

LDN240 Series

240 W DIN Rail Switching Power Supply

LDN240 Series are single phase DIN Rail Switching Power Supplies, suitable for worldwide applications such as process control, heavy duty applications, but also building automation.

These units have received excellent market approval for their high efficiency, excellent reliability and compactness. Simple but elegant look and ease of installation due to pluggable connectors make them ideal for various industrial applications.

LDN240 Series are Class I isolation devices designed to be mounted on DIN rail and installed inside a protective enclosure.



FEATURES

- AC input voltage 120 or 240 VAC (settable with voltage input selector)
- DC input voltage 270 - 345 VDC (only with 240 V selected)
- Output voltages 12 V, 24 V, 48 V, 72 V (adjustable)
- Operating temperature range -40°C to +70°C
- Efficiency up to 88%
- Overload 130%
- Excellent field reliability record
- Compact size in aluminum enclosure
- Dimensions: 63 x 140 x 117 mm



APPLICATIONS

- Automation
- Process control
- Communication
- Instrumentation equipment

1. MODEL SELECTION

| MODEL | INPUT VOLTAGE RANGE | OUTPUT VOLTAGE | MAX OUTPUT CURRENT | EFFICIENCY | REDUNDANCY | MAX OUTPUT POWER |
|------------|-------------------------------|----------------|--------------------|------------|----------------------|------------------|
| LDN240-12 | 120 / 240 VAC (270 - 345 VDC) | 12 V | 16 - 14 A | 84 - 86 % | | 240 W |
| LDN240-24 | 120 / 240 VAC (270 - 345 VDC) | 24 V | 10 A | 88 % | | 240 W |
| LDN240-24P | 120 / 240 VAC (270 - 345 VDC) | 24 V | 10 A | 86 % | Internal ORing diode | 240 W |
| LDN240-48P | 120 / 240 VAC (270 - 345 VDC) | 48 V | 5 A | 88 % | Internal ORing diode | 240 W |
| LDN240-72P | 120 / 240 VAC (270 - 345 VDC) | 72 V | 3.5 A | 88 % | Internal ORing diode | 240 W |

Discontinued models

2. INPUT SPECIFICATIONS

| PARAMETER | DESCRIPTION / CONDITIONS | SPECIFICATION |
|-------------------------------------|--|--|
| AC Input Voltage | Nominal (UL certified), Settable with voltage input selector Range | 120 / 240 VAC 90 - 132 / 187- 264 VAC |
| DC Input Voltage | Only with 240 V selected | 270 - 345 VDC |
| Input Frequency | | 47 - 63 Hz |
| AC Input Current | V _{in} = 120 VAC V _{in} = 240 VAC | 4.0 A 2.0 A |
| DC Input Current | V _{in} = 270 VDC V _{in} = 345 VDC | 1.3 A 1.0 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 | ≤ 32 A 1.18 A ² s |
| Touch (Leakage) Current | | ≤ 0.8 mA |
| Internal Protection Fuse | Not user replaceable | 6.3 AT |
| Recommended External Protection | It is strongly recommended to provide external surge arresters (SPD) according to local regulations. | Fuse 10 AT or MCB 10 A C curve |

3. OUTPUT SPECIFICATIONS

| PARAMETER | DESCRIPTION / CONDITIONS | SPECIFICATION |
|-----------------------------|---|--|
| Output Voltage (Adjustable) | LDN240-12 LDN240-24 / LDN240-24P LDN240-48P LDN240-72P | 12 - 15 VDC 23 - 28 VDC 45 - 55 VDC 72 - 85 VDC |
| Output Current (continuous) | LDN240-12 LDN240-24 / LDN240-24P LDN240-48P LDN240-72P | 16 - 14 A 10 A 5.0 A 3.5 A |
| Load Regulation | LDN240-12 / LDN240-48P / LDN240-72P LDN240-24 LDN240-24P | ≤ 1.5 % ≤ 1.0 % ≤ 2.5 % |
| Ripple & Noise ¹ | LDN240-12 LDN240-24 / LDN240-24P / LDN240-48P / LDN240-72P | ≤ 150 mVpp ≤ 100 mVpp |
| Hold-up Time | V _{in} = 120 VAC V _{in} = 240 VAC | ≥ 60 ms ≥ 70 ms |
| Status Signals | DC OK - green LED DC OK - dry contact (NO, 24 VDC / 1 A) | |
| Parallel Connection | Possible for redundancy (with external ORing module) P models - include internal ORing diode | |

¹ 20 MHz BW 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 | LDN240-12 LDN240-24 / LDN240-24P LDN240-48P LDN240-72P | 42 A 35 A 20 A 14 A | | |
| | | Overload Protection | Hiccup mode, Overload limit | LDN240-12 LDN240-24 / LDN240-24P LDN240-48P LDN240-72P | 19 - 16 A 13.5 A 6.8 A 4.6 A |
| | | | | Thermal Protection | |
| | | | | Over Voltage Protection | |

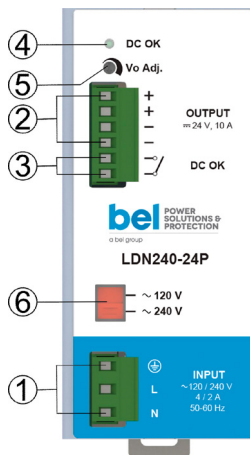
5. ENVIRONMENTAL, EMC & SAFETY SPECIFICATIONS

| 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 60°C | - 5.0 W/°C |
| Dissipated Power | LDN240-12 | < 36.5 - < 34.5 W |
| | LDN240-24 | < 33 W |
| | LDN240-24P | < 39 W |
| | LDN240-48P | < 33 W |
| | LDN240-72P | < 34.5 W |
| Humidity | Non-condescending | 5 - 95 % RH |
| Life Time Expectancy | Ta = 25°C, full load | 77 894 (8.8) 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 I | |
| Isolation | Input to Output | 4.2 kVDC |
| | Input to Ground | 2.2 kVDC |
| | Output to Ground | 0.75 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 | | 63 x 140 x 117 mm 2.48 x 5.11 x 4.61 in |
| Weight | | 750 g |
| Mounting Rail | IEC 60715/H15/TH35-7.5(-15) | |
| Connection Terminals | Screw type pluggable (24 - 12 AWG) | 2.5 mm ² |
| Case Material | Aluminum | |

PIN LAYOUT & DESCRIPTION



PIN DESCRIPTION

| PIN | DESCRIPTION |
|-----|---|
| 1 | AC/DC input |
| 2 | DC output (load) |
| 3 | Diagnostic Output (dry contact, NC output OK) |
| 4 | Green LED: Output OK |
| 5 | Output voltage adjustment |
| 6 | Input voltage selector |

| INPUT CONNECTION | Single phase | DC Input |
|------------------|---|--|
| | L = Line N = Neutral ⊕ = Earth ground | L = + Positive DC N = - Negative DC ⊕ = Earth ground |

| OUTPUT CONNECTION | |
|-------------------|------------------------------------|
| | + = Positive DC - = Negative DC |

| SIGNALLING | |
|------------|-------------------------------------|
| | DC OK: dry contact • NO • COM |

7. MECHANICAL DRAWING

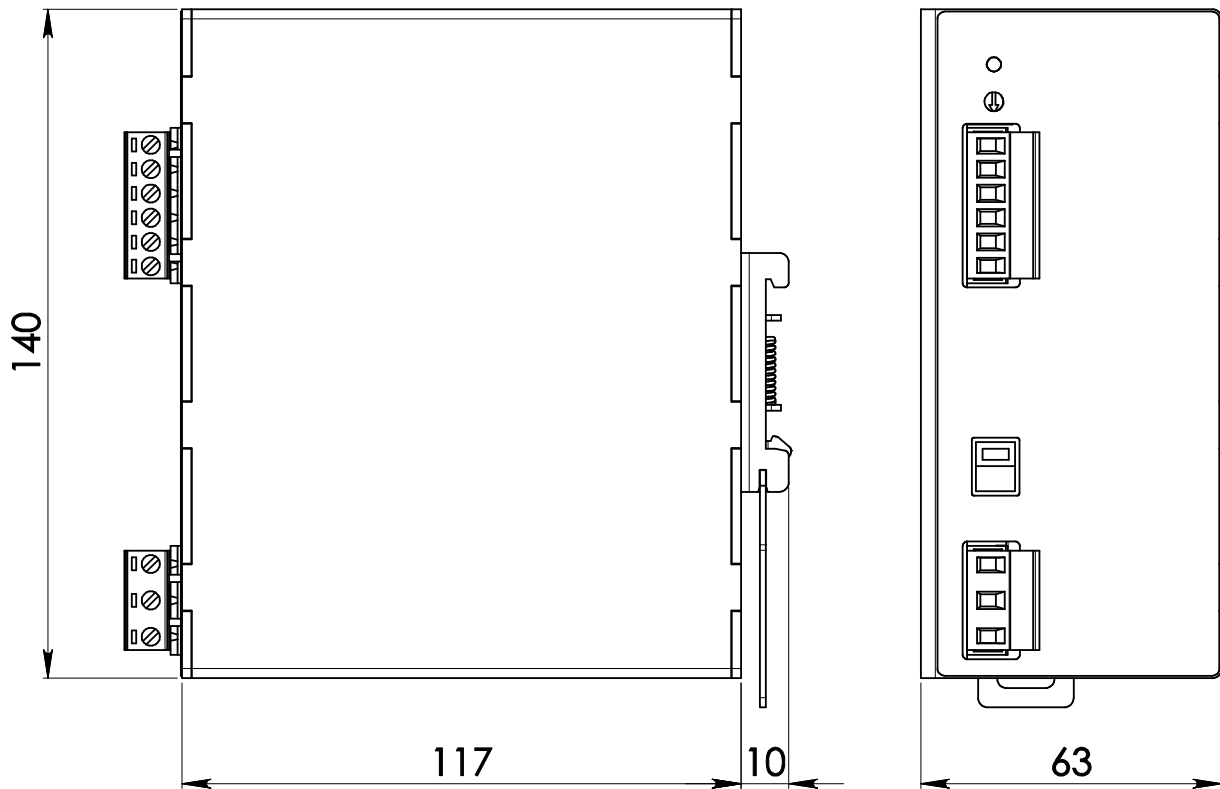


Figure 1. Mechanical Drawing

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.

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