



Buffer Charging Systems

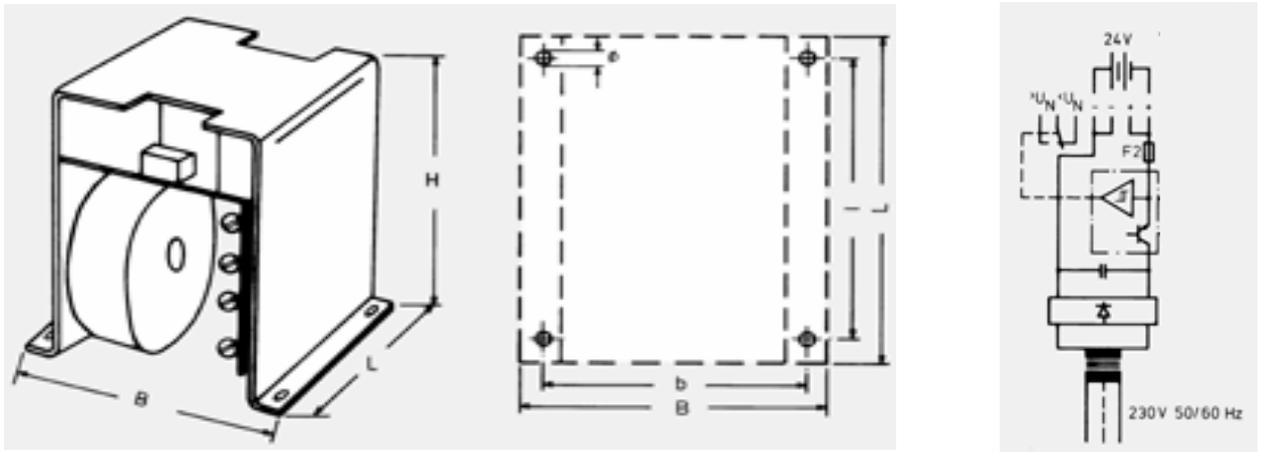
for lead or NiCd-accumulators
step down switched with
I-U-I characteristic regulation
series **PLG**



Performance data . . .

- charging currents 2,5; 5; 10; 20 A
- nominal output voltage 24 V DC; max. 32 V adjustable
- over-current-, short protection, deep discharging- and overvoltage protection
- charging supervision with indicator LED's
- and potential free alarm contact
- mains transformer acc. to EN 60742
- less power loss by switching regulator

The charger for 24 V DC battery back up systems.



Technical data:

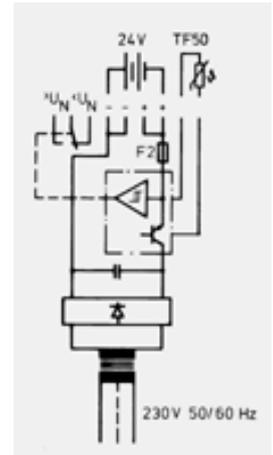
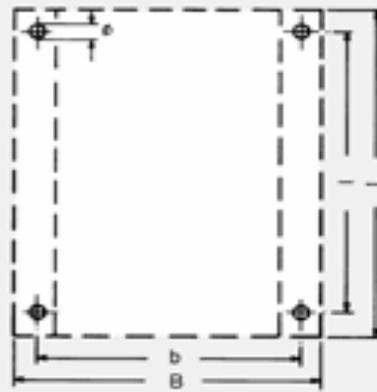
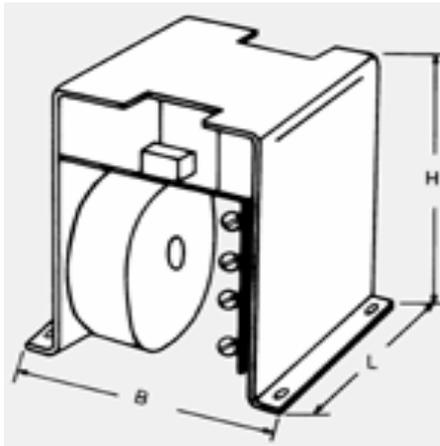
| series | PLG 2,5 Pb | PLG 2,5 NiCd | PLG 5 Pb | PLG 5 NiCd |
|--------------------------|-----------------------------|-----------------------|----------------------|-----------------------|
| for accu version | lead-accu | NiCd-accu | lead-accu | NiCd-accu |
| voltage | 230 V +10 -15% 50/60 Hz | | | |
| nominal output voltage | 24 V = | | | |
| upper charging current | 2,5 A | 2,5 A | 5 A | 5 A |
| lower charging current | 0,1 x I ₀ | 0,05 x I ₀ | 0,1 x I ₀ | 0,05 x I ₀ |
| upper charging voltage | 27,2 V | 30,5 V | 27,2 V | 30,5 V |
| lower charging voltage | 26,5 V | 28,5 V | 26,5 V | 28,5 V |
| deep discharging voltage | 20 V | | | |
| | Other adjustment on request | | | |

Mechanical data:

| | | | | |
|-----------------------|---|--------|---------|---------|
| mounting position | vertically | | | |
| weight | 1,7 kg | 1,7 kg | 2,7 kg | 2,7 kg |
| dimensions | B - 140 | | L - 127 | H - 150 |
| | b - 128 | | l - 112 | Ø 6,5 |
| operating temperature | - 20°C ... +60°C without condensation | | | |
| storage temperature | -20°C ... +70°C without condensation | | | |
| isolation test | 4 kV; air- and creeping distance acc. onto VDE 0110 group C | | | |

Random information:

Paralleling of several modules for power extending with same characteristic adjustment possible.



mains voltage see techn. data

Technical data:

| series | PLG 10 Pb | PLG 10 NiCd | PLG 20 Pb | PLG 20 NiCd |
|--------------------------|-------------------------|-----------------------|------------------------------|-----------------------|
| for accu version | lead-accu | NiCd-accu | lead-accu | NiCd-accu |
| voltage | 230, 400 460 V 50/60 Hz | | 3 x 220, 400, 460 V 50/60 Hz | |
| nominal output voltage | 24 V = | | | |
| upper charging current | 10 A | 10 A | 20 A | 20 A |
| lower charging current | 0,1 x I ₀ | 0,05 x I ₀ | 0,1 x I ₀ | 0,05 x I ₀ |
| upper charging voltage | 27,2 V | 30,5 V | 27,2 V | 30,5 V |
| lower charging voltage | 26,5 V | 28,5 V | 26,5 V | 28,5 V |
| deep discharging voltage | 20 V | | | |

Other adjustment on request

Temperature sensor: Sensor for reducing the charging voltage depending on accu-temperature available. In case of NiCd-accu the sensor must be connected.

Mechanical data:

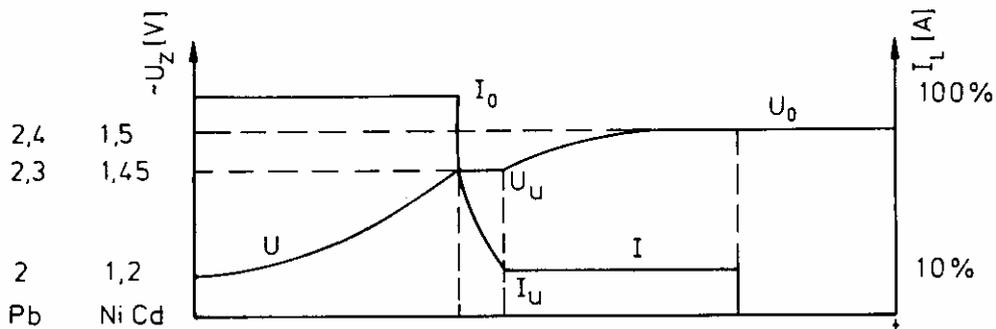
| | | | | | | |
|-----------------------|---|---------|---------|---------|---------|---------|
| mounting position | vertically | | | | | |
| weight | 9,5 kg | 9,5 kg | 12 kg | 12 kg | | |
| dimensions | B - 180 | L - 200 | H - 180 | B - 225 | L - 200 | H - 180 |
| | b - 165 | l - 145 | Ø 8 | b - 185 | l - 145 | Ø 8 |
| operating temperature | - 20°C ... +60°C without condensation (PLG 20 +45°C) | | | | | |
| storage temperature | -20°C ... +70°C without condensation | | | | | |
| isolation test | 4 kV; air- and creeping distance acc. onto VDE 0110 group C | | | | | |

Random information:

Paralleling of several modules for power extending with same characteristic adjustment possible.

Charging procedure:

At the beginning the charge is starting with constant current I_0 until reaching a pre adjusted lower voltage U_u . Then the charging goes on with reduced current I_u ($\sim 0,1 \times I_0$) until reaching a pre adjusted upper charge limit voltage U_0 . Here the charge will be stopped, otherwise the cells will blow gas or explode.



charging voltage- and current versus time

Charging condition indication:

The charging condition will be indicated by three different coloured LED's. When the green LED is on, so the area U_u (in diagram) is exceeded, the maximum accu-capacity is reached. When the yellow LED is on, the system is lower from U_u in full charging operation. Only a part of the capacity can be used.

When instead of them the yellow and red LED's are lit up, the lower discharging threshold is fall below (factory adjust 20 V DC). No capacity may be used.

When only the red LED is on, there is given an overload or short. When reaching the lower discharging threshold there is given an alarm by a potential free relay-change over contact.

Series of modules and chose:

The systems will be adjusted in the factory on „Pb“ for lead accu or „NiCd“ for nickel cadmium accu. Other adjustments on request.

The capacity of the connected accus may be maximal the 10-th of the charging current (for example by 2,5 A = 25 Ah). The conducting cables to the accus should be as short as possible and have a large cross section, to exclude instabilities.

The systems PLG 10 and 20 and all NiCd-versions have furthermore a terminal for a temperature sensor, to reduce the charging voltage depending on accu-temperature. The sensor is easily fit to the housing of the less ventilated accu. The charging limit voltage herewith is reduced by 5 % when reaching 50°C.

The life time of the accu herewith is extend several times.

Important instructions:

To get a trouble free operation of the buffer charging system in combination with the connected accu, please note the following items:

The factory adjusted charging characteristic with voltage- and current shape gives a max. capacity duty by lead- and nickel cadmium accu with a nominal voltage of 24 V DC. Sometimes the manufacturer of the accu may prescribe other values. Please note those values and tell them expressly when ordering.

Especially the max. charging current may be insufficiently high for accu with less capacity!

The charging condition of accu must be exactly the same when connected in series and furthermore the capacity of all accu must be the same.

For example the combination of an elder or damaged accu and a new one is strictly forbidden. Furthermore the service instructions of the accu manufacturer must be noted.

A change of charging characteristic only may be performed in factory. Warranty void if potentiometers are faulty adjusted.

Conditioned on technical alternatives.

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