

# LDB120 Series

## 120W Basic DIN Rail Power Supply Battery Charger / DC UPS Module

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 lithium batteries (compatible with Lead Acid batteries)
- Efficiency up to 86%
- Economic solution for general purpose applications
- Instantaneous LOAD switch BACKUP mode



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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

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 Operating	120 - 240 VAC 100 - 264 VAC
Input DC Voltage Range	Rated	140 - 345 VDC
Input Frequency		47 - 63 Hz
Input AC Current	Vin = 120 VAC Vin = 240 VAC	2.0 A 1.1 A
Input DC Current	Vin = 140 VDC Vin = 345 VDC	1.0 A 0.5 A
Inrush Peak Current		≤ 40 A
Touch (Leakage) Current		≤ 0.6 mA
Internal Protection Fuse	Not user replaceable	Fuse 3.15 AT
Recommended External Protection	It is strongly recommended to provide external surge arresters (SPD) according to local regulations	Fuse 4 AT 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) LDB120-24 (to be set at 27 VDC for battery charging)	12 VDC (12 – 15 VDC) 24 VDC (23 – 28 VDC)
Continuous Current	LDB120-12 LDB120-24	7 A 5 A
Overload Limit	LDB120-12 LDB120-24	11.5 A 6.5 A
Short Circuit Peak Current	LDB120-12 LDB120-24	> 20 A / 40 ms > 16 A / 80 ms
Load Regulation		≤ 1%
Ripple & Noise <sup>1</sup>		≤ 100 mVpp
Hold up Time	LDB120-12 LDB120-24	Vin = 120 VAC ≥ 10 ms Vin = 240 VAC ≥ 80 ms Vin = 120 VAC ≥ 10 ms Vin = 240 VAC ≥ 55 ms
Protections	Overload/short circuit: Hiccup mode Thermal protection Output overvoltage	
Output Overvoltage Protection (Active)	LDB120-12 LDB120-24	≥ 18 VDC ≥ 33 VDC
Battery Protections	Against short-circuit with resettable fuse (9 A) Against reverse polarity connection Against deep discharge	
Deep Discharge Cut-Off Voltage	LDB120-12 LDB120-24	9 VDC ± 0.5 V 18 VDC ± 0.5 V
Status Signals	LOAD ON PSU - green LED LOAD ON BATTERY - amber LED Dry contact (SPDT, 24 VDC / 1 A)	

Parallel Connection	Not Recommended	
Efficiency	LDB120-12	> 83.5%
	LDB120-24	> 86%
Dissipated Power	LDB120-12	< 21 W
	LDB120-24	< 20 W
<b>Battery Information</b>		
Rated Voltage	LDB120-12	12 - 14.4 VDC
	LDB120-24	24 - 28.8 VDC
Max Charging Current	0.8 A	

<sup>1</sup> 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	Overtemperature protection (Start-up type tested: - 40°C <sup>2</sup> )	- 40 to + 70°C	
Storage Temperature		- 40 to + 80°C	
Derating	LDB120-12	- 0.75 W/°C over 50°C	
	LDB120-24	- 1.2 W/°C over 50°C	
Humidity	Non-condensing	5 - 95% RH	
Overvoltage Category		III (EN50178)	
Pollution Degree		2 (IEC60664-1)	
Protection Class		Class I	
Isolation Voltage	Input to Output	4.2 kVDC	
	Input to Ground	2.2 kVDC	
	Output to Ground	0.75 kVDC	
Safety Standards & Approvals	UL508 (reference)		
	EN60950 (reference)		
	EN50178 (reference)		
EMC Standards	Emission	Class A	
	Immunity	EN55022 (CISPR22)	Class A
		EN55011 (CISPR11)	Level 3
		EN61000-4-2	Level 2
		EN61000-4-3	Level 2
		EN61000-4-4	Level 3
EN61000-4-5	Level 2		
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: 2g 2Hours / axis (X,Y,Z)	
Shock	IEC 60068-2-27	30 g 6 ms, 20 g 11 ms; 3 bumps / direction, 18 bumps total	

<sup>2</sup> Possible at nominal voltage with load deration.

## 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 pluggable (24 - 12 AWG)	2.5 mm <sup>2</sup>
Case Material	Aluminum	



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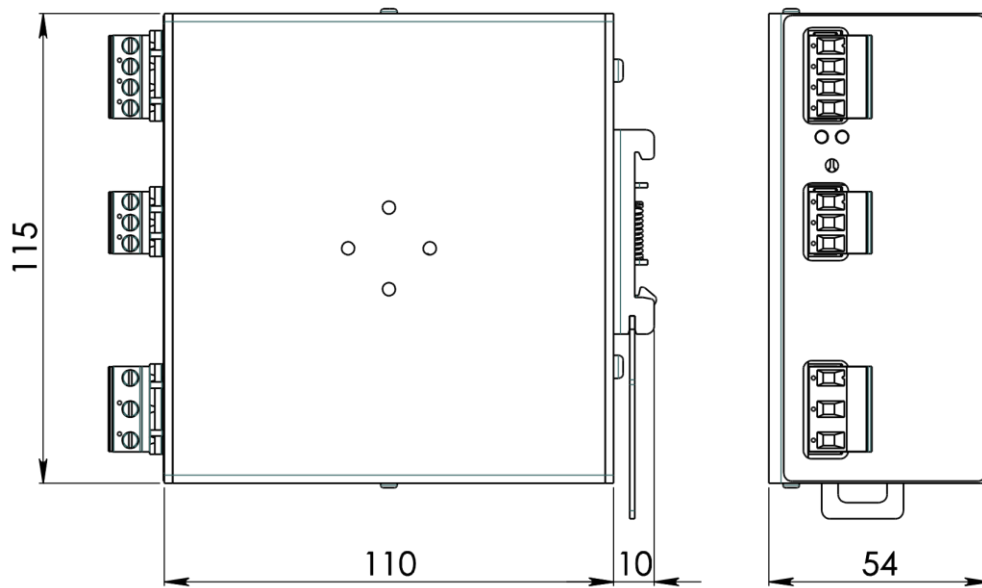


Figure 1. Mechanical Drawing

## 6. PIN LAYOUT & DESCRIPTION



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

For more information on these products consult: [tech.support@psbel.com](mailto: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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