



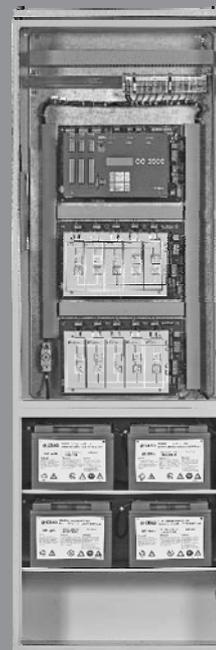
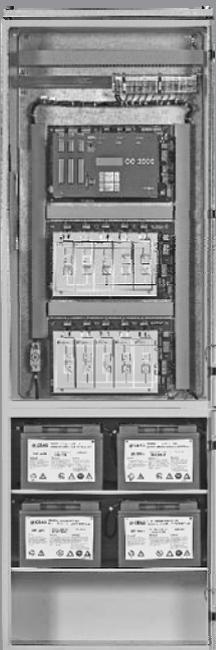
## Mounting and Operating Instructions

Group Battery Supply System

CG2000

Target group, Part 1: Skilled electrical personnel acc. To DIN VDE 0105

Target group, Part 2: Electrical instructed persons



# Mounting and Operating Manual

## Group Battery Supply System CG 2000

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### **1** Important Notes

Mounting work must only be performed by skilled electrical personnel (see DIN VDE 0105 Part 1, the Accident Prevention Rules BGV A2 of the (German) Trade Workers' Compensation Association (Hauptverband der gewerblichen Berufsgenossenschaften) or equivalent provisions and guidelines applicable in the country where the lighting system is installed and operated). Other persons may carry out the work described in this manual only if

- they have been expertly instructed and trained,
- their tasks and activities have been accurately defined and understood,
- the work is carried out under the supervision of expert electrical personnel.

When working with this operating manual pay special attention to notes marked by signs and identifying catchwords as follows:

 **Note:**  
Includes important hints and advice in connection with handling or manipulating the appliances or plant units described.

 **Attention!**  
Signifies dangerous situations that may result in damage to machinery or plant units or environmental impairment.

 **Warning!**  
Signifies dangerous situations that may result in personal injuries or major damage to machinery or plant units as well as major environmental damage.

 **Danger!**  
Signifies dangerous situations that may result in life-threatening personal injuries or most serious damage that consequently may endanger persons or the environment.

Moreover, when using this mounting and operating manual observe the following:

 **Warning!**  
The figures and elementary diagrams in these mounting and operating instructions sometimes serve the sole purpose of illustrating the subject matter described.

**Wherever**

- dimensionally true work is to be performed or
  - precise drawings or circuit diagrams tailored to local needs are required,
- the drawings and diagrams especially prepared for the lighting system must be strictly adhered to.

 **Note:**  
A polyphase operation may not or only conditionally be permitted in some countries. Therefore, make sure to observe the guidelines and standards applicable in the country where the plant is installed and operated.  
If such a polyphase operation is not at all or only conditionally allowed, observance of the applicable national rules and regulations is to be viewed as a prerequisite in the sense of the Intended Use Paragraph (see «6 Intended Use»).

 **Warning!**  
Only perform work, for which you have adequate qualification or received instructions providing information on local and operational conditions!

# Mounting and Operating Manual

## Group Battery Supply System CG 2000

### Product description

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## 2 Product Description

The CG 2000 group battery supply system serves for the battery-backed control and power supply of an emergency lighting system.

Two models of the CG 2000 system are available: CG 100 Plus and CG 200 Plus. Programming and functioning of both design types are identical - there are only differences with respect to battery capacity, number of emergency lighting circuits controlled and powered, and the required size of the cabinet (refer to Technical Data and additional information in this Chapter).



#### Note:

Since the CG 2000 is an important component within a facility's security system, any planning, commissioning and programming activities have to be carried out by experts perfectly familiar with the related safety equipment and systems.

All functions of the emergency lighting plant are defined via user-friendly parameter settings available for three operating modes:

- Non-permanent mode
- Permanent mode
- Switched permanent mode

One of these operating modes can be assigned as desired to each lighting circuit powered by a CG 2000 system.

These operating modes differ as described below with respect to how the emergency lighting system is activated:

- Non-permanent mode: Emergency lighting is switched on**
  - upon failure of the general lighting system (eg due to the general power supply being interrupted),
  - when functional or operating duration testing has been activated manually or automatically.

- Permanent mode:** Emergency lighting is constantly on.
- Switched permanent mode:** The emergency lighting system is switched on
  - upon failure of the general lighting system (eg due to the general power supply being interrupted),
  - when functional or operating duration testing has been activated manually or automatically,
  - as a result of querying switching appliances (eg external DLS modules\*) or according to the adjustable switching behavior of special luminaires included in CEAG's emergency lighting program.  
\* DLS module = permanent light switching module

All settings are stored in a non-volatile memory and are thus safe in case the CG 2000 system is switched off completely (230-V mains and battery supply). Moreover, parameter settings, designation of the power circuits and luminaires as well as test log entries can be stored on a memory card. This enables archiving as well as an (optional) external parameter setting and transfer of data to control units of other CG 2000 systems.

Low maintenance 12-V batteries are used to power the emergency lighting system in the event the normal 230-V supply mains is on failure.

During normal operation CG 2000 monitors the batteries' charging conditions and, whenever needed, charges them safely.

The CG 2000 system has been designed and manufactured in conformity with the following EU Guidelines:

- Low-voltage directive 73/23/EWG, as amended by guideline 93/68/EWG
- Directive 2004/108/EU on electromagnetic compatibility

Details of national (DIN-), European (EN-) and international (IEC-) standards complied with are included in the unit's CE Statement of Compliance.

# Mounting and Operating Manual

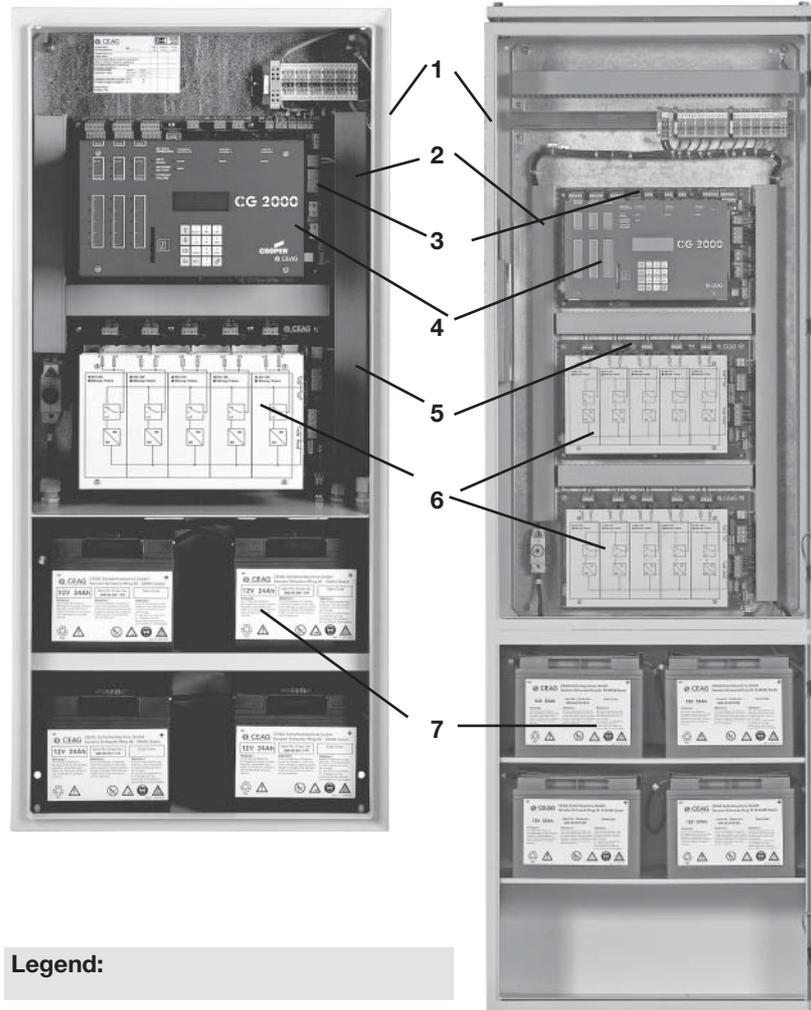
## Group Battery Supply System CG 2000

### Product description

The CG 2000 group battery supply system consists of the following components and functional groups (Figures do not show front door):

Fig. 1: CG 100 Plus

Fig. 2: CG 200 Plus



#### Legend:

1: Enclosure

2: Cable routing cover profile

3: Control unit of CG 2000

Mother board with terminals<sup>1)</sup> and 3 slots for optional modules<sup>2)</sup> behind the

4: Front panel with LC display and alphanumeric keypad

5: Transformer module LWE 150 CG - S

Mother board with terminals<sup>1)</sup> and 5 slots for

5 transformer cards or a maximum of 2 x 5 transformer cards in type 200

6: Faceplate of the transformer module

showing block diagram and signalling LEDs

7: Battery compartment accommodating

4 batteries, 12 V, max. 23.3 Ah<sub>K10</sub> or 4 batteries, 12 V, max. 49.5 Ah<sub>K10</sub>

<sup>1)</sup> regarding terminal assignment see Appendix A

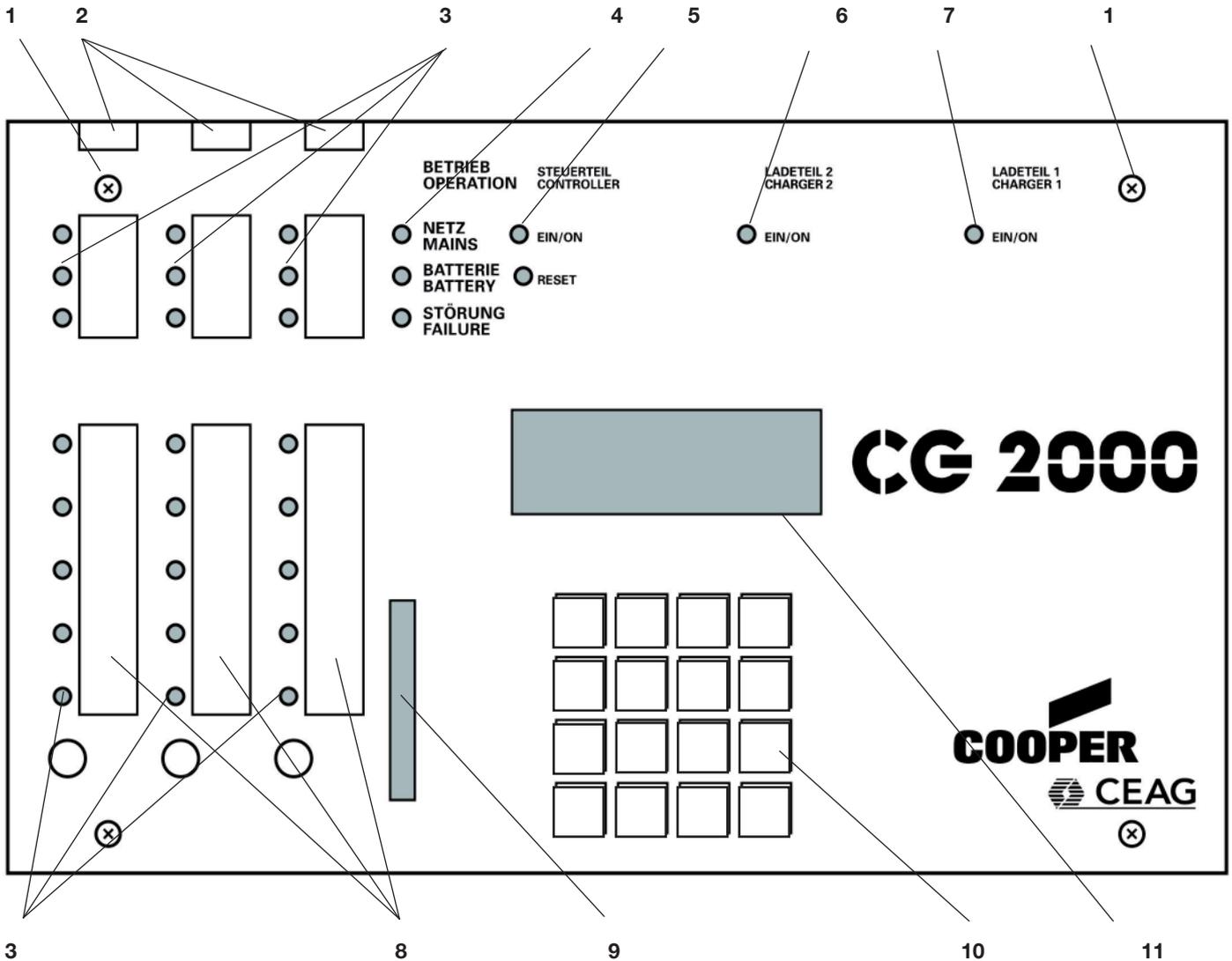
<sup>2)</sup> designed as DLS module = Permanent light switching module

# Mounting and Operating Manual

## Group Battery Supply System CG 2000

### Product description

Fig. 3: Detail view of the CG 2000 control unit front panel



- |                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                          |                                                                                                                                                                               |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>1:</b> Fixing screws for the removable front panel</p> <p><b>2:</b> Lettering inserts (for card-specific lettering strips)</p> <p><b>3:</b> Status LEDs for optional modules 1 ... 3 <sup>1)</sup></p> <p><b>4:</b> LEDs as per DIN VDE 108 (to indicate functions of the lighting system)</p> | <p><b>5:</b> Status LED und reset button for the CG 2000 system</p> <p><b>6:</b> Status LED for charging unit 2</p> <p><b>7:</b> Status LED for charging unit 1</p> <p><b>8:</b> Plug-type optional modules, max. 3 behind front panel <sup>2)</sup></p> | <p><b>9:</b> Slot for memory card</p> <p><b>10:</b> Keypad (alphanumeric keyboard w. 16 keys)</p> <p><b>11:</b> LC display 4 x 20 characters for messages and input masks</p> |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

<sup>1)</sup> The LEDs are part of the modules; their function is described by module-specific lettering strips.

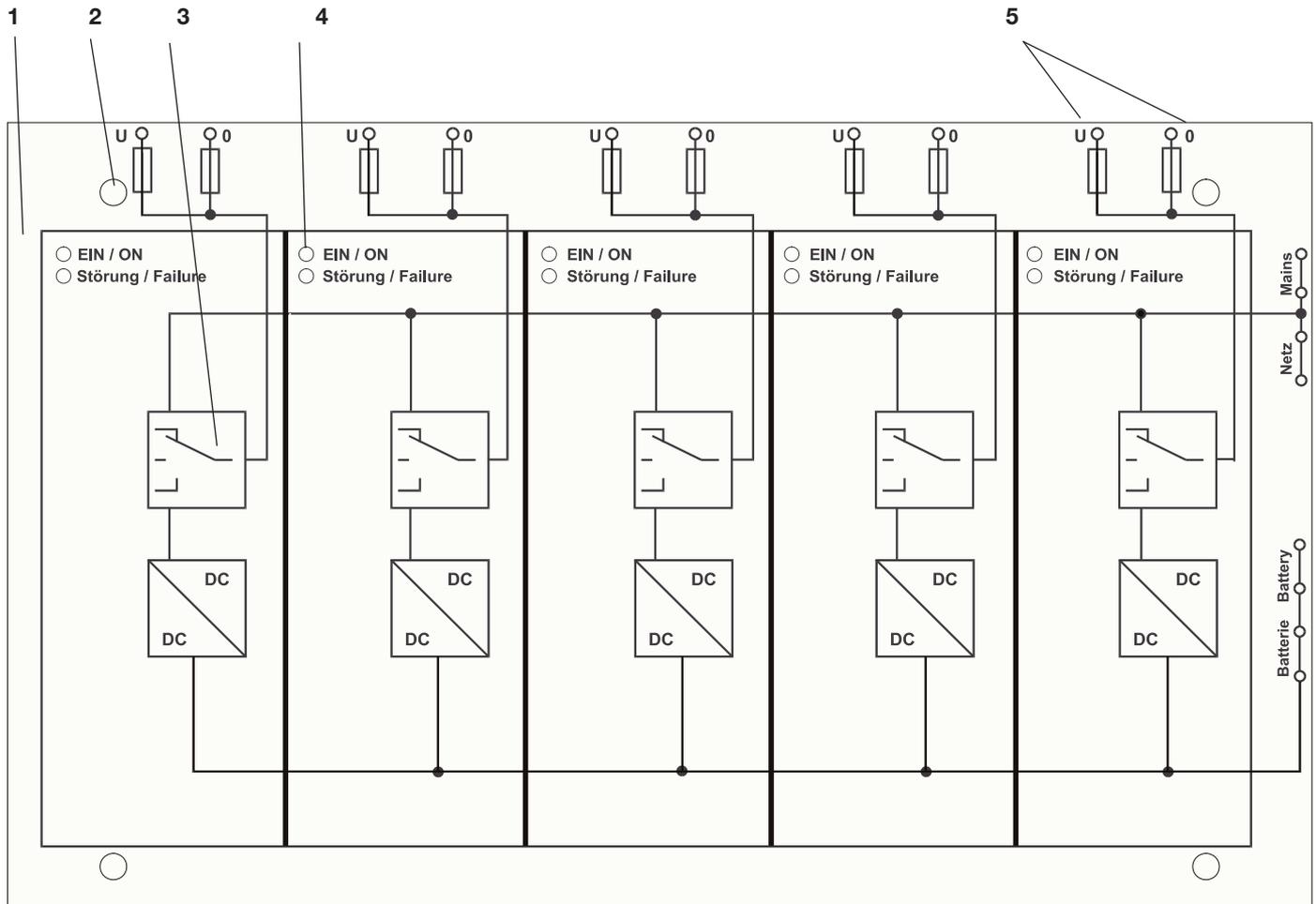
<sup>2)</sup> The logic addresses (for parameter setting) of optional modules depends on the position of the slots assigned 1 ... 3 (from left to right)

# Mounting and Operating Manual

## Group Battery Supply System CG 2000

### Product description

Fig. 4: Detail view of the LWE 150 CG-S transformer module faceplate



**1: Faceplate**

the transformer cards are located behind this removable faceplate <sup>1)</sup>

**2: Fixing screws**

securing removable faceplate

**3: Block diagram on faceplate**

for transformer card 1 <sup>2)</sup>  
The fuses shown are arranged above the faceplate on the motherboard and thus easily accessible

**4: LEDs showing functional status**

of transformer card 2

**5: Connection symbols**

for power circuit 5  
Mains operation: U = L / 0 = N  
Battery operation:  
U = + 220VDC / 0 = 0 VDC

<sup>1)</sup> CG 100 Plus is equipped with transformer module LWE 150 CG-S with a maximum of 5 slots for transformer cards to be connected to the relevant number of final circuits/lighting circuits.

CG 200 Plus has two transformer modules LWE 150 CG-S with a maximum of 2 x 5 slots for transformer cards to be connected to the respective number of final circuits (lighting circuits).

<sup>2)</sup> The logic addresses (for parameter setting) of transformer cards/final circuits depends on the relevant position on the transformer modules (from left to right): 1 ... 5 on transformer module 1 and 6 ... 10 on transformer module 2.

# Mounting and Operating Manual

## Group Battery Supply System CG 2000

### Product description

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The CG 2000 system powers and monitors lighting/emergency lighting circuits with luminaires and electronic ballasts (EB) from CEAG's emergency lighting program.

Also lighting circuits with EBs from other manufacturers, conventional incandescent lamps or tungsten-halogen lamps can be powered and monitored by a CG 2000 system.

When using luminaires fitted with

- CEAG-EVG ... CG-S,
- N-EVG with CG-S or
- 2L-CG-S

each luminaire can be individually monitored and operated by the CG 2000 control unit since these EBs are capable of being addressed (up to 20 luminaires per circuit).

Information between the luminaire's EB and the CG 2000 control unit is exchanged without the necessity of an additional data line.

When using other luminaires functional testing is done by determining the residual current in the relevant luminaire circuit. This value is compared with reference data determined via a special menu function (refer to Menu «4.5 Learning current values» in Section «9 Operation of the CG 2000 System»).

Furthermore, when using addressable luminaires with CEAG EB and CG-S function a desired switching behavior can be assigned to each luminaire so that a lighting circuit may include both lights operating in «general lighting» service and those having an emergency lighting duty.

A local control via switches is possible. This brings down investment and mounting expenditure because there is no need of providing separate circuits for permanent and non-permanent lighting modes.

The following additional functions can be set up for a CG 2000 system:

- Fully automatic functional monitoring by an external system (eg from a control panel of the building automation system).  
The connection is made via a serial LON interface (to FTT10A) - (assumed to be available in the 4th quarter of 2001).

- Connection of CEAG 3-phase monitors (3PhW) for the monitoring of the 230-V supply network (and/or its subdistribution boards (UVs)).
- Querying of potential-free signalling contacts of the CG 2000 control unit: Via 3 signalling contacts (relay connections 1 ... 3) the status of the CG 2000 can be determined and, for example, indicated on a control panel of the associated building automation system.  
The connections of these signalling contacts are rated at max. 24 V AC/DC and 1 A; the maximum line length is 1000 m.  
The switching behavior of the relays (picked up/dropped) can be linked to events (refer to Section «9 Operation of the CG 2000 System», Menu «3.7 Relay assignments»).

- Connection of a remote switch (eg designed as key-operated switch) or, alternatively, connection of a CEAG F3 remote indicating unit (with key-operated switch)
- Connection of a CEAG F3 remote indicating unit:  
This device combines a status indication via the signalling contacts of the CG 2000 control unit and a remote switch designed as key-operated switch.  
Messages displayed:
  - Plant ready
  - Battery operation
  - Plant on failureThis F3 remote indicating unit can be provided with a maximum line length of 1000 m (max. 2.5 mm<sup>2</sup>).

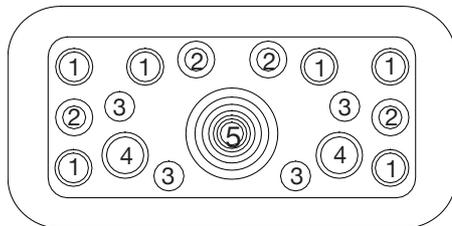
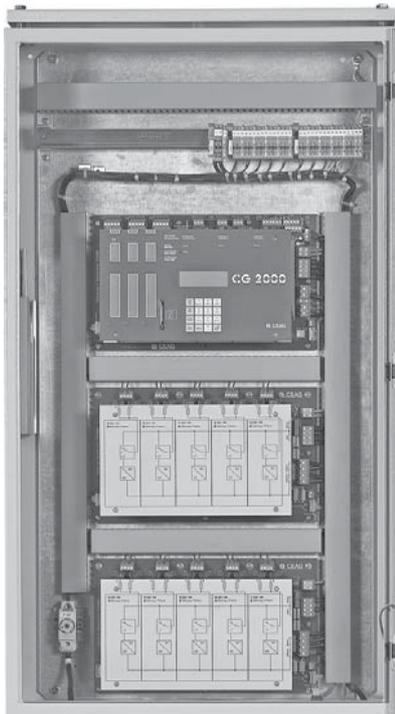
**Note:**  
In the Federal Republic of Germany a remote indicating system must be mounted on a central plant control station according to EN 50171. Make sure to observe any national regulations ruling in the country where the lighting system is to be operated.

# Mounting and Operating Manual

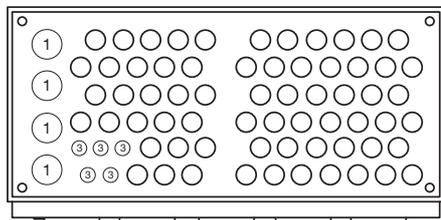
## Group Battery Supply System CG 2000

### Technical Data

Fig. 5: Inside of CG 200 Plus



Prepunched cable entries: CG 100 Plus



Prepunched cable entries: CG 200 Plus

### 3 Technical Data

Switchboard Type		CG 100 Plus	CG 200 Plus
Transformer slots		5	10
Optional slots for internal switch. modules		3	3
I max. (A) from battery		17.5 A	35 A
max. battery capacity (Ah <sub>K10; 1.8 V/C, +20°C</sub> )		4 x 23.3 Ah	4 x 55 Ah
Dimensions (mm)	H	1100 mm	1800 mm
	W	500 mm	600 mm
	D	180 mm	300 mm
Weight (appr. kg) excl. battery and inverter		35.5 kg	110.0 kg
Cable entry panel on top		see fig.	see fig.
adm. temperature range	storage	-20 °C .... + 40 °C	
	operation	-5 °C .... + 35 °C	
Degree of protection for battery part and standard execution cabinets		IP 21 as per DIN EN 60 529	
Safety class (for all designs)		1 as per DIN EN 60 598	
admissible ambient conditions for storage and operation		see a.m. degree of protection and safety class regarding safeguarding to prevent contacting live components and the ingress of dust, foreign material or moisture	

- 1= M16/M20
- 2= M12/M20
- 3= M16
- 4= M20/M25
- 5= M12/M16/M20/M25/  
M32/M40/M50

- Cable entries from top  
Prepunched roof sheeting
- 1= 4 x M32
  - 2= 65 x M20/M25
  - 3= 5 x M16



#### Attention!

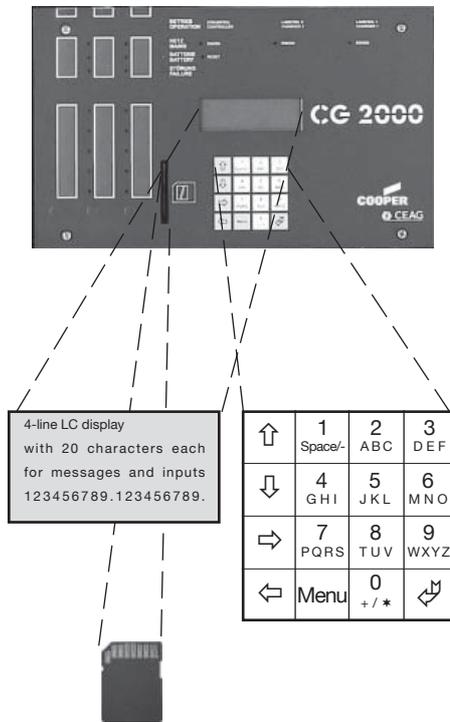
- When planning and during subsequent operation make sure
- the units are adequately cooled (see notes under «adm. temperature range»),
  - the ambient conditions are met as prescribed with respect to degree of protection and safety class (see above),
  - the line length from the unit to the last luminaire in the circuit does not exceed the permissible figure (see Page 11 «Permissible line length in a luminaire circuit»),
  - the batteries used for emergency operation comply with the technical specifications applicable to the unit (see following page).

# Mounting and Operating Manual

## Group Battery Supply System CG 2000

### Technical Data

Fig. 6: Control unit CG 2000



#### Control unit CG 2000

Freely programmable control with non-volatile memory for programming and user-specific parameter settings.

3 Optional slots for internal modules; a total of 10 optional modules (internal/external) can be monitored and controlled.

#### Communication and control

An internal LON bus enables data to be exchanged with other modules

#### Operation

Via a 4x4 membrane keyboard and LC display. Numerous user-defined settings are available via a menu-assisted parameterization function. General and emergency lighting functions can be operated via switches locally.

#### Data exchange and storage

By means of a memory card reader.

#### Type of used card

Acc. to the type of system you need the following pre-programmed memory cards SD-card:  
CEAG part no.: 400 71 347 912

#### Connections

Via screw terminal blocks on the motherboard of the control unit. Conductor size up to 2.5 mm<sup>2</sup> for rigid or flexible lines

#### Terminal assignment

See Appendix A: «Terminal Assignment»

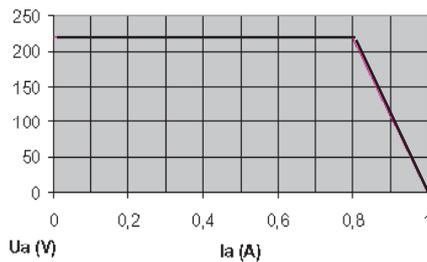
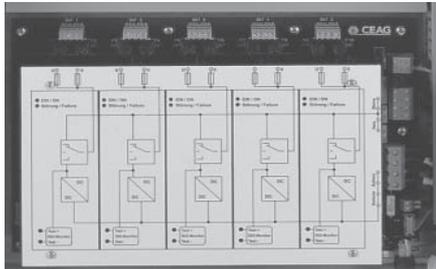
**The build-in memory card unit will save the logbook and configuration of the CG 2000 system.**

# Mounting and Operating Manual

## Group Battery Supply System CG 2000

### Technical Data

Fig. 7: Transformer module



**Ua (V) Output Voltage**  
**LWL 150 CG-S in battery operation**

#### Transformer module LWL 150 CG -S

The transformer module powers, for example, emergency lighting circuits fitted with luminaires with electronic ballasts (EBs) for DC operation when the normal 230-V mains power fails.

An optional CG or CG-S monitoring unit checks whether the connected luminaires function correctly. A total of 20 luminaires can be hooked up to one emergency lighting/final circuit.

#### Slots

5 (for plug-type transformer cards, one per final circuit)

Transformer cards <sup>1)</sup>  
max. continuous rating in emergency service

220 V DC / 150 W - eg for EB luminaires and incandescent lamps<sup>1)</sup>

max. start rating 220 V AC  
in emergency service:

270 W  
270 W < 1 min.

Max. making current at  
transformer output

120 A ; 1 ms

Mains fuse rating  
via G fuse 2 AT / 6 x 32 mm

2 A

Weight without transformer cards

appr. 0.42 kg

#### Connections

by means of screw terminals on top-hat (DIN) rails of the switchboard hardware  
Conductor size 4.0 mm<sup>2</sup> for rigid and flexible lines for connection of final circuits

#### Terminal assignment

See Appendix A: «Terminal Assignments»

Permissible line length in a luminaire circuit

irrespective of luminaire number and type and conductor size or manufacturers' instructions on lamps and EBs procured from other sources

<sup>1)</sup> Transformer cards are not included in the supply scope of switchboards CG 100 Plus or CG 200 Plus because their number depends on the number of planned/existing final circuits!

# Mounting and Operating Manual

## Group Battery Supply System CG 2000

### Technical Data

Fig. 8: Batteries for system CG 100 Plus (top) and CG 200 Plus (bottom)



#### Batteries

Rated capacity Ah <sub>K10; 1,8 V/C, +20°C</sub>	Battery dimensions L x W x H (mm)	Number of batteries UB=12V pcs.	Total weight of all batteries in kg
5 J: 23.3 Ah	166 x 125 x 175	4	38
5 J: 50 Ah	261 x 135 x 230	4	74
10 J: 23.3 Ah	164 x 129 x 162	4	38
10 J: 31.5 Ah	198 x 133 x 185	4	48
10 J: 49.5 Ah	234 x 169 x 190	4	73

#### Ordering information

Type	Characteristics	Ordering Code
------	-----------------	---------------

12 V 23.3 Ah	Useful life of battery 5 years	400 66 041 179 <sup>1)</sup>
12 V 50 Ah	Useful life of battery 5 years	400 66 070 091 <sup>1)2)</sup>
12 V 23.3 Ah	Useful life of battery 10 years	400 66 070 461 <sup>2)</sup>
12 V 31.5 Ah	Useful life of battery 10 years	400 66 070 116 <sup>2)</sup>
12 V 49.5 Ah	Useful life of battery 10 years	400 66 070 463 <sup>2)</sup>

<sup>1)</sup> for CG 100 Plus

<sup>2)</sup> for CG 200 Plus

	Max. battery current/A <sup>1)</sup>					
	5-year-battery		10-year-battery			
	CG 100 23.3 Ah*	CG 200 50 Ah*	CG 100 23.3 Ah*	CG 200 23.3 Ah*	CG 200 31.5 Ah*	CG 200 49.5 Ah*
<b>Discharge</b>						
<b>Time</b>						
0.5 h	750	1500	750	1185	1500	1500
1.0 h	740	1500	630	630	890	1420
1.5 h	540	1070	490	490	665	1100
2.0 h	430	860	370	370	545	860
3.0 h	310	610	260	260	400	630
8.0 h	130	260	110	110	170	265

\* C10/1,8 V/C bei +20 °C

<sup>1)</sup> Data incl. converter efficiency

#### Limits for group supply system (LPS) to standard: Output/battery current absorption

prEN 50171

1,0 h	1500W / 35.0 A
3,0 h	500W / 11.6 A



#### Attention!

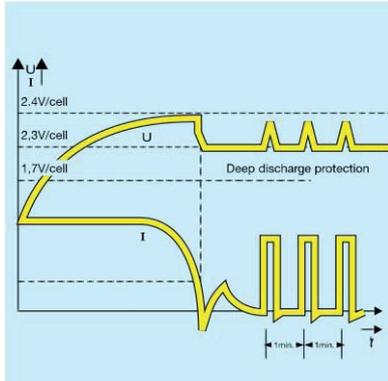
- Batteries for emergency service must not be stored without charging for periods exceeding three months!
- If the mains power supply of the CG 2000 system is down for more than three days the battery circuit has to be disconnected (remove battery fuse). This work must be carried out by trained electrical personnel (refer to «8.5 Connect/Disconnect Batteries of a CG 2000 System»).

# Mounting and Operating Manual

## Group Battery Supply System CG 2000

### Technical Data

Fig. 9: Charging characteristics



#### Battery Charging System

The fully enclosed maintenance-free lead batteries are gently charged in a temperature-related fashion according to the adjacent I/U charging characteristic. Depending on the respective battery's discharge degree a high-rate charging may take place to ensure that the gassing is not exceeded.

Charging is constantly monitored by means of a patented process and any malfunction or fault such as battery circuit interruption, asymmetry of battery, defect charging components or cells of high resistance are reliably detected.

Charging characteristic	I/U
End-of-charge voltage - high-rate charging	57.2 V DC
End-of-charge voltage - floating battery	55.2 V DC
Exhaustive discharge protection	40.8 V DC
Charging current at 48V	2.5 A
Max. number of charge units (slots on CG 2000 motherboard)	1 (CG 100 Plus) 2 (CG 200 Plus)
Weight	0.4 kg

#### Determination of ventilation of electrical rooms acc. DIN EN 50272-2 (calculated for boost charge!):

Battery 48 V	23.3Ah	31.5Ah	49.5Ah	50Ah
Air volume flowreq. for the ventilation of the place of installation (m <sup>3</sup> /h)	0.23	0.32	0.51	0.53
Vent cross-section of the air inlets and outlets of the place of installation (cm <sup>2</sup> )	6.45	8.87	14.24	14.78

#### Number of additional charging modules

Battery capacity (C10; 1.8 V/C; +20°C)	Recharging cycle 12h Rated operating time EN 50171		
	1h	3h	8h
23.3Ah	0	0	0
31.5Ah	0	0	1
49.5/50Ah	1	1	1

# Mounting and Operating Manual

## Group Battery Supply System CG 2000

### Technical Data

Fig. 10: Lettering of DLS modules (internal)

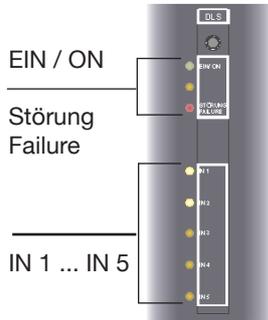


fig. 11: External DLS-Module



#### DLS module (internal)

Plug-in card module for mounting in CG 2000 controllers (internal permanent light switching module). Parameter settings with DLS function, Address of modules 1 ... 3 depends on used optional slot location on motherboard.

The universal optional slots on the motherboard of the CG 2000 control unit have an insert frame on the front panel that can be used to hold the lettering strips included in the optional module supply.

Monitoring thresholds

as per EN 60598-2-22: 60-85%  $U_{NENN}$

Inputs

5 inputs with LED status display  
Can be allocated to circuits/luminaires; and switching behavior adjustable

Connection terminals

2.5 mm<sup>2</sup> on the motherboard of the control unit

Indicators

7 LEDs (see adjacent figure)

#### DLS module (external) with DLS/3-phase detector function

Modul in side-by-side enclosures for mounting on DIN rails. Parameter settings with DLS function (interrogation of switches and control of the general lighting system in 230-V mains service) and/or 3-phase detector function (3PhW).

Automatic function check including open-circuit monitoring of bus line and communication faults.

Communication with CG 2000

via LON bus (RS 485)  
Address of modules 1 ... 10 selectable via rotary switch on module

Monitoring thresholds

as per EN 60598-2-22: 60-85%  $U_{NENN}$

Connections

5 inputs with LED status display  
1 connection for LON bus (RS 485)  
a 24-V module supply

Connection terminals

Screw terminals, 2.5 mm<sup>2</sup>  
refer to adjacent figure

adm. temperature range

Storage  
Operation

-20 °C .... + 40 °C  
-5 °C .... + 35 °C

Degree of protection  
and safety class

IP 20 to DIN EN 60 529  
1 to DIN EN 60 529

# Mounting and Operating Manual

## Group Battery Supply System CG 2000

### Technical Data

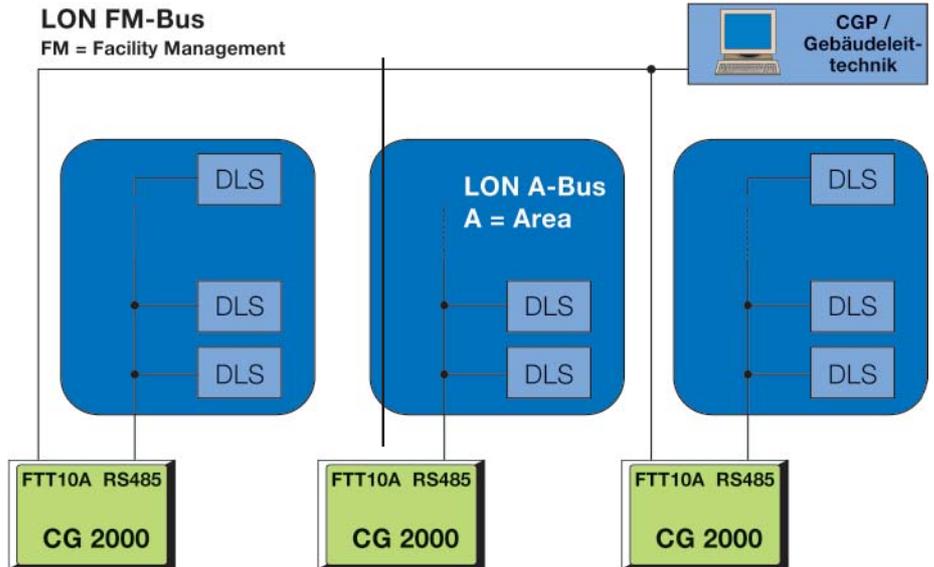
#### LON bus technology to RS 485/FTT10A

For data communication with connected monitoring modules as well as with a LON bus will be used (expected to be available in the fourth quarter of 2001). A connection to an overriding building management via a LON bus (FTT10A) is possible.

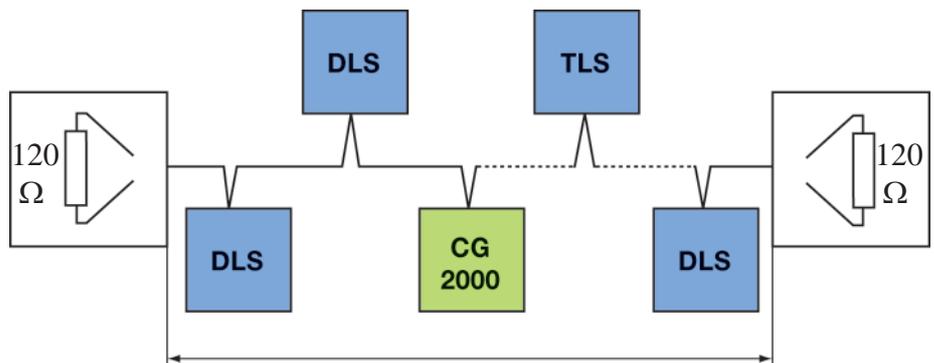
A DC-coupled power supply system is available for the LON modules (SELV, 24 V / 0.5 A).

The maximum line length depends on the required energy and line cross section.

**Fig. 12: LON bus to RS 485 (for communication with switching modules) and to TT10 (for communication with higher-ranking building automation systems GLT) DLS = permanent light switching module**



**Fig. 13: Line routing for external modules**



Double Terminated Bus. Dead-end feeders are not permissible.

Max. length of buscable: 1.200 m

Recommended cable: IY(ST) y 4x2x0.8 mm Ø  
Twisted pair, screend



**Note:**

The terminating resistors (absolutely required) are included in the supply in a plastic bag packed with the switchboard.

DLS = (external) permanent light switching module

TLS = (external) staircase light switching module

(see separate operating manuals)

#### 4 Important Notes on Safety at Work and Safe Operation of a CG 2000 System



##### Warning!

**This unit is a part of the emergency and general lighting system and as such is an important safety component of a building or operating location.**

**Any unauthorized or makeshift (inexpert) work carried out on the system may result in a failure of the general or emergency lighting installation and thus cause**

- significant danger to persons,
- significant damage to machinery and plant units,
- malfunctions and interruption of the production sequence.

After the unit has been mounted, connected and commissioned only the following work is required during normal operation:

- Monitoring and logging of the equipment function
- Safeguarding actions in the case of malfunctions
- Carrying out inspections and safety checks prescribed by law and regulations



##### Notes:

- Observe the national legislation and guidelines with respect to the design and control of a plant forming part of general and emergency lighting systems.
- Observe the national legislation and guidelines with respect to inspections and safety checks (eg for function and operating duration testing).

Organization and monitoring of this work is the duty of the lighting system operator.

The following is to be laid down in writing and the relevant documents must always be available:

- Type and scope of the above mentioned work
- Documentation of the results of the work
- Responsibility and authorization regarding the work to be performed
  - Who is allowed to perform a certain task?
  - Who has to monitor the work performed?
- Reporting duty (eg in case of faults or function testing)?
- Organizational measures when work is carried out on the lighting system. This may include, inter alia:
  - Information and reporting duty regarding start, duration and end of the work concerned
  - Safety measures to be taken during the work (eg reserve lighting, disconnecting the power supply, safeguards to prevent accidental restarting)
  - Protection and safety equipment for the personnel carrying out work on the plant (eg suitable working clothes and PPE)
  - Protection and safety measures to rule out danger caused by neighboring plant units (eg providing safety fences, barriers, securing traffic routes)

Please observe the notes relating to the readers and use of this Mounting and Operating Manual as given under «1 Important Notes» and «5 Intended Use». In particular, inspections and safety checks have to be performed exclusively by authorized expert staff that must also prepare the required documentation (to satisfy national legislation and rules).



##### Note:

If the lighting system or the programming of the equipment requires modification or in the event of safety checks to be performed, please contact the respective branch of CEAG or consult experts of authorized operations.

# Mounting and Operating Manual

## Group Battery Supply System CG 2000

### Information and Advices

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#### **5** Intended Use

The system CG 2000 is meant to monitor and control a lighting system comprising general and emergency lighting units..

The system operates under programm control.

Parameter setting must exclusively be carried out by expert personnel having special knowledge of statutory and technical fundamentals governing the erection and operation of a lighting system.

The system has been designed and built in conformity with the latest technical rules and safety aspects.

Nevertheless, danger may arise during plant operation

- to personnel if the safety instructions are disregarded,
- if the unit is used for other than the intended purpose.

Therefore, operate the unit and any system components attached only when in perfect technical condition and observe

- the safety and danger notes included in this mounting and operating manual,
- work procedures and safety instructions prescribed by the plant Operator,
- the installation and operating data listed under „3 Technical Data“ und in CEAG Bulletin „Safety Luminaires and Safety Lighting Systems“.

Malfunctions that may impede the functioning or safety of the plant must at once be reported to the respective level of the plant management and have to be eliminated without delay.

The working and safety rules and regulations are to be observed as laid down in this mounting and operating manual and furthermore as they arise from

- organizational measures initiated by the Plant Management as described under
  - «1 Important Notes»,
  - «4 Important Notes on the Safety at Work and Safe Operation of a CG 2000 System»
- as well as from the general and specific accident prevention rules and regulations.



#### **Note:**

CEAG will not assume any warranty or liability for damage or consequential damage occurring as a result of

- using the system for other than the intended purpose,
- disregarding rules and regulations governing the safe operation of the system,
- unauthorized or inexpert modifications to
  - connections and settings of the unit, or
  - the unit's programming,
- operating devices or device groups in conjunction with system CG 2000 that are unsuited or not permitted.



#### **Attention!**

In addition, be sure to observe all laws, standards and guidelines applicable in the country where the equipment is mounted and operated.



#### **Warning!**

When planning a lighting system based on CG 2000 please check in advance whether the electrical installations suffice local needs and conditions. Special ambient conditions (eg hazardous areas or areas where aggressive atmospheres prevail) will necessitate tailored equipment and installations.



#### **Attention!**

Only (switchable) CG-S luminaires furnished by CEAG Sicherheitstechnik GmbH warrant optimum functional performance when operated in conjunction with a CG 2000 system! Luminaires for a DC operation at 220 V with EBs from CEAG have the technical properties (with limited functional scope when in a CG 2000 system) required for emergency/safety service. When you intend to use other luminaire types please make sure that these meet the needs of an emergency lighting plant as well as the operational needs of CG 2000!

## 6 Transport, Storage and Disposal

The batteries are supplied separately. They will only be installed and connected when the unit has been mounted.

As regards transport and storage of the batteries please follow the instructions issued by the battery manufacturer.

### Attention!

- Batteries for emergency service must not be stored without charging for periods exceeding three months!
- If the mains power supply of the CG 2000 system is down for more than three days the battery circuit has to be disconnected (remove battery fuse). This work must be carried out by trained electrical personnel (refer to «8.5 Connect/Disconnect Batteries of a CG 2000 System»).

The following must be observed when handling and storing CG 2000 system:

- Always handle and store the unit in upright position (see markings on the package).
- Observe the technical specifications against «**3 Technical Data**» governing ambient conditions when handling and storing the system. The storage location should be dry and clean. Avoid the ingress of dust and moisture and rule out condensate formation due to moisture during transport and storage. (see details regarding admissible ambient temperatures, degree of protection and safety class as listed under «**3 Technical Data**»).



### Disposal:

- Packing materials are not to be viewed as garbage but are valuable substances that have to be recycled or reused.

Please follow any national guidelines and provisions governing the disposal of packing material.

- Batteries and electronic components contain substances that cause health and environmental risk and damage if not disposed of expertly. Therefore, strictly observe the national guidelines and provisions governing the disposal of used batteries and electronic scrap.

# Mounting and Operating Manual

## Group Battery Supply System CG 2000

### Mounting and Checking

---

## 7 Mounting

All the mounting work described here is based on the diagrams and drawings prepared for the plant.

These diagrams and drawings must take into account the current status of the relevant plant and meet the needs of the group battery supply system CG 2000. They have to be prepared by experts in line with applicable electrotechnical guidelines and standards.



#### Warning!

- ❑ Work on the 230-V mains and laying of connection, signaling, and control cabling as well as the connection of the batteries must only be carried out by skilled electrical personnel.
- ❑ Laying of connection, signaling, and control lines must exclusively be performed in conformity with applicable guidelines and standards of electrical engineering (eg DIN VDE 100 standards series).
- ❑ In addition please observe all national guidelines and provisions ruling in the country where the plant is to be erected and operated.



#### Attention!

Only luminaires operating on 220V AC (50/60 Hz) and 220 VDC must be connected to the outputs for the emergency/final circuits of the CG 2000 system!

The line length from the unit to the last luminaire in the circuit must not exceed the maximum admissible line length (refer to Technical Data relating to the transformer module).



#### Danger!

Take all measures required to warrant safety at the workplace! Aside from observing all general technical rules and procedures Chapters 1 and 4 thru 6 of this Manual have to be carefully adhered to.



#### Warning!

Make sure the terminals (poles) of the batteries are correctly connected.

Short circuits or wrong polarity may result in electrical shocks endangering persons.

Moreover, wrong polarity of the battery may cause damage to the battery or the system's electronic components.



#### Danger!

Using or handling the batteries or battery-powered system parts inexpertly may cause danger to life and limb due to high currents that may arise during the discharge of batteries.

Be sure to follow the instructions in this Manual when you disconnect or connect the batteries (refer to «8.5 Connect/Disconnect CG 2000 System Batteries»).



#### Attention

When opening and working on the electrical system (eg to connect control or signaling lines) or electronic sections (eg mount or remove internal DLS modules or transformer cards) make sure adequate ESD protection steps are taken!

# Mounting and Operating Manual

## Group Battery Supply System CG 2000

### Mounting and Checking

---

#### 7.1 Mounting the CG2000 switchboard

In the back of the CG 2000 switchboard a number of holes have been drilled via which the switchboard can be attached to a wall or special supporting structures.

Cables enter the switchboard at the top through impressed bores in the flange blanking plate. To seal off the cable entry points suitable cable glands with metric ISO thread have to be used.



#### **Danger!**

Hazard due to electric shocks! At this point, only the laying of connection lines is described. Never make connections to voltage sources (230VAC mains or batteries) before you have been expressly asked to do so in this Manual (refer to „8 Commissioning and Further Work on the CG 2000 System“).

- In case the batteries have been placed into the compartment, they must be removed prior to mounting. Observe the above danger notes and comments on the disconnection/connection of the batteries (refer to Pt. 8.5 of the «Commissioning» Chapter).
- Drill the holes required for switchboard attachment as outlined in the illustration (Fig. 14).
- Mount the switchboard. Use suitable fixing elements and bolts (take into account the condition of the wall or supporting structure that must take the weight of the switchboard).
- Run the connection leads into the switchboard thru the flange blanking plate (at top of switchboard). Use suitable cable glands to seal off the cable entry points.
- If you wish to store the batteries in the compartment until the system is commissioned, make sure to insulate the battery terminals and/or battery connecting leads!

#### 7.2 Connecting 230-VAC power supply lines

The CG 2000 system (electronic unit and battery charger) is powered by the normal 230-V mains supply (resp. via the batteries during emergency service).

- Connect the lines for the power supply to the CG 2000 system to the normal 230-V mains system. For this purpose use screw terminals L, N and PE on the DIN (top-hat) rail in the switchboard (see Fig. 15). The power supply connection of CG 2000 system components (CG 2000 controller, transformer module LWE 150 CG-S and battery chargers) has already been completed when the switchboard is delivered.

#### 7.3 Connecting general lighting supply lines

The general lighting system is powered via the normal 230-V mains supply.

The 230-V power supply to the general lighting system circuits can be monitored by means of

- suitably configured external DLS/3PhW modules (refer to Fig. 17 on page 20)
- 3-phase detectors in the sub-distribution board of the lighting circuits (connection as 24-V current loop, see Fig. 20).

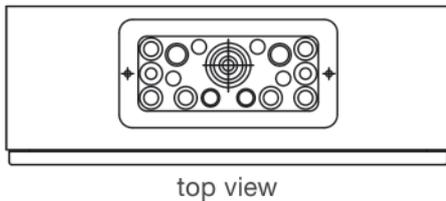
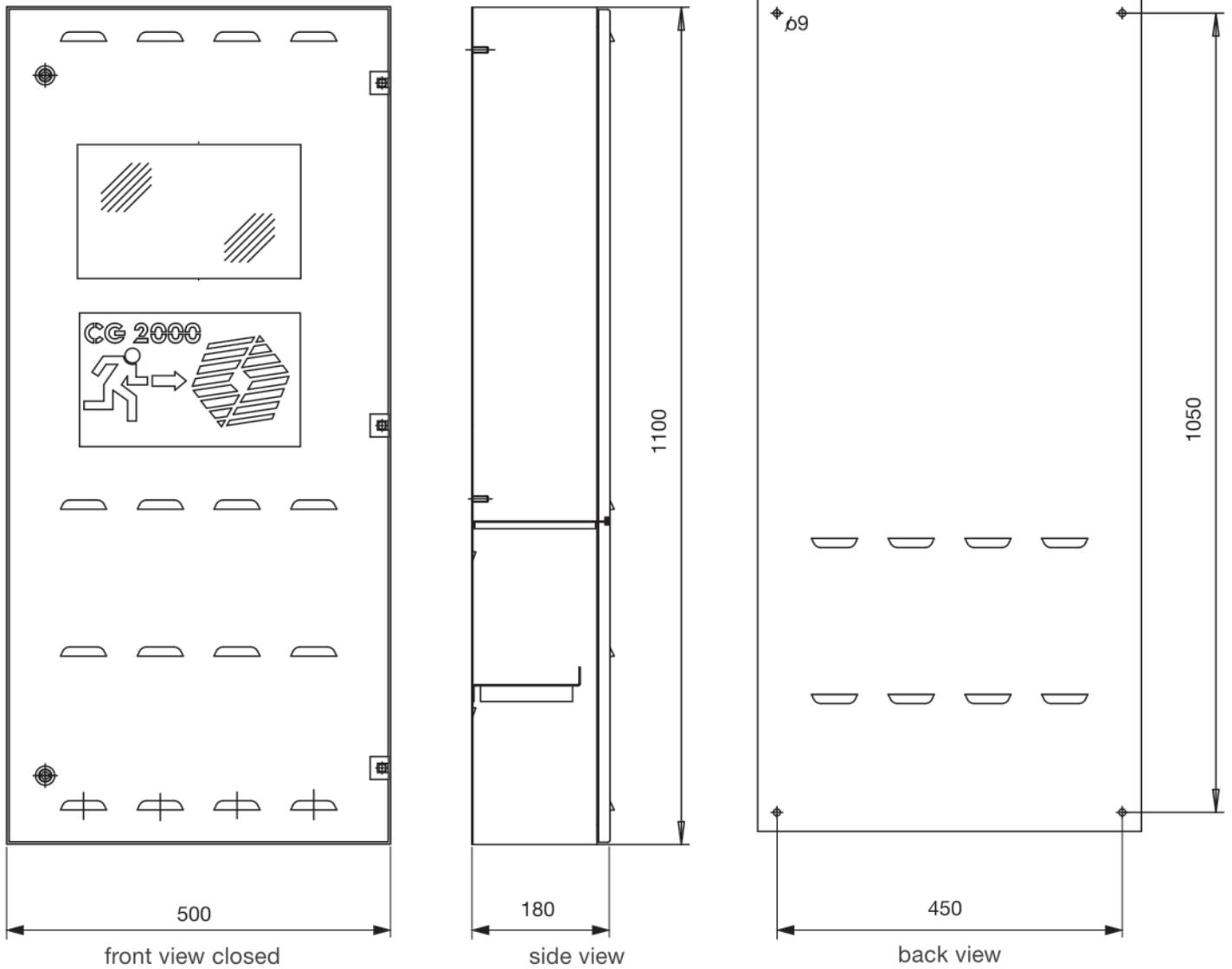
# Mounting and Operating Manual

## Group Battery Supply System CG 2000

### Mounting and Checking

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#### Dimensional Drawings CG 100



Prepunched cable entries from top through plastic roof sheeting for:

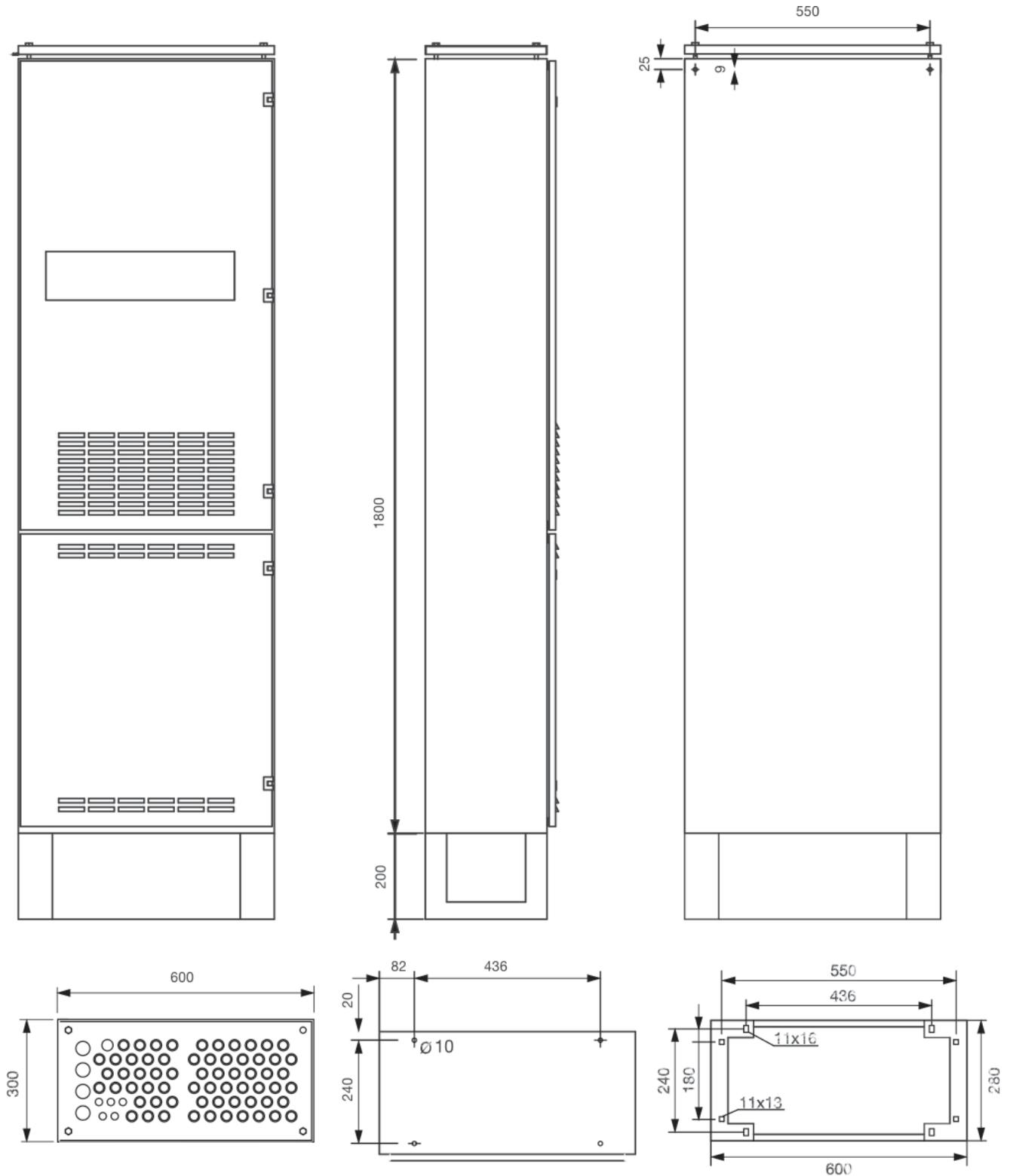
- max. 4 x M12/M20
- max. 4 x M16
- max. 6 x M16/M20
- max. 2 x M20/M25
- max. 1 x M12...M50

# Mounting and Operating Manual

## Group Battery Supply System CG 2000

### Mounting and Checking

#### Dimensional Drawings CG 200



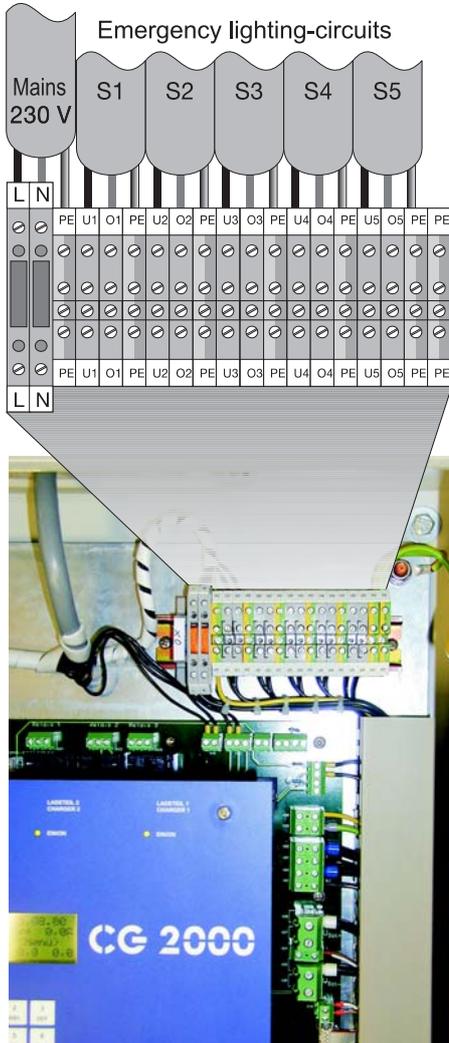
Cable entries from top  
 Prepunched roof sheeting  
 4 x M32  
 65 x M20/M25  
 5 x M16

# Mounting and Operating Manual

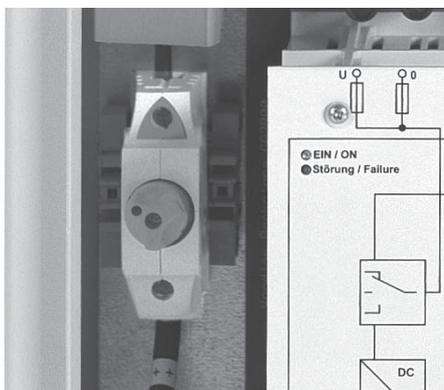
## Group Battery Supply System CG 2000

### Mounting and Checking

**Fig. 15: Screw terminal block for 230-V mains supply and circuits 1 ... 5**



**Fig. 16: Location of the battery fuse (see CG 100 Plus)**



#### 7.4 Connecting the emergency lighting/final circuits



##### Warning!

Do not switch on the power supply to the plant before all installation and mounting work has been completed (observe instructions in „8 Commissioning and Further Work on the CG 2000 System“).

Power supply of the emergency lighting/final circuits takes place via outputs 1 ... 5 (resp. 6 ... 10) of the transformer module(s) LWE 150 CG-S. Connection of circuits 1 ... 5 takes place via the screw terminal pairs OUT 1 ... OUT 5 on the top-hat rail of the switch-board for the upper transformer group:

- Circuit 1 Terminals U1 and O1
- Circuit 2 Terminals U2 and O2
- Circuit 3 Terminals U3 and O3
- Circuit 5 Terminals U4 and O4
- Circuit 5 Terminals U5 and O5

Analogously, connection of circuits 6 ... 10 takes place via the screw terminal pairs on the top-hat rail of the switch-board for the bottom transformer group.

Regarding each individual circuit observe the details/instructions given

- under «3 Technical Data» with respect to number of safety luminaires and max. admissible line length as well as permissible wire cross sections,
- by the luminaire and electronic ballast manufacturers.

- Connect the luminaires of the emergency lighting system as prescribed by the manufacturer.
- If this option is available (eg for CEAG luminaires with EB 13.2 CG-S): Select addresses (1 ... 20) for the luminaires of an emergency lighting circuit. For this work, observe the instructions given in the luminaires' technical documentation.
- Connect the emergency supply circuits to the terminals U/0 1 ... U/0 10 at the top hat rail of the enclosure.

#### 7.5 Mounting and connecting CG 2000 system batteries

The batteries operate on 48 V with 4 batteries being connected in series at 12V each (refer to Fig. 25).



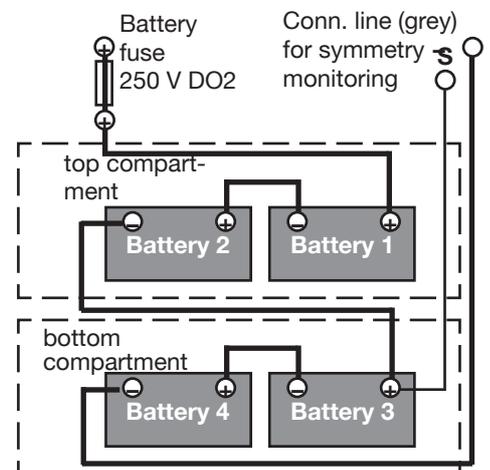
##### Warning!

Make sure the terminals (poles) of the batteries are correctly connected. Short circuits or wrong polarity may result in electrical shocks endangering persons. (refer to 8 “Commissioning and Further work on CG 2000 System”)

##### Connect batteries

- Remove the fuse for battery feeding located to the left of the transformer module (see Fig. 16).
- Unless already done, block the CG 2000 system (on the CG 2000 control unit!) via the menu item «2.1 Block unit» 1).
- Connect the batteries 1 ... 4 as shown below:
  - Connect the grey feed line for symmetry checks to the positive terminal of battery 3.
  - Connect the “+” marked cable to the positive terminal of battery 1.
  - Connect the “-” marked cable to the negative terminal of battery 4.

**Fig. 26: Connection diagram for the batteries of the CG 100 Plus system**



**Attention!**

Observe the relevant mounting- and installation instruction of the used DLS module!

### 7.6 Mounting and connecting a CEAG 3-phase detector: External DLS-Module



**Fig. 19:** External DLS-Module

These modules are slide-on units designed for mounting in a switchboard/ sub-distribution unit. The modules are attached to a top-hat rail to DIN EN 50 022.

- Place the module onto the top-hat rail at the desired location. Carefully snap module in place on the rail.
- The connecting lines are hooked up to screw terminals on the unit (see Fig. 19). The terminal assignment on the motherboard of the CG 2000 control unit is listed in Appendix A or can be seen from the adjacent Fig. 17. Connect the module
  - as outlined in the adjacent connection diagram,
  - as prescribed by the module's operating instructions
  - and according to diagrams and drawings for the installation on site.
- Select address 1 ... 10 as envisaged for the module (Fig. 18). Make sure not to assign a single address to multiple modules because this will cause operational failures.
- Connecting of the terminating resistors see page 13

**Note:**  
In case optional slots 1 ... 3 (logic address 1 ... 3) have been used for the internal DLS modules, these addresses must not be assigned to external DLS modules.

### Mounting and connecting an internal DLS-Module

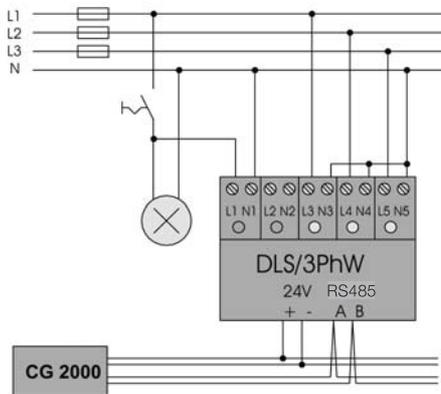


**Fig. 20:** Internal DLS-module

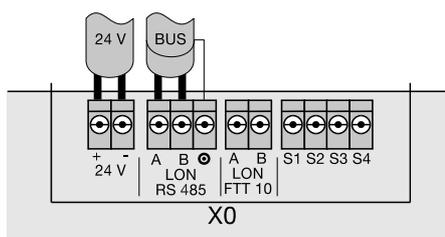
The internal DLS-modules are plug-in cards for installation into the CG 2000 control unit.

- Insert the plug-in card at an option place at the desired location on the backplane of the control unit.
- The connecting lines are hooked up to screw terminals on the backplane. The terminal assignment on the motherboard of the CG 2000 control unit is listed in Fig. 21 and Appendix A. Connect the module:
  - as outlined in the adjacent connection diagram,
  - and according to diagrams and drawings for the installation on site.

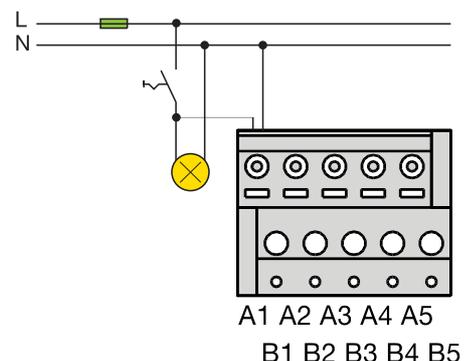
**Fig. 17: Connection diagram of a DLS/3phW module:**  
Input 3 to 5 are used for 3-phase detector, input 1 is installed as control loop for status of a emergency lighting circuit.



**Fig. 18: Connection of the LON bus and 24 V power supply at the motherboard of CG 2000**



**Abb. 21: Connections of the internal DLS-module at the backplane of the control unit of CG 2000**



# Mounting and Operating Manual

## Group Battery Supply System CG 2000

### Mounting and Checking



Fig. 22: CEAG 3 - phase monitor

#### 7.7 Mounting and connecting a CEAG 3-phase detector with 24V current loop

These modules are slide-on units designed for mounting in a switchboard/ sub-distribution unit.

The modules are attached to a top-hat rail to DIN EN 50 022.

- Place the device onto the top-hat rail at the desired location. Carefully snap it in place on the rail.
- The connecting lines are hooked up to screw terminals on the unit (see Fig. 22). The terminal assignment (S3/S4) on the motherboard of the CG 2000 control unit is listed in Fig. 25 and Appendix A.



#### Notes:

- If more than 3 phases shall be monitored, additional modules have to be connected and arranged in a 24-V loop with the other units (see Fig. 24).
- If one 3-phase monitoring unit shall monitor less than 3 phases, the other inputs of the 3-phase monitoring unit have to be bridged.

Fig. 25: Connections at the motherboard of the control unit CG 2000

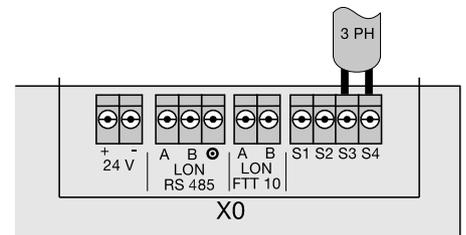
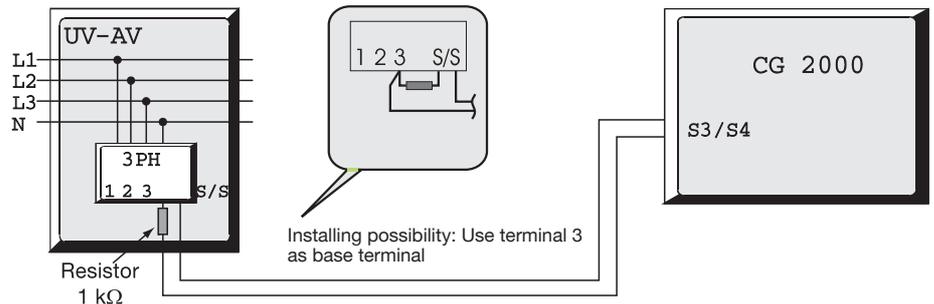


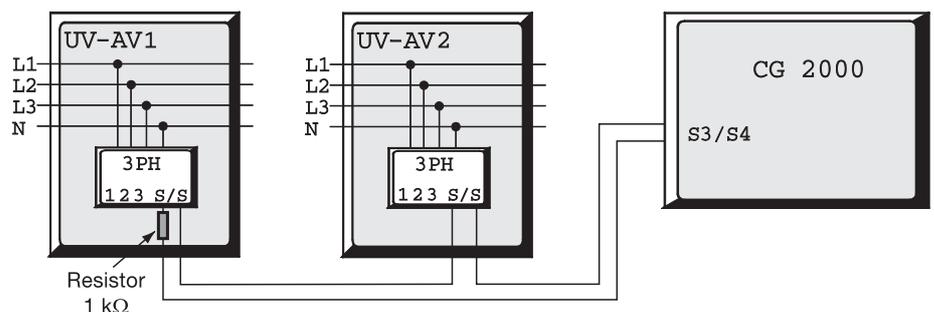
Fig. 23: Connection diagram of a CEAG 3-phase monitoring system with 24-V control loop for emergency lighting requests with differential loop monitoring to detect short- and open-circuits



Differential monitoring: Short-circuit or interruption immediately switches the system on (permanent light)

Phase detector switch closed (1kΩ): Plant in normal operation

Fig. 24: Connection diagram for several CEAG 3-phase monitoring units



# Mounting and Operating Manual

## Group Battery Supply System CG 2000

### Mounting and Checking



Fig. 26: Mimic panel/F3-module

#### 7.8 Connecting a remote switch/F3 mimic panel

Connection is to be made as per Fig. 27 and acc. to diagrams and drawings governing installation on site. Observe the instructions in the Technical Documentation for the CEAG F3 remote indicator.

Power to the CEAG F3 remote switch is provided via the 24-V power supply on the motherboard of the CG 2000 control unit. Do not use an external 24-V power supply!

- Connect the CEAG F3 remote indicating unit as per
  - the manufacturer's instructions,
  - the adjacent connection diagram (Fig. 27),
  - the diagrams and drawings for installation on site.
- Connect the terminating resistors (1 k $\Omega$  / 0,5 W) in parallel to the connecting lines on the remote switch (refer to contacts S1/S2 in Figure 27).

- Make the relay assignment in the framework of commissioning. In the Fed. Rep. of Germany the relevant VDE regulations for telecommunication contacts and buzzers have to be observed (see Appendix B or «Loading standard values» in menu «3.7 Relay assignments»).

**Note:** Observe the national guidelines and regulations governing the display and signaling behavior when a remote switch or remote indicating unit is used for emergency lighting systems.

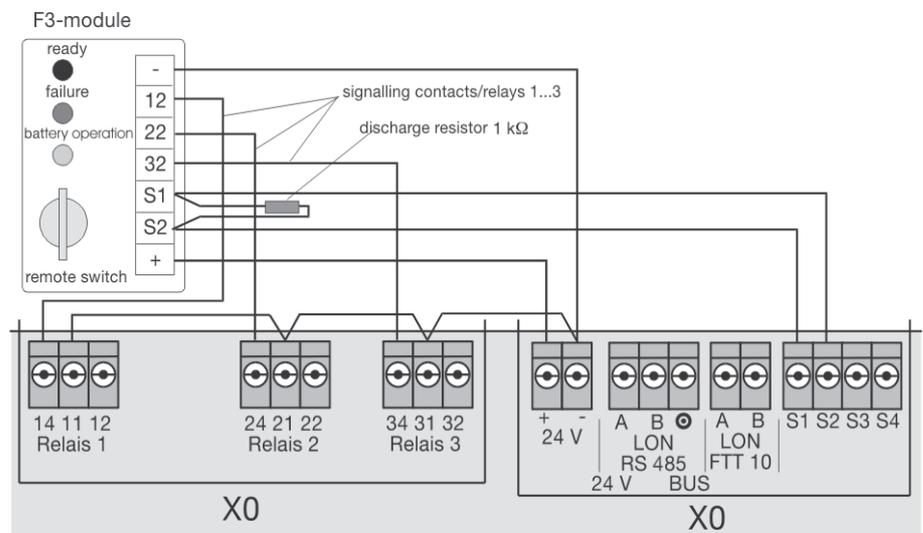
#### 7.9 Completion of mounting work

- Finally, check all completed wiring work by way of diagrams and drawings governing local installation.
- Check whether all connections are firm and correct.
- Remove all cables, insulation and fixing material, tools and packaging material that is no longer needed.

Differential monitoring:	Short-circuit or interruption put system in a state of operational readiness
F3 switch closed:	Plant ready
F3 switch open (1k $\Omega$ ):	Plant blocked

Abb. 27: Connection diagram for a remote switch as 24-V control loop to block the plant (eg during operational downtimes) with differential loop monitoring to detect short- und open-circuits.

green LED on = ready)  
 red LED on = fault  
 yellow LED on = Battery operation  
 Fernschalter = remote switch



# Mounting and Operating Manual

## Group Battery Supply System CG 2000

### Mounting and Checking

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#### **8** Commissioning and Further Work on the CG 2000 System



##### **Warning!**

- ❑ The emergency lighting installation and the CG 2000 system must only be commissioned (or recommissioned after conversions or repairs) by expert electrical personnel sufficiently familiar with statutory and technical regulations and provisions governing the erection and operation of lighting equipment.
- ❑ Additionally, observe all laws, standards, and guidelines applicable in the country where the plant is mounted and operated.



##### **Danger!**

Take all measures required to warrant safety at the workplace! Aside from observing all general technical rules and procedures Chapters 1 and 4 thru 6 of this Manual have to be carefully adhered to.



##### **Warning!**

Make sure the terminals (poles) of the batteries are correctly connected. Short circuits or wrong polarity may result in electrical shocks endangering persons. Moreover, wrong polarity of the battery may cause damage to the battery or the system's electronic components.



##### **Danger!**

Using or handling the batteries or battery-powered system parts inexpertly may cause danger to life and limb due to high currents that may arise during the discharge of batteries.

Be sure to follow the instructions in this Manual when you disconnect or connect the batteries (refer to «8.5 Connect/Disconnect CG 2000 System Batteries»).



##### **Attention!**

When opening and working on the electrical system (eg to connect control or signaling lines) or electronic sections (eg mount or remove internal DLS modules or transformer cards)

- switch off the plant (see Pt. 8.3 “All-pole plant disconnection”)
- make sure adequate ESD protection steps are taken!



##### **Note:**

To carry out the work described below requires knowledge about the operation of the CG 2000 system (see «9 Operation of the CG 2000 Systems»).

Further measures need to be taken if one or more CG 2000 systems are operated via a control station of if a controller is used.

In this case, follow the instructions included in the Technical Documentation relating to such components.

# Mounting and Operating Manual

## Group Battery Supply System CG 2000

### Mounting and Checking

Fig. 28: Screw terminal block for the 230-V mains supply and circuits 1 ... 5



230-V mains supply

Circuit 1

#### 8.1 Checking all connections

- To carry out the checks, disconnect the lighting system and the CG 2000 from the mains supply!
  - Proceed as outlined against Pt. «8.3 All-pole plant disconnection».
  - Take precautions to safeguard this cut-out!
  - Do not switch on the power supply before you have been expressly asked to do so in the framework of commissioning instructions.
- Check that all connections and lines are provided as called for in the drawings and diagrams applicable to the lighting system.
- Check all connections and boltings for tight seating.
- Make sure all cable entries in flange blanking plate at the top of the switchboard are tight to media.

#### 8.2 Insulation testing

- To carry out this check, disconnect the power supply to the CG 2000 system! For this, proceed as explained against Pt. «8.3 All-pole plant disconnection».
- Take precautions to safeguard this cut-out!  
Do not switch on the power supply before all work has been completed.

##### **Danger!**

Insulation tests must only be carried out between protective conductor PE and phase conductors L1 (L2, L3) as well as N.

- Test voltage: max. 1 kV AC/DC
- Test current: max. 10 mA

##### 8.2.1 Insulation test to the CG 2000 unit

- Link the connections on the top-hat rail in the switchboard in the following sequence (see Fig. 27):
  - Link wires L and N ').
- Carry out insulation testing as per Fig. 29a) on this page for
  - the connections of the 230-V power supply of the CG 2000 system to PE

##### 8.2.1 Insulation test to luminaire circuits

Proceed analogously if you wish to test further emergency lighting/final circuits.

- Link the connections on the top-hat rail in the switchboard in the following sequence (see Fig. 29b):
  - Link terminals U1-01 ... U2-02 etc.
- Carry out insulation testing as per Fig. 29a) on this page for the emergency lighting circuits against PE <sup>1)</sup>.
  - Reconnect all disconnected wires and terminals as necessary.
  - remove all links

<sup>1)</sup> This will protect the electronic system of the CG 2000 and luminaire (EVGs) from damage.

Fig. 29a: Insulation testing to the CG 2000 unit

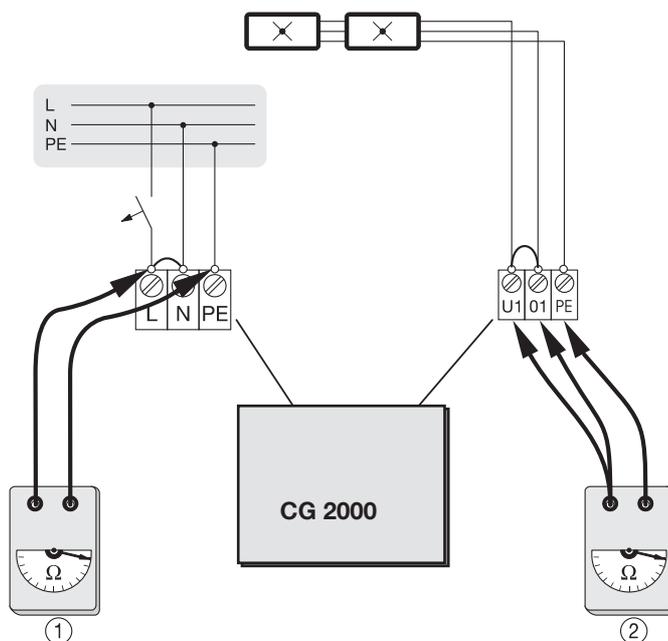


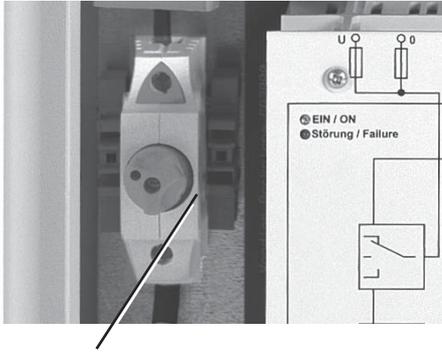
Fig. 29b: Insulation test to luminaire circuits

# Mounting and Operating Manual

## Group Battery Supply System CG 2000

### Mounting and Checking

**Fig. 30: Location of battery fuse (for CG 100 Plus)**



to positive terminal of battery block (see Fig. 31)

### 8.3 All-pole plant disconnection

To enable work to be safely performed on the CG 2000 group battery supply system or connected emergency lighting/final circuits, the plant (all poles) as well as the battery have to be disconnected from the power supply:

- Block the CG 2000 system (on the CG 2000 control unit!) via the menu item «2.1 Block unit» <sup>1)</sup>.
- Remove the fuse for battery feeding located to the left of the transformer module (see Fig. 31).
- Disconnect (all poles) the 230-V power supply to all connected circuits and the CG 2000 system.
- Take precautions to safeguard these steps (lock, key-operated switch, cover etc.).

### 8.4 Starting the plant

When switching the system on again exactly proceed as follows:

- Switch on the 230-V power supply for the connected emergency lighting/final circuits and the CG 2000 system.
- Block the CG 2000 system (on the CG 2000 control unit!) via the menu item «2.1 Block unit» <sup>1)</sup>.
- Insert the fuse for battery feeding located to the left of the battery supply cable entry locations (see Fig. 31).
- Switch the plant on via menu item «2.1 Enable unit» wieder ein.

<sup>1)</sup> refer to Pt. «9 Operation of the CG 2000 System».

### 8.5 Connect/disconnect CG 2000 system batteries

The batteries operate on 48 V with 4 batteries being connected in series at 12V each (refer to Fig. 31).

#### Disconnect batteries

Exactly observe the following sequence:

- Block the CG 2000 system (on the CG 2000 control unit!) via the menu item «2.1 Block unit» <sup>1)</sup>.
- Remove the fuse for battery feeding located to the left of the transformer module (see Fig. 30).
- Disconnect (all poles) the 230-V power supply to all connected lighting circuits and the CG 2000 system.
- Disconnect the cables feeding the batteries:
  - Disconnect the “-” marked cable from the negative terminal of battery Batterie 4.
  - Remove the connecting lines between the batteries.
  - Disconnect the grey feed cable for symmetry checks from the positive terminal of battery 3.
  - Disconnect the “+” marked cable from the positive terminal of battery 1.

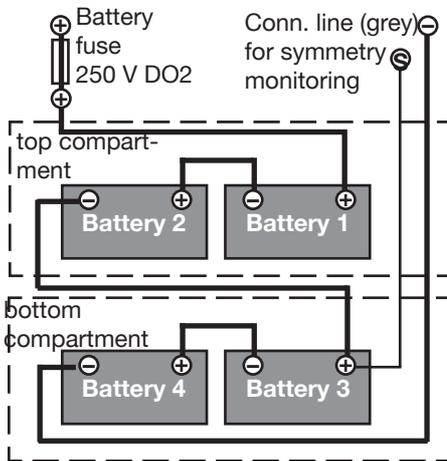
When this has been done the batteries may be removed or defect batteries replaced.

# Mounting and Operating Manual

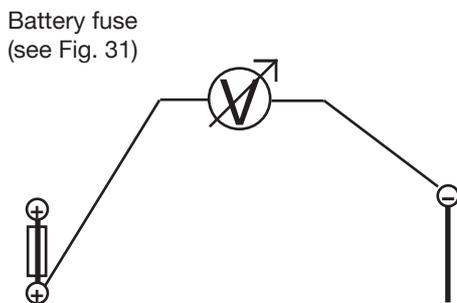
## Group Battery Supply System CG 2000

### Mounting and Checking

**Fig. 31: Connection diagram for the batteries of the CG 100 Plus system**



**Fig. 32: Measuring points for voltage testing of a set of batteries**



eg neg. terminal «- Batt»  
on the motherboards of the  
transformer module(s)

#### Connect batteries

Exactly observe the following sequence:

- Unless already done, block the CG 2000 system (on the CG 2000 control unit!) via the menu item «2.1 Block unit»<sup>1)</sup>.
- Unless already done, remove the fuse for battery feeding located to the left of the transformer module (see Fig. 25).
- Unless already done, disconnect (all poles) the 230-V power supply to all connected lighting circuits and the CG 2000 system.
- Connect the batteries 1 ... 4 as shown in Fig. 26:
  - Connect the grey feed line for symmetry checks to the positive terminal of battery 3.
  - Connect the "+" marked cable to the positive terminal of battery 1.
  - Connect the "-" marked cable to the negative terminal of battery 4.
  - Insert the fuse for battery feeding located to the left of the battery supply cable entry locations (see Fig. 25).

- Check the batteries as described in the following section «8.6 Check batteries».
- Restart the plant as explained in the above section «8.4 Starting the plant».

#### 8.6 Check batteries

To check an existing set of batteries proceed as follows:

- Use a voltmeter arranged as outlined in Figure 30 and the sketch (Fig. 32).

**Testing criterion:** Voltage > + 37 V

If this criterion is not met:

- Check whether the voltage has gone down due to the group battery having fallen below the exhaustive discharge threshold.
- Check whether the batteries have been correctly connected (no wrong terminals used).
- Check the charging status of the individual batteries as prescribed by the manufacturer.

# Mounting and Operating Manual

## Group Battery Supply System CG 2000

### Mounting and Checking

---

#### 8.7 Replacing transformer cards in transformer modules LWE 150 CG-S

Each final/emergency lighting circuit is fed via a transformer card mounted in one of the five slots of a transformer module.

For testing, extension or other purposes it may be necessary to replace or add transformer cards.

The transformer cards are plug-in printed circuit cards held in the transformer module via rear connectors and the front panel.



##### **Warning!**

Switch off the plant as described against Pt. «8.3 All-pole plant disconnection».

- Remove the front panel of transformer module LWE 150 CG-S
  - Remove the 4 fixing screws.
  - Take off the front panel.
- Pull the transformer card off its rear connector towards the front.
- Plug in a new or spare transformer card. Make sure the guide element is correctly positioned and the connectors are not canted or pins bent.
- Replace the front panel of the transformer module (this causes all transformer cards in this module to be properly secured in position).
- Switch the plant on again as described under Pt. «8.4 Starting the plant».
- Check the parameter settings of the circuits or set the parameters for these circuits, eg via the menu item «4.1 Look for transformer» in Menu «4 Circuit setup». (refer to «9 Operation of the CG 2000 System»).

#### 8.8 Replacing internal optional modules (DLS) for CG 2000 control unit

The procedure relating to external DLS-modules is explained in the module's technical documentation.

The internal optional modules are plug-in printed circuit cards held in the CG 2000 control unit via rear connectors and the front panel.



##### **Warning!**

Switch off the plant as described against Pt. «8.3 All-pole plant disconnection».

Prior to start of work check whether external voltage (eg from the general lighting system circuits) is present at the inputs.

Make sure that all inputs are de-energized!

- Remove the front panel of the CG 2000 control unit
  - Remove the 4 fixing screws.
  - Take off the front panel.
- Pull the optional module off its rear connector towards the front.
- Plug in a new or spare optional module. Make sure the guide element is correctly positioned and the connectors are not canted or pins bent.
- Replace the front panel of the control unit (this causes all optional modules of the control unit to be properly secured in position).
- Switch the plant on again as described under Pt. «8.4 Starting the plant».
- Check the parameter settings of the circuits or set the parameters for these circuits, eg via the menu items under «4 Circuit setup» or, if applicable, «5 Luminaire setup» (refer to «9 Operation of the CG 2000 System»).

# Mounting and Operating Manual

## Group Battery Supply System CG 2000

### Operation

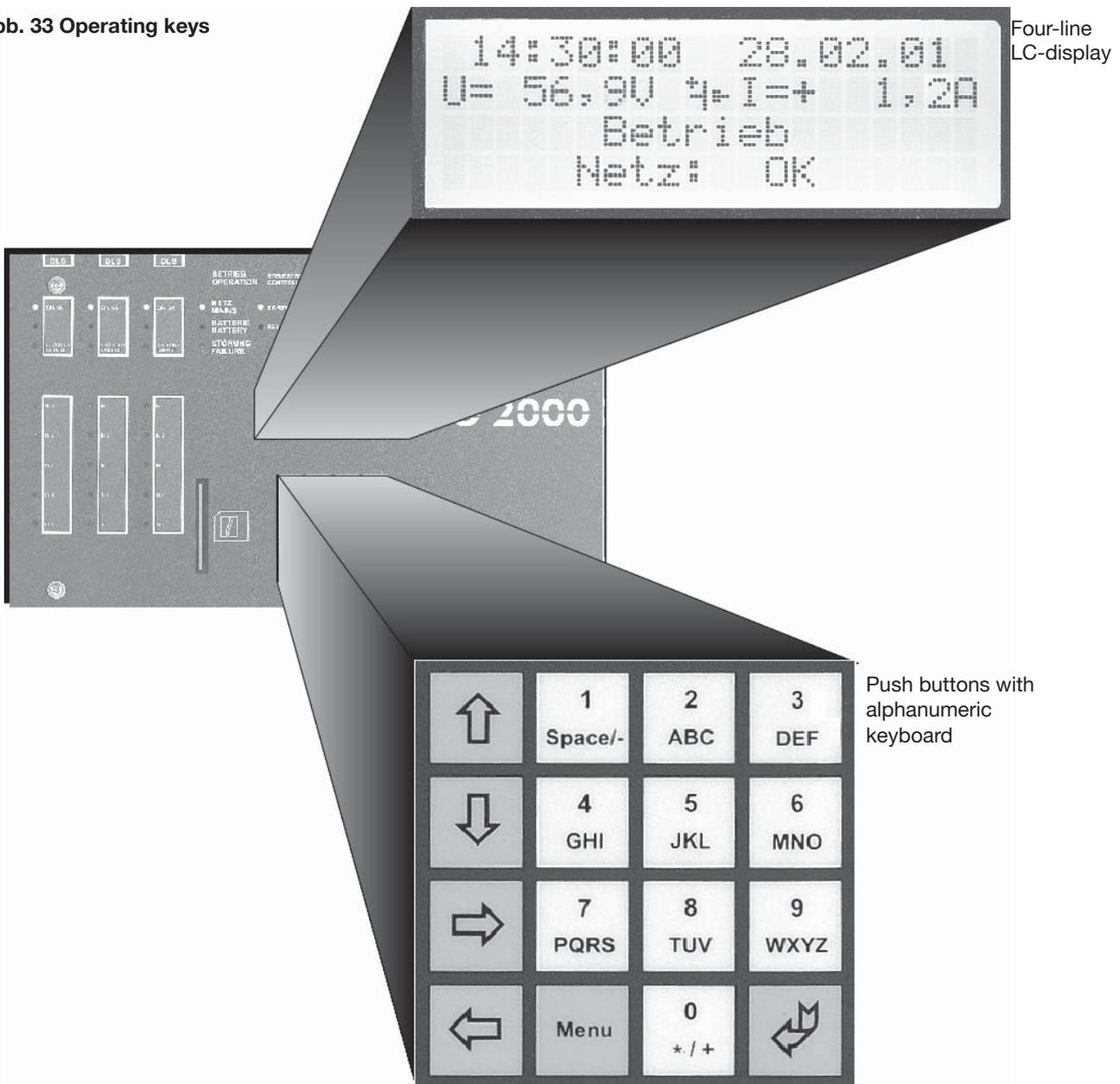
---

## 9 Operation of the CG 2000 System

The system is controlled in a menu-assisted fashion via the keypad and the LC display located on the front panel of the CG 2000 control unit.

To enter or modify parameter values or display details use the control keys and multi-assigned alphanumeric keys of the keypad shown in the margin.

Abb. 33 Operating keys



# Mounting and Operating Manual

## Group Battery Supply System CG 2000

### Operation

Fig. 34: Keyboard

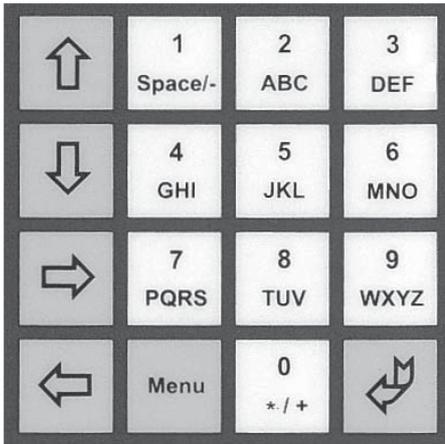
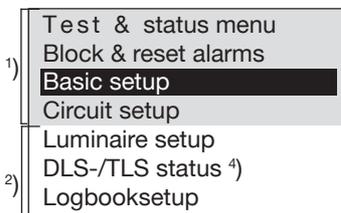


Fig.: 35 LC-display



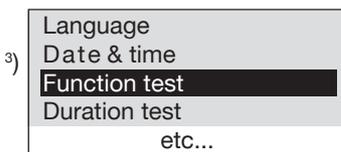
#### <Menu> Main menu selections



↑ / ↓: to select from the main menu eg «Basic settings»

<Menu> key: back to the basic settings (abort)

<Enter> key: (↵): Confirm selection



1) visible part of the main menu (with scrolling function)

2) area presently excluded

3) Marks a selection

4) DLS = permanent light switching module  
TLS = staircase light switching module

#### Alphanumeric keys

The basic function of these keys is to control the digits/numbers 0 ... 9. When text is to be entered the multi-assignment function of the keys is activated: pressing the keys several times selects and displays the respective key symbol or letter.

#### Control keys

Pressing the <Menu> key causes the system to go back to the previous menu level.

Keys ↑ ↓ ⇐ ⇒ are used to control the entry of data.

Use the ↵ key as <ENTER> key to confirm selections or entries and to advance the display.

The symbol ⇄ is shown on the display to indicate that values can be raised or lowered with the help of the ⇐ / ⇒ keys.

#### Basic display

During „normal“ operation the LC display shows the adjacent basic display with the current values of:

- 1st Line: Date and time (current system data)
- 2nd Line: Battery voltage and current
- 3rd Line: Current operating status or error status; eg „normal“ operation or plant blocked
- 4th Line: current mains voltage status (for 230-VAC mains supply)

#### Scrolling function

The main menu and many submenus have more than 4 menu items. A scrolling function (Screen Roll) enables all menu items to be displayed. Scrolling starts automatically if the top or bottom margin of the display is touched on.

#### Menu/control structure

On the following two pages an overview of the basic menu structure is given that relates to the control and parameter settings of a CG 2000 system.

From the basic display you can easily enter the main menu by briefly pressing the <Menu> key:

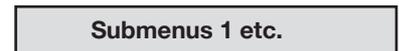


<Menu>:  
Selects the main menu



↑ / ↓:  
To select inside the main menu

<Enter> key ↵:  
Confirms selection



⇄  
↑ 1 2 3  
↓ 4 5 6  
⇐ 7 8 9  
⇒ 0  
Use keys to enter parameters or select further submenus

<Menu> key: Returns selection to the higher ranking menu level

<Enter> key ↵: Confirms selection

↑ / ↓: Selects lines in the submenu

⇐ / ⇒: Modifies a selection/setting

**Note:** All current (modified) settings are validated upon leaving a menu item without any further selection confirmation!

# Mounting and Operating Manual

## Group Battery Supply System CG 2000

### Operation

#### Main menu

1. Test & status menu

2. Block & reset alarms

3. Basic setup

4. Circuit setup

5. DLS-/TLS setup

6. Luminaire setup

7. Logbooksetup

☐ If a password protection has been activated only the basic display and in the main menu items «1 Test and status menu» and «2 Block, acknowledgement» can be accessed without the valid password being entered.

☐ If no entry is made within 60 seconds the system automatically returns to the basic display.

☐ If no entry is made via the keypad within 60 seconds, the LC display is blanked. Any key will restore the backlighting of the LC display.

☐ Contrast and brightness (backlighting of the LC display) can be changed in the basic display mode with the <Enter> key being pressed:

☞ ⬆ + ⬆ / ⬇: Sets the contrast  
☞ ⬆ + ⬅ / ➡: Sets brightness

#### 1 Test & status menu

1.1 Start function test

1.2 Start duration test

1.3 Cancel duration test

1.4 Circuit state

1.5 Luminaire state

1.6 DLS/TLS state

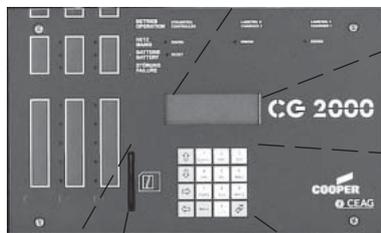
1.7 Charging/battery status

1.8 Relay state

Basic display (example)

```
13:30:00 11.08.00
U= 51,0 V I=+ 1,2 A
Operation
Mains: OK
```

CG 2000 control unit



alphanumeric keypad

⬆	1 Space/-	2 ABC	3 DEF
⬇	4 GHI	5 JKL	6 MNO
➡	7 PQRS	8 TUV	9 WXYZ
⬅	Menü	0 + / *	☞

Secure-Digital Memory card

#### 2 Block & reset alarms

2.1 Block device

2.2 Reset ISO failure

2.3 Reset deepdischarge

2.4 Manual reset

# Mounting and Operating Manual

## Group Battery Supply System CG 2000

### Operation

---

#### 3 Basic setup

3.1  
Language

3.2  
Date & time

3.3  
Function test

3.4  
Duration test

3.5  
Delaytime Mains Ret.

3.6  
Manual reset

3.7  
Relay setup

3.8  
Buzzer assignment

3.9  
Display settings

3.10  
Charger setup

3.11  
Auto setup

3.12  
Serial number & type

3.13  
Password

3.14  
Connection to BMS

3.15  
Service info

#### 4 Circuit setup

4.1  
Search converter

4.2  
Text assignment

4.3  
Monitoring mode

4.4  
DLS/TLS assignment

4.5  
Learn current values

#### 6 Luminaire setup

6.1  
Add/remove

6.2  
Text assignment

6.3  
DLS/TLS assignment

#### 5 DLS-/TLS setup

5.1  
Search DLS/TLS ...

5.2  
Text assignment

5.3  
TLS times

#### 7 Logbook setup

7.1  
Search logbook

7.2  
Erase logbook

7.3  
Save configuration

7.4  
Load configuration

# Mounting and Operating Manual

## Group Battery Supply System CG 2000

### Operation

#### 9.1 Menu «1 Test & status menu»

##### Overview:

Start function test  
Start duration test  
Cancel duration test  
Circuit state  
Luminaire state  
DLS/TLS state  
Charging/battery status  
Relay state

- ☞ Select menu items via keys ↓↑
- ☞ <Enter> (↵): Confirm selection
- ☞ <Menü>: Abort and back to main menu

Start function test  
Start duration test  
Cancel duration test  
Circuit state  
Luminaire state  
DLS/TLS state  
Charging/battery status  
Relay state

☞ ↵ initiates a function test of the associated luminaires:  
The LC display shows the basic setting with the message «Function test».  
After a brief mains operation (1 min.) a battery test operation (1 min.) is carried out.

If luminaires are defect the basic display will indicate the message «Sum failure». In case of CG luminaires the respective circuit and the status of defect luminaires can be displayed via submenu «1.5 Luminaire state».

Start function test  
Start duration test  
Cancel duration test  
Circuit state  
Luminaire state  
DLS/TLS state  
Charging/battery status  
Relay state

☞ ↵ initiates a duration test:  
The LC display shows the basic setting with the message «Duration test» and the duration period.  
  
Abort: <Menü> key and then select «Cancel duration test» via ↓↑.

If the prescribed minimum operating duration (see «3.12 Serial number and type») is not reached the message «Charging/battery failure» is shown on the basic display.  
In this case the battery set must be checked and, if necessary, replaced!

Start function test  
Start duration test  
Cancel duration test  
Circuit state  
Luminaire state  
DLS/TLS state  
Charging/battery status  
Relay state

☞ ↵ Aborts an active battery test. The basic display is restored showing currently applicable messages of the CG 2000 system.

Start function test  
Start duration test  
Cancel duration test  
Circuit state  
Luminaire state  
DLS/TLS state  
Charging/battery status  
Relay state

☞ ↵ Menu 1.4:

```
Circuit:  N  ↵↔
State:      ↵↔
Status display
Circuit name (20 char.)
```

Possible status indications:  
OFF  
Mains operation  
Battery operation  
Normal operation

- ☞ : Select line (line 1 / 2) via ↓↑
- ☞ : Select a circuit via ↵↔  
The current circuit status or current failure message is shown in line 3.  
Line 4 shows the circuit name (see «4 Circuit setup»).
- ☞ : Select a (circuit) status via ↵↔ (for testing purposes); the status display in line 3 will then be updated.

Start function test  
Start duration test  
Cancel duration test  
Circuit state  
Luminaire state  
DLS/TLS state  
Charging/battery status  
Relay state

☞ ↵ Menu 1.5:

```
Circuit:  N  ↵↔
... 5...10...15...2
☐☐☐-----
Luminaire name (3. luminaire)
```

- ☞ : Select line (line 1 / 2) via ↓↑
- ☞ : Select a circuit via ↵↔  
Line 3 will show the current settings of the luminaires (1 ... 20) in the selected circuit:
  - ☐ Luminaire is off (Item 1)
  - Luminaire is on (Item 2)
  - ☒ Luminaire is defect (Item 3)
  - No luminaire parameters set (Item 4) (see «5 Luminaire setup»)
- ☞ : Select a luminaire (line 2) via ↵↔  
The name of the luminaire is shown in line 4 (see 5 Luminaire setup).  
In case of luminaires with CG-S function the selected luminaire can be separately switched on/off for testing purposes by pressing the <Enter> (↵) key.

# Mounting and Operating Manual

## Group Battery Supply System CG 2000

### Operation

#### Menu «1 Test & status menu» (cont'd)

##### Overview:

Start function test  
Start duration test  
Cancel duration test  
Circuit state  
Luminaire state  
DLS/TLS state  
Charging/battery status  
Relay state

- ☞ Select menu items via keys  
↓↑
- ☞ <Enter> (↵):  
Confirm selection
- ☞ <Menü>: Abort and back to main menu

Start function test  
Start duration test  
Cancel duration test  
Circuit state  
Luminaire state  
DLS/TLS state  
Charging/battery status  
Relay state

☞ ☞  
Menu 1.6:

Input No.: No.↔  
State  
Input name (20 char.)

The properties of the input depend on the devices connected (DLS or TLS).  
☞ : Select an input No. via ↔  
Line 2 shows the current status or a current error message. The input name is shown in line 4 (see «6 DLS-/TLS setup»).

Note: A 3-phase detector status (3PhW status) is displayed if the selected output of an external DLS modul has been configured as 3-phase detector. For further details see under Technical Documentation for external DLS modules.

Start function test  
Start duration test  
Cancel duration test  
Circuit state  
Luminaire state  
DLS/TLS state  
Charging/battery status  
Relay state

☞ ☞  
Menu 1.7:

U= 56,2 V U/2= 27,7V  
I1=+0,2 A I2= +0,1 A  
T= +21,8 °C BT: 00:00h  
Message line

The current charging and battery status is shown (refer to adjacent display example):  
U : current battery voltage  
U/2 : current battery mean voltage  
I1 : current charging current of charger 1  
I2 : current charging current of optional charger 2  
T : temperature in battery compartment (via temperature sensor)  
BT : Span of last battery duration test  
In the 4th line (message line) only operational failure messages are displayed.

Start function test  
Start duration test  
Cancel duration test  
Circuit state  
Luminaire state  
DLS/TLS state  
Charging/battery status  
Relay state

☞ ☞  
Menu 1.8:

Relay : No.↔  
State : ↔  
State (drop. out/pick. up)

☞ : Select line (line 1 / 3) via ↓↑  
☞ : Select a relay in line 1 via ↔  
The current relay status is displayed in line 4.  
☞ : Select between «dropped out» and «picked up» in line 3 (eg for test purposes) via ↔.

# Mounting and Operating Manual

## Group Battery Supply System CG 2000

### Operation

#### 9.2 Menu «2 Block & reset alarms»

Overview:

Block device  
Reset ISO failure  
Reset deep discharge  
Manual reset

Select menu items via keys  
↑

<Enter> (↵):  
Confirm selection

<Menü>: Abort and back to main menu

Block device  
Reset ISO failure  
Reset deep discharge  
Manual reset

Initiates the function:  
The CG 2000 system is blocked.

The selection item «Release device» is shown on the display on the next call  
Pressing the <Enter> key again will release the control again.

Block device  
Reset ISO failure  
Reset deep discharge  
Manual reset

Menu 2.1:

Search ISO failure?  
  
Enter=OK Menu=Skip

All functions are aborted; all outputs will be de-energized!

When the mains supply is down no battery operation occurs (see, for example, «8.3 All-pole plant disconnection» or «8.5 Connect/disconnect CG 2000 system batteries»!)

When «Insulation failure» is shown in the basic display this menu item serves to initiate troubleshooting.

Search ISO failure  
Circuit: N 0  
State: ISO failure  
Circuit name (20 char.)

The above message on the display signals an insulation failure.

Block device  
Reset ISO failure  
Reset deep discharge  
Manual reset

initiates the function:  
When the basic display shows «deep discharge» (exhaustive discharge) this menu item serves for acknowledgment.  
The control unit is restored to normal if no further fault messages appear.

When the basic display shows «deep discharge» as fault message, the batteries must be checked and, if necessary, replaced.

Block device  
Reset ISO failure  
Reset deep discharge  
Manual reset

Initiates the function if this option has been activated under «3 Basic setup»:

If the option «Manual reset (On)» has been activated (see «3.6 Manual reset») the normal operation upon return of mains power will not be restored automatically.

This warrants that the emergency lighting remains switched on until it has been ensured that no further power failure will occur (eg while hot equipment units cool down). In a movie theater this feature will prevent that a total breakdown or repeated on/off operation of the lighting system occurs after a power failure caused by overheated movie projectors. This warrants an uninterrupted operation of the emergency lighting system (and also general lighting when switchable CG-S luminaires are used).

# Mounting and Operating Manual

## Group Battery Supply System CG 2000

### Operation

#### 9.3 Menu «3 Basic setup»

##### Overview:

Language  
Date & time  
Function test  
Duration test  
Delay mains ret.  
Manual reset  
Relay setup  
Buzzer assignment  
Display settings  
Charger setup  
Auto setup  
Serial number & type  
Password  
Connection to BMS  
Service info

Select menu items via keys ↓↑

<Enter> (↵): Confirm selection

<Menü>: Abort and back to main menu

Language  
Date & time  
Function test  
Duration test  
etc....



Menu 3.1:

The currently selected language is displayed, eg «Language: German»

- ☞ Use keys ↓↑ to select between «Language: German» and «Language: English»
- ☞ <Menu>: Confirm and return to the menu «3 Basic setup»

Language  
Date & time  
Function test  
Duration test  
etc....



Menu 3.2:

Date & time  
Mit 11.12.00 12:00  
^^

Sets the system time (current date and time) for the internal clock of the CG 2000 control unit.

- ☞ Select date and time details (^^) via ↔
- ☞ To change use ↓↑ and start the clock by pressing <Menu>
- ☞ <Menu>: Confirm and return to the menu «3 Basic setup»

Language  
Date & time  
Function test  
Duration test  
etc....



Menu 3.3:

F - test Date & time  
Mit 11.12.00 12:00  
Days between FT: 14 vv

Sets the starting point (date and time) for the first function test and the interval (1 ... 14 days) between successive function tests.

- ☞ Select the input position (^^) for date, time and interval (in days) via ↔
- ☞ Change figures via ↓↑
- ☞ <Menu>: Confirm and return to the menu «3 Basic setup»

Date & time  
Function test  
Duration test  
Delaytime mains ret.  
etc....



Menu 3.4:

D - test Date & time  
Mit 11.12.00 12:00  
Months between DT: 12 vv

Sets the starting point (date and time) for the first duration test and the interval (1 ... 12 months) between successive duration tests.

- ☞ Select the input position (^^) for date, time and interval (in months) via ↔
- ☞ Change figures via ↓↑
- ☞ <Menu>: Confirm and return to the menu «3 Basic setup»

# Mounting and Operating Manual

## Group Battery Supply System CG 2000

### Operation

#### 9.3 Menu «3 Basic setup» (cont'd)

##### Overview:

Language  
Date & time  
Function test  
Duration test  
Delay mains ret.  
Manual reset  
Relay setup  
Buzzer assignment  
Display settings  
Charger setup  
Auto setup  
Serial number & type  
Password  
Connection to BMS  
Service info

Select menu items via keys  
↓

<Enter> (↵):  
Confirm selection

<Menü>: Abort and back to main menu

Function test  
Duration test  
Delay mains ret.  
Manual reset  
etc...

Menu 3.5:

Delay time  
mains return in  
minutes  
10↔

Selects delay time (1 ... 10 minutes) during which the emergency light remains switched on after the mains supply has been restored.

Select 1 ... 15 minutes via the ↔ keys

<Menu>: Confirm and return to menu «3 Basic setup»

Duration test  
Delay mains ret.  
Manual reset  
Relay setup  
etc...

Menu 3.6:

Manual reset  
active

Activates or deactivates the manual reset feature (see «2.4 Manual reset»)

Toggle between «active» and «no-nactive» via the ↔ keys

<Menu>: Confirm and return to menu «3 Basic setup»

Delay mains ret.  
Manual reset  
Relay setup  
Buzzer assignment  
etc....

Menu 3.7:

R e l a y    3 ↔  
Mains operation    \*  
Mains failure  
Mains failure SubDB  
Charging failure  
Converter failure  
Luminaire failure  
Sum failure  
Deep discharge protect  
ISO failure  
Function test  
Duration test  
Load default values

Determines the system or failure messages that cause relays F1 ... 3 for signaling contacts 1 ... 3 to reverse between switching states «picked up» and «dropped out».

A default setting according to DIN VDE (see Appendix C) can be made via the selection «Load default values» at the bottom of this menu.

Select relay No. (1 ... 3) via keys ↔  
Select menu items by means of the ↓↑ keys

Selects between relay switches (\*) and relay does not switch (no \*) via the ↔ keys

<Menu>: Confirm and return to menu «3 Basic setup»

# Mounting and Operating Manual

## Group Battery Supply System CG 2000

### Operation

#### 9.3 Menu «3 Basic setup» (cont'd)

##### Overview:

Language  
Date & time  
Function test  
Duration test  
Delay mains ret.  
Manual reset  
Relay setup  
Buzzer assignment  
Display settings  
Charger setup  
Auto setup  
Serial number & type  
Password  
Connection to BMS  
Service info

Manual reset  
Relay setup  
Buzzer assignment  
Display settings  
etc....

Menu 3.8:

Buzzer Assignment:  
Mains operation  
Mains failure \*  
Mains failure SubDB  
Charging failure  
Converter failure  
Luminaire failure  
Sum failure  
Deep discharge protect  
ISO failure  
Function test  
Duration test  
Load default values

Determines the system or failure messages that cause the buzzer installed in the switchboard to be switched on. A default setting according to DIN VDE (see Appendix B) can be made via the selection «Load default values» at the bottom of this menu.

- ☞ Select menu items via ↓↑
- ☞ Select between buzzer «ON» (\*) and buzzer «OFF» (no \*) by means of the ⇌ keys
- ☞ <Menu>: Confirm and return to menu «3 Basic setup»

The buzzer's audible signal (sounded when a preselected event has occurred) can be silenced/switched by pressing any key.

- ☞ Select menu items via keys ↓↑
- ☞ <Enter> (↵): Confirm selection
- ☞ <Menü>: Abort and back to main menu

##### Note:

ISO failure = Insulation failure of a current-carrying line.

Mains failure SubDB = An installed 3-phase detector (3PhW) signals the failure of a subdistribution unit it monitors

Relay setup  
Buzzer assignment  
Display settings  
Charger setup  
etc....

Menu 3.9:

Display settings  
Contrast 50% ⇌  
Brightness (on) 100% ⇌  
Brightness (off) 10% ⇌

Sets contrast and brightness (backlighting) of the LC display of the CG 2000 control unit.

- ☞ Select line (2 ... 4) via ↓↑
- ☞ Set values (0 ... 100%) by means of keys ⇌
- ☞ <Menu>: Confirm and return to menu «3 Basic setup»

##### Note:

«Brightness (on)» describes the display setting with the display being activated (activation by pressing any key). In case no key is pressed within 60 seconds the CG 2000 control unit activates the passive mode of the display (minimum backlighting) «Brightness (off)».

The above settings may result in the display becoming unreadable (eg depending on the ambient lighting conditions). The basic settings of the active display can therefore be modified any time by simultaneously pressing the <Enter> (↵) key and a ↓↑ key setting the contrast or a ⇌ key setting the brightness of the active LC display as desired.

# Mounting and Operating Manual

## Group Battery Supply System CG 2000

### Operation

#### 9.3 Menu «3 Basic setup» (cont'd)

##### Overview:

Language  
Date & time  
Function test  
Duration test  
Delay mains ret.  
Manual reset  
Relay setup  
Buzzer assignment  
Display settings  
Charger setup  
Auto setup  
Serial number & type  
Password  
Connection to BMS  
Service info

Select menu items via keys  
↓↑

<Enter> (↵):  
Confirm selection

<Menü>: Abort and back to main menu

Buzzer assignment  
Display settings  
Charger setup  
Auto setup  
etc....

Menu 3.10:

Number of charger 1 ↔

Enter the number of chargers mounted in the switchboard

Select between 1 and 2 via ↓↑

<Menu>: Confirm and return to menu «3 Basic setup»

##### Note:

A second charger for the batteries may be installed as an option. The applicable configuration of 1 or 2 chargers can be selected via this menu item.

Display settings  
Charger setup  
Auto setup  
Serial number & type  
etc....

↵ ↵ initiates an Auto Setup:

In this case, the CG 2000 control unit determines the current hardware configuration:

- internal optional modules
- external optional modules
- installed transformer modules

Luminaires with CG or CG-S function will be detected. The determined configuration will be checked for correct function (eg through a function and a duration test), saved to the memory card as the current configuration and used as basis for the operation of the CG 2000 system.

##### Note:

When Auto setup has been completed the message «End of Autosetup» appears. After pressing the <Menu> key (or automatically after 60 seconds) the basic display appears and operation commences based on the configuration determined.

Auto setup may, for example, be used for first commissioning or in the event modules have been replaced. All luminaires envisaged must have been installed and be fully functional.

The settings may also be made manually or modified later.

Charger setup  
Auto setup  
Serial number & type  
Password  
etc....

Menu 3.12:

Type: CG 100 Plus  
Rated duration 3h↔  
Min. Duration 67%↔  
Serial No.:1234567/89

Type and serial number are indications preset in the Factory.

Select line (2 / 3) via ↓↑

Select the rated duration (1, 3 or 8h) and minimum duration (10 ... 100%) by pressing the ↔ keys

The minimum duration selected forms the basis for the duration test.

<Menu>: Confirm and return to menu «3 Basic setup»

# Mounting and Operating Manual

## Group Battery Supply System CG 2000

### Operation

#### 9.3 Menu «3 Basic setup» (cont'd)

##### Overview:

Language  
Date & time  
Function test  
Duration test  
Delay mains ret.  
Manual reset  
Relay setup  
Buzzer assignment  
Display settings  
Charger setup  
Auto setup  
Serial number & type  
Password  
Connection to BMS  
Service info

- ☞ Select menu items via keys ↓↑
- ☞ <Enter> (↵): Confirm selection
- ☞ <Menü>: Abort and back to main menu

Auto setup  
Serial number & type  
Password  
Connection to BMS  
etc....

☞ ☞  
Menu 3.13:

Password:  
deactivated ↵

- ☞ Select «deactivated» or «activated» via the ↵ keys

When «activated» has been selected the following password query appears:

Password:  
activated  
Password (6 digits)  
Password: 123456

- ☞ Enter the password via the digital keyboard (only digits can be entered)
- ☞ <Menü>: Confirm and return to menu «3 Basic setup»

##### Note:

With password protection activated this query can exclusively be accessed if the currently applicable password has been entered before. This password is requested if a barred (sub-) menu is called from the main menu. The required password must be entered via the digital keyboard; a blinking square marks the current input position.

Password: █

When password protection has been activated all (sub-) menus are locked out and cannot be selected unless the correct password is entered; the following exceptions apply however:

- Menu #1 «Test and status menu»
- Menu #2 «Block & reset alarms».

If the password is not known press the <Menü> key to return to the main menu.

Serial number & type  
Password  
Connection to BMS  
Service info

☞ ☞  
Menü 3.14:

Connection to BMS  
System address: --↵  
System name:  
Name (max. 20 char.)

This menu enables the CG 2000 system to be activated and connected to a higher-ranking Building Management System (BMS) via a LON bus according to the FTT10 protocol (expected to be available in the 4th quarter of 2000)

- ☞ Select line (2 / 4) via ↓↑
- ☞ in line 2: Select a device address (1 ... 64) by means of keys ↵ (if -- is displayed: no connection to BMS)
- ☞ in line 4: a max. of 20 characters can be entered as name via the alphanumeric keypad (multi-assignable) - the desired input position can be selected via ↵ )
- ☞ <Menü>: Confirm and return to menu «3 Basic setup»

Serial number & type  
Password  
Connection to BMS  
Service info

☞ ☞  
Menu 3.15:

Service info  
CEAG  
2205.a  
continue with Menu

This menu item serves solely for displaying the adjacent customer service information including the relevant software version number (2205.a in this case).

- ☞ <Menü>: Confirm and return to menu «3 Basic setup»

# Mounting and Operating Manual

## Group Battery Supply System CG 2000

### Operation

#### 9.4 Menu «4 Circuit setup»

##### Overview:

Search converter...  
Text assignment  
Monitoring mode  
DLS/TLS assignment  
Learn current values

- ☞ Select menu items via keys ↓↑
- ☞ <Enter> (↵): Confirm selection
- ☞ <Menü>: Abort and back to main menu

Search converter...  
Text assignment  
Monitoring mode  
DLS/TLS assignment  
Learn current values

☞ ☞  
Menu 4.1:

Circuit: N °  
Search result installed  
Enter=OK Menü=Skip

Pressing the <Enter> key confirms the selection and starts the «Search converter» function. The systems now looks for transformer cards for circuit addresses 1 .... 10.

The correct functioning of any installed transformer card is checked.

- ☞ <Enter>: Accepts the search result; the relevant parameters are taken over by the CG 2000 control unit and saved to the memory card
- ☞ <Menü>: Rejects the search result - the current settings are left unchanged

Having examined the 10 possible circuit addresses the procedure is finalized and the system with new parameters integrated returns to menu «4 Circuit setup».

##### Note:

This procedure must be completed for first commissioning and each time a transformer card is added/removed.

Search converter...  
Text assignment  
Monitoring mode  
DLS/TLS assignment  
Learn current values

☞ ☞  
Menu 4.2:

Circuit: N ° ↵  
Circuit name

- ☞ : Select line (line 1 / 4) via ↓↑
- ☞ : Select a circuit by pressing ↵  
In line 4 the message «installed» or a circuit name will appear
- ☞ A max. of 20 characters can be entered as name via the alphanumeric keypad (multi-assignable) - the desired input position can be selected via ↵)

☞ <Menü>: Confirm and return to menu «4 Circuit setup»

##### Note:

This procedure must be completed for first commissioning and each time a transformer card is added/removed.

These circuit names are stored on the memory card and indicated in the LC display menus to assist operation of the system.

Search converter...  
Text assignment  
Monitoring mode  
DLS/TLS assignment  
Learn current values

☞ ☞  
Menu 4.3:

Circuit: N ° ↵  
CG monitoring ↵  
Circuit name

- ☞ : Select line (line 1 .. 3) via ↓↑
- ☞ : Select a circuit by pressing ↵  
In line 4 the message «installed» or a circuit name will appear
- ☞ Select a monitoring mode by pressing ↵  
Observe the following notes on these monitoring modes
- ☞ <Menü>: Confirm and return to menu «4 Circuit setup»

##### Note:

The «CG monitoring» mode requires the use of „intelligent“ luminaires from the CEAG CG luminaire production program. If other luminaires are employed a function test with the „current monitoring“ feature can be made based on the relevant power flow in a luminaire circuit (refer to settings under «4.5 Learn current values»).

When selecting «current monitoring» the admissible deviation (in %) from the reference value determined via «4.5 Learn current values» is to be entered in line 3 and defines the value at which no fault message shall occur when a function test is carried out.

$$\text{adm. deviat.} = \frac{P_{\min}}{P_{\text{ges}}} \times 100$$

$P_{\min}$  = Connected load of the smallest luminaire in the circuit  
 $P_{\text{ges}}$  = Connected load of all luminaires in the circuit

# Mounting and Operating Manual

## Group Battery Supply System CG 2000

### Operation

#### 9.4 Menu «4 Circuit setup» (cont'd)

Overview:

Search converter...  
Text assignment  
Monitoring mode  
DLS/TLS assignment  
Learn current values

Search converter...  
Text assignment  
Monitoring mode  
DLS/TLS assignment  
Learn current values

Menu 4.4:

Circuit: N  
Maintained (mains)  
Maintained (batt)  
Circuit name

- ☞ Select menu items via keys ↓↑
- ☞ <Enter> (↵): Confirm selection
- ☞ <Menü>: Abort and back to main menu

- ☞ : Select line (line 1 ... 3) via ↓↑
- ☞ : Select a circuit by pressing ↵  
In line 4 the message «installed» or a circuit name appears
- ☞ To select the desired item in lines 2 and 3 use the ↵ keys  
The settings in line 3 depend to some extent on what has been selected in line 2 (see Notes)
- ☞ <Menu>: Confirm and return to menu «4 Circuit setup»

Note:

DLS/TLS assignment in Line 2		DLS/TLS assignment in Line 3	
Non-maintained **	no	DLS xx/x	Maintained (batt.)
Maintained * (mains)	Maintained (batt.) TLS xx/x (batt.)		DLS xx/y TLS xx/y
By luminaire setup	Maintained (batt.) TLS xx/x (batt.)	TLS xx/x	Maintained (batt.) DLS xx/y TLS xx/y
Timer 1	Maintained (batt.)		
Timer	DLS xx/y		
Timer 1 & 2	TLS xx/y		

xx: Module number ( 1 ... 10)      y: Module inputs (eg for switch interrogation) or switching outputs of TLS modules

\* maintained = permanent light

\*\* non-maintained = non-permanent light

Search converter...  
Text assignment  
Monitoring mode  
DLS/TLS assignment  
Learn current values

Menu 4.5:

Learn current values...

Confirming the selection by pressing <Enter> starts the «Learn current values» process. A function test is performed successively for all circuits set to the «Current monitoring» mode (see «4.3 Monitoring mode»).

After a brief mains operation (1 minute) a reference current value is determined and saved in a second run during battery operation; this value serves as a basis for malfunction diagnosis (eg luminaire faults).

In this case, all envisaged luminaires must have been installed and be fully functional!

After completion of this process the CG 2000 control unit returns to menu «4 Circuit setup».

# Mounting and Operating Manual

## Group Battery Supply System CG 2000

### Operation

#### 9.5 Menu «5 DLS-/TLS setup»

##### Overview:

Search DLS/TLS ...  
Text assignment  
TLS times

- ☞ Select menu items via keys ↓↑
- ☞ <Enter> (↵): Confirm selection
- ☞ <Menü>: Abort and back to main menu

Search DLS/TLS ...  
Text assignment  
TLS times

☞ ☞  
Menu 5.1:

Look for address N<sup>o</sup>  
Search result:  
installed  
Enter=OK Menu=Skip

Confirming the selection by pressing <Enter> starts the «Search DLS/TLS..» process. All inputs are checked successively to detect existing DLS- or TLS modules.

##### Note:

This procedure is required for first commissioning or when optional modules are added/removed (eg external DLS or TLS modules or plug-in boards for the 3 internal optional slots).

Having completed the inputs the new switching configuration will be checked, initialized and stored (messages shown on menu) as well as saved to the memory card.

Following this, the CG 2000 system automatically returns to menu «6 DLS-/TLS setup».

In menus 4.4 and 5.3 (DLS/TLS assignment) for the circuit setup and luminaire setup the detected switching inputs are available for assignment.

If a module has been found it will be checked for proper functioning.

☞ <Enter>: Accepts the search results; the CG 2000 control unit takes over the relevant parameters and saves them to the memory card

☞ <Menu>: The search result is discarded - the previous settings remain unchanged

Having checked all possible internal and external optional slots the process is terminated and the system returns with new parameters to menu «5 DLS-/TLS setup»

Search DLS/TLS ...  
Text assignment  
TLS times

☞ ☞  
Menu 5.2:

Module address N:↵  
Module type  
Module name (max.20char.)

☞ : Select line (line 1 / 4) via ↓↑

☞ : Select a module address by pressing ↵. In line 4 the message «installed» or a module name is shown

☞ A max. of 20 characters can be entered as name via the alphanumeric keypad (multi-assignable) - the desired input position can be selected via ↵)

☞ <Menu>: Confirm and return to menu «5 DLS/TLS setup»

##### Note:

This procedure is required for first commissioning or when optional modules are added/removed (eg external DLS or TLS modules or plug-in boards for the 3 internal optional slots).

These module names are saved to the memory card and shown in the LC display menus to facilitate navigation.

Search DLS/TLS ...  
Text assignment  
TLS times

☞ ☞  
Menu 5.3:

TLS zx Port y ↵  
Switching time z Min ↵  
Module name (max.20char.)

☞ : Select line (line 1 / 2) via ↓↑

☞ : Select a module address (1 ...10) and its ports by pressing ↵. In line 4 the message «installed» or a module name is shown

☞ : Select a switching time 1 ... 15 min. via ↵

☞ : Press ↵ to go back to line 1 until all modules and ports have been gone through.

When values have been assigned to all TLS modules this is stored and the system returns to menu «5 DLS-/TLS setup». For further information see TLS operating manual.

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## Group Battery Supply System CG 2000

### Operation

#### 9.6 Menu «6 Luminaire setup»

Overview:

Add/remove  
Text assignment  
DLS/TLS assignment

Add/remove  
Text assignment  
DLS/TLS assignment

Menu 6.1:

```
Circuit: N
. . . 5 . . . . 10 . . . . 15 . . . . 20
[ ] [ ] - - - - -
Luminaire name (3.luminaire)
```

Select menu items via keys  
↓↑

<Enter> (↵):  
Confirm selection

<Menü>: Abort and back to main menu

For positions 1 ... 20 only «present» or «not present» [ ] [ /- ] will be displayed and all positions have to be entered. This enables individual luminaires to be taken out of service as desired.

Functionality or switching status of CG or CG-S luminaires can be verified under «1.5 Luminaire state».

Select line (lines 1, 2 and 4) via ↓↑

Select a circuit by pressing ↵  
In line 3 the current settings of the luminaires (1 ... 20) in the selected circuit are displayed:

[ ] Luminaire exists (Pos. 1)  
- No luminaire has been set (item 2)

Select a luminaire (line 2) by pressing ↵ (eg. blinking cursor on position 3)  
In line 4 the luminaire name is shown (if entered already, or the luminaire number is displayed)

Pressing <Enter> (↵) adds or removes a luminaire at the position selected.

A max. of 20 characters can be entered as name via the alphanumeric keypad (multi-assignable) - the desired input position can be selected via ↵)

<Menu>: Confirm and return to menu «6 Luminaire setup»

Note:

Having confirmed the settings by pressing the <Menu> key the new luminaire configuration will be checked, initialized and stored (messages shown on menu) as well as saved to the memory card.

Following this, the CG 2000 system automatically returns to menu«5 Luminaire setup».

Add/remove  
Text assignment  
DLS/TLS assignment

Menu 6.2:

```
Circuit: N
. . . 5 . . . . 10 . . . . 15 . . . . 20
[ ] [ ] - - - - -
Luminaire name (3.luminaire)
```

Select line (lines 1, 2 and 4) via ↓↑

Select a circuit by pressing ↵  
In line 3 the current settings of the luminaires (1 ... 20) in the selected circuit are displayed:

[ ] Luminaire exists (Pos. 1)  
- No luminaire has been set (item 2)

Select a luminaire (line 2) by pressing ↵ (eg. blinking cursor on position 3)  
In line 4 the luminaire name is shown (if entered already, or the luminaire number is displayed).

A max. of 20 characters can be entered as name via the alphanumeric keypad (multi-assignable) - the desired input position can be selected via ↵)

<Menu>: Confirm and return to menu «6 Luminaire setup»

Note:

This menu serves to view the luminaire assignment and change luminaire names without the luminaire configuration being modified.

The luminaire names are saved to the memory card and shown in the LC display menus to facilitate configuration work.

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## Group Battery Supply System CG 2000

### Operation

#### 9.6 Menu «6 Luminaire setup» (cont'd)

Overview:

Add/remove  
Text assignment  
DLS/TLS assignment

Add/remove  
Text assignment  
DLS/TLS assignment

Menu 6.3:

```
Circuit:  N  ←→
Line 2
Line 3
Line 4
```

←→: Select a circuit by pressing ←→  
The messages and possible inputs depend on the technical properties of the luminaires used and on the settings made under «4 Circuit setup»

←→ Select menu items via keys  
↓↑

←→ <Enter> (↵):  
Confirm selection

←→ <Menü>: Abort and back to main menu

In line 2 the message «current monitored» is displayed if «Current monitoring» has been selected under «4.3 Monitoring mode».

In line 2 the message «Circuit switchable» is shown if the «CG monitoring» mode has been selected under «4.3 Monitoring mode» and option «By luminaire setup» has not been set under «4.4 DLS/TLS assignment» (this option only makes sense with switchable CG-S luminaires).

In both cases it will not be possible to assign switches to individual luminaires; lines 3 and 4 will remain blank.

Only if options «CG monitoring» and «By luminaire setup» are selected can a switch be assigned to individual luminaires; the following display will appear:

```
Circuit:  N  ←→
.. 5.....10.....15... 2
Line 3
Luminaire name (3.luminaire)
```

←→: Select line (line 2 and 3) via ↓↑  
←→ Select a luminaire in line 2 by pressing ←→  
(in line 4 «not installed» or the luminaire name will be shown)  
←→ possible selections in line 3 by pressing ←→  
(see following table)  
In case of two selections in line 3 press ↓↑ to toggle between these two displays.  
←→ <Menu>: Confirm and return to menu «6 Luminaire setup»

Note:

In case of two possible selections in line 3 the entire sequence of settings must be gone through before the 2nd line can be reselected by pressing key ↑ to select another luminaire.

Table showing selections in line 3 for an installed CG-S luminaire

«without CG-S fctn»	The luminaire shall not be separately operated
«Non-maintained»	The CG-S luminaire can be operated separately and is switched off normally
«Maintained»	The CG-S luminaire can be operated separately and is switched on normally
«Query 1 / Query 2»	The CG-S luminaire can be operated separately and has been assigned a certain switch configuration. 2 switches can be assigned to the luminaire: «DLS xx/y      ←→      DLS xx/y      ↓↑» 1 timer and 1 switch can be assigned: «Timer 1      ↓↑      DLS xx/y      ↓↑» «Timer 2      ↓↑      DLS xx/y      ↓↑» «Timer 1&2   ↓↑      DLS xx/y      ↓↑»

xx: Module number ( 1 ... 10)

y: Module inputs (eg for switch interrogation)

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## Group Battery Supply System CG 2000

### Operation

#### 9.7 Menu «7 Logbook setup»

Overview:

Search logbook  
Erase logbook  
Save configuration  
Load configuration

Select menu items via keys  
↓↑

<Enter> (↵):  
Confirm selection

<Menü>: Abort and back to main menu

Search logbook  
Erase logbook  
Save configuration  
Load configuration



Menu 7.1:

11.08.00 12:30:00↔  
Event  
Line 3  
Line 4

In line 3 and 4 additional information is shown explaining the event indicated in line 2: For example, if a luminaire failure occurs during CG monitoring:

Line 3: «Circuit No»

Line 4: Adresse(s) of the luminaire(s) on failure:

□□-□□□□□□-□□□□□□

In the example above luminaires 6, 13 and 14 are on failure - luminaires 3, 10 and 16 ... 20 have not been installed.

↔: Select logbook entries via ↔  
Line 1 shows date and time  
Line 2 shows a message describing the event, eg «Luminaire failure»

<Menu>: Confirm and return to menu «7 Logbook setup»

Search logbook  
Erase logbook  
Save configuration  
Load configuration



Menu 7.2:

Erase logbook?  
  
Enter=OK Menü=Escape

<Menu>: **Logbook is not erased** and system returns to menu «7 Logbook setup»

<Enter>: **All logbook entries on the memory card are deleted!**  
System returns to menu «7 Logbook setup»

Search logbook  
Erase logbook  
Save configuration  
Load configuration



Menu 7.3:

Save configuration?  
  
Enter=OK Menü=Escape

**i** **Note! Erased logbook data are lost!**

<Menu>: **Logbook is not saved** and system returns to menu «7 Logbook setup»

<Enter>: **All entries on the memory card are deleted and overwritten by the current plant configuration!**  
System returns to menu «7 Logbook setup»

Search logbook  
Erase logbook  
Save configuration  
Load configuration



Menu 7.4:

Load configuration?  
  
Enter=OK Menü=Escape

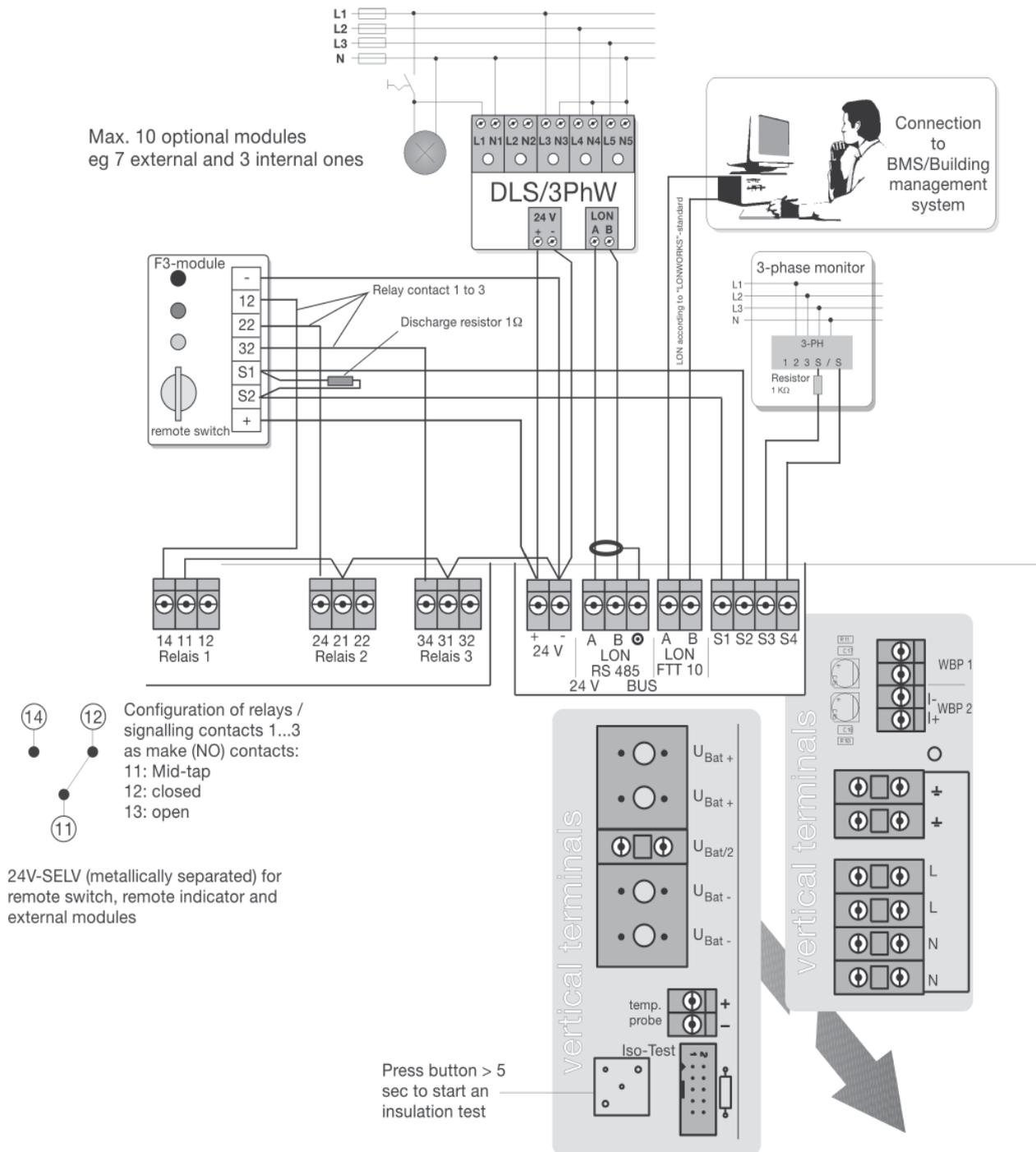
<Menu>: **The current plant configuration is maintained** and the system returns to menu «7 Logbook setup»

<Enter>: **The existing plant configuration is overwritten with the entries on the memory card!**  
**Following this the system reboots.**

The system returns to the basic display

## Appendix A: Terminal assignment

**Fig. 36: Connections on the motherboard of the CG 2000 control unit**  
 The terminal connections at the vertical terminal strip form part of the (internal) electrical system of the switchboard and reflect the delivery status. Therefore, these connections should not be modified!

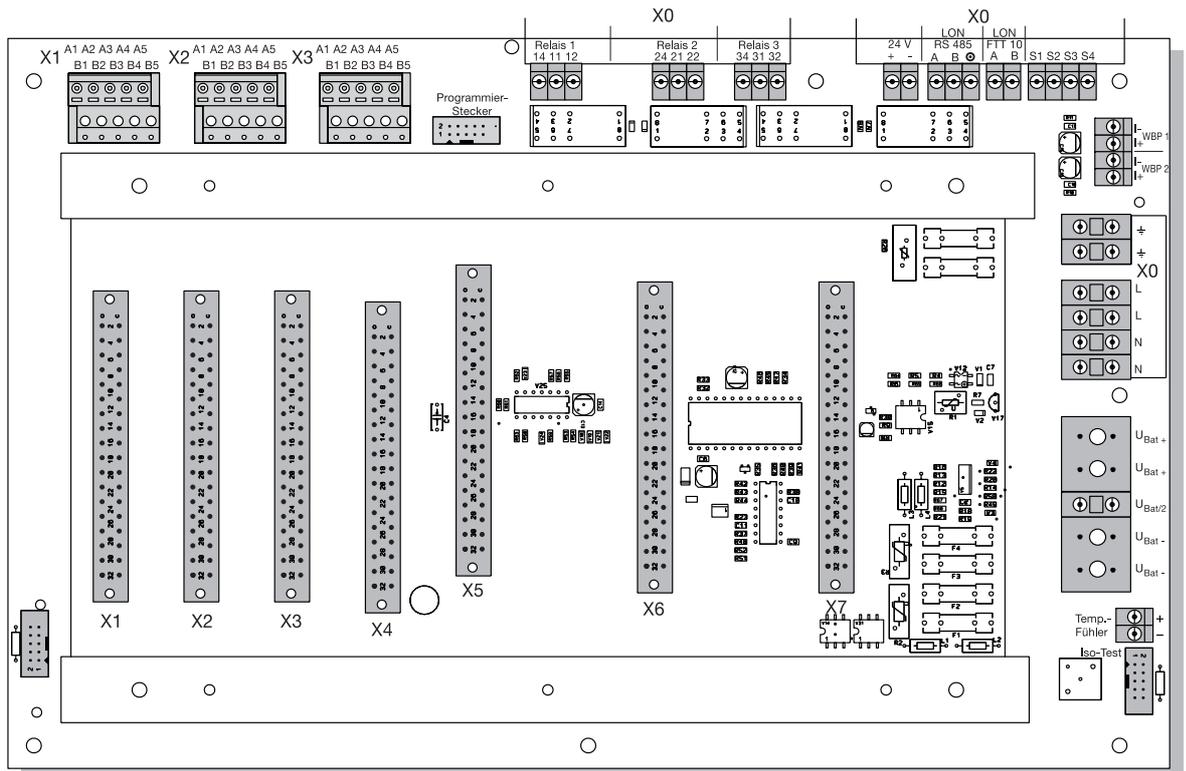


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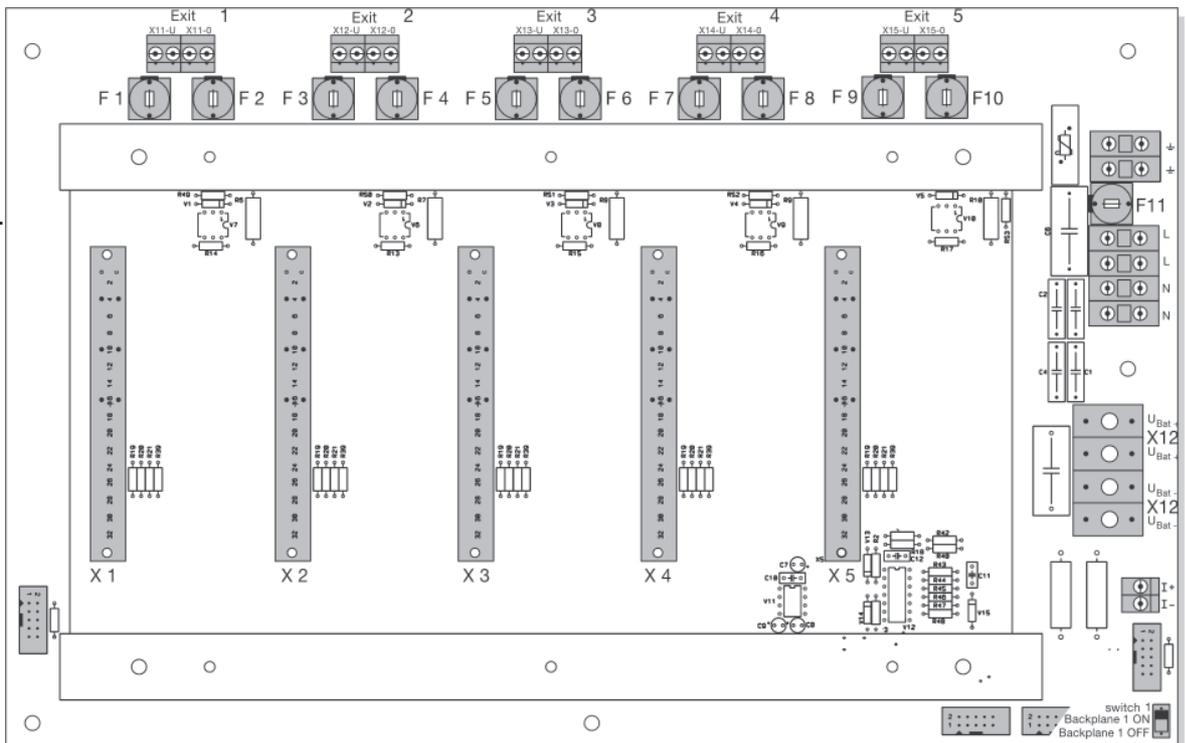
## Group Battery Supply System CG 2000

### Appendix

**Fig. 37: Motherboard of CG 2000 control unit.**



**Fig. 38: Connections on the motherboard of a transformer module LWE 150 CG-S. The terminal connections at the vertical terminal strip form part of the (internal) electrical system of the switchboard and reflect the delivery status. Therefore, these connections should not be modified!**



The fuses for the emergency lighting/final circuits in the horizontal row are accessible anytime: Use a suitable slot-type screwdriver to unlock the protective cap. Remove the fuse by pulling it upwards and insert it from above.

**Exclusively use fuses of type: 4 AT / 250 V with 5 x 200 mm!**

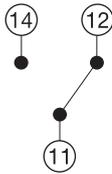
## Appendix B

### VDE specifications for telecommunication contacts and buzzers

The unit has 3 potential-free signaling contacts (relay outputs) and an onboard buzzer.

Signaling contacts can be freely parameterized

each: 1 x UM  
 1 x 24 / 0 V and 0.5A



Contacts:	11/12/14	21/22/24	31/32/34
Signaling status:	Sum Failure	Ready to Operate	Battery Operation
<b>Operating status:</b>			
Mains operation.....	-	X	-
Mains failure .....	-	-	X
Mains failure S3/S4 and LON	-	-	-X
Charging failure .....	X	-	-
Transformer failure.....	X	-	-
Luminaire failure .....	X	-	-
Sum failure .....	X	-	-
Exhaustive disch. protect. ....	X	-	-
Insulation monitor.....	X	-	-
Function test.....	-	X	X
Duration test.....	-	X	X
<hr/>			
Contact assignment:	11/14: NO 11/12: NC	21/24: NO 21/22: NC	31/34: NO 31/32 = NC

Note:

X = active, ie contacts 11/14 and 21/24 and 31/34 are closed  
 NO = Normally open (make)  
 NC = Normally closed (break)



**Note:**

Observe the national guidelines and regulations governing indication and signaling when using a remote switch or a remote indicator in conjunction with emergency lighting plant.

# Mounting and Operating Manual

## Group Battery Supply System CG 2000

### Appendix

Appendix C  
Allocation schedule  
(for max. 20 luminaires)

Circuit __					
Switching Configuration					
Non-permanent light	Permanent light	Switched permanent light	Non-permanent light	Permanent light	Switched permanent light
Luminaire 1			Luminaire 11		
Luminaire 2			Luminaire 12		
Luminaire 3			Luminaire 13		
Luminaire 4			Luminaire 14		
Luminaire 5			Luminaire 15		
Luminaire 6			Luminaire 16		
Luminaire 7			Luminaire 17		
Luminaire 8			Luminaire 18		
Luminaire 9			Luminaire 19		
Luminaire 10			Luminaire 20		
Note:					

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### Appendix

Appendix C: Allocation schedule

Circuit ____					
Switching Configuration					
Non-permanent light	Permanent light	Switched permanent light	Non-permanent light	Permanent light	Switched permanent light
Luminaire 1			Luminaire 11		
Luminaire 2			Luminaire 12		
Luminaire 3			Luminaire 13		
Luminaire 4			Luminaire 14		
Luminaire 5			Luminaire 15		
Luminaire 6			Luminaire 16		
Luminaire 7			Luminaire 17		
Luminaire 8			Luminaire 18		
Luminaire 9			Luminaire 19		
Luminaire 10			Luminaire 20		
Note:					

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### Appendix

Appendix C: Allocation schedule

Circuit ____					
Switching Configuration					
Non-permanent light	Permanent light	Switched permanent light	Non-permanent light	Permanent light	Switched permanent light
Luminaire 1			Luminaire 11		
Luminaire 2			Luminaire 12		
Luminaire 3			Luminaire 13		
Luminaire 4			Luminaire 14		
Luminaire 5			Luminaire 15		
Luminaire 6			Luminaire 16		
Luminaire 7			Luminaire 17		
Luminaire 8			Luminaire 18		
Luminaire 9			Luminaire 19		
Luminaire 10			Luminaire 20		
Note:					

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