

New Primary Switched Battery Charging and Power Supply Unit with DC On/Ready Contact GL2024P



- Compact design for DIN rail mounting
- Battery charging and low voltage supply
- Output voltage on the front adjustable
- DC On (Power Ready) Contact
- LEDs for DC On and DC Low
- Parallel operation
- Power Factor PFC 0,99
- Efficiency factor 89%
- Operating temperature range -25 ... +71 Grad Celsius

Application:

The battery charging and power supply unit GL2024P is used for charging high-quality lead or nickel-cadmium batteries and/or for supplying 24V DC circuits. The charging unit is especially suitable for use with diesel generators, where operating safety and long-term stability are necessary.

The primary clocked switching power supply is intended for use on the top-hat rail due to its high efficiency, low weight and low heat development. It is designed such that heat transport is vertical, meaning that other electronic units can be mounted on the hat rail about 5-15cm away from the power supply unit (depends on amount of heat), thus saving space.

The output of the GL2024P is connected to the battery or DC supply via protective equipment. The output voltage / final charging voltage is also kept stable during large mains fluctuations (90 - 264VAC) and high temperature variations.

When the unit is operated for longer periods at high currents and in heated environments, the charging current set is reduced automatically in order to reduce the thermal load on the components.

Charging:

Normal Charging:

The empty battery is first charged at the constant current set. Before the preset final charging voltage is reached, the current gradually decreases. The gassing of the battery is limited and the continually reduced current causes the voltage to rise slowly until it reaches the final charging voltage. This characteristic I / U curve ensures the gradual charging of the battery.

Settings, DC On Contact, etc.:

The GL2024P charging unit is set to a battery voltage of 26.6V in no-load operation before leaving the factory. The final charging voltage is adjusted in no-load operation using the adjuster on the front of the unit.

In mounting you should make sure that the PE connection is connected so that the unit meets the interference requirements according to VDE and EN.

The LED's on the front panel indicates that the charging and power supply unit is ready for operation (DC On or DC Low). **An additional DC On contact allows the monitoring of the charger. At fault (DC Out > = 17.6 to 19.4 V) opens the normally open contact.**

We recommend choosing the unit power output by + 30% to guarantee utmost availability. For example: Power of your application 300W, Unit Output Power 1.3 x 300W = 390W.

Technical Data:

Input

Nominal voltage	AC 115 / 230 V (auto select)
Operation voltage range	AC 90–264 V; DC 120–370 V
Line frequency	47 Hz–63 Hz
Rated current	$U_i = AC 115 V: 4.8 A / U_i = AC 230 V: 2.45 A$
Inrush current	$U_i = AC 115 V: 25 A / U_i = AC 230 V: 50 A$
Internal fuse	T10 A / AC 250 V
External fuse	Mini-circuit breaker: B 16 A
Power Factor Correction P.F.C.	0.99

Load Side

Rated voltage output	DC 24 V
Rated current output	20 A
Low power loss	63 W
Voltage trim range	22.5–28.5 V
Accuracy	±1 %
Line regulation	±0.5 %
Load regulation	Single ±0.5 %, Parallel ±5 %
Rise time	1 s
Temperature coefficient	±0.03 % / °C

Ripple & Noise	100 mV
Hold up time	min. 30 ms
Status indication DC ON LED green	≥17.6–19.4 V
Status indication DC LOW LED red	≤17.6–19.4 V
Parallel mode	max. 3 units at 90% load current, manual switch
Efficiency	89 %
Rated over load protection	120–140 %
Over voltage protection	125–137 %
Short circuit characteristics	Current limit

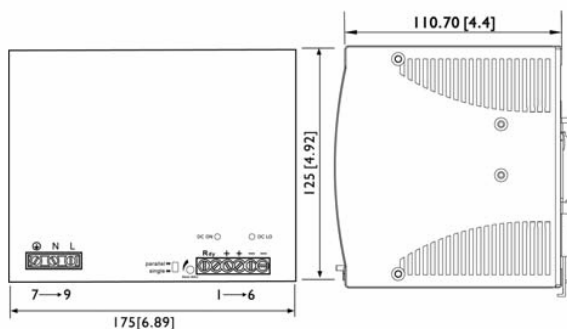
General

Switching frequency	approx. 60 kHz
Insulation voltage input/output	3.0 kV _{eff}
Insulation voltage input / ground	AC 1.5 kV _{eff}
Insulation resistance at DC 500 V	100 MΩ
Operation temperature range	-25 °C – 71 °C (derating)
Derating	-4% / °C starting at 61 °C
Storage temperature range	-25 °C – 85 °C
M.T.B.F.	403000 h
Relative humidity	20–95% RH
Dimensions (w × h × d)	175.0×125.0×116.0 mm
Cooling	Air convection
Installation position	vertical
Housing material	metal
Protection class	IP 20
Field installation	rail TS 35 (EN 50022)
Application height	2000 m
IP rating	I (SELV, PELV)
Overvoltage category	II
Pollution degree	2
Weight (kg/piece)	1.920
Termination	Screw terminal: 0.2–6.0 mm ²
Approvals	TÜV: EN 60950-1, CE: EN 61000-6-3 / EN 55022 Class B, EN 61000-3-2, EN 61000-3-3, EN 61000-6-2, EN 55024

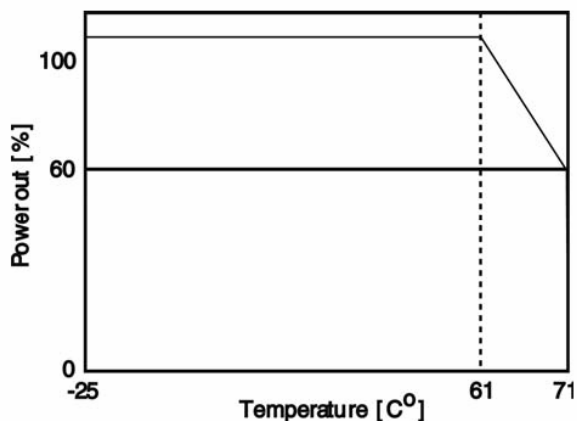
Monitoring

DC ON Control (Rdy)	Normally open
Switching voltage	DC 60 V
Switching current	max. 300 mA
Insulation voltage	DC 500 V

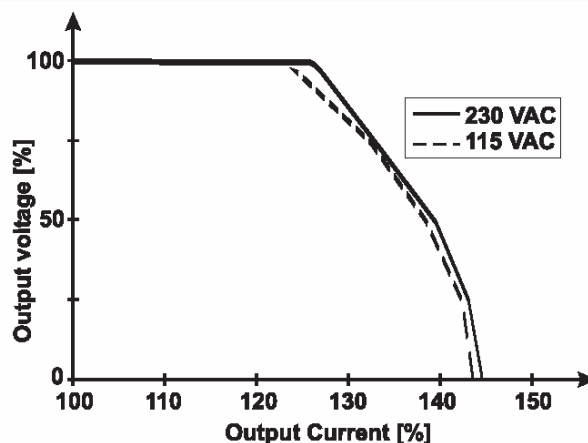
Dimensions



Derating



Short circuit characteristics



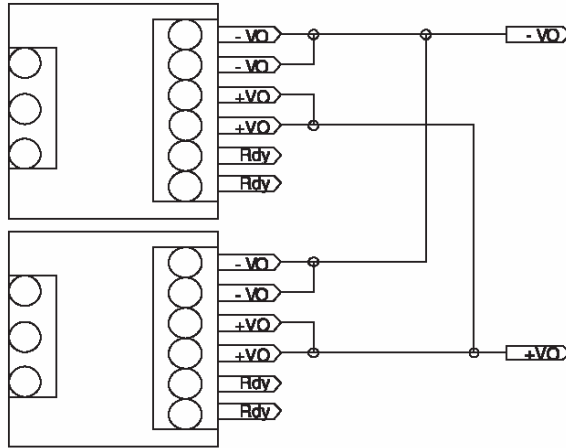
Parallel Mode:

Parallel Mode is available by connecting the same units showing as below. Please set the switch single/parallel on the front to “parallel”. **The parallel connection of different Units is not allowed! In parallel operation 3 units is the maximum!**

The voltage difference among each output should be minimized that less than $\leq \pm 2\%$ is required. The total output current must not exceed the value determined by the following equation:

$$2 \times GL2024P \gg 20A = 40A \times 2 \times 0.9 \gg I_{max} = 36A \text{ for both Chargers (18 A per unit)}$$

Parallel mode



Connecting example:

