

# LDN40 Series

## 40W 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 and renewable applications.

LDN40 Series are 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 phase AC input 90 - 264 VAC (110 - 345 VDC)
- High efficiency and compact size
- Plastic enclosure
- Class II, simplified wiring (no PE connection)
- Plastic enclosure, circuit breaker shape
- Overload 150%
- Includes (5 – 15 V) and (2x 12 – 16 V) models
- High operating temperature with no derating
- RoHS Compliant

### Applications

- Automation
- Telecom
- Survey Systems
- Renewable



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## 1. MODEL SELECTION

MODEL	INPUT VOLTAGE	# of PHASES	OUTPUT VOLTAGE	OUTPUT CURRENT
LDN40-5	120 - 240 VAC (110 - 345 VDC)	1	5 - 15 VDC	4 - 2 A
LDN40-12D	120 - 240 VAC (110 - 345 VDC)	1	2x 12 - 16 VDC	1.0 A
LDN40-12	120 - 240 VAC (110 - 345 VDC)	1	12 - 15 VDC	3.5 - 3 A
LDN40-24	120 - 240 VAC (110 - 345 VDC)	1	24 VDC	2 A

## 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, 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	LDN40-5 / LDN40-12D	Vin = 120 VAC 0.7 A Vin = 240 VAC 0.4 A
	LDN40-12 / LDN40-24	Vin = 120 VAC 0.9 A Vin = 240 VAC 0.5 A
Input DC Current	LDN40-5 / LDN40-12D	Vin = 110 VDC 0.5 A Vin = 345 VDC 0.2 A
	LDN40-12 / LDN40-24	Vin = 110 VDC 0.6 A Vin = 345 VDC 0.3 A
Inrush Peak Current		≤ 75 A
Touch (Leakage) Current		≤ 0.25 mA
Internal Protection Fuse	Not user replaceable	Fuse 2AT
Recommended External Protection	It is strongly recommended to provide external surge arresters (SPD) according to local regulations	MCB 6A C curve

## 3. OUTPUT SPECIFICATIONS

PARAMETER	DESCRIPTION / CONDITION	SPECIFICATION
Output Power		40 W
Rated Voltage (Adjustable Voltage Range)	LDN40-5	5 - 15 VDC (5 - 15 VDC)
	LDN40-12D	2x 12 - 16 VDC (2x 12 - 16 VDC)
	LDN40-12	12 - 15 VDC (12 - 15 VDC)
	LDN40-24	24 VDC (24 VDC Fixed)
Continuous Current	LDN40-5	4 A @ 5 VDC / 2 A @ 15 VDC
	LDN40-12D	1 A
	LDN40-12 LDN40-24	3.5 A @ 12 VDC / 3 A @ 15 VDC 2 A
Overload Limit	LDN40-5	6.5 A @ 5 VDC / 4 A @ 15 VDC
	LDN40-12D	2.7 - 2.4 A
	LDN40-12 LDN40-24	6.5 A @ 12 VDC / 4.1 A @ 15 VDC 3.5 A
Short Circuit Peak Current	LDN40-5	10 A
	LDN40-12D	3.5 A
	LDN40-12	8.5 A
	LDN40-24	7 A
Load Regulation		≤ 1%
Ripple & Noise <sup>1</sup>		≤ 100 mVpp
Hold up Time	Vin = 120 VAC	≥ 10 ms
	Vin = 240 VAC	≥ 50 ms

Protections	Overload/short circuit: Hiccup mode Thermal protection Output overvoltage	
Status Signals	Green LED = DC OK	
Parallel Connection	Possible for redundancy (with external ORing module)	
Efficiency	LDN40-5	> 80%
	LDN40-12D	> 83%
	LDN40-12	> 86%
	LDN40-24	> 85%
Dissipated Power	LDN40-5	< 8 W
	LDN40-12D	< 7 W
	LDN40-12	< 8 W
	LDN40-24	< 9 W

<sup>1</sup> Ripple and Noise are measured with 20MHz bandwidth, probe terminated with a 0.1µF MKP parallel capacitor.

**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	UL certified up to 50°C (Start-up type tested: - 40°C) <sup>2</sup>	- 40 to + 70°C
Storage Temperature		- 40 to + 80°C
Derating	LDN40-5 / LDN40-12D	- 0.25 W / °C over 50°C
	LDN40-12 / LDN40-24	- 0.35 W / °C over 50°C
Humidity	Non-condensing	5 - 95% RH
Life Time Expectancy	At 25°C ambient, full load	62251 h (7.1 years)
Overvoltage Category		III (EN50178)
Pollution Degree		2 (IEC60664-1)
Protection Class		Class II
Isolation Voltage	Input to Output	4.2 kVDC
	Standards & Approvals	UL508 (certified) EN60950 (reference) EN50178 (reference)
EMC Emission	EN55011 (CISPR11)	Class A
	EN55022 (CISPR22)	Class A
EMC Immunity	EN61000-4-2	Level 3
	EN61000-4-3	Level 3
	EN61000-4-4	Level 3
	EN61000-4-5	Level 3
	EN61000-4-11	Level 2
Protection Degree	EN60529	IP20
Vibration sinusoidal	IEC 60068-2-6	5 - 17.8 Hz: ±1.6 mm;
		17.8 - 500 Hz: 2 g 2Hours / axis (X,Y,Z)
Shock	IEC 60068-2-27	30 g 6 ms, 20 g 11 ms; 3 bumps / direction, 18 bumps total

<sup>2</sup> Possible with load derating.

## 5. MECHANICAL SPECIFICATIONS

PARAMETER	DESCRIPTION / CONDITION	SPECIFICATION
Weight		190 g
Dimensions (W x H x D)		72 x 90 x 61.5 mm
Rail Mounting		IEC 60715/H15/TH35-7.5(-15)
Connection Terminals	Screw type header (24 - 12 AWG)	2.5 mm <sup>2</sup>
Case Material	ABS, Flame retardant UL94 V-0	



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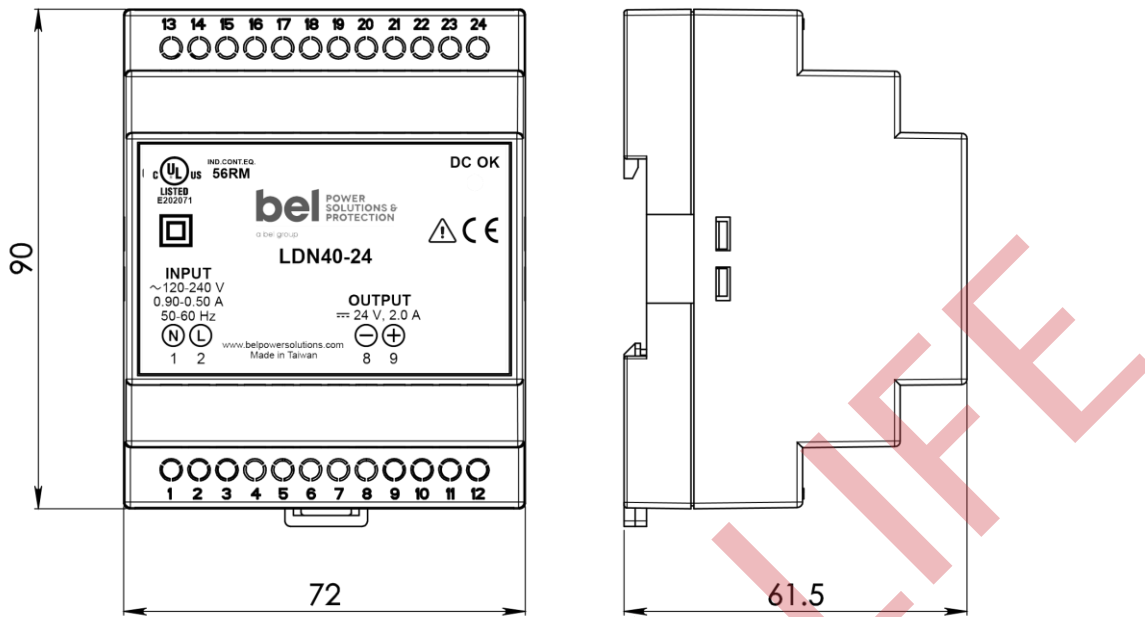
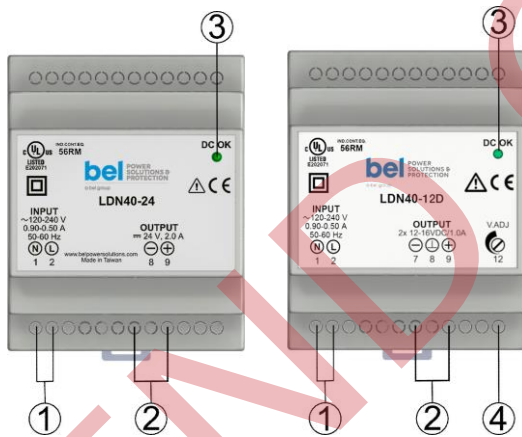


Figure 1. Mechanical Drawing

## 6. PIN LAYOUT & 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	OUTPUT CONNECTION
Single phase: L = Line (2) N = Neutral (1)	+ = Positive DC (9) - = Negative DC (8)
DC: L = +/- (2) N = -/+ (1)	Exception LDN40-12D: + = Positive DC (9) - = Negative DC (7) ⊥ = Common DC (8)

For more information on these products consult: [tech.support@psbel.com](mailto:tech.support@psbel.com)

**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.