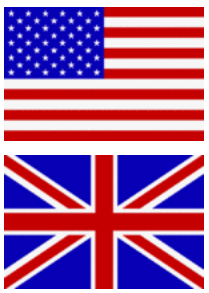
Beghelli PRÄZISA

Emergency Lighting

INSTALLATION INSTRUCTION

centralized supply system

decentralized supply system



English

Date: 18.04.2016

LED SICURO®

Table of contents

Information of the installation instruction

Important instructions

According to EN 50110-1:2004-11 any work on the installation has to be executed by qualified electricians only.

Other activities described in this installation instruction have to be executed only by persons who:

- have been instructed by qualified persons.
- have fully understood their tasks and the functions of the installation.
- are under observation and being checked regularly by qualified persons.

Please observe the local rules and regulations.

Symbol explanation

The following symbols must be observed.

Attention:
Indicates hazards that may be the cause for damage to human, plant or environment as well as very important instructions.

Note:
Provides information and advice for navigating within the described plant, components or functions.

Manufacturer

Beghelli PRÄZISA GmbH

Internet: www.beghelli.de
E-mail: kontakt@beghelli.de

Further documents

Catalogues
SICURO

The catalogue contents are also available over the internet – www.beghelli.de.

CD-ROM
Catalogue CD

Type codes

Designation:	Station type:	Mains monitoring:	Mains supply:	Battery supply:	Mains output voltage:	Battery output voltage:
SICURO-230Z	main station	3~	400 V AC 50/60 Hz 3~	216 V DC	230 V AC 50/60 Hz 1~	216 V DC
SICURO-230Z	sub station	1~	230 V AC 50/60 Hz 1~	216 V DC from main station	230 V AC 50/60 Hz 1~	216 V DC
SICURO-230Z	sub station	3~	400 V AC 50/60 Hz 3~	216 V DC from main station	230 V AC 50/60 Hz 1~	216 V DC
SICURO-24Z	sub station	1~	230 V AC 50/60 Hz 1~ from main station, combined with battery supply	216 V DC from main station, combined with mains supply	24 V DC	24 V DC
SICURO-24G	main station	1~	230 V AC 50/60 Hz 1~	24 V DC	24 V DC	24 V DC

Attention: **The specified mains and battery output voltages are only valid if output cards of the types AK 1/2/4x32 EÜ/SÜ resp. AK24 4x32 EÜ are used.**

Mains output voltage:

> The mains output voltage designates the voltage with which the output circuits of an emergency light station can be operated if no supply failure is present.

> The mains output voltage designates the voltage with which the output circuits of an emergency light station are operated if a partial supply failure is present.

Battery output voltage:

> The battery output voltage designates the voltage with which the output circuits of an emergency light station are operated if a general supply failure is present.

> The battery output voltage designates the voltage with which the output circuits of an emergency light station are operated if a function test, a duration test, an insulation test or a read-in is executed.

Preface

This installation instruction covers all standard switchboard configurations. Device properties and device connections are documented. The information provided conforms to the latest scope of delivery regarding all standard switchboards in their respective minimal configuration. All configurations deviating from this are documented only partially. The information of this document which is different to the minimal configurations can be supplemented by the use of the documentations regarding the single equipment. Additional information can be requested from the above mentioned address.

The technical content of this installation instruction is correct at time of print.
Subject to change without prior notification.

Attention: **This installation instruction should be used for general engineering purposes only before the ready manufactured product is delivered. After the delivery the individual documentation of the product must be used to reach the most exact relation.**

General installation notes

Switchboards with devices are custom manufactured products which are every time adapted to the respective technical requirements of the object and the customer of Beghelli PRÄZISA. This leads to individual switchboard configurations. The connection of a switchboard can basically be divided in the following installation steps. Additional steps regarding the connection should be planed and performed concerning the respective technical requirements and the installed equipment of the ready manufactured switchboard. With the aid of the individual documentation of the product it is possible to get an overview of its properties. The documentation can be used to plan and perform additional installation steps.

Note: **If contact designations are not described in detail in the installation steps respective information can be found in the individual documentation.**

Installation step 1 – unpacking and check of the equipment

During the unpacking a check of all equipment should be done regarding the delivered quantities in correspondence with the respective order numbers. Viewing the individual documentation of the product can help to assign the delivered equipment better. In case of deviations to the ordered equipment please contact Beghelli PRÄZISA.

Attention: **During this and all following installation steps special attention must be paid to all equipment which is signed with safety signs. This installation instruction as well as all additional supplied documentations of other manufacturers (first and foremost material safety datasheets) must be read before the beginning of any activities.**

Installation step 2 – assembly and erection of the equipment

The assembly and erection of all equipment should be done concerning the general cabling topology of all emergency light stations. The following installation steps as well as the individual documentation of the product are providing information how to install respective cables und external equipment.

Attention: **During this and all following installation steps all activities must be done without voltage on the equipment. This includes all kinds of mains supply voltages, battery supply voltages and every other kind of voltage independently of their usage.**

Installation step 3 – connection of mains and battery supply

SICURO-24Z – sub station:

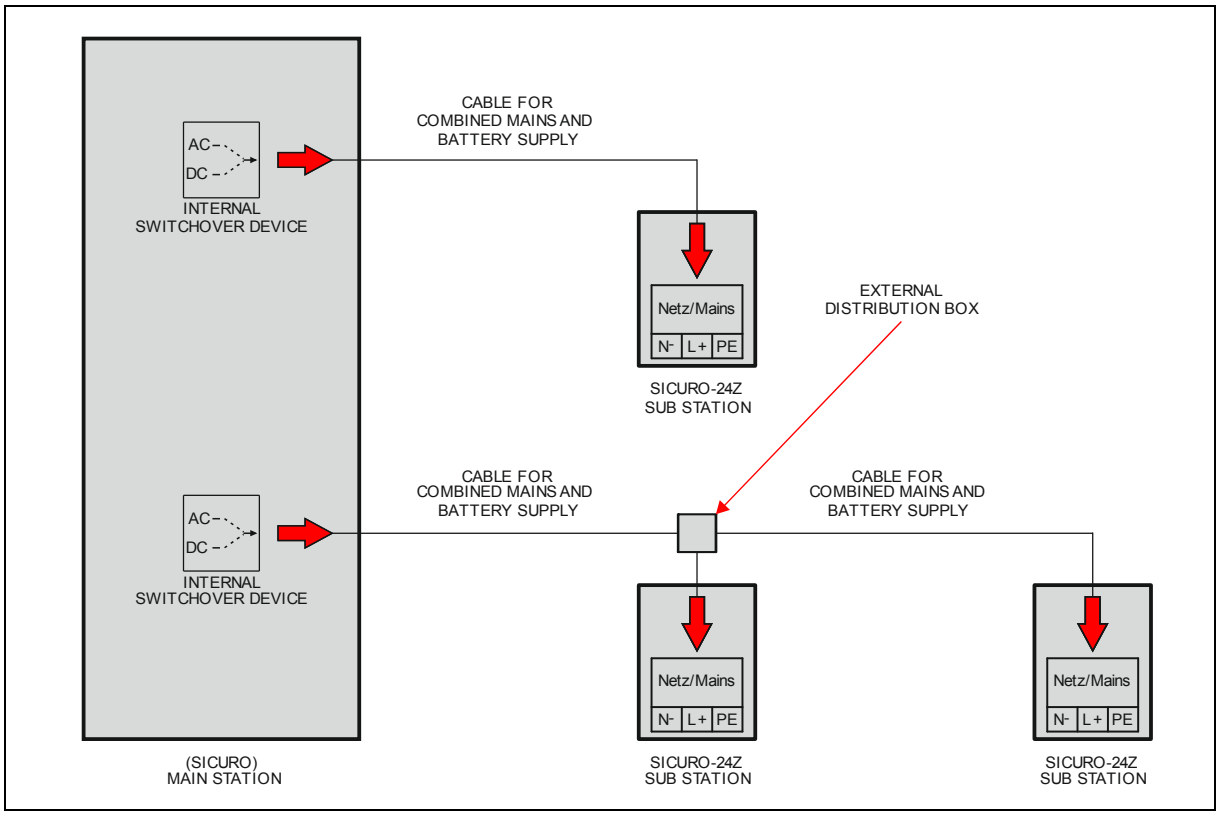
> Every sub station of a SICURO-24Z system must be supplied with the combined mains and battery supply from the associated main station.

> Depending on the configuration the combined mains and battery supply for the sub stations can be wired in a row or starred.

> A main station (SICURO) can have up to 63 connected sub stations.

> The sub stations must be of the type SICURO-24Z.

> The handoff point to connect the combined mains and battery supply to the emergency light station is located on the I/O card. The contact is designated with "Netz/Mains" and "N-/L+/PE".



Attention: **Switchboards, distribution boxes and cables are defined by national rules. Regarding this equipment a functional integrity can be required.**

SICURO-24G – main station:

> Every SICURO-24G system consists at least of one main station.

> Every main station must be supplied with its own mains and battery supply.

> Depending on the configuration the mains supply for the main stations can be wired in a row or starred. An external distribution box is necessary for the wiring in a row.

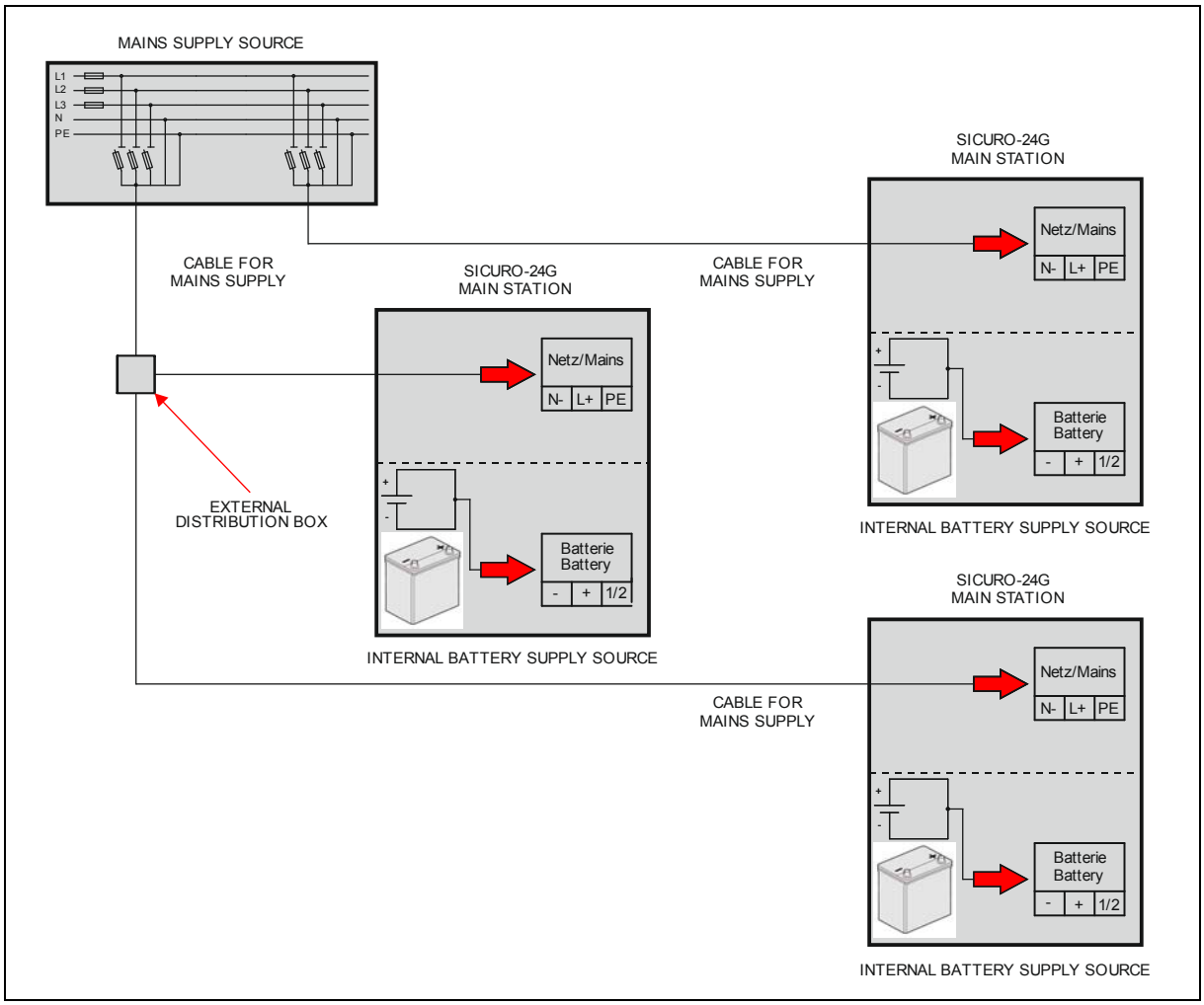
> The battery supply source is placed inside the main station switchboard.

> A main station can have no connected sub stations.

> The handoff point to connect the mains supply to the emergency light station is located on the I/O card. The contact is designated with "Netz/Mains" and "N-/L+/PE".

> The handoff point to connect the battery supply to the emergency light station is located on the I/O card. The contact is designated with "Batterie Battery" and "-/+".

Attention: **It is not allowed to use the software programming of a SICURO-24G system to configure a main station as a sub station in combination with a cabling of the sub station bus. Within a SICURO-24G system all emergency light stations must be configured as main stations. A main station must be an autonomous working unit regarding the required basic functionality.**



Attention: **Switchboards, distribution boxes and cables are defined by national rules. Regarding this equipment a functional integrity can be required.**

Installation step 4 – connection of the critical circuit

Properties of the critical circuit:

> All SICURO systems are equipped with a critical circuit.

> The critical circuit is equipped on its measure contact with a loop supervision which works together with an end resistor (10 kΩ).

> The end resistor (10 kΩ) mounted on the measure contact at delivery condition must be connected together with the last external monitoring module.

> The critical circuit measures on its measure contact the presence of the end resistor (10 kΩ). If the measured resistance value deviates positive or negative from a determined value, then a mains failure is detected by the emergency light station.

> The handoff point to connect the critical circuit to the emergency light station is located on the I/O card. The measure contact is designated with "KSK" and "+/-".

Attention: **When a mains failure is detected on the critical circuit of an emergency light station, then at factory setting only the output circuits resp. luminaire modules can be set in an emergency operation, which are connected to the affected emergency light station. The setting of output circuits resp. luminaire modules in an emergency operation which are connected to another emergency light station within a SICURO system is possible with a change of the factory settings by the customer.**

Properties of external monitoring modules:

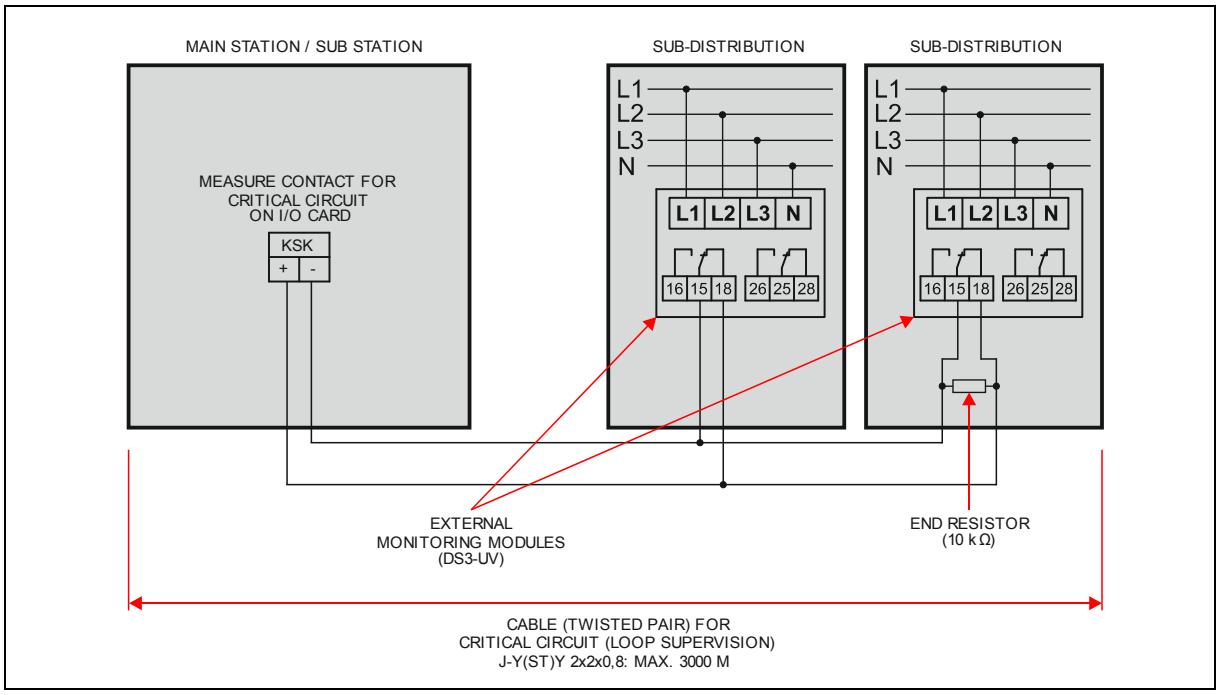
> The critical circuit is used for the sub-distribution monitoring of the general lighting. In the course of this external monitoring modules (standardly DS3-UV) are installed inside every sub-distribution which must be monitored.

> Each external monitoring module monitors presence and value of the mains voltage.

> The last external monitoring module must be connected together with the end resistor (10 kΩ).

> An external monitoring module must open the critical circuit to enable the measuring of the end resistor (10 kΩ) by the measure contact of the critical circuit when no mains failure is present.

> An external monitoring module must close the critical circuit low-ohmic to enable the measuring of a short circuit by the measure contact of the critical circuit the when a mains failure is present.



Attention: **The critical circuit must be wired in a row. A starred wiring is not possible, because the loop supervision must consist of only one defined end with an end resistor.**

Installation step 5 – connection of the battery middle tapping

SICURO-24Z – sub station:

> The SICURO-24Z systems are not equipped with a measure contact for a battery middle tapping. The emergency light stations (sub stations) are operated without a battery middle tapping.

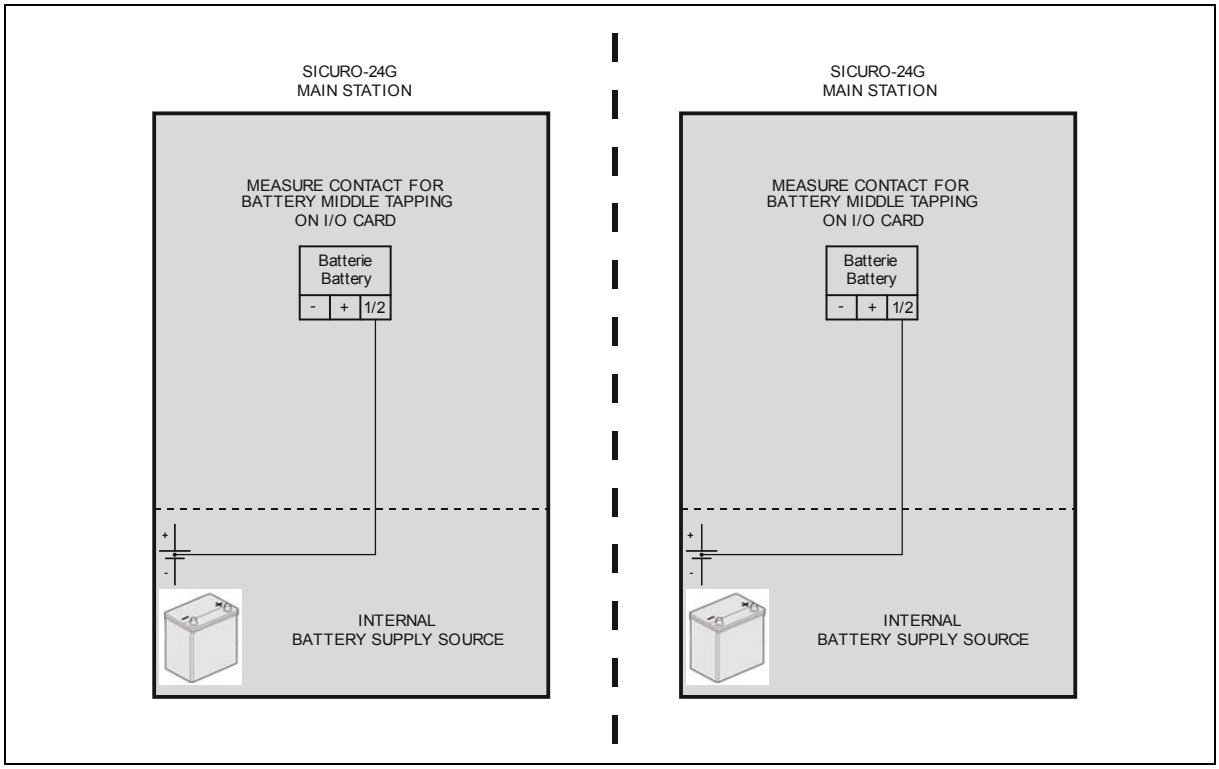
SICURO-24G – main station:

> All SICURO-24G systems are equipped with a measure contact for a battery middle tapping.

> Every main station must be connected to a battery middle tapping.

> The battery middle tapping is placed inside the main station switchboard.

> The handoff point to connect the battery middle tapping to the emergency light station is located on the I/O card. The measuring contact is designated with "Batterie Battery" and "1/2".



Note: **The handoff point to connect the battery middle tapping to the emergency light station is pre-wired if the batteries are placed inside the switchboard at delivery condition. In this case the respective contacts are not intended as a connection for the customer at standard switchboard configurations.**

Installation step 6 – connection of the device supply voltage

> All SICURO systems are equipped with a device supply voltage.

> The voltage source supplies the voltage level 24 V DC.

> The handoff point of the device supply voltage is located on the I/O card. The contacts are designated with "24V Ext." and "+/-".

> The voltage source can be used for additional devices which can be placed internal or external related to the switchboard.

Note: **If additional internal devices are included in the switchboard configuration a respective pre-wiring is existent at delivery condition.**

Installation step 7 – connection of the switch inputs

> All SICURO-24Z and SICURO-24G systems are equipped with two switch inputs.

> The switch contacts are carried out as circuits with a switch voltage of 24 V DC.

> The command uptake for all switch inputs is binary and done by a low-ohmic contact closing (short circuit).

> The command initiation for the switch input "maintained mode on/off" is software controlled and can not be influenced by a programming.

> The command initiation for the switch input "user definition" is software controlled and can be influenced by a programming.

> The handoff point of the switch input "maintained mode on/off" is located on the I/O card. The contacts are designated with "DS" and "+/-".

> The handoff point of the switch input "user definition" is located on the I/O card. The contacts are designated with "Aux In" and "+/-".

> The switch inputs can be used for control purposes together with additional devices which can be placed internal or external related to the switchboard.

Attention: **The switch inputs are only free available if no optional signalling and switching module (MSM) is included in the switchboard configuration. Depending on the type of the signalling and switching module (MSM) the switch inputs are partly or completely used.**

Installation step 8 – connection of the control contact "blower"

> The SICURO-24Z and SICURO-24G systems are not equipped with a control contact for blowers. The emergency light stations are operated without a blower.

Installation step 9 – connection of the measure contact "temperature sensor"

SICURO-24Z – sub station:

> The SICURO-24Z system is not equipped with a measure contact for temperature sensors. The emergency light stations are operated without a temperature sensor.

SICURO-24G – main station:

> All SICURO-24G systems are equipped with a measure contact for a temperature sensor.

> The measure contact is carried out as a circuit with a measure voltage of 3 V DC and software monitored.

> The handoff point to connect the temperature sensor to the emergency light station is located on the I/O card. The measure contact is designated with "Temp. NTC".

> The measure contact is used for monitoring purposes together with a pre-installed temperature sensor which is placed in the battery chamber of the switchboard.

Note: **The handoff point to connect the temperature sensor to the measure contact is pre-wired and located at the terminal clamps of the I/O card. The contacts "Temp. NTC" are not intended as a connection for the customer at standard switchboard configurations.**

Installation step 10 – connection of the message contact "insulation fault"

> The SICURO-24Z and SICURO-24G systems are not equipped with a message contact for signaling an insulation fault.

Installation step 11 – connection of the message contact "mains failure"

> The SICURO-24Z and SICURO-24G systems are not equipped with a message contact for signaling a mains failure.

Installation step 12 – connection of the message contact "operational condition"

> All SICURO systems are equipped with a message contact for the status "operational condition".

> The message contact is carried out as a potential-free closer and software controlled.

> The handoff point of the message contact "operational condition" is located on the I/O card. The message contact is designated with "Betr." and "C/NO".

> The rating of the contacts amounts to 4 A at 250 V AC resp. 4 A at 30 V DC.

> The message contact can be used for control or monitoring purposes together with additional devices which can be placed internal or external related to the switchboard.

Software command "operational condition" PRESENT:

The message relay is not energized and the contacts "C" and "NO" are opened.

Software command "operational condition" NOT PRESENT:

The message relay is energized and the contacts "C" and "NO" are closed.

Attention: **The message contact "operational condition" is only free available if no optional signalling and switching module (MSM) is included in the switchboard configuration.**

Installation step 13 – connection of the message contact "collective fault"

> All SICURO systems are equipped with a message contact for the status "collective fault".

> The message contact is carried out as a potential-free closer and software controlled.

> The handoff point of the message contact "collective fault" is located on the I/O card. The message contact is designated with "Stoer." and "C/NO".

> The rating of the contacts amounts to 4 A at 250 V AC resp. 4 A at 30 V DC.

> The message contact can be used for control or monitoring purposes together with additional devices which can be placed internal or external related to the switchboard.

Software command "collective fault" PRESENT:

The message relay is not energized and the contacts "C" and "NO" are opened.

Software command "collective fault" NOT PRESENT:

The message relay is energized and the contacts "C" and "NO" are closed.

Attention: **The message contact "collective fault" is only free available if no optional signalling and switching module (MSM) is included in the switchboard configuration.**

Installation step 14 – connection of the message contact "battery operation"

> All SICURO systems are equipped with a message contact for the status "battery operation".

> The message contact is carried out as a potential-free closer and software controlled.

> The handoff point of the message contact "battery operation" is located on the I/O card. The message contact is designated with "Batt." and "C/NO".

> The rating of the contacts amounts to 4 A at 250 V AC resp. 4 A at 30 V DC.

> The message contact can be used for control or monitoring purposes together with additional devices which can be placed internal or external related to the switchboard.

Software command "battery operation" PRESENT:

The message relay is not energized and the contacts "C" and "NO" are opened.

Software command "battery operation" NOT PRESENT:

The message relay is energized and the contacts "C" and "NO" are closed.

Attention: **The message contact "battery operation" is only free available if no optional signalling and switching module (MSM) is included in the switchboard configuration.**

Installation step 15 – connection of the auxiliary contacts

> All SICURO-24Z and SICURO-24G systems are equipped with three auxiliary contacts.

> The auxiliary contacts are carried out as potential-free changeovers and software controlled. The software control can be influenced by a programming.

> The handoff point of the auxiliary contact "auxiliary contact 1" is located on the I/O card. The auxiliary contact is designated with "Aux Out 1" and "NC/C/NO".

> The handoff point of the auxiliary contact "auxiliary contact 2" is located on the I/O card. The auxiliary contact is designated with "Aux Out 2" and "NC/C/NO".

> The handoff point of the auxiliary contact "auxiliary contact 3" is located on the I/O card. The auxiliary contact is designated with "Aux Out 3" and "NC/C/NO".

> The rating of the contacts amounts to 4 A at 250 V AC resp. 4 A at 30 V DC.

> The auxiliary contact can be used for control or monitoring purposes together with additional devices which can be placed internal or external related to the switchboard.

Installation step 16 – connection of the station buses

SICURO-24Z – sub station:

> Every sub station must be wired to the associated main station (SICURO) on the sub station bus or in the same network to provide the required system functionality.

> A main station (SICURO) can have up to 63 connected sub stations on the sub station bus as well as over the network.

Attention: **Single sub stations in a SICURO-24Z system are not autonomous working units regarding the required basic functionality. It is mandatory to wire sub stations together on the sub station bus or in the same network of the associated main station (SICURO).**

SICURO-24G – main station:

> Every SICURO-24G system consists at least of one main station.

> Single main stations can be wired together on the main station bus or in the same network for combined control and monitoring purposes. The main station bus can be furthermore used to connect different converter units for adaption purposes to computers resp. to a building management system (BMS).

> Every SICURO-24G system can have up to 63 connected main stations on the main station bus as well as over the network.

Note: **Single main stations in a SICURO-24G system are autonomous working units regarding the required basic functionality. It is not mandatory to wire single main stations together on the main station bus or in the same network.**

Attention: **It is not allowed to use the software programming of a SICURO-24G system to configure a main station as a sub station in combination with a cabling of the sub station bus. Within a SICURO-24G system all emergency light stations must be configured as main stations. A main station must be an autonomous working unit regarding the required basic functionality.**

General wiring:

> The main station bus as well as the sub station bus must be wired in a row. A starred wiring is not allowed.

> To wire the main station bus as well as the sub station bus a shielded cable with twisted-pair wires must be used.

> An additional converter unit for the main station bus can be placed internal or external related to the switchboard.

Note: **Regarding the wiring in the network the installation step "connection of the LAN port (network)" (see installation step 18) must be observed.**

Attention: **A maximum of one converter unit can be connected on the main station bus. The simultaneous operation of several converter units is not possible.**

Note: **If an additional internal converter unit is included in the switchboard configuration a respective pre-wiring is existent at delivery condition.**

General properties of the main station bus and sub station bus:

> Every EVA unit of a SICURO-24Z and SICURO-24G system is equipped with station buses.

> The station buses are carried out as RS485 interfaces. There is a division in a main station bus and a sub station bus.

> Main station bus: to create an overordinated connection at the EVA unit of a main station the contacts which are designated with "RS485 Main" and "G/+/-" must be used.

> Sub station bus: to create a subordinated connection at the EVA unit of a main station the contacts which are designated with "RS485 Sub" and "G/+/-" must be used. To create a subordinated connection at the EVA unit of a sub station the contacts which are designated with "RS485 Main" and "G/+/-" must be used.

Attention: **SICURO-24Z: at the EVA unit of a sub station the contacts which are designated with"RS485 Sub" and "G/+/-" have no function and must not be used.**

SICURO-24G: at the EVA unit of a main station the contacts which are designated with"RS485 Sub" and "G/+/-" must not be used. It is not allowed to wire a sub station bus at SICURO-24G systems.

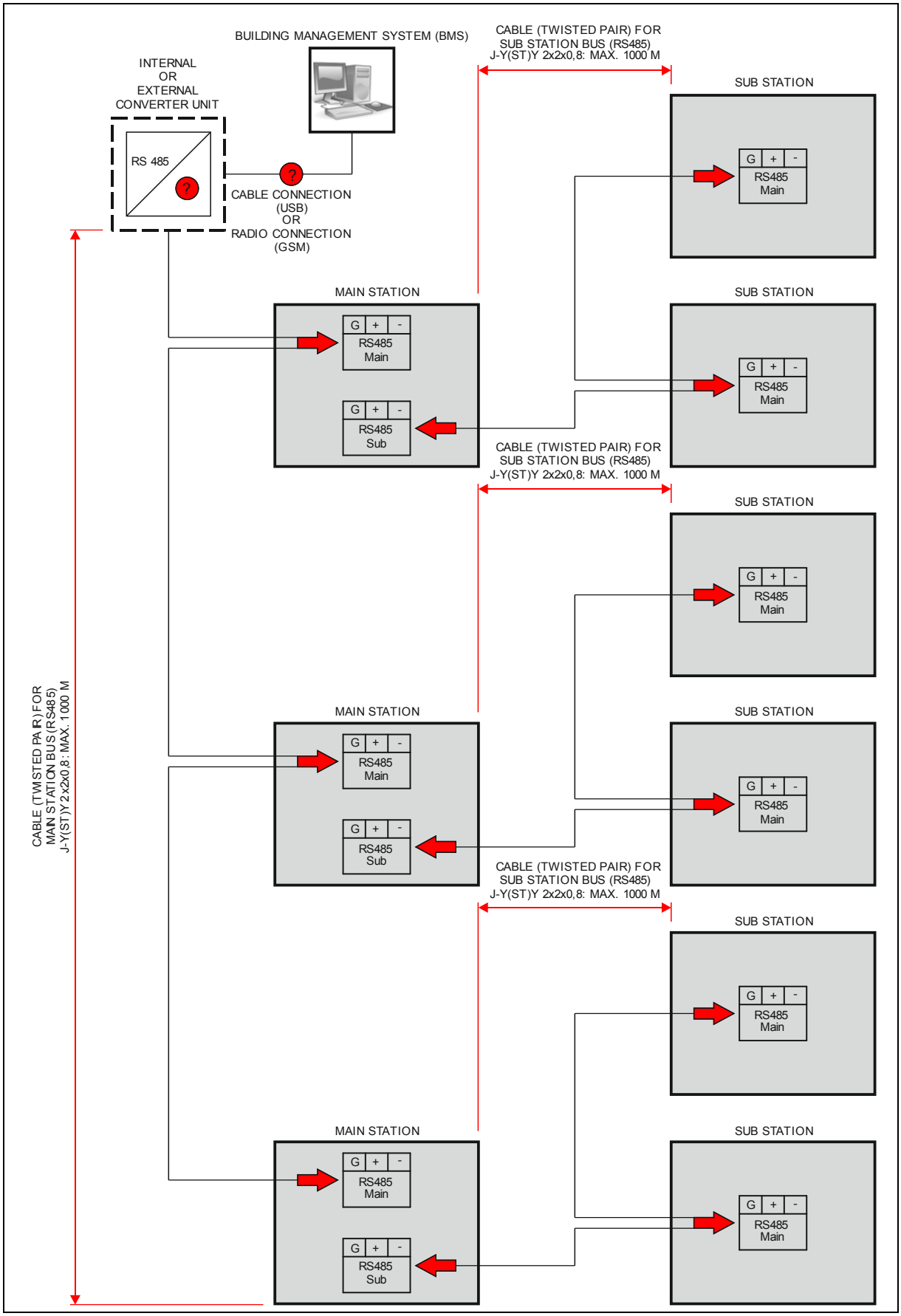
A combination of the main station buses of SICURO-24Z and SICURO-24G systems is possible. Other combinations are not possible.

> The main station bus can be used for control or monitoring purposes together with an additional converter unit and further main stations.

> The sub station bus is only used for control or monitoring purposes together with sub stations.

> The main station bus provides a bidirectional communication exchange between the connected main stations as well as additional converter units.

> The sub station bus provides a bidirectional communication exchange between a main station and connected sub stations.



Installation step 17 – connection of the device bus

> Additional devices for control and monitoring purposes can be wired on the device bus of an emergency light station. A connection of converter units for adaption purposes to computers resp. to a building management system (BMS) is not possible.

> Each emergency light station can have up to 96 connected devices on the device bus.

General wiring:

> The device bus must be wired in a row. A starred wiring is not allowed.

> To wire the device bus a shielded cable with twisted-pair wires must be used.

> An additional device for the device bus can be placed internal or external related to the switchboard.

General properties of the device bus:

> Every EVA unit of a SICURO-24Z and SICURO-24G system is equipped with a device bus.

> The device bus is carried out as RS485 interface.

> To create a connection at the EVA unit of an emergency light station the contacts which are designated with "RS485 Ext." and "G/+/-" must be used.

> The device bus provides a bidirectional communication exchange between the emergency light station and connected devices.

Installation step 18 – connection of the LAN port (network)

SICURO-24Z – sub station:

> Every sub station must be wired to the associated main station (SICURO) in the same network or on the sub station bus to provide the required system functionality.

> A main station (SICURO) can have up to 63 connected sub stations over the network as well as on the sub station bus.

Attention: **Single sub stations in a SICURO-24Z system are not autonomous working units regarding the required basic functionality. It is mandatory to wire sub stations together in the same network or on the sub station bus of the associated main station (SICURO).**

SICURO-24G – main station:

> Every SICURO-24G system consists at least of one main station.

> Single main stations can be wired together in the same network or on the main station bus for combined control and monitoring purposes. The LAN port of a main station can be furthermore used to connect computers resp. a building management system (BMS).

> Every SICURO-24G system can have up to 63 connected main stations over the network as well as on the main station bus.

Note: **Single main stations in a SICURO-24G system are autonomous working units regarding the required basic functionality. It is not mandatory to wire single main stations together in the same network or on the main station bus.**

Attention: **It is not allowed to use the software programming of a SICURO-24G system to configure a main station as a sub station in combination with a cabling of the sub station bus. Within a SICURO-24G system all emergency light stations must be configured as main stations. A main station must be an autonomous working unit regarding the required basic functionality.**

General wiring:

> To wire the LAN port a shielded patch cable with twisted-pair wires of the type CAT-5 (or superior) must be used.

Note: **Regarding the wiring of the station buses the installation step "connection of the station buses" (see installation step 16) must be observed.**

General properties of the LAN port:

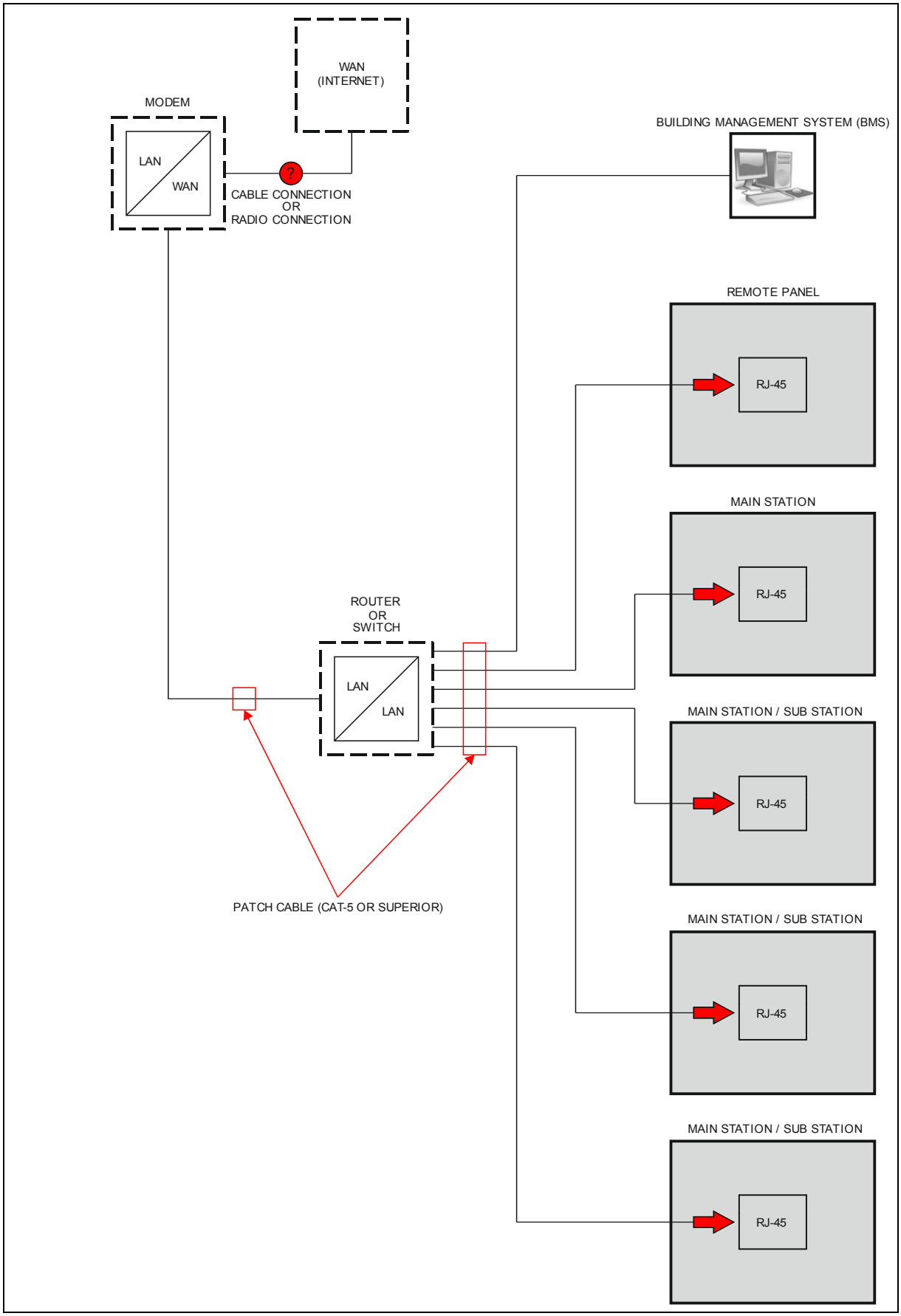
> Every EVA unit of a SICURO-24Z and SICURO-24G system is equipped with a LAN port.

> The LAN port is carried out as RJ-45 interface.

> To create a connection at the EVA unit of an emergency light station the port which is designated with "RJ-45" must be used.

> The LAN port of a main station can be used for control or monitoring purposes.

> The LAN port provides a bidirectional communication exchange between the connected emergency light stations as well as computers resp. a building management system (BMS).



Installation step 19 – connection of the LSSA switch inputs

> All SICURO-24Z and SICURO-24G systems are equipped with four LSSA switch inputs.

> The LSSA switch contacts for the channels 1 to 4 are carried out as circuits for a switch voltage of 230 V AC.

> The handoff points of the LSSA switch inputs are located on the I/O card.

> The contacts are designated with:

"LSSA1" and "N/L" for LSSA switch input channel 1.
"LSSA2" and "N/L" for LSSA switch input channel 2.
"LSSA3" and "N/L" for LSSA switch input channel 3.
"LSSA4" and "N/L" for LSSA switch input channel 4.

> The LSSA switch inputs can be used for control purposes together with additional devices which can be placed internal or external related to the switchboard.

> The command uptake for the channels 1 to 4 is binary and done by a connection of a voltage of 230 V AC.

> The command initiation for the channels 1 to 4 is software controlled and can be influenced by a programming.

Installation step 20 – connection of the output circuits

> All SICURO-24Z and SICURO-24G systems are equipped with an output card of the type EÜ. The output contacts of the output card are carried out as circuits with a supply voltage of 24 V DC.

> The output circuits are primary used to supply the connected luminaires with the operating voltage.

> The output circuits can be secondary used for control and monitoring purposes of the connected luminaires together with additional luminaire modules of the SICURO-24 systems.

> The output card of the type EÜ provides a single monitoring of luminaires with luminaire modules by communication over the cable of the output circuit.

> The handoff points of the output circuits are located on the output card.

> The contacts are designated with:

"1" and "1+ 1-" for output card 1 / output circuit 1.
"2" and "2+ 2-" for output card 1 / output circuit 2.
"3" and "3+ 3-" for output card 1 / output circuit 3.
"4" and "4+ 4-" for output card 1 / output circuit 4.

> The output card can be maximally operated with an electrical power of 72 W per output circuit. The configuration of the used output card may not lead to an exceedance of this maximum value.

Attention: **The output circuits of the output card are using a direct voltage of 24 V DC. All equipment connected to this output circuits must be approved by Beghelli PRÄZISA for the SICURO-24Z and SICURO-24G systems.**

Installation step 21 – retorquing and check of electrical connections

After all electrical connections are finished a retorquing of all screwable connections must be done. Thereupon all electrical connections must be check for proper execution.

Equipment descriptions

The following descriptions are referring to the basic functionalities and properties of the equipment. All pictured device drawings of equipment are reduced in the degree of detail. A unique assignment is possible over the mentioned order numbers.

SICURO-24Z – I/O card 202696003

I/O card for distribution of the connections of SICURO-24Z systems.

"1": terminal clamp "Netz/Mains" for combined mains and battery supply (230 V AC / 216 V DC)

"2": terminal clamp "LSSA1" for LSSA switch input channel 1 (230 V AC)

"3": terminal clamp "LSSA2" for LSSA switch input channel 2 (230 V AC)

"4": terminal clamp "LSSA3" for LSSA switch input channel 3 (230 V AC)

"5": terminal clamp "LSSA4" for LSSA switch input channel 4 (230 V AC)

"6": terminal clamp "Versorg. Supply" for output of the mains module

"7": terminal clamp "Versorgung Supply" for input of the mains module (230 V AC / 216 V DC)

"8": terminal clamp "24V AK" for supply voltage of the output card (24 V DC)

"9": terminal clamp "24V Ext." for additional devices (device supply voltage, 24 V DC)

"10": terminal clamp "KSK" for critical circuit

"11": terminal clamp "DS" for switch input "maintained mode on/off"

"12": terminal clamp "Stoer." for message contact "collective fault"

"13": terminal clamp "Batt." for message contact "battery operation"

"14": terminal clamp "Betr." for message contact "operational condition"

"15": terminal clamp "Aux In" for switch input "user definition"

"16": terminal clamp "Aux Out 1" for auxiliary contact "auxiliary contact 1"

"17": terminal clamp "Aux Out 2" for auxiliary contact "auxiliary contact 2"

"18": terminal clamp "Aux Out 3" for auxiliary contact "auxiliary contact 3"

"19": AK port "BUS AK24V 10-pol" for bus connection with output card

"20": CPU port "BUS CPU 14-pol" for bus connection with EVA unit

"21": port for service

"22": jumper, not used

"23": fuse F1 for combined mains and battery supply voltage (230 V AC / 216 V DC)
– fuse values: 250 V / 6,3 A / time lag

"24": fuse F4 for device supply voltage (24 V DC)
– fuse values: 32 V / 5 A

"25": fuse F5 for internal supply voltage of the I/O card (24 V DC)
– fuse values: 32 V / 5 A

"26": optical indication for internal process voltage of 5 V DC on the I/O card (green)
indication on: process voltage present
indication off: process voltage not present

"27": optical indication, not used (green)

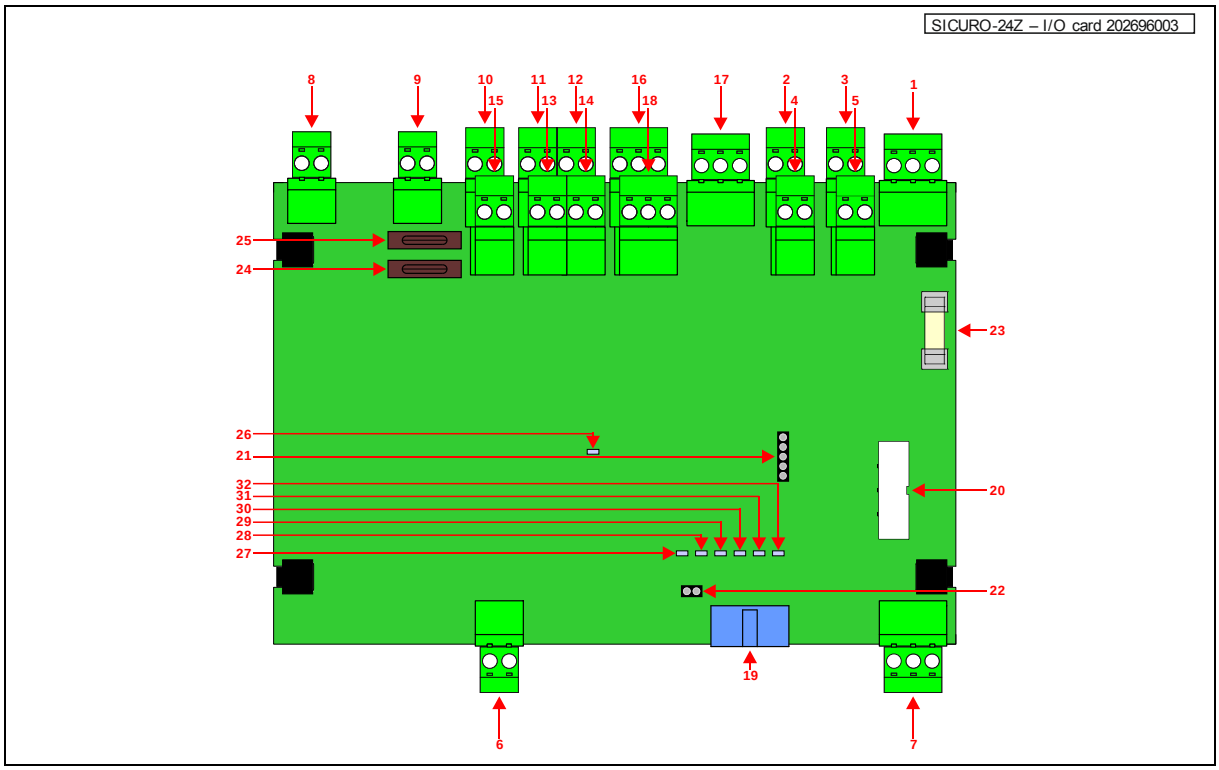
"28": optical indication for communication status DTR (CPU port) on the I/O card (yellow)
indication on: communication status DTR present
indication off: communication status DTR not present

"29": optical indication for communication status TX / RX (CPU port) on the I/O card (red)
indication on: communication status TX present
indication off: communication status RX present

"30": optical indication for service purposes (red)

"31": optical indication, not used (red)

"32": optical indication, not used (red)



SICURO-24G – I/O card 202696002

I/O card for distribution of the connections of SICURO-24G systems.

"1": terminal clamp "Netz/Mains" for mains supply (230 V AC)

"2": terminal clamp "LSSA1" for LSSA switch input channel 1 (230 V AC)

"3": terminal clamp "LSSA2" for LSSA switch input channel 2 (230 V AC)

"4": terminal clamp "LSSA3" for LSSA switch input channel 3 (230 V AC)

"5": terminal clamp "LSSA4" for LSSA switch input channel 4 (230 V AC)

"6": terminal clamp "Batterie Battery" for battery supply (24 V DC)
with battery middle tapping

"7": terminal clamp "Versorg. Supply" for output of the mains module

"8": terminal clamp "Ladeteil Charger" for output of the charger module

"9": terminal clamp "Versorgung Supply" for input of the mains module (230 V AC)

"10": terminal clamp "Ladeteil Charger" for input of the charger module (230 V AC)

"11": terminal clamp "24V AK" for supply voltage of the output card (24 V DC)

"12": terminal clamp "24V Ext." for additional devices (device supply voltage, 24 V DC)

"13": terminal clamp "KSK" for critical circuit

"14": terminal clamp "DS" for switch input "maintained mode on/off"

"15": terminal clamp "Stoer." for message contact "collective fault"

"16": terminal clamp "Batt." for message contact "battery operation"

"17": terminal clamp "Betr." for message contact "operational condition"

"18": terminal clamp "Aux In" for switch input "user definition"

"19": terminal clamp "Aux Out 1" for auxiliary contact "auxiliary contact 1"

"20": terminal clamp "Aux Out 2" for auxiliary contact "auxiliary contact 2"

"21": terminal clamp "Aux Out 3" for auxiliary contact "auxiliary contact 3"

"22": terminal clamp "Temp. NTC" for measure contact "temperature sensor"

"23": AK port "BUS AK24V 10-pol" for bus connection with output card

"24": CPU port "BUS CPU 14-pol" for bus connection with EVA unit

"25": port for service

"26": jumper for selection of the temperature sensor
(bridged for internal temperature sensor, not bridged for external temperature sensor)

"27": fuse F1 for mains supply voltage (230 V AC)
– fuse values: 250 V / 6,3 A / time lag

"28": fuse F3 for battery supply voltage (24 V DC)
– fuse values: 32 V / 25 A

"29": fuse F4 for device supply voltage (24 V DC)
– fuse values: 32 V / 5 A

"30": fuse F5 for internal supply voltage of the I/O card (24 V DC)
– fuse values: 32 V / 5 A

"31": optical indication for internal process voltage of 5 V DC on the I/O card (green)
indication on: process voltage present
indication off: process voltage not present

"32": optical indication for fully charged battery supply (green)
indication on: battery supply fully charged
indication off: battery supply not fully charged

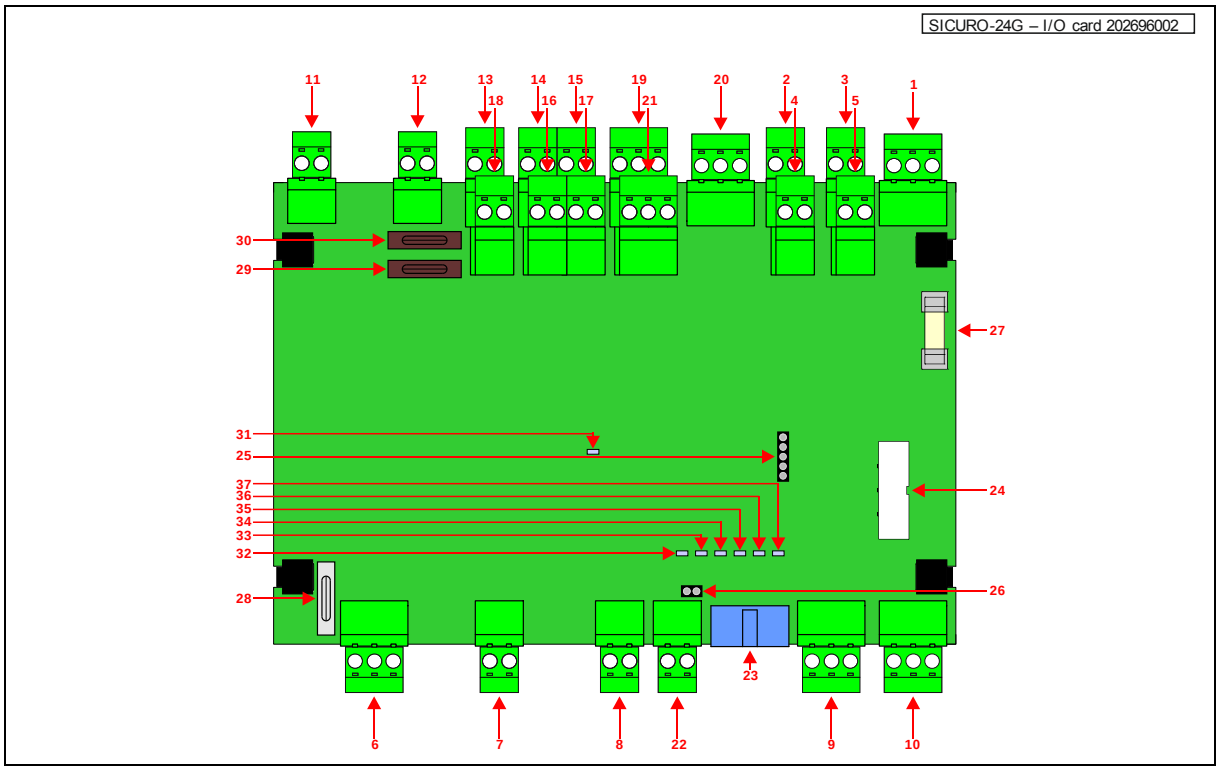
"33": optical indication for communication status DTR (CPU port) on the I/O card (yellow)
indication on: communication status DTR present
indication off: communication status DTR not present

"34": optical indication for communication status TX / RX (CPU port) on the I/O card (red)
indication on: communication status TX present
indication off: communication status RX present

"35": optical indication for service purposes (red)

"36": optical indication for float charge on battery supply (red)
indication on: float charge present
indication off: float charge not present

"37": optical indication for boost charge on battery supply (red)
indication on: boost charge present
indication off: boost charge not present



EVA unit (white, RAL9003) 292700001

EVA unit for input, process and output purposes of SICURO-24Z and SICURO-24G systems. The colour of the cover is white (RAL9003).

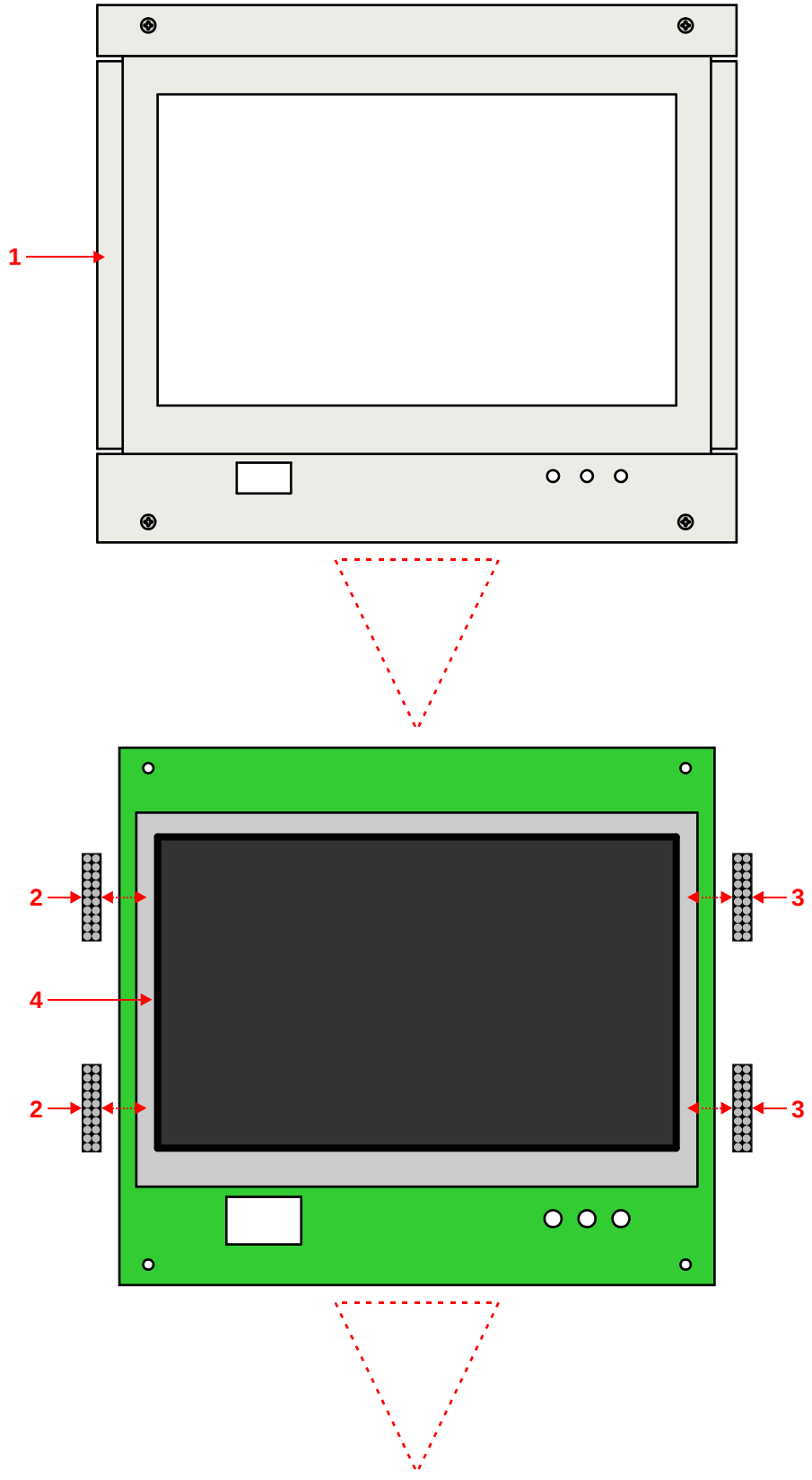
"1": cover (white, RAL9003)

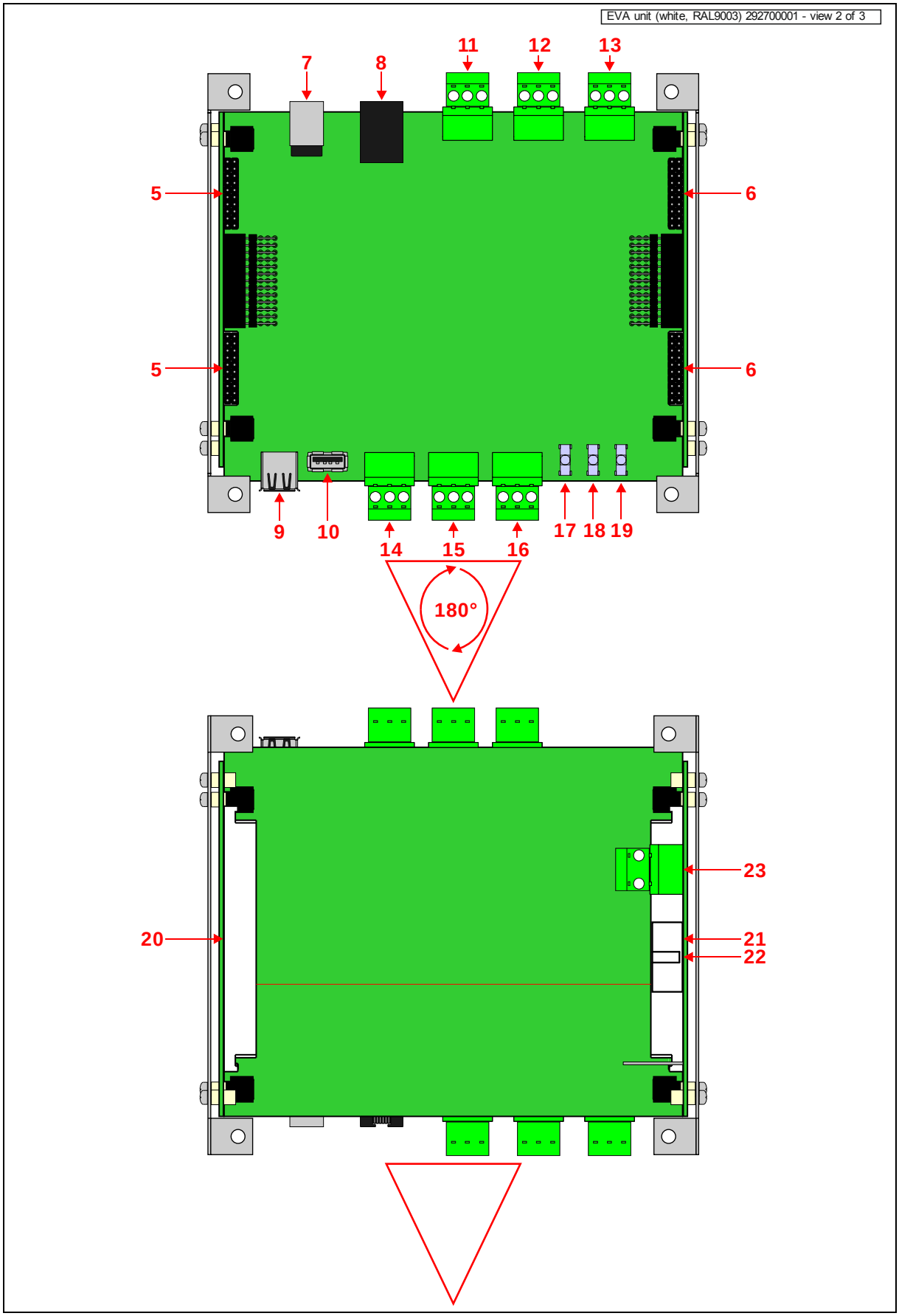
"2": display card: card port left (backside)
"3": display card: card port right (backside)
"4": display card: touchscreen

"5": interface card: card port left
"6": interface card: card port right
"7": interface card: USB port (type: B)
"8": interface card: LAN port (type: RJ-45)
"9": interface card: USB port (type: A)
"10": interface card: USB port (type: A)
"11": interface card: terminal clamp "RS485 Sub" for sub station bus (RS485)
"12": interface card: terminal clamp "RS485 Main" for main station bus (RS485)
"13": interface card: terminal clamp "RS485 Ext." for device bus (RS485)
"14": interface card: terminal clamp for service
"15": interface card: terminal clamp for service
"16": interface card: terminal clamp for service
"17": interface card: optical indication for mains operation (green)
indication on: mains operation present
indication off: mains operation not present
"18": interface card: optical indication for battery operation (orange)
indication on: battery operation present
indication off: battery operation not present
"19": interface card: optical indication for collective fault (red)
indication on: collective fault present
indication off: collective fault not present
"20": interface card: display port
"21": interface card: control port
"22": interface card: CPU port "BUS CPU 14-pol" for bus connection with I/O card
"23": interface card: terminal clamp for service

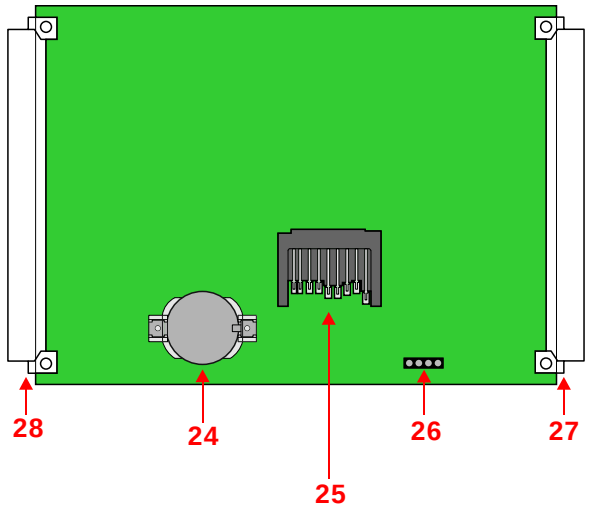
"24": CPU card: memory battery
"25": CPU card: MMC card slot
"26": CPU card: port for service
"27": CPU card: control port
"28": CPU card: display port

EVA unit (white, RAL9003) 292700001 - view 1 of 3





EVA unit (white, RAL9003) 292700001 - view 3 of 3



EVA unit (grey, RAL7016) 292700002

EVA unit for input, process and output purposes of SICURO-24Z and SICURO-24G systems. The colour of the cover is grey (RAL7016).

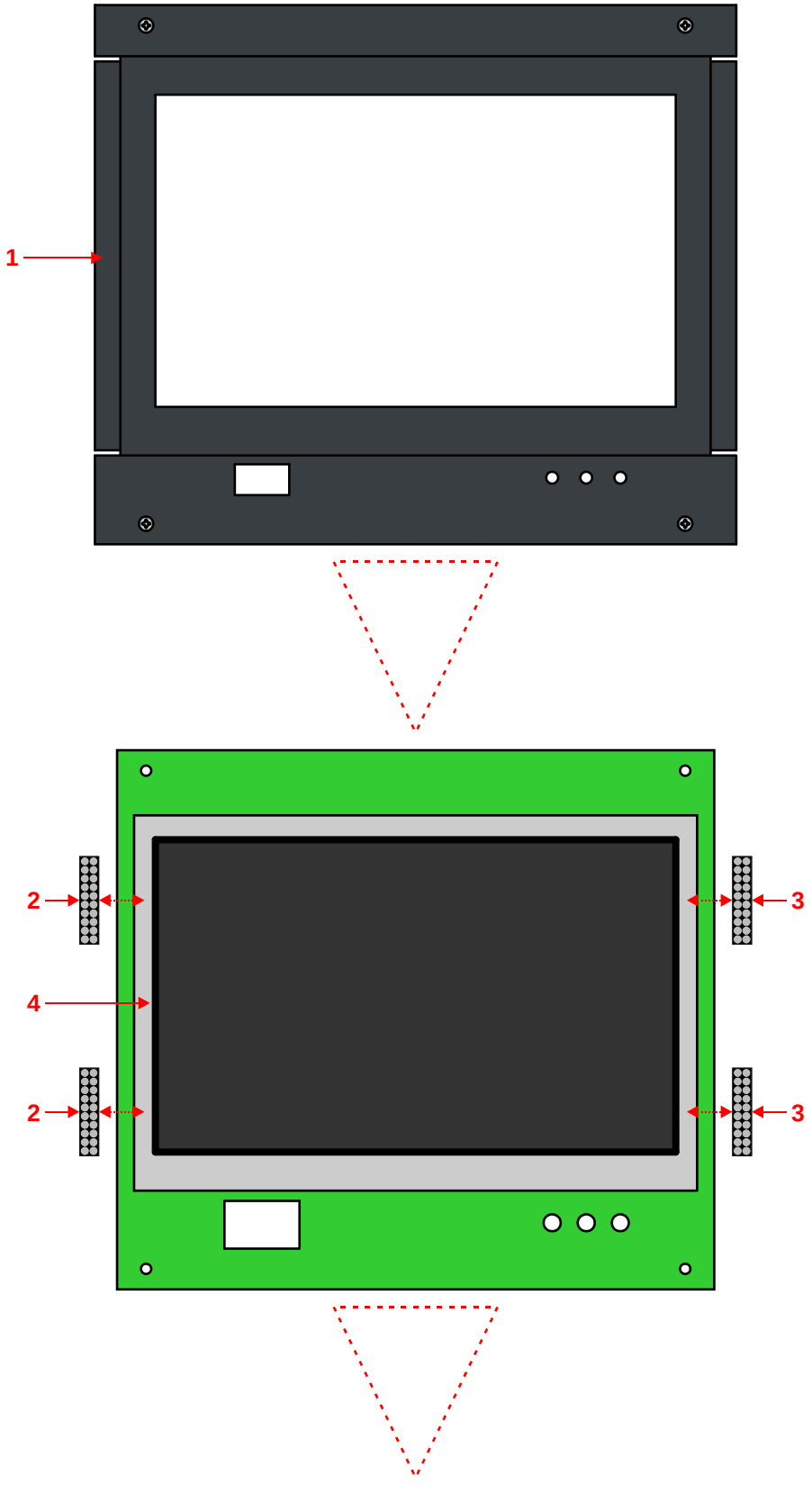
"1": cover (grey, RAL7016)

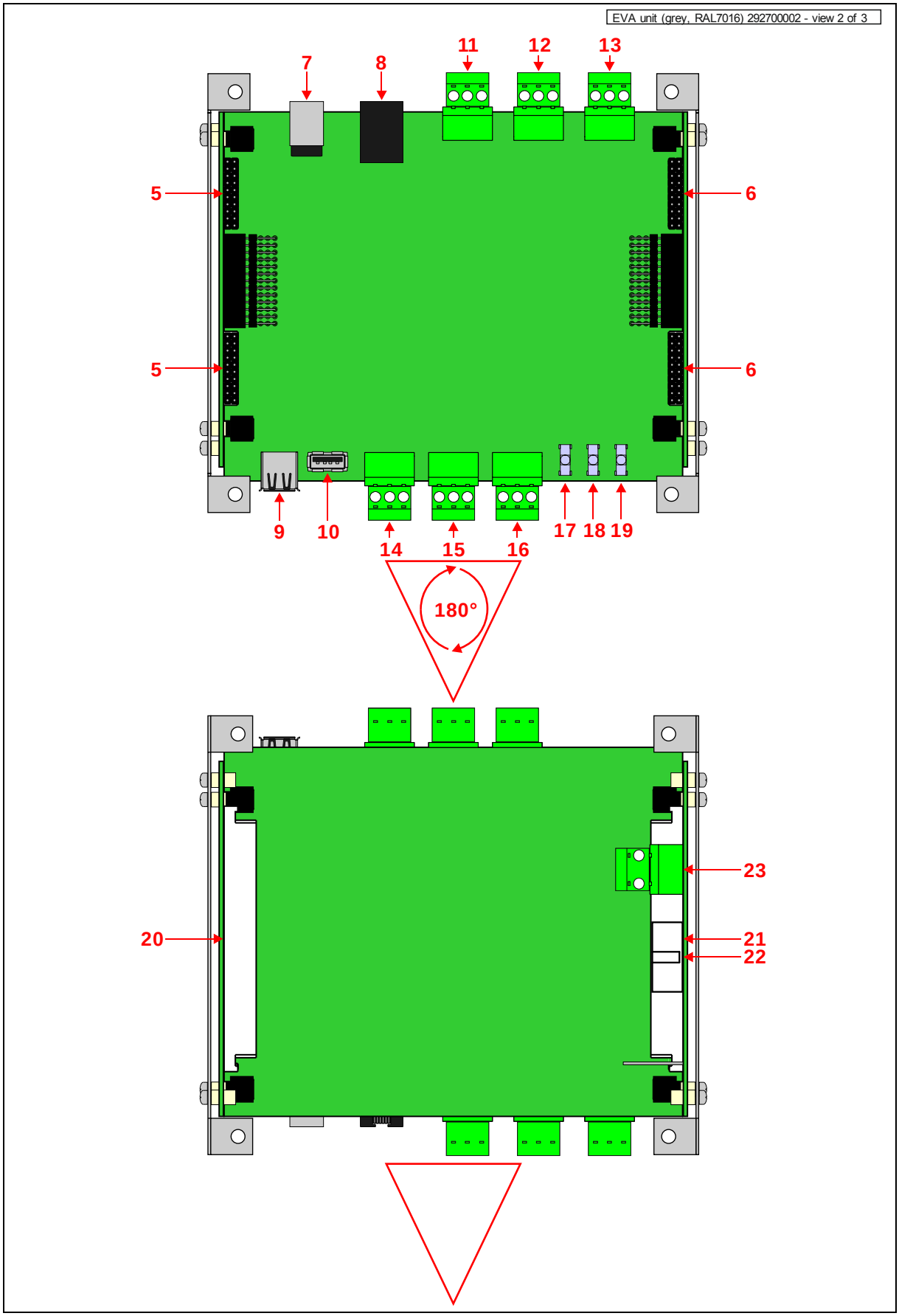
"2": display card: card port left (backside)
"3": display card: card port right (backside)
"4": display card: touchscreen

"5": interface card: card port left
"6": interface card: card port right
"7": interface card: USB port (type: B)
"8": interface card: LAN port (type: RJ-45)
"9": interface card: USB port (type: A)
"10": interface card: USB port (type: A)
"11": interface card: terminal clamp "RS485 Sub" for sub station bus (RS485)
"12": interface card: terminal clamp "RS485 Main" for main station bus (RS485)
"13": interface card: terminal clamp "RS485 Ext." for device bus (RS485)
"14": interface card: terminal clamp for service
"15": interface card: terminal clamp for service
"16": interface card: terminal clamp for service
"17": interface card: optical indication for mains operation (green)
indication on: mains operation present
indication off: mains operation not present
"18": interface card: optical indication for battery operation (orange)
indication on: battery operation present
indication off: battery operation not present
"19": interface card: optical indication for collective fault (red)
indication on: collective fault present
indication off: collective fault not present
"20": interface card: display port
"21": interface card: control port
"22": interface card: CPU port "BUS CPU 14-pol" for bus connection with I/O card
"23": interface card: terminal clamp for service

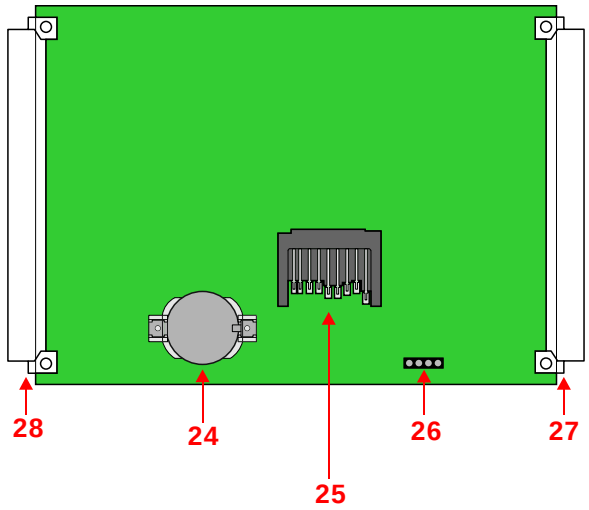
"24": CPU card: memory battery
"25": CPU card: MMC card slot
"26": CPU card: port for service
"27": CPU card: control port
"28": CPU card: display port

EVA unit (grey, RAL7016) 292700002 - view 1 of 3





EVA unit (grey, RAL7016) 292700001 - view 3 of 3



SICURO-24Z/G – output card G32106

Output card for supply of the output circuits of SICURO-24Z and SICURO-24G systems.

"1": terminal clamp "1" / "2" / "3" / "4" for output circuits (24 V DC)

"2": terminal clamp "24V AK" for supply voltage of the output card (24 V DC)

"3": AK port "BUS AK24V 10-pol" for bus connection with I/O card (covert)

"4": fuse (+) for output circuit 1 (24 V DC)
– fuse values: 250 V / 6,3 A / time lag

"5": fuse (-) for output circuit 1 (24 V DC)
– fuse values: 250 V / 6,3 A / time lag

"6": fuse (+) for output circuit 2 (24 V DC)
– fuse values: 250 V / 6,3 A / time lag

"7": fuse (-) for output circuit 2 (24 V DC)
– fuse values: 250 V / 6,3 A / time lag

"8": fuse (+) for output circuit 3 (24 V DC)
– fuse values: 250 V / 6,3 A / time lag

"9": fuse (-) for output circuit 3 (24 V DC)
– fuse values: 250 V / 6,3 A / time lag

"10": fuse (+) for output circuit 4 (24 V DC)
– fuse values: 250 V / 6,3 A / time lag

"11": fuse (-) for output circuit 4 (24 V DC)
– fuse values: 250 V / 6,3 A / time lag

"12": button "Service PIN" for readin of output cards

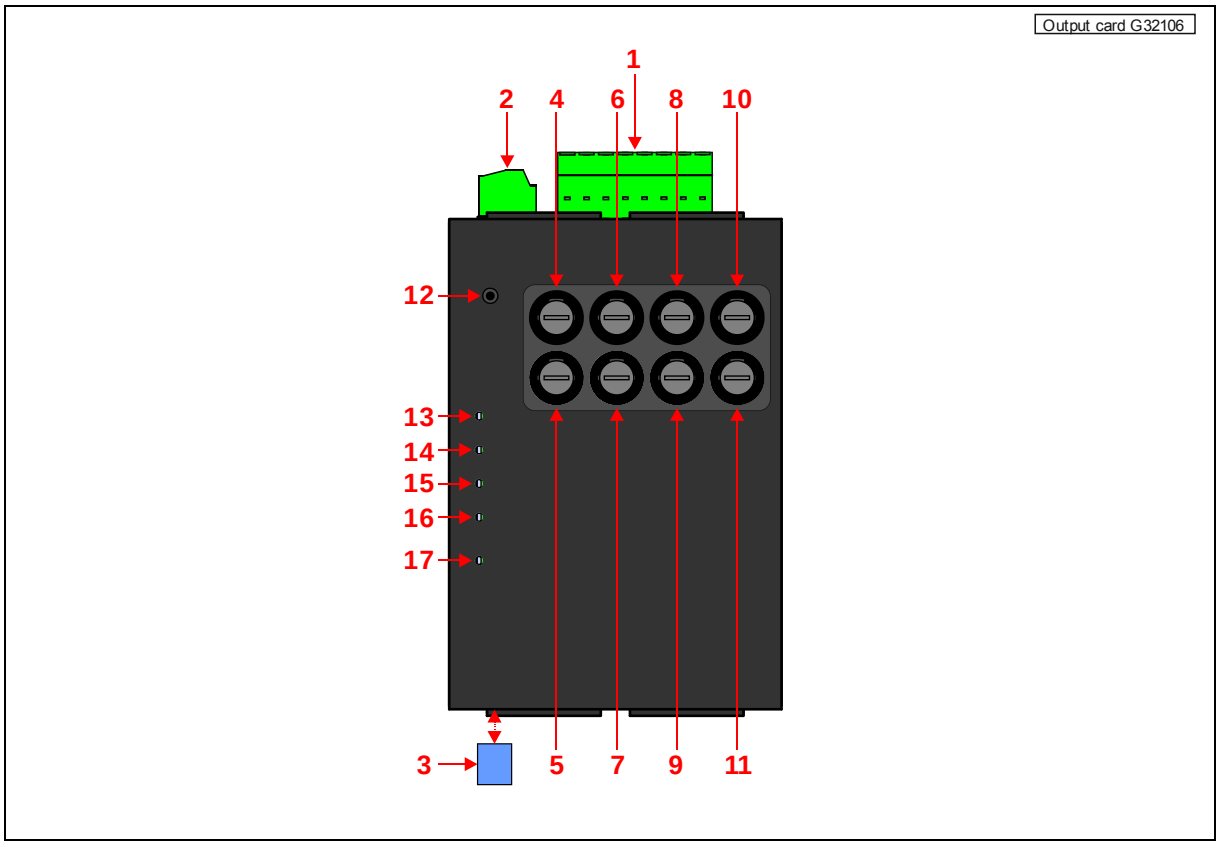
"13": optical indication for mains operation / battery operation / fault on the output circuit 1 (green / orange / red)
indication on – green: mains operation present
indication on – orange: battery operation present
indication blinks – red: fault present
indication off: output circuit switched off

"14": optical indication for mains operation / battery operation / fault on the output circuit 2 (green / orange / red)
indication on – green: mains operation present
indication on – orange: battery operation present
indication blinks – red: fault present
indication off: output circuit switched off

"15": optical indication for mains operation / battery operation / fault on the output circuit 3 (green / orange / red)
indication on – green: mains operation present
indication on – orange: battery operation present
indication blinks – red: fault present
indication off: output circuit switched off

"16": optical indication for mains operation / battery operation / fault on the output circuit 4 (green / orange / red)
indication on – green: mains operation present
indication on – orange: battery operation present
indication blinks – red: fault present
indication off: output circuit switched off

"17": optical indication for supply voltage of 24 V DC on the output card (green / orange / red)
indication on – green: supply voltage present
indication on – orange: readin procedure
indication on – red: supply voltage not present
indication off: no process voltage at bus connection with I/O card (AK port)

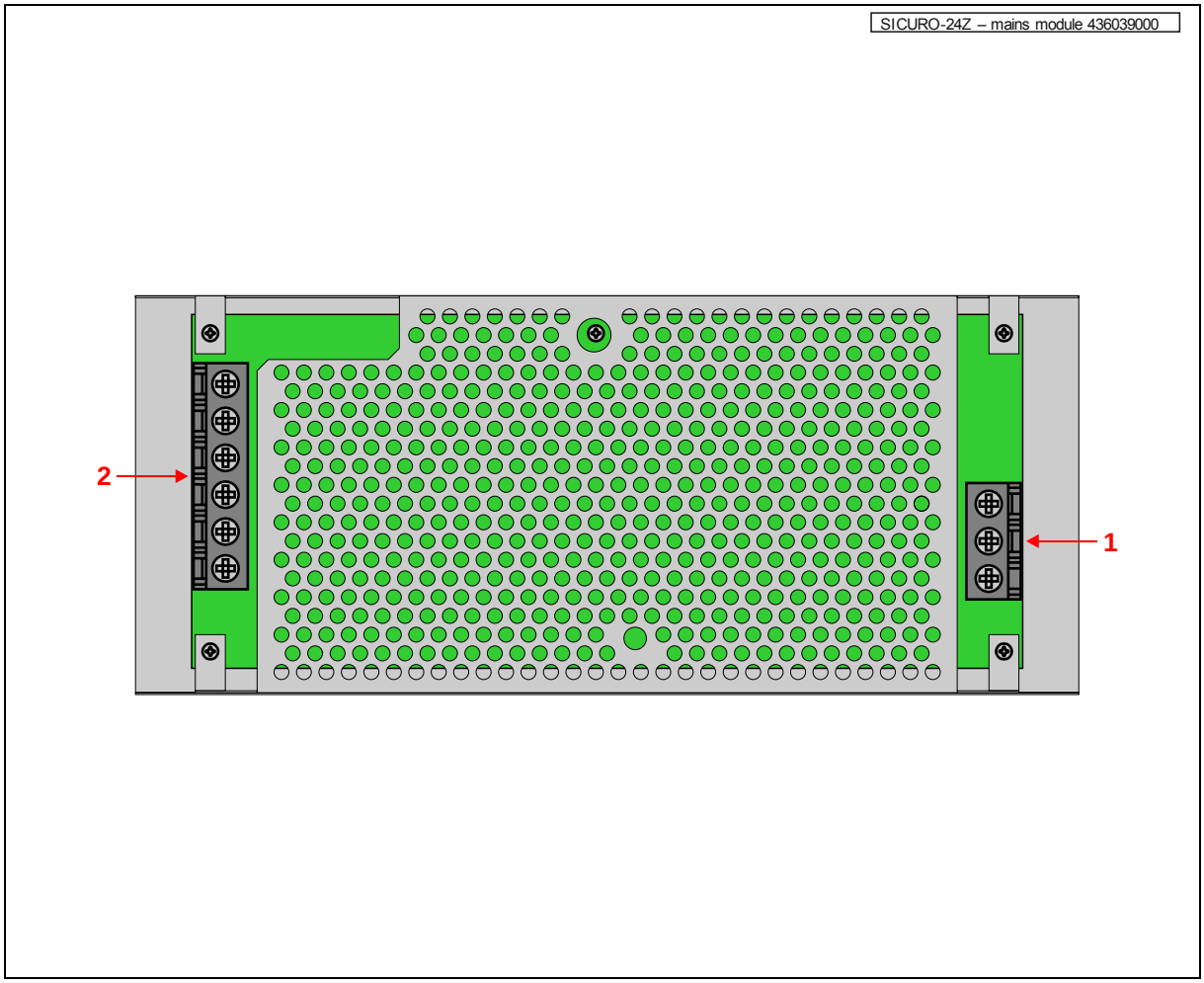


SICURO-24Z – mains module 436039000

Mains module for supply of equipment of SICURO-24Z systems.

"1": terminal clamp for input of the mains module (230 V AC / 216 V DC)

"2": terminal clamp for output of the mains module
(voltage and current are factory-adjusted)

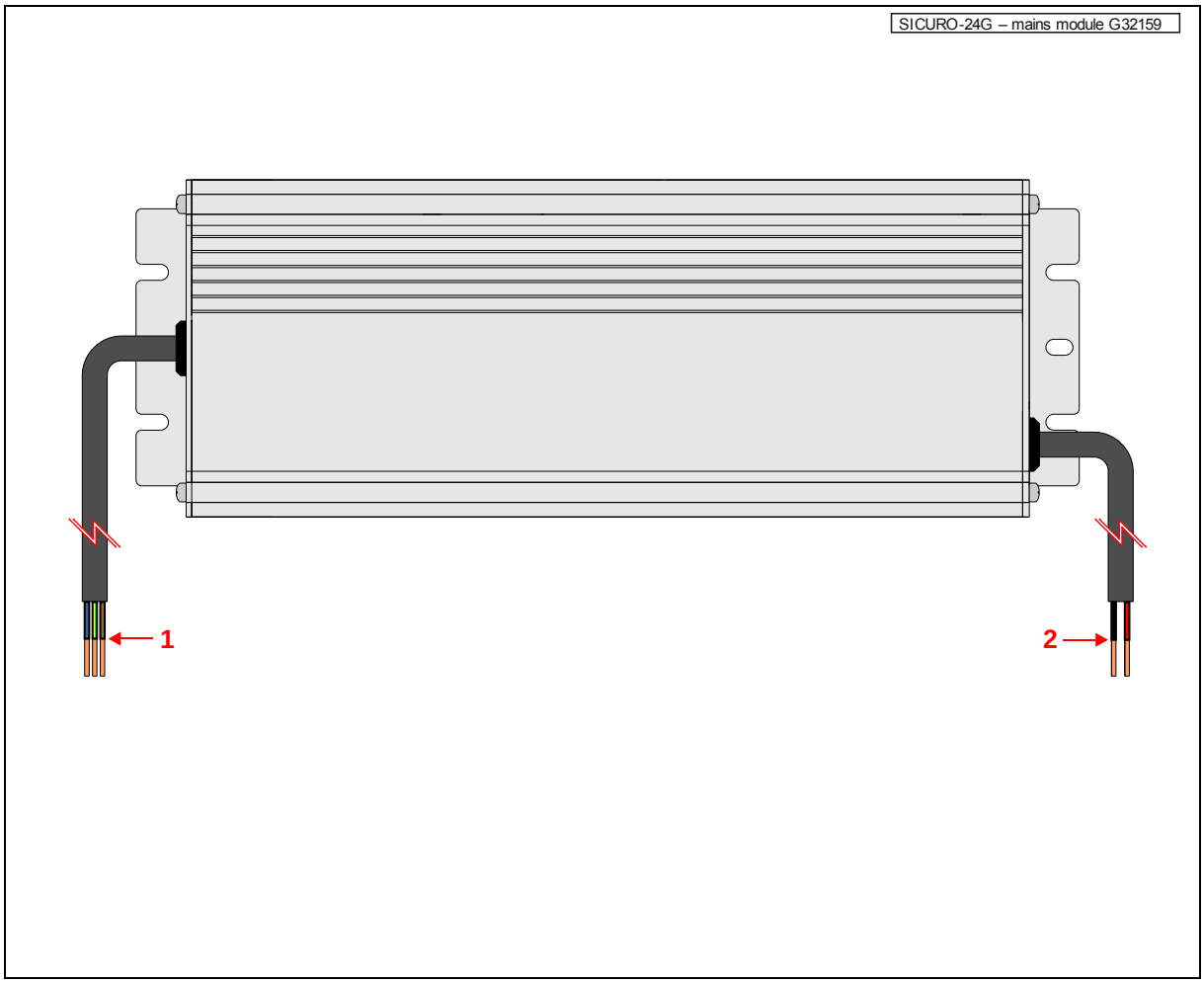


SICURO-24G – mains module G32159

Mains module for supply of equipment of SICURO-24G systems.

"1": cable for input of the mains module (230 V AC)

"2": cable for output of the mains module
(voltage and current are factory-adjusted)

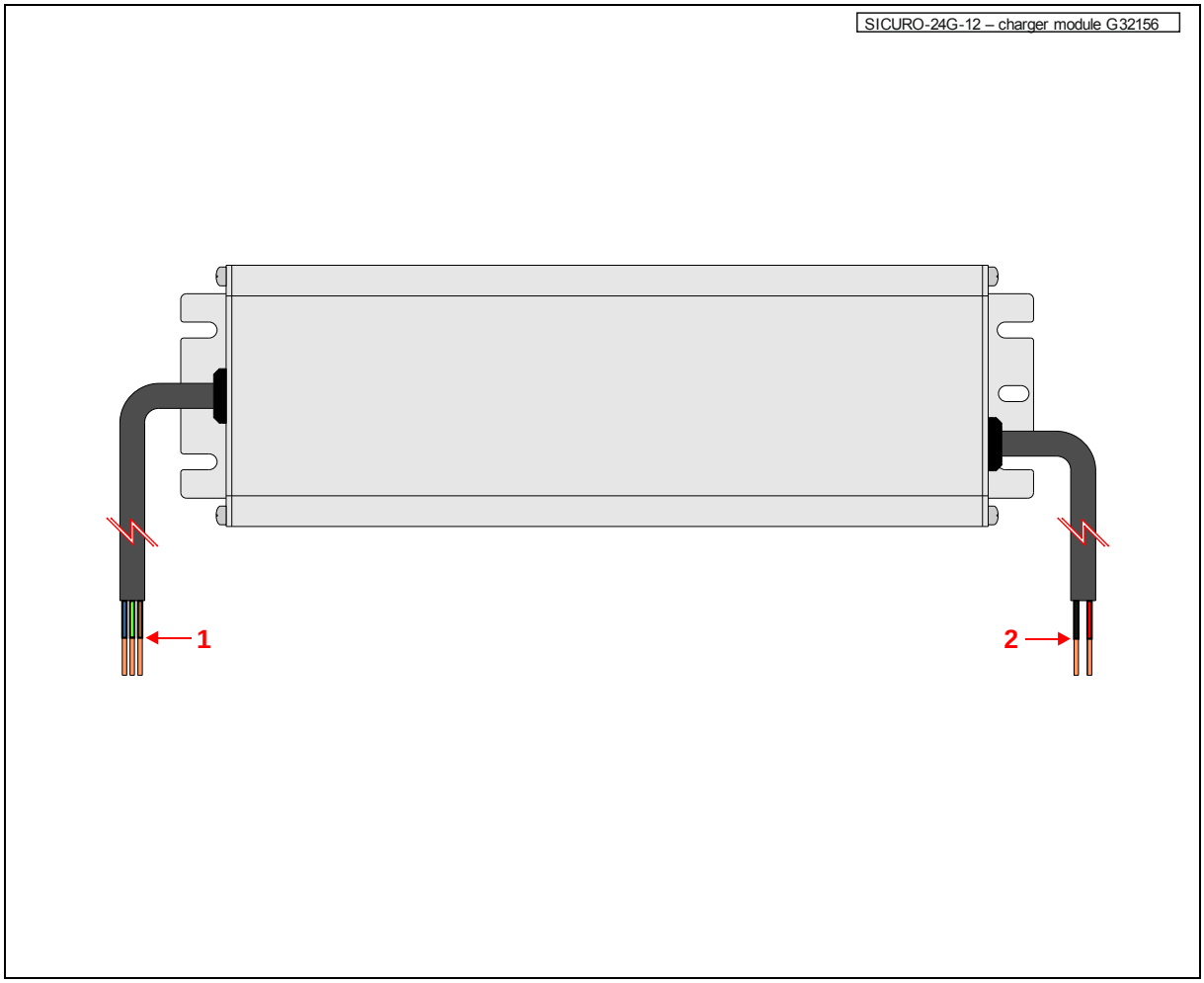


SICURO-24G-12 – charger module G32156

Charger module for charging of the batteries of SICURO-24G-12 systems (12 Ah).

"1": cable for input of the charger module (230 V AC)

"2": cable for output of the charger module
(voltage and current are factory-adjusted)

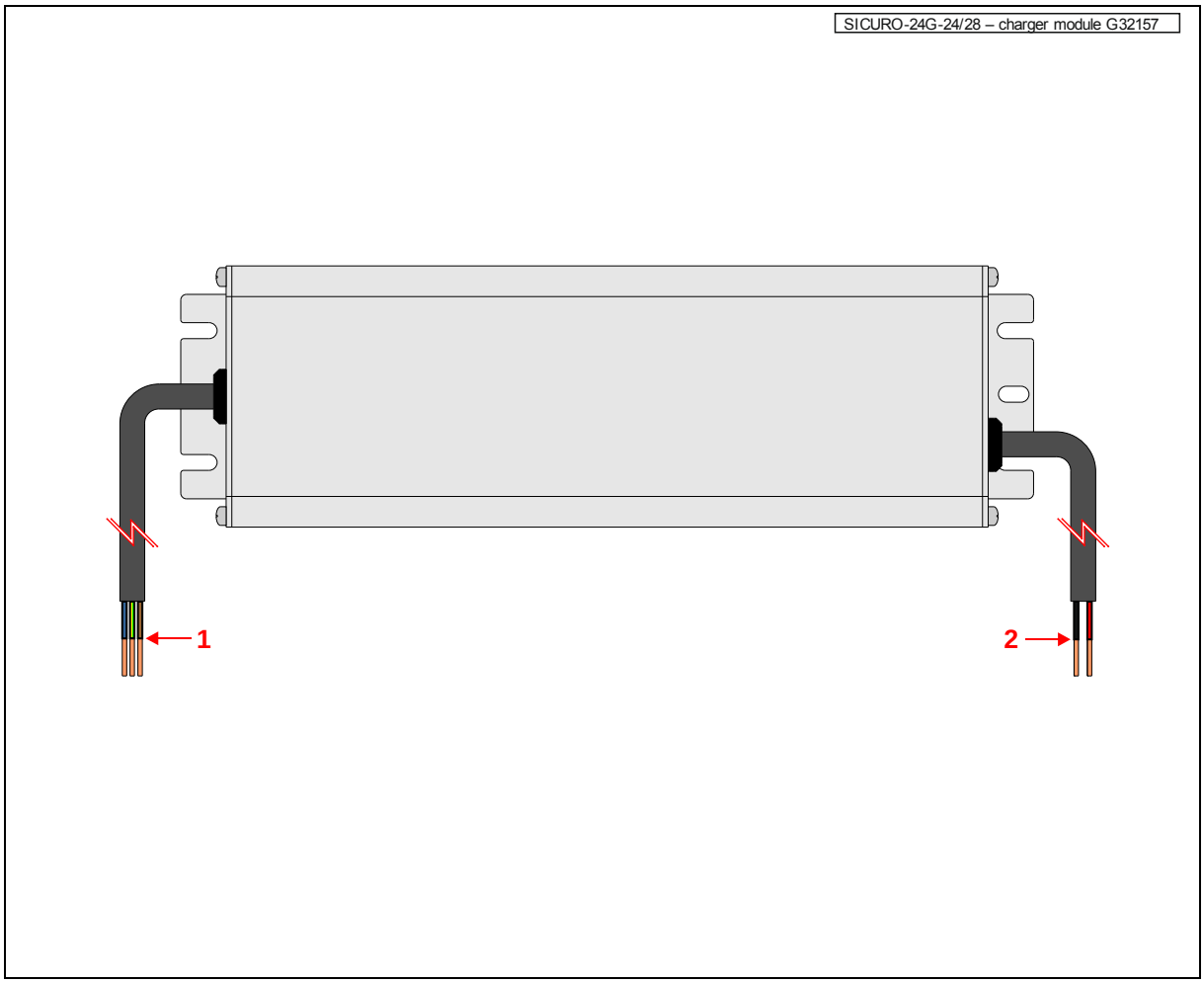


SICURO-24G-24/28 – charger module G32157

Charger module for charging of the batteries of SICURO-24G-24/28 systems (24 / 28 Ah).

"1": cable for input of the charger module (230 V AC)

"2": cable for output of the charger module
(voltage and current are factory-adjusted)

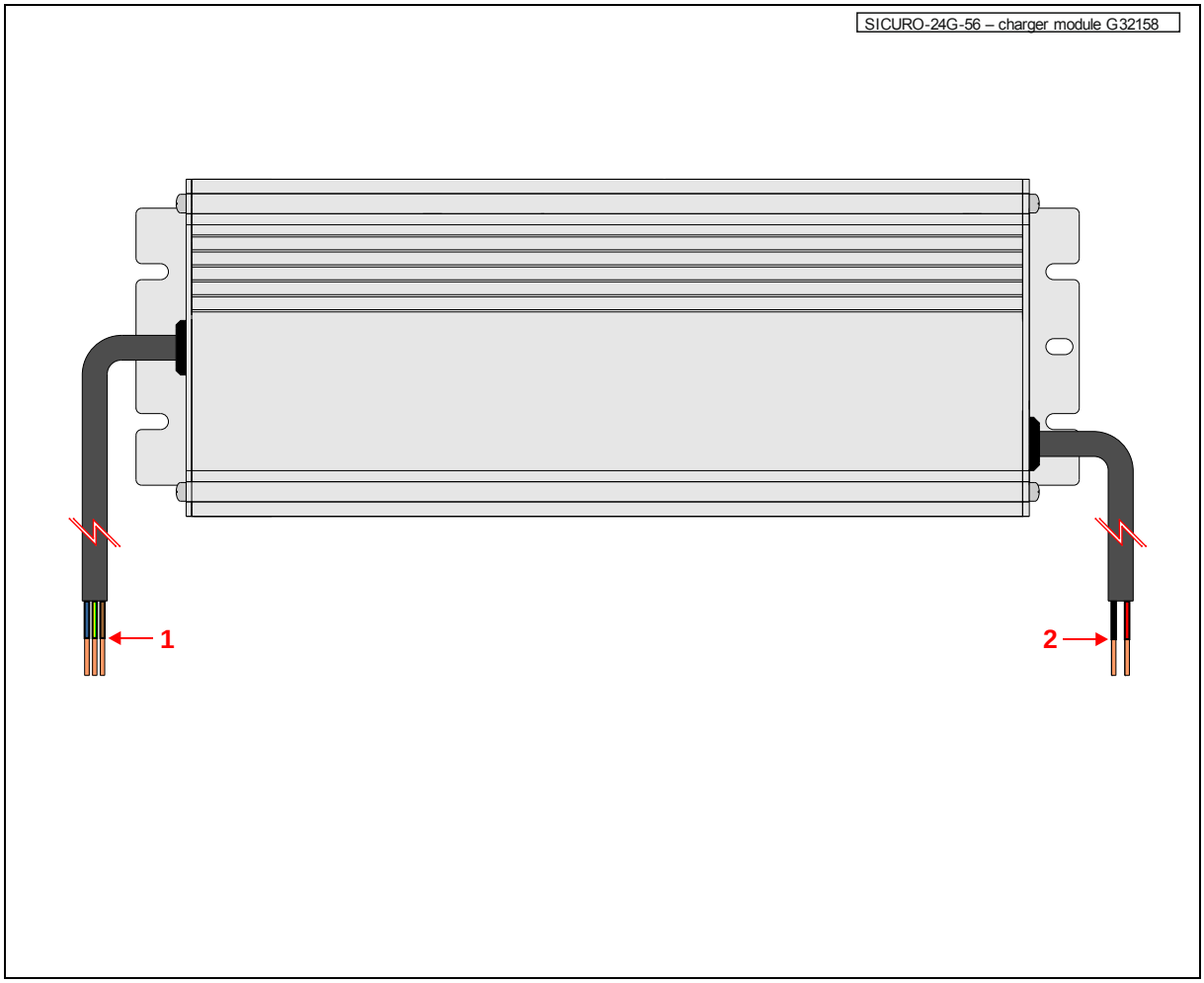


SICURO-24G-56 – charger module G32158

Charger module for charging of the batteries of SICURO-24G-56 systems (56 Ah).

"1": cable for input of the mains module (230 V AC)

"2": cable for output of the mains module
(voltage and current are factory-adjusted)



Notes

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