Data sheet

All-rounder

SL20.300
SL20.301

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

EMC and Low Volt. Directive

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

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

CB scheme IEC60950

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	
• Continuous operation	SL20.300: 340-479 V ACresp. 450-700 V DC SL20.301: 408-576 V AC resp. 550-820 V DC
• 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
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^2s

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, Vin_{nom}

Efficiency, Reliability etc.*

Efficiency	typ. 92 % (24 V/20 A, Vin_{nom})
Losses	typ. 42 W (24 V/20 A, Vin_{nom})
MTBF	310.000 h acc. to Siemensnorm SN 29500 (24 V/20 A, Vin_{nom}, T_{amb} = +40 °C)
Life cycle (electrolytics)	The unit exclusively uses longlife electrolytics, specified for +105°C (cf. 'The SilverLine', p.2). High reliability, as • only four aluminium electrolytics and • no small aluminium electrolytics are used.

* 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 Silent Switcher ™	Radiated EMI values below EN50081-1, even when using long, unscreened output cables.
Ambient temperature range T_{amb}	Operation: 0°C...+70°C (>60°C: Derating) Storage: -25°C...+85°C
Rated continuous loading with convection cooling	
• T_{amb}=0°C - 60°C	24 V / 20 A (480 W) resp. 28 V / 18 A (504 W)
• T_{amb}=0°C - 45°C	24 V / 25 A (600 W) resp. 28 V / 22 A (616 W) short-term also at 60 °C
Derating	typ. 12 W/K (at T_{amb}=+60°C...+70°C)
Voltage regulation	better than 2% over all
Ripple	< 20 mV_{PP} (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:	• Green LED on, when $V_{out} > U_T$, where U_T is ca. 2 V below Vout adjusted (24V...28V) • Red LED on, when 14 V < V_{out}< U_T • Red LED flashes, when 0 V < V_{out} < 14 V
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 ventilation — above/below 70 mm recommended, 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 on mains	ca. 1.4 s
• Subsequent attempts	ca. 0.5 s
Hiccup operation at	V_{out} < ca. 14 V
Duration between switch-on attempts	ca. 4 s

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

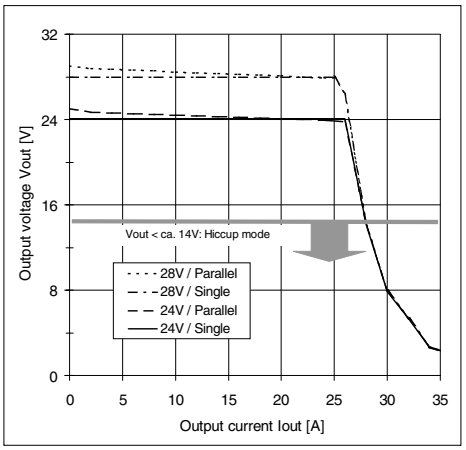
- EMC
- Connections
- Safety, Approvals
- Mechanics und Mounting,

see page 2 of the „The SilverLine“ data sheet.

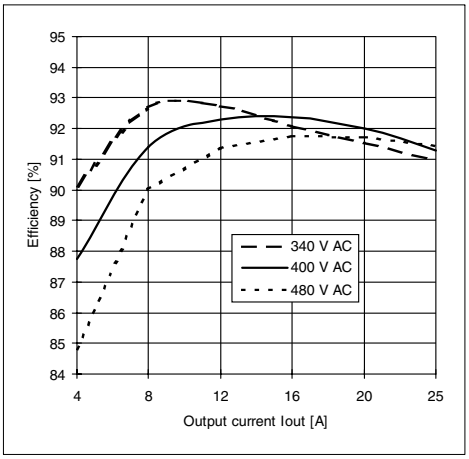
For detailed dimensions
see SilverLine mechanics data sheet SL20

All data is valid for SL20.300.
For SL20.301 (with 480 V input) some values may differ.

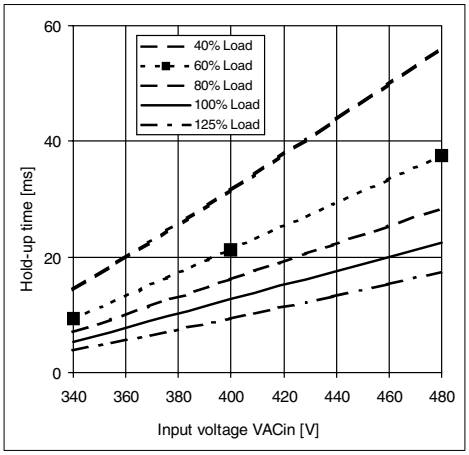
Output V/I characteristic (typ.)



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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C.
E.