LDT481 Series

480W DIN Rail Switching Power Supply

RoHS Compliant

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
- Up to 50°C operating temperature with no derating
- 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 LDT481-24 LDT481-48 LDT481-72	12 VDC (12 – 15 VDC) 24 VDC (23 – 28 VDC) 48 VDC (45 – 55 VDC) 72 VDC (72 – 85 VDC)
Continuous Current	LDT481-12 LDT481-24 LDT481-48 LDT481-72	40 A 20 A 10 A 6.7 A
Overload Limit (Constant Current Mode)	LDT481-12 LDT481-24 LDT481-48 LDT481-72	44 A 22 A 11 A 7.5 A
Overload Limit (Hiccup Mode) (max. 5s)	LDT481-12 LDT481-24 LDT481-48 LDT481-72	60 A 30 A 15 A 10 A
Load Regulation	LDT481-12 LDT481-24 LDT481-48 / LDT481-72	≤ 2.5% ≤ 1.0% ≤ 0.5%
Ripple & Noise[2]	LDT481-12 LDT481-24 / LDT481-48 / LDT481-72	≤ 150 mVpp ≤ 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 LDT481-24 LDT481-48 LDT481-72	≥ 18 VDC ≥ 33 VDC ≥ 68 VDC ≥ 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 LDT481-24 / LDT481-48 LDT481-72	> 87.5% > 93.5% > 94%
Dissipated Power	LDT481-12 LDT481-24 / LDT481-48 LDT481-72	< 69 W < 34 W < 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.

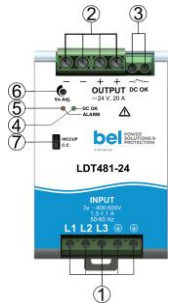
NOTE: Power rating, losses, efficiency, ripple, thermal behaviour and start-up may change outside of the nominal rated input range. Contact factory for details.

4. ENVIRONMENTAL, EMC & SAFETY SPECIFICATIONS

PARAMETER		DESCRIPTION / CONDITION	SPECIFICATION
Operating Temperature		UL certified up to 50°C (Start-up type tested: - 40°C)[4]	- 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	63200 h (7.2 years)
Overvoltage Category Pollution Degree			III (EN50178) 2 (IEC60664-1)
Protection Class			Class I
Isolation Voltage		Input to Output Input to Ground Output to Ground	4.2 kVDC 2.2 kVDC 0.75 kVDC
Standards & Approvals		UL508 (certified) EN60950 (reference) EN50178 (reference)	
EMC Standards	EMC Emission	EN55011 (CISPR11) EN55022 (CISPR22)	Class A Class A
	EMC Immunity	EN61000-4-2 EN61000-4-3 EN61000-4-4 EN61000-4-5 EN61000-4-11	Level 3 Level 3 Level 3 Level 4 Level 2
Protection Degree		EN60529	IP20
Vibration sinusoidal		IEC 60068-2-6	5-17.8 Hz: ±1.6 mm; 17.8-500 Hz: 2g 2Hours / axis (X,Y,Z)
Shock		IEC 60068-2-27	30 g 6 ms, 20 g 11 ms; 3 bumps / direction, 18 bumps total)

[4] 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 Dry contact = NC
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	

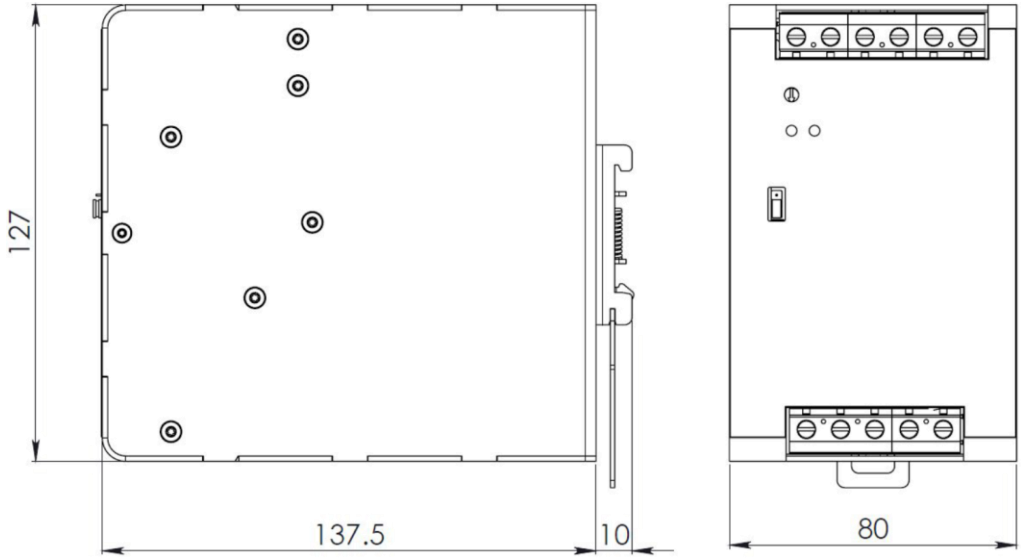


Figure 1. Mechanical Drawing

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.