

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 | 3.5 A @ 12 VDC / 3 A @ 15 VDC |
| | LDN40-24 | 2 A |
| Overload Limit | LDN40-5 | 6.5 A @ 5 VDC / 4 A @ 15 VDC |
| | LDN40-12D | 2.7 - 2.4 A |
| | LDN40-12 | 6.5 A @ 12 VDC / 4.1 A @ 15 VDC |
| Short Circuit Peak Current | LDN40-24 | 3.5 A |
| | LDN40-5 | 10 A |
| | LDN40-12D | 3.5 A |
| | LDN40-12 | 8.5 A |
| Load Regulation | | ≤ 1% |
| Ripple & Noise ¹ | | ≤ 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 |

¹ 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) ² | - 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 |

² 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 ² |
| Case Material | ABS, Flame retardant UL94 V-0 | |



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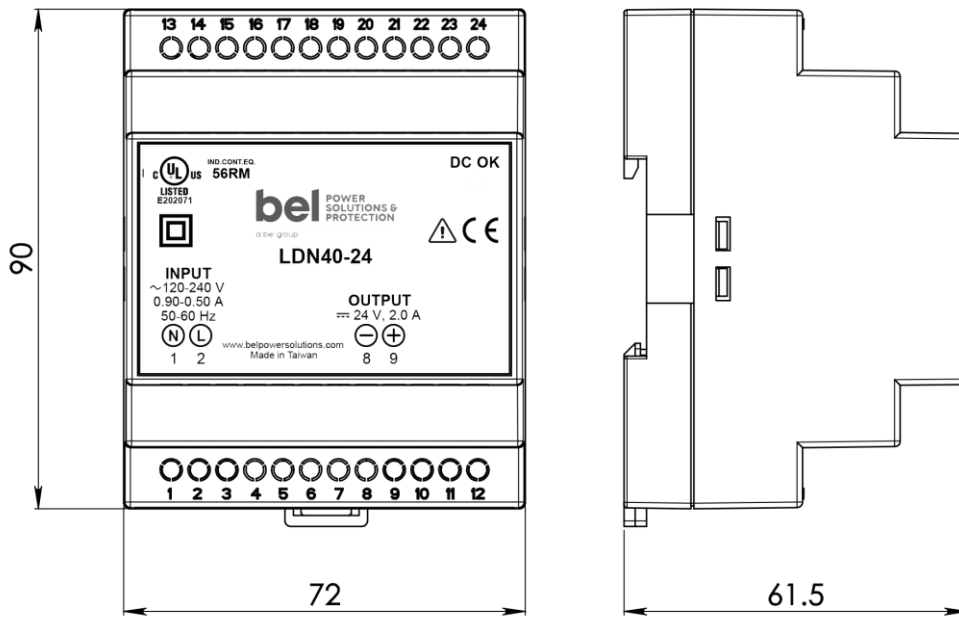
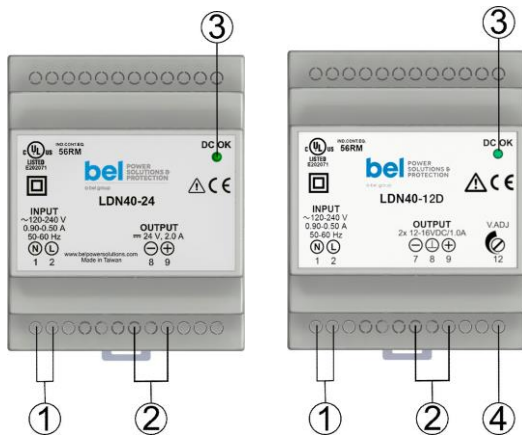


Figure 1. Mechanical Drawing

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: | + = Positive DC (9) |
| L = Line (2) | - = Negative DC (8) |
| N = Neutral (1) | |
| DC: | Exception LDN40-12D: |
| L = +/- (2) | + = Positive DC (9) |
| N = -/+ (1) | - = Negative DC (7) |
| | ⊥ = Common DC (8) |

For more information on these products consult: 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.



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