

12-15V adjustable, 180W

PULS**SL10.104**

- Input: AC 230/115V, DC 240...375V
- Output: 12-15V/180W
- PULS Overload Design™: 20% Power boost up to 215W; high overload current, no switch-off
- Robust mechanics and EMC
- DC ok LED
- Inrush current limiting and Overtemperatur protection



UL
UL60950 E137006
CUL/CSA-C22.2
No 60950

UL
UL508 LISTED
IND. CONT. EQ.
18 WM, 60°C

CE
EMC and
Low Volt.
Directive

Input

Input voltage AC100-120/220-240V (Manual Select), 50-60 Hz
(AC 85...132/176...264V, DC 240...375V, 47-63 Hz)

Note: At DC input, always leave the switch in the 230V position

Input current I_n <5A (switch in 115V position)
<2.3A (switch in 230V position)

	AC 100V	AC 120V	AC 230V
Inrush current I_{pk}	37A	45A	51A
Fuse loading I^{2t}	4.6A ^{2s}	6.8A ^{2s}	4.2A ^{2s}

at $T_{amb} = +50^\circ\text{C}$, cold start

Unit is internally fused (fuse not accessible). For external fusing of unit and for input line protection, use circuit breaker with B-characteristic 10A or slower action, or alternatively T10A HBC fuse.

Harmonic current emissions (PFC)	AC 100V	AC 120V	AC 230V
	0.67	0.64	0.54

above 98W > class A

Transient handling Transient resistance acc. to VDE 0160 / W2 (750V/1.3ms), for all load conditions.

Hold up time 45,7 / 84,6 / 81,3ms (bei AC 100/120/230V, 12V/15A) (see Diagram overleaf)

IT Mains allowed

Efficiency, Reliability etc.*

Efficiency >87% (AC 230V, 12V/15A)

Losses <26.9W (AC 230V, 12V/15A)

MTBF 425.000h acc. to Siemensnorm SN 29500 (12V/15A, AC 230V, $T_{amb} = +40^\circ\text{C}$)

Lifetime expectancy (electrolytics) The unit uses longlife electrolytics, specified for +105°C (cf. 'The SilverLine', p.2).

* For further information see data sheets „The SilverLine“, „SilverLine Family Branches“ and mechanics data sheet

Ordering information

Order number	Description
SL10.104	SilverLine switched-mode power supply
SLZ14	Adapter for S7-300 rail
SLZ02	Wall mounting set

Output

Output voltage DC 12-15V, adjustable by (covered) front panel potentiometer; preset: 12V $\pm 0.5\%$
Adjustment range guaranteed

Rated continuous loading with convection cooling

- $T_{amb}=0^\circ\text{C} - 60^\circ\text{C}$ 12V/15A (180W) resp. 15V/12A
- $T_{amb}=0^\circ\text{C} - 45^\circ\text{C}$ 12V/18A (215W) resp. 15V/14.4A short-term also at 60°C (< 1 min)

Output is protected against short-circuit, open circuit and overload

Short-circuit current 21A min. ,28A max.

Ambient temperature range T_{amb} Operation: 0°C...+70°C (>60°C: Derating)
Storage: -40°C...+85°C

Derating typ. 5 W/K (at $T_{amb} = +60^\circ\text{C}$...+70°C)

Voltage regulation < - 150mV overall

Ripple / Noise <50mV_{pp}, (20MHz bandw., 50Ω measurement)

Serial operation not allowed

Parallel operation not allowed

Overvolt. protection typ. 19V

Power back immunity < 18V

Front panel indicator Green LED on front panel

Construction / Mechanics*

Housing dimensions and Weight

- W x H x D 120mm x 124mm x 102mm (+ DIN rail)
- Free space for ventilation above/below 25mm recommended left/right 15mm recommended
- Weight 980g

Connection Screw terminals, input=3, output=4

- Wire gauge 0,5...4mm² / 20...10 AWG
- Recomm. tightening 0,8Nm / 7lb.in torque
- Wire stripping length 7mm / 0,275"

Design advantages:

- All connection blocks are easy to reach as mounted at the front panel.

Start / Overload Behaviour

Startup delay	typ. 0,22s
Rise time	5...25ms, depending on load

Overload Behaviour

- Special PULS Overload-Design (see diagram overleaf) – no disconnection, no hiccup if overloaded – high overload current (up to 2.2 I_{Nom}), V_{out} is gradually reduced with increasing current.
- 20% power boost – 18A short-term, at 45°C or forced cooling even continuous

Advantages:

- High short-circuit current, giving large 'start-up window': unit starts reliably even with heavy loads (DC-DC converters, motors).
- No 'sticking' such as can occur with fold-back characteristics
- Secondary fuses operate more reliably

Electromagnetic Compatibility (EMC)

Emissions

- EN 61000-6-4, Class B (EN 55011, EN 55022)
- EN 61000-3-3
- Output power less than 98W: EN 61000-3-2 Class A and EN 61000-6-3 are fulfilled.
- Output power more than 98W: EN 61000-3-2 Class A and EN 61000-6-3 are **not** fulfilled.

Immunity EN 61000-6-2 (also includes EN 61000-6-1)

- Electrostatic Discharge (ESD) EN 61000-4-2, Level 4 (15kV; 8kV)
- Electromagnetic radiated fields EN 61000-4-3, Level 3 (10V/m)
- Burst, coupled to:
 - ACin-lines EN 61000-4-4, Level 4 (4kV)
 - DCout-lines EN 61000-4-4, Level 3 (2kV)
- Surge transients EN 61000-4-5
 - (L -> PE) Installation class 4 (4kV)
 - (N -> PE) Installation class 4 (4kV)
 - (L -> N) Installation class 4 (2kV)
- Conducted noise immunity EN 61000-4-6, Level 3 (10V, 150kHz - 80MHz)
- Voltage Dips EN 61000-4-11
- Transient immunity Transient resistance acc. to VDE 0160/W2 over entire load range

Further information

For further information, especially about

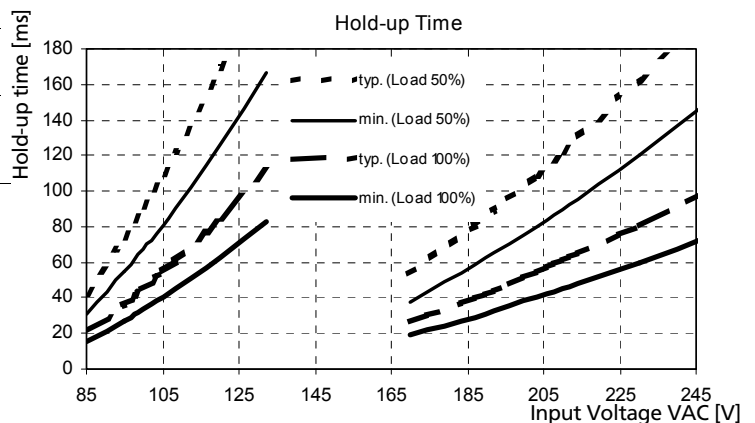
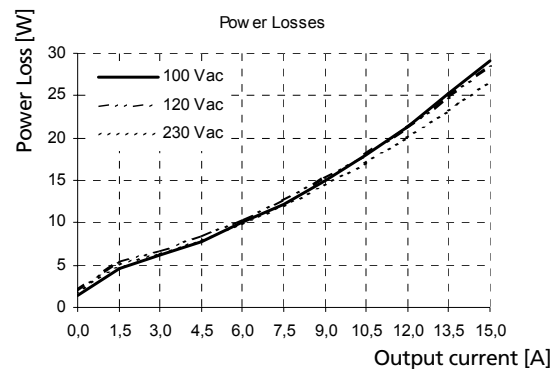
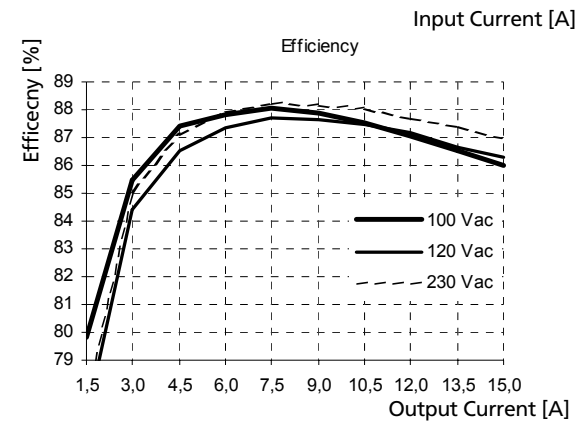
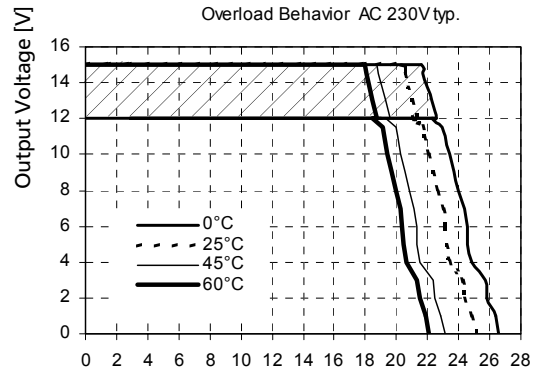
- EMC
 - Connections
 - Safety, Approvals
 - Mechanics und Mounting,
- see page 2 of the „The SilverLine“ data sheet.

For detailed dimensions

see SilverLine mechanics data sheet SL2.5/ SL5/ SL10

Unless otherwise stated, specifications are valid for AC 230V input voltage, +25°C ambient temperature, and 5 min. run-in time. They are subject to change without prior notice.

Your partner in power supply:



PULS GmbH
 Arabellastraße 15
 D-81925 München
 Tel.: +49 89 9278-0
 Fax: +49 89 9278-199
 www.puls-power.com