48-52V, 3-phase, 240W

**SL10.305**

- Input: 2 AC 400-500V
  3 AC 380-500V
- Output: 48-52V / 240W
- Switchable operating mode (single/parallel)
- FUSE Mode / Continuous Mode

This compact power supply unit is characterised by the variety of application possibilities and low system costs. The fact that the external fuses are no longer necessary is an advantage as it saves cost and space. The selectable FUSE Mode and the fully specified 2-phase operation make the SL10.305 the unit of choice.

### Input 3-phase operation
(Input 2 phase operation and DC operation see page 2)

**Nominal input voltage**
- Voltage range: 3xAC 320...575V
- Short-term (1 min.): 3xAC 300...620V

**Frequency**
50-60Hz ±6% (47...63Hz)

**Input current**
- 0,8A (3xAC 400V)
- 0,7A (3xAC 480V)

**Power faktor**
- 0,5 (3xAC 400V)
- 0,47 (3xAC 480V)

**Inrush peak current**
electronically limited
- < 15,4A; < 0,26A²s; < 3ms (3xAC 400V)
- < 15,4A; < 0,4A²s; < 3ms (3xAC 480V)

**Internal fuse**
3x T2A5 H.B.C

**Compatible external fuse** 6A< Si < 32A Char. B or C or similar tripping characteristic

**Hold-up time**
- 3xAC 400V: typ. 36ms; > 29ms (48V / 5A)
- 3xAC 480V: typ. 56ms; > 45ms (48V / 5A)

**Efficiency and Power dissipation**

<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Efficiency</td>
<td>93,8% (48V / 5A / 3xAC 400V)</td>
</tr>
<tr>
<td></td>
<td>93,9% (48V / 5A / 3xAC 480V)</td>
</tr>
<tr>
<td>Power dissipation</td>
<td>16,0W (48V / 5A / 3xAC 400V)</td>
</tr>
<tr>
<td></td>
<td>15,7W (48V / 5A / 3xAC 480V)</td>
</tr>
<tr>
<td>No-load-losses</td>
<td>2,3W / 3W (3xAC 400V / 3xAC 480V)</td>
</tr>
</tbody>
</table>

At a competitive price, it also offers **6A power boost**, 9-14A short circuit current, **output noise suppression**, selectable Single Mode or Parallel Mode, small dimensions and easy installation. Due to its wide range input the unit can be connected to 3-phase electricity networks worldwide **without switching**.

### Output

<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rated voltage</td>
<td>DC 48V</td>
</tr>
<tr>
<td>Rated voltage range</td>
<td>48...52V guaranteed</td>
</tr>
<tr>
<td>46...53V typ.</td>
<td></td>
</tr>
<tr>
<td>Preset</td>
<td>48V ±0,2V and “Parallel Use”</td>
</tr>
<tr>
<td>Rated current</td>
<td>0-5A (at 48V)</td>
</tr>
<tr>
<td></td>
<td>0-6A (&lt; 1 minute per 10 minutes)</td>
</tr>
<tr>
<td>Short-circuit current</td>
<td>min. 9A; max. 14A</td>
</tr>
<tr>
<td>Overload behaviour</td>
<td>Continuous Mode or FUSE Mode selectable (see Overload Behaviour)</td>
</tr>
<tr>
<td>Output power</td>
<td>240W</td>
</tr>
<tr>
<td>Peak power</td>
<td>288W (&lt; 1 minute per 10 minutes)</td>
</tr>
<tr>
<td>Ripple/Noise</td>
<td>typ. 8mV² &lt; 30mV² (20MHz)</td>
</tr>
<tr>
<td>Static load regulation</td>
<td>&lt; 100,0mV in single operation</td>
</tr>
<tr>
<td></td>
<td>&lt; 2,5V in parallel operation</td>
</tr>
<tr>
<td>Dynamic load regulation</td>
<td>typ. ±300mV 500 µs Load step 10% - 90% - 10%</td>
</tr>
<tr>
<td>Power back immunity</td>
<td>max. 60V</td>
</tr>
<tr>
<td>Over volt protection</td>
<td>typ. 56V DC max. 60V DC</td>
</tr>
<tr>
<td>Parallel operation</td>
<td>Yes, up to five SL10.305</td>
</tr>
<tr>
<td>To achieve current sharing:</td>
<td>Plug jumper into 'Output parallel use'. This alters the output V/I characteristic to be 'softer' (48V bei 0,5A, 46V bei 5A). The output voltage can still be adjusted.</td>
</tr>
<tr>
<td></td>
<td>Missing jumper = 'Single Use', i.e. 'hard' characteristic</td>
</tr>
</tbody>
</table>

**Order information**

<table>
<thead>
<tr>
<th>Order number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SL10.305</td>
<td>Power supply unit</td>
</tr>
<tr>
<td>SLZ13</td>
<td>Adapter for S7-300rail</td>
</tr>
<tr>
<td>SLZ02</td>
<td>Wall mounting set, (two pcs. per package)</td>
</tr>
</tbody>
</table>

CUL/CSA-C22.2 No E137006
UL60950 E137006
UL508 LISTED
IND. CONT. EQ.
18 WM, 60°C

This compact power supply unit is characterised by the variety of application possibilities and low system costs. The fact that the external fuses are no longer necessary is an advantage as it saves cost and space. The selectable FUSE Mode and the fully specified 2-phase operation make the SL10.305 the unit of choice.
Input 2- phase operation

Random connection to L₁, L₂ or L₃
Nominal input voltage 2xAC 400-500V (TN, IT, TT-networks)
Input voltage range 2xAC 340...575V
Short-term (1 min.) 2xAC 300...620V
Frequency 50-60Hz ±5% (47...63Hz)
Input current 1,2A (2xAC 400V)
1A (2xAC 480V)
Power factor 0,55 (2xAC 400V)
0,53 (2xAC 480V)
Inrush peak current < 15,4A; < 0,26A²s (2xAC 400V)
< 15,4A; < 0,4A²s (2xAC 480V)
Recommended external fuse > 6A < 32A Char. B or C

Hold-up time 2 phase operation
2xAC 400V typ. 32ms; > 26ms (48V / 5A)
2xAC 480V typ. 52ms; > 42ms (48V / 5A)

Efficiency and Power dissipation 2 phase operation
Efficiency 93,0% (48V / 5A / 2xAC 400V)
93,2% (48V / 5A / 2xAC 480V)
Power dissipation 18,0W (48V / 5A / 2xAC 400V)
17,5W (48V / 5A / 2xAC 480V)
No-load-losses 2,3W / 3W (2xAC 400V / 2xAC 480V)

Input DC operation
Random connection, consider PE (protected earth) terminal.
For further details regarding DC-operation please check out our technical note #25 on our webpage: www.puls-power.com, navigation “know how” and “technical notes”.
Nominal input voltage DC 600V
Input voltage range DC 450...820V
Short-term (1 min.) DC 400...890V
Threshold voltage:
• turn-on DC 350V (typ.)
• shut-down DC 260V (typ.)
Input current 0,5A (DC 600V)
Inrush peak current < 14A; < 0,3A²s (DC 600V)
Recommended external fuse 6A Littlefuse KLKD

Hold-up time DC operation
DC 600V typ. 43ms; > 35ms (48V/5A)

Efficiency and Power dissipation DC operation
Efficiency 94,2% (48V / 5A / DC 600V)
Power dissipation 14,8W (48V / 5A / DC 600V)
No-load-losses 2,5W (DC 600V)

Operation and environmental data
Cooling natural convection, no forced air-cooling necessary
Operating temperature range 0 °C...+70 °C
Derating > 60 °C: 6W/K
Guaranteed startup -10 °C
Non-operating temperature range -40 °C...+85 °C

Electromagnetic Compatibility (EMC)
Emissions EN 61000-6-3 (also includes EN 61000-6-4)
Class B (EN 55011, EN 55022)
EN 61000-3-2 and EN 61000-3-3
Immunity EN 61000-6-2 (also includes EN 61000-6-1)
Electrostatic EN 61000-4-2, Level 4
Discharge (ESD)
(withstands 8 kV direct discharge,
15 kV air discharge)
Electromagnetic radiated fields
EN 61000-4-3, Level 3 (10 V/m)
Burst, coupled to:
ACin lines Level 4 (4 kV)
DOut lines Level 3 (2 kV)
Surge transients EN 61000-4-5
Differential mode (L→PE)
Common mode
(L₁→L₂, L₂→L₃; L₃→L₁)
Installation class 4 (2 kV)
Installation class 4 (4 kV)
Conducted noise immunit EN 61000-4-6
Level 3 (10V, 150 kHz-80 MHz)
Voltage dips EN 61000-4-11
Transient resistivity acc. to VDE 0160 / W2
over entire load range
Data sheet

Diagramme

Output characteristic (min. at \( V_{\text{out}} = 400V_{\text{AC}} 3\text{Ph} \))

- 1 Jumper-setting "single use" (fixed characteristic)
- 2 Jumper-setting "parallel use" (inclined characteristic)
- 3 Power Boost: Higher current for a short period of time (< 1 minute or even longer with forced ventilation) without voltage breaking down. Optimum fit to peak load requirements and oversizing of power supplies is not needed anymore.

Overload Design\textsuperscript{TM}:
Extended output characteristic curve with a high short current at a gradually reduced output voltage. Unit does not switch off, when the rated current is exceeded. The high short current reliably starts heavy loads such as DC-motors or capacitive loads and blows branch fuses.

Hold-up time 2-phase

Hold-up time 3-phase

Efficiency 2xAC 400V & 2xAC 500V

Efficiency 3xAC 400V & 3xAC 500V

Power dissipation 2xAC 400V & 2xAC 500V

Power dissipation 3xAC 400V & 3xAC 500V
Overload Behaviour

Two different operating mode options, switchable by plugging the front-panel jumper. If the jumper is missing, the unit is set to FUSE Mode. The unit is preset to Continuous Mode at shipment.

a) FUSE Mode (Switch-off after typ. 5s):
- Jumper is in the ‘OVL FUSE mode’ position.
- When overload or short-circuit occurs for more than typ. 5s, the unit switches off the output.
- Definition of overload or short-circuit: The set output voltage in each case can no longer be maintained.
- Power Boost and Overload Design™ remain unchanged during the typ. 5s delay time.
- Red LED flashes at switch-off.

b) Continuous Mode (continuous current):
- Jumper is in the ‘OVL cont. mode’ position.
- When overload or short-circuit occurs, the unit continuously supplies current (see. diag. 1), no Hiccup.

Re-start:
- by pushing the reset button on the unit’s front panel
- by disconnection from mains and re-start of the unit after > 1 min. or as soon as the red LED stops flashing
- With some applications, the FUSE Mode can replace the usual fusing on the secondary side. The FUSE Mode has closer tolerances than thermal trips. The tripping delay time of typ. 5s enables heavy loads to start and thereby avoids unnecessary service activities.

Overtemperature Protection

Continuous Mode: Switch-off and automatic re-start after cooling.
FUSE Mode: Unit remains switched off after overheating until restart (also see ‘Re-start’ above).

Start Behaviour

Startup delay: typ. 200ms
Rise time: appr. 5-20ms, depending on load

Connectors and terminals

| Terminals | Proofed terminals with captive screws for 5.5 mm slotted screwdriver or Philips cross-recessed screwdriver No. 2. Input terminals are equipped with an additional protection cover. |
| Position | Easy to reach terminals on the front panel; input and output clearly separate from each other |
| Tightening torque | 0,8Nm |
| Wire gauge | 0,5 - 4mm² (20-10 AWG) |
| Solid cable | 0,5 - 6mm² (20-10 AWG) |
| Ferrules | Admissible |
| Stripping length | 7mm |

Front elements

PE terminal
L1, L2, L3
Input phase 1 to 3.
Random connection to L1, L2 or L3 at DC-operation.

Construction / Mechanics

Degree of protection IP20
Dimensions
Width: 89 mm
Height: 124 mm
Depth: 117 mm (without DIN rail)
Weight: 1040g

Installation notes

External fusing: not necessary (internal fuse)
- observe national regulations
- “external” fusing recommended, please refer to input section, page 1.
Mounting position: vertical; input below, output above
Free space for cooling: above / below 25mm recommended
left / right 15mm recommended

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.

This datasheet and other documents regarding this power supply are available online through our webpage: www.puls-power.com/SL10.305

Your partner in power supply:
Mechanics

SL10.300

- 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

Construction / Mechanics

Housing dimensions and Weight
- W x H x D: 89 mm x 124 mm x 117 mm (+ DIN rail)
- Free space for convection cooling: above/below 25 mm recommended
- Weight: 980 g

Robust metal housing with fine ventilating grid (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

- Input/Output
- Current handling capacity
- Grid

Screw terminals, connector size range:
- solid 0.5 - 6 mm² / flexible 0.5 - 4 mm²
- 30 A per output

Two connectors per output
- Primary side: 9.52 mm between adjacent connectors
- Secondary side: 6.35 mm between adjacent connectors

Design advantages:
- All connection blocks are easy to reach as mounted at the front panel. Input and output are strictly apart from each other and so cannot be mixed up
- PVC insulated cable can be used for all connections, no thermal protection is needed

Order information

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<tbody>
<tr>
<td>SL10.300</td>
<td></td>
</tr>
<tr>
<td>SLZ01</td>
<td>Screw mounting set, two needed per unit</td>
</tr>
</tbody>
</table>
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 SL10.300 and to the basic data sheet „The SilverLine“ dealing with common features of all SilverLine units. This data sheet is subject to change without prior notice.

Your partner in power supply: