

LDT481 Series

480W DIN Rail Switching Power Supply

LDT481 Series is a high power switching mode power supplies with three phase input voltage 400 – 500 VAC, delivering 480 W of output power, covering output voltages from 24 to 72 V (model dependent).

Their compact size, high efficiency and excellent reliability together with easy installation make them fit demanding applications where compactness and high power are needed.

LDT481 Series are suitable for SELV and PELV circuitry (up to 48 VDC models) and are designed to be mounted on DIN rail and installed inside a protective enclosure.



Key Features & Benefits

- 3 phase AC input 400 – 500 VAC
- Overload 150%
- High Efficiency and compact size
- Constant current or hiccup mode limitation, user settable
- User settable current limitation (Hiccup or Constant mode)
- Easy parallelable for power increase
- Natural convection cooling
- 72 V output model as standard

Applications

- Automation
- Process Control
- Communication
- Instrumentation Equipment

1. MODEL SELECTION

| MODEL | INPUT VOLTAGE | # of PHASES | OUTPUT VOLTAGE | OUTPUT CURRENT |
|-----------|-------------------------------|-------------|----------------|----------------|
| LDT481-12 | 400 - 500 VAC / 520 - 725 VDC | 3 | 12 VDC | 40 A |
| LDT481-24 | 400 - 500 VAC / 520 - 725 VDC | 3 | 24 VDC | 20 A |
| LDT481-48 | 400 - 500 VAC / 520 - 725 VDC | 3 | 48 VDC | 10 A |
| LDT481-72 | 400 - 500 VAC / 520 - 725 VDC | 3 | 72 VDC | 6.7 A |

2. INPUT SPECIFICATIONS

Technical parameters are typical, measured in laboratory environment at 25°C and 400 VAC / 50 Hz, at nominal values, after minimum 5 minutes of operation.

| PARAMETER | DESCRIPTION / CONDITION | SPECIFICATION |
|-------------------------------------|---|--------------------------------------|
| Input AC Voltage Range ¹ | Rated, three phase (UL certified) Operating | 400 – 500 VAC 340 – 550 VAC |
| Input DC Voltage Range | | 520 – 725 VDC |
| Input Frequency | | 47 - 63 Hz |
| Input AC Current | Vin = 400 VAC | 1.3 A |
| | Vin = 500 VAC | 1.1 A |
| Input DC Current | Vin = 520 VAC | 1.2 A |
| | Vin = 725 VAC | 0.9 A |
| Inrush Peak Current | | ≤ 50 A |
| Touch (Leakage) Current | | ≤ 0.15 mA |
| Internal Protection Fuse | None, external fuse must be provided | |
| Recommended External Protection | It is strongly recommended to provide external surge arresters (SPD) according to local regulations | Fuse 3x 10 AT or 3x MCB 10 A C curve |

¹ In case of 2-phase operation, reduce the output load to 50% of the nominal value.

3. OUTPUT SPECIFICATIONS

| PARAMETER | DESCRIPTION / CONDITION | SPECIFICATION |
|--|-----------------------------------|----------------------|
| Output Power | | 480 W |
| Rated Voltage (Adjustable Voltage Range) | LDT481-12 | 12 VDC (12 – 15 VDC) |
| | LDT481-24 | 24 VDC (23 – 28 VDC) |
| | LDT481-48 | 48 VDC (45 – 55 VDC) |
| | LDT481-72 | 72 VDC (72 – 85 VDC) |
| Continuous Current | LDT481-12 | 40 A |
| | LDT481-24 | 20 A |
| | LDT481-48 | 10 A |
| | LDT481-72 | 6.7 A |
| Overload Limit (Constant Current Mode) | LDT481-12 | 44 A |
| | LDT481-24 | 22 A |
| | LDT481-48 | 11 A |
| | LDT481-72 | 7.5 A |
| Overload Limit (Hiccup Mode) (max. 5s) | LDT481-12 | 60 A |
| | LDT481-24 | 30 A |
| | LDT481-48 | 15 A |
| | LDT481-72 | 10 A |
| Load Regulation | LDT481-12 | ≤ 2.5% |
| | LDT481-24 | ≤ 1.0% |
| | LDT481-48 / LDT481-72 | ≤ 0.5% |
| Ripple & Noise ² | LDT481-12 | ≤ 150 mVpp |
| | LDT481-24 / LDT481-48 / LDT481-72 | ≤ 100 mVpp |
| Hold up Time | | ≥ 20 ms |

| | | |
|----------------------------------|---|-----------|
| Protections | Overload, short circuit: Constant current or Hiccup mode (user settable) Thermal protection Output overvoltage | |
| Output Over Voltage Protection | LDT481-12 | ≥ 18 VDC |
| | LDT481-24 | ≥ 33 VDC |
| | LDT481-48 | ≥ 68 VDC |
| | LDT481-72 | ≥ 100 VDC |
| Status Signals | DC OK - green LED OVERLOAD - red LED DC OK - dry contact (NO, 24 VDC / 1 A) | |
| Parallel Connection ³ | Possible for power or redundancy (with external ORing module) | |
| Efficiency | LDT481-12 | > 89% |
| | LDT481-24 / LDT481-48 | > 93.5% |
| | LDT481-72 | > 94% |
| Dissipated Power | LDT481-12 | < 59 W |
| | LDT481-24 / LDT481-48 | < 34 W |
| | LDT481-72 | < 31 W |

² Ripple and Noise are measured with 20 MHz bandwidth, probe terminated with a 0.1µF MKP parallel capacitor.

³ Pay attention, set the current limitation mode jumper on C.C. mode when connecting more units in parallel.

NOTE: Power rating, losses, efficiency, ripple, thermal behavior and start-up may change outside of the nominal rated input range.
Contact factory for details.

4. ENVIRONMENTAL, EMC & SAFETY SPECIFICATIONS

| PARAMETER | DESCRIPTION / CONDITION | SPECIFICATION |
|------------------------------------|---|--|
| Operating Temperature ⁴ | UL certified up to 50°C (Start-up type tested: - 40°C) | - 40 to + 70°C |
| Storage Temperature | | - 40 to + 80°C |
| Derating | | - 4.5 W/°C over 50°C |
| Humidity | Non-condensing | 5 - 95% RH |
| Life Time Expectancy | At 25°C ambient 75% load | 63 200 h (7.2 years) |
| MTBF | MIL-HDBK-217F, at 25°C ambient full load | > 500 000 h |
| Overvoltage Category | EN50178 | III |
| Pollution Degree | IEC60664-1 | 2 |
| Protection Class | | Class I |
| Isolation Voltage | Input to Output | 4.2 kVDC |
| | Input to Ground | 2.2 kVDC |
| | Output to Ground | 0.75 kVDC |
| Standards & Approvals | UL508 (certified E356563) | |
| | EN60950 (reference) | |
| | EN50178 (reference) | |
| EMC Standards | EMC Emission | Class A |
| | EN55011 (CISPR11) | Class A |
| | EN55022 (CISPR22) | Level 3 |
| | EN61000-4-2 | Level 3 |
| | EN61000-4-3 | Level 3 |
| | EMC Immunity | Level 3 |
| | EN61000-4-4 | Level 3 |
| | EN61000-4-5 | Level 4 |
| | EN61000-4-11 | Level 2 |
| Protection Degree | EN60529 | IP20 |
| Vibration Sinusoidal | IEC 60068-2-6 | 5-17.8 Hz: ±1.6 mm; 17.8-500 Hz: 2g 2 hours / axis (X,Y,Z) |
| Shock | IEC 60068-2-27 | 30 g 6 ms, 20 g 11 ms; 3 bumps / direction, 18 bumps total) |

⁴ Start-up type tested: - 40°C, possible at nominal voltage with load derating.

5. PIN LAYOUT & DESCRIPTION



| INPUT CONNECTION | OUTPUT CONNECTION |
|--|---|
| 3 phase: L1 = Phase 1 L2 = Phase 2 L3 = Phase 3 ⊕ = Earth ground | + = Positive DC - = Negative DC |
| DC: L1 = + Positive DC L2 = - Negative DC L3 = do not connect ⊕ = Earth ground | Signaling: DC OK: dry contact NO COM |

| PIN | DESCRIPTION |
|-----|---|
| 1 | AC/DC input |
| 2 | DC output (load) |
| 3 | Diagnostic Output (dry contact, NC output OK) |
| 4 | Green LED: Output OK |
| 5 | Red LED: Overload |
| 6 | Output voltage adjustment |
| 7 | Selectable limitation mode |

6. MECHANICAL SPECIFICATIONS

| PARAMETER | DESCRIPTION / CONDITION | SPECIFICATION |
|----------------------|--|---|
| Weight | | 1.3 kg |
| Dimensions | | 80 x 127 x 137.5 mm |
| Mounting Rail | | IEC 60715/H15/TH35-7.5(-15) |
| Connection Terminals | Screw type header (16 – 10 AWG) Screw type header (10 – 6 AWG) for output on 12 V model | 1.5 – 6 mm ² 6 - 16 mm ² |
| Case Material | Aluminum | |

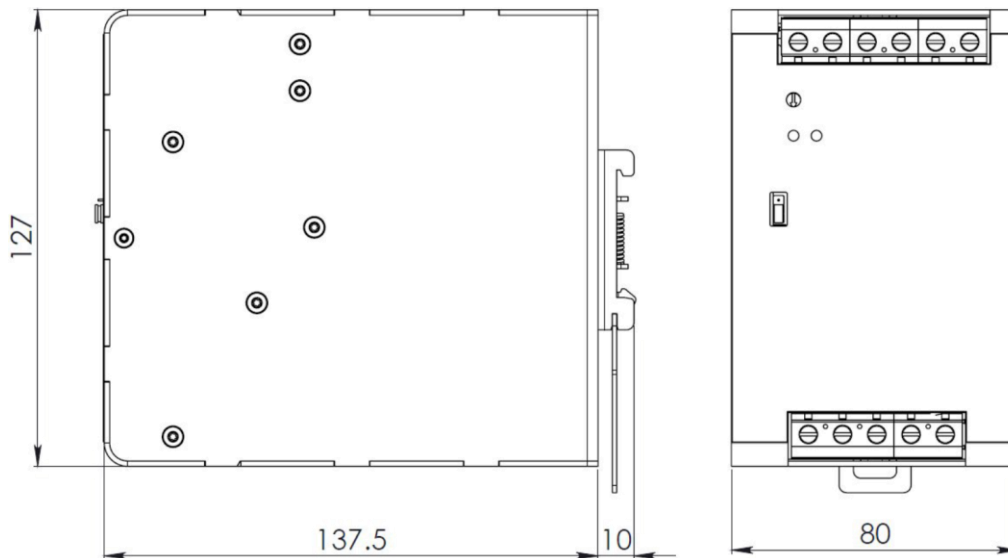


Figure 1. Mechanical Drawing

For more information on these products consult: tech.support@psbel.com

NUCLEAR AND MEDICAL APPLICATIONS - Products are not designed or intended for use as critical components in life support systems, equipment used in hazardous environments, or nuclear control systems.

TECHNICAL REVISIONS - The appearance of products, including safety agency certifications pictured on labels, may change depending on the date manufactured. Specifications are subject to change without notice.