

1. Introduction

These instructions are solely intended for certified electricians or for persons who are instructed by certified electricians. They contain summarised information on installation, service, testing and maintenance. The instructions must be observed without fail in order to avoid problems and damages when installing and operating the device. The following symbols refer to particular dangers or facilitate the action to be carried out:



Caution! This symbol indicates particular dangers which can cause harm to persons or material. Increased effort in performing the given task can also be avoided by heeding these instructions.



Instruction! This sign indicates advice on how to easily perform a required action.

2. Intended Use

The PGVG200-DC is a supply device for emergency lighting with a single battery in accordance with DIN EN 60598-2-22 for the operation of 1 or 2 luminaires with filament bulbs or with filament bulbs and discharge lamps with an electronic operating device for an operating duration of 1 or 3 hours. It is equipped with an automatic testing device in accordance with EN 62034.



The luminaires must be suitable for alternating current/direct current operation.

The luminaires must be capable of operation within the specified voltage range.

Electronic operating devices must be designed in accordance with EN 61347.

The luminaires' maximum output in emergency operation may not exceed 200W at 225V DC.

Only one lamp with max. 100W per channel may be operated.

These instructions, as well as the applicable legal regulations, are to be observed in the assembly, installation and operation of the device. Damages resulting from failure to observe them are excluded from the liability, warranty and guaranty.

3. Description

The device consists of an electronic part and a battery part in separate housings. The battery housing is equipped with ventilation openings. Depending on its output the electronics housing is equipped with ventilation openings and, additional fans. Cable entry is accomplished by means of cable bushings from underneath.

Electronic part with temperature-compensated charging device, 2 network monitoring devices, 2 switching devices, a DC-DC converter, 2 luminaire circuits, deep discharge shutdown and an automatic test device for self-controlling.

Operation of the luminaires in non-maintained or

maintained mode with separate in- and outputs as well as control inputs for switching the luminaires in mains mode for luminaire circuit.

Input 1 is used for battery charging. In the event of a mains supply failure at input 1 and/or input 2, output 1 and/or output 2 will be supplied from the battery. Once mains supply is resumed, the device switches back from battery operation to mains mode with a maximum delay of 10 seconds.

In mains mode, the luminaires can be individually switched from non-maintained into maintained mode via control inputs 1 and 2.

A remote switching input enables the blocking of the switching from mains to battery operation via an external switch (potential free contact)

In the event of an overload or short circuit in battery operation, the device initially automatically shuts both outputs off and then switches the intact output back on.

The self-controlling feature conducts monthly function tests (charging device, switch device and luminaire circuits), as well as yearly operation period tests (battery capacity). The luminaires are inspected by a self-justifying performance monitor in the process.

An indicator and a sheet-shaped button indicate operating conditions and malfunctions and/or enable a functions test to be triggered manually.

A common fault can be transmitted to an external alarm device by means of an indication output.

Battery part with maintenance-free sealed Pb battery, service lifespan 6 to 9 years according to EUROBAT.



Operation of the Pb-battery at an environmental temperature of $>25^{\circ}\text{C}$ will reduce the service lifespan, and is connected to losses of capacity and potential premature failure.

Technical Data

Mains supply:

1~/N 230 V; max. 0.6 A; 50 Hz

Output voltage:

230 V ~ (AC operation)

225 V = (DC operation) $\pm 7\%$

Continuous output (DC operation): max. 200 W

Starting output (DC operation): max. 4000W for 100ms

Battery capacity: see type label

Operating period: 1 hour or 3 hours

Tolerable environmental temperature:

$0 \div + 25^{\circ}\text{C}$

Protection type:

IP 54 (electronics part)

IP 32 (battery part)

Protection class: I

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Emergency Lighting Supply Device PGVG200-_-DC



The power consumption of some operating devices in DC operation, is greater in switch-on condition than the limiting value of the overload and/or short circuit shutoff of the device (max. 4000W for 100ms). Operation of these luminaires is not permissible. To determine the exact operating time, the technical data of the EVGs must be respected.









5. Screen Indicator

The screen indicator provides continuous information on the condition of the device (method of operation and charging malfunctions), as well as on test results upon test conclusion.

Battery capacity	Connected load	
	Duration 1h	Duration 3h
7 Ah	34 W	15 W
12 Ah	60 W	25 W
18 Ah	90 W	40 W
24 Ah	115 W	50 W
45 Ah	200 W	95 W
90 Ah	-	190 W

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LED		Status
Device condition indicator		
	continuously green	Mains mode: The device is ready for operation – battery is fully charged.
	off	Battery operation: mains failure at input 1 and/or output 2.
	blinking green	Mains mode: The device is ready for operation – battery is not fully charged.
	continuously red	Charging malfunction (continuous monitoring): The charger securing or charging device is out of order, or the battery is out of order or not connected.
	flashing yellow	Testing operation: Performance of an automatically or manually activated functional test.
	blinking yellow	Testing operation: Performance of a periodic operations test.
Test result indication after test		
	blinking red	Luminaire malfunction: Luminaire 1 and / or luminaire 2 out of order, not connected or output too low.
	flashing red	Battery malfunction: Battery capacity too low. Charge battery (20 hours) and conduct function test

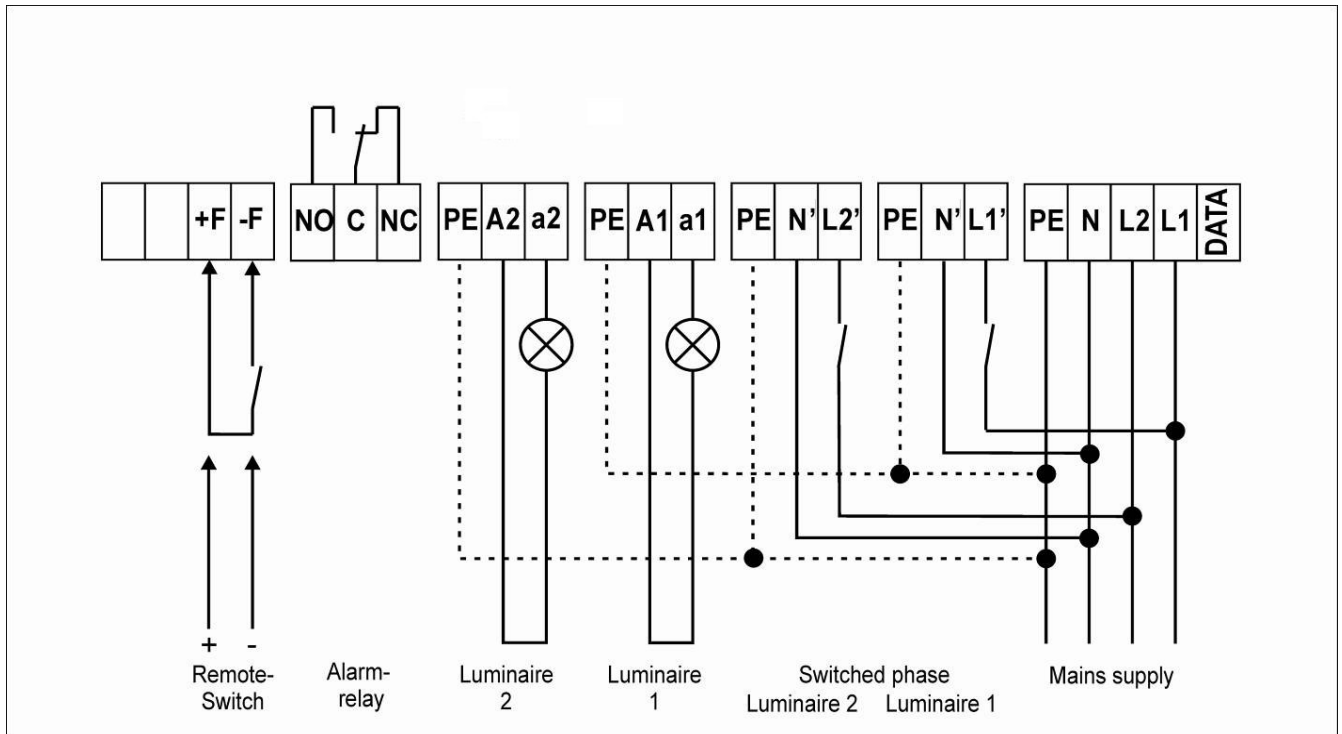
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6. Connection



Disconnect the emergency lighting supply service from the mains and battery supply before beginning work.



Wiring diagram

6.1 Mains supply of luminaire 1

Connect mains cable (L, N, PE) of *luminaire circuit 1* to terminals *L1, N and PE*.



The power supply connected to terminals L1, N and PE is used for charging as well. In the event these fail, the devices switches from mains mode to battery operation.

6.2 Operating of luminaire 1 in maintained mode

When operating *luminaire 1* in maintained mode, terminals *L1 and L1'* are to be additionally connected by a cable (non-switchable maintained mode), or the switched phase L of the mains cable is additionally to be connected to terminal *L1'* (switchable maintained mode). The neutral conductor of the mains supply must also be connected to the N' of the switched phase Luminaire 1.

6.3 Mains supply of luminaire 2

Connect mains cable (L, N, PE) of *luminaire circuit 2* to terminals *L2, N and PE*.

6.4 Operating of luminaire 2 in maintained mode

When operating *luminaire 2* in maintained mode terminals *L2 and L2'* are to be additionally connected by a cable (non-switchable maintained mode), or the switched phase L of the mains cable is additionally to be connected to terminal *L2'* (switchable maintained mode). The neutral conductor of the mains supply must also be connected to the N' of the switched phase Luminaire 2.



When supplying *luminaire 1* and *luminaire 2* via a common phase, connect terminal *L1 and L2* with a cable.

When switching *luminaire 1* and *luminaire 2* via a common switching contact, connect terminal *L1' and L2'* with a cable.

6.5 Luminaire 1

Connect luminaire cable (L, N, PE) of *luminaire 1* to terminals *A1, a1 and PE*.

6.6 Luminaire 2

Connect luminaire cable (L, N, PE) of *luminaire 2* to terminals *A2, a2 and PE*.



The outputs of luminaire 1 and luminaire 2 can be of different levels.



When operating only one luminaire, it should be connected to output 1.



Phase L and/or the positive pole is located at terminals A1 and A2, and the neutral conductor N and / or negative pole (battery operation) is located at terminals a1 and a2.

6.7 Remote switch

Remote switch connection (potential-free contact) to terminals *F- and f+* for blocking the switching from mains to battery operation during mains failures.



Close the contact to block the switch.



All *F-* and *f+* must be connected in parallel in order to connect multiple emergency lighting supply devices to a remote switch and/or a control signal.

6.8 Alarm device

Connection of an external optical or acoustic *device* to terminals *C, NC and NO* to signal a common fault or activate deep discharge protection.



In the event of a common fault or activation of the deep discharge protection, the contact between terminals *C* and *NC* is closed, or the contact between terminals *C* and *NO* is open.

6.9 Battery supply

Battery cable connections (plus = red and minus = black)

7. Device Functions Set-up

The number of luminaires connected, nominal operating period for the operating period test and the output voltage are to be set up via the switch group *function types* and *DC output voltage* in the electronics part (see illustration of the electronics part on page 6).

7.1 Setting luminaire number

Using switch 1 of switch group *function types*, set whether one luminaire is connected to both luminaire circuit 1 and luminaire circuit 2, or only one luminaire is connected to luminaire circuit 1. Switch 1 is in the OFF position in condition as delivered.

Switch 1	Mode
OFF	Luminaires connected to circuit 1 and 2
ON	1 luminaire connected to circuit 1

7.2 Setting nominal operating period

The nominal operating period is set using switch 2 of the switch group *function types*. Switch 2 is in the OFF position in condition as delivered.

Switch 2	Mode
OFF	duration = 1h
ON	duration = 3 h

7.3 Setting the battery capacity

The battery capacity is set via the switch 3 of the switch group *function types*. The switch 3 is in the ON position in condition as delivered. Batteries >50Ah can remain this setting.

Switch 3	Mode
OFF	Batteriecapacity < 50Ah
ON	Batteriecapacity > 50Ah

8. Initial Operation

8.1 Switching the mains supply on

Once the mains supply has been turned on, the LED on the screen indicator will either be blinking green (battery is being charged) or continuously green (battery is charged).

The connected luminaires are not in operation in standby mode.

The connected luminaires are in operation in non-switchable continuous duty. In switchable continuous duty, the connected luminaires are in operation once the switching contact, i. e. the luminaire switch, has been closed.

8.2 Determining the luminous power for automatic self-controlling.

The performance of an automatic function test of the luminaire(s) is based on the comparison of the luminous power determined in the initial operation and the test of the luminous power measured. A discrepancy of greater proportion than 1/3 will cause the indicator to show a luminaire malfunction.

Push the *LM test* button on the electronic part (see electronic part illustration on page 6) with a fully charged battery and luminaires connected to determine the luminous power. During this procedure, the device switches from mains to battery operation, and the *LM test* LED will blink red. The *LM test* LED will then go out once the luminous power has successfully been determined.

A continuously red *LM test* LED can have two causes:

1. The determination was conducted without the luminaire(s) connected.
2. A manual or automatic function test had been conducted before the determination of luminous power, which caused a luminaire malfunction to be indicated. In this case, push the test button two times, the first time until the device switches from mains to battery power, and the second time – for approx. 5 seconds – until the indicator on the test button lights green.

Repeat the determination of luminous power in both cases.



An automatic function test of the luminaires is not possible for luminaires under 5W in power. In this case, the function test of the luminaires should be deactivated. To do this, carry out the above-mentioned determination of luminous power without the luminaires connected, that is disconnect the luminaires, push the *LM test* button, the *LM test* LED will blink red, the *LM test* LED will turn continuously red, and connect the luminaires.

The emergency lighting supply device is now ready for operation.

9. Safety Lighting Operation

9.1 Test

The device is part of safety lighting according to EN 50172. In accordance with this norm, monthly functions tests and annual operation period tests are to be conducted on the safety lighting. In addition, a test log is to be kept. Among other things, this should document the:

date of initial operation of the safety lighting

date and details of changes, tests, malfunctions and repairs of the safety lighting.

The owner or operator? of a building must either carry out these activities himself or appoint a responsible to do so.

The integral testing device in this device automatically conducts the above-mentioned function tests and operation period tests at intervals of 30 or 365 days after the initial switching on of the mains and battery supply. The LED on the screen indicator displays the results of these tests. These are to be entered monthly and/or yearly into the test log. It is not necessary to keep a test book if there is automatic central monitoring of the safety lighting, if the testing device has an integral electronic test log.

9.2 Repair

If a malfunction is indicated after a function or operating period test, it must immediately be rectified by an authorised service or certified electrician. Excluding that, there is only changing a light bulb. After the repair, trigger an automatic function test via the film button, in order to a) check the readiness for operation of the safety lighting, and b) to acknowledge the malfunction indicated.



An automatic function test should only be triggered on a fully charged battery.



Manual triggering of an automatic function test is not possible after battery operation with activation of the deep discharge protection.

A short circuit in a luminaire circuit is at hand if the 25A fuse of the DC-DC converter blows (see electronic part illustration, page 6).

If the 7,5A fuse of the charging device (see electronic part illustration, page 6) blows, a device malfunction is at hand. In this case, contact an authorised service.

10. Additional Information



When fixing battery make shure, that ventiles and terminals are in top position. Other positions will reduce capacity and lifetime of the battery.



Do not store the battery for longer than 3 months without charging in order to avoid deep discharge damage.



The event the devices is taken out of operation (mains supply shut off), the battery must unconditionally

be removed by 1 month at the latest, and charged after 3 months.



For devices with temperature compensation charge, make sure that the battery bracket with the appropriate electronics is only for use with the associated PGVG.



When assembling the device, make sure that the cable entry must be made from below. Failure will void protection class and warranty.

Appendix: Electronic Part Illustration

