LDW25 Series

25W DIN Rail Switching Power Supply



RoHS Compliant

LDW25 Series is a single or two phase AC or DC input DIN Rail Switching Power Supply.

Its compact size, high efficiency, excellent reliability together with easy installation due to pluggable connectors makes it market leader for various industrial telecom and renewable energy applications.

LDW25 Series is Class II 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

- Single or two phase AC (90 - 550 VAC) or DC (150 - 725 VDC) input
- High efficiency and extremely compact size
- Plastic enclosure
- Class II insulation (simplified wiring)
- Overload 130%
- Up to 70°C operating temperature with derating curve
- Ideal for applications with harsh mains conditions
- S models have conformal coated PC-Board
- Compliant to renewable energy systems and high DC Bus
- RoHS Compliant

Applications

- Industrial Control
- Communication
- Instrumentation Equipment
- Renewable

1. MODEL SELECTION

MODEL *	INPUT VOLTAGE	# of PHASES	OUTPUT VOLTAGE	OUTPUT CURRENT	REDUNDANCY
LDW25-12	120 - 500 VAC (150 - 725 VDC)	1 / 2	12 VDC	2.0 - 1.6 A	No ORing diode
LDW25-24	120 - 500 VAC (150 - 725 VDC)	1 / 2	24 VDC	1.0 A	No ORing diode
LDW25-48	120 - 500 VAC (150 - 725 VDC)	1 / 2	48 VDC	0.5 A	No ORing diode

* Add suffix S for models with a conformal coating on a PC-Board.

2. INPUT SPECIFICATIONS

Technical parameters are typical, measured in laboratory environment at 25°C and 240 VAC / 50 Hz, at nominal values, after minimum 5 minutes of operation.

PARAMETER	DESCRIPTION / CONDITION	SPECIFICATION
Input AC Voltage Range	Rated, single or two phase Operating	120 – 500 VAC 90 - 550 VAC
Input Frequency		47 - 63 Hz
Input DC Voltage Range	Rated	150 – 725 VDC
Input AC Current	Vin = 120 VAC / single phase Vin = 500 VAC / two phase	0.5 A 0.15 A
Input DC Current	Vin = 150 VDC Vin = 725 VDC	0.3 A < 0.1 A
Inrush Peak Current		≤ 25 A
Touch (Leakage) Current		≤ 0.2 mA
Internal Protection Fuse	None, external fuse must be provided	
Recommended external protection [1]	It is strongly recommended to provide external surge arresters (SPD) according to local regulations.	MCB 2A C curve / Cartridge fuse Class CC 2AT 600 VAC

3. OUTPUT SPECIFICATIONS

PARAMETER	DESCRIPTION / CONDITION		SPECIFICATION
Output Power			25 W
Rated Voltage (Voltage Adjustment Range)	LDW25-12 LDW25-24 LDW25-48		12 VDC (12 – 15 VDC) 24 VDC (23 – 28 VDC) 48 VDC (45 – 55 VDC)
Continuous Current	LDW25-12 LDW25-24 LDW25-48		2.0 - 1.6 A 1.0 A 0.5 A
Overload Limit [2]	LDW25-12 LDW25-24 LDW25-48	Vin = 120 VAC	2.65 A 1.45 A 0.75 A
	LDW25-12 LDW25-24 LDW25-48	Vin = 240 VAC; Vin = 400 VAC; Vin = 500 VAC	2.90 A 1.70 A 0.90 A
Short Circuit Peak Current	LDW25-12 LDW25-24 LDW25-48		6.5 A 4.0 A 2.5 A
Load Regulation			≤ 0.5%

[1] In order to be UL compliant use Listed Cartridge non-renewable (JDDZ) fuse Class CC 2AT 600 VAC.
[2] On LDW25-12 measurements are performed with output set to 12 VDC.

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Ripple & Noise [3]		≤ 50 mVpp
Hold up Time	Vin = 240 VAC / single phase Vin = 500 VAC / two phase	≥ 35 ms ≥ 180 ms
Protections	Overload/short circuit: Hiccup mode Over temperature Overvoltage	
Output Over Voltage Protection	LDW25-12 LDW25-24 LDW25-48	≥ 18 VDC ≥ 33 VDC ≥ 68 VDC
Status Signals	Green LED = DC OK	
Efficiency [2]	LDW25-12 LDW25-24 LDW25-48	> 81.5% > 84.5% > 84%
Dissipated Power	LDW25-12 LDW25-24 LDW25-48	< 5.5 W < 4.5 W < 4.6 W
Parallel Connection	Possible for redundancy (with external ORing module)	

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 [4]			- 40 to + 70°C
Derating		See Figure 1.	
Storage temperature			- 40 °C to + 80°C
Humidity		Non-condensing	5 - 95% RH
Life Time Expectancy		At 25 °C ambient full Load	179477 h (20.4 years)
Overvoltage Category Pollution Degree			III (EN50178) 2 (IEC60664-1)
Protection Class			Class II
Isolation Voltage		Input to Output	4.2 kVDC
Safety Standards & Approvals		UL508 (certified) EN60950 (reference) EN50178 (reference)	
EMC Standards	Emission	EN55011 (CISPR11) EN55022 (CISPR22)	Class B Class B
	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

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

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

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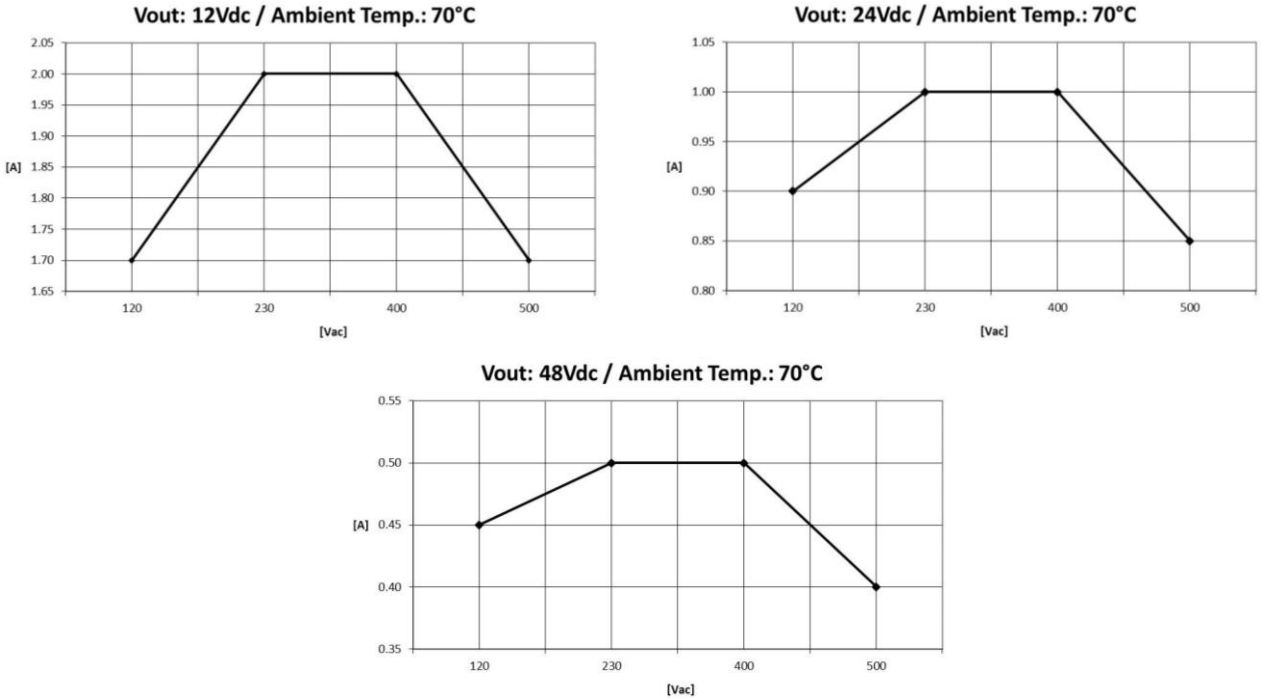


Figure 1. Derating vs Current

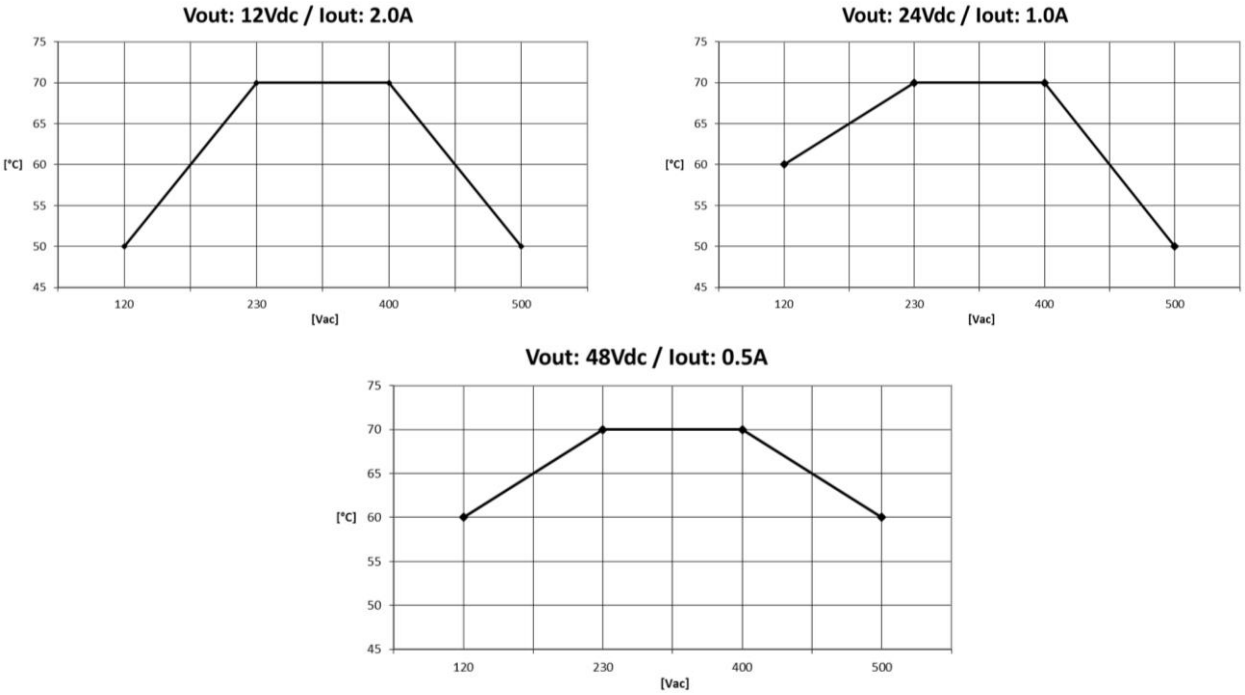


Figure 2. Derating vs Temperature

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5. MECHANICAL SPECIFICATIONS

PARAMETER	DESCRIPTION / CONDITION	SPECIFICATION
Weight		170 g
Dimensions (W x H x D)		72 x 114.2 x 61.5 mm
Mounting Rail		IEC 60715/H15/TH35-7.5(-15)
Connection Terminals	Screw type Header (24 - 12 AWG)	2.5 mm²
Case Material	ABS, Flame retardant UL94 V-0	

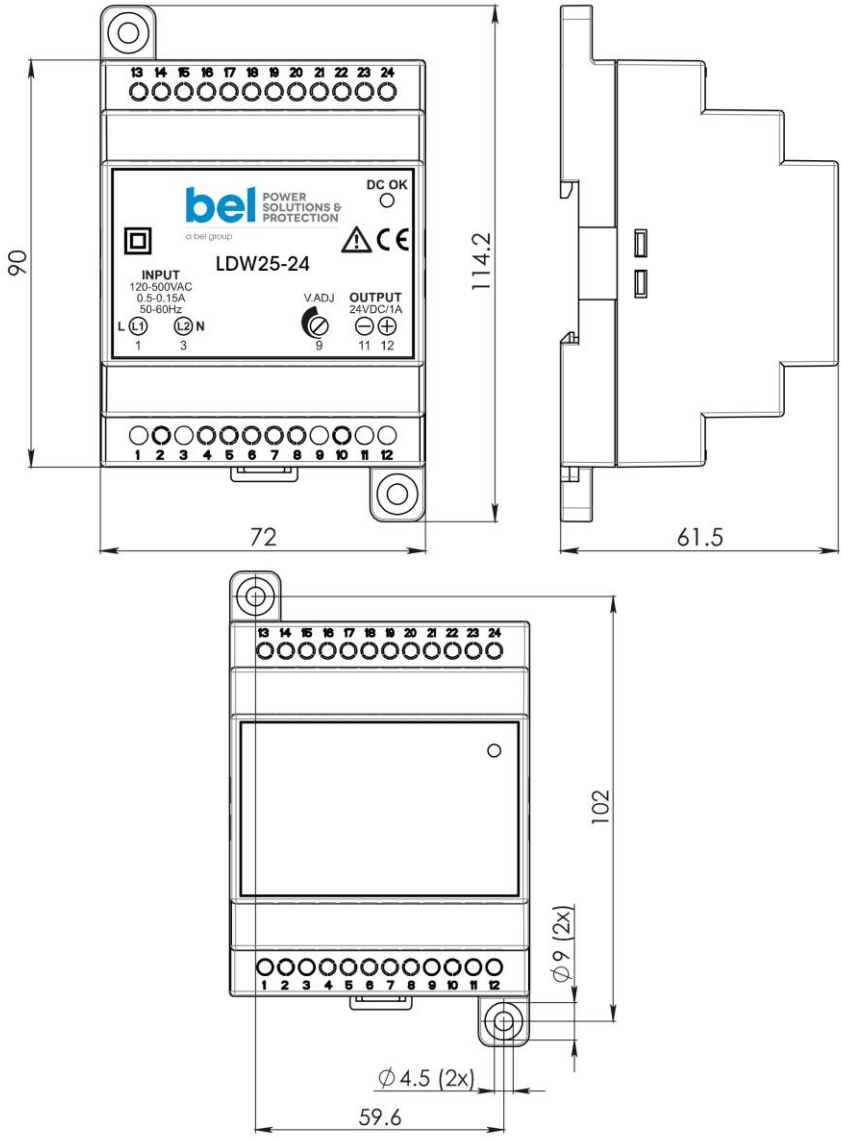
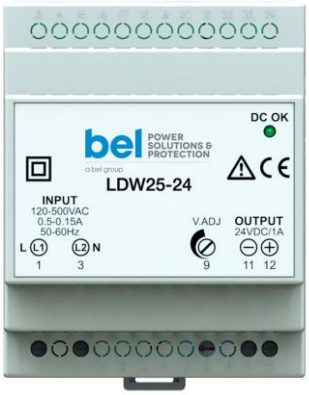


Figure 3. Mechanical Drawing

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6. PIN LAYOUT & DESCRIPTION



INPUT CONNECTION	OUTPUT CONNECTION
Single phase: L = Line (1) N = Neutral (3)	+ = Positive DC (12) - = Negative DC (11)
2 phase: L1 = Phase 1 (1) L2 = Phase 2 (3)	
DC: L1(L) = + Positive DC (1) L2(N) = - Negative DC (3)	

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

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