

LDC480 Series

480W DIN Rail Switching Power Supply

LDC480 Series is a single phase, extremely compact Power Supply with active PFC specially designed for space sensitive and demanding applications.

Its compact size, high efficiency, excellent reliability together with easy installation makes it ideal for various industrial applications.

LDC480 Series is Class I isolation device suitable for SELV and PELV circuitry (up to 48 VDC models) and is designed to be mounted on DIN rail and installed inside a protective enclosure.



Key Features & Benefits

- High efficiency and extremely compact size
- Only 56 mm width aluminum enclosure
- Overall dimensions: 56 x 140 x 117 mm (2.2 x 5.5 x 4.6 in)
- Active PFC
- Overload 150%
- Constant current or hiccup mode limitation, user settable
- Wide range of output voltage
- Easy parallelable for power increase
- Up to 60°C operating temperature with no derating
- All models available as version **PH**
- Models with suffix **P** - internal ORing diode included
- Models with suffix **H** - enhanced transient overvoltage protection (> 6 kV) included

Applications

- Industrial Control
- Communication
- Instrumentation Equipment
- Renewable energy
- High reliability applications

1. MODEL SELECTION

| MODEL* | INPUT VOLTAGE | OUTPUT VOLTAGE | OUTPUT CURRENT | MODEL OPTIONS |
|-----------|-------------------------------|----------------|----------------|----------------------------------------------------------------------------------------------------------------------|
| LDC480-24 | 120 - 240 VAC (110 - 345 VDC) | 24 VDC | 20 A | P = internal ORing diode included (LDC480-24 P) |
| LDC480-36 | 120 - 240 VAC (110 - 345 VDC) | 36 VDC | 15 A | H = enhanced transient overvoltage protection (> 6 kV) included (LDC480-48 H) |
| LDC480-48 | 120 - 240 VAC (110 - 345 VDC) | 48 VDC | 10 A | PH = both, internal ORing diode and enhanced transient overvoltage protection included (LDC480-72 PH) |
| LDC480-72 | 120 - 240 VAC (110 - 345 VDC) | 72 VDC | 6.7 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 | LDC480-24 LDC480-48 LDC480-72 | Vin = 120 VAC Vin = 230 VAC |
| | LDC480-36 | 4.8 A 2.4 A 5.5 A 1.9 A |
| Input DC Current | LDC480-24 LDC480-48 LDC480-72 | Vin = 110 VDC Vin = 345 VDC |
| | LDC480-36 | 4.9 A 1.7 A 5.3 A 1.9 A |
| Power Factor Correction | Active | > 0.9 |
| Inrush Peak Current / I ² t | Measured after 0.2 ms from main connection; 240 VAC / 50 Hz; Ambient temp. at 25°C; Cold Start | ≤ 23 A / 0.56 A ² s |
| Touch (Leakage) Current | | ≤ 0.9 mA |
| Internal Protection Fuse | Not user replaceable | 8 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 |

* Models with suffix H and models LDC480-36, LDC480-36P are not UL508 certified.

3. OUTPUT SPECIFICATIONS

| PARAMETER | DESCRIPTION / CONDITION | SPECIFICATION |
|----------------------------------------------------|-------------------------------------------------------------------------------|----------------------|
| Output Power | | 480 W |
| Rated Voltage (Adjustable Output Voltage Range) | LDC480-24 | 24 VDC (22 - 29 VDC) |
| | LDC480-36 | 36 VDC (32 - 40 VDC) |
| | LDC480-48 | 48 VDC (45 - 55 VDC) |
| | LDC480-72 | 72 VDC (70 - 85 VDC) |
| Continuous Current | LDC480-24 | 20 A |
| | LDC480-36 | 14 A |
| | LDC480-48 | 10 A |
| | LDC480-72 | 6.7 A |
| Overload Limit (Constant Current Mode) | LDC480-24 | 21 A |
| | LDC480-36 | 16 A |
| | LDC480-48 | 12 A |
| | LDC480-72 | 7 A |
| Overload Limit (Hiccup mode) (max. 5 s) | LDC480-24 | 30 A |
| | LDC480-36 | 20 A |
| | LDC480-48 | 17 A |
| | LDC480-72 | 12 A |
| Load Regulation | LDC480-24 | ≤ 1.5 % |
| | LDC480-36 | ≤ 1.0 % |
| | LDC480-48 / LDC480-72 | ≤ 0.5 % |
| Ripple & Noise ¹ | LDC480-24 | ≤ 150 mVpp |
| | LDC480-36 / LDC480-48 | ≤ 200 mVpp |
| | LDC480-72 | ≤ 350 mVpp |
| Hold up Time | LDC480-24 / LDC480-48 / LDC480-72 | ≥ 25 ms |
| | LDC480-36 | ≥ 20 ms |
| Protections | Overload, short circuit, with constant current or hiccup mode (user settable) | |
| | Thermal protection | |
| | Input undervoltage lockout | |
| Output Over Voltage Protection | Output overvoltage | |
| | LDC480-24 | ≥ 33 VDC |
| | LDC480-36 | ≥ 51 VDC |
| | LDC480-48 | ≥ 68 VDC |
| Status Signals | LDC480-72 | ≥ 100 VDC |
| | DC OK - green LED | |
| | OVERLOAD - red LED | |
| Parallel Connection ² | DC OK - dry contact (NO, 24 VDC / 1 A) | |
| | Possible for power or redundancy (with external ORing module) | |
| Efficiency | P (models) - include internal ORing circuit | |
| | LDC480-24 | > 93% |
| Dissipated Power | LDC480-36 / LDC480-48 / LDC480-72 | > 94% |
| | LDC480-24 | < 36.5 W |
| | LDC480-36 | < 32.5 W |
| | LDC480-48 / LDC480-72 | < 31 W |

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

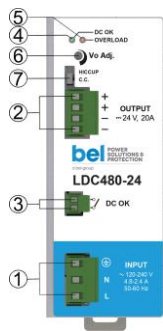
² Pay attention, set the current limitation mode jumper on C.C. mode when connecting more units in parallel.

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 at 120 VAC or up to 60°C at 240 VAC (Start-up type tested: - 40°C with load derating) | - 40° to + 70°C |
| Storage Temperature | | - 40° to + 80°C |
| Derating | | - 7.6 W / °C over 50°C at 120 VAC - 7.2 W / °C over 60°C at 240 VAC |
| Humidity | Non condensing | 5 - 95% RH |
| Life Time Expectancy | At 25°C ambient, full load | 167 953 h (19.1 years) |
| MTBF | MIL-HDBK-217F; at 25°C ambient full load | > 600 000 h |
| Overvoltage Category | EN50178 | III |
| Pollution Degree | IEC60664-1 | 2 |
| Protection Class | | Class I |
| Isolation Voltage | Input to Output Input to Ground Output to Ground | 4.2 kVDC 2.2 kVDC 0.75 kVDC |
| Safety Standards & Approvals | UL508 (certified) EN60950 (reference) EN50178 (reference) | |
| EMC Standards | Emission | Class B Class B Class A |
| | Immunity | Level 3 Level 3 Level 4 Level 4 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 |

5. PIN LAYOUT & 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 | Red LED: Overload |
| 6 | Output voltage adjustment |
| 7 | Selectable limitation mode (Hiccup mode, C.C. mode) |

| INPUT CONNECTION | OUTPUT CONNECTION |
|-------------------------------------------------------------------|-----------------------------------------------|
| Single phase: L = Line N = Neutral ⊕ = Earth ground | + = Positive DC - = Negative DC |
| DC: L = + Positive DC N = - Negative DC ⊕ = Earth ground | Signaling: DC OK: dry contact NO COM |

6. MECHANICAL SPECIFICATIONS

| PARAMETER | DESCRIPTION / CONDITION | SPECIFICATION |
|------------------------|------------------------------------|-----------------------------|
| Weight | | 1.1 kg |
| Dimensions (W x H x D) | | 56 x 140 x 117 mm |
| Mounting Rail | | IEC 60715/H15/TH35-7.5(-15) |
| Connection Terminals | Screw type pluggable (24 - 12 AWG) | 2.5 mm ² |
| Case Material | Aluminum | |

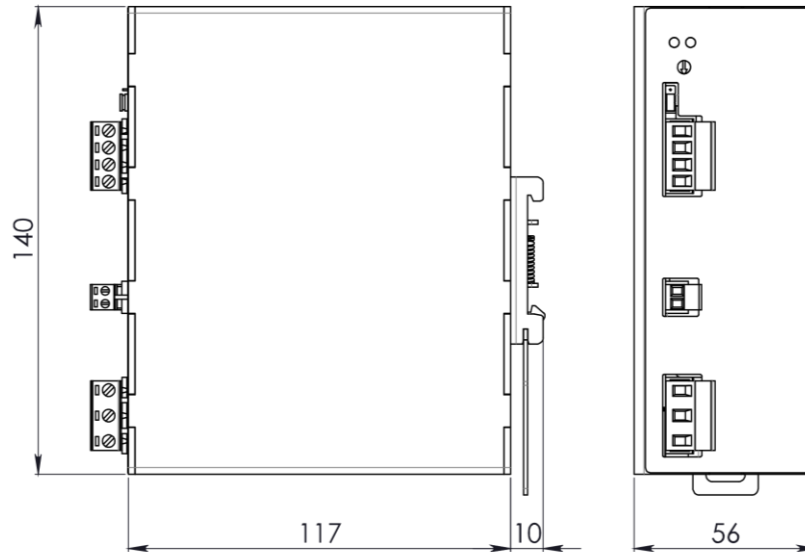


Figure 1. Mechanical Drawing

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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