LP-STAR
Safe and cost efficient operation with installation per area
LP-STAR emergency lighting power supply in a compact design

Installation example

Example connection to the central visualisation system CG Vision

Building 1

CGVision PC

Ethernet TCP/IP

Building 2

Ethernet

IP router
Central battery system ZB-S
LP-STAR
Automatic Test System AT-S
LP-STAR

Building 3

Ethernet

IP router
Central battery system ZB-S
LP-STAR
Automatic Test System AT-S
LP-STAR

www.ceag.de
Simple installation and reliable power supply

LP-STAR is especially recommended in case of the separate supply of emergency lighting systems of individual fire areas to save on installation costs incurred by installing E30 cabling to cover different fire areas.

The LP-STAR System supplies reliable power to the escape luminaires and exit sign luminaires (230V AC/220 V DC) according to EN 50171 and BGV A3. It is suitable for emergency lighting systems according to DIN VDE 0100-718, DIN EN 50172 and E DIN VDE 0108-100.

The system performs an automatic self-check and monitors all CG-S luminaires connected (up to 20 luminaires per circuit) simply through a feed line. The circuit type of each connected CG-S luminaire can be programmed freely in the 50 Hz or 60 Hz supply network with the control module based on the STAR technology. This means that the same power circuit is used for mixed operation including maintained light, switched maintained light and non-maintained light, all this without an additional data cable!

The control module including a non-volatile program memory as well as a big graphical display that monitors and controls the LP-STAR device and checks all functions of the connected emergency luminaires according to EN 62034 and it reports the operating states of the entire system. The integrated search function detects all luminaires addressed during installation automatically. A central monitoring system can be connected using the optional bus interface.

The main scope for the protection of electrical rooms is the protection of the environment against the hazards involved with technical devices, transformer stations and switching stations of over 1 kV. At the same time, for example in case of fire, the operation of safety-relevant systems, central battery systems and fixed power generators must be maintained for a specific period of time.

The LP-STAR System was designed to meet the requirements concerning batteries and these have been verified according to EN 60950 and EN 50272-2.

Features

- No special requirements concerning the housing on functionality in case of installation in separate fire areas
- Cost savings as E30 wiring is not required because devices are installed in separate fire areas
- Natural ventilation is generally sufficient due to the closed form and low capacity of batteries
- Additional safety even in case of fire due to the decentralised arrangement of systems
- Simple operation and commissioning based on a smart programming and operating plan
- 230V AC / 220V DC supply voltage selectable to power the escape luminaires and exit sign luminaires to comply with architectural issues
- Standard integrated phase monitor for monitoring general power supply conditions
- Additional phase monitor input including line monitoring for an external phase monitor
- Standard eight digital 230 V input channels for switching each luminaire separately, for example, freely programmable
- Optional webmodule for the automatic monitoring of LP-STAR according to EN 62034
- Optional CG-S interface for connecting to the CG-S bus for CGVision or master/slave operation for connecting several LP-STAR devices
- Shorter inspection time using the CEWA GUARD technology, automatic function monitoring of up to 20 luminaires per circuit
- Reduced installation costs due to the STAR technology, freely programmable mixed operation of switching modes per luminaire in a single circuit without an additional data cable
- Automatic luminaire search function
- Plain text display at the control module for all luminaires
- Flexible data memory for the test log and device configuration using the Secure Digital card
- Absence of retroactive effect of different circuits in case of a short-circuit due to the automatic, selective shut-off function
- EoL shut-off, programmable as standard
LP-STAR emergency lighting power supply in a compact design

What is STAR?

Switch to safety!
The continuing development of the CEWA GUARD monitoring system has led to the creation of the Switching Technology Advanced Revision, or STAR for short. This CG-STAR technology allows different switching modes to be implemented in the same circuit, and the switching mode of each individual luminaire can be re-programmed at any time.

As a result, this technology offers not just the proven CEWA Guard safety when it comes to operating a safety lighting system, it also gives planners the confidence and flexibility of knowing that the system can respond and adapt at any time to any changes that are made to a building and its use.

**STAR TECHNOLOGY**

- **S** = Switching
- **T** = Technology
- **A** = Advanced
- **R** = Revision

L1/L2/L3/N/PE

4 x 2,5 AT

220 V DC

24 V DC

12 V

12 V
LP-STAR emergency lighting power supply in a compact design

STAR technology – easy planning

Your Advantages:
The number of outgoing circuits needed can be sharply reduced, since continuously operating, stand-by and switchable permanent lighting can be realised in one common circuit.

This allows the use of shorter cable distances, reduces installation costs and minimises the effects of burning materials. Any mode of operation can be assigned at a later date – without encroachment in the lighting installation. This enables simple project planning without having to take all possible types of operation into account.

As with CEWA GUARD technology, the patented STAR technology requires no additional data cable to the luminaires.

Conventional Installation:
- Maintained light 1 (DS)
- Non-maintained light 1 (BS)
- Non-maintained light 2 (BS)
- Maintained light 2 (DS)
- Switched maintained light 1 (DLS)
- Switched maintained light (DLS)

- Each type of switching mode requires two circuits
- Only one type of switching mode is possible per circuit
- Any later modifications involve a large amount of work and expense

ZB-S Installation with STAR-Technology:
- All types of switching modes

- Only two outgoing circuits for all types of switching modes
- Maintained light, non-maintained light and switched maintained light are possible in one common circuit
- Later circuit modifications do not pose any problems
Overview of connections

1. **Grid connection terminal**
   3-phase feed-in incl. phase monitoring function

2. **Connection for end circuits**
   Double assignment, 2.5 mm² solid/flexible

3. **Connection for disable switch**
   Control loop for disabling the system during operating downtimes with differential loop monitoring for short circuit and wire breakage detection. Differential monitoring: Short circuit or interruption lead to the system going into standby.

4. **24 V connection for external phase monitors**
   24 V power loop for the emergency luminaires with differential loop monitoring for short circuit and wire breakage detection. Differential monitoring: Short circuit or interruption lead to the system switching on (maintained light) immediately.

5. **Connection for potential-free indicator contacts and buzzer**
   4 relays with a separate root, each 1x changeover contact, 24 V 0.5 A.
   The four potential-free contacts and the buzzer can be assigned freely to one or several of 12 different messages. The DIN VDE specification can be loaded any time and used as a default setting.

6. **Connection for digital inputs**
   8 freely assignable inputs 230V, programmable as inverted and non-inverted for example start/stop function test, start/stop duration test, block/release device, manual reset, turn on/off maintained light, turn on emergency lighting as corridor lighting, for light switch query and switching emergency lighting depending on the general lighting conditions (DLS function).

7. **Optional interface (factory-installed)**
   The interface for connecting to a CGVision can be installed on site, see page 13.

8. **Webmodule connection**

9. **Battery connection, wires 1-4**
   Maximum 4 sets per 2 battery blocks, 12 V.

Freely programmable control module

1. **Separate buttons for:**
   - Test (emergency luminaire function)
   - Function test
   - Duration test

2. **Three freely assignable function keys**

3. **128 x 64 pixel graphical display**
   Back-lit, adjustable contrast and brightness

4. **Log book and device configuration**
   Save the log book and device configuration comfortably on the memory card. Easily programmable on the PC using an SD card reader and the CEAG software.

5. **Seven control buttons for a user-friendly navigation**

6. **Function display using LEDs**
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Construction

Control module
A freely programmable control module with a non-volatile program memory and 4-lines, alphanumeric, graphic display monitors and controls the LP-STAR system. All functions such as loading, mains/emergency switch-over and deep discharge protection of devices and the connected emergency luminaires are automatically inspected. The errors are reported immediately. A central monitoring system can be connected using the interface. In case of a short circuit or interruption of control current loops, differential monitoring leads to the system immediately switching on (maintained light) or to the system being put in standby.

- Non-volatile program memory
- Automatic luminaire search function
- Single luminaire monitoring
- Manual reset
- Password function
- Fuse monitoring of the end circuits
- Control module with master/slave function

Sealed keypad with 3 buttons for:
- Test (mains failure - battery operation)
- Start/stop function test
- Start/stop duration test

3 freely assignable function keys for:
- Block/release device
- Manual reset
- Stop function test
- Display error list
- Turn on/off maintained light
- Turn on complete emergency lighting (continuity lighting)
- Power failure simulation UV-A (emergency operation)
- Confirm deep discharge protection

7 control keys
for a user-friendly navigation

LED indicators for:
- Ready
- Operation through the electrical source for safety services
- Failure

Graphic display:
128 x 64 pixels, back-lit, program adjustable contrast and brightness.

Display includes:
- Date/time
- Charge fault
- Deep discharge protection
- Battery voltage/charge current (+)
- Battery discharge current in test or failure (-)
- Manual reset
- Test mode
- Delay-time on mains return (remaining time in minutes)
- Luminaire failure with location label
- Insulation fault
- Power failure UV-AV (target location information)
- Failure/programming information
LP-STAR emergency lighting power supply in a compact design
Components and options

Graphical display 128 x 64 pixel adjustable contrast
Illumination Adjustable background luminosity
Keypad Sealed, with 6 function and 7 control keys

Readout
- Battery voltage
- Battery charge current (+)
- Battery discharge current in test or by failure (–)
- Charge Fault
- Luminaire failure with location label
- Deep discharge protection
- Manual reset
- Delay-time on mains return
- Fault UV-AV (location label)
- Test mode
- Date/time
- Insulation fault with circuit label
- Failure information
- Programming information

Status
- Ready
- Electrical source for safety services
- Failure

Potential-free signal contacts, buzzer
4 relays with a common potential, 1x switching contact each, 24 V 0.5 A.
The three potential-free contacts and the buzzer can be assigned freely to one or several of 12 different messages. The DIN VDE specification can be loaded any time and used as a default setting.

Default settings LP-STAR

<table>
<thead>
<tr>
<th>Name</th>
<th>Relay 1</th>
<th>Relay 2</th>
<th>Relay 3</th>
<th>Relay 4</th>
<th>Buzzer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mains operation</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mains failure</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>UV mains failure</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Charge fault</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Circuit fault</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Luminaire fault</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Common system fault</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total discharge protection</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ISO fault</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Function test</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Duration test</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Device fault</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note:
NO = Normal Open (normally open)
NC = Normal Closed (normally closed)
The device is fitted with 4 potential-free signal contacts (relay outputs) and an integrated buzzer. Signal contacts freely programmable including:
1 x changeover contact
1 x 24 V; 0.5 A capacity
Secure Digital card
Flexible memory for device and inspection log book configuration, for example for archiving the device configuration and the prescribed inspection log book information over a minimum of 4 years. The device can be programmed using any PC with the optional SD card reader and the CEAG software. The text messages can be introduced also using the control module.
Storing of:
- 360,000 log book entries
- Luminaire target location texts (20 characters per luminaire)
- Circuit names (20 characters per circuit)
- LP-STAR name (20 characters)

Ordering details

<table>
<thead>
<tr>
<th>Type</th>
<th>Model</th>
<th>Order No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>SD card</td>
<td>SD card formatted for LP-STAR</td>
<td>40071347911</td>
</tr>
<tr>
<td>SD card reader</td>
<td>SD card reader for USB port</td>
<td>40064070561</td>
</tr>
<tr>
<td>Software</td>
<td>Software for the external programming of the LP-STAR device using a PC</td>
<td>40071347152</td>
</tr>
</tbody>
</table>

SD card (Secure Digital Card)

- Removable SD card with configuration and inspection log book data
- PC with CEAG software for programming and evaluating the SD card data

Programming
- Simple device programming with a PC at the office based on the installation designs
- Device configuration can be saved on the PC
Digital inputs, for example light switch query

The standard 8 digital inputs (two for each circuit) can be used to query the switch for the combined switching of emergency and general lighting.

Schematic diagram
**F3 remote indication**

The F3 remote indication ensures that the most important device functions are displayed even in case of a power failure based on its battery supply. The emergency lighting operation can be blocked during operating downtimes with a key switch. The battery maintenance charging is not affected by blocking the emergency operation. A differential loop monitoring leads to the system going into standby in case of short circuit or breakage detection. LED displays: System readiness, source for safety services, failure. The F3 remote indication thus meets the requirement that remote operation is only possible if it cannot be activated by unauthorized persons.

<table>
<thead>
<tr>
<th>Connection terminals</th>
<th>Surface mounting</th>
<th>2.5 mm² solid or flexible</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dimensions in mm (W x H x D)</td>
<td>160 x 80 x 55</td>
<td></td>
</tr>
<tr>
<td>Connection terminals for flush-mounting</td>
<td>1.5 mm² rigid or 1 mm² flexible</td>
<td></td>
</tr>
<tr>
<td>Dimensions in mm (W x H x D)</td>
<td>80 x 80 x 55</td>
<td></td>
</tr>
<tr>
<td>Housing colour</td>
<td>similar to RAL 7035 light grey</td>
<td></td>
</tr>
</tbody>
</table>

**Remote switch**

Control loop for blocking LP-STAR during operating downtimes with differential loop monitoring for short circuit and wire breakage detection.

Differential monitoring: Short circuit or interruption lead to unlock LP-STAR
F3 switch closed: Device ready
F3 switch open (1 kΩ): Device blocked

**I/O ethernet module**

- Connection as F3 interface with F3 module (optionally available) to CGVision
- Control and monitoring of external devices via up to seven pot. free relay outputs or up to eight digital inputs
- Integrated web server, for control/monitoring via standard web browsers (e.g. Firefox)
- Blocking input (input 8) with differential loop monitoring (closed-circuit principle)
- Integrated e-mail program, can be freely configured for up to ten e-mail recipients
- Voltage supply either 230V/AC or 24V/DC

**Ordering specifications I/O ethernet module**

<table>
<thead>
<tr>
<th>Scope of delivery</th>
<th>Order No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>I/O ethernet module (via LAN), for DIN rail</td>
<td>40071360115</td>
</tr>
</tbody>
</table>
Three-phase monitoring

Three-phase monitoring is used for monitoring the distributors of general lighting systems. In case of a phase failure, the component switches a relay contact and interrupts the standard electronic 24 V power loop in the LP-STAR device.

The emergency luminaires in non-maintained mode are switched to mains operation as long as the LP-STAR system is supplied by mains voltage.

Dimensions in mm (W x H x D)  
- 85 x 52.5 x 65

Housing  
- Plastic, red

Connection terminals  
- 2.5 mm² rigid or flexible

Type of mounting  
- DIN mounting rail

Contact  
- 0.5 A/24 V AC/DC, 1 x open contact, 1 x change-over contact

Trigger threshold  
- U< 85 % UN

Grid size  
- 3 units

Ordering details

<table>
<thead>
<tr>
<th>Type</th>
<th>Scope of supply</th>
<th>Order No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Three-phase monitoring</td>
<td>Module ready for mounting</td>
<td>40071343430</td>
</tr>
</tbody>
</table>

Current loop

24V current loop for emergency lighting request with differential loop monitoring for short circuit and wire breakage detection.

Differential monitoring:
- Short circuit or interruption lead to the system immediately switching on (maintained light)

Phase monitor switch closed (1 kΩ):
- Normal system mode
CGVision Package III

CGVision Package III (Basic or Pro) includes the CG-S/USB interface (USB box), for connecting the CG-S bus-based emergency luminaire systems like the LP-STAR, ZB-S and AT-S⁺ to the CGVision visualisation software using a standard bus cable and an optional CG-S Bus Interface.

Up to 480 devices of the LP-STAR, ZB-S or AT-S⁺ systems can be connected, even in mixed mode. However, systems must be assigned to their own device groups in CGVision.

The bus cable can be extended with an optionally available repeater or router.

The CGVision Package III also includes all dongle licences for EGA devices (ZB96, EuroZB.1, GVL24.1, CG48 or ZVL220), CGLine or Ethernet I/O module on CGVision.

**CG-S bus**

- Max. bus length: 900 m
- The bus length can be extended using a router/repeater
- Double terminated Bus
- No stub lines allowed
- Recommended cable: JY (ST) Y 4 x 2 x 0.8 mm² Ø twisted pair (double twisted pair), shielded
- Termination resistor: 105 Ω on both sides

**CGVision Package III application example**

![Diagram](image)

**Ordering details**

<table>
<thead>
<tr>
<th>Type</th>
<th>Scope of supply</th>
<th>Order No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>CG-S Bus Interface</td>
<td>Plug-in card*</td>
<td>40071071178</td>
</tr>
</tbody>
</table>

*Attention:* The CG-S Bus Interface must be installed by the manufacturer. The module can be installed later on site only with the replacement of the entire CSU module.
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Components and options

PC programming software LP-STAR
Programming software for pre-configured LP-Star memory cards for quick pre-programming on the PC and for easy reading and processing of the inspection log book memory. All data can be saved on the memory card and hard disk for documentation.

Prints for documentation:
Detailed prints of programmed system configuration with the following information:
- Individual device name (20 characters) + 100 characters of additional information
- Date and time of automatic duration test incl. Distance in months
- Date and time of automatic function test incl. Distance in days
- Manual reset: Yes/No
- Delay in mains return: 0-99 min
- LON switch: Yes/No
- Capacity in Ah
- Rated operating time in h
- Operating limit time in %
- Assignments of the 4 relays
- Assignments of the 3 function keys
- Assignments of the 8 optional inputs

Detailed print of the programmed circuits (wiring diagrams) with the following information for each circuit:
- Circuit/ SKU number and type
- Individual circuit name
- Monitoring type for circuit
- Switch type for circuit
- Number of luminaires
- Address and individual name of each luminaire
- Circuit type for each luminaire

Print of inspection log book with following options:
- Fault events (35 various fault events selectable separately or fully)
- Inspection log book period (from – to for date and time)
- Individual comment per print
- For luminaire failure: Information on individual luminaire and circuit names

Ordering details

<table>
<thead>
<tr>
<th>Type</th>
<th>Scope of supply</th>
<th>Order No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Software</td>
<td>PC software for LP-STAR for alternative programming of the system configuration on PC</td>
<td>40071347152</td>
</tr>
</tbody>
</table>
Webmodule LP-STAR

Webmodule LP-STAR for visualisation and monitoring an LP-STAR device on the local Ethernet (LAN) or Internet (WWW) with a conventional WEB browser. Access to the webmodule via internet (WWW) must be appropriately administered and set up on site by a competent IT department. Integrated mail program for convenient, event-related error notification via email, for up to 5 email recipients. 1 webmodule is required for each LP-STAR device.

- Simple menu navigation
- Any type of display devices can be used with a WEB browser, for example notebook, tablet PC, iPad or smartphone
- Complete visualisation and monitoring of an LP-STAR device through the local Ethernet (LAN) with a regular WEB browser, no additional software required for all functions
- Retrieving and indicating all current operating states
- Localised fault indicators for every emergency luminaire circuit and luminaires with target location information in plain text connected to a function test
- Continuous up-to-date information on charging unit and battery
- Parallel access from various PC workstations to a webmodule possible (max. 8)
- Integrated email program for each webmodule for convenient error notification via email
- Adjustable email dispatch acc. to type of error or function test
- Up to 5 email recipients programmable
- Adjustable update cycle for web browser via the webmodule
- Authenticated access via administrator account with password protection
- Configurable guest account for restricted access with password protection
- Static or dynamic (DHCP) IP addressing possible
- Any number of webmodules operable in parallel
- Overview of all active webmodules on the local Ethernet with status display and hyperlink function
- Independent parallel operation of a CGVision visualisation possible

Device supply voltage 24 V DC
Rated power < 1.5 W
Connection RJ45
Degree of protection IP20
Weight 0.1 kg
Dimensions 90 x 35 x 58
Housing Polycarbonate

Ordering details

<table>
<thead>
<tr>
<th>Type</th>
<th>Scope of supply</th>
<th>Order No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Webmodule LP-STAR</td>
<td>Module for DIN rail mounting, incl. connection without RJ45 patch cable, mounted ex works</td>
<td>40071361188</td>
</tr>
<tr>
<td>Webmodule LP-STAR</td>
<td>Module for DIN rail mounting, incl. connection without RJ45 patch cable, for retrofitting</td>
<td>40071361187</td>
</tr>
</tbody>
</table>

Connection example:

Direct access using the IP address, for ex.: 192.168.100.5

IP: 192.168.100.5
LAN with HTTP through TCP
IP: 192.168.100.6
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Technical Data

Input

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rated voltage AC</td>
<td>1 – 220-240 V</td>
</tr>
<tr>
<td>Rated frequency</td>
<td>50/60 Hz</td>
</tr>
<tr>
<td>Max. rated current AC</td>
<td>5.5 A</td>
</tr>
<tr>
<td>Rated voltage DC</td>
<td>19.2 - 28.8 V</td>
</tr>
<tr>
<td>Battery</td>
<td>VRLA, 2x6 cells in series, 20 °C</td>
</tr>
</tbody>
</table>

Output

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rated voltage AC</td>
<td>220-240 V AC / 220 V DC constant</td>
</tr>
<tr>
<td>Total current</td>
<td>4.7 A AC / 2.45 A DC</td>
</tr>
<tr>
<td>Total power</td>
<td>1080 VA / 540 W</td>
</tr>
<tr>
<td>Circuit power</td>
<td>345 VA / 330 W</td>
</tr>
<tr>
<td>Rated breaking capacity</td>
<td>1500 A @ 300 V DC</td>
</tr>
</tbody>
</table>

Circuits

<table>
<thead>
<tr>
<th>Product Code</th>
<th>Circuits</th>
<th>LP-STAR-4-12</th>
<th>LP-STAR-4-24</th>
<th>LP-STAR-4-36</th>
<th>LP-STAR-4-48</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specification</td>
<td></td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Max. battery size (C10; 1.8 WZ, +20 °C)</td>
<td>2 x 12 V / 12 Ah</td>
<td>4 x 12 V / 24 Ah</td>
<td>6 x 12 V / 36 Ah</td>
<td>8 x 12 V / 48 Ah</td>
<td></td>
</tr>
<tr>
<td>Dimensions (W x H x D)</td>
<td>550 x 260 x 260 mm</td>
<td>730 x 260 x 260 mm</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Max. ambient temperature</td>
<td>For storage: -20 °C to + 40 °C, For operation*: -5 °C to + 35 °C</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sound pressure level at mains operation / emergency mode (converter operation)</td>
<td>0 dB / 50 dB</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Housing colour</td>
<td>RAL 7035</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Degree of protection / insulation class</td>
<td>IP20 / I</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weight (approx.) without battery</td>
<td>17 kg</td>
<td>21 kg</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Maximum Design Lifetime at +20 °C: 10 years

Ordering details

<table>
<thead>
<tr>
<th>Type</th>
<th>Model Description</th>
<th>Order No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>LP-STAR 4-12</td>
<td>LP-STAR-4-12, incl. control module, 1 charging unit, 4 circuits and battery packs 2 x 12 V / 12 Ah</td>
<td>40071362120</td>
</tr>
<tr>
<td>LP-STAR 4-24</td>
<td>LP-STAR-4-24, incl. control module, 1 charging unit, 4 circuits and battery packs 4 x 12 V / 24 Ah</td>
<td>40071362240</td>
</tr>
<tr>
<td>LP-STAR 4-36</td>
<td>LP-STAR-4-36, incl. control module, 1 charging unit, 4 circuits and battery packs 6 x 12 V / 36 Ah</td>
<td>40071362360</td>
</tr>
<tr>
<td>LP-STAR 4-48</td>
<td>LP-STAR-4-48, incl. control module, 1 charging unit, 4 circuits and battery packs 8 x 12 V / 48 Ah</td>
<td>40071362480</td>
</tr>
</tbody>
</table>
### Battery

<table>
<thead>
<tr>
<th>Rated capacity</th>
<th>Dimensions of one battery</th>
<th>Number of batteries $U_p = 12$ V pieces</th>
<th>Total weight of all batteries (kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>AhK10, 1,8 V/Z, +20 °C</td>
<td>L x W x H (mm)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10 Y: 12 Ah</td>
<td>152 x 98 x 102</td>
<td>max. 8</td>
<td>4 pieces: 15.25</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>8 pieces: 30.50</td>
</tr>
</tbody>
</table>

### Battery ordering details

<table>
<thead>
<tr>
<th>Type</th>
<th>Model</th>
<th>Order No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>12 V/12 Ah</td>
<td>Battery block, period of use: 10 years</td>
<td>40066071147</td>
</tr>
</tbody>
</table>

Period of use specified for a max. battery temperature of +20 °C

### Fuse ordering details

<table>
<thead>
<tr>
<th>Type</th>
<th>Model</th>
<th>Order No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Final circuit fuses</td>
<td>2.5 AT / 250 V (packaging unit 10 pieces)</td>
<td>400713611235</td>
</tr>
<tr>
<td>Mains feed-in circuits</td>
<td>6.3 AT / 250 V (packaging unit 10 pieces)</td>
<td>400713611234</td>
</tr>
</tbody>
</table>

### Accessories ordering details

<table>
<thead>
<tr>
<th>Type</th>
<th>Model</th>
<th>Order No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clamping gland set, 28 pieces</td>
<td>4 x M25, 18 x M20, 6 x M16</td>
<td>40071361159</td>
</tr>
</tbody>
</table>
### LP-STAR emergency lighting power supply in a compact design

#### Technical Data

**Circuit change-over module**

The circuit change-over module supplies 230 V AC in mains operation and 220 V DC in emergency lighting operation to the luminaires of the emergency lighting system according to EN 60598-2-22. The CEWA GUARD monitoring checks the operation of the connected luminaires. Up to 20 luminaires can be connected.

<table>
<thead>
<tr>
<th>Mechanical structure</th>
<th>Circuit board</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fuse</td>
<td>2,5 AT / 250 V 5 x 20 mm</td>
</tr>
<tr>
<td>Max. operating time in battery operation</td>
<td>Maximum 330 W per circuit and total maximum 540 W for all circuits</td>
</tr>
<tr>
<td>Max. power in mains operation</td>
<td>Maximum 345 VA per circuit and total maximum 1080 W for all circuits</td>
</tr>
<tr>
<td>Max. inrush current transformer output</td>
<td>250 A</td>
</tr>
<tr>
<td>Output voltage</td>
<td>220 V constant</td>
</tr>
<tr>
<td>For the luminaires</td>
<td>EVG</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Luminaire series</th>
<th>Luminaire type</th>
<th>Luminaire output [W]*</th>
<th>Mains operation [VA]*</th>
<th>Inrush current [A]</th>
</tr>
</thead>
<tbody>
<tr>
<td>GuideLed</td>
<td>10011 ... 10026 CG-S</td>
<td>1.9</td>
<td>4.0</td>
<td></td>
</tr>
<tr>
<td></td>
<td>10021 ... 10026 CG-S</td>
<td>2.9</td>
<td>5.5</td>
<td></td>
</tr>
<tr>
<td></td>
<td>11011 ... 11026 CG-S</td>
<td>2.6</td>
<td>5.0</td>
<td></td>
</tr>
<tr>
<td></td>
<td>11021 ... 11026 CG-S</td>
<td>4.1</td>
<td>7.1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>13011 ... 13022 CG-S SL</td>
<td>5.0</td>
<td>8.5</td>
<td></td>
</tr>
<tr>
<td></td>
<td>10011 ... 10013 CG-S FSL</td>
<td>4.0</td>
<td>7.2</td>
<td></td>
</tr>
<tr>
<td>Style LED</td>
<td>22011 LED CG-S</td>
<td>4.4</td>
<td>7.6</td>
<td></td>
</tr>
<tr>
<td></td>
<td>22021 LED CG-S</td>
<td>5.8</td>
<td>9.5</td>
<td></td>
</tr>
<tr>
<td></td>
<td>51011, 51021 LED CG-S</td>
<td>5.8</td>
<td>9.5</td>
<td></td>
</tr>
<tr>
<td>Spirit LED</td>
<td>Spirit LED 16</td>
<td>1.7</td>
<td>3.8</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Spirit LED 28</td>
<td>3.7</td>
<td>6.6</td>
<td></td>
</tr>
<tr>
<td>Brilliant LED</td>
<td>1503 ... 1803 LED CG-S</td>
<td>2.9</td>
<td>5.5</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1504 ... 1804 LED CG-S</td>
<td>4.1</td>
<td>7.1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1903 LED CG-S</td>
<td>3.0</td>
<td>5.5</td>
<td></td>
</tr>
<tr>
<td>Aluminium housing</td>
<td>70011 LED CG-S</td>
<td>2.0</td>
<td>4.36</td>
<td></td>
</tr>
<tr>
<td></td>
<td>70021 LED CG-S</td>
<td>3.1</td>
<td>5.8</td>
<td></td>
</tr>
<tr>
<td></td>
<td>71011 LED CG-S</td>
<td>3.1</td>
<td>5.8</td>
<td></td>
</tr>
<tr>
<td></td>
<td>71021 LED CG-S</td>
<td>5.8</td>
<td>9.5</td>
<td></td>
</tr>
<tr>
<td>Escape luminaires</td>
<td>3503.1 LED CG-S</td>
<td>4.4</td>
<td>7.6</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3604.1 LED CG-S</td>
<td>5.8</td>
<td>9.5</td>
<td></td>
</tr>
<tr>
<td>Atlantic</td>
<td>Atlantic LED S CG-S</td>
<td>5.0</td>
<td>8.5</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Atlantic LED D CG-S</td>
<td>5.0</td>
<td>8.5</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Atlantic LED R/O/Wand CG-S</td>
<td>5.0</td>
<td>8.5</td>
<td></td>
</tr>
</tbody>
</table>

* Power consumption of the luminaires during battery or mains operation in case of an ambient temperature of +20 °C.
### Connection cable/W for the luminaires with:

<table>
<thead>
<tr>
<th>International lamp cap term</th>
<th>Lamp cap</th>
<th>EVG Type EVG ...</th>
<th>Lamp load in [W]</th>
<th>Battery operation P [W] at a luminous flux (\phi_{r}/\phi_{\text{Rated}} = 75%)</th>
<th>Mains operation S [VA]</th>
<th>Inrush current [A]</th>
</tr>
</thead>
<tbody>
<tr>
<td>T 16</td>
<td>G5</td>
<td>13.3 ...</td>
<td>4</td>
<td>4.5</td>
<td>8</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>13.3 ...</td>
<td>6</td>
<td>5.5</td>
<td>12</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>13.3 ...</td>
<td>8</td>
<td>7.25</td>
<td>16</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>13.3 ...</td>
<td>13</td>
<td>12.5</td>
<td>23</td>
<td>3</td>
</tr>
<tr>
<td>TC-SEL 2G7</td>
<td></td>
<td>13.3 ...</td>
<td>5</td>
<td>5.0</td>
<td>10</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>13.3 ...</td>
<td>7</td>
<td>6.4</td>
<td>13</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>13.3 ...</td>
<td>9</td>
<td>8.0</td>
<td>16</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>13.3 ...</td>
<td>11</td>
<td>10.0</td>
<td>18</td>
<td>3</td>
</tr>
<tr>
<td>TC-DEL G24q-1</td>
<td></td>
<td>13.3 ...</td>
<td>10</td>
<td>8.5</td>
<td>16</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>13.3 ...</td>
<td>13</td>
<td>12.5</td>
<td>23</td>
<td>3</td>
</tr>
<tr>
<td>TC-TEL GX24q-1</td>
<td></td>
<td>13.3 ...</td>
<td>13</td>
<td>12.5</td>
<td>23</td>
<td>3</td>
</tr>
<tr>
<td>T 26</td>
<td>G13</td>
<td>18 ...</td>
<td>18</td>
<td>16.0</td>
<td>30</td>
<td>8</td>
</tr>
<tr>
<td>TC-F 2G10</td>
<td></td>
<td>18 ...</td>
<td>18</td>
<td>16.0</td>
<td>30</td>
<td>8</td>
</tr>
<tr>
<td>TC-L 2G11</td>
<td></td>
<td>18 ...</td>
<td>18</td>
<td>16.0</td>
<td>30</td>
<td>8</td>
</tr>
<tr>
<td>TC-DEL G24q-2</td>
<td></td>
<td>18C ...</td>
<td>18</td>
<td>16.0</td>
<td>30</td>
<td>8</td>
</tr>
<tr>
<td>TC-TEL GX24q-2</td>
<td></td>
<td>18C ...</td>
<td>18</td>
<td>16.0</td>
<td>30</td>
<td>8</td>
</tr>
</tbody>
</table>

Continuous output = start output

### Rated value N-EVG ... V-CG-S in case of mains and battery operation

<table>
<thead>
<tr>
<th>Term</th>
<th>T5</th>
<th>T5</th>
<th>T5</th>
<th>T5</th>
<th>T5</th>
<th>T5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lamp cap</td>
<td>G5</td>
<td>G5</td>
<td>G5</td>
<td>G5</td>
<td>G5</td>
<td>G5</td>
</tr>
<tr>
<td>Type N-EVG ... V-CG-S</td>
<td>14 / 21 / 28 / 35 W</td>
<td>14 / 21 / 28 / 35 W</td>
<td>14 / 21 / 28 / 35 W</td>
<td>14 / 21 / 28 / 35 W</td>
<td>24/39 W</td>
<td>24/39 W</td>
</tr>
<tr>
<td>Lamp load [W]</td>
<td>14</td>
<td>21</td>
<td>28</td>
<td>35</td>
<td>24</td>
<td>39</td>
</tr>
</tbody>
</table>

Battery operation, incl. converter efficiency [W] in switch position (luminous flux \(\phi_{r}/\phi_{\text{Rated}}\) in %)

<table>
<thead>
<tr>
<th>100 %</th>
<th>21</th>
<th>28</th>
<th>39</th>
<th>47</th>
<th>34</th>
<th>49</th>
</tr>
</thead>
<tbody>
<tr>
<td>90 %</td>
<td>18</td>
<td>26</td>
<td>34</td>
<td>41</td>
<td>31</td>
<td>44</td>
</tr>
<tr>
<td>80 %</td>
<td>17</td>
<td>23</td>
<td>31</td>
<td>36</td>
<td>26</td>
<td>39</td>
</tr>
<tr>
<td>70 %</td>
<td>15</td>
<td>21</td>
<td>28</td>
<td>34</td>
<td>23</td>
<td>34</td>
</tr>
<tr>
<td>60 %</td>
<td>13</td>
<td>18</td>
<td>26</td>
<td>28</td>
<td>21</td>
<td>31</td>
</tr>
<tr>
<td>50 %</td>
<td>12</td>
<td>16</td>
<td>23</td>
<td>26</td>
<td>18</td>
<td>28</td>
</tr>
<tr>
<td>40 %</td>
<td>10</td>
<td>14</td>
<td>21</td>
<td>23</td>
<td>17</td>
<td>26</td>
</tr>
<tr>
<td>30 %</td>
<td>9</td>
<td>13</td>
<td>18</td>
<td>21</td>
<td>15</td>
<td>23</td>
</tr>
</tbody>
</table>

Power consumption [VA] | 22 | 30 | 38 | 46 | 32 | 49 |

Inrush current [A] | 10 |

System power lamp + EVG acc. EN 50294 [W] | 16 | 23 | 30 | 37 | 25 | 41 |
**LP-STAR emergency lighting power supply in a compact design**

**Technical Data**

<table>
<thead>
<tr>
<th>Term</th>
<th>T5</th>
<th>T5</th>
<th>T5</th>
<th>T8</th>
<th>T8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lamp cap</td>
<td>G5</td>
<td>G5</td>
<td>G5</td>
<td>G13</td>
<td>G13</td>
</tr>
<tr>
<td>Type N-EVG ... V-CG-S</td>
<td>49W</td>
<td>54W</td>
<td>80W</td>
<td>36W</td>
<td>58W</td>
</tr>
<tr>
<td>Lamp load [W]</td>
<td>49</td>
<td>54</td>
<td>80</td>
<td>36</td>
<td>58</td>
</tr>
</tbody>
</table>

Power consumption [A] at 220 V battery operation in switch position (luminous flux \( \frac{L}{L_{max}} \) in %)

<table>
<thead>
<tr>
<th></th>
<th>100 %</th>
<th>90 %</th>
<th>80 %</th>
<th>70 %</th>
<th>60 %</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>62</td>
<td>67</td>
<td>98</td>
<td>44</td>
<td>65</td>
</tr>
<tr>
<td></td>
<td>54</td>
<td>60</td>
<td>88</td>
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<td>57</td>
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<td>49</td>
<td>54</td>
<td>78</td>
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<td></td>
<td>39</td>
<td>41</td>
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<td>28</td>
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<tr>
<td></td>
<td>36</td>
<td>39</td>
<td>54</td>
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<td>34</td>
</tr>
<tr>
<td></td>
<td>28</td>
<td>31</td>
<td>44</td>
<td>21</td>
<td>28</td>
</tr>
</tbody>
</table>

Power consumption [VA]

|                | 65    | 68   | 100  | 43   | 65   |

Inrush current [A]

|                | 10    | 10   | 12   | 10   | 10   |

System power lamp + EVG acc. EN 50294 [W]

|                | 52    | 57   | 84   | 34   | 53   |

The required battery current is determined based on luminous flux conditions (30% ... 100%).

Dim mode 30% only down to 10°C, 60% only down to 0°C allowed.

When used outdoors, the 100% setting should only be used.
**Calculation example**

The following luminaires should be connected to one power circuit:

- 8 pieces of GuideLed 10011 CG-S RZ
- 4 pieces of 35 W/T5 with N-EVG 54 W V-CG-S, luminous flux 40 %
- 2 pieces of GuideLed 13011 CG-S SL

**There are the following conditions:**

<table>
<thead>
<tr>
<th>Battery operation:</th>
<th>Mains operation:</th>
</tr>
</thead>
<tbody>
<tr>
<td>max. cont. output:</td>
<td>max. 345 VA apparent power</td>
</tr>
<tr>
<td></td>
<td>max. inrush current 250 A</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Start output:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>10011 CG-S: 8 x 1.9 W</td>
<td>= 15.2 W</td>
</tr>
<tr>
<td>35 W/T5: 4 x 47 W (100 %)</td>
<td>= 188.0 W</td>
</tr>
<tr>
<td>13011 CG-S: 2 x 5 W</td>
<td>= 10 W</td>
</tr>
<tr>
<td>Total</td>
<td>= 213.2 W</td>
</tr>
<tr>
<td></td>
<td>&lt; 330 W → OK</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>max. inrush current:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>10011 CG-S: 8 x 1.5 A</td>
<td>= 12.0 A</td>
</tr>
<tr>
<td>35 W/T5: 4 x 10 A</td>
<td>= 40.0 A</td>
</tr>
<tr>
<td>13011 CG-S: 2 x 1.5 A</td>
<td>= 3.0 A</td>
</tr>
<tr>
<td>Total</td>
<td>= 55.0 A</td>
</tr>
<tr>
<td></td>
<td>&lt; 250 A → OK</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>max. mains power:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>10011 CG-S: 8 x 4 VA</td>
<td>= 32.0 VA</td>
</tr>
<tr>
<td>35 W/T5: 4 x 46 VA</td>
<td>= 184.0 VA</td>
</tr>
<tr>
<td>13011 CG-S: 2 x 8.5 VA</td>
<td>= 17.0 VA</td>
</tr>
<tr>
<td>Total</td>
<td>= 233.0 VA</td>
</tr>
<tr>
<td></td>
<td>&lt; 345 VA → OK</td>
</tr>
</tbody>
</table>

**Attention!**

The connected load of all circuits in total may not exceed 540 W and 1080 VA per LP-STAR device.
In conventional lead-acid batteries with free electrolyte, water is broken down into oxygen at the positive plate and hydrogen at the negative plate in case of overcharging the battery. To protect the battery from drying, this loss of water must be compensated for at regular intervals.

The extremely low gas emission absorption cells are designed to ensure that the positive plate is charged completely before the negative plate and consequently the released oxygen diffuses to the negative plate. On the negative plate it reacts with the lead to form lead-oxide which in turn reacts with the sulphuric acid electrolyte and forms lead-sulphate and water to prevent any loss of water.

**CM 4-24**

The completely sealed lead batteries are charged gradually based on an IU0U charging curve in function of temperature. Boost charge is activated in function of the battery charge level to ensure that the batteries are charged without exceeding the gassings voltage.

The charge monitoring procedure verifies the charging process continuously and it reports any faults immediately, including interruption of the battery circuit, faulty charging unit or a high impedance battery cell.

| End-of-charge voltage boost charge at +20 °C | 28.8 V |
| End-of-charge voltage trickle charge at +20 °C | 27.6 V |
| Deep discharge protection [1.6 V/Z] | 20.4 V |
| Maximum charging current | 4 A |
| Maximum rated power at boost charge | 130 VA |
| Maximum rated power at trickle charge | 10-120 VA |

**Max. battery discharge power [W]**

<table>
<thead>
<tr>
<th>Rated operating time</th>
<th>P-Batt min 12 Ah</th>
<th>P-Batt min 24 Ah</th>
<th>P-Batt min 36 Ah</th>
<th>P-Batt min 48 Ah</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.0 h</td>
<td>133</td>
<td>303</td>
<td>468</td>
<td>540</td>
</tr>
<tr>
<td>2.0 h</td>
<td>50</td>
<td>142</td>
<td>232</td>
<td>320</td>
</tr>
<tr>
<td>3.0 h</td>
<td>24</td>
<td>86</td>
<td>149</td>
<td>212</td>
</tr>
<tr>
<td>8.0 h</td>
<td>-</td>
<td>16</td>
<td>38</td>
<td>66</td>
</tr>
</tbody>
</table>

C10/1.8 V/C at +20 °C

**Evaluation of aeration and deaeration of electrical service rooms according to DIN EN 50272-2**

<table>
<thead>
<tr>
<th>Capacity</th>
<th>12</th>
<th>24</th>
<th>36</th>
<th>48</th>
</tr>
</thead>
<tbody>
<tr>
<td>Air volume flow required for the aeration of the location room [l/h], calculated for boost charge*</td>
<td>57.6</td>
<td>115.2</td>
<td>172.8</td>
<td>230.4</td>
</tr>
<tr>
<td>Vent cross-section of the air inlets and outlets of the place of installation [cm²], calculated for boost charge*</td>
<td>1.6</td>
<td>3.2</td>
<td>4.8</td>
<td>6.5</td>
</tr>
<tr>
<td>Air volume flow required for the aeration of the location room [l/h], calculated for trickle charge*</td>
<td>7.2</td>
<td>14.4</td>
<td>21.6</td>
<td>28.8</td>
</tr>
<tr>
<td>Vent cross-section of the air inlets and outlets of the place of installation room [cm²], calculated for trickle charge*</td>
<td>0.2</td>
<td>0.4</td>
<td>0.6</td>
<td>0.81</td>
</tr>
</tbody>
</table>

* If boost charge is not frequently used (for example once a month), the air flow rate can be calculated based on the trickle charge current.
LP-STAR emergency lighting power supply in a compact design

Installation example

Mains distribution board general lighting

3/N/PE

Visualisation and monitoring via Webmodule with standard web browser

Control and programming unit

CG-S BUS

F3 remote indication

Browser

LAN

General lighting

CG-S BUS

LP-STAR

Final circuits
description

LP-STAR emergency lighting power supply in a compact design

Low Power System according to EN 50171 and BGV A3 for the power supply of escape luminaires and exit sign luminaires 230V / 216V AC/DC. It is suitable for emergency lighting systems according to DIN VDE 0100-718, DIN EN 50172 and V DIN V VDE 0108-100. With an automatic test device and monitoring and displaying the state and name of individual luminaires connected to system-specific EVG/LED supply module including a monitoring component without an additional data cable.

The switching operation of each escape luminaire and exit sign luminaire with system-specific EVG/LED supply module or monitoring component is programmed freely in the control module without an additional control cable to the luminaires.

The CEAG STAR technology results in a severe reduction of end circuits, because the mixed operation including maintained light, switched maintained light and non-maintained light is implemented in a single circuit.

The control module assigns the different operating modes without any modification of the luminaire installation. The operating modes: non-maintained light or maintained light cannot be selected at the monitoring module or EVG/LED supply module using slide switches, coding switches or jumpers respectively. The additional costs incurred due to the use of parts made by other manufacturers or additional components on the installation lines cannot be claimed.

Simple connection technology using plug-in, back of hand proof clamp connections.

Bus technologies

CG-S bus technology based on LONWorks® technology

For data communication a 2-pole, bidirectional CG-S data bus, is integrated optimally in the control module of LP-STAR.

Using the optionally available CG-S Bus Interface, any building control systems based on the LONWorks® technology can communicate with the system on the CG-S bus.

Alternatively, any OPC compatible building control system can be connected to the optionally available OPC server and the Interface-Box using the CG-S bus.

Thus extensive status messages and commands can be queried through the CG-S bus.

The following data can thus be directly communicated:

- Status messages such as device disabled, deep discharge protection, battery interruption, battery voltage, current and temperature, insulation error, charging unit fault, bus communication error, mains failure, circuit faults etc.
- Input commands such as Start function test, start/stop duration test, Manual Start function test, Start and Input commands such as fault, error, mains failure, circuit fault, bus communication interruption, battery voltage, battery charge current (+), battery charge current in test mode or in case of fault (–), charge fault, luminaire fault with location information in plain text, deep discharge protection, manual reset, delayed emergency light (remaining time in minutes), test mode, date/time, insulation fault, UV-AV fault, fault information, programming information, test log book.
- LED displays:
  System readiness, supply from the source for safety services, failure.

Sealed keypad:
- individual buttons for device test, function test and duration test.
- 3 freely programmable function keys for example: Lock/unlock device, manual reset, turn on/off maintained light, display fault list, turn on/off continuity lighting, simulation mains failure UV.
- 7 control buttons for user-friendly navigation in query and programming mode.

Programming options:

Individual luminaire monitoring, circuit monitoring, individual name (20 characters) per device, circuit, luminaire, device address, selective manual reset, delayed emergency light (1-15 min.), LON switch, timer function, automatic function and duration test, selection of menu language, automatic daylight savings time setting, password protection.

Connection for disable switch:
Control loop for disabling the system during operating downtimes with differential loop monitoring for short circuit and wire breakage detection.

Differential monitoring:
Short circuit or interruption lead to the system going into standby.

Connection for phase monitor:
24V current loop for emergency light request with differential loop monitoring for short circuit and wire breakage detection.

Differential monitoring:
Short circuit or interruption lead to the system switching on (maintained light) immediately.

Connection for potential-free indicator contacts, buzzer:
4 potential-free indicator contacts with a separate root. Every potential-free contact can have one or more of the 11 different alerts assigned to it. Freely programmable, DIN VDE specification retrievable at any time as default setting.

Connection for 230 V digital inputs without phase monitor function: 8 freely assignable inputs 230V, programmable as inverted and non-inverted for example for start/stop function test, start/stop duration test,
manual reset, turn on/off maintained light, turn on emergency lighting as continuity lighting.

Memory card:
Memory card for archiving the device configuration and the mandatory inspection log book information over a minimum of 4 years.

Storing:
- 360.000 inspection log book entries
- Luminaire target location texts (20 characters per luminaire)
- Circuit names (20 characters per circuit)
- Device name (20 characters)

Using The device can be programmed offline on a PC using the optional CEAG software.

Charging technology
The sealed maintenance-free lead batteries are charged gradually based on an microprocessor-controlled IU charging curve in function of temperature. Force charge is activated in function of the battery charge level to ensure that the batteries are charged without exceeding the gas development voltage. The charge monitoring procedure verifies the charging process continuously and it reports any faults immediately, including interruption of the battery circuit, faulty charging unit or a interruption of the battery fault, boost charge, insulation fault, charge fault, mains available.

Webmodule
Webmodule for visualising and monitoring a LP-STAR device on the local Ethernet (LAN) or Internet (WWW) with a regular WEB browser. Access to the webmodule via internet (WWW) must be appropriately administered and set up on site by a competent IT department.

Integrated email program for convenient, event-related error notification via email, for up to 5 email recipients.

Adjustable email dispatch acc. to type of error or function test
- Up to 5 email recipients programmable
- Adjustable update cycle for web browser via the webmodule
- Authenticated access via administrator account with password protection
- Configurable guest account for restricted access with password protection
- Static or dynamic (DHCP) IP addressing possible
- Any number of webmodules operable in parallel
- Overview of all active webmodules on the Intranet with status display and hyperlink function

Supply voltage: 24V DC
Power consumption: < 1.5W
Connection: RJ45
Dimensions (L x W x H): 90 mm x 35 mm x 58 mm
Weight: ca. 100 g
Protection rating: IP20

24V OGiV block battery
Only closed and non-spillable OGiV batteries are used. Rated operating time 1, 3 and 8 hours respectively
- extremely low gas emissions
- Period of use: 10 years at 20°C
- low self-discharge
- Design according to IEC60896-21/-22
- electrolyte and air oxygen sealed terminals

CEAG is a member of the “Stiftung Gemeinsames Rücknahmesystem Batterien [joint battery recycling programme] (GRSi)”.

In this manner batteries undergo a controlled and complete recycling cycle. This means that possible polluting materials are recovered and reused for new products.

Specifications have been quoted based on CEAG products. Specifications can be compared based on this product. The tenderer can submit a tender based on a variant solution including an equivalent product (proof by the tenderer). Detailed product descriptions must be attached to the offer for the evaluation of equivalence.

References
CEAG Notlichtsysteme GmbH
Senatoren-Schwarz-Ring 26
D-59494 Soest/Germany
Telephone +49 (0) 2921/69-870
Fax +49 (0) 2921/69-617
Internet www.ceag.de
Email info-n@ceag.de

A DIN EN ISO 9001:4500 certification must be further provided as proof.

Manufacturers without the DIN EN ISO 9001:4500 certification are not permitted.

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We deliver:

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- **Aerospace solutions** that make aircraft lighter, safer and less costly to operate, and help airports operate more efficiently.

- **Vehicle drivetrain and powertrain solutions** that deliver more power to cars, trucks and buses, while reducing fuel consumption and emissions.

We provide integrated solutions that help make energy, in all its forms, more practical and accessible.

With 2012 sales of $16.3 billion, Eaton has approximately 103,000 employees around the world and sells products in more than 175 countries.

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**Eaton is a global leader with expertise in:**

- Power distribution and circuit protection
- Backup power protection
- Solutions for harsh and hazardous environments
- Lighting and security
- Structural solutions and wiring devices
- Control and automation
- Engineering services

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We are dedicated to ensuring that reliable, efficient and safe power is available when it’s needed most.

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Our focus is on delivering the right solution for the application. But, decision makers demand more than just innovative products. They turn to Eaton for an unwavering commitment to personal support that makes customer success a top priority. For more information, visit www.eaton.com/electrical.

To find your contact person, visit www.ceag.de.