LDN80 Series

80 W AC-DC DIN Rail Switching Power Supply

LDN80 Series are single phase DIN Rail Switching Power Supplies, ideal mainly for general purposes such as home automation, simple automation in machines, survey systems, telecom, but also the renewable energy field.

Its compact size, high efficiency, excellent reliability and excellent power/volume ratio, together with easy installation makes it ideal for various industrial applications.

LDN80 Series are Class II 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
- High operating temperature range -40°C to +70°C with no derating
- Efficiency up to 86%
- Overload 150%
- Simplified wiring (no PE connection)
- Compact size in plastic enclosure (circuit breaker shape)
- Dimensions: 72 x 90 x 61.5 mm

APPLICATIONS

- Industrial Automation
- Telecom
- Survey Systems
- Process Control

1. MODEL SELECTION

MODEL	INPUT VOLTAGE	OUTPUT VOLTAGE	MAX OUTPUT CURRENT	EFFICIENCY [1]	MAX OUTPUT POWER
LDN80-12	120 - 240 VAC (110 - 345 VDC)	12 - 15 V	6 - 5 A	86 %	80 W
LDN80-24	120 - 240 VAC (110 - 345 VDC)	24 V	3.3 A	87 %	80 W

[1] For LDN80-12, the measurements are performed with output set to 15 VDC.

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	LDN80-12 LDN80-24	1.5 A 1.4 A
	Vin = 240 VAC		0.85 A
DC Input Current	Vin = 110 VDC		1.0 A
	Vin = 345 VDC		0.4 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	≤ 54 A 1.28 A^2s
Touch (Leakage) Current			≤ 0.25 mA
Internal Protection Fuse		Not user replaceable	2 AT
Recommended External Protection		It is strongly recommended to provide external surge arresters (SPD) according to local regulations.	MCB 6 A C curve

3. OUTPUT SPECIFICATIONS

PARAMETER		DESCRIPTION / CONDITIONS	SPECIFICATION
Output Voltage (Adjustable)		LDN80-12 LDN80-24	12 - 15 VDC 23 - 28 VDC
Output Current (Continuous)		LDN80-12 LDN80-24	6 - 5 A 3.3 A
Load Regulation		LDN80-12 LDN80-24	≤ 0.5 % ≤ 1 %
Ripple & Noise [2]			≤ 100 mVpp ≤ 50 mVpp
Hold-up Time	Vin = 120 VAC Vin = 240 VAC		≥ 10 ms ≥ 30 ms
Status Signals		DC OK - green LED	
Parallel Connection		Possible for redundancy (with external ORing module)	

[2] Ripple and Noise are measured with 20 MHz bandwidth, 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:	LDN80-12 LDN80-24	20 A 25 A
Overload Protection	Hiccup mode, Overload limit:	LDN80-12	7.5 A at 12 VDC 6.5 A at 15 VDC
		LDN80-24	4.0 A
Thermal Protection			
Over Voltage Protection			

5. ENVIRONMENTAL, EMC & SAFETY SPECIFICATIONS

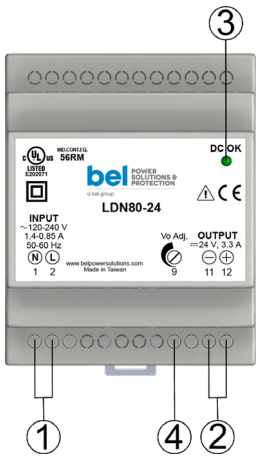
PARAMETER	DESCRIPTION / CONDITIONS		SPECIFICATION
Operating Temperature[3]	UL certified up to 50°C UL certified up to 55°C	LDN80-12 LDN80-24	-40 to +70 °C
Storage Temperature			-40 to +80 °C
Derating	Over 50°C Over 55°C	LDN80-12 LDN80-24	- 1.2 W/°C - 0.9 W/°C
Dissipated Power	LDN80-12 LDN80-24		< 12.5 W < 12 W
Humidity	Non-condescending		5 - 95 % RH
Life Time Expectancy	Ta = 25°C, full load		51 136 (5.8) hrs (years)
MTBF	MIL-HDBK-217F at Ta = 25°C, full load		> 500 000 hrs
Overvoltage Category	EN 50178		III
Pollution Degree	IEC 60664-1		2
Protection Class	Class II		
Isolation	Input to Output		4.2 kVDC
Safety Standards & Approvals	UL 508 (certified) 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

[3] *Start-up type tested: - 40°C, possible at Vnom with load deration.*

6. MECHANICAL SPECIFICATIONS

PARAMETER	DESCRIPTION / CONDITIONS	SPECIFICATION
Dimensions		72 x 90 x 61.5 mm 2.83 x 3.54 x 2.42 in
Weight		230 g
Mounting Rail	IEC 60715/H15/TH35-7.5(-15)	
Connection Terminals	Screw type header (24 - 12 AWG)	2.5 mm²
Case Material	Plastic, Flame retardant UL94 V-0	

7. PIN LAYOUT & DESCRIPTION



PIN	DESCRIPTION
1	AC/DC input
2	DC output (load)
3	Green LED: Output OK
4	Output voltage adjustment

INPUT CONNECTION	**Single phase** L = Line (2) N = Neutral (1)	**DC Input** L = + Positive DC (2) N = - Negative DC (1)
OUTPUT CONNECTION	+ = Positive DC (12) – = Negative DC (11)	

8. MECHANICAL DRAWING

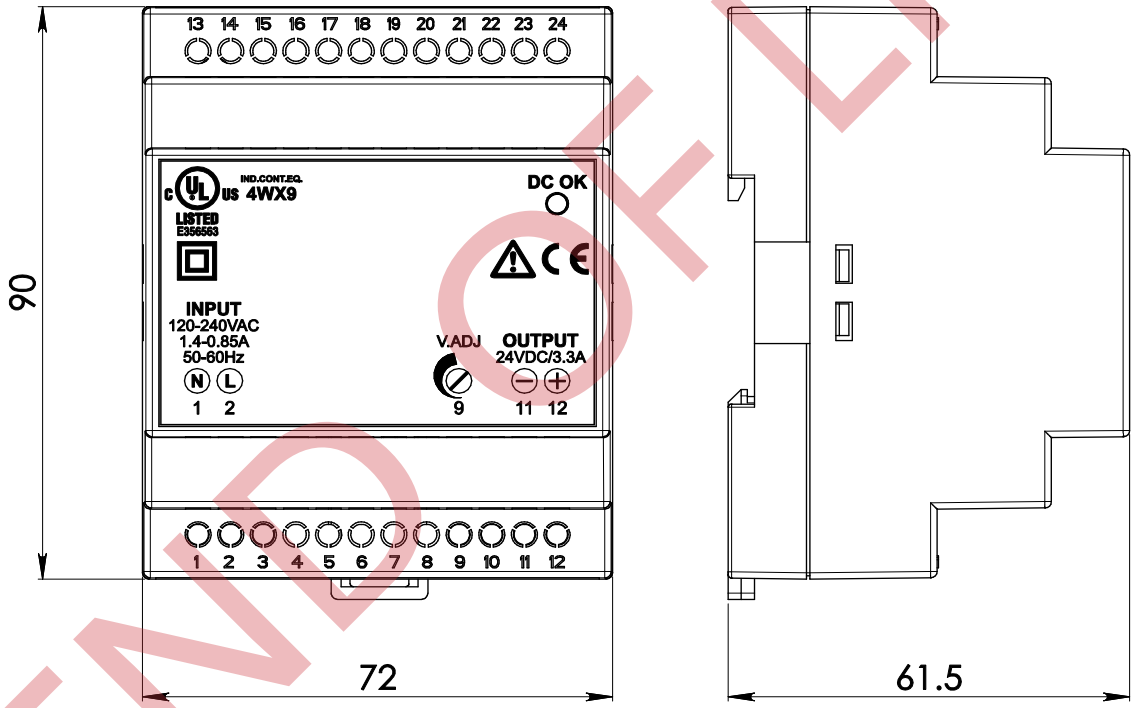


Figure 1. Mechanical Drawing

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.