

SL20 with 48...56V

# SL20.113

- Input: AC 115/230V **auto select**
- Output: 48...56V / 480W
- 93% Efficiency
- Ideal for parallel operation

**PULS**

CB  
scheme  
IEC60950

c UL US

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

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

Type approval  
acc. to:

- IEC / EN60950
- EN50178
- Overvolt. cat. III
- EN60204

CE  
EMC and  
Low Volt.  
Directive



Data sheet

## Datasheet

### Input

Input voltage	AC 100-120V/220-240V, 47-63Hz, auto select
Rated tolerances	
• Continuous	AC 85...132V or AC 184...264V
• Short-term (30s) at 48V/10A	AC 85...140V or AC 175...280V
Input current $I_n$	<12A (115V range) <6A (230V range)
Inrush current limiting with active bypass of the limiting resistor (NTC).	
Inrush current $I_{pk}$	<18A @ AC 264V ( $T_{amb} = +25^\circ\text{C}$ , cold start) <37A @ AC 264V ( $T_{amb} = +50^\circ\text{C}$ , cold start)
Fuse loading $I^2t$	<5A <sup>2</sup> s ( $T_{amb} = +25^\circ\text{C}$ , cold start) <8A <sup>2</sup> s ( $T_{amb} = +50^\circ\text{C}$ , cold start)
To be fused with a 16A, B-type 'circuit-breaker' switch based on the usual thermomagnetic overload sensing principle (used anyway to fuse the input lines).	
Transient handling	Transient resistance acc. to VDE 0160 / W2 (750V / 1.3ms), for all load conditions.
Hold-up time	30ms at 48V/10A, AC 230V <sub>in</sub> 35ms at 48V/10A, AC 120V <sub>in</sub> 15ms at 48V/10A, AC 100V <sub>in</sub>

### Efficiency, Reliability etc.\*

Efficiency	typ. 93% (AC 230V, 48V/10A)
Losses	typ. 36.2W (AC 230V, 48V/10A)
MTBF	519.000h acc. to Siemensnorm SN29500 (48V/10A, 230V, $T_{amb} = 40^\circ\text{C}$ )
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 five 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 SL20

### Order information

Order number	Description
SL20.113	
SLZ02	(wall mounting set; contains 2 pcs.)

### Output

Output voltage	DC 48...56V, adjustable by (covered) front panel potentiometer; preset: 48V $\pm 0.5\%$ Adjustment range guaranteed
Output noise suppression	Radiated EMI values below EN50081-1, even when using long, unshielded output cables.
Ambient temperature range $T_{amb}$	Operation: $0^\circ\text{C} \dots +70^\circ\text{C}$ (> $60^\circ\text{C}$ : Derating) Storage: $-25^\circ\text{C} \dots +85^\circ\text{C}$
Rated continuous loading with convection cooling:	
• $T_{amb} = 0^\circ\text{C} - 60^\circ\text{C}$ short-term (<30s)	48V/10A resp. 56V/8.6A 48V/12.5A resp. 56V/10.7A
Derating	12W/K (at $T_{amb} = 60-70^\circ\text{C}$ )
Voltage regulation	better 2% over all
Ripple	incl. spikes (20MHz bandw.), 50 $\Omega$ measur.
• Output charact. S	<40mV <sub>pp</sub> (<0.09%)
• Output charact. P	<80mV <sub>pp</sub> (In: AC 230V, Out: 48V/10A)
(S/P: Single/Parallel Mode)	<100mV <sub>pp</sub> (In: AC 184V, Out: 56V/8.6A)
Over-voltage protection	At 58.6V $\pm 2.3\%$ : switch to hiccup mode
Front panel indicators:	
• Green LED on, when $V_{out} = V_{out}$ adjusted	
• Red LED on, when $V_{out} < V_{out}$ adjusted	
Parallel operation	Yes, up to ten SL20

To achieve current sharing the output V/I characteristic can be altered to be 'softer' (47.9V at 0A, 45.6V at 10A). This is done by repositioning an external bridge connection (without opening the unit).

Power Back Immunity max. 57V

### Construction/ Mechanics\*

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

Design advantages:

- All connection blocks are easy to reach as mounted on 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**

Start-up delay	typ. 0.55s
Rise time	appr. 20-80ms, depending on load
Overload behaviour Puls Overload Design (see right-hand diagram)	

Advantages:

- No disconnection/hiccup, thus overloading is possible also for a longer period of time (load start-up), ideal for parallel operation.
- High overload/short-circuit current due to straight characteristic; each bias point of the V/I characteristic extends 10A.
- Advantage: Due to the high and continuously supplied overload current the unit starts reliably even with awkward loads (DC-DC converters, motors). No 'sticking' can occur as, for example, with fold-back characteristics, and secondary fuses trigger more reliably.

**Further information**

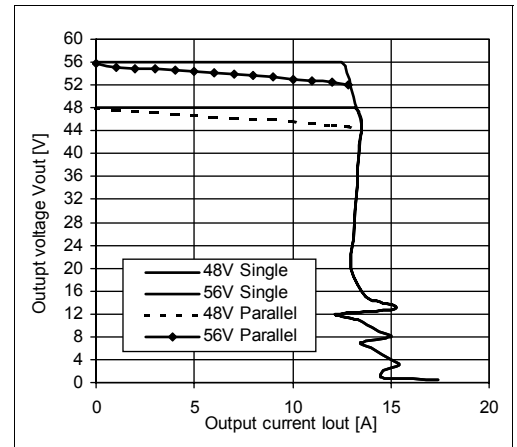
Further information, especially about

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

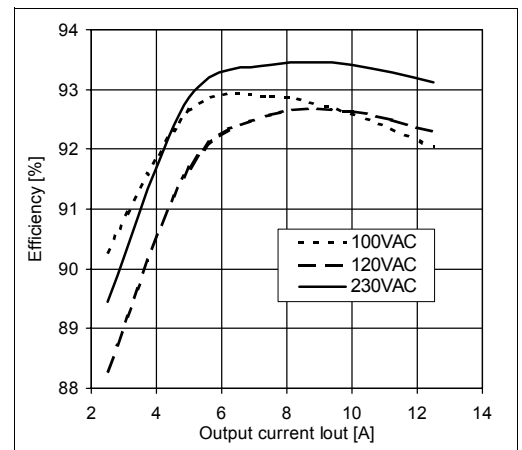
**For detailed dimensions**

see SilverLine mechanics data sheet SL20

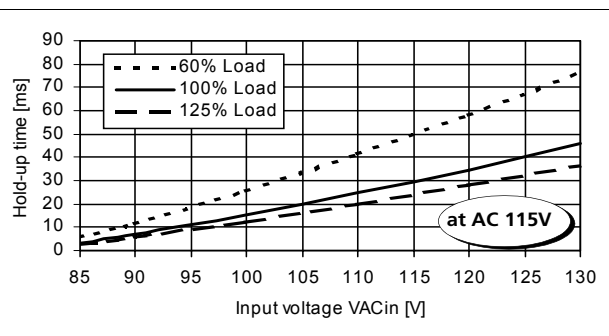
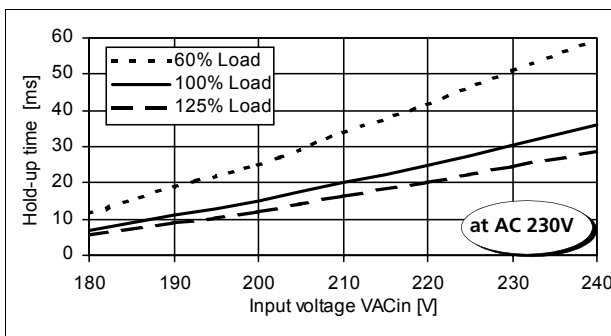
**Output characteristic (typ.)**



**Efficiency (typ., at V<sub>out</sub>=48V)**



**Hold-up time (min., at V<sub>out</sub>=48V)**



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:**



European Power Supply Manufacturers Association



Bayerns Best 50  
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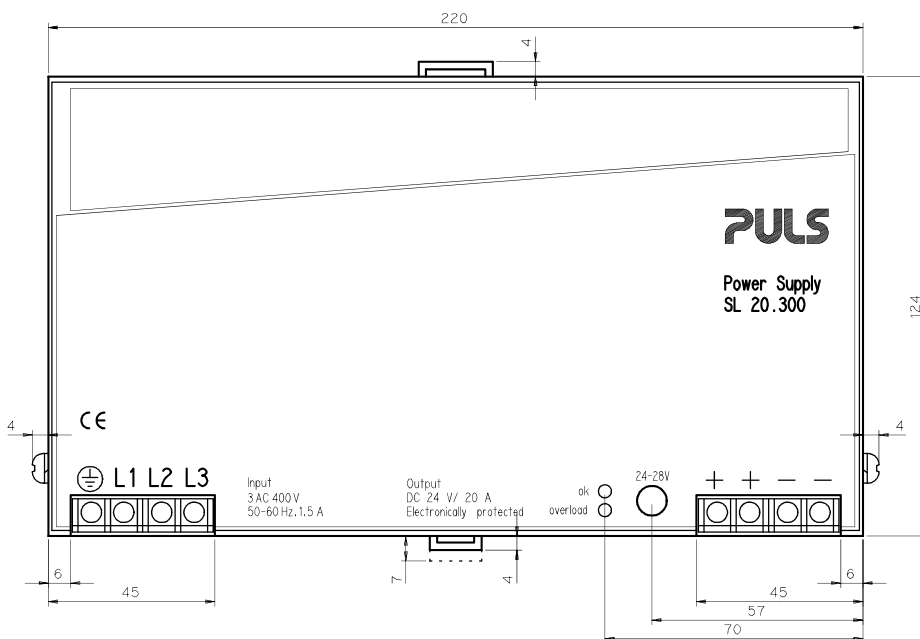
## SL20

- Innovative DIN-Rail mount, unit holds even at vibration or lateral pressure
- Clearly arranged and user oriented
- Large, robust screw terminals
- Sealed metal housing
- Fine ventilating grid

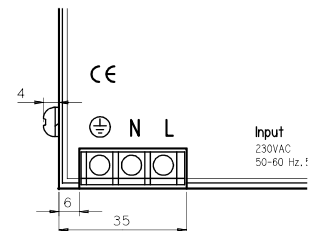


Data sheet

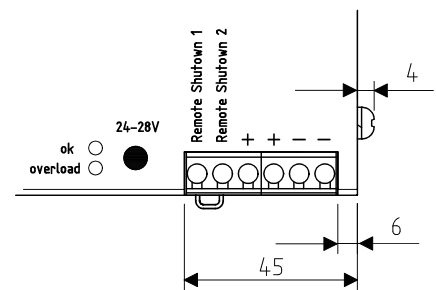
### Front view SL20.300



### Input terminals SL20.1xx



### Output terminals SL20.115



### 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 1.5 kg (SL20.100) / 1.8 kg (SL20.110, SL20.300) / 2.5 kg (SL20.111, SL20.115)

Robust metal housing with fine ventilat. grid ( $\llcorner$  3,5 mm, IP20), to keep out small parts (e.g. screws)

- Mounting**
- on DIN-Rail (TS35/7.5 or TS35/15, 1...1.5 mm thick) therefore
    - Simple snap-on system
    - Sits safely and firmly on the DIN-Rail
    - No tools required to remove
  - or backplane-mounted (two optional screw mounting sets SLZ01 required)

### Connections

#### Connections

- Input/Output
- Current handling capacity
- Grid

Screw terminals, connector size range: solid 0.5- 6 mm<sup>2</sup> / flexible 0.5 - 4 mm<sup>2</sup>

30 A per output  
Two connectors per output, 9 mm (SL20.115: 6 mm) distance between adjacent connectors

#### Design advantages:

- All connection blocks are easy to reach as mounted at the front panel. Input/output strictly apart from each other, thus no mixing up
- PVC insulated cable can be used for all connections, no thermal protection is needed

### Order information

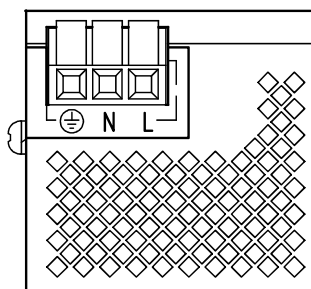
#### Order number

SL20.100 / .101  
SL20.110 / .111  
SL20.115  
SL20.300 / .301  
SLZ01

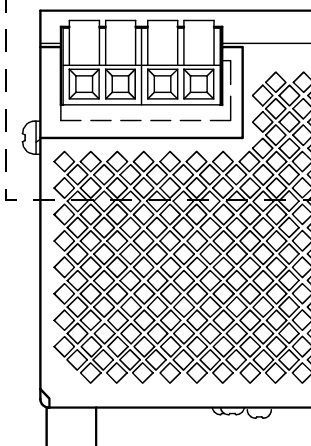
#### Description

AC 230 V, no PFC / incl. PFC  
Auto select, no PFC / incl. PFC  
Auto select, remote switch-off  
3 AC 400 V / 3 AC 480 V  
Screw mounting set, two needed per unit

Input terminals  
SL20.1xx bottom view

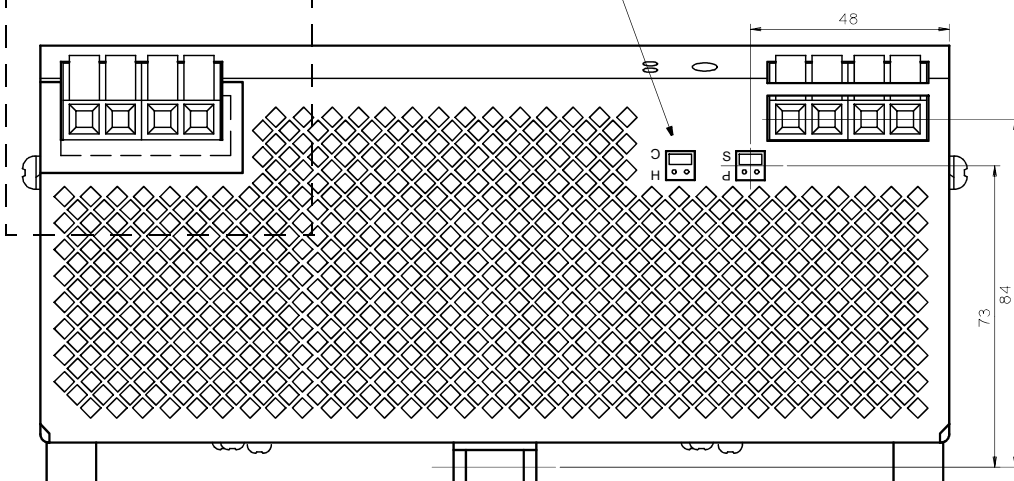


Input terminals  
SL20.30x bottom view

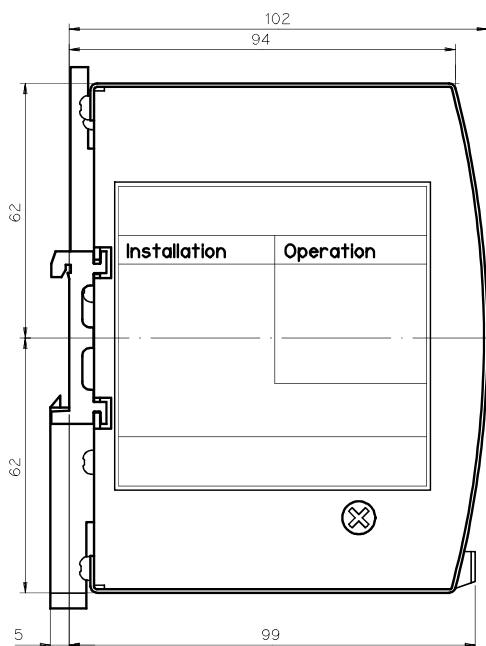


only SL20.110/.111

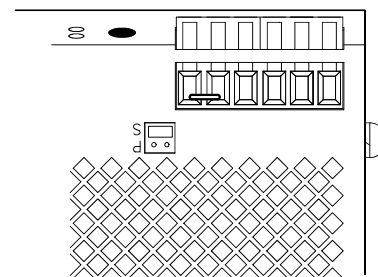
**Bottom view  
SL20**



**Side view SL20**



Output terminals  
SL20.115 bottom view



This 'mechanics data sheet' exclusively deals with the mechanical properties of the product. For further information (especially concerning electrical properties), please refer to the generic data sheet of the SL20 and to the basic data sheet „The SilverLine“ dealing with common features of all SilverLine units. This datasheet is subject to change without prior notice

**Your partner in power supply:**



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