

All-rounder

PULS

SL20.303

Data sheet

- Input: 3 AC 400V
- Output: 48...56V / 480W (600W)
- 92% efficiency
- Ideal for parallel operation
- Simple fusing



CE
EMC and
Low Volt.
Directive

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

C **UL** US

UL508 LISTED
IND. CONT. EQ.
18 W/M, 60°C

CB
scheme
IEC60950

Input

Input voltage	3 AC 400 V, - 15 %, + 20 % 47-63 Hz, suitable for IT power systems	
Rated tolerances	<ul style="list-style-type: none"> • Continuous operation 340-479 V AC or 450-700 V DC • Short-term (1 min) at 48 V/10 A 300-550 V AC or 370-790 V DC 	
Input current	3 x 1.5 A	
Inrush current	< 15 A at 440 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 ² 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. to 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 48 V/10 A, 400 V AC	

Efficiency, Reliability etc.*

Efficiency	typ. 92 % (48 V/10 A, 400 V AC)	
Losses	typ. 42 W (48 V/10 A, 400 V AC)	
MTBF	310.000 h acc. to Siemensnorm SN 29500 (48 V/10 A, 400 V AC, T _{amb} = +40 °C)	
Life cycle (electrolytics)	The unit exclusively uses longlife electrolytics, specified for +105°C (cf. 'The SilverLine', p.2). High reliability and lifetime, as <ul style="list-style-type: none"> • only four aluminum electrolytics and • no small aluminum electrolytics are used. 	

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

Order information

Order number	Description
SL20.303	
SLZ02	Screw mounting set, two needed per unit

Output

Output voltage	48...56 V DC, adjustable by (covered) front panel potentiometer, preset: 48.1V ±0.5% Adjusting range guaranteed
Output noise suppression	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	<ul style="list-style-type: none"> • T_{amb}=0°C - 60°C 48 V / 10 A (480 W) resp. 56 V / 9 A (504 W) • T_{amb}=0°C - 45°C 48 V / 12.5 A (600 W) resp. 56 V / 11 A (616 W) short-term (< 1 min.) also at 60°C permissible
Derating	typ. 12 W/K (at T _{amb} =+60°C...+70°C)
Voltage regulation	better than 2 % over all
Ripple	< 50 mV _{pp} (i.e. < 0.1 %) incl. spikes 20 MHz bandwidth, 50 Ω measurement
Over-voltage protect.	At 61V ± 7%: switch to hiccup mode
Front panel indicators:	<ul style="list-style-type: none"> • Green LED on, when V_{out} > U_T, where U_T is appr. 4 V below V_{out} adjusted (48 V...56 V). • Red LED on, when appr. 28 V < V_{out} < U_T. • Red LED flashes, when 0 V < V_{out} < appr. 28 V.
Parallel operation	Yes, up to ten SL20 units
To achieve current sharing the output V/I characteristic can be altered to be 'softer' (48.8 V at 0.1 A, 48 V at 10 A). This is done by repositioning a bridge connection (without opening the unit).	
Power Back Immunity	< 63 V

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 right/left 25 mm recommended
• Weight	1.8 kg
Design advantages:	<ul style="list-style-type: none"> • 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	appr. 20-80 ms, depending on load
Duration of switch-on attempts at	
• Initial application on mains	appr. 1.4 s
• Subsequent attempts	appr. 0.5 s
Hiccup operation at	$V_{out} < \text{appr. } 28 \text{ V}$
Duration between switch-on attempts	appr. 4 s

Electronic current limiting, protects against overload and short circuit:

- $V_{out} < \text{appr. } 28 \text{ V}$: Periodical switch-on attempts (hiccup mode).
- $V_{out} > \text{appr. } 28 \text{ V}$: 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

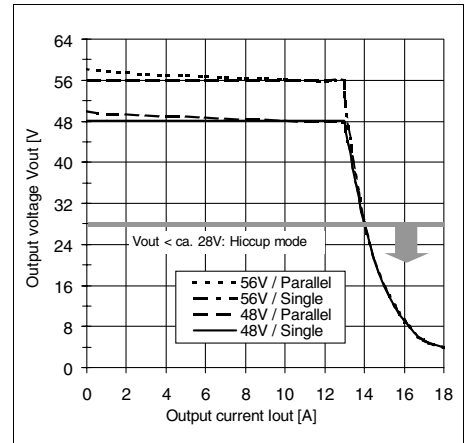
- EMC
- Connections
- Safety, Approvals
- Mechanics und Mounting,

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

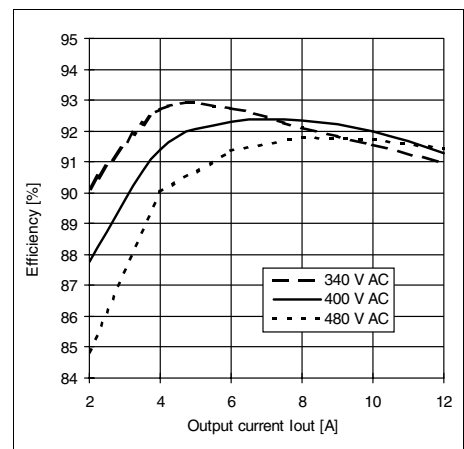
For detailed dimensions

see SilverLine mechanics data sheet SL20

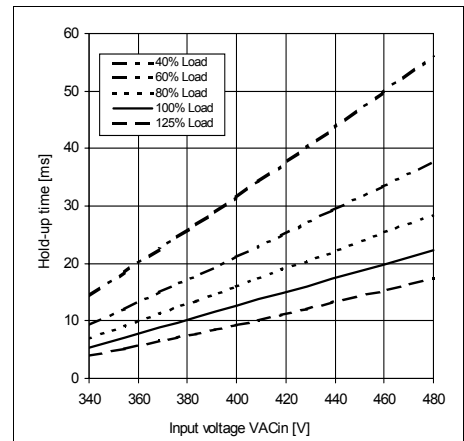
Output V/I characteristic (typ.)



Efficiency (typ., at $V_{out}=48\text{V}$)



Hold-up time (min., at $V_{out}=48\text{V}$)



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.

Your partner in power supply:



European Power Supply Manufacturers Association



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Czech 100 Best
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