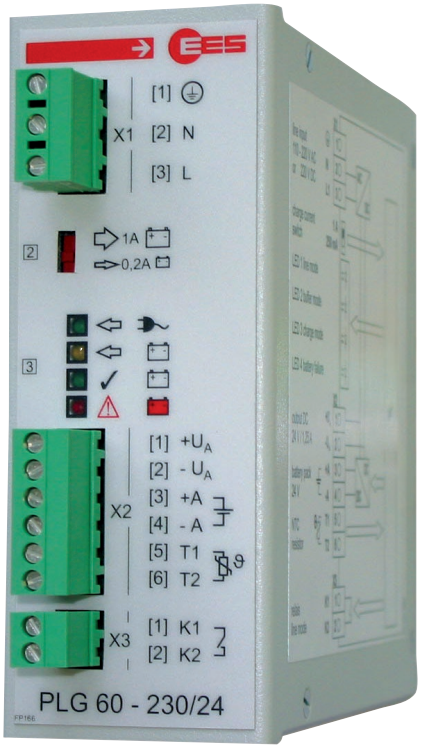
Fail-safe power supplies for unsecured power nets



PLG - Accumulator buffered power supply

- 24 V power supply unit with accumulator buffering
- Usable for lead and gel accumulators with capacities of 1.2 Ah up to 38 Ah
- Output voltage is independent of the state of charge of the accumulator
- Short circuit and overload resistance of the output current
- High efficiency by microcontroller supported loading and unloading of the accumulator
- Integrated deep discharging and reverse-connect protection for the accumulator
- Higher accumulator life time by an optional temperature sensor
- Operating and state of charge supervision by LEDs and potential-free contact
- Mounting on DIN rail

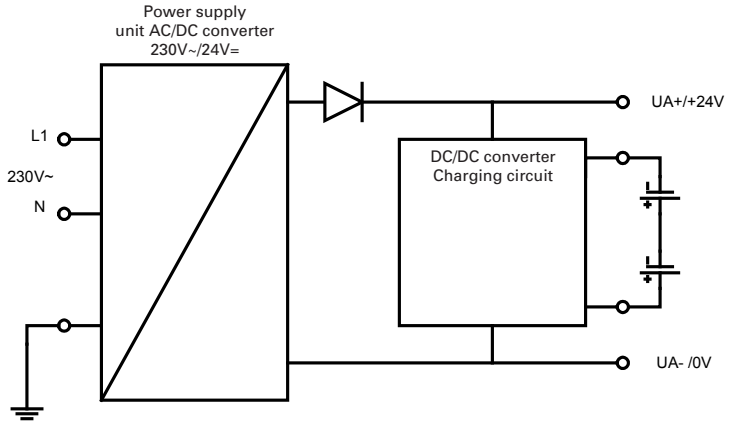
Datasheet

01.10.2010

SV-PLG60-DB-UK-002

General system description PLG

The buffered dc power supply of the type PLG uses external lead or gel accumulators for the storage. At an available line voltage the PLG makes the output voltage U_A available and charges the accumulator or keeps its charge. The load current is independent of the state of charge of the accumulator .



The micro processor-controlled charging method with I-U characteristic provides a gentle charging of the accumulator, if possible. Up to the achievement of the end-of-charging voltage U_{AL} the charging is done with the maximum current I_{AL} dependent on the accumulator capacity. The charging current is then reduced that the accumulator voltage is kept on the end-of-charging voltage. The optionally available temperature sensor should be used at environmental temperatures < 10° Celsius and > 35° Celsius to ensure an additional temperature compensation of the end-of-charging voltage. The maximum charging current is adaptable to the capacity of the accumulator by a DIP switch.

If the mains voltage is cancelled, the output voltage is generated by the internal DC/DC converter out of the accumulator voltage. The net blackout is signalled by a LED and a reporting relay at the same time. The buffering is as long as maintained, until the mains supply is possible again or the discharging-end voltage U_{AE} of the accumulator is reached. The output voltage is switched off at underrun of the discharging-end voltage U_{AE} of the accumulator (deep-discharging protection). A new buffer cycle is only possible again, after the accumulator was recharged about 70% and therefore the equipment status "ready" was reached.

Technical data

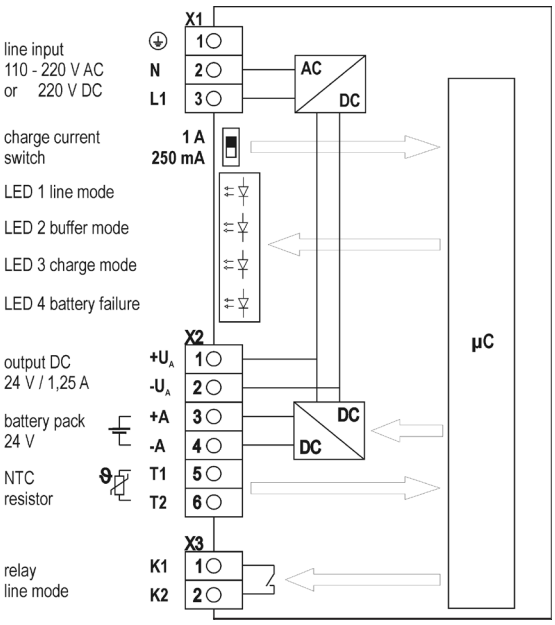
Nominal input voltage	110 / 230 V AC; 220 V DC
Input voltage range	90 - 264 V AC; 47 - 63 Hz 127 - 370 V DC
Nominal input current (on full load)	1,8 A @ 115 V AC 1 A @ 230 V AC
max. switch-on current	60 A @ 230 V AC for < 1 ms 30 A @ 115 V AC for < 1 ms
Ground leakage current (L1,N --> earth)	< 200 µA
Degree of effectiveness on mains operation	> 83% on nominal output power
Nominal output voltage	24 V DC
Nominal output current	1,25 A @ 1,2 A charging current 2,2 A @ 250 mA charging current
Mains operation	
Output voltage U_0	24,2 V DC ± 2 %
Max. output current With fully charged accumulator	2,5 A
Buffer mode	
Output voltage U_{0B}	23,3 V DC ± 2 %
Max. output current	1,25 A

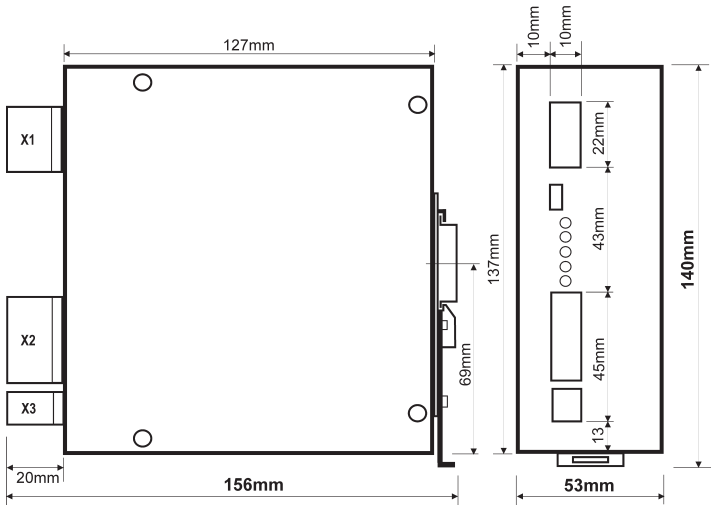
Transition from mains operation to buffer mode	
Output voltage U_{0B} @ Voltage break down	> 21,0 V; t < 50 ms
Nominal output power	30 W
max. output power < 10 s	66 W
Ripple & Noise, P-P	< +/- 200 mV
Control deviation on mains fluctuation	< +/- 200 mV
Control on load fluctuation (on mains operation and buffer mode)	< +/- 300 mV
Nominal voltage Accu	24 V
Charging method	I-U-characteristic
End-of-charging voltage	27,6 V +/-2% @ 20°C + tolerance of the temperature sensor
Charging current U_{AL}	250 mA / 1,2 A (switchable)
Discharging-end voltage U_{AE}	20 V
Voltage for accumulator error U_{AMIN}	< 17 V
Load on relay contacts	2 A @ 30 V DC 2 A @ 230 V AC 0,5 A @ 110 VDC 0,3 A @ 220 VDC
Insulation resistance	
Primary side against secondary side and primary side against functional earth and secondary side against functional earth	100 MΩ @ 500 V DC acc. to EN 60950-1
Insulations voltage effective	
Primary side against secondary side	4 kV AC / 1 min acc. to EN 60950-1
Primary side / secondary side against functional earth	1,5 kV AC / 1 min acc. to EN 60950-1

EM compatibility	
Noise immunity acc. to	EN 61000-6-2, EN 61000-4-2,3,4,5,6,8,11
Noise radiation acc. to	EN 61000-6-4, EN 55011 class B, EN 55022 class B
Mains back coupling acc. to	EN 61000-3-2,3
Terminals	pluggable
Conductor cross section rigid or flexible	
Without wire sleeves	0,2 ... 2,5 mm^2
With wire sleeves	0,25 ... 2,5 mm^2

Ambient conditions	
Operating temperature range/humidity	-10 … +55°C / 20…90% RH (non condensing) acc. to IEC 60068-2-3
Storage temperature range/ humidity	-20…+70°C / 10..95% RH acc. to IEC 60068-2-3
Vibration	10 ~ 500 Hz, 2 G for 10 min / once after IEC 60068-2-6, IEC 60068-2-26, IEC 60068-2-27
Protection class	IP 20 and EN 60529
Mounting	on DIN rail TS35 acc. to EN60715
Dimensions (H x W x D) [mm]	137 x 53 x 160
Weight	approx. 600 g

Terminal assignments / Dimensional drawing





Subject to technical changes reserved

Ordering code

Article number	Description	Details
109PLG060-5B	PLG 60-230/24	Buffer charging power supply
109ZAPB01T	AP-PB-24V-01Ah-T	Accu arrangement for mounting on DIN rail 1,2 Ah, 24 V incl. temperature sensor
109ZAPB01X	AP-PB-24V-01Ah	Accu arrangement for mounting on DIN rail 1,2 Ah, 24 V without temperature sensor
109ZAPB07T	AP-PB-24V-07Ah-T	Accu arrangement for mounting on DIN rail 7 Ah, 24 V incl. temperature sensor
109ZAPB07X	AP-PB-24V-07Ah	Accu arrangement for mounting on DIN rail 7 Ah, 24 V without temperature sensor
109ZTF01	TF01-M3-2	Temperature sensor, assembly M3-thread, incl. 2 m connection cable

Contact

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