LDN120 Series

120 W 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 ideal for various industrial applications.

LDN120 Series are Class I isolation devices designed to be mounted on DIN rail and installed inside a protective enclosure.

FEATURES

- Input voltage 90 - 264 VAC or 110 - 345 VDC
- Output voltage 12 V, 24 V, 48 V (adjustable)
- Operating ambient temperature range -40°C to +70°C (up to 60°C with no derating)
- Efficiency up to 86%
- Overload 150%
- Excellent field reliability record
- Compact size in aluminum enclosure
- Dimensions: 40 x 115 x 110 mm

APPLICATIONS

- Automation
- Process control
- Communication
- Instrumentation equipment

1. MODEL SELECTION

MODEL	INPUT VOLTAGE RANGE	OUTPUT VOLTAGE	MAX OUTPUT CURRENT	EFFICIENCY	REDUNDANCY	MAX OUTPUT POWER
LDN120-12	120 - 240 VAC (110 - 345 VDC)	12 V	7.0 A	84 %		120 W
LDN120-24	120 - 240 VAC (110 - 345 VDC)	24 V	5.0 A	87 %		120 W
LDN120-24P	120 - 240 VAC (110 - 345 VDC)	24 V	5.0 A	85 %	Internal ORing diode	120 W
LDN120-48P	120 - 240 VAC (110 - 345 VDC)	48 V	2.5 A	86 %	Internal ORing diode	120 W

Discontinued model

2. INPUT SPECIFICATIONS

PARAMETER		DESCRIPTION / CONDITIONS	SPECIFICATION
AC Input Voltage		Nominal (UL certified) Range	100 - 240 VAC 90 - 264 VAC
DC Input Voltage			110 - 345 VDC
Input Frequency			47 - 63 Hz
AC Input Current	Vin = 120 VAC	LDN120-12 LDN120-24 / LDN120-24P / LDN120-48P	1.9 A 2.1 A
	Vin = 240 VAC	LDN120-12 LDN120-24 / LDN120-24P / LDN120-48P	1.1 A 1.2 A
DC Input Current	Vin = 110 VDC	LDN120-12 LDN120-24 / LDN120-24P / LDN120-48P	1.3 A 1.4 A
	Vin = 345 VDC	LDN120-12 LDN120-24 / LDN120-24P / LDN120-48P	0.5 A 0.6 A
Inrush Peak Current I^2t		Peak Current measured after 0.2 ms from main connection; 240 VAC / 50 Hz; Ta = 25°C; Cold Start	≤ 30 A 0.72 A^2s
Touch (Leakage) Current			≤ 0.45 mA
Internal Protection Fuse		Not user replaceable	3.15 AT
Recommended External Protection		It is strongly recommended to provide external surge arresters (SPD) according to local regulations.	Fuse 6 AT or MCB 6 A C curve

3. OUTPUT SPECIFICATIONS

PARAMETER		DESCRIPTION / CONDITIONS	SPECIFICATION
Output Voltage (Adjustable)		LDN120-12 LDN120-24 / LDN120-24P LDN120-48P	12 - 15 VDC 23 - 28 VDC 45 - 55 VDC
Output Current (Continuous)		LDN120-12 LDN120-24 / LDN120-24P LDN120-48P	7.0 A 5.0 A 2.5 A
Load Regulation		LDN120-24 LDN120-24P LDN120-48 LDN120-48P	≤ 2 % ≤ 1 % ≤ 2.5 % ≤ 1.5 %
Ripple & Noise [1]		LDN120-12 LDN120-24 / LDN120-24P / LDN120-48P	≤ 120 mVpp ≤ 60 mVpp
Hold-up Time	Vin = 120 VAC	LDN120-12 / LDN120-24P / LDN120-48P LDN120-24	≥ 10 ms ≥ 20 ms
	Vin = 240 VAC	LDN120-12 LDN120-24 / LDN120-24P / LDN120-48P	≥ 60 ms ≥ 50 ms
Status Signals		DC OK - green LED DC OK - dry contact (NO, 24 VDC / 1 A)	
Parallel Connection		Possible for power or redundancy (with external ORing module) P models - include internal ORing diode	

[1] *20 MHz BW probe terminated with a 0.1 µF MKP parallel capacitor*

4. PROTECTIONS

PARAMETER	DESCRIPTION / CONDITIONS		SPECIFICATION
Short Circuit Protection	Hiccup mode, Short circuit peak current		30 A
Overload Protection	Hiccup mode, Overload limit	LDN120-12 LDN120-24 / LDN120-24P LDN120-48P	11 - 9.5 A 7.0 A 3.7 A
Thermal Protection			
Over Voltage Protection		LDN120-12 LDN120-24 / LDN120-24P LDN120-48P	≥ 18 VDC ≥ 33 VDC ≥ 68 VDC

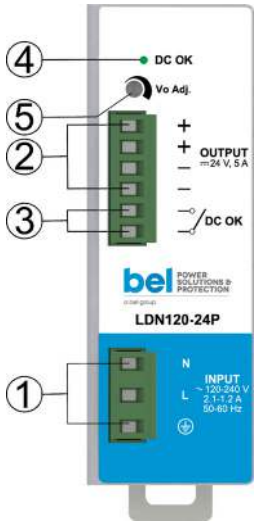
5. ENVIRONMENTAL, EMC & SAFETY SPECIFICATIONS

PARAMETER	DESCRIPTION / CONDITIONS	SPECIFICATION
Operating Temperature	UL certified up to 60°C Start-up type tested: - 40°C, possible at Vnom with load deration.	-40 to +70 °C
Storage Temperature		-40 to +80 °C
Derating	Over 60°C	- 2.4 W/°C
Dissipated Power	LDN120-12 LDN120-24 LDN120-24P LDN120-48P	< 20 W < 18 W < 21 W < 19 W
Humidity	Non-condescending	5 - 95 % RH
Life Time Expectancy	Ta = 25°C, full load	106 880 (12.2) hrs (years)
MTBF	MIL-HDBK-217F at Ta = 25°C, full load	> 600 000 hrs
Overvoltage Category	EN 50178	III
Pollution Degree	IEC 60664-1	2
Protection Class	Class I	
Isolation	Input to Output Input to Ground Output to Ground	4.2 kVDC 2.2 kVDC 0.75 kVDC
Safety Standards & Approvals	UL 508 IEC/EN 61010-1 IEC/EN 61010-2-201 IEC/EN 60950	
EMC Emissions	EN 55011 / CISPR 11 EN 55022 / CISPR 22	Class A Class A
EMC Immunity	EN 61000-4-2 EN 61000-4-3 EN 61000-4-4 EN 61000-4-5 EN 61000-4-11	Level 3 Level 3 Level 3 Level 3 Level 2
Protection Degree	EN 60529	IP20
Vibration Sinusoidal	IEC 60068-2-6	5-17.8 Hz: ±1.6 mm; 17.8-500 Hz: 2 g 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

6. MECHANICAL SPECIFICATIONS

PARAMETER	DESCRIPTION / CONDITIONS	SPECIFICATION
Dimensions		40 x 115 x 110 mm 1.57 x 4.53 x 4.33 in
Weight		450 g
Mounting Rail	IEC 60715/H15/TH35-7.5(-15)	
Connection Terminals	Screw type pluggable (24 - 12 AWG)	2.5 mm²
Case Material	Aluminum	

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	**Single phase** L = Line N = Neutral ⏚ = Earth ground	**DC Input** L = + Positive DC N = - Negative DC ⏚ = Earth ground
OUTPUT CONNECTION	+ = Positive DC - = Negative DC	
SIGNALLING	DC OK: dry contact • NO • COM	

7. MECHANICAL DRAWING

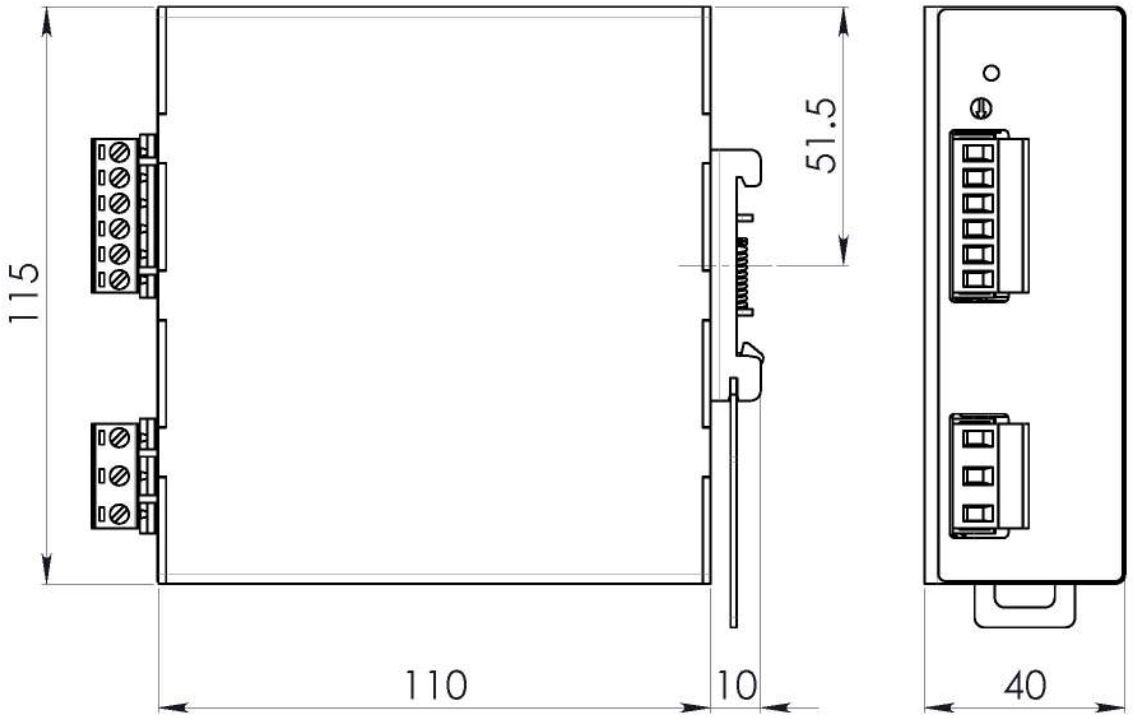


Figure 1. Mechanical Drawing

Notes:

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