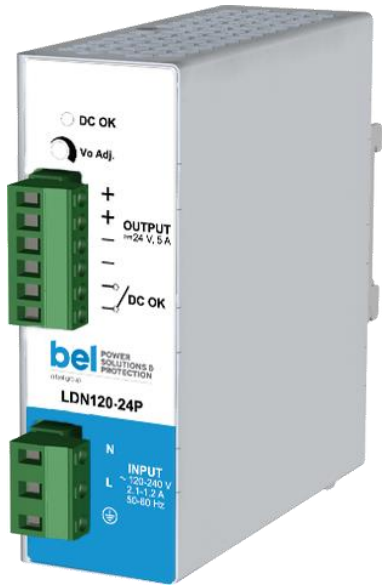
LDN120 Series

120W DIN Rail Switching Power Supply

LDN120 Series are single phase DIN Rail Switching Power Supplies, suitable for worldwide applications such as process control, heavy duty applications, but also building automation.

These units have received excellent market approval for their high efficiency, excellent reliability and compactness. Simple but elegant look and ease of installation due to pluggable connectors make them market leaders for various industrial applications.

LDN120 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.



RoHS Compliant

Key Features & Benefits

- Single phase AC input 90 – 264 VAC (110 - 345 VDC)
- High efficiencies and in compact size
- 150% overload capability
- Only 40 mm width aluminum enclosure
- Up to 60°C operating temperature with no derating
- Short circuit, overload and over temperature protection
- RoHS Compliant

Applications

- Automation
- Process Control
- Communication
- Instrumentation Equipment

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1. MODEL SELECTION

MODEL	INPUT VOLTAGE	# of PHASES	OUTPUT VOLTAGE	OUTPUT CURRENT	REDUNDANCY
LDN120-12	120 - 240 VAC (110 - 345 VDC)	1	12 VDC	7 A	No ORing diode
LDN120-24	120 - 240 VAC (110 - 345 VDC)	1	24 VDC	5 A	No ORing diode
LDN120-24P	120 - 240 VAC (110 - 345 VDC)	1	24 VDC	5 A	Internal ORing diode
LDN120-48P	120 - 240 VAC (110 - 345 VDC)	1	48 VDC	2.5 A	Internal ORing diode

2. INPUT SPECIFICATIONS

Specifications are measured at 25°C, at 240 VAC / 50 Hz, typical unless otherwise stated.

PARAMETER	DESCRIPTION / CONDITION		SPECIFICATION
Input AC Voltage Range	Rated, UL certified Operating		120 - 240 VAC 90 - 264 VAC
Input DC Voltage Range	Rated		110 - 345 VDC
Input Frequency Range			47 - 63 Hz
Input AC Current	LDN120-12	Vin = 120 VAC Vin = 240 VAC	1.9 A 1.1 A
	LDN120-24 LDN120-24P LDN120-48P	Vin = 120 VAC Vin = 240 VAC	2.1 A 1.2 A
Input DC Current	LDN120-12	Vin = 110 VDC Vin = 345 VDC	1.3 A 0.5 A
	LDN120-24 LDN120-24P LDN120-48P	Vin = 110 VDC Vin = 345 VDC	1.4 A 0.6 A
Inrush Peak Current			< 40 A
Internal Protection Fuse	Not user replaceable		Fuse 3.15AT / 250 VAC
External Protection on AC Line	It is strongly recommended to provide external surge arresters (SPD) according to local regulations		Fuse 6AT or MCB 6 A C curve

3. OUTPUT SPECIFICATIONS

PARAMETER	DESCRIPTION / CONDITION		SPECIFICATION
Output Power			120 W
Rated Voltage (Adjustable Voltage Range)	LDN120-12 LDN120-24 / LDN120-24P LDN120-48P		12 VDC (12 – 15 VDC) 24 VDC (23 – 28 VDC) 48 VDC (45 – 55 VDC)
Continuous Current	LDN120-12 LDN120-24 / LDN120-24P LDN120-48P		7 A 5 A 2.5 A
Overload Limit	LDN120-12 LDN120-24 / LDN120-24P LDN120-48P		11 A @ Vo = 12 V / 9.5 A @ Vo = 15 V 7 A 3.7 A
Short Circuit Peak Current			30 A per 30 ms
Load Regulation	LDN120-12 LDN120-24 LDN120-24P LDN120-48P		≤ 2% ≤ 1% ≤ 2.5% ≤ 1.5%
Ripple	LDN120-12 LDN120-24 / LDN120-24P / LDN120-48P		≤ 120 mVpp ≤ 60 mVpp
Hold up Time	LDN120-12	Vin = 120 VAC Vin = 240 VAC	> 10 ms > 60 ms
	LDN120-24	Vin = 120 VAC Vin = 240 VAC	> 20 ms > 50 ms

	LDN120-24P / LDN120-48P	Vin = 120 VAC Vin = 240 VAC	> 10 ms > 50 ms
Efficiency	LDN120-12 LDN120-24 LDN120-24P LDN120-48P		> 84% > 87% > 85% > 86%
Dissipated Power	LDN120-12 LDN120-24 LDN120-24P LDN120-48P		< 20 W < 18 W < 21 W < 19 W
Output Over Voltage Protection	LDN120-12 LDN120-24 / LDN120-24P LDN120-48P		> 18 VDC > 33 VDC > 68 VDC
Parallel Connection	LDN120-12 / LDN120-24 LDN120-24P / LDN120-48P		Possible with external ORing diode Internal Oring diode
Protections	Hiccup at the overload limit with auto reset Over temperature Overvoltage		
Status Signals	Green LED = DC OK Dry contact (1 A / 30 V)		

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

4. ENVIRONMENTAL, EMC & SAFETY SPECIFICATIONS

PARAMETER		DESCRIPTION / CONDITION	SPECIFICATION
Operating Temperature		UL certified up to 60°C (Start-up type tested: - 40°C)[1]	- 40 to + 70°C
Storage Temperature			- 40 to + 80°C
Derating			- 2.4 W / °C over 60°C
Humidity		Non-condensing	5 - 95% RH
Life Time Expectation		At 25°C ambient full load	106880 h (12.2 years)
Overvoltage Category Pollution Degree			III 2 (IEC 664-1)
Isolation Voltage		Input to Output Input to Ground Output to Ground	4.2 kVDC 2.2 kVDC 0.75 kVDC
Safety Standards & Approvals		UL508 (certified) EN60950 (reference)	
EMC Standards	Emission	EN55022:2010 (CISPR22) EN55011:2009 /A1:2010	Class A Class A
	Immunity	EN61000-4-2:2008 EN61000-4-3:2006 /A2:2010 EN61000-4-4:2012 EN61000-4-5:2014 EN61000-4-11:2004 /A1:2010	Level 3 Level 3 Level 3 Level 3 Level 2
Protection Degree		EN60529:1989 / A:2013	IP20
Vibration sinusoidal		IEC 60068-2-6:2007	5-17.8 Hz: ±1.6 mm; 17.8-500 Hz: 2 g 2 Hours / axis (X,Y,Z)
Shock		IEC 60068-2-27:2008	30 g 6 ms, 20 g 11 ms; 3 bumps / direction, 18 bumps total

[1] Possible with load derating.

5. MECHANICAL SPECIFICATIONS

PARAMETER	DESCRIPTION / CONDITION	SPECIFICATION
Weight		450 g
Dimensions		40 x 115 x 110 mm
Mounting Rail		IEC 60715/H15/TH35-7.5(-15)
Connection Terminals	Screw type pluggable (24 - 12 AWG)	2.5 mm²
Case Material	Aluminum	

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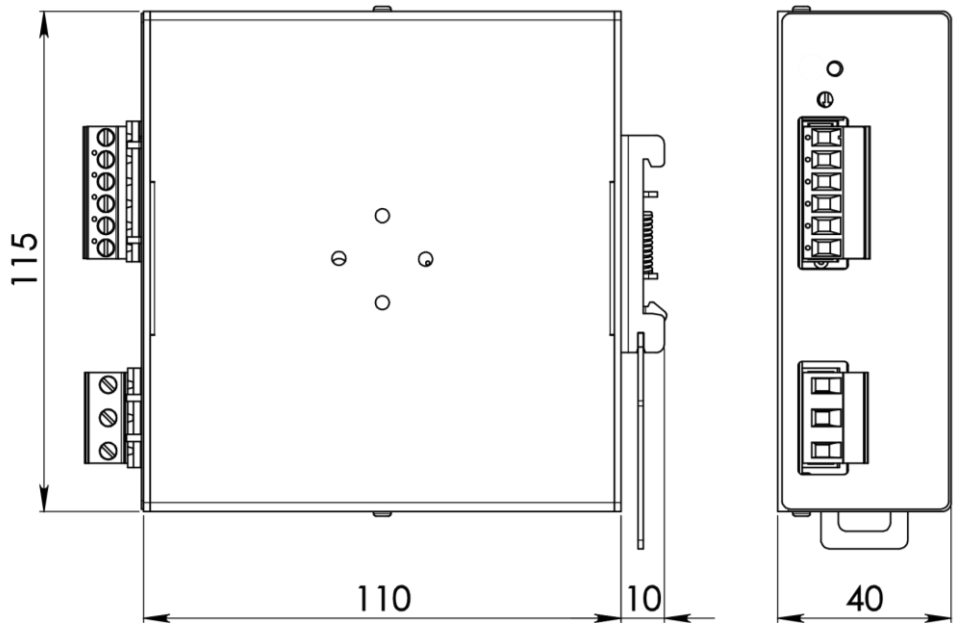
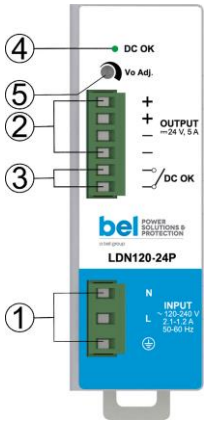


Figure 1. Mechanical Drawing

6. PIN LAYOUT & DESCRIPTION



PIN	DESCRIPTION
1	AC/DC input
2	DC output (load)
3	Diagnostic Output (dry contact, NC output OK)
4	Green LED: Output OK
5	Output voltage adjustment

INPUT CONNECTION	OUTPUT CONNECTION
Single phase: L = Line N = Neutral ⏚ = Earth ground	+ = Positive DC - = Negative DC Dry contact = NC
DC: L = +/- / N = -/+ / ⏚ = Earth ground	

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

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