LDT2400 Series

2400W DIN Rail Switching Power Supply

RoHS Compliant

LDT Series are high power switching mode power supplies with 3 phase input 340 – 550 VAC, for powers from 480 to 2400 W, covering from 12 to 170 V (model dependent).

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

LDT Series are Class I isolation devices suitable for SELV and PELV circuitry and are designed to be mounted on DIN rail and installed inside a protective enclosure.

Key Features & Benefits

- 3 phase AC input: 3x 340 – 550 VAC
- 150% overload capability
- High efficiency up to 92%
- Active PFC for optimal efficiency
- Active input surge suppressor for improved reliability
- Microprocessor control allows for remote programming and monitoring
- Battery charger function included
- Thermally regulated 60 mm fan for optimal cooling in any operating condition
- Wide output voltage range (model dependent)

Applications

- Automation
- Process Control
- Communication
- Instrumentation Equipment

1. MODEL SELECTION

MODEL	INPUT VOLTAGE	# of PHASES	OUTPUT VOLTAGE	OUTPUT CURRENT
LDT2400-24	400 - 500 VAC / 520 - 725 VDC	3	24 VDC	100 A
LDT2400-48	400 - 500 VAC / 520 - 725 VDC	3	48 VDC	50 A
LDT2400-72	400 - 500 VAC / 520 - 725 VDC	3	72 VDC	33 A
LDT2400-170	400 - 500 VAC / 520 - 725 VDC	3	170 VDC	14 A

2. INPUT SPECIFICATIONS

Specifications are measured at 25°C, at 400 VAC / 50 HZ, typical unless otherwise stated.

PARAMETER	DESCRIPTION / CONDITION	SPECIFICATION
Input AC Voltage	3 phases (UL certified)	400 – 500 VAC (Range 340 – 550 VAC)
Input DC Voltage		500 – 725 VDC
Input Frequency		47 - 63 Hz
Input AC Current	Vin = 400 VAC Vin = 500 VAC	4.5 A 3.5 A
Input DC Current	Vin = 520 VAC Vin = 725 VAC	5.2 A 3.8 A
Inrush Peak Current		< 10 A active Inrush current limiter
Internal Protection Fuse	None, external fuse must be provided	
External Protection on AC Line	It is strongly recommended to provide external surge arresters (SPD) according to local regulations	Fuse 3x AT 10 A or 3x MCB 10 A C curve

3. OUTPUT SPECIFICATIONS

PARAMETER	DESCRIPTION / CONDITION	SPECIFICATION
Output Power		2400 W
Rated Voltage (Adjustable Voltage Range)	LDT2400-24 LDT2400-48 LDT2400-72 LDT2400-170	24 VDC (11.9 - 29 VDC) 48 VDC (23 - 56 VDC) 72 VDC (50 – 87 VDC) 170 VDC (85 – 175 VDC)
Continuous Current	LDT2400-24 LDT2400-48 LDT2400-72 LDT2400-170	100 A 50 A 33 A 14 A
Overload Limit	LDT2400-24 LDT2400-48 LDT2400-72 LDT2400-170	150 A / 5 s 75 A / 5 s 50 A / 5 s 21 A / 5 s
Short Circuit Peak Current	LDT2400-24 LDT2400-48 LDT2400-72 LDT2400-170	150 A 75 A 50 A 21 A
Load Regulation	with Remote Sense active and at Uout nom	< 1%
Ripple & Noise		≤ 400 mVpp
Hold up Time		≥ 10 ms
Efficiency	LDT2400-24 LDT2400-48 LDT2400-72 LDT2400-170	> 92% > 92% > 93% > 92%
Dissipated Power	LDT2400-24 LDT2400-48 LDT2400-72 LDT2400-170	< 200 W < 200 W < 180 W < 200 W

Output Over Voltage Protection	Active Microprocessor controlled
Parallel Connection	Up to 4 units for increased power
Redundancy	All models include internal ORing circuit
Output Protections	Overload (with user settable threshold) Short circuit Over temperature Overvoltage

Note: Power rating, losses, efficiency, ripple, thermal behavior may change outside of the nominal rated input range. Contact factory for details.

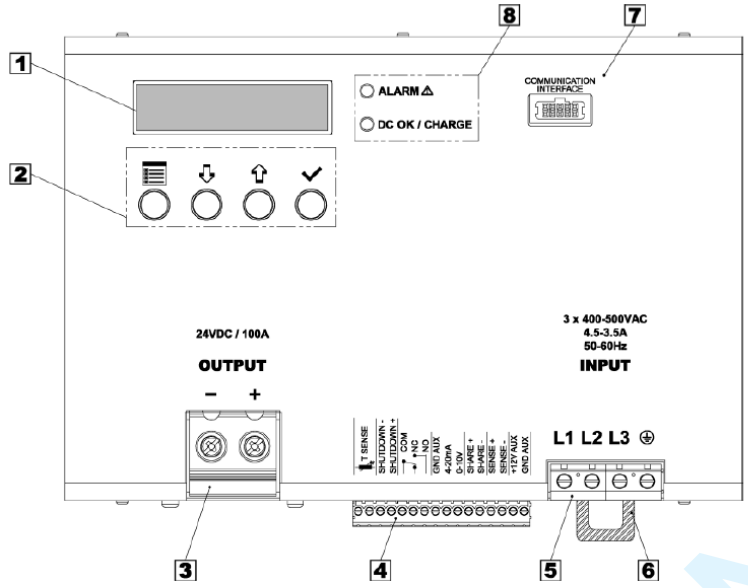
4. USER INTERFACE, SIGNALING & CONTROL

PARAMETER	DESCRIPTION / CONDITION
Status Signals	Green LED DC OK / CHARGE Red LED ALARM Alphanumeric LCD display Dry contact (1 A / 30 V)
User Interface	LCD with 4 key buttons 0…10 V voltage output for output current 0…100% In 4…20 mA current output for output current 0…100% In Auxiliary 12 V/ 100 mA isolated power supply Load voltage sense Opto-isolated remote shut down input Optional: USB Communication interface module for remote monitoring Optional: External temperature sensor (NTC) for battery charging must be temperature compensated
Operating Modes	Overboost: allows 150% output power for 5sec, then off for 10sec. Constant Current: adjustable 10…100% load Battery Charger: for Lead Acid batteries, NiCd / NiMH and LiFePO4 batteries compatible with Lead Acid batteries

5. ENVIRONMENTAL, EMC & SAFETY SPECIFICATIONS

PARAMETER		DESCRIPTION / CONDITION	SPECIFICATION
Operating Temperature		Over temperature protection For temperature < - 20°C the LCD is not operating, but the unit will operate correctly.	- 40 to + 70°C UL certified up to 50°C
Storage Temperature			- 40 to + 80°C
Derating			- 60.0W/°C over 50°C
Humidity		Non-condensing	5 - 95% RH
Overvoltage Category Pollution Degree			III 2 (IEC 664-1)
EMC Standards	EMC Emission	EN55022:2010 (CISPR22) EN55011:2009 /A1:2010 EN61000-3-2:2014 EN61000-4-2:2008 EN61000-4-3:2006 /A2:2010	Class A Class A Class A Level 3 Level 3
	EMC Immunity	EN61000-4-4:2012 EN61000-4-5:2014 EN61000-4-11:2004 /A1:2010	Level 4 Level 4 Level 2
Standards & Approvals		UL508 (certified) EN60950 (reference)	
Isolation Voltage		Input to Output Input to Ground Output to Ground	4.2 kVDC 2.2 kVDC 0.75 kVDC
Protection Degree		According to EN60529	IP20
Vibration sinusoidal		IEC 60068-2-6:2007	5-17.8 Hz: ±1.6 mm; 17.8-500 Hz: 2g 2Hours / axis (X,Y,Z)
Shock		IEC 60068-2-27:2008	30 g 6 ms, 20 g 11 ms; 3 bumps / direction, 18 bumps total

6. PIN LAYOUT & DESCRIPTION



PIN	DESCRIPTION
1	Display
2	Control Keys
3	Output Connector
4	Auxiliary Connector
5	Input Connector
6	DIN rail fixing Clamp
7	Communication Interface
8	Status LEDs
9	Buzzer (Internal)

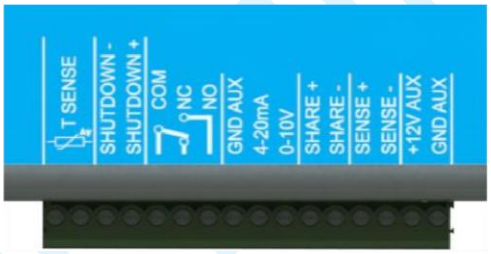


Figure 1. Detail of Auxiliary Connector (4)

INPUT CONNECTIONS	OUTPUT CONNECTIONS	AUXILIARY CONNECTION I/Os
3 phase: L1 = Phase 1 L2 = Phase 2 L3 = Phase 3 I = earth ground DC: L1 = +/ - L2 = - /+ L3 = do not connect I = earth ground	+ = Positive DC - = Negative DC Dry contact = NC	TSENSE = Temperature Sensor Shutdown = Remote Shutdown (+/-) Dry contact = COM / NC / NO Contact GND AUX = Auxiliary Supply GND 4-20mA = Output Current Measurement 4-20mA 0-10V = Output Current Measurement 0-10V SHARE = Load Share BUS (+/-) SENSE = Remote Voltage Sense (+/-) +12V AUX = Auxiliary +12Vdc/100mA GND AUX = Auxiliary Supply GND

7. MECHANICAL SPECIFICATIONS

PARAMETER	DESCRIPTION / CONDITION		SPECIFICATION
Weight			2.8 kg
Dimensions			233.0 x 160.0 x 101.0 mm
Rail Mounting			IEC 60715/H15/TH35-7.5(-15)
Connection Terminals	Input Output Auxiliary	Screw type (16 - 10 AWG) Screw type (2 AWG) Screw type pluggable 16 pin (16 AWG)	1.5 – 6 mm^2 Up to 35 mm^2 1.5 mm^2
Case Material	Aluminum		

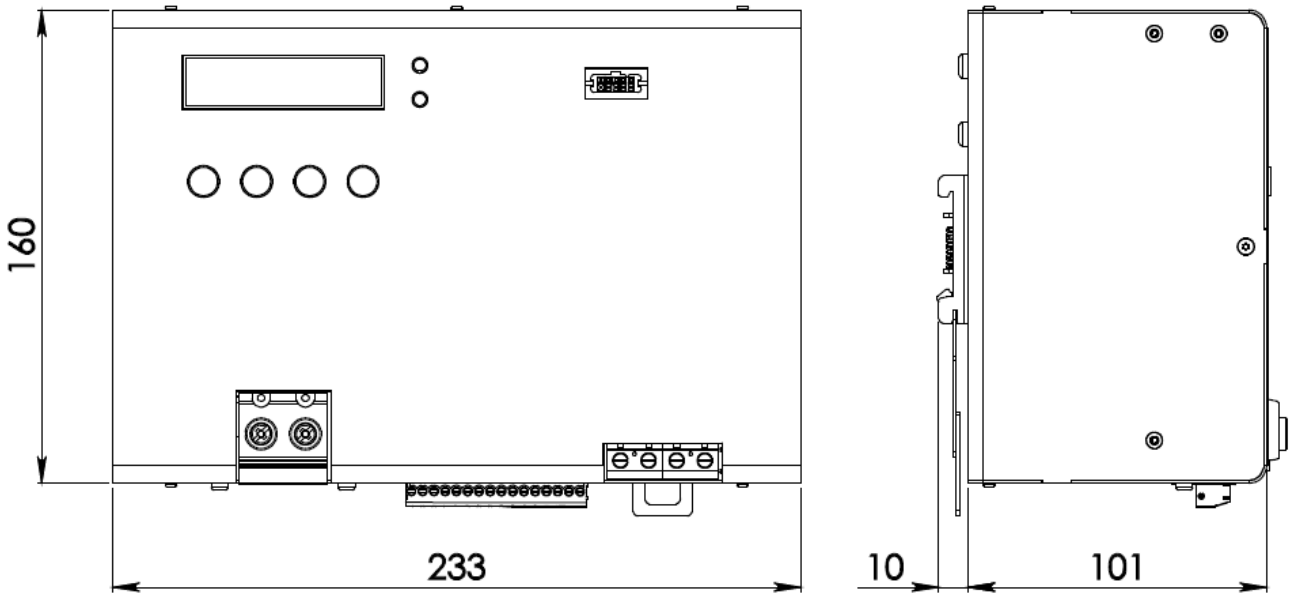


Figure 2. Mechanical Drawing

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.

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