# LDN20 Series

## 20W DIN Rail Switching Power Supply

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LDN20 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.

LDN20 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.




RoHS Compliant

### Key Features & Benefits

- Single phase AC input 90 - 264 VAC (110 - 345 VDC)
- High efficiency and compact size
- Plastic enclosure, circuit breaker shape
- Class II, simplified wiring (no PE connection)
- Overload 170%
- High operating temperature with no derating
- RoHS Compliant

### Applications

- Industrial Automation
- Telecom
- Survey Systems
- Process Control

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## 1. MODEL SELECTION

| MODEL | INPUT VOLTAGE | # of PHASES | OUTPUT VOLTAGE | OUTPUT CURRENT |
|---|---|---|---|---|
| LDN20-12 | 120 - 240 VAC (110 - 345 VDC) | 1 | 12 VDC | 1.65 A |
| LDN20-24 | 120 - 240 VAC (110 - 345 VDC) | 1 | 24 VDC | 0.85 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)<br>Operating | | 120 - 240 VAC<br>90 - 264 VAC |
| Input DC Voltage Range | Rated | | 110 - 345 VDC |
| Input Frequency | | | 47 - 63 Hz |
| Input AC Current | LDN20-12 / LDN20-24 | Vin = 120 VAC<br>Vin = 240 VAC | 0.4 A<br>0.3 A |
| Input DC Current | LDN20-12 / LDN20-24 | Vin = 110 VDC<br>Vin = 345 VDC | 0.3 A<br>< 0.1 A |
| Inrush Peak Current | | | ≤ 50 A |
| Touch (Leakage) Current | | | ≤ 0.2 mA |
| Internal Protection Fuse | Not user replaceable | | Fuse 1AT |
| 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 / CONDITION | | SPECIFICATION |
|---|---|---|---|
| Output Power | | | 20 W |
| Rated Voltage | LDN20-12<br>LDN20-24 | | 12 VDC (Fixed)<br>24 VDC (Fixed) |
| Continuous Current | LDN20-12<br>LDN20-24 | | 1.65 A<br>0.85 A |
| Overload Limit | LDN20-12<br><br>LDN20-24<br> | Vin = 120 VAC<br>Vin = 240 VAC<br>Vin = 120 VAC<br>Vin = 240 VAC | 2.60 A<br>3.25 A<br>1.3 A<br>1.7 A |
| Short Circuit Peak Current | LDN20-12<br>LDN20-24 | | 8 A<br>4 A |
| Load Regulation | | | ≤ 1% |
| Ripple & Noise[1] | | | ≤ 100 mVpp |
| Hold up Time | | | ≥ 5 ms |
| Protections | Overload/short circuit: Hiccup mode<br>Thermal protection<br>Output overvoltage | | |
| Status Signals | Green LED = DC OK | | |
| Parallel Connection | Possible for redundancy (with external ORing module) | | |
| Efficiency | | | > 80% |
| Dissipated Power | | | < 6 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.

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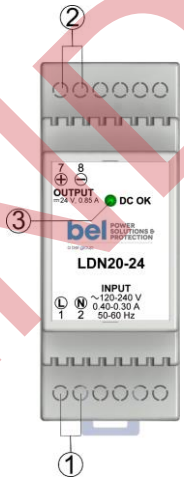
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## 4. ENVIRONMENTAL, EMC & SAFETY SPECIFICATIONS

| PARAMETER | DESCRIPTION / CONDITION | SPECIFICATION |
|---|---|---|
| Operating Temperature | UL certified up to 50°C<br>(Start-up type tested: - 40°C)[2] | - 40 to + 70°C |
| Storage Temperature | | - 40°C to + 80°C |
| Derating | | - 0.5 W / °C over 50°C |
| Humidity | Non-condensing | 5 - 95% RH |
| Life Time Expectancy | At 25°C ambient, full load | 58629 h (6.6 years) |
| Overvoltage Category<br>Pollution Degree | | III (EN50178)<br>2 (IEC60664-1) |
| Protection Class | | Class II |
| Isolation Voltage | Input to Output | 4.2 kVDC |
| Safety Standards & Approvals | UL508 (certified)<br>EN60950 (reference)<br>EN50178 (reference) | |
| EMC Emission | EN55011 (CISPR11)<br>EN55022 (CISPR22) | Class A<br>Class A |
| EMC Immunity | EN61000-4-2<br>EN61000-4-3<br>EN61000-4-4<br>EN61000-4-5<br>EN61000-4-11 | Level 3<br>Level 3<br>Level 3<br>Level 3<br>Level 2 |
| Protection Degree | EN60529 | IP20 |
| Vibration sinusoidal | IEC 60068-2-6 | 5-17.8 Hz: ±1.6 mm; 17.8-500 Hz: 2g<br>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 at nominal voltage with load derating

## 5. PIN LAYOUT & DESCRIPTION




| PIN | DESCRIPTION |
|---|---|
| 1 | AC/DC input |
| 2 | DC output (load) |
| 3 | Green LED: Output OK |

| INPUT CONNECTION | OUTPUT CONNECTION |
|---|---|
| Single phase:<br>L = Line (1)<br>N = Neutral (2) | + = Positive DC (7)<br>- = Negative DC (8) |
| DC:<br>L = + Positive DC (1)<br>N = - Negative DC (2) | |

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## 6. MECHANICAL SPECIFICATIONS

| PARAMETER | DESCRIPTION / CONDITION | SPECIFICATION |
|---|---|---|
| Weight | | 100 g |
| Dimensions (W x H x D) | | 35 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 mm² |
| Case Material | ABS, Flame retardant UL94 V-0 | |

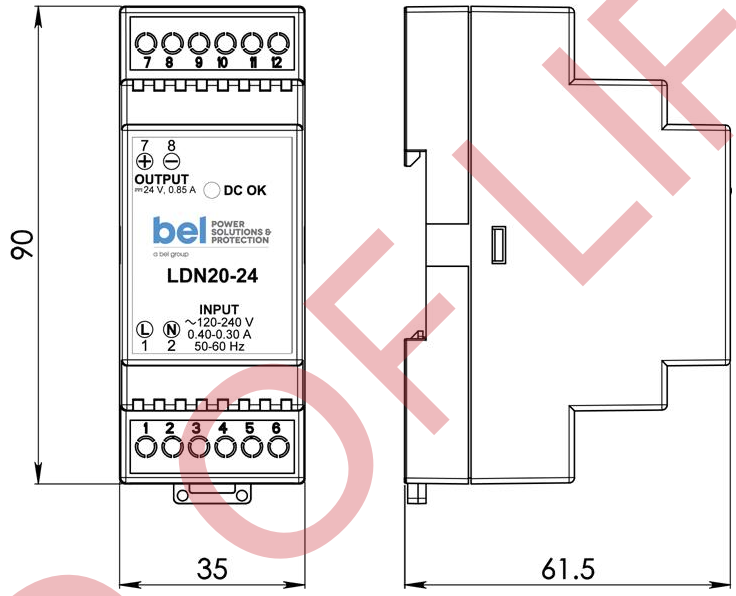



*Figure 1. Mechanical Drawing*

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**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.
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