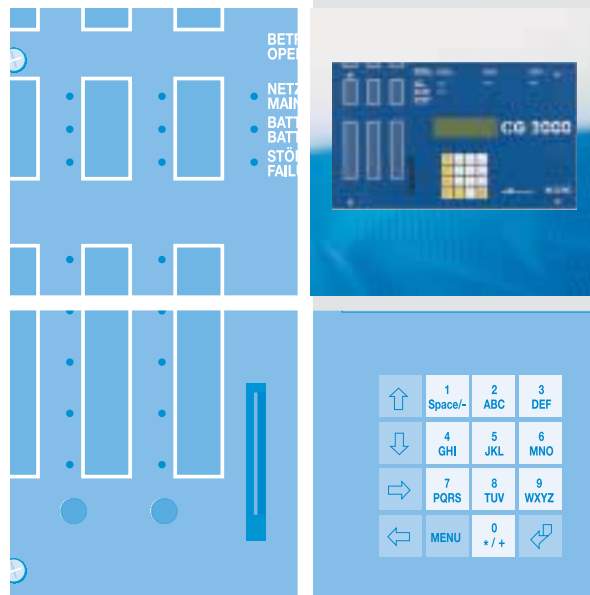


Group Battery System CG 2000 with STAR Technology



Group Battery System CG 2000 with STAR Technology Programmable Switching



The main advantages of the CG 2000 group battery system become particularly apparent when, for fire protection reasons, the emergency lighting system has to be installed in sectors.

As well as providing a dependable supply of power (230V AC/220 V DC) to safety and exit luminaires, the CG 2000 automatically tests the system and individually monitors each CG-S luminaire (up to 20 per circuit), and it does all this using the power supply cable alone.

The new type of STAR technology allows the switching mode of every connected CG-S luminaire to be freely programmed within a 50 Hz supply network using the controller. This means that maintained light, switched maintained light and non-maintained light modes can be combined in one and the same circuit – there is no need for separate data cables!

The control module with its nonvolatile program memory and large LCD display monitors and controls the group battery system. It automatically tests all the functions of the devices and emergency luminaires that are connected to it, and reports any faults that occur.

An integral search function automatically detects all system-dependent luminaires and modules that are assigned an address during installation.

A central monitoring device can be connected via an interface.

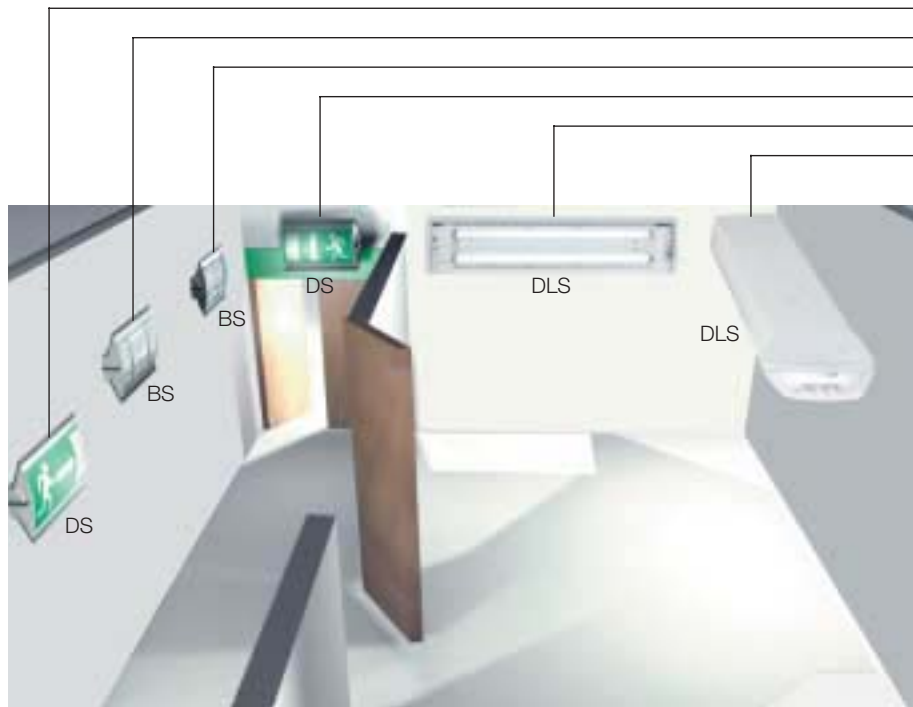
- **Hybrid operation of all switching modes within a single circuit**
- **High safety level due to decentralized arrangement**
- **Automatic search function**
- **Plain text display on the control module down to the last luminaire**
- **Flexible data storage for log book and system configuration with Smart Media Card**
- **Individual monitoring of up to 20 emergency luminaires per circuit**

The New STAR-Technology – Easy Planning



Your Advantages:

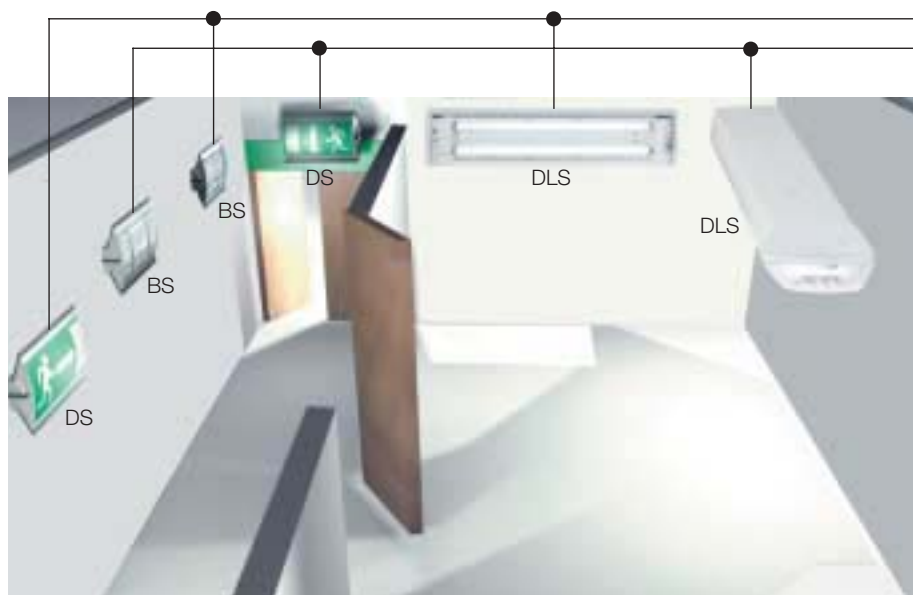
The number of outgoing circuits needed can be sharply reduced, since continuously operating, stand-by and switchable permanent lighting can be realised in one common circuit. This allows the use of shorter cable distances, reduces installation costs and minimises the effects of burning materials. Any mode of operation can be assigned at a later date – **without encroachment in the lighting installation**. This enables simple project planning without having to take all possible types of operation into account.



Conventional Installation:

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

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



CG2000 Installation with STAR-Technology:

- All types of switching modes
- All types of switching modes

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

Advantages Group Battery System CG 2000



CG 200 Plus

■ High degree of safety due to decentralized arrangement

Group supply systems are designed in such a way that they accommodate all the components required for the emergency lighting supply and monitoring. Their compact design allows easy installation, even if the installation conditions are unfavourable. This means that taking fire zones into consideration during installation does not pose any problems. The systems are available with different dimensions and equipment and provide an optimum solution for every application.

■ General and emergency lighting – in harmony with each other

The group battery system CG 2000 is a suitable supply unit for a large number of illuminants available on the market, so that general and emergency lighting form a homogeneous whole. The high degree of operational reliability of the systems is the result of many years of experience in the supply of luminaires with electronic ballasts and incandescent lamps.

■ Group supply systems with automatic function monitoring

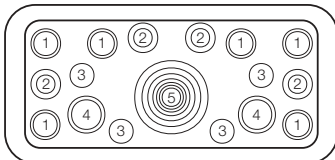
The microcontroller monitors the functions of the connected emergency luminaires. This can be in the form of both circuit monitoring or the monitoring of individual luminaires. The test cycles prescribed by law for function and battery tests are performed fully automatically by the CG 2000. The test results can easily be read on the display of the cover. The former, extremely time-consuming and, as a result, costly manual checks of the emergency luminaires are no longer necessary. In addition to this, the use of a central monitoring station ensures that, even in the case of projects with a large number of emergency luminaires, the installations are still under control.

Group Battery System CG 2000 Technical Data



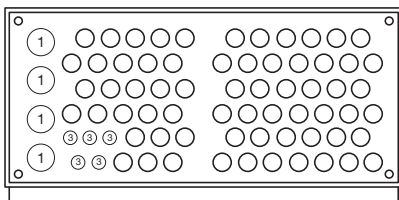
CG 100 Plus

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



Prepunched cable entries
CG 100 Plus

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



Prepunched cable entries
CG 200 Plus

Technical data

Type	CG 100 Plus	CG 200 Plus
Converter bays	5	10
Option bays	3	3
I max. (A) from battery	17,5 A	35 A
max. battery capacity (Ah _{K10})	4 x 24 Ah	4 x 53 Ah
Dimensions (mm)	H	1100 mm
	W	500 mm
	D	180 mm
max. ambient temperature	-5 °C to +35 °C	-5 °C to +35 °C
Degree of protection	IP 21	IP 21
Weight (aprox. kg) w/o batteries and converter	35,5 kg	110,0 kg
Pre-stamped holes for M-cable entries	17	30

Converter connected to terminals: Insulation class I, degree of protection IP 21

Ordering details

Type	Scope of supply	Order No.
CG 100 Plus	Cabinet with control module, 1 charging module, converter and empty option bays	4 0071 346 720
CG 200 Plus	Cabinet with control module, 1 charging module, converter and empty option bays	4 0071 347 685

Technical data of battery

Rated capacity Ah _{K10}	Dimensions of one battery l x w x h (mm)	No. of batteries U _B = 12 V pcs.	Total weight of all batteries kg
5 J: 24 Ah	166 x 125 x 175	4	38
5 J: 55 Ah	261 x 135 x 230	4	74
10 J: 22 Ah	168 x 177 x 126	4	40
10 J: 33 Ah	198 x 168 x 175	4	54
10 J: 53 Ah	234 x 169 x 190	4	80

Ordering details

Type	Battery set incl. cable set	Order No.
12 V 24 Ah	Battery with 5 year service life	4 0066 042 503
12 V 55 Ah	Battery with 5 year service life	4 0066 042 443
12 V 22 Ah	Battery with 10 year service life	4 0071 347 690
12 V 33 Ah	Battery with 10 year service life	4 0071 347 691
12 V 53 Ah	Battery with 10 year service life	4 0071 347 684

Operating life for max. battery temperature +20 °C

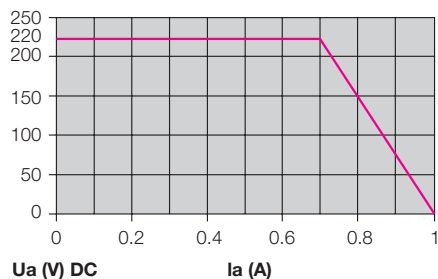
Group Battery System CG 2000 Technical Data

LWE 150 CG-S converter

The converter supplies and monitors emergency luminaires with electronic ballasts for DC operation and incandescent lamps. The output voltage during battery operation is 220 V DC.

The CEWA GUARD monitoring station checks the function of the connected luminaire. It is possible to connect up to 20 luminaires.

Ua (V) Output voltage
LWE 150 CG-S during battery operation




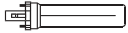
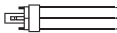




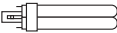

Technical data

Mechanical construction	Printed circuit
Slots	1
Fuse protection	4 AT / 250 V 6 x 32 mm
max. continuous output battery operation	150 W
max. start output (< 1 min.) (battery operation)	270 W
max. output during mains operation	460 VA
max. inrush current (converter output)	120 A/1 ms
for luminaires	EVG and incandescent lamps
Weight	0.42 kg
Status-LED	- ON - FAULT

Ordering details

Type	Scope of supply	Order No.
LWE 150 CG-S	converter for operation with EVG and incandescent lamps	4 0071 346 640





Rated load/W for luminaires with:

International term	Lamp cap	Type of EVG ...	Lamp load in [W]	Battery operation P [W] luminous flux $\Phi_E/\Phi_N = 75\%$	Mains operation S [VA]	Inrush current [A/ms]
T 16 	G5	13.2 ...	4	4.2	10	3
		13.2 ...	6	5.5	12	3
		13.2 ...	8	7.25	16	3
		13.2 ...	13	12.1	25	3
TC-SEL 	2G7	13.2 ...	5	4.9	11	3
		13.2 ...	7	6.4	13	3
		13.2 ...	9	7.5	16	3
		13.2 ...	11	10.0	22.5	3
TC-DEL 	G24q-1	13.2 ...	10	8.2	17.5	3
		13.2 ...	13	12.1	25	3
TC-TEL 	GX24q-1	13.2 ...	13	12.1	25	3
T 26 	G13	18 ...	18	15.4	32.2	8
TC-F 	2G10	18 ...	18	15.4	32.2	8
TC-L 	2G11	18 ...	18	15.4	32.2	8
TC-DEL 	G24q-2	18C ...	18	15.4	32.2	8
TC-TEL 	GX24q-2	18C ...	18	15.4	32.2	8

Continuous output = Start output

Group Battery System CG 2000 Technical Data

Rated load for luminaires with:

N-Type of EVG	EVG Type N-EVG ...			
				
Lamp	58 W/T26	36 W/T26	26 W/TC-TEL	26 W/TC-DEL
Lamp cap	G13	G13	GX24q-3	G24q-3
Battery operation P [W] Φ_E/Φ_N:				
100 % Start output	58.0	38.8	29.5	29.5
90 % Continuous output	53.0	35.5	27.3	27.3
80 % Continuous output	50.2	31.5	25.8	25.8
70 % Continuous output	44.0	30.0	22.7	22.7
60 % Continuous output	36.1	22.0	21.4	21.4
50 % Continuous output	33.9	20.3	19.9	19.9
40 % Continuous output	29.1	18.8	18.3	18.3
30 % Continuous output	22.0	17.7	17.2	17.2
Mains operation S [VA]	62.7	38.7	34.2	34.2
Inrush current [A/ms]	10	10	10	10

The following parameters shall be taken into account when calculating the maximum permissible number of luminaires with drop in luminous flux:

Continuous output of all EVGs connected per converter: A 150 W

Output at start (P = 100 %) of all EVGs connected per converter: A 270 W (< 1 min.)

Calculation example

The following luminaires are to be connected to one converter:

8 x Emergency luminaires 8 W/T16 with CEAG EVG 13.2 CG-S
4 x Emergency luminaires 36 W/T26 with N-EVG 136 CG-S, luminous flux ratio 40 %
2 x Emergency luminaires 10 W/TC-DEL with CEAG EVG 13.2 CG-S

Following parameters must be observed:

Battery operation:
max. start output (< 1 min.): 270 W
max. cont. output: 150 W

Mains operation:
max. 460 VA apparent output
max. inrush current 120 A/1 ms

Calculation:

Continuous output:

8 W: 8 x 7.25 W = 58.0 W
36 W: 4 x 18.8 W (40 %) = 75.2 W
10 W: 2 x 8.2 W = 16.4 W
Sum = 149.6 W

< 150 W --> o.k.

Start output:

8 W: 8 x 7.25 W = 58.0 W
36 W: 4 x 38.8 W (100 %) = 155.2 W
10 W: 2 x 8.2 W = 16.4 W
Sum = 229.6 W

< 270 W --> o.k.

max. inrush current:

8 W: 8 x 3 A/1 ms = 24.0 A/1 ms
36 W: 4 x 10 A/1 ms = 40.0 A/1 ms
10 W: 2 x 3 A/1 ms = 6.0 A/1 ms
Sum = 70.0 A/1 ms

< 120.0 A/1 ms --> o.k.

max. mains power:

8 W: 8 x 16 VA = 128.0 VA
36 W: 4 x 38.7 VA = 154.8 VA
10 W: 2 x 17.5 VA = 35.0 VA
Sum = 317.8 VA

< 460,0 VA --> o.k.

Group Battery System CG 2000 Technical Data



Rated load for Ex-luminaires eLLK 92...

Luminaire	Battery operation P [W] for luminous flux $\Phi_E/\Phi_N = 100\%$	Mains operation S [VA]	Inrush current [A/ms]
eLLK 92018/18	39.6	42	10
eLLK 92036	35.2	42	10
eLLK 92036/36	72.6	79	10
eLLK 92058	57.2	62	10
eLLK 92058/58	114.4	122	10
eLLK 92018/18 CG-S	22.0	42	10
eLLK 92036/36 CG-S	37.4	79	10
eLLK 92058/58 CG-S	59.4	122	10

Rated load for luminaires with external EVG:

EVG Type	Lamp	Base	Battery operation P [W]	Mains operation S [VA]	Inrush current [A/ms]
1 x 18 W	18 W/T26	G13	20		
2 x 18 W	18 W/T26	G13	40		
1 x 36 W	36 W/T26	G13	40		
2 x 36 W	36 W/T26	G13	80		
1 x 58 W	58 W/T26	G13	58		
2 x 58 W	58 W/T26	G13	116		
18 W	18 W/TC-F	2G10	20		
18 W	18 W/TC-L	2G11	20		
18 W	18 W/TC-DEL	G24q-2	20		
18 W	18 W/TC-TEL	GX24q-2	20		
24 W	24 W/TC-F	2G10	26		
24 W	24 W/TC-L	2G11	26		
26 W	26 W/TC-DEL	G24q-3	30		
26 W	26 W/TC-TEL	GX24q-3	30		
32 W	32 W/TC-DEL	G24q-4	36		
32 W	32 W/TC-TEL	GX24q-4	36		
36 W	36 W/TC-F	2G10	42		
36 W	36 W/TC-L	2G11	42		
40 W	40 W/TC-L	2G11	46		
55 W	55 W/TC-L	2G11	62		

Notice to
manufacturers data

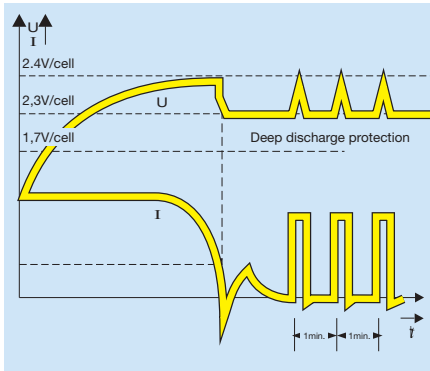
Notice to
manufacturers data

Data approx.

For exact calculation manufacturer data have to be considered.

Group Battery System CG 2000 Technical Data

Charging module CLT 25



The completely sealed, maintenance-free lead batteries are charged gently and temperature-controlled according to an I/U charging characteristic. Depending on the charging state of the batteries, the boost charge is activated so that the batteries are recharged without exceeding the gassing voltage.

Charging is checked continuously by the patented charge monitoring method, and any faults, such as an interrupted battery circuit, battery asymmetry, a faulty charging unit or a high-drain accumulator, are reported immediately.

Technical data

Charging characteristic	I/U
Charge end-point voltage boost charge	57.2 V DC
Charge end-point voltage trickle charge	55.2 V DC
Deep discharge protection	40.8 V DC
Charge current at 48 V	2.5 A
Power consumption charging module	200 VA
max. no. of charging modules	2 (CG 200 Plus)
Weight charging module	0.4 kg

Ordering details

Type	Scope of supply	Order No.
charging module CLT 25	Plug-in module	4 0071 346 665

No. of additional charging modules

Battery capacity	Recharging cycle 12 h/80 % Rated operating time EN 50171		
	1 h	3 h	8 h
22/24 Ah	0	0	0
33 Ah	0	0	1
53/55 Ah	1	1	1

Limiting values for group supply systems (LPS) according to standard: Discharge power

	EN 50171
1.0 h	1500 W
3.0 h	500 W

Max. battery discharge power [W] ¹⁾

	5-year battery		10-year battery			
	CG 100 24 Ah*	CG 200 55 Ah*	CG 100 24 Ah*	CG 200 24 Ah*	CG 200 33 Ah*	CG 200 52 Ah*
0.5 h	750	1500	750	1195	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

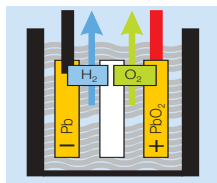
* C10/1.7 V/C up to +20 °C

¹⁾ Efficiency of systems taken into account

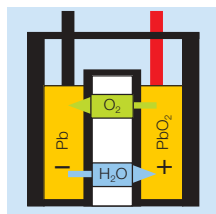
Limits for group battery system (LPS) acc. to standard:
Power output / Battery power input

Evaluation of aeration and deaeration of electrical service rooms acc. to DIN EN 50272-2 (calculated for heavy charge!):

Battery 48 V	24 Ah	55 Ah	22 Ah	33 Ah	53 Ah
For aeration of location room necessary airvolum flow [m ³ /h]	0.2304	0.5280	0.2112	0.3168	0.5088
Vent cross-section of the air inlets and outlets of the place of installation [cm ²]	6.4512	14.7840	5.9136	8.8704	14.2464



When a conventional lead-acid battery with free electrolyte is overcharged, the water is broken down electrolytically into oxygen on the positive plate and hydrogen on the negative plate. To prevent the battery from drying out, this water must be replaced at regular intervals.



The extremely low gassing absorption cells are designed in such a way that the positive plate is fully charged before the negative plate and, as a result, the oxygen released diffuses to the negative plate. Here it reacts with the lead and is converted into lead oxide which then reacts with the sulphuric acid electrolyte to form lead sulphate and water, whereby a loss of water is prevented completely.