DualGuard-S

The product platform for innovative emergency lighting applications

Powering Business Worldwide

Emergency lighting – Central battery systems

Eaton's central battery systems provide a safe and reliable power supply and monitor the connected safety lighting and emergency lighting to guarantee that safety lighting functions properly in the event of a hazard.

EATON offers a wide range of safety luminaires and illuminated emergency lighting. With the CEWA GUARD and STAR technology offered as standard equipment, these products lay the foundation for minimized inspection and maintenance costs. Innovative lighting technology combined with highly efficient LEDs results in up to 70% lower power consumption, significantly lower maintenance costs and a life cycle of up to 50,000 hours.

The powerful VisionGuard visualisation software controls and monitors even large emergency lighting systems with maximum reliability. Up to 500 individual emergency lighting systems with over 100.000 lighting points can be observed on a monitor in the control center. Especially for larger buildings such as airports, universities, museums, sports centers and industrial facilities, this software is the ideal partner for the optimal - and therefore also economical - operation of all safety lighting.

Our experts will be happy to support you on-site with the development of safety lighting concepts.

Customer Experience Center – Soest

We offer:

- The right seminar for every level to expand upon existing knowledge and make further progress toward becoming an emergency lighting expert.
- Conference room for 60 participants
- Overview of emergency lighting products from Eaton
- Experience safety lighting solutions live
- Dark room with labyrinth
- Hazard-based demonstration of escape route management
- Professional training material
- Seminar certificates
- Professional technical equipment
- Organization support (hotel, transfer, etc.)
- Evening activities (on request)

We will support you

with our many years of experience in the development, sales and service of emergency lighting. We are the right partner for your needs.

Planning

Bring your questions about planning and technical standards to our sales engineers. We will be happy to help you in an easy and uncomplicated manner. This assistance will provide you with planning reliability.

Installation

We will assist you with questions about design, installation, initial operation and acceptance. This will lessen your workload.

Service

Our service team will ensure that your technical safety systems are always working. This gives you legal protection within the scope of technical standards and requirements regarding the maintenance and repair of your technical safety systems.

DualGuard-S –
Modular design: flexible in all applications.

The DualGuard-S central battery system reliably supplies power to safety lighting and emergency lighting (230V AC/216 V DC), and automatically monitors itself as well as each individually connected CG-S light (up to 20 per circuit) via the feed-in line. Thanks to the STAR technology, the circuit type of each connected CG-S light can be programmed as desired within a 50-Hz or 60-Hz supply network using the central battery system controller. This means that the same power circuit is used for mixed operation including maintained lighting, switched maintained lighting and non-maintained lighting – all without an additional data cable! The TFT touch display, available in a 4.3" or 7" design with 512 MB of RAM and 4 GB of flash memory, monitors and controls the central battery system in combination with a separate ACU DG-S control module. All features of the connected devices and emergency lighting are monitored automatically and any faults reported.

The integrated search function automatically detects all lights connected to the system and addressed during installation. The VisionGuard monitoring software can be accessed via an Ethernet interface.

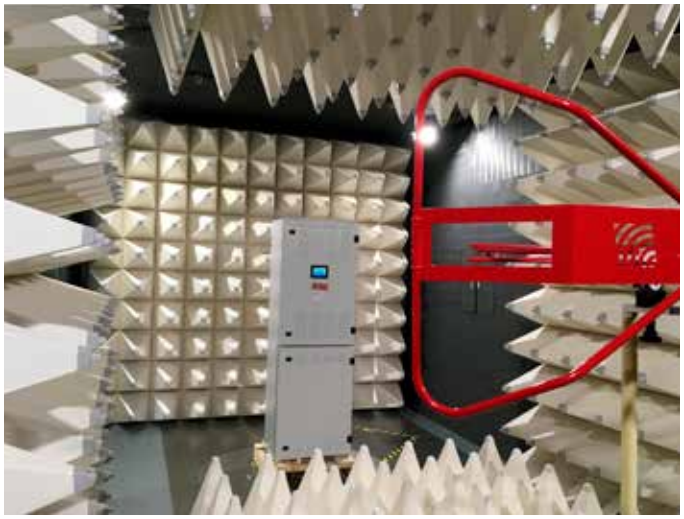
DualGuard-S is excellent!

Beyond the required CE declarations of conformity, EATON offers system certification from accredited, independent test bodies for all emergency lighting products which are used for emergency lighting planning and have central battery systems.

All products such as

- Safety lighting and emergency lighting
- Built-in modules in luminaires
- Bus phase monitors
- Battery monitoring technology

and other system components are checked. A test for protection classes is performed in addition to various environmental tests. Furthermore, the products are tested for compliance with EMV requirements. Other current and future requirements for technical standards are observed. Evidence of functional integrity can also be provided. Our third-party certifications meet the highest national and international standards.



We have our own EMV measuring chamber in Soest – EMV system test

Environmental tests such as heating tests in accordance with EN 61439-1; free-standing cabinets in IP21 and IP31, wall cabinets in IP54 as well as small distribution boards in IP65, protection class tests in accordance with DIN EN60529; transportation and vibration tests in accordance with IEC 60068-2-64 and shock tests in accordance with IEC 60068-2-227.

DIBt approval Z-86.3-92 as electrical distribution board (variable equipment) for safety lighting systems with function maintenance of at least 30 minutes in case of fire.

Technical standard testing in accordance with EN 50171; IEC 62485-2und IEC 62368-1

Eaton's cyber security

- More and more companies are coming under the crosshairs of hacker attacks. The cost of cyber attacks is often in the millions.
- The risk potential is huge in the digital age, meaning that those affected are increasingly investing in defense mechanisms.
- Companies without an adequate cyber strategy put both their systems and their image at risk.
- Information security takes top priority at EATON.

Modules

The modules in DualGuard-S sub-stations of the types ESF30 15-P and ESF30 30-P have been tested by an independent material testing institute for temporary use at increased ambient temperatures in case of fire.

Protection levels

All free-standing cabinets are designed for IP 21 dripping water protection at the factory and can be upgraded to IP 31 on-site.

The protection level of wall cabinets is at least IP 54 or higher.

Connection area

Except for the ACU DG-S module, all of the internal modules are wired to triple-deck tension spring installation clamps, which include a neutral conductor separating clamp and enable convenient wiring.

Modular design

Using modules that have snap-on-click technology, the modules can be exchanged and the system expanded quickly and easily. The intuitive modular design and the spacious control circuit label fields make installation easier.

The wiring system provides a homogeneous cabinet climate and prevents heat build-ups, leading to a longer service life for the built-in modules.

Cable entry

Choose the right roof plate for your installation. Whether pre-drilled for M screw fittings and protective foil, or with bristles or sponge rubber.

Environmental tests

All cabinet models have undergone a variety of environmental tests- from the EMV measurement to the heating test- and been certified via an accredited test laboratory.

Cabinet base

Cabinet bases for cable entry from below in 100 and 200 mm designs are available with all free-standing cabinets with a separate battery housing.

Separate battery compartment

Compliant with the technical standards regarding battery housings.

Hinge positions

Flexible hinge position that can easily be changed on-site. The 180° swivel radius enables access by maintenance gear

TFT touch display

The password-protected TFT touch display with simple ICON-controlled operation and menu profiles tailored to user groups supplies all information at a glance without having to open the distribution cabinet.

Special lock mechanism

Thanks to the standardized swivel handle, it is possible to install 20 mm profile half-cylinders.

Greater user comfort – TFT touch display in 4.3" or 7"

It is important to protect the control panel in electrical operating rooms with a variety of work areas.

Determine the access rights for querying simple status information through to networked system programming to prevent unauthorized operation.

The displays required under technical standards must be inspected during initial acceptance or recurring tests by certified inspectors.

All important status displays at a glance without password entry or opening the DualGuard-S system.

Easy access to other status information through innovative navigation.

Operators and installers use the detailed information for servicing the DualGuard-S.

- All essential system information at a glance for servicing, technical acceptance, and maintenance
- Intuitive menu guide through a separate operating level for initial operation, configuration, programming and service

Conveniently configure and coordinate from anywhere

Conveniently from anywhere:

- Configure
- Coordinate maintenance work

The integrated web interface, which is standard equipment, facilitates access to the configuration and status displays of each DualGuard-S via the Ethernet. Programmable user access with a password for each user prevents undesired access.

Always automatically up to date

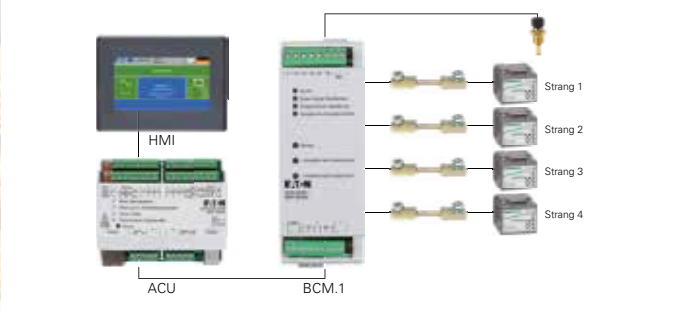
Messages such as power failure, deep discharge protection, charging battery faults, isolation faults, control circuit faults and the device status can be sent to up to six email recipients.

- All information and status information available in multiple languages
- Enter customer-specific texts via the touch keypad on-site in the local language

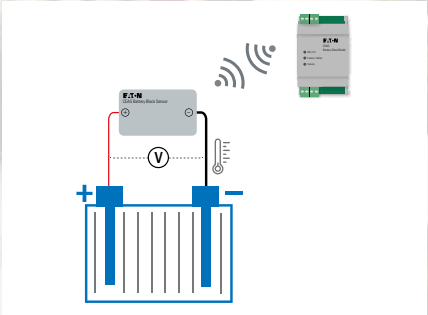
Battery string and battery block monitoring

In accordance with draft EN50171

Battery string monitoring



Battery block monitoring



Battery string monitoring

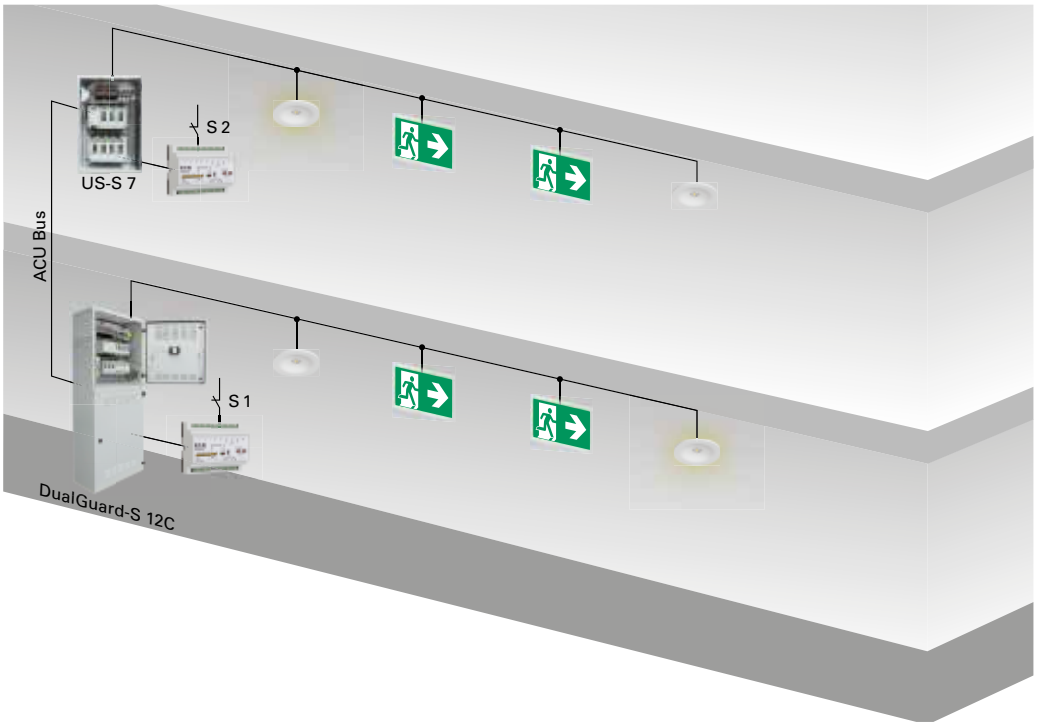
Fault monitoring in more than one battery string:

- The voltage for trickle charging is outside of the permissible range
- Battery charge circuit interrupted
- Faults in charging system such as no charging current although the general power supply is available
- Feed from the battery although general power supply is available
- Deep discharge protection has been triggered

Single battery block monitoring

- Periodic monitoring of battery block voltages and temperatures
- Recording of voltage and temperature values during the continuous function test
- Message in the event of deviations and faults with each individual battery block if the voltage or temperature of one or more battery blocks deviates from the average value of voltage/ temperatures of the other battery blocks
- Soft addressing of sensors
- Wireless data transmission – no data line for sensors necessary
- Negative pole temperature measurement – easy and visible assembly of sensors possible
- Low power consumption of <24 mW for operation in the event of lengthy charging interruptions.
- Long-term analysis of measured data via VisionGuard visualisation software

Communication via the ACU DG-S bus



Example:

The S1 switch of the DualGuard-S 12C simultaneously switches on the DualGuard-S US 7 luminaires via the ACU DG-S bus CG-S and vice versa.

Unlike any other technology, safety lighting is present in almost every building, whether it be emergency lighting in escape routes or safety lighting for illuminating escape routes and areas with particular hazards. Safety lighting components can even be found in general lighting distributors. The challenge for modern safety lighting is to network all functions of an emergency lighting system in a secure manner in order to process product-specific applications across devices. The new binding function allows all control, switching and phase monitoring functions of up to 32 DualGuard-S devices to be linked via the ACU DG-S bus to the connected CG-S luminaires.

The advantages

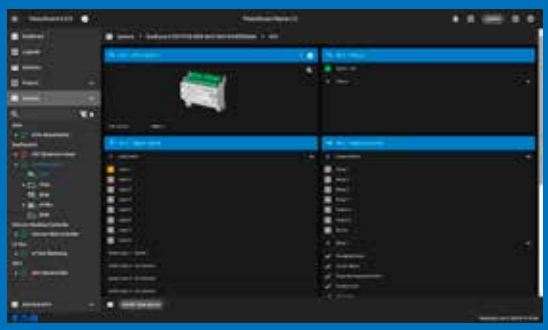
- Simple installation rules – Each DualGuard-S is connected to the ACU DG-S bus and receives Ethernet access.
- Simple planning through the web visualisation/VisionGuard or the TFT touch display because the programming can be adapted to the specific project

Equipped for the future

We believe that emergency lighting systems offering the user further added value along with the emergency lighting function will prevail in the future. Thanks to the new fast and high-performance ACU DG-S bus technology, we are well positioned to meet future requirements for our emergency lighting systems.

VisionGuard 4.0 – The smart visualisation

- Full visualisation, control and configuration of EATON emergency lighting systems down to the luminaire level
- Multi-user operation through web-based client/server structure
- Independent parallel access from different clients
- Dongle-free software licensing
- State-of-the-art, web-based dashboard design with widgets (graphic window system)
- Responsive web design – automatic adaptation to different display resolutions
- Project navigation with optional Building Layout Programming for a clear and easy overview
- Detailed e-mail functions with status emailing and alarm emailing
- Advanced printing functions
- Alarm list and inspection log function according to standards with filter option
- Cyber security tested (by EATON)
- Optional BACnet/IP interface



Web visualisation: VisionGuard 4.0

The new "VisionGuard" visualisation software offers complete monitoring, control and configuration of all connected DualGuard-S central battery systems and other EATON emergency lighting systems, all the way down to the luminaire level. The modern, web-based client/server structure permits installation and operation in any number of Windows-based IT environments.

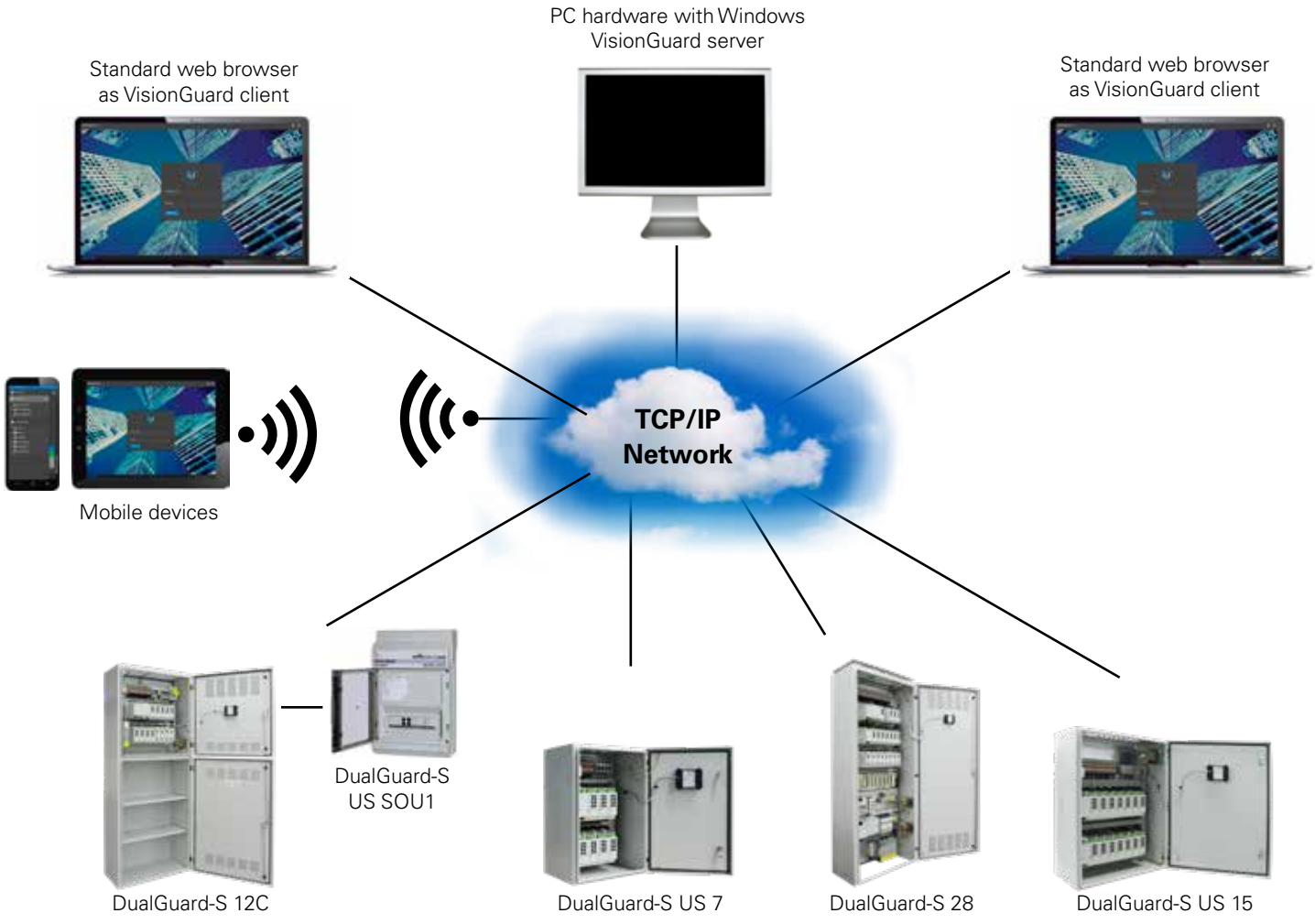
VisionGuard can be accessed via the customary web browsers that are a constituent of every operating system. This eliminates the need for elaborate installation and maintenance of proprietary client software. Furthermore, this enables platform-independent use of the visualisation software. Through the responsive web design, the user interface automatically adapts to a variety of display sizes, meaning that mobile displays such as tablets or smart phones can be used for the visualisation software without any problems.

A modern project navigation provides a clear and concise orientation for such large projects.

An optional building layout programming allows very convenient visualisation of emergency lighting units with status display in an aerial image or in a site or building plan. In addition, the luminaire status (OK/defective) of all luminaires of all emergency lighting systems can be displayed in any number of floor plans.

These advantages all combine to generate a high degree of user-friendliness. VisionGuard shines with a multitude of features which offer the user plenty of opportunities for convenient notification and evaluation of the overall condition of the whole project, e.g. e-mail, automatic printing functions, an alarm list with filter function, a comprehensive inspection log according to the standards and much more.

VisionGuard focuses on the essentials and has an impressively clear design.



Advantages of DualGuard-S

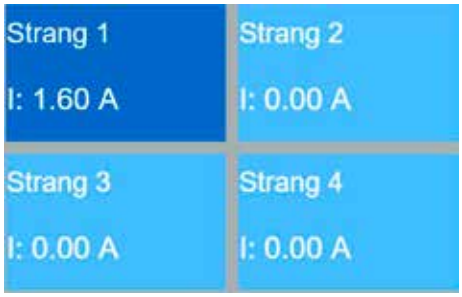

LED search


Language

ISO fault

Fast initial operation through:

- Light search – The automatic luminaire search function
- Language – Plain text status display on the TFT touch display down to the last luminaire in the local language
- ISO fault – Automatic isolation fault finding and display of the isolation fault according to LED current circuit



Battery string


Battery block

ISO monitor


3-PM-IO module

Time-saving automatic test through:

- Battery string – The automatic detection of faults in battery strings switched in parallel
- Battery block – The automatic early detection of faults of individual battery blocks
- ISO monitors – The automatic monitoring of the isolation monitor function
- 3-PM-IO module – The automatic monitoring of the phase monitor modules


Luminaire monitoring

Reduced inspection effort through:

- Luminaire monitoring – Shorter inspection time using the CEWA GUARD technology, automatic function monitoring of up to 20 lights per circuit


3-PM-IO programming

Reduced installation costs through:

- 3-PM-IO programming – STAR technology and freely programmable mixed operation of switching types for each luminaire in one circuit

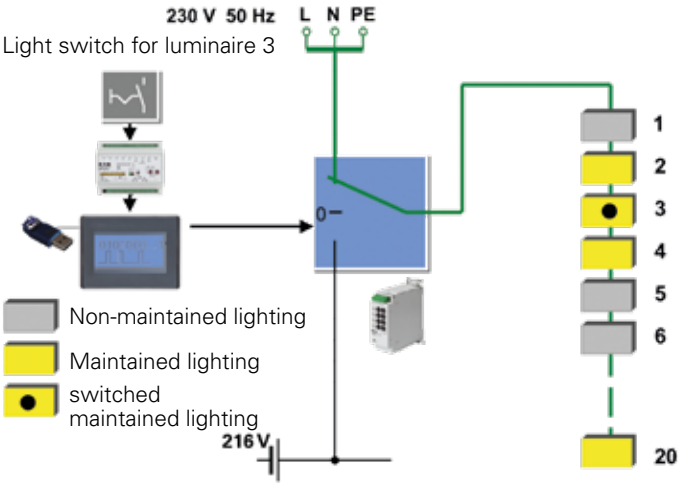
Switch to Reliability!

DualGuard-S is based on the proven STAR technology.

Switching
Technology
Advanced
Revision,

The **CG-STAR** technology offers the opportunity to operate multiple switching types in one and the same circuit, whereby the circuit type of each individual luminaire can be reprogrammed from a central point at any time.

As a result, this technology not only offers the proven CEWA Guard security when it comes to operating safety lighting systems, but also the safety and flexibility when planning the system, which can then respond to structural changes in the building or the use thereof at any time.



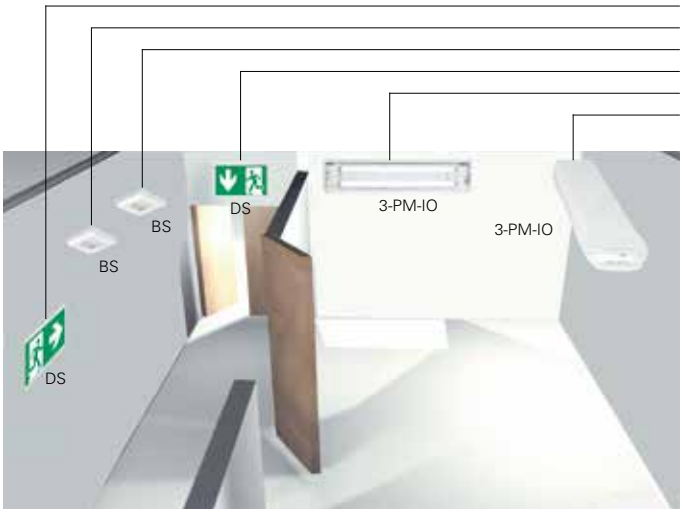
How STAR technology works

How STAR technology benefits you:

The number of final circuits is greatly reduced because continuous operation, the non-maintained mode, and switched maintained lighting are implemented in one common circuit. This enables shorter cable lengths, reduces installation costs, and lowers the fire loading. Of course, it is also possible to assign all of the operating modes retrospectively**–without having to change lighting installation–** which simplifies the configuration process because there is no need for operating mode planning.

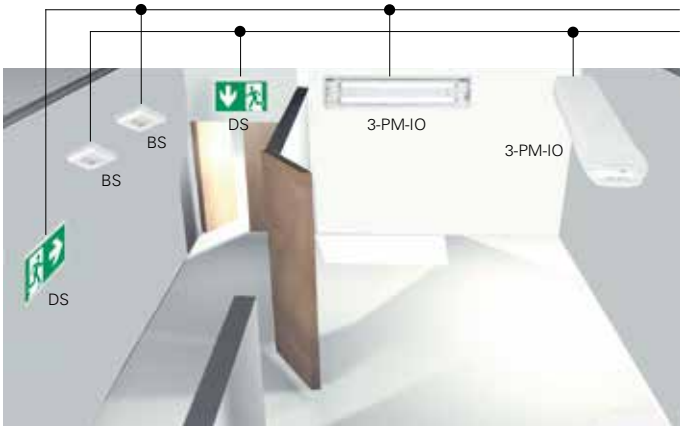
As with the CEWA GUARD technology, no additional data cable for the luminaires is required with the patented STAR technology.

Switch to Reliability!



Conventional installation:
Maintained lighting 1 (DS)
non-maintained lighting 1 (BS)
non-maintained lighting 2 (BS)
maintained lighting 2 (DS)
switched maintained lighting 1 (3-PM-IO)
switched maintained lighting 2 (3-PM-IO)

- Each circuit type requires two circuits
- Only one circuit type is possible for each final circuit
- High installation costs for subsequent changes

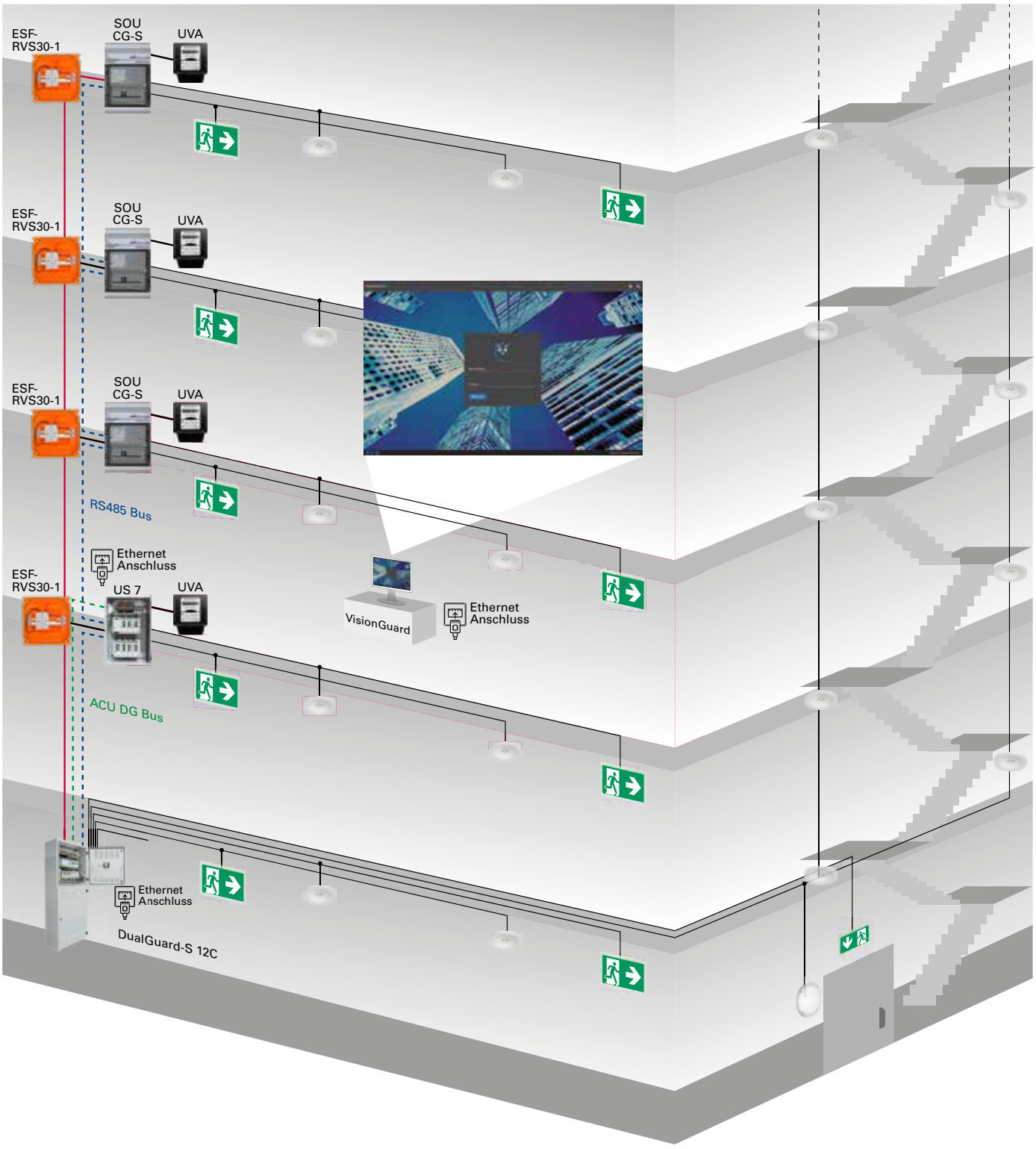


DualGuard-S installation with STAR technology:
All switching modes

- Only two final circuits for all circuits
- Continuous operation, non-maintained mode and switched maintained lighting are possible in one common circuit
- Subsequent changes to the switching mode are possible without any problems

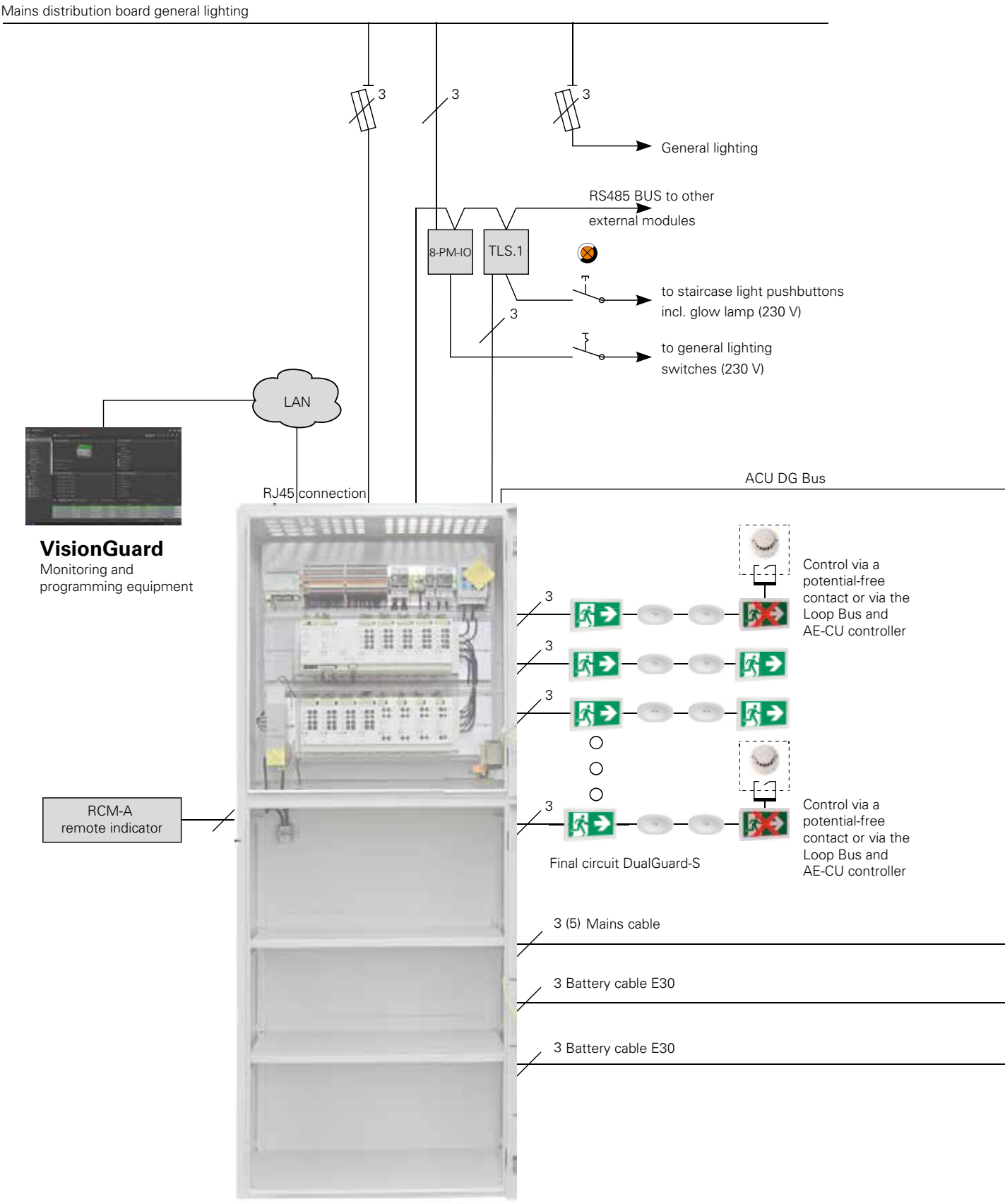
Installation example

Country-specific regulations and guidelines must be observed when planning and designing the installation.



DualGuard-S installation example

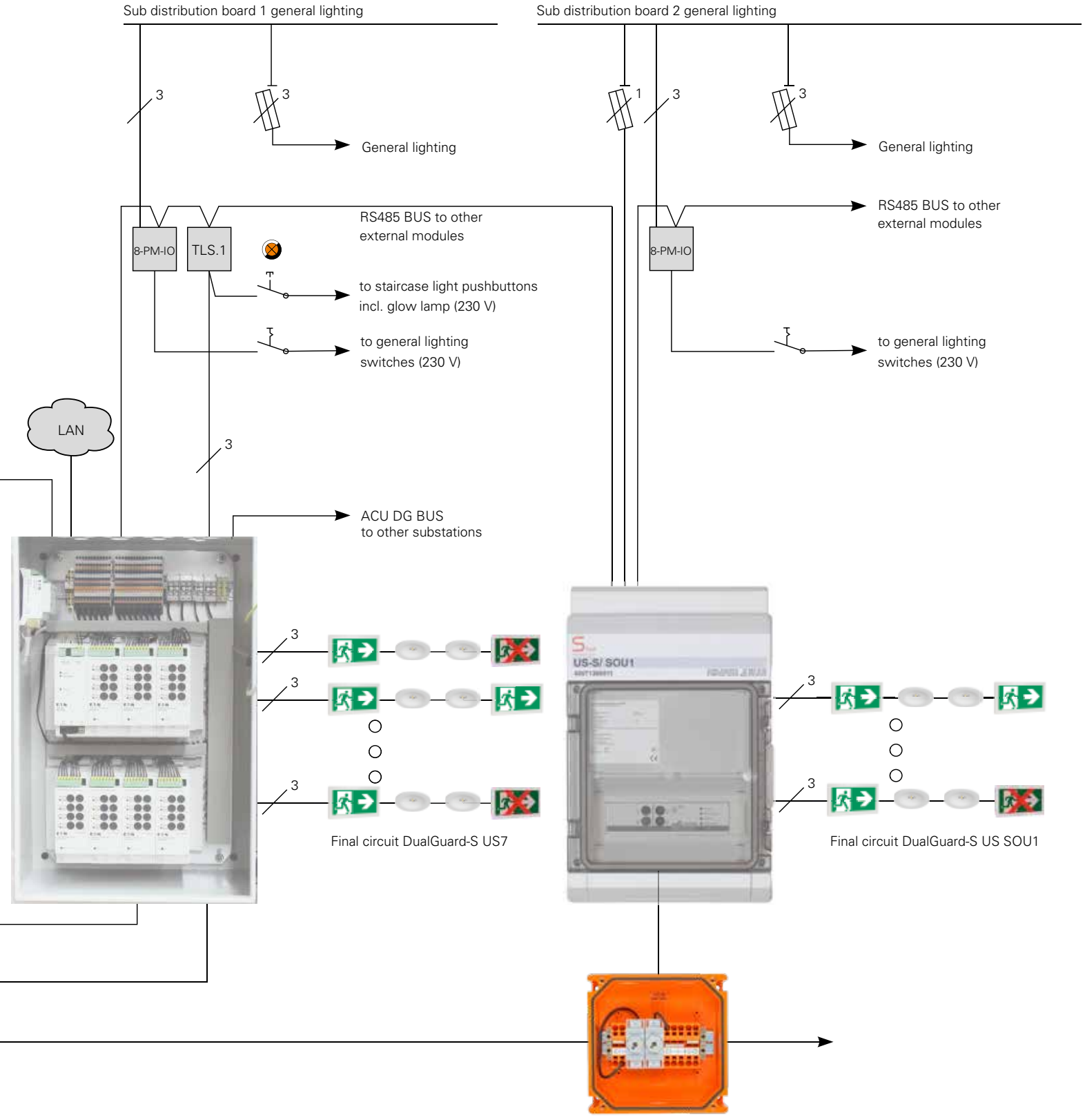
DualGuard-S – central battery system



Central battery system DualGuard-S 12C

DualGuard-S installation example

DualGuard-S – central battery system



Substation DualGuard-S US7

Small distribution board DualGuard-S US SOU1

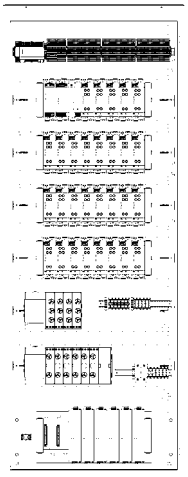
Overview of new DualGuard-S device models

All devices and sub-stations use a modular design. Charging equipment, switching equipment and monitoring equipment form units that operate independently of one another so that the possibility of interactions is excluded. The modular design and the pre-assembled cabinet components guarantee flexible, high-quality implementation. The protection objective of the emergency lighting system is to supply the connected safety lighting system in the event of a general power failure in the primary external power supply. Furthermore, an important function of the emergency lighting system is to ensure the permanent operational capability of all the connected security and LED escape sign luminaires via automatic monitoring.

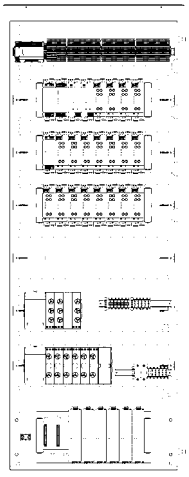
Depending on the project requirement, the correct device model can be chosen from the DualGuard-S product family.

DualGuard-S 28 or DualGuard-S 20

for operation with a maximum of 28 or 20 SKU.1 CG-S circuit modules with 84 circuit terminals. Up to 6 sub-stations can be supplied with battery power or main power (up to 6 sub-stations 1-phase, up to 2 sub-stations 3-phase).



DualGuard-S 28



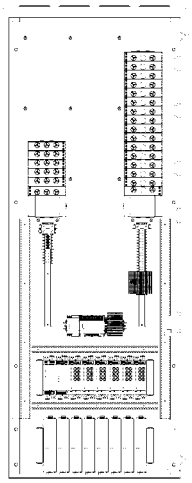
DualGuard-S 20

Order details

Model	Included with delivery	Order no.
DualGuard-S 28	Free-standing cabinet with optimized wiring system for central battery system CEAG DualGuard-S 28, equipped with battery control module (BCM.1), advanced control unit (ACU DG-S) and power supply unit (PSU). For installing a 4.3" or 7" TFT touch display. With extra space for adding a maximum of 88 final circuits, or a maximum of 28 variable circuit boards. Please note! The CM charging modules and the TFT touch display are not part of the cabinet module.	40071362511
DualGuard-S 20	Free-standing cabinet with optimized wiring system for central battery system CEAG DualGuard-S 20, equipped with battery control module (BCM.1), advanced control unit (ACU DG-S) and power supply unit (PSU). For installing a 4.3" or 7" TFT touch display. With extra space for adding a maximum of 84 final circuits, or a maximum of 20 variable circuit boards. Please note! The CM charging modules and the TFT touch display are not part of the cabinet module.	40071362510

DualGuard-S LAD 100

The charging and distribution board supplies up to fifteen 1-phase or five 3-phase sub-stations with mains and battery voltage. In addition, up to four circuit modules can supply and control 16 circuits.



DualGuard-S LAD 100

Order details

Model	Included with delivery	Order no.
DualGuard-S LAD 100	Free-standing cabinet for central battery system CEAG DualGuard-S LAD 100A, equipped with battery control module (BCM.1), advanced control unit (ACU DG-S), power supply unit (PSU), 3-PM-IO module and one SKU.1 CG-S 2 x 3A. For installing a 4.3“ or 7“ TFT touch display. With extra space for adding a maximum of 14 final circuits, or a maximum of 3 variable circuit boards. Please note! The CM charging modules and the TFT touch display are not part of the cabinet module.	40071362540

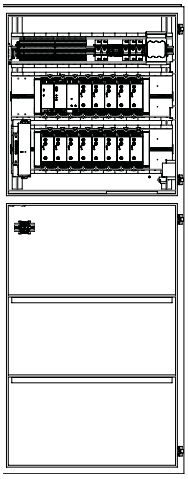
Overview of device models

DualGuard-S – central battery system

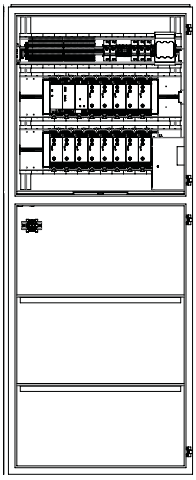
DualGuard-S 12C, DualGuard-S 12C6, DualGuard-S 20C6, DualGuard-S 12C4, DualGuard-S 4C3

for operation with a maximum of 12 or 20 SKU.1 CG-S circuit modules.

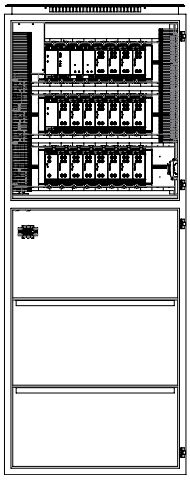
Note: The graphics are not to scale.



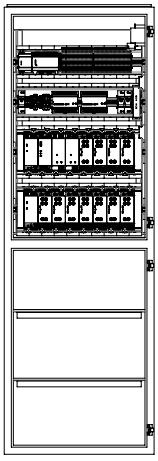
DualGuard-S 12C



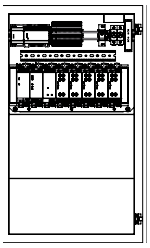
DualGuard-S 12C6



DualGuard-S 20C6



DualGuard-S 12C4



DualGuard-S 4C3

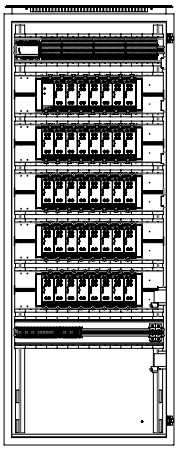
Order details

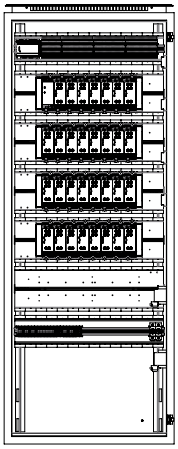
Model	Included with delivery	Order no.
DualGuard-S 12C	Compact cabinet for central battery system CEAG DualGuard-S 12C, equipped with battery control module (BCM.1), advanced control unit (ACU DG-S) and power supply unit (PSU). For installing a 4.3" or 7" TFT touch display. With extra space for adding a maximum of 48 final circuits, or a maximum of 12 variable circuit boards. Please note! The CM charging modules and the TFT touch display are not part of the cabinet module.	40071362520
DualGuard-S12C6	Compact cabinet for central battery system CEAG DualGuard-S 12C6, equipped with battery control module (BCM.1), advanced control unit (ACU DG-S) and power supply unit (PSU). For installing a 4.3" or 7" TFT touch display. With extra space for adding a maximum of 48 final circuits, or a maximum of 12 variable circuit boards. Please note! The CM charging modules and the TFT touch display are not part of the cabinet module.	40071362523
DualGuard-S20C6	Compact cabinet for central battery system CEAG DualGuard-S 20C6, equipped with battery control module (BCM.1), advanced control unit (ACU DG-S) and power supply unit (PSU). For installing a 4.3" or 7" TFT touch display. With extra space for adding a maximum of 68 final circuits, or a maximum of 20 variable circuit boards. Please note! The CM charging modules and the TFT touch display are not part of the cabinet module.	40071362524
DualGuard-S12C4	Compact cabinet for central battery system CEAG DualGuard-S 12C4, equipped with battery control module (BCM.1), advanced control unit (ACU DG-S) and power supply unit (PSU). For installing a 4.3" or 7" TFT touch display. With extra space for adding a maximum of 48 final circuits, or a maximum of 12 variable circuit boards. Please note! The CM charging modules and the TFT touch display are not part of the cabinet module.	40071362521
DualGuard-S4C3	Compact cabinet for central battery system CEAG DualGuard-S 4C3, equipped with battery control module (BCM.1), advanced control unit (ACU DG-S) and power supply unit (PSU). For installing a 4.3" or 7" TFT touch display. With extra space for adding a maximum of 20 final circuits, or a maximum of 4 variable circuit boards. Please note! The CM charging modules and the TFT touch display are not part of the cabinet module.	40071362525

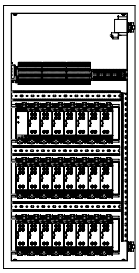
DualGuard-S US 38, US 30, US 23, US 15, US 7

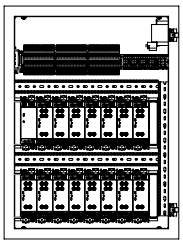
for operation with a maximum of 7, 15, 23, 30 or 38 SKU.1 CG-S circuit modules. Charging technology for connected battery emergency power supply not included for these sub-stations; battery and mains power supply takes place via the DualGuard-S system.

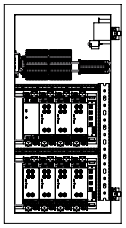
Note: The graphics are not to scale.


DualGuard-S US 38


DualGuard-S US 30


DualGuard-S US 23


DualGuard-S US 15


DualGuard-S US 7

Order details

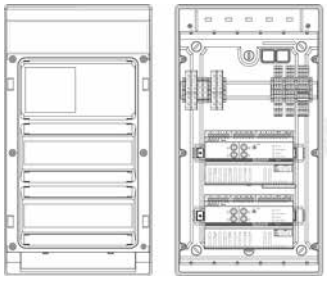
Model	Included with delivery	Order no.
DualGuard-S US 38	Free-standing cabinet for sub-stations CEAG DualGuard-S US-S 38, equipped with advanced control unit (ACU DG-S) and power supply unit (PSU). For installing a 4.3" or 7" TFT touch display. With extra space for adding a maximum of 88 final circuits, or a maximum of 38 variable circuit boards. Please note! The TFT touch display is not part of the cabinet module.	40071362513
DualGuard-S US 30	Free-standing cabinet for sub-stations CEAG DualGuard-S US-S 30, equipped with advanced control unit (ACU DG-S) and power supply unit (PSU). For installing a 4.3" or 7" TFT touch display. With extra space for adding a maximum of 88 final circuits, or a maximum of 30 variable circuit boards. Please note! The TFT touch display is not part of the cabinet module.	40071362512
DualGuard-S US 23	Wall cabinet for CEAG DualGuard-S US-S 23 sub-stations, equipped with advanced control unit (ACU DG-S) and power supply unit (PSU). For installing a 4.3" or 7" TFT touch display. With extra space for adding a maximum of 52 final circuits, or a maximum of 23 variable circuit boards. Please note! The TFT touch display is not part of the cabinet module.	40071362532
DualGuard-S US 15	Wall cabinet for CEAG DualGuard-S US-S 15 sub-stations, equipped with advanced control unit (ACU DG-S) and power supply unit (PSU). For installing a 4.3" or 7" TFT touch display. With extra space for adding a maximum of 32 final circuits, or a maximum of 15 variable circuit boards. Please note! The TFT touch display is not part of the cabinet module.	40071362531
DualGuard-S US 7	Wall cabinet for CEAG DualGuard-S/US-S 7 sub-stations, equipped with advanced control unit (ACU DG-S) and power supply unit (PSU). For installing a 4.3" or 7" TFT touch display. With extra space for adding a maximum of 28 final circuits, or a maximum of 7 variable circuit boards. Please note! The TFT touch display is not part of the cabinet module	40071362530

Overview of device models

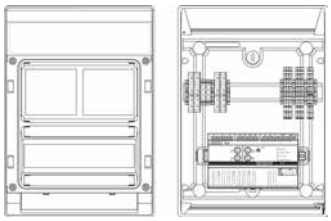
DualGuard-S – central battery system

DualGuard-S US SOU2, US SOU1

for operation with 1 or 2 SOU CG-S circuit switching modules. TFT touch display not included for these sub-stations. Battery power supplied via the DualGuard-S system; mains power supplied via the sub-distributor for the general power supply (rental current infeed).



DualGuard-S US SOU2



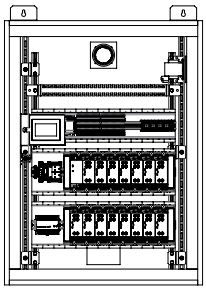
DualGuard-S US SOU1

Order details

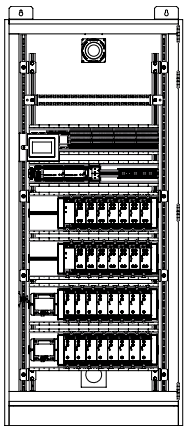
Model	Included with delivery	Order no.
DualGuard-S US SOU2	Small distribution board for DualGuard-S/US-S SOU2 sub-stations, equipped with two SOU CG-S 2x4A circuit modules	40071362519
DualGuard-S US SOU1	Small distribution board for DualGuard-S/US-S SOU1 sub-stations, equipped with one SOU CG-S 2x4A circuit module	40071362518

DualGuard-S ESF15-P, ESF30-P

Electrical distributor with 30 minutes of functional integrity in the event of fire for operation with a maximum of 15 or 30 SKU.1.1 CG-S circuit modules.



DualGuard-S ESF30 15-P



DualGuard-S ESF30 30-P

Order details

Model	Included with delivery	Order no.
DualGuard-S ESF30 15-P	Wall cabinet for sub-stations with 30 minutes of functional integrity during fire from outside CEAG DualGuard-S ESF30 15-P, equipped with 4.3" TFT touch display, advanced control unit (ACU DG-S) and power supply unit (PSU). With extra space for adding a maximum of 40 final circuits, or a maximum of 15 variable circuit boards.	40071362516
DualGuard-S ESF30 30-P	Free-standing cabinet for sub-stations with 30 minutes of functional integrity during fire from outside CEAG DualGuard-S ESF30 30-P, equipped with 4.3" TFT touch display, advanced control unit (ACU DG-S) and power supply unit (PSU). With extra space for adding a maximum of 58 final circuits, or a maximum of 30 variable circuit boards.	40071362517

DualGuard-S ESF SOU5, ESF SOU4 IO, ESF SOU3, ESF SOU2, ESF SOU1

Electric distributor with 30 minutes of functionality in the event of fire for operation with a maximum of 5, 3, 2, 1 SOU CG-S 2 x 4A circuit switching modules.

DualGuard-S ESF30 SOU5

DualGuard-S ESF30 SOU4 IO

DualGuard-S ESF30 SOU3

DualGuard-S ESF30 SOU2

DualGuard-S ESF30 SOU1

Order details

Model	Included with delivery	Order no.
DualGuard-S ESF30 SOU5	Wall cabinet for sub-stations with 30 minutes of functional integrity during fire from the outside DualGuard-S ESF30 SOU5, equipped with five SOU CG-S 2x4A circuit modules	40071362585
DualGuard-S ESF30 SOU4 IO	Wall cabinet for sub-stations with 30 minutes of functional integrity during fire from the outside DualGuard-S ESF30 SOU4, equipped with four SOU CG-S 2x4A circuit modules and space for two 3-PM-IO modules or two 3-PM-IO-INV modules.	40071362584
DualGuard-S ESF30 SOU3	Wall cabinet for sub-stations with 30 minutes of functional integrity during fire from outside DualGuard-S ESF30 SOU3, equipped with three SOU CG-S 2x4A circuit modules	40071362583
DualGuard-S ESF30 SOU2	Wall cabinet for sub-stations with 30 minutes of functional integrity during fire from the outside DualGuard-S ESF30 SOU2, equipped with two SOU CG-S 2x4A circuit modules	40071362582
DualGuard-S ESF30 SOU1	Wall cabinet for sub-stations with 30 minutes of functional integrity during fire from the outside DualGuard-S ESF30 SOU1, equipped with one SOU CG-S 2x4A circuit module	40071362581

TFT touch display 4.3" and 7"

DualGuard-S – central battery system

TFT touch display 4.3" and 7"

TFT touch display 4.3" and 7"

- Dimmable TFT touch display with 64k colors and 250 cd/m²light density
- Touch function across the entire operating surface
- Multi-color icons for status displays, operation and programming
- High performance 32-bit processor, 512MB RAM, 4GB flash memory
- Start screen with all essential system information for servicing, technical acceptance, initial operation and maintenance at a glance
- Intuitive menu navigation through operating levels for initial operation, configuration, programming and servicing
- EATON's cyber security for password protection, web access and connectivity
- All operating texts and status information in 19 different languages
- Customer-specific texts can be entered on-site
- USB 2.0 host for use in transmitting data during start-up, configuration modifications, log book and software updates
- Web connection available as standard equipment
- IP65 – Meets the highest standards in terms of quality and service life
- Meets all EMV requirements for industrial and commercial use
- DEKRA system certification documents product quality and compliance with standards for the entire system
- Proof of function in DualGuard-S distributors of type ESF30 15-P and 30-P for 30 minutes in case of fire by means of a fire test of an independent material testing institute
- Conforms to RoHS and REACH

Protection class, external	IP65
Ambient temperature range	0 – 50°C
Electromagnetic compatibility	Industrial EN 61000-6-2, Commercial EN 61000-6-3
Relative humidity	10 – 95%, non-condensing
Pollution level	2
Max. power consumption	9.5W

Order details

Model	Included with delivery	Order no.
HMI module 4.3" SP	4.3" TFT touch display for door installation	40071361644
HMI module 7" SP	7" TFT touch display for door installation	40071361654

PC Programming Software DualGuard-S

PC Programming Software DualGuard-S

Programming software on pre-configured USB stick for quick pre-programming on the PC and for easy reading and editing of the test book memory. All files can be stored on memory card and hard disk for documentation purposes.

Order details

Model	Included with delivery	Order no.
Software	PC software for DualGuard-S, for alternative programming of the system configuration on the PC	40071362319
Back Up USB stick with factory specific unit configuration	For saving the device configuration	40071362318

ACU DG-S module

ACU DG-S module

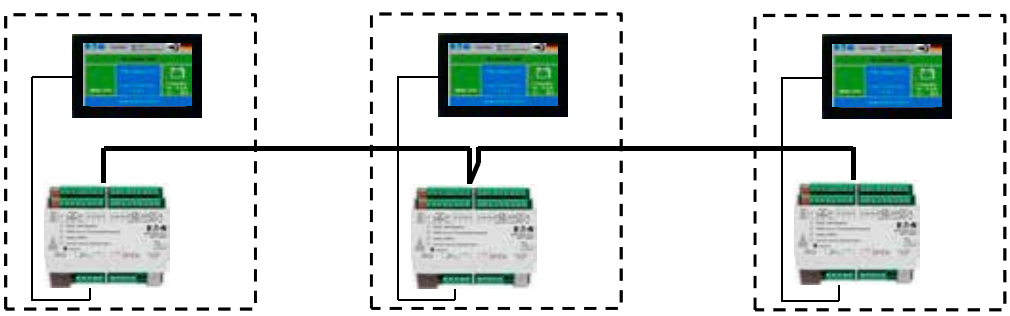
- Compact DIN bars installation
- Dual assignable screw terminals for conductors with the same diameter
- Integrated, switchable bus terminal resistors
- Six freely configurable short-circuit/interruption-tolerant 24V inputs
- Four configurable potential-free signal contacts with separate roots
- Two configurable 24V CD outputs for additional relays
- Color LED indicators for ready status, battery mode, malfunction and scenario active
- Innovative, transmission-safe ACU DG-S bus communication
- Automatic activation of safety lighting following interruption of bus communication
- Functional upon activation of battery deep discharge protection or HMI outage
- Meets all EMV requirements for industrial and commercial use
- DEKRA system certification documents product quality and compliance with standards for the entire system
- Proof of function in DualGuard-S distributors of type ESF30 15-P and 30-P for 30 minutes in case of fire by means of a fire test of an independent material testing institute
- Conforms to RoHS and REACH

Degree of protection	IP20
Protection class	II
Ambient temperature range	-5°C – +55°C
Relative humidity	10 – 95%, non-condensing
Electromagnetic compatibility	Industrial EN 61000-6-2, Commercial EN 61000-6-3
Max. pollution level	2
Overvoltage category	II for battery circuit
Power consumption	2 W
For supplying the SOU, 3-PM-IO, RCM, TLS.1 and LON Repeater modules	15 W

Order details

Model	Included with delivery	Order no.
ACU DG-S module	Control module for top-hat rail installation	40071361600

Wiring diagram: ACU Bus – X2.A	
Rated voltage	≤ 30V (SELV)
Rated current	≤ 0.09A short-circuit-proof
Bus topology	Line
Cable type	such as IY(ST)Y 4x2x0.8 mm
Maximum cable length	900 m
Terminating resistor	Switchable via DIL switch on ACU DG-S.
Maximum number of DualGuard-S systems	32



Monitoring software

VisionGuard – visualisation software

Monitoring software VisionGuard V4.0.0

- A modern web-based client/server architecture: Use of standard web browser on the client PC, no special client software installation necessary
- Extremely versatile: full visualisation, monitoring and programming of up to 500 emergency lighting systems with over 100,000 emergency luminaires
- Full Monitoring, control and configuration of DualGuard-S (DG-S) / LoadStar (LS-S), ZB-S and LP-STAR. Full monitoring, control and basic configuration of CGLine+ Web-Controller and full monitoring and control of AT-S+ systems
- A modern project navigation with combined building layout representation (available as option: Building Layout Programming) offers a clear orientation even for large projects
- Optional: The Building Layout Programming allows a representation of System status information and Luminaire status in standard graphic files such as .dwg, .dxf, .svg, .png, .bmp and .jpg format
- Transparent and user-friendly log books and extensive print functions (Status print-out) provide a clear overview
- Automatic notifications: The integrated e-mail function with numerous setting options conveniently sends information via e-mail and thereby eliminates the need for in-person inspections
- Optional: BACnet/IP interface (only for DG-S / LS-S and CGLine+): this allows easy connection to an external building management system (BMS) via the BACnet protocol
- Battery block monitoring (only for DG-S / LS-S): graphic display of the optionally available individual battery block monitoring with single battery block voltage and single battery block temperature

VisionGuard V4.0.0 - system hardware / software requirements:

Server	Standard Windows® PC (tower, rack), virtual machine
Operating system	Windows® 11 Pro. , Windows® 10 (64 Bit), Windows® Server 2016 , Windows® Server 2019, Windows® Server 2022
Processor	Min. Intel i5 or AMD Ryzen 5
Working memory	Min. 16 GB RAM (recommended 32GB RAM)
Memory	Min. 100 GB free space
Hard drive (min. recommended)	256 GB SSD
Resolution	Full HD 1920 x 1080 or higher
Client	Standard PC workstation, Moblie devices (Tablet PC, Smartphone)
Graphics	DirectX 12
Software	Standard web browser, such as Edge, Chrome, Firefox, Safari
Display	Min. 19" (recommended 24" or higher)
Ideal resolution	Full HD 1920 x 1080 or higher
Peripheral devices	Keyboard, mouse, printer

VisionGuard V4.0.0

- Multi-user operation: Modern web-based client/server architecture that can be accessed independently and in parallel (only DG-S / LS-S and CGLine+) from different workstations. On CG-S systems the parallel access is limited.
- Dongle-free software licensing
- Optionally available as a certificate with download link and licence key, or VisionGuard software on USB stick with licence key. For CG-S an additional CG-S soft-licence is needed.
- Tiered versions, from 3 to 500 emergency lighting systems
- Modern web-based dashboard design with widgets (graphic window system)
- Responsive web-design, for different display sizes
- Full visualisation, control and configuration of DualGuard-S (DG-S) / LoadStar-S (LS-S), ZB-S and LP-STAR systems down to the level of the luminaires
- Full monitoring and control of AT-S+ emergency lighting systems and CGLine+ self contained systems
- A modern project navigation enables a clear arrangement of all connected emergency lighting systems in a navigation tree with freely configurable levels
- The optional Building Layout Programming allows a comfortable representation of System status information and Luminaire status in a site plan or floor plan
- User access control with four user roles (supervisor, administrator, power user and user)
- Detailed e-mail function (Status Mail Report and Alarm E-Mailing)
- Advanced printing functions
- Cyber security tested (EATON)
- BACnet/IP Interface for external BMS optionally available (only DG-S / LS-S and CGLine+. For ZB-S, LP-STAR and AT-S+ in preparation)
- Export function for external applications
- Substation Setup: Clear representation of a DG-S / LS-S central battery system with connected DG-S / LS-S substations

Volume licensing

Basic version for 3 devices
Basic version for 10 devices
Basic version for 25 devices
Basic version for 50 devices
Basic version for 100 devices
Basic version for 500 devices
Option: BACnet/IP Interface for external Building Management System (BMS) (only DG-S / LS-S)
Option: Building Layout Programming

27" TFT display

Large TFT flat screen with IPS display and high resolution (1920 x 1200) for displaying the VisionGuard visualisation, monitoring and programming software via a PC system.

PC-Miditower

A powerful PC system for installing and operating the VisionGuard visualisation, monitoring and programming software. Includes Windows® 11, unlicenced VisionGuard preinstalled (Licence must be purchased optionally), PC: high-performance Intel Core i7 processor, 16 GB RAM, 512 GB SSD, mouse and keyboard. (German layout)

Software order information

Part no.	Included with delivery	Article no.
VisionGuard basic version 3	Certificate with download link and licence key	40071362800
VisionGuard basic version 3 / USB	VisionGuard Software on USB-Stick with licence key file	40071362801
VisionGuard basic version 10	Certificate with download link and licence key	40071362805
VisionGuard basic version 10 / USB	VisionGuard Software on USB-Stick with licence key file	40071362806
VisionGuard basic version 25	Certificate with download link and licence key	40071362810
VisionGuard basic version 25 / USB	VisionGuard Software on USB-Stick with licence key file	40071362811
VisionGuard basic version 50	Certificate with download link and licence key	40071362815
VisionGuard basic version 50 / USB	VisionGuard Software on USB-Stick with licence key file	40071362816
VisionGuard basic version 100	Certificate with download link and licence key	40071362820
VisionGuard basic version 100 / USB	VisionGuard Software on USB-Stick with licence key file	40071362821
VisionGuard basic version 500	Certificate with download link and licence key	40071362825
VisionGuard basic version 500 / USB	VisionGuard Software on USB-Stick with licence key file	40071362826
Available options for VisionGuard		
VisionGuard Building Layout Programming	Certificate with download link and licence key	40071362830
VisionGuard Building Layout Programming / USB	VisionGuard Software on USB-Stick with Building Layout	40071362831
VisionGuard BACnet/IP Interface for external BMS (only DG-S)	Certificate with download link and licence key	40071362835
VisionGuard BACnet/IP Interface for external BMS (only DG-S) / USB	VisionGuard Software on USB-Stick with BACnet/IP Interface licence key file	40071362836

Hardware order information

Part no.	Included with delivery	Article no.
PC-Miditower	with high-performance Intel Core i7 processor, incl. optical mouse and Windows® 11 Pro. (64 bit), unlicenced VisionGuard software pre-installation included	40071362880
27" TFT display	IPS display with 1920 x 1200 native resolution	40071347155
Inkjet printer colour	Multifunction printer DIN A4 with inkjet (colour), scan and copy function	40071340753
Laser printer colour	High quality colour laser printer DIN A4	40071362850

PSU module

DualGuard-S – central battery system

PSU module

PSU module

- Intelligent, automatic bus alarm management in the event of a fault or exceeding limit values
- Expanded DC input voltage range from 173-330V
- Expanded temperature range from 0°C…+55°C
- Maintenance-free, passive ventilation
- Output voltage indication provided by three LEDs
- Outputs switchable in parallel with automatic power control
- Wide finger-safe ventilation slits for optimum heat dissipation
- Simple, time-saving snap-on click installation on device rack
- Meets all EMV requirements for industrial and commercial use
- The DEKRA system certification documents product quality and compliance with standards
- Proof of function in DualGuard-S distributors of type ESF30 15-P and 30-P for 30 minutes in case of fire by means of a fire test of an independent material testing institute
- Conforms to RoHS and REACH

Degree of protection	IP20
Protection class	II
Ambient temperature range	0°C – +55°C
Relative humidity	10% – 95%, non-condensing
Air pressure	795…1080 hPa
Height	≤ 2000 m
Pollution level	2
Output voltage	24V

Order details

Model	Included with delivery	Order no.
PSU module	Power supply module for component rack installation	40071361590

DualGuard-S ESF30 Ventilation Set

DualGuard-S ESF30 Ventilation Set

The top fan housing with fan monitoring of the supply air is suitable for mounting on the supply air opening of the technical ventilation of DualGuard-S ESF30 central battery systems in combination with fire protection housings of the type ELC/ELCW-ESF30-F with functional integrity of 30 minutes in the event of fire from the outside. The 24V supply unit, which must be installed in the on-site distributor, supplies the top-mounted fan for fire protection housings of the type ELC/ELCW-ESF30-F with fire resistance for 30 minutes when exposed to fire from outside.

Technical Data fan unit

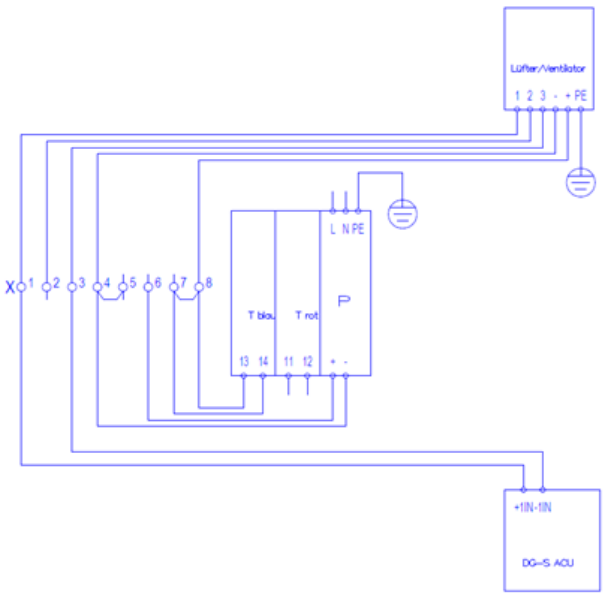
Connection voltage	24V DC
Power	8W
Ambient temperature	-20…+75°C
Airflow	64 m³/h, 5100 U/min
Sound power level	6,4 dB
Air direction	Drückend
Thermocouple/thermal monitor	Automatische Auslösung bei 55°C
Fan monitoring	Potentialfreier Wechslerkontakt (max. 230V 1A)
Dimensions fan housing H x W x D:	52 x 214 x 285 mm
Weight	2,15 kg
Proof	CE Konformitätserklärung

Technische Daten Versorgungseinheit

Anschlussspannung Input , Output	88-264VAC, 0,45A / 124-370VDC, Output: 24VDC, 1A
Thermostat (blau): potentialfreier Kontakt (Schließer), Einschalttemperatur-Bereich:	–20...+40 / +0...+60
Thermostat (rot): potentialfreier Kontakt Öffner), Einschalttemperatur-Bereich:	–20...+40 / +0...+60
Abmessungen L x B x T	145 x 90 x 105 mm
Gewicht:	0,35 kg

Bestelldaten

Anschlussspannung Input , Output	88-264VAC, 0,45A / 124-370VDC, Output: 24VDC, 1A
Thermostat (blau): potentialfreier Kontakt (Schließer), Einschalttemperatur-Bereich:	–20...+40 / +0...+60
Thermostat (rot): potentialfreier Kontakt Öffner), Einschalttemperatur-Bereich:	–20...+40 / +0...+60
Abmessungen L x B x T	145 x 90 x 105 mm
Gewicht:	0,35 kg



BCM.1 module

DualGuard-S – central battery system

BCM.1 module

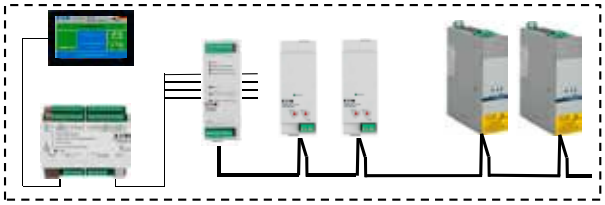
BCM.1 module

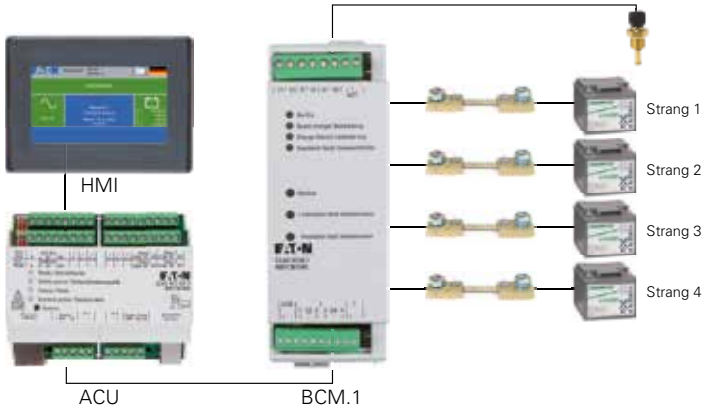
- Automated monitoring of up to four battery arrays
- Temperature-controlled charging control of up to 32 charging modules
- Automated monitoring of each charging module via the CCB bus with individual error warnings via the TFT touch display
- LED display indicating ready, boost charge, charging malfunction and insulation defect
- Individual indication of isolation faults per circuit
- Automatic monitoring of isolation measuring device
- Alternating charging regulation during trickle charging and more than one charging module
- Relay contacts for forwarding of disruption, boost charging and insulation defect
- All module connections are wired to a three level tension-spring installation terminal
- Simple, time-saving snap-on click installation on device rack
- Meets all EMV requirements for industrial and commercial use
- DEKRA system certification documents product quality and compliance with standards for the entire system
- Conforms to RoHS and REACH

Degree of protection	IP20
Protection class	II
Ambient temperature range	-5°C – +55°C
Relative humidity	10% – 95%, non-condensing
Air pressure	795…1080 hPa
Pollution level	2
Electromagnetic compatibility	Industrial EN 61000-6-2, Commercial EN 61000-6-3

Order details

Model	Included with delivery	Order no.
BCM.1 module	Battery control module for component rack installation	40071361540





CM.1 1.7A charging module

CM.1 1.7 A charging module

- Efficient operation by means of alternating activation/deactivation of trickle charge
- Optimum performance through a combination of charging modules 1.7A and 3.4A
- Automated monitoring and temperature-dependent charging regulation through the BCM.1 module and the CCB bus connection
- Automated deactivation of boost charging during outage of room ventilation system
- LED indicator of ready status/malfunction
- Wide finger-safe ventilation slits for optimum heat dissipation
- Simple, time-saving snap-on click installation on device rack
- Meets all EMV requirements for industrial and commercial use
- DEKRA system certification documents product quality and compliance with standards for the entire system
- Conforms to RoHS and REACH

Degree of protection	IP20
Protection class	II
Ambient temperature range	-5°C – +55°C
Relative humidity	10% – 95%, non-condensing
Air pressure	795…1080 hPa
Pollution level	2
Electromagnetic compatibility	Industrial EN 61000-6-2, Commercial EN 61000-6-3

Order details

Model	Included with delivery	Order no.
CM.1 1.7A	1.7A charging module for component rack installation	40071361580

CM 3.4A charging module

CM 3.4A charging module

- Efficient operation by means of alternating activation/deactivation of trickle charge
- Optimum performance through a combination of 1.7A and 3.4A charging modules
- Automated monitoring and temperature-dependent charging regulation through the BCM.1 module and the CCB bus connection
- Automated deactivation of boost charging during outage of room ventilation system
- LED indicator of ready status/malfunction
- Meets all EMV requirements for industrial and commercial use
- DEKRA system certification documents product quality and compliance with standards for the entire system
- Conforms to RoHS and REACH

Degree of protection:	IP20
Protection class:	I
Ambient temperature:	-5°C – +55°C
Relative humidity:	10% – 95%, non-condensing
Air pressure:	795…1080 hPa
Pollution level:	2
Electromagnetic compatibility	Industrial EN 61000-6-2, Commercial EN 61000-6-3

Order details

Model	Included with delivery	Order no.
CM 3.4A	3.4A charging module for component rack installation	40071360370

SKU.1 CG-S 4x1.5A circuit switching

DualGuard-S – central battery system

SKU.1 CG-S 4x1.5A

SKU.1 CG-S 4x1.5A

- CG-S technology provides for automatic monitoring of up to 20 safety lights and emergency signs without requiring the transmission of additional data for each circuit
- Overload indicator
- Programmable switching for each individual light with no need to make adjustment directly to the light itself
- Automated isolation fault finding
- Assemblies use service-friendly module technology, wired ready for connection to triple-deck 4 mm² neutral terminals
- Large finger-safe ventilation slits for optimum heat dissipation
- Simple, time-saving snap-on click installation on device rack
- Wide sign racks for customized labeling
- Meets all EMV requirements for industrial and commercial use
- DEKRA system certification documents product quality and compliance with standards for the entire system
- Proof of function in DualGuard-S distributors of type ESF30 15-P and 30-P for 30 minutes in case of fire by means of a fire test of an independent material testing institute
- Conforms to RoHS and REACH

Inputs	
Nominal AC voltage	220-240V
Nominal DC voltage	184-275V
Rated frequency	50 or 60 Hz
Maximum head dissipation capacity:	8 W
Outputs	
Rated current	1.5A
short-circuit current	1500A
Inrush current	60A per circuit/240A per module

Order details

Model	Included with delivery	Order no.
SKU.1 CG-S 4 x 1.5A	Circuit switching 4 x 1.5A for component rack installation	40071361550

SKU.1 CG-S 2x3A

SKU.1 CG-S 2x3A

- CG-S technology provides for automatic monitoring of up to 20 safety lights and emergency signs without requiring the transmission of additional data for each circuit
- Overload indicator
- Programmable switching for each individual light with no need to make adjustment directly to the light itself
- Automated isolation fault finding
- Assemblies use service-friendly module technology, wired ready for connection to triple-deck 4 mm² neutral terminals
- Wide finger-safe ventilation slits for optimum heat dissipation
- Simple, time-saving snap-on click installation on device rack
- Large sign rack for customized labeling
- Meets all EMV requirements for industrial and commercial use
- DEKRA system certification documents product quality and compliance with standards for the entire system
- Proof of function in DualGuard-S distributors of type ESF30 15-P and 30-P for 30 minutes in case of fire by means of a fire test of an independent material testing institute
- Conforms to RoHS and REACH

Nominal AC voltage	220-240V
Nominal DC voltage	184-275V
Rated frequency	50 or 60 Hz
Maximum head dissipation capacity	4 W
Outputs	
Rated current	3A
short-circuit current	1500A
Inrush current	250A per circuit

Order details

Model	Included with delivery	Order no.
SKU.1 CG-S 2 x 3A	Circuit switching 2 x 3A for component rack installation	40071361560

SKU.1 CG-S 1x6A circuit switching

DualGuard-S – central battery system

SKU.1 CG-S 1x6A

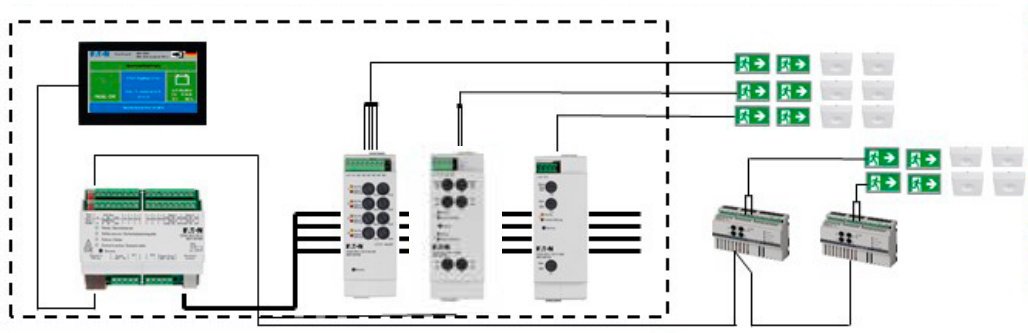
SKU.1 CG-S 1x6A

- CG-S technology provides for automatic monitoring of up to 20 safety lights and emergency signs without requiring the transmission of additional data
- Overload indicator
- Programmable switching for each individual light with no need to make adjustment directly to the light itself
- Automated isolation fault finding
- Assemblies use service-friendly module technology, wired ready for connection to triple-deck 4 mm² neutral terminals
- Wide finger-safe ventilation slits for optimum heat dissipation
- Simple, time-saving snap-on click installation on device rack
- Large sign rack for customized labeling
- Meets all EMV requirements for industrial and commercial use
- DEKRA system certification documents product quality and compliance with standards for the entire system
- Proof of function in DualGuard-S distributors of type ESF30 15-P and 30-P for 30 minutes in case of fire by means of a fire test of an independent material testing institute
- Conforms to RoHS and REACH

Inputs	
Nominal AC voltage	220-240V
Nominal DC voltage	184-275V
Rated frequency	50 or 60 Hz
Maximum head dissipation capacity:	4 W
Output nominal current	6A
short-circuit current	1500A
Inrush current	250A

Order details

Model	Included with delivery	Order no.
SKU.1 CG-S 1 x 6A	Circuit switching 1 x 6A for component rack installation	40071361570



SOU CG-S 2x4A

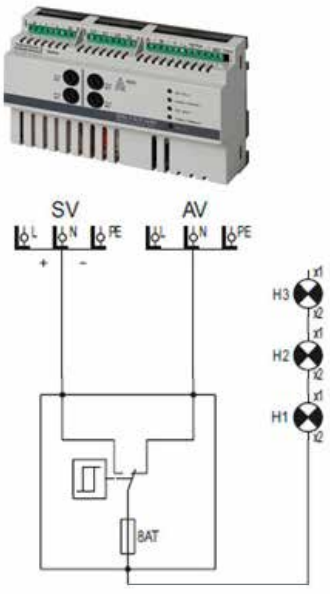
SOU CG-S 2x4 A

- Separate rental current feed-in
- CG-S technology provides for automatic monitoring of up to 20 safety lights and emergency signs without requiring the transmission of additional data for each circuit
- Overload indicator
- Programmable switching for each individual light with no need to make adjustment directly to the light itself
- Automated isolation fault finding
- Dual assignable screw terminals for conductors with the same diameter
- All module connections are wired to a triple-deck tension-spring installation terminal
- Large sign rack for customized labeling
- Meets all EMV requirements for industrial and commercial use
- DEKRA system certification documents product quality and compliance with standards for the entire system
- Proof of function in DualGuard-S distributors of type ESF30 15-P and 30-P for 30 minutes in case of fire by means of a fire test of an independent material testing institute

Inputs	
Nominal AC voltage	220-240V
Nominal DC voltage	184-275V
Rated frequency	50/60 Hz
Maximum head dissipation capacity:	9 W
Short-circuit current per circuit	1500A
Inrush current	250A per circuit

Order details

Model	Included with delivery	Order no.
SOU CG-S 2 x 4A	Circuit switching 2 x 4A for top-hat rail installation	40071360430



CG IV.1 relay module

DualGuard-S – central battery system

CG IV.1 relay module

CG IV.1 relay module

This module allows for connection of the central battery system to a central control station. Status of key systems reported via potential-free signal contacts. Two input channels available for remote inspection of the central battery system. A function test can be launched via the "FT" input channel, and a duration test (battery test) can be launched via the "BT" input channel. Eight light-emitting diodes indicate system status.

Inputs	
Nominal AC voltage	220-240V
Nominal DC voltage	184-275V
Rated frequency	50 Hz
Outputs	
Rated current/voltage	0.65A/24V

Order details

Model	Included with delivery	Order no.
CG IV.1	Relay module for component rack installation	40071361620

CG V.1 relay module

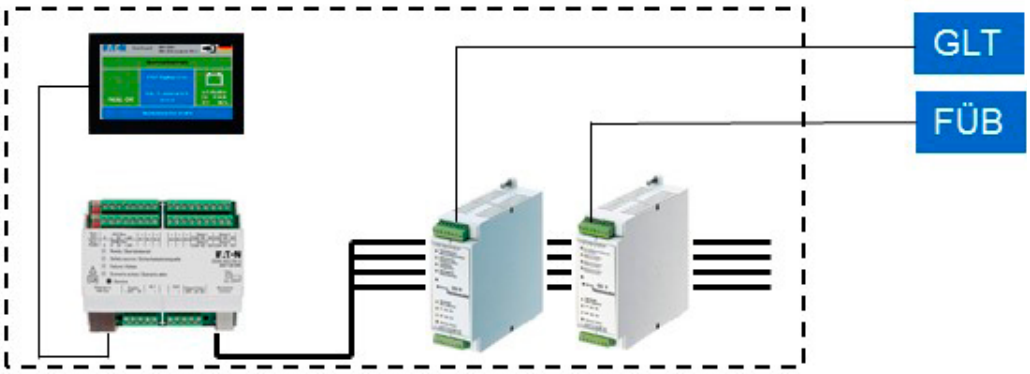
CG V.1 relay module

This module allows for connection of the central battery system to a building control system. Status of key systems reported via potential-free signal contacts. Two input channels available for remote inspection of the central battery system. A function test can be launched via the "FT" input channel, and a duration test (battery test) can be launched via the "BT" input channel. Eight light-emitting diodes indicate system status.

Inputs	
Nominal AC voltage	220-240V
Nominal DC voltage	184-275V
Rated frequency	50 Hz
Outputs	
Rated current/voltage	0.65A/24V

Order details

Model	Included with delivery	Order no.
CG V.1	Relay module for component rack installation	40071361630



RCM-A remote indication

DualGuard-S – central battery system

RCM-AR flush-mounted

RCM-AS surface-mounted

RCM-A remote indication

The RCM-A remote display uses a battery power supply to display the the most important system functions safely. A key-operated switch can be used to block emergency lighting operation during periods of inactivity. The remote indicator thus fulfils the requirement that remote switching is only permissible if actuation by Unauthorized persons are not possible. By blocking the emergency operation the battery maintenance charge is not affected. A differential loop monitoring leads to Short-circuit or open-circuit detection to make the system ready for operation. LED indicators: System operational, power source for safety purposes, error.

	RCM-AS surface-mounted	RCM-AR flush-mounted
Mechanic		
Dimensions (W x H x D mm)	80 x 80 x 52	80 x 80 x 12 (without flush-mounted box) Diameter flush-mounted box: 70 mm Deep flush-mounted box: 64 mm
Weight	0.15 kg	0.16 kg
Degree of protection	IP 20	IP 20
Material	Thermoplast	
Resistant up to Flammability	650°C	
Environment		
Ambient temperature	-5°C … +35°C	
Storage temperature	-20°C … +65°C	
Relative humidity	10% ... 95% no condensation	
Air pressure	795 … 1080 hPa	
EMC		
Interference immunity	EN/IEC 61000-6-2	
Interference radiation	EN/IEC 61000-6-3	
Electrical parameters		
Rated voltage	24 V DC (SELV)	
Degree of pollution	2	
Power consumption	< 1 W	
Installation		
Lead	J-Y(ST)Y 4 x 2 x 0.8	
Max. Cable length	2000 m	

Ordering details

Type	Scope of supply	Order No.
RCM-AS remote indication	Subassembly for wall mounting	40071362390
RCM-AR remote indication flush-mounted	Component for installation in switch or cavity wall sockets according to DIN VDE 0606	40071362395
Spare Key	Spare Key for RCM remote indication	40042071603

3-PM module

3-PM voltage monitoring module

To avoid hazards from mains power outages, the functionality of the light distributors for the general lighting must be continuously monitored in order to turn on safety lighting in the event of a disruption. Consequently, CEAG 3-PM modules are an important element of safety systems.

In the event of a phase outage, the CEAG 3-PM module switches a relay contact and interrupts the 24V current loop to the emergency lighting devices. All safety lights set to non-maintained mode are switched to maintained lighting. A second relay contact is used to signal the power failure.

- Test button for a mains emergency light fault, so there is no need to interrupt mains voltage and, therefore, no disruptions to operations in progress
- No E30 wiring by virtue of short-circuit/interruption-tolerant communication. This results in significantly simpler installation and cost savings.
- Does not require that main power to general lighting be shut off during weekly function testing by virtue of simple manual testing of the circuit monitoring function via the test button. This avoids the disruption of operations in progress as well as the resulting costs thereof
- Automatic record keeping in inspection log. The documentation requirements for safety equipment are thus satisfied
- Meets all EMV requirements for industrial and commercial use
- DEKRA system certification documents product quality and compliance with standards for the entire system

Dimensions in mm (W x H x D)	85 x 52.5 x 65/3 TE
Enclosure	Plastic, light gray
Terminals	2.5 mm^2 rigid and flexible
Mounting type	On DIN support rails
Contact	0.5A/24V AC/DC, 1 x normally open, 1 x change-over contact
Threshold	U< 85 % UN

Order details

Model	Included with delivery	Order no.
CEAG 3-PM module with test button	Circuit monitor module for top-hat rail installation	40071361660

3-PM-IO module

DualGuard-S – central battery system

CEAG 3-PM-IO module

CEAG 3-PM-IO-INV module

External CEAG 3-PM-IO and CEAG 3-PM-IO-INV module

To avoid hazards from mains power outages, the functionality of the light distributors for the general lighting must be continuously monitored in order to turn on safety lighting in the event of a disruption. Consequently, the CEAG 3-PM-IO and CEAG 3-PM-IO-INV modules are an important element of the safety system.

- Test button for mains emergency light fault, so there is no need to interrupt mains voltage and, therefore, no disruptions to operations in progress
- 3-PM-IO module: Eight measurement inputs for monitoring up to three phases and up to five * light switches
- 3-PM-IO-INV module: Eight inverted measurement inputs for monitoring up to three phases and up to five* light switches
- Programmable allocation of CEAG 3-PM-IO and CEAG 3-PM-IO-INV modules
- Meets the requirements of future standards. Reduces the risk of cost incurred from retrofitting
- No E30 wiring by virtue of short circuit/interruption-tolerant communication. This results in significantly simpler installation and cost savings.
- Does not require that mains power to general lighting be shut off during weekly function testing by virtue of simple manual testing of the circuit monitoring function via the test button. This avoids the disruption of operations in progress and the resulting costs thereof
- Automatic record keeping in inspection log. The documentation requirements for safety equipment are thus satisfied
- Meets all EMV requirements for industrial and commercial use
- DEKRA system certification documents product quality and compliance with standards for the entire system
- Functionality for 30 minutes during fire verified in a fire test conducted by an independent materials testing institute

* If the phase monitoring function is not required, all eight measuring inputs can be used for the light switch query

	CEAG 3-PM-IO	CEAG 3-PM-IO-INV
Rated voltage of device	24V DC (min. 19V, max. 30V)	
Current consumption (all 8 channels connected)	20 mA ± 5 mA	
Degree of protection	IP20	
Protection class	I	
Ambient temperature range	-10° – +40°C.	
Input channels 8 3-PM (channel 1–8) 3-PH (channel 1–5)	8 (potential separated U_N = 230V) 3-PM (chan. 1–8) > 195V-> ON < 138V-> OFF	8 (potential separated U_N = 230V) 3-PM (chan. 1–8) < 195V-> OFF > 138V-> ON
Data bus/address range	RS 485/1-25	
Weight	0.2 kg	
Dimensions (L x W x H) mm	105 x 85 x 60	
Assembly	DIN rail	
Terminals	2.5 mm^2 rigid and flexible	

Order details

Model	Included with delivery	Order no.
3-PM-IO module with test button	Module for DIN support rail installation	40071361670
3-PM-IO-INV module with test button	Module for DIN support rail installation with inverted input logic	40071361680
DIN support rails	4 DIN support rails for mounting external modules in the switch cabinet including mounting material	40071347125

8PM-I-Bus Module

8PM-I-Bus Module

In order to avoid hazards from power failures, the status of the final circuit distribution for the general lighting must be continuously monitored so that the safety lighting can be switched on in the event of a fault. In the event of a phase failure, the 8PM I-Bus module switches on all programmed safety lights via a fail-safe command.

- Test button for simulating a mains emergency lighting fault, which means that there is no need to interrupt the mains voltage of the general lighting and therefore no need to interrupt ongoing operation.
- Very low power consumption of 0.39 W per module (Bus 0.2W / Mains 0.19W)
- Eight measurement inputs for monitoring up to 3 phases and up to 5 light switches in 3PM / 5-I mode
- Eight inverted measurement inputs for monitoring up to 8 switches in 8-INV mode
- Eight measurement inputs for monitoring up to 8 switches in 8-I mode
- Freely programmable assignment of the measurement inputs to the luminaires or circuits
- Meets all safety lighting standards.
- Cross device networking of measurement inputs (subscribe / publish) for DG-S and LS-S
- No E30 wiring due to short circuit/open circuit tolerant bus communication, that results in significantly easier installation and cost savings.
- Large distances can be realized with bus line lengths of up to 1000 m.
- Automatic recording of a mains failure in the inspection log in 3PM / 5-I mode
- Two separated neutral conductor connection points used for measurements
- Meets all EMC requirements for industrial and commercial use.
- The DEKRA certification documents the product quality and compliance with standards for the entire system

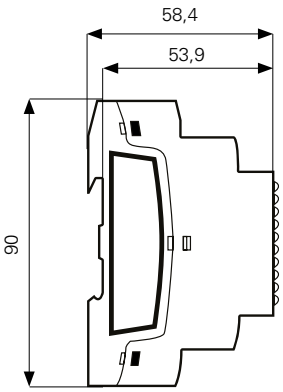
Technical data

	8PM-I-Bus Module
Housing / Top / Bottom	Plastic / light grey / black
Dimensions (W x H x D mm)	35 x 90 x 61,7 / 2 MU
Mounting	DIN Rail
Terminals	max. 2,5mm² solid; max. 1,5mm² flexible
Weight	0.08kg
Degree of protection	IP20
Rated voltage of device	Bus: 24V DC SELV; Measurement inputs: 220-240V AC
Input net frequency	50 / 60 Hz
Power consumption measurement inputs (all 8 channels connected)	0.2W
Power consumption (24V supply)	0.19W
Ambient storage / shipping temperature	-20°C to +65°C
Ambient operation temperature	-10°C to +55°C
Air pressure	795 to 1080 hPa
Maximum mounting height	2000m
Degree of pollution	2
Relative humidity	10%...95% no condensation

8PM-I-Bus Module

DualGuard-S – central battery system

8PM-I-Bus Module - dimensions



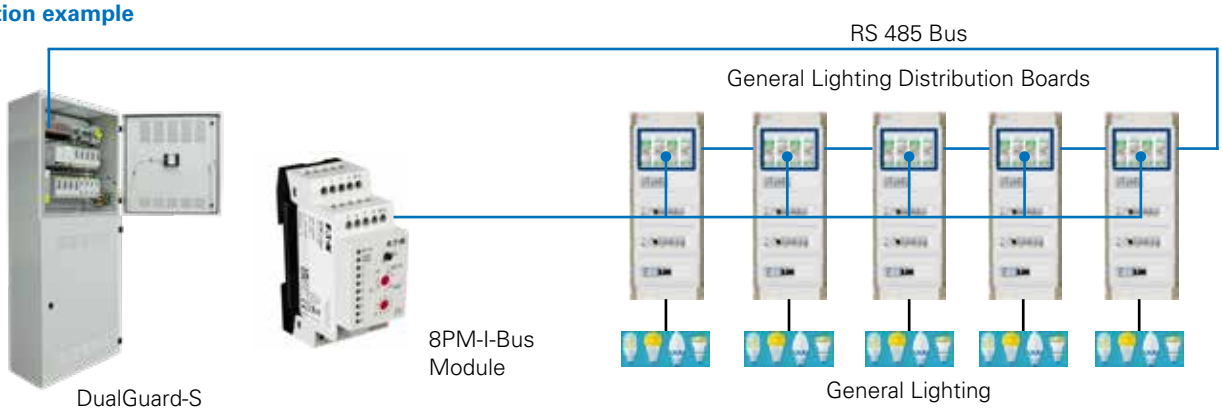
Functional table

Function	Explanation	
Systems	ZB-S, DG-S, LS-S, AT-S+, CG2000	
Max. number of modules per unit / Address range	25 / 1-25	
Input measurement method	Mains monitoring as two point measurement: Phase to neutral (L-N), two separate N-connections	
Measurement input switching levels	U input > 195V = ON U input < 138V = OFF	
Inverted measurement input switching levels	U input > 195V = OFF U input < 138V = ON	
Phase monitoring switching levels	U input > 195V = Mains ok U input < 138V = Mains failure	
Switching inputs programmable to	**Circuit Level:** SKU.1 CG-S 1 x 6A and 2 x 3A. **Module Level:** SKU.1 CG-S 4 x 1,5A and SOU CG-S 2 x 4A and SU S+ 2x6A **Luminaire Level per Luminaire Setup:** SKU.1 CG-S 1 x 6A, 2 x 3A, 4x1,5A and SOU 2 x 4A and SU S+ 2x6A	
Selective emergency mode	**Circuit Level:** SKU.1 CG-S 1 x 6A and 2 x 3A.	**Module Level:** SKU.1 CG-S 4 x 1,5A and SOU CG-S 2 x 4A and SU S+ 2x6A
Delay Time for Emergency mode Manual reset	DualGuard-S Unit Level	
Test button	For manually function test	
Status information	8 yellow LEDs, one per measurement input 1 Green LED for operation and 1 Red LED for failure status	
Fail safe bus connection	RS 485, only in line, cable type IY(ST)Y 4*2*0.8mm, max length = 1000m	
Address / function switch 1	Tens digit 0-2 = address range 1-25 Function switch 3PM / 5-I = 5 x light switch inputs and 3 x phase monitor inputs 8-I = 8 x light switch input 8-INV = 8 x light switch input inverted	
Address Switch 2	Units digit 0-9	

Order details

Model	Included with delivery	Order no.
8PM-I-Bus	Input module for DualGuard-S, ZB-S, AT-S+ with three adjustable function types. 3 x phase monitoring and 5 switching inputs or 8 x switch input or 8 x inverted switch input. Maximum of 25 modules per system, connected via RS485 Bus. For DIN rail mounting.	40071363080

Installation example



TLS bus module

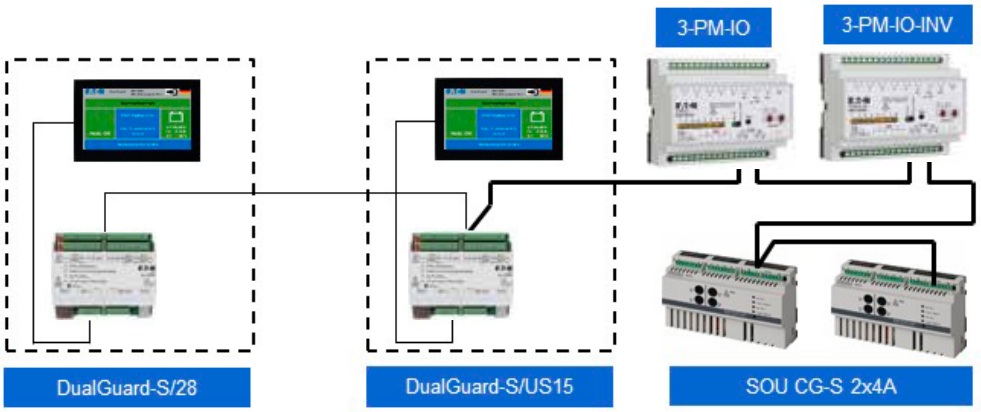
TLS bus module

This module for installation in general lighting distribution boxes monitors the switching status of buttons for up to two separate stairwell luminaires and transmits the respective switching status to the ACU DG-S module of the DualGuard-S system via an RS485 bus line. In mains and emergency operation, the circuits of the stairwell and emergency lights are operated in accordance with the settings for the CU CG-S control unit. In addition, the switch glow lamps of the connected buttons are supplied in mains and emergency lighting mode.

Power supply for the modules	
Connection voltage	24V DC (19 ... max. 30V)
Cable type	4 x 2 x 0.8 mm IY(ST)Y, twisted pair shielded
(minimum requirement)	
Current consumption	Max. 50mA, depending on the number of
glow lamps for stairwell light switches	
Bus connection	RS 485, Rated voltage: Un = 24V DC
(minimum requirement)	Type of cable: 4 x 2 x 0.8 mm IY(ST)Y, twisted pair shielded
Connection terminal A, B, SE	
Switch outputs	2 rated voltage Ur = 230V, switching current: max. 10A (120A/ms)
Safety class/type	IP20/I
Ambient temp.	-10 ... +40° C
Indicator LEDs:	- LED K1 or K2 illuminate when the circuit is closed - LED T1 and T2 illuminate as long as the corresponding button input is activated - LED on/off lit if 24 V DC supply voltage is present and the device is activated via the control - LED fault/failure illuminates if a malfunction has been registered in the module

Order details

Model	Included with delivery	Order no.
TLS.1 module	Stairwell light switch module for top-hat rail installation	40071361720



BDM battery data module

DualGuard-S – central battery system

BDM

BDM battery data module

The CEAG BDM battery data module automatically records voltage and temperature values during initial operation and recurring tests. In addition, the battery block monitoring system enables automation of the annual operational duration test. The battery charge level is shown as a percentage on the TFT touch display. A potential-free changeover contact reports battery status to a higher-level building services system on an as-needed basis. Warning and alarm signals for deviations from boost charge, trickle charge voltage, discharge voltage and battery block temperature of each individual battery block are displayed and recorded on the TFT touch display as well as through a maximum of 72 battery block sensors. The wireless transfer of sensor data to a BDM module simplifies the installation of BBS battery block sensors because no additional data cable is required. The negative pole temperature reading via the sensor circuit means that there is no need for a direct temperature-conducting connection between the BBS battery block sensor and the battery housing. Status displays that are clearly visible through a robust, trans-luminescent BBS sensor enclosure, which has an integrated, mechanically protected color LED, guarantee clear indications at a glance.

An automated configuration routine using soft addressing and menu navigation of the TFT touch display via user icons makes it very easy to manage the system sensor reports and provides a complete overview.

- Automatic recording of voltage and temperature figures during initial operation
- Wireless data transfer provides for connection to the battery block sensors without the need for an additional data cable
- Potential-free changeover contact for reporting operational status

Dimensions (LxHxD)	90x72x60 mm
Materials	Polycarbonate UL94V-0
Weight	0.06 kg
Assembly	DIN rail snap-on
Degree of protection	IP20
Protection class	II
Ambient temperature range	-5°C – +35°C

BDM Connection Box

BDM Connection Box

The BDM Connection Box is used if the battery is installed >15m away from the central battery distribution board and no suitable battery connection board is available for the installation of the BDM module.

Dimensions (LxHxD)	250x187x150 mm
Enclosure material	Glass fiber reinforced plastic
Color	RAL 7035
Cover	Smocey transparent
Weight	1.5 kg
Degree of protection	IP65
Impact class	IK10
Protection class	II
Ambient temperature range	-5°C – +35°C

Order details

Model	Included with delivery	Order no.
BDM module	Battery data bus module for top-hat rail installation	40071361780
BDM Connenction Box	BDM Connenction Box	40071362357
BDM Connenction Kit	Complete BDM Connection kit incl CAN Bus Adapter, Mounting set and connection Box	40071362700

BBS

Faston BBS

BBS battery block sensor

- Temperature readings are taken from the minus pole via the sensor cable, so no fixed connection is required between the battery block sensor and the battery housing
- Status displays that are clearly visible through a trans-luminescent sensor enclosure with an integrated LED
- Percentage display of the battery charge status in percent on the TFT touch display
- Warning and alarm signals for deviations from boost charge, trickle charge voltage and discharge voltage of each individual battery block on the TFT touch display as well as through the battery block sensor
- Warning and alarm signals for deviations from battery block temperature on the TFT touch display as well as through the battery block sensor

Dimensions (LxHxD)	90x53x17 mm
Materials	Polycarbonate UL94V-0
Weight	0.05 kg
Assembly	on the battery block cover
Degree of protection	IP20
Protection class	II
Ambient temperature range	-5°C – +35°C

Order details

Model	Included with delivery	Order no.
12V/M6 BBS sensor	Battery block sensor for 12 V battery blocks with M6 connection. 23.3 Ah, 32 Ah, 39.8 Ah, 50.4 Ah, 53.7 Ah, 66.2 Ah, 85.7 Ah, 89.4 Ah	40071362190
12V/SR 6,3 Faston BBS sensor	Battery block sensor for 12 V battery blocks with SR 6.3 Faston connection. 5,5 Ah and 8,5 Ah	40071362720
12V/M5 BBS sensor	Battery block sensor for 12 V battery blocks with M5 connection. 16 Ah	40071362030
6V/M8 BBS sensor	Battery block sensor for 6 V battery blocks with M8 connection. 118 Ah	40071362202

Configuring the central battery system

The DualGuard-S central battery system can be quickly and easily configured using predetermined data from the tables.

Recommended procedure:

Determine the required battery capacity.

The number of safety lights and emergency signs required is determined on the basis of the projected lighting design.

Example:

With respect to the safety lighting requirements for one assembly point (3 h rated operating period and 12 h recharging period), the following number of luminaires was determined.

Quantity	Model	Current consumption per light	Total
100	GuideLed 11011	0.011A	1.10A
250	GuideLed SL 13021.1	0.02A	5.00A
100	V-CG-SLI 350	0.043A	4.30A
Total:			10.40A

Depending on the rated operating period required (1, 3 and 8 h), the battery capacity (C10; 1.8V/cell; +20°C) relative to the maximum discharge current – determined via the battery power consumption of all consumers – can be determined using the battery discharge tables. Pursuant to EN 50171, batteries with a duration of at least 10 years at 20°C shall be used. In this example, with a required rated operating period of 3 h, a battery capacity of 39.80 Ah (C10: 1.8V/cell; +20°C) should be selected from the table. The maximum discharge current for 3 hours of discharge is 11.00A.

Determining the required number of additional charging modules

Pursuant to EN 50171, 80% of withdrawn capacity must be charged to the discharged batteries within 12 h. In determining the number of additional charging modules, the aging reserve factor of 25% need not be included.

Example:

Battery current uptake

= 11.00A for 3 h discharge

Required number of charging modules:

1 x 3.4A according to the charging module table

Determining the required battery capacity, including the aging allowance.

Since a lead battery that is properly operated generally has a capacity loss of up to 2.5% per year (25% over 10 years), pursuant to EN 50171 this loss of capacity must be allowed for in selecting a battery. The end of the service life has been reached when the battery's rated voltage under the rated load falls below 90%.

Example:

Battery current uptake

10.40A + 25%

Aging reserve = 13.00A

Battery Urated = 216V

90% Urated battery

(108 cells) = 194.4V = **1.8V per cell**

In this example, the battery capacity must be increased from 39.8 Ah to 50.40 Ah. The maximum discharge current for 3 hours of discharge is 13.60A.

Please note! – In determining the number of additional charging modules, the aging reserve factor of 25% need not be included.

Fuse protection of the mains circuit connection

The total connected load of the DualGuard-S system is needed to determine the fuse protection for the general power supply main distributor. This load consists of the sum of the mains connection loads of the individual lights and consumers (see connection values of charging modules CM.1 1.7 A and CM.1 3.4 A).

Example:

100 units GuideLed 11011 @ 8VA = 0.80kVA

250 units GuideLed SL 13021.1 @ 8VA = 2.00kVA

100 units V-CG-SLI 350

11.6VA = 1.16kVA

= 3.96kVA

Charge module CM 3.4A

Pzu 0.98kVA = 0.98kVA

Total connection load = 4.94kVA

Detection of external modules SOU CG-S 2x4A, 3-PM-IO, 3-PM-IO-INV, RCM, TLS.1, LON Repeater (Phoenix).

A maximum connected load of 15 W is available for the 24 V supply of external modules

Planning table 24v external	**Power consumption per module**
SOU CG-S 2x4A, 8-PM-I-Bus	0,48W
RCM	0,5W
TLS.1	1,6W
LON Repeater (Phoenix)	2,16W
Maximum power consumption 24v extern	15W

Example:

	Rated power consumption per module
1 x RCM	0,5W
1 x LON Repeater	2,16W
10 x SOU	4,8W
15 x 3-PM-IO	7,2W
Total	14,66W

Order details

DualGuard-S – central battery system

Order details

Model	Included with delivery	Order no.
DualGuard-S 28 central battery system	DualGuard-S/28 central battery system including BCM.1 and PSU, 28 free module slots	40071362511
DualGuard-S 20 central battery system	DualGuard-S/20 central battery system including BCM.1 and PSU, 20 free module slots	40071362510
DualGuard-S LAD100 central battery system	DualGuard-S LAD 100A central battery system, equipped with battery control module (BCM.1), ACU DG-S PCU transformer, with sufficient space for adding a maximum of 16 final circuits, or a maximum of 4 variable circuit boards. Please note! The charging modules are not part of the cabinet assembly.	40071362540
DualGuard-S 12C central battery system	DualGuard-S 12C central battery system including BCM.1 and PSU, 12 free module slots	40071362520
DualGuard-S 20C6 central battery system	DualGuard-S 20C6 central battery system including BCM.1 and PSU, 20 free module slots	40071362524
DualGuard-S 12C6 central battery system	DualGuard-S 12C6 central battery system including BCM.1 and PSU, 12 free module slots	40071362523
DualGuard-S 12C4 central battery system	DualGuard-S 12C4 central battery system including BCM.1 and PSU, 12 free module slots	40071362521
DualGuard-S 4C3 central battery system	DualGuard-S 4C3 central battery system including BCM.1 and PSU, 4 free module slots	40071362525
DualGuard-S US 38 sub-station	DualGuard-US 38 model sub-station including 38 free module slots	40071362513
DualGuard-S US 30 sub-station	DualGuard-US 30 model sub-station including 30 free module slots	40071362512
DualGuard-S US 23 sub-station	DualGuard-US 23 model sub-station including 23 free module slots	40071362532
DualGuard-S US 15 sub-station	DualGuard-US 15 model sub-station including 15 free module slots	40071362531
DualGuard-S US 7 sub-station	DualGuard-US 7 model sub-station including 7 free module slots	40071362530
DualGuard-S SOU2 sub-station	SOU2 model sub-station including 2 x SOU CG-S 2 x 4A	40071362519
DualGuard-S SOU1 sub-station	SOU1 model sub-station including 1 x SOU CG-S 2 x 4 A	40071362518
DualGuard-S ESF30-30-P sub-station	DualGuard-S ESF30-30-P cabinet, equipped with TFT touch display, PSU, with space for adding a maximum of 58 final circuits, but a maximum of 30 variable circuit modules	40071362517
DualGuard-S ESF30 15-P sub-station	DualGuard-S ESF30 15-P cabinet, equipped with TFT touch display, PSU, with space for adding a maximum of 40 final circuits, but a maximum of 15 variable circuit modules	40071362516
ESF30 SOU5 sub-station	ESF30 SOU5 small distribution board, fitted with 5 circuit modules SOU CG-S 2 x 4 A	40071362585
ESF30 SOU4 IO sub-station	ESF30 SOU4 IO small distribution board, fitted with 4 circuit modules SOU CG-S 2 x 4 A and space for two 3-PM-IO module or two 3-PM-IO-INV module	40071362584
ESF30 SOU3 sub-station	ESF30 SOU3 small distribution board, fitted with 3 circuit modules SOU CG-S 2 x 4 A	40071362583
ESF30 SOU2 sub-station	ESF30 SOU2 small distribution board, fitted with 2 circuit modules SOU CG-S 2 x 4 A	40071362582
ESF30 SOU1 sub-station	ESF30 SOU1 small distribution board, fitted with 1 circuit module SOU CG-S 2 x 4 A	40071362581

Order details

Model	Included with delivery	Order no.
ESF-RVS30	ESF-RVS30 distribution board in E30 version for 2 protected circuits with 4 build-in D02 Neozed fuses (+/- fuse protection)	40071347920
ESF-RVS30-1	ESF-RVS30 distribution board in E30 version for 1 protected circuit with 2 build-in D02 Neozed fuses (+/- fuse protection)	40036071034
Reductions	M32 to M20 reductions including M20 cable screw fitting for E30 junction box.	40071071033
Base for DualGuard-S 12C4	600 mm x 400 mm x 100 mm base	40071362280
	600 mm x 400 mm x 200 mm base	40071362281
Base for DualGuard-S 28, 20, LAD 100, US 38, US 30, IP 21 Battery Cabinets and DualGuard-S 12C	800 mm x 400 mm x 100 mm base	40071362282
	800 mm x 400 mm x 200 mm base	40071362283
Base for DualGuard-S 20C6 und 12C6	800 mm x 600 mm x 100 mm base	40071362284
	800 mm x 600 mm x 200 mm base	40071362285
Grommet Set	for DualGuard-S 12C4	40071362404
	for DualGuard-S 28/20 & DG-S US 38/30	40071362405
	for DualGuard-S LAD	40071362406
	for DualGuard-S 20C6	40071362407
	for DualGuard-S 12C6	40071362408
	for DualGuard-S 12C	40071362409
	for DualGuard-S 4C3	40071362410
	for DualGuard-S US23	40071362411
	for DualGuard-S US15	40071362412
	for DualGuard-S US7	40071362413
	for Battery Cab.	40071362414
The DualGuard-S third party certificate includes a higher IP rating, and is no longer valid for use with lower rated roof panels.		
Roof plate with foam rubber flange plates IP 20 (can´t be combined with IP31-kit)	for DualGuard-S 28/20 & DG-S US 38/30	40071362441
	for DualGuard-S LAD 100	40071362444
	for DualGuard-S 20C6	40071362445
	for DualGuard-S 12C6	40071362442
	for DualGuard-S 12C	40071362443
	for DualGuard-S 12C4	40071362440
Roof plate with rubber clamp profile IP 20 (can´t be combined with IP31-kit)	for DualGuard-S 28/20 & DG-S US 38/30 (3x M50, 3x M40, 18x M32, 44x M20, 30x M16)	40071362451
	for DualGuard-S LAD 100 (3x M50, 20x M32,10x M20, 10x M16)	40071362454
	for DualGuard-S 20C6 (7x M40, 30x M16, 26x M20)	40071362455
	for DualGuard-S 12C6 (3x M40, 1x M32, 5x M20, 28x M16)	40071362452
	for DualGuard-S 12C (3x M40, 1x M32, 5x M20, 28x M16)	40071362453
	for DualGuard-S 12C4 (4x M32, 12x M20, 28x M16)	40071362450
Optional IP 31 kit	for DualGuard-S 4C3	40071362298
	for DualGuard-S 12C	40071362293
	for DualGuard-S 12C4	40071362290
	for DualGuard-S 12C6	40071362292
	for DualGuard-S 20C6	40071362297
	for DualGuard-S 28/20 & DG-S US 38/30	40071362291
	for DualGuard-S LAD 100	40071362296
	for DualGuard-S battery cabinets	40071362294
Left-hand hinge position	for DualGuard-S 4C3	40071362307
	for DualGuard-S 12C	40071362303
	for DualGuard-S 12C4	40071362300
	for DualGuard-S 12C6	40071362302
	for DualGuard-S 20C6	40071362306
	for DualGuard-S 28/20/LAD 100 & DG-S US 38/30	40071362301

Roof plate with foam rubber flange plates 40071362445 f0r DualGuard-S 20C6

Roof plate with rubber clamp profile 40071362455 für DualGuard-S 20C6

Technical data

DualGuard-S – central battery system

DualGuard-S free standing cabinets

Model	DualGuard-S 28	DualGuard-S 20	DualGuard-S LAD 100
Control section: ACU DG-S & HMI	1	1	1
PSU	1	1	1
BCM.1	1	1	1
SKU.1 CG-S circuit module	0-28 *2	0-20 *2	0-3
CM.1 1.7A charging module	0-1	0-1	0-1
CM.1 3.4A charging module	0-6 *1	0-6 *1	0-8
Cabinet design, electric:			
Rated voltage	400/230V	400/230V	400/230V
Rated frequency	50/60 Hz	50/60 Hz	50/60 Hz
Cable placement and grounding system in mains mode / battery mode	TN-C-S/IT	TN-C-S/IT	TN-C-S/IT
Max. ambient temperature *4	-5°C to +35°C	-5°C to +35°C	-5°C to +35°C
Protection class	1	1	1
Degree of protection	IP21	IP21	IP21
Max. rated current (mains) [∑ L1, L2, L3] [A]	80	80	100
Max. rated output (mains) [KW]	18.4	18.4	23
Max. rated current (battery) [A]	80	80	100
Max. rated output (battery) [KW]	17.3	17.3	21.6
Three-phase split	yes	yes	yes
Connection diameter for mains and battery feed	50 mm² solid / flexible	50 mm² solid / flexible	50 mm² solid / flexible
Outlet distributor	0- 6 outlets	0- 6 outlets	0- 15 outlets DC and AC 1-phase, 0-5 outputs AC 3-phase
Terminal capacity	16mm² solid	16mm² solid	16mm² solid
Max. connection diameter final circuit	4 mm²	4 mm²	4 mm²
Max. number of final circuit connections	88	88	14
Cabinet design, mechanical:			
Dimensions H x W x D (mm)	2070 x 800 x 405	2070 x 800 x 405	2040 x 800 x 405
Material/design	Sheet steel/free-standing cabinet	Sheet steel/free-standing cabinet	Sheet steel/free-standing cabinet
Hinge position	Right	Right	Right
Outer finish	Powder coating	Powder coating	Powder coating
Color	RAL 7035	RAL 7035	RAL 7035
Color touch in-door	Yes	Yes	Yes
Partial glazed door	–	–	–
Lock mechanism	3 mm double ward key	3 mm double ward key	3 mm double ward key
cable inlets on top	Yes	Yes	Yes
Cable inlets on bottom	Yes	Yes	Yes
Base (optional)	100/200	100/200	100/200
Weight (w/o battery)	approx. 180 kg	approx. 170 kg	approx. 170 kg
Battery capacity, integrated into:			
Battery cabinet (W x H x D: 2050 x 800 x 400 mm)	23.3-245 Ah	23.3-245 Ah	23.3-308 Ah
Compact cabinet	–	–	–
Battery rack	23.3-245 Ah	23.3-245 Ah	23.3-308 Ah

Other battery sizes on request

*1 When equipped with more than 4 charging modules CM 3.4 A, an upgrade to charging module rack 8-way is necessary.

*2 When equipped with more than 13 SKU.1 CG-S 4 x 1.5 A or 26 SKU.1 CG-S 2 x 3 A/1 x 6 A, a second PSU module is necessary.

*3 When equipped with 1 charging module CM 3.4 A, an additional charging module rack 1-way must be configured.

*4 Optimum ambient temperature battery +20 °C.

DualGuard-S compact cabinets

DualGuard-S 20C6	DualGuard-S 12C6	DualGuard-S 12C	DualGuard-S 12C4	DualGuard-S 4C3
1	1	1	1	1
1	1	1	1	1
1	1	1	1	1
0-20 *2	0-12	0-12	0-12	0-5
0-1	0-1	0-1	1	1
0-2	0-2	0-1 *3	–	–
400/230V	230V	230V	230V	230V
50/60 Hz	50/60 Hz	50/60 Hz	50/60 Hz	50/60 Hz
TN-C-S/IT	TN-C-S/IT	TN-C-S/IT	TN-C-S/IT	TN-C-S/IT
-5°C to +35°C	-5°C to +35°C	-5°C to +35°C	-5°C to +35°C	-5°C to +35°C
1	1	1	1	1
IP21	IP21	IP21	IP21	IP21
50	50	35	25	12
14.5	14.5	13.8	5.8	3.5
50	50	35	25	12
13.6	13.6	7.6	5.4	2.6
–	–	–	–	–
50 mm² solid / flexible	50 mm² solid / flexible	10 mm² solid / 35 mm² flexible	10 mm² solid / flexible	10 mm² solid / flexible
2 outlets	1 outlet	1 outlet	1 outlet	–
10 mm² solid / 35 mm² flexible	10 mm² solid / 35 mm² flexible	10 mm² solid / 35 mm² flexible	10 mm² solid / flexible	–
4 mm²	4 mm²	4 mm²	4 mm²	4 mm²
68	48	48	48	20
2070 x 800 x 605	2040 x 800 x 605	2040 x 800 x 405	1800 x 600 x 405	1000 x 600 x 305
Compact cabinet	Compact cabinet	Compact cabinet	Compact cabinet	Compact cabinet
Right	Right	Right	Right	Right
Powder coating	Powder coating	Powder coating	Powder coating	Powder coating
RAL 7035	RAL 7035	RAL 7035	RAL 7035	RAL 7035
–	–	–	–	–
Yes	Yes	Yes	Yes	Yes
3mm double ward key	3mm double ward key	3mm double ward key	3mm double ward key	3mm double ward key
Yes	Yes	Yes	Yes	Yes
No	No	No	No	No
100/200	100/200	100/200	100/200	–
approx. 205 kg	approx. 190 kg	approx. 155 kg	approx. 115 kg	approx. 50 kg
–	–	–	–	–
5.5-89.4 Ah	5.5-89.4 Ah	5.5-53.7 Ah	5.5-23.3 Ah	5.5-16 Ah
–	–	–	–	–

Technical data

DualGuard-S – central battery system

DualGuard-S US sub-stations

Model	DualGuard-S US 38	DualGuard-S US 30	DualGuard-S US 23	DualGuard-S US 15	DualGuard-S US 7
Modules:					
Control section: ACU DG-S & HMI	1	1	1	1	1
PSU	1	1	1	1	1
SKU.1 CG-S circuit module	0-38 *2	0-30 *2	0–23 *1	0-15	0-7
Cabinet design, electric:					
Rated voltage	400/230V	400/230V	230V	230V	230V
Rated frequency	50/60 Hz	50/60 Hz	50/60 Hz	50/60 Hz	50/60 Hz
Cable placement and grounding system in mains/battery mode	TN-C-S/IT	TN-C-S/IT	TN-C-S/IT	TN-C-S/IT	TN-C-S/IT
Max. ambient temperature range	-5°C to +35°C	-5°C to +35°C	-5°C to +35°C	-5°C to +35°C	-5°C to +35°C
Protection class	1	1	1	1	1
Degree of protection	IP21	IP21	IP54	IP54	IP54
Max. rated current (mains) [∑ L1, L2, L3] [A]	80	80	50	50	25
Max. rated output (mains) [KW]	18.4	18.4	11.5	11.5	6.9
Max. rated current (battery) [A]	80	80	50	50	25
Max. rated output (battery) [KW]	17.3	17.3	10.8	10.8	6.5
Three-phase split	Yes	Yes	No	No	No
Connection diameter for mains and battery feed	50 mm² solid / 35 mm² flexible	50 mm² solid / 35 mm² flexible	50 mm² solid / 35 mm² flexible	50 mm² solid / 35 mm² flexible	16 mm² solid / 10 mm² flexible
Terminal capacity	–	–	–	–	–
Max. connection diameter of final circuit	4 mm²	4 mm²	4 mm²	4 mm²	4 mm²
Max. number of final circuit connections	88	88	52	32	28
Cabinet design, mechanical:					
Dimensions H x W x D (mm)	2070 x 800 x 405	2070 x 800 x 405	1200 x 600 x 305	800 x 600 x 305	750 x 400 x 305
Material/design	Sheet steel/ free-standing cabinet	Sheet steel/ free-standing cabinet	Sheet steel/wall cabinet	Sheet steel/wall cabinet	Sheet steel/wall cabinet
Hinge position	Right	Right	Right	Right	Right
Outer finish	Powder coating	Powder coating	Powder coating	Powder coating	Powder coating
Color	RAL 7035	RAL 7035	RAL 7035	RAL 7035	RAL 7035
Partial glazed door	Yes	Yes	No	No	No
Lock mechanism	3 mm double ward key	3 mm double ward key	3 mm double ward key	3 mm double ward key	3 mm double ward key
Cable inlets on top	Yes	Yes	Yes	Yes	Yes
Cable inlets on bottom	Yes	Yes	No	No	No
Base (optional)	100/200	100/200	-	–	–
Weight (w/o battery)	approx. 170 kg	approx. 165 kg	approx. 110 kg	approx. 75 kg	approx. 42 kg

*1 A maximum of 12 SKU.1 CG-S 4 x 1.5 A may be installed.

DualGuard-S SOU small sub-stations

Model	SOU2	SOU1
SKU.1 CG-S *1 circuit module	including 2 x SOU CG-S 2 x 4A	including 1 x SOU CG-S 2 x 4A
Cabinet design, electric:		
Rated voltage	230V	230V
Rated frequency	50/60 Hz	50/60 Hz
Cable placement and grounding system in mains/ battery mode	TN-C-S/IT	TN-C-S/IT
Max. ambient temperature range	-5°C to +35°C	-5°C to +35°C
Protection class	2	2
Degree of protection	IP65	IP65
Max. rated current (mains) [∑ L1, L2, L3] [A]	16	8
Max. rated output (mains) [KW]	3.6	1.8
Max. rated current (battery) [A]	16	8
Max. rated output (battery) [KW]	3.4	1.7
Three-phase split	No	No
Connection diameter for mains and battery feed	10 mm^2	10 mm^2
Max. connection diameter of final circuit	4 mm^2	4 mm^2
Max. number of final circuit connections	4	2
Cabinet design, mechanical:		
Dimensions H x W x D (mm)	583 x 295 x 129	458 x 295 x 129
Material/design	Plastic small distribution board	Plastic small distribution board
Hinge position	Right	Right
Color	RAL 7035	RAL 7035
Partial glazed door	Yes	Yes
Lock mechanism	On request	On request
Cable inlets on top	Yes	Yes
Weight (w/o battery)	approx. 8.8 kg	approx. 7.5 kg

Technical data

DualGuard-S – central battery system

DualGuard-S ESF sub-stations

Model	DualGuard-S ESF30 15P	DualGuard-S ESF30 30P
Modules:		
Control section: ACU DG-S & HMI	1	1
PSU	1	1
SKU.1 CG-S 1 x 6A circuit module	0-15	0-30
SKU.1 CG-S 2 x 3A circuit module	0-15	0-30
SKU.1 CG-S 4 x 1.5A circuit module	0-15	0-30
DLS/TLS interface module	1	2
Cabinet design, electric:		
Rated voltage	230V	400/230V
Rated frequency	50/60 Hz	50/60 Hz
Ventilation, decibel level (dB)	55	55
Cable placement and grounding system in mains/battery mode	TN-C-S/IT	TN-C-S/IT
Max. ambient temperature range	-5°C to +35°C	-5°C to +30°C
Protection class	I	I
Degree of protection	IP42	IP42
Max. total rated current [A] relative to ambient temperature +25°C +30°C +35°C	 33 33 33	 48 48 48
Max. total rated output [A] relative to ambient temperature +25°C +30°C +35°C	 7 7 7	 10.3 10.3 10.3
Three-phase split	No	Yes
Connection diameter for mains and battery feed	50 mm² solid / 35 mm² flexible	50 mm² solid / 35 mm² flexible
Max. connection diameter of final circuit	4 mm²	4 mm²
Max. number of final circuit connections	40	58
Cabinet design, mechanical:		
Dimensions H x W x D (mm)	1265 x 898 x 449	2278x918x604
Material/design	Coated gypsum fiber-board/wall cabinet	Coated gypsum fiber-board/free-standing cabinet
Hinge position	Right	Right
Color	RAL 7035	RAL 7035
Cable entry	From above	From above
Base (optional)	–	– only with base
Weight	235 kg	approx. 420 kg
Licenses/certifications		
ABZ housing including components Z-86.3 ... ABZ empty housing Z-86.1 ... Summary report for functional integrity fire test MPA NRW VDE certificate Specialized company declaration	Yes Yes Yes – Yes	Yes Yes Yes – Yes

DualGuard-S ESF30 small sub-stations SOU

Model	ESF30 SOU5	ESF30 SOU4 IO	ESF30 SOU3	ESF30 SOU2	ESF30 SOU1
Modules:					
SOU CG-S 2 x 4 A circuit switching module	5	4	3	2	1
3-PM-IO / 3-PM-IO-INV Modules	–	0-2	–	–	–
Cabinet design, electric:					
Rated voltage	230V	230V	230V	230V	230V
Rated frequency	50 or 60 Hz	50 or 60 Hz	50 or 60 Hz	50 or 60 Hz	50 or 60 Hz
Ventilation, decibel level (dB)	–	–	–	–	–
Cable placement and grounding system in mains/battery mode	TN-C-S/IT	TN-C-S/IT	TN-C-S/IT	TN-C-S/IT	TN-C-S/IT
Max. ambient temperature range	-5°C to +35°C	-5°C to +35°C	-5°C to +35°C	-5°C to +35°C	-5°C to +35°C
Protection class	II	II	II	II	II
Degree of protection	IP54	IP54	IP54	IP54	IP54
Maximum installed heat dissipation performance [W]					
Max. total rated current [A] relative to ambient temperature					
+25°C	33	33	20	15	8
+30°C	28	28	17	12	6
+35°C	16	16	10	9	5
Max. total rated power [W] relative to ambient temperature					
+25°C	7.1	7.1	4.3	3.2	1.7
+30°C	6.0	6.0	3.6	2.5	1.2
+35°C	3.4	3.4	2.1	1.9	1.0
Three-phase split	No	No	No	No	No
Connection diameter for mains and battery feed	10 mm²	10 mm²	10 mm²	10 mm²	10 mm²
Max. connection diameter final circuit	4 mm²	4 mm²	4 mm²	4 mm²	4 mm²
Max. number of final circuit connections	10	8	6	4	2
Cabinet design, mechanical:					
Dimensions H x W x D (mm)	1228 x 478 x 295	1228 x 478 x 295	928 x 478 x 295	778 x 478 x 295	628 x 478 x 295
Material/design	Fire protection panels	Fire protection panels	Fire protection panels	Fire protection panels	Fire protection panels
Hinge position	Left	Left	Left	Left	Left
Color	RAL 7035	RAL 7035	RAL 7035	RAL 7035	RAL 7035
Cable entry	From above	From above	From above	From above	From above
Weight (w/o battery)	approx. 103 kg	approx. 103 kg	approx. 80 kg	approx. 69 kg	approx. 60 kg
Licenses/certifications					
ABZ housing including components Z-86.2 ...	Will be required	Will be required	Will be required	Will be required	Will be required
ABZ empty housing Z-86.1 ...	Yes	Yes	Yes	Yes	Yes
Summary report for functional integrity fire test MPA STGT	Yes	Yes	Yes	Yes	Yes
VDE certificate	-	-	-	-	-
CE declaration of conformity	Yes	Yes	Yes	Yes	Yes

Determination of battery capacity

DualGuard-S – central battery system

Table 1

Determining the required battery capacity from maintenance-free AGiV block batteries as per EN 50171 (larger battery capacities on request).

C10 battery capacity at 1.8V/cell and +20°C	Ah	5.5	8.5	16.0	23.3	32.0	39.8	50.4	53.7	66.2	85.7	89.4	106.0 1 x 39.8 1 x 66.2	118.0	143.1 1 x 89.4 1 x 53.7	155.6 1 x 89.4 1 x 66.2	178.8 2 x 89.4	195.4 1 x 89.4 1 x 66.2 1 x 39.8	245.0 2 x 89.4 1 x 66.2	268.2 3 x 89.4	308.0 3 x 89.4 1 x 39.8	357.6 4 x 89.4
Max. discharge current [A] at rated operating period [h], 1.8V per cell and +20°C ambient temperature	**1.0**	3.2	4.5	10.7	15.4	20.2	24.1	30.7	37.9	49.2	52.6	63.8	73.3	85.1	101.7	113.0	127.6	137.1	176.8	191.4	215.5	255.2
	1.5	2.5	3.4	8.3	11.9	15.0	19.0	22.7	27.6	34.5	38.3	46.1	53.5	60.0	73.7	80.6	92.2	99.6	126.7	138.3	157.3	194.7
	2.0	2.1	2.9	6.0	9.2	12.3	14.6	18.5	21.5	26.3	31.0	36.0	40.9	46.9	57.5	62.3	72.0	76.9	98.3	108.0	122.6	144.0
	3.0	1.5	2.1	4.4	6.9	9.1	11.0	13.6	15.8	18.2	23.1	26.5	29.2	33.3	42.3	44.7	53.0	55.7	71.2	79.5	90.5	106.0
	8.0	0.7	1.0	1.9	2.8	3.7	4.8	5.9	6.6	7.9	10.3	11.0	12.7	14.2	17.6	18.9	22.0	23.7	29.9	33.0	37.8	44.0

Special note: The aging allowance of 25% for the batteries is not included in the discharge current figures.

Table 2

Number of 1.7A and 3.4A charging modules given a recharging time as per DIN EN 50171 of:

C10 battery capacity at 1.8 V/cell and +20°C	h	A	5.5	8.5	16.0	23.3	32.0	39.8	50.4	53.7	66.2	85.7	89.4	106.0	118.0	143.1	155.6	178.8	195.4	245.0	268.2	308.0	357.6
12 hours/80%	**1.0**	1.7	1	1	1	1	1	0	0	0	1	1	1	0	0	1	0	0	1	1	1	1	0
		3.4	0	0	0	0	0	1	1	1	1	1	1	2	2	2	3	3	3	4	4	5	6
	1.5	1.7	1	1	1	1	0	0	0	0	1	1	0	0	1	0	0	1	1	1	0	0	1
		3.4	0	0	0	0	1	1	1	1	1	1	2	2	2	3	3	3	3	4	5	6	6
	2.0	1.7	1	1	1	1	0	0	0	0	1	1	0	0	1	0	0	1	0	0	1	0	0
		3.4	0	0	0	0	1	1	1	1	1	1	2	2	2	3	3	3	4	5	5	6	7
	3.0	1.7	1	1	1	1	0	0	0	1	1	1	0	1	1	0	1	0	0	0	0	1	1
		3.4	0	0	0	0	1	1	1	1	1	1	2	2	2	3	3	4	4	5	6	6	7
	8.0	1.7	1	1	1	0	0	0	1	1	1	0	0	1	0	1	0	1	1	0	1	1	1
		3.4	0	0	0	1	1	1	1	1	1	2	2	2	3	3	4	4	4	6	6	7	8

Table 3

Number of battery cabinets; battery weight

C10 battery capacity at 1.8 V/cell and +20°C	5.5	8.5	16.0	23.3	32.0	39.8	50.4	53.7	66.2	85.7	89.4	106.0	118.0	143.1	155.6	178.8	195.4	245.0	268.2	308.0	357.6
Number of battery cabinets (weight/cabinet approx. 150 kg)	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	3	3	3	4	4
Total weight per battery set approx. kg	45	65	99	180	243	252	351	405	499	527	594	612	900	1000	1093	1296	1354	1687	1782	1782	2376

Table 4

Determination of air supply and ventilation in electrical operating rooms according to DIN EN IEC 62485-2 (calculated for boost charge):

216V battery	5.5	8.5	16.0	23.3	32.0	39.8	50.4	53.7	66.2	85.7	89.4	106.0	118.0	143.1	155.6	178.8	195.4	245.0	268.2	308.0	357.6
Air volume flow required to ventilate the installation space [m^3/h]	0.24	0.37	0.69	1.01	1.38	1.72	2.18	2.32	2.86	3.70	3.86	4.58	5.10	6.18	6.72	7.72	8.44	10.58	11.59	13.31	15.45
Ventilation cross-section of the inlet and outlet openings of the installation space [cm^2]	6.65	10.28	19.35	28.18	38.71	48.14	60.96	64.96	80.08	103.66	108.14	128.22	142.73	173.09	188.21	216.28	236.36	296.35	324.41	372.56	432.55

Table 5

Determination of air supply and ventilation in electrical operating rooms according to DIN EN IEC 62485-2 (calculated for trickle charge*):

216V battery	5.5	8.5	16.0	23.3	32.0	39.8	50.4	53.7	66.2	85.7	89.4	106.0	118.0	143.1	155.6	178.8	195.4	245.0	268.2	308.0	357.6
Air volume flow required to ventilate the installation space [m^3/h]	0.03	0.05	0.09	0.13	0.17	0.21	0.27	0.29	0.36	0.46	0.48	0.57	0.64	0.77	0.84	0.97	1.06	1.32	1.45	1.66	1.93
Ventilation cross-section of the inlet and outlet openings of the installation space [cm^2]	0.83	1.29	2.42	3.52	4.84	6.02	7.62	8.12	10.01	12.96	13.52	16.03	17.84	21.64	23.53	27.03	29.54	37.04	40.55	46.57	54.07

* If a boost charge is not frequently used (for example, once a month), the air flow rate for ventilation can be calculated based on the trickle charge current.

Adaptive evacuation

DualGuard-S – central battery system

System-related measures to guarantee self-rescue in the event of evacuation take top priority in changing risk situations. In combination with GuideLed DXC emergency signs, the AE-CU technology makes it possible to respond in a proactive manner to changing hazard situations such as fire, attacks, or natural disasters. The shortest route out of a building is not always the safest route.

During a hazardous situation, the AE-CU system reliably controls up to 240 adaptive emergency signs via an open circuit- and short circuit-tolerant loop bus.

This approach allows every adaptive emergency sign to be associated with hazard scenarios in a freely programmable manner via the AE-CU.

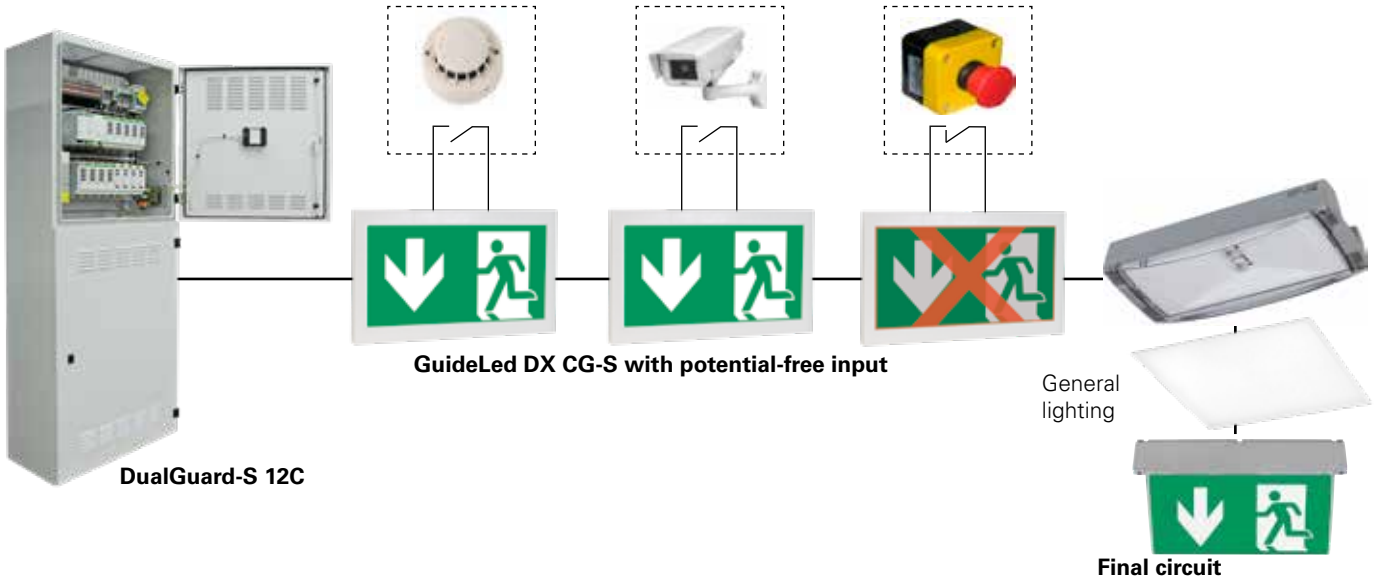
The control section, which has a non-volatile program memory and a large touch display, automatically monitors and controls all components of the AE-CU system as well as the function of the connected adaptive luminaires. Any faults that occur are shown on the display, reported via signaling contacts, and stored in an inspection log.

An integrated search function automatically detects all GuideLed DXC emergency signs connected during the installation. It is possible to connect a central visualisation system via an interface.

The solution for simple structured applications

Control of GuideLed DX luminaires via potential-free contacts:

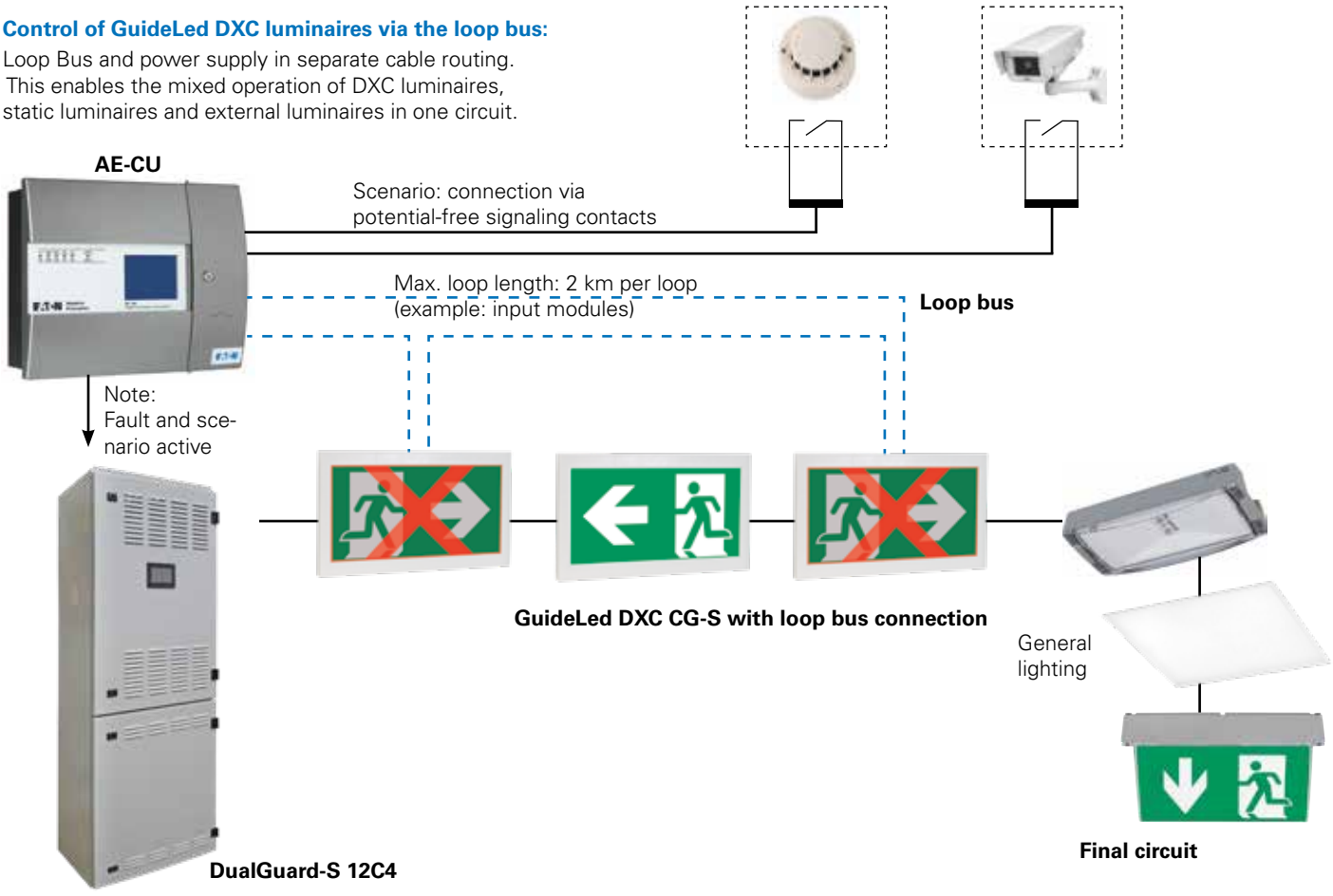
Potential-free contacts of fire detectors, video surveillance systems or key switches to indicate areas as "locked, blocked, or unsafe." Examples include areas to which access is prohibited for a certain period of time due to construction activities or to block elevator access in the event of a fire (special pictogram). Only one control line leads to the emergency sign.



The solution for simple structured and complex applications

Control of GuideLed DXC luminaires via the loop bus:

Loop Bus and power supply in separate cable routing. This enables the mixed operation of DXC luminaires, static luminaires and external luminaires in one circuit.



Notes

DualGuard-S – central battery system

Eaton is an intelligent power management company dedicated to improving the quality of life and protecting the environment for people everywhere. We are guided by our commitment to do business right, to operate sustainably and to help our customers manage power —today and well into the future. By capitalizing on the global growth trends of electrification and digitalization, we're accelerating the planet's transition to renewable energy, helping to solve the world's most urgent power management challenges, and doing what's best for our stakeholders and all of society.

Founded in 1911, Eaton has been listed on the NYSE for nearly a century. We reported revenues of $19.6 billion in 2021 and serve customers in more than 170 countries.

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