

LDB120 Series

120W Integrated DIN Rail Switching Power Supply Battery Charger / DC UPS

LDB120 Series is a single phase 120 W integrated DIN Rail Battery Charger / DC UPS Power Supplies, suitable for wide variety of industrial applications.

In case of mains or unit failure the DC UPS function enables the power supply to feed the load from the battery without any interruption, until the mains is recovered or the battery reaches the “Deep Discharge Voltage” threshold.

These units have received excellent market approval for their high efficiency, excellent reliability and compactness. Simple but elegant look and easy installation make them market leaders for various industrial applications.

LDB120 Series are 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

- Input: 120 - 240 VAC
- Output: 12 or 24 VDC model dependent
- To be used with Lead Acid batteries or LiFePO4 batteries (only models compatible with Lead Acid batteries)
- Efficiency up to 86%
- Economic solution for general purpose applications



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1. MODEL SELECTION

| MODEL | INPUT VOLTAGE | # of PHASES | OUTPUT VOLTAGE | OUTPUT CURRENT |
|-----------|-------------------------------|-------------|----------------|----------------|
| LDB120-12 | 120 - 240 VAC (140 - 345 VDC) | 1 | 12 VDC | 7 A |
| LDB120-24 | 120 - 240 VAC (140 - 345 VDC) | 1 | 24 VDC | 5 A |

2. INPUT SPECIFICATIONS

| PARAMETER | DESCRIPTION / CONDITION | SPECIFICATION |
|--------------------------------|---|--------------------------------|
| Input AC Voltage Range | Rated | 120 - 240 VAC |
| | Operating | 100 - 264 VAC |
| Input DC Voltage Range | Rated | 140 - 345 VDC |
| Input Frequency | | 47 - 63 Hz |
| Input AC Current | V _{in} = 120 VAC | 2.0 A |
| | V _{in} = 240 VAC | 1.1 A |
| Input DC Current | V _{in} = 140 VDC | 1.0 A |
| | V _{in} = 345 VDC | 0.5 A |
| Inrush Peak Current | | < 40 A |
| Internal Protection Fuse | Not user replaceable | Fuse 3.15AT / 250 VAC |
| External Protection on AC Line | It is strongly recommended to provide external surge arresters (SPD) according to local regulations | Fuse AT 4 A or MCB 4 A C curve |

3. OUTPUT SPECIFICATIONS

| PARAMETER | DESCRIPTION / CONDITION | SPECIFICATION | |
|--|---|---------------------------|---------|
| Output Power | | 120 W | |
| Rated Voltage (Adjustable Voltage Range) | LDB120-12 (to be set at 14 VDC for battery charging) | 12 VDC (12 - 15 VDC) | |
| | LDB120-24 (to be set at 27 VDC for battery charging) | 24 VDC (23 - 28 VDC) | |
| Continuous Current | LDB120-12 | 7 A | |
| | LDB120-24 | 5 A | |
| Overload Limit | LDB120-12 | 11.5 A | |
| | LDB120-24 | 6.5 A | |
| Short Circuit Peak Current | LDB120-12 | > 20 A / 40 ms | |
| | LDB120-24 | > 16 A / 80 ms | |
| Load Regulation | | ≤ 1% | |
| Ripple & Noise | | ≤ 100 mVpp | |
| Hold up Time | LDB120-12 | V _{in} = 120 VAC | > 10 ms |
| | | V _{in} = 240 VAC | > 60 ms |
| | LDB120-24 | V _{in} = 120 VAC | > 10 ms |
| | | V _{in} = 240 VAC | > 55 ms |
| Status Signals | LOAD ON BATTERY: red LED and dry contact (1 A / 30 V) LOAD ON PSU: green LED and dry contact (1 A / 30 V) | | |
| Output Protections | Hiccup at the overload limit with auto reset Over temperature Overvoltage | | |
| Battery Protection | Against short-circuit with resettable fuse (9 A) Against reverse polarity connection Against deep discharge | | |
| Output Over Voltage Protection | LDB120-12 | Active > 18 VDC | |
| | LDB120-24 | Active > 33 VDC | |
| Deep Discharge Cut-Off Voltage | LDB120-12 | 9 VDC ± 0.5 V | |
| | LDB120-24 | 18 VDC ± 0.5 V | |
| Parallel Connection | | Not Recommended | |
| Efficiency | LDB120-12 | > 83.5% | |
| | LDB120-24 | > 86% | |
| Dissipated Power | LDB120-12 | < 21 W | |
| | LDB120-24 | < 20 W | |

| Battery Information | | |
|----------------------|------------------------|--------------------------------|
| Rated Voltage | LDB120-12 LDB120-24 | 12 - 14.4 VDC 24 - 28.8 VDC |
| Max Charging Current | | 0.8 A |

4. ENVIRONMENTAL, EMC & SAFETY SPECIFICATIONS

| PARAMETER | DESCRIPTION / CONDITION | SPECIFICATION | |
|------------------------------|--|---|---------|
| Operating Temperature | Overtemperature protection (Start-up type tested: - 40°C ¹) | - 40 to + 70°C | |
| Storage Temperature | | - 40 to + 80°C | |
| Derating | LDB120-12 LDB120-24 | - 0.6 W/°C over 45°C - 0.96 W/°C over 45°C | |
| Humidity | Non-condensing | 5 - 95% RH | |
| Overvoltage Category | | III | |
| Pollution Degree | | 2 (IEC 664-1) | |
| Isolation Voltage | Input to Output Input to Ground Output to Ground | 4.2 kVDC 2.2 kVDC 0.75 kVDC | |
| Safety Standards & Approvals | UL508 (reference) EN60950 (reference) | | |
| EMC Standards | Emission | EN55022:2010 (CISPR22) | Class A |
| | | EN55011:2009 /A1:2010 | Class A |
| | Immunity | EN61000-4-2:2008 | Level 3 |
| | | EN61000-4-3:2006 /A2:2010 | Level 2 |
| | | EN61000-4-4:2012 | Level 2 |
| | | EN61000-4-5:2014 | Level 3 |
| | | EN61000-4-11:2004 /A1:2010 | Level 2 |
| Protection Degree | EN60529:1989 / A:2013 | IP20 | |
| Vibration sinusoidal | IEC 60068-2-6:2007 | 5-17.8 Hz: ±1.6 mm; 17.8-500 Hz: 2g 2Hours / axis (X,Y,Z) | |
| Shock | IEC 60068-2-27:2008 | 30 g 6 ms, 20 g 11 ms; 3 bumps / direction, 18 bumps total | |

¹ Possible at nominal voltage with load deration.

NOTES:

- Technical parameters are typical, measured in laboratory environment at 25°C and 240 VAC / 50 Hz.
- Power rating, losses, efficiency, ripple, thermal behaviour and start-up may change outside of the nominal rated input range. Contact factory for details.
- Data may change without prior notice in order to improve the product.

5. MECHANICAL SPECIFICATIONS

| PARAMETER | DESCRIPTION / CONDITION | SPECIFICATION |
|----------------------|--------------------------|-----------------------------|
| Weight | | 500 g |
| Dimensions | | 54 x 115 x 110 mm |
| Mounting Rail | | IEC 60715/H15/TH35-7.5(-15) |
| Connection Terminals | Screw type (24 - 12 AWG) | 2.5 mm ² |
| Case Material | Aluminum | |



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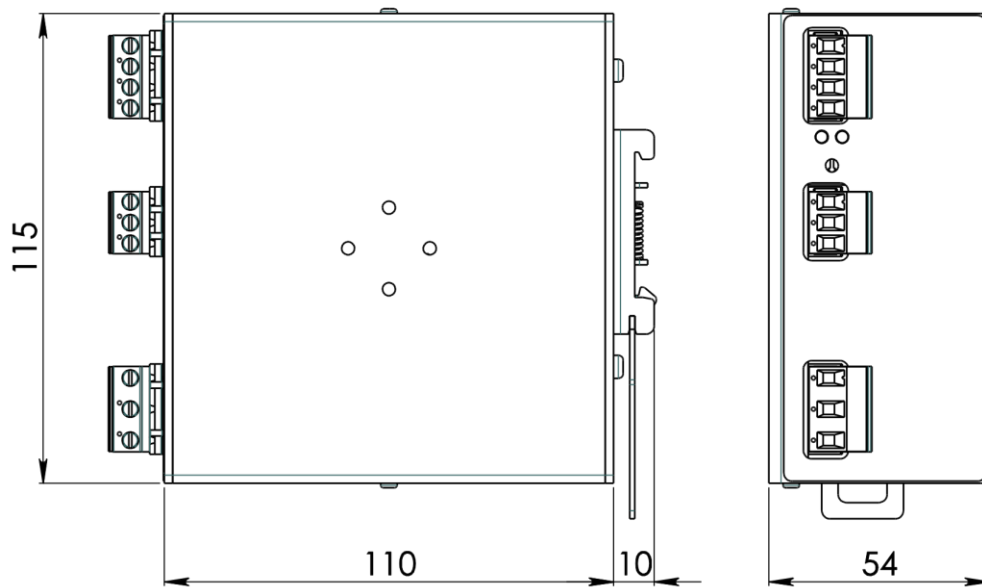


Figure 1. Mechanical Drawing

6. PIN LAYOUT & DESCRIPTION



| INPUT CONNECTION | OUTPUT CONNECTION |
|---|---|
| Single phase: L = Line N = Neutral ⊕ = Earth ground | <ul style="list-style-type: none"> ▪ LOAD (+/-) = connect to DC (+/-) Load ▪ BATTERY (+/-) = connect to Battery (+/-) ▪ PS ON PSU = dry contact NC ▪ LOAD ON BATTERY = dry contact NO |
| DC: L = + Positive DC N = - Negative DC ⊕ = Earth ground | |

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.