

All-rounder

PULS

# SL20.300 SL20.301

- Input: 3 AC 400V / 3 AC 480V
- Output: 24...28V / 480W (600W)
- 92% efficiency
- Ideal for parallel operation
- Simple fusing



CE  
EMC and  
Low Volt.  
Directive

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

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

CB  
scheme  
IEC60950

Data sheet

## Input

Input voltage	SL20.300: 3 AC 400 V, - 15 %, + 20 % SL20.301: 3 AC 480 V, - 15 %, + 20 % (SL20.100: AC 230 V, s. separate data sheet) 47-63 Hz, Suitable for IT power systems
Rated Tolerances	<ul style="list-style-type: none"> <li>• Continuous operation SL20.300: 340-479 V AC resp. 450-700 V DC SL20.301: 408-576 V AC resp. 550-820 V DC</li> <li>• Short term (1 min) at 24 V/20 A SL20.300: 300-550 V AC resp. 370-790 V DC SL20.301: 360-620 V AC resp. 450-890 V DC</li> </ul>
Input current	3 x 1.5 A
Inrush current	< 15 A at 440 V AC, < 17 A at 480 V AC
Inrush current limiting	done with a fixed 47R resistor (not a thermistor) which is bridged after the unit is running, so losses are minimised. That means no reset time even at a warm-start.
Fuse loading	< 2 A <sup>2</sup> s
	To be fused with a 3 x 10A, B-type 'circuit-breaker' switch based on the usual thermomagnetic overload sensing principle (used anyway to fuse the input lines; unit has no internal fuses).
Harmonic current emissions (PFC)	acc. EN 61000-3-2
Transient handling	Active transient filter incorporated, so transient resistance acc.to VDE 0160 / W2 (1300 V / 1.3 ms), for all load conditions.
Hold up time	> 11 ms at 24 V/20 A, V <sub>in,nom</sub>

## Efficiency, Reliability etc.\*

Efficiency	typ. 92 % (24 V/20 A, V <sub>in,nom</sub> )
Losses	typ. 42 W (24 V/20 A, V <sub>in,nom</sub> )
MTBF	310.000 h acc. to Siemensnorm SN 29500 (24 V/20 A, V <sub>in,nom</sub> , T <sub>amb</sub> = +40 °C)
Life cycle (electrolytics)	The unit exclusively uses longlife electrolytics, specified for +105°C (cf. 'The SilverLine', p.2). High reliability, as <ul style="list-style-type: none"> <li>• only four aluminium electrolytics and</li> <li>• no small aluminium electrolytics are used.</li> </ul>

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

## Output

Output voltage	24...28 V DC, adjustable by (covered) front panel potentiometer; preset: 24 V ±0.5% Adjusting range guaranteed
Output noise suppression	Radiated EMI values below EN50081-1, even Silent Switcher™ when using long, unshielded output cables.
Ambient temperature range T <sub>amb</sub>	Operation: 0°C...+70°C (>60°C: Derating) Storage: -25°C...+85°C
Rated continuous loading with convection cooling	<ul style="list-style-type: none"> <li>• T<sub>amb</sub>=0°C - 60°C 24 V / 20 A (480 W) resp. 28 V / 18 A (504 W)</li> <li>• T<sub>amb</sub>=0°C - 45°C 24 V / 25 A (600 W) resp. 28 V / 22 A (616 W) short-term also at 60 °C</li> </ul>
Derating	typ. 12 W/K (at T <sub>amb</sub> =+60°C...+70°C)
Voltage regulation	better than 2% over all
Ripple	< 20 mV <sub>pp</sub> (i.e. < 0.1 %) incl. spikes 20 MHz bandwidth, 50 Ω measurement
Over-voltage protection	At 32 V ± 10%: switch to hiccup mode
Front panel indicators:	<ul style="list-style-type: none"> <li>• Green LED on, when V<sub>out</sub> &gt; U<sub>T</sub>, where U<sub>T</sub> is ca. 2 V below V<sub>out</sub> adjusted (24V...28V)</li> <li>• Red LED on, when 14 V &lt; V<sub>out</sub> &lt; U<sub>T</sub></li> <li>• Red LED flashes, when 0 V &lt; V<sub>out</sub> &lt; 14 V</li> </ul>
Parallel operation	Yes, up to ten SL20 units
	To achieve current sharing the output V/I characteristic can be altered to be 'softer' (25V at 0.4A, 24V at 20A). This is done by repositioning a bridge connection (without opening the unit).
Reverse power immunity	> 30 V

## Order information

Order number	Description
SL20.300	400 V input
SL20.301	480 V input
SLZ02	Screw mounting set, two needed per unit

**Construction / Mechanics \***

Housing dimensions and Weight

- W x H x D            220 mm x 124 mm x 102 mm (+ DIN rail)
- Free space for        above/below 70 mm recommended
- ventilation            left/right 25 mm recommended
- Weight                1.8 kg

Design advantages:

- All connection blocks are easy to reach as mounted at the front panel.
- PVC insulated cable can be used for all connections, as the connection blocks are mounted in the cooler area on the underside of the unit.

**Start / Overload Behaviour**

- Startup delay            typ. 0.2 s
- Rise time                ca. 20-80 ms, depending on load
- Duration of switch-on attempts at

- Initial application    ca. 1.4 s
- on mains
- Subsequent            ca. 0.5 s
- attempts

Hiccup operation at     $V_{out} < ca. 14 V$

Duration between      ca. 4 s

switch-on attempts

Electronic current limiting, protects against overload and short circuit:

- $V_{out} < ca. 14 V$ : Periodical switch-on attempts (hiccup-mode).
- $V_{out} > ca. 14 V$ : The output current is continuous.

The V/I characteristic of the supply is straight.

Advantages of the switch-on/overload behaviour:

- Safer switch-on into highly non-linear loads with large starting currents
- Short-term overloads result in current limiting and not in an immediate shut-down.
- Parallel operation of several units possible.
- Proper switch-on performance is obtained.

**Further Information**

For further information, especially about

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

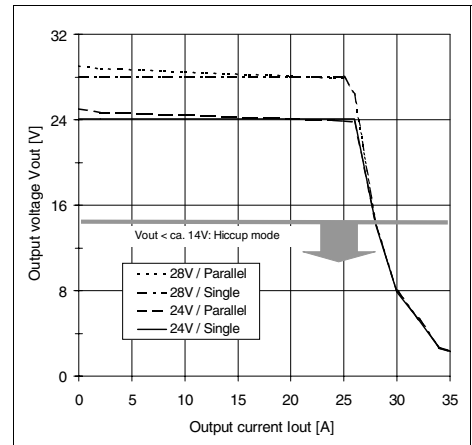
**For detailed dimensions**

see SilverLine mechanics data sheet SL20

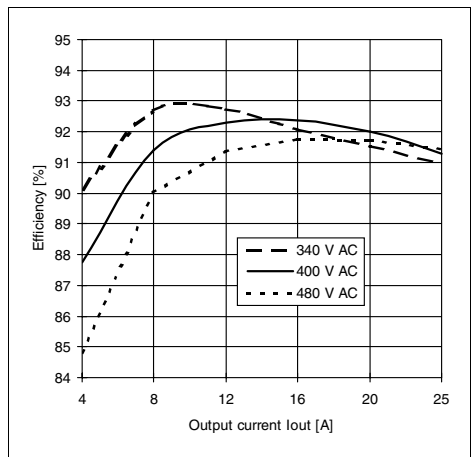
**All data is valid for SL20.300.**

**For SL20.301 (with 480 V input) some values may differ.**

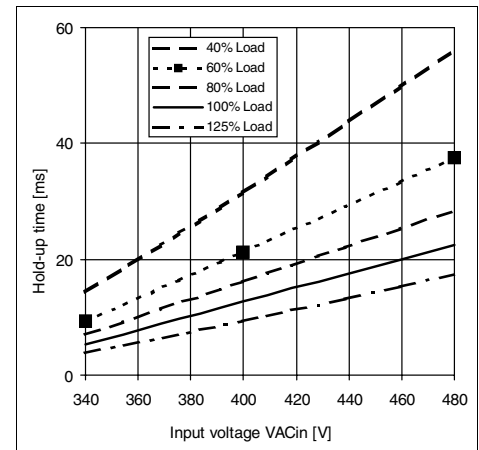
**Output V/I characteristic (typ.)**



**Efficiency (typ., at  $V_{out}=24V$ )**



**Hold-up time ((typ., at  $V_{out}=24V$ )**



Specifications valid for 3 x AC 400V input voltage, +25°C ambient temperature, and 5 min run-in time, unless otherwise stated. They are subject to change without prior notice.

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European Power Supply Manufacturers Association



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