

LDN40 Series

40 W DIN Rail
Switching Power Supply

LDN40 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.

LDN40 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 5 V, 12 V, 2x 12 V, 24 V
- High operating temperature range -40°C to +70°C
- Efficiency up to 86%
- Overload 150%
- Includes (5 - 15 V) and (2x 12 - 16 V) models
- 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
LDN40-5	120 - 240 VAC (110 - 345 VDC)	5 - 15 V	4 - 2 A	80 %	40 W
LDN40-12D	120 - 240 VAC (110 - 345 VDC)	2x 12 - 16 V	1 A	83 %	40 W
LDN40-12	120 - 240 VAC (110 - 345 VDC)	12 - 15 V	3.5 - 3 A	86 %	40 W
LDN40-24	120 - 240 VAC (110 - 345 VDC)	24 V	2 A	85 %	40 W

¹ For LDN40-5 and LDN40-12, measurements are performed with output set to 15 VDC.

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	LDN40-5 / LDN40-12D LDN40-12 / LDN40-24	0.7 A 0.9 A
	Vin = 240 VAC	LDN40-5 / LDN40-12D LDN40-12 / LDN40-24	0.4 A 0.5 A
DC Input Current	Vin = 110 VDC	LDN40-5 / LDN40-12D LDN40-12 / LDN40-24	0.5 A 0.6 A
	Vin = 345 VDC	LDN40-5 / LDN40-12D LDN40-12 / LDN40-24	0.2 A 0.3 A
Inrush Peak Current I _{pt}	Peak Current measured after 0.2 ms from main connection; 240 VAC / 50 Hz; Ta = 25°C; Cold Start		≤ 50 A 1.15 A ² s
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	LDN40-5		5 - 15 VDC
	LDN40-12D		2x 12 - 16 VDC
	LDN40-12		12 - 15 VDC
	LDN40-24 (Fixed)		24 VDC
Output Current (continuous)	LDN40-5		4 - 2 A
	LDN40-12D		1 A
	LDN40-12		3.5 - 3 A
	LDN40-24		2 A
Load Regulation			≤ 1 %
Ripple & Noise ²			≤ 100 mVpp
Hold-up Time	Vin = 120 VAC		≥ 10 ms
	Vin = 240 VAC		≥ 50 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:	LDN40-5	10 A
		LDN40-12D	3.5 A
		LDN40-12	8.5 A
		LDN40-24	7 A
Overload Protection	Hiccup mode, Overload limit:	LDN40-5	6.5 A at 5 VDC 4 A at 15 VDC
		LDN40-12D	2.7 - 2.4 A
		LDN40-12	6.5 A at 12 VDC 4.1 A at 15 VDC
		LDN40-24	3.5 A
Thermal Protection			
Over Voltage Protection			

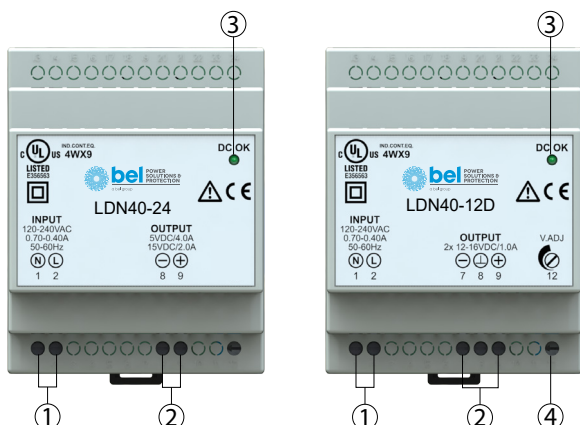
5. ENVIRONMENTAL, EMC & SAFETY SPECIFICATIONS

PARAMETER	DESCRIPTION / CONDITIONS	SPECIFICATION	
Operating Temperature	UL certified up to 50°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 50°C	LDN40-5 / LDN40-12D LDN40-12 / LDN40-24	- 0.25 W/°C - 0.35 W/°C
Dissipated Power	LDN40-5 / LDN40-12	< 8 W	
	LDN40-12D	< 7 W	
	LDN40-24	< 9 W	
Humidity	Non-condescending	5 - 95 % RH	
Life Time Expectancy	Ta = 25°C, full load	62 251 (7.1) 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	Class A	
	EN 55022 / CISPR 22	Class A	
EMC Immunity	EN 61000-4-2	Level 3	
	EN 61000-4-3	Level 3	
	EN 61000-4-4	Level 3	
	EN 61000-4-5	Level 3	
	EN 61000-4-11	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		72 x 90 x 61.5 mm 2.83 x 3.54 x 2.42 in
Weight		190 g
Mounting Rail	IEC 60715/H15/TH35-7.5(-15)	
Connection Terminals	Screw type header (24 - 12 AWG)	2.5 mm ²
Case Material	Plastic, Flame retardant UL94 V-0	

7. PIN LAYOUT & DESCRIPTION



PIN DESCRIPTION

PIN	DESCRIPTION
1	AC/DC input
2	DC output (load)
3	Green LED: Output OK
4	Output voltage adjustment (all models except LDN40-24)

INPUT CONNECTION	Single phase	DC Input
	L = Line (2) N = Neutral (1)	L = + Positive DC (2) N = - Negative DC (1)
OUTPUT CONNECTION	for LDN40-5, -12, -24: + = Positive DC (9) - = Negative DC (8)	for LDN40-12D: + = Positive DC (9) ⊥ = Common DC (8) - = Negative DC (7)

8. MECHANICAL DRAWING

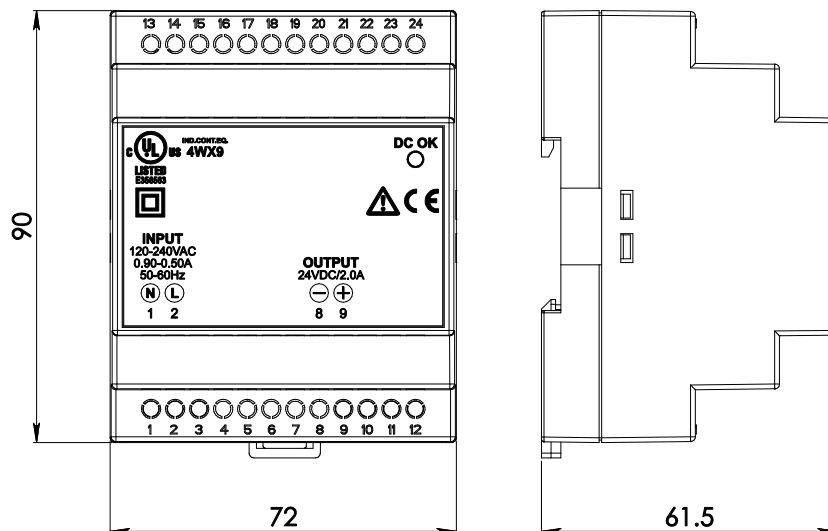


Figure 1. Mechanical Drawing

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.

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.