňte všetky cudzie predmety zo zariadení.
- Pri práci so zariadeniami najprv úplne vypnite napájanie, zaistite, aby sa znova nezapli a skontrolujte, či sú bez napätia. (Uvedené sa vzťahuje na sieťové napájanie, záložný zdroj a možnú kontrolu a externé napätie.) Obvody neodpájajte pod napätím.
- Počas prepravy dávajte pozor na padajúce predmety.
- Na výmenu používajte originálne náhradné diely.

Slovenščina
Pokyny týkajúce sa všeobecnej bezpečnosti
- Naprave niso ustrezne za zasebno uporabo.
- Namestitev morajo opraviti kvalificirani elektriki, pri čemer morajo upoštevati nacionalne predpise za varnost in preprečevanje nesreč.
- Napravo lahko uporabljate samo v skladu z njeno predvideno uporabo v ustreznem in nepoškodovanem stanju.
- Pred prvo uporabo naprave morate iz nje odstraniti vse tuje predmete.
- Ko delate na napravi, najprej povsem izključite napajanje, se prepričajte, da se je ne da več vklopiti, in preverite, če res ni več priklopljena na napetost. (Zgornje se nanaša na glavno napajanje, rezervno napajanje in tudi krmilnik ter zunanje napajanje.) Ne izklopite vezij pod napetostjo.
- Med transportom pazite na padajoče predmete.
- Pri zamenjavi uporabljajte samo originalne rezervne dele.

Suomalainen
Yleiset turvallisuusohjeet
- Laitteet eivät sovellu yksityiskäyttöön.
- Asennuksen saa suorittaa vain pätevät sähköasentajat ottaen huomioon kansalliset turvallisuus- ja tapaturmantorjuntamääräykset.
- Laitteita on käytettävä niiden tarkoitettuun käyttötarkoitukseen asianmukaisessa ja vahingoittumattomassa kunnossa.
- Poista kaikki vieraat esineet laitteista ennen niiden ensimmäistä käyttökertaa.
- Kun työskentelet laitteiden kanssa, sammuta sähköt ensin kokonaan ja varmista ettei niitä voi pistää takaisin päälle. Tarkista sitten ovatko ne jännitevapaat. (Edellä mainittu koskee verkkovirtaa, varavoimaa ja mahdollisesti ohjausjännitettä ja ulkoista jännitettä.) Älä irrota kuormitettuja virtapiirejä.
- Varo putoavia osia kuljetuksen aikana.
- Käytä vaihdossa vain alkuperäisiä varaosia.

Svenska
Allmänna säkerhetsföreskrifter
- Dessa enheter lämpar sig inte för privat bruk.
- Installation skall utföras av behörig elektriker med hänsyn till de nationella säkerhets- och olycksfalls skyddsföreskrifterna.
- Enheterna måste användas i enlighet med dess avsedda bruk och i ett korrekt och oskadat skick.
- Ta bort alla främmande föremål från enheterna innan de används för första gången.
- Medan du arbetar med enheterna, stäng först av strömmen helt, se till att den inte kan slås på igen och kontrollera att den inte har spänning. (Ovanstående gäller elnät, reservström och eventuellt kontroll- och extern spänning.) Koppla inte ur kretsarna under laddning.
- Var uppmärksam på fallande delar under transport.
- Använd endast originalreservdelar vid utbyte.

Türkçe
Genel güvenlik talimatları
- Aygıtlar özel kullanım için uygun değildir.
- Bir kurulum ulusal güvenlik ve kaza önleme yönetmelikleri dikkate alınarak vasıflı elektrikçiler tarafından yapılmalıdır.
- Aygıtlar, uygun ve zarar görmemiş bir koşulda tasarlanan kullanımı doğrultusunda kullanılmalıdır.
- İlk kullanım öncesinde aygıttaki tüm yabancı maddeleri giderin.
- Aygıtlarda çalışırken, ilk olarak gücü tamamen kapatın, tekrar açılamayacağından emin olun ve üzerinde gerilim olmadığını kontrol edin. (Yukarıdaki ana güç kaynağı, yedek güç kaynağı ve muhtemelen kontrol ve harici gerilim için uygulanır.) Yük altında devrelerin bağlantısını kesmeyin.
- Taşıma esnasında düşen parçalara dikkat edin.
- Değişim için sadece orijinal yedek parçaları kullanın.

الإرشادات العامة للسلامة عند استخدام الأجهزة
الأجهزة ليست مناسبة للاستخدام الخاص.
يجب أن يقوم كهربائي مؤهل بتركيب البطاريات مع الأخذ في الاعتبار قواعد السلامة الوطنية ومنع الحوادث.
يتعين استخدام الأجهزة في حالتها السليمة غير التالفة ووفقًا لأغراض الاستخدام المخصصة لها.
قم بإزالة جميع القطع الغريبة من الأجهزة قبل الاستخدام الأول لها
عند التعامل مع الأجهزة، أبدأ بإيقاف تشغيل الكهرباء بالكامل، وتأكد من عدم إمكانية إعادة تشغيلها، ثم تحقق مما إذا كانت خالية من الجهد. (ينطبق الوارد أعلاه على التيار الكهربائي، والطاقة الاحتياطية، والجهد الخارجي والذي يمكن التحكم فيه.) يحذر فصل الدوائر عند تعرضها للحمل الكهربائي.
انتبه لقطع الغيار التي تسقط أثناء النقل.
لا تستخدم إلا قطع الغيار الأصلية لغرض الاستبدال.

The aim of Eaton is to provide a reliable, efficient and safe power supply where it is needed most. Eaton's experts have comprehensive in-depth specialist knowledge in the area of energy management in the most diverse sectors and therefore they are able to provide customer-specific, integrated solutions to meet the most challenging demands of its customers.

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Printed in Germany
Publication no. MN451038EN
Order no. 40071860325
October 2017

Powering Business Worldwide