

LDD120 Series

120W DIN Rail DC-DC Converter

The LDD family of DC/DC converters is an optimal response to the applications where compactness and high reliability are requested. All are isolated and offer a wide range of input voltages.

Simple but elegant look and ease of installation due to pluggable connectors make them market leaders for various industrial applications. LDD240 is targeted for railway applications.



Key Features & Benefits

- Compact Design
- Wide Range of Input Voltages
- 2.2 kV Isolated I/O
- Class I Isolation suitable for SELV and PELV circuitry
- High Reliability
- + 25% Overload Capacity
- Pluggable Terminals
- Short Circuit, Overload, Over Temperature Protection

Applications

- Industrial machine control
- Process control
- Energy management
- Remote control systems
- Railway Applications



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1. MODEL SELECTION

MODEL	INPUT VOLTAGE	INPUT CURRENT	OUTPUT VOLTAGE	OUTPUT CURRENT
LDD120-1212	12 VDC (10.5 - 18 VDC)	14 A - 8.0 A	12 VDC (12 - 15 VDC)	7 A
LDD120-1224	12 VDC (10.5 - 18 VDC)	15.5 A - 9.0 A	24 VDC (23 - 27.5 VDC)	5 A
LDD120-1248	12 VDC (10.5 - 18 VDC)	15.5 A - 9.0 A	48 VDC (45 - 55 VDC)	2.5 A
LDD120-2412	24 VDC (18 - 36 VDC)	7.5 A - 3.8 A	12 VDC (12 - 15 VDC)	7 A
LDD120-2424	24 VDC (18 - 36 VDC)	8.5 A - 4.3 A	24 VDC (23 - 27.5 VDC)	5 A
LDD120-4812	48 VDC (36 - 72 VDC)	4.5 A - 2.5 A	12 VDC (12 - 15 VDC)	8 A
LDD120-4824	48 VDC (36 - 72 VDC)	4.3 A - 2.2 A	24 VDC (23 - 27.5 VDC)	5 A

2. INPUT SPECIFICATIONS

Specifications are measured at 25°C, at nominal input voltage, unless otherwise stated.

PARAMETER	DESCRIPTION / CONDITION	SPECIFICATION
Input Voltage	LDD120-1212 / LDD120-1224 / LDD120-1248	12 VDC (10.5 - 18 VDC)
	LDD120-2412 / LDD120-2424	24 VDC (18 - 36 VDC)
	LDD120-4812 / LDD120-4824	48 VDC (36 - 72 VDC)
	LDD120-1212	Uin = Min 14 A Uin = Max 8.0 A
	LDD120-1224 / LDD120-1248	Uin = Min 15.5 A Uin = Max 9.0 A
	LDD120-2412	Uin = Min 7.5 A Uin = Max 3.8 A
	LDD120-2424	Uin = Min 8.5 A Uin = Max 4.3 A
Input DC Current	LDD120-4812	Uin = Min 4.5 A Uin = Max 2.5 A
	LDD120-4824	Uin = Min 4.3 A Uin = Max 2.2 A
	LDD120-1212 / LDD120-1224 / LDD120-1248	19 VDC active shutdown
	LDD120-2412 / LDD120-2424	38 VDC active shutdown
Input Overvoltage Protection	LDD120-4812 / LDD120-4824	76 VDC active shutdown
	LDD120-1212 / LDD120-1224 / LDD120-1248	Fuse AT 20 A / 250 VAC
Internal Protection Fuse	LDD120-2412 / LDD120-2424	Fuse AT 10 A / 250 VAC
	LDD120-4812	Fuse AT 8 A / 250 VAC
	LDD120-4824	Fuse AT 5 A / 250 VAC
	LDD120-1212 / LDD120-1224 / LDD120-1248	> MCB 25 A C curve
External Protection on DC Line (use DC rated devices)	LDD120-2412 / LDD120-2424	> MCB 13 A C curve
	LDD120-4812 / LDD120-4824	> MCB 6 A C curve
	LDD120-1212 / LDD120-1224 / LDD120-1248	> MCB 25 A C curve

3. OUTPUT SPECIFICATIONS

PARAMETER	DESCRIPTION / CONDITION	SPECIFICATION
Output Power		120 W
Rated Voltage (Adjustable Voltage Range)	LDD120-1212	12 VDC (12 - 15 VDC)
	LDD120-1224	24 VDC (23 - 27.5 VDC)
	LDD120-1248	48 VDC (45 - 55 VDC)
	LDD120-2412	12 VDC (12 - 15 VDC)
	LDD120-2424	24 VDC (23 - 27.5 VDC)
	LDD120-4812	12 VDC (12 - 15 VDC)
	LDD120-4824	24 VDC (23 - 27.5 VDC)

Continuous Current	LDD120-1212	7 A
	LDD120-1224	5 A
	LDD120-1248	2.5 A
	LDD120-2412	7 A
	LDD120-2424	5 A
	LDD120-4812	8 A
Overload Limit	LDD120-4824	5 A
	LDD120-1212	9.0 A
	LDD120-1224	7.0 A
	LDD120-1248	3.3 A
	LDD120-2412	9.0 A
	LDD120-2424	6.5 A
Short Circuit Peak Current	LDD120-4812	12 A
	LDD120-4824	6.5 A
	LDD120-1212 / LDD120-1224	11.5 A
	LDD120-1248	5.8 A
	LDD120-2412	14 A
	LDD120-2424	10 A
Load Regulation	LDD120-4812	20 A
	LDD120-4824	12 A
Ripple & Noise	LDD120-1212 / LDD120-1224 / LDD120-1248 / LDD120-2412 / LDD120-2424 / LDD120-4812	≤ 0.5%
	LDD120-4824	≤ 1.5%
	LDD120-1212 / LDD120-1224 / LDD120-1248	≤ 20 mVpp
	LDD120-2412	≤ 50 mVpp
	LDD120-2424	≤ 20 mVpp
	LDD120-4812	≤ 20 mVpp
Hold up Time	LDD120-4824	≤ 30 mVpp
	LDD120-1212	> 4 ms
	LDD120-1224 / LDD120-1248 / LDD120-2412 / LDD120-2424	> 3 ms
	LDD120-4812	> 5 ms
	LDD120-4824	> 6 ms
	LDD120-1212	> 18 VDC
Output Over Voltage Protection	LDD120-1224	> 33 VDC
	LDD120-1248	> 68 VDC
	LDD120-2412	> 18 VDC
	LDD120-2424	> 33 VDC
	LDD120-4812	> 18 VDC
	LDD120-4824	> 33 VDC
Parallel Connection	Possible with external ORing diode	
Protections	Hiccup at the overload limit with auto reset Over temperature Overvoltage	
Status Signals	Green LED = DC OK Red LED = Overload Dry contact (1 A / 30 V)	
Efficiency	LDD120-1212	> 81%
	LDD120-1224	> 82%
	LDD120-1248	> 83%
	LDD120-2412	> 86%
	LDD120-2424	> 86%
	LDD120-4812	> 89%
Dissipated Power	LDD120-4824	> 89%
	LDD120-1212	< 20 W
	LDD120-1224	< 25 W
	LDD120-1248	< 24 W
	LDD120-2412	< 14 W
	LDD120-2424	< 20 W
	LDD120-4812	< 15 W
	LDD120-4824	< 16 W

Note:

Technical parameters are typical, measured in laboratory environment at 25°C and nominal Input voltage
Power rating, losses, efficiency, ripple, thermal behaviour may change outside of the nominal rated input range.
Data may change without prior notice in order to improve the product

4. ENVIRONMENTAL, EMC & SAFETY SPECIFICATIONS

PARAMETER	DESCRIPTION / CONDITION	SPECIFICATION
Operating Temperature	Overtemperature protection (Start-up type tested: - 40°C ¹)	- 40 to + 70°C
Derating		- 3 W/°C over 50°C
Storage Temperature		- 40 to + 70°C
Humidity	Non-condensing	5 - 95% RH non condensing
Life time expectation		64000h (7.3 years) at 25°C ambient
Overvoltage Category		III
Pollution Degree		2 (IEC 664-1)
Isolation Voltage	Input to Output Input to Ground Output to Ground	2.1 kVDC 1.41 kVDC 0.75 kVDC
Safety Standards & Approvals	UL508 (reference) EN60950 (reference)	
EMC Standards	Emission	EN55022:2010 (CISPR22) EN55011:2009/A1:2010 EN61000-4-2:2008
		Class A Class A Level 3
	Immunity	EN61000-4-3:2006 /A2:2010 EN61000-4-4:2012 EN61000-4-5:2014
		Level 3 Level 2 Level 2
		EN61000-4-11:2004 /A1:2010 Level 2
Protection Degree	EN60529:1989 / A:2013	IP20
Vibration sinusoidal	IEC 60068-2-6:2007 (5-17.8Hz: ±1.6mm; 17.8-500Hz: 2g 2Hours / axis (X,Y,Z)	
Shock	IEC 60068-2-27:2008 (30g 6ms, 20g 11ms; 3 bumps / direction, 18 bumps total)	

5. MECHANICAL SPECIFICATIONS

PARAMETER	DESCRIPTION / CONDITION	SPECIFICATION
Weight		500 g
Dimensions		54.0 x 115.0 x 110.0 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	

¹ Possible at nominal voltage with load deration.

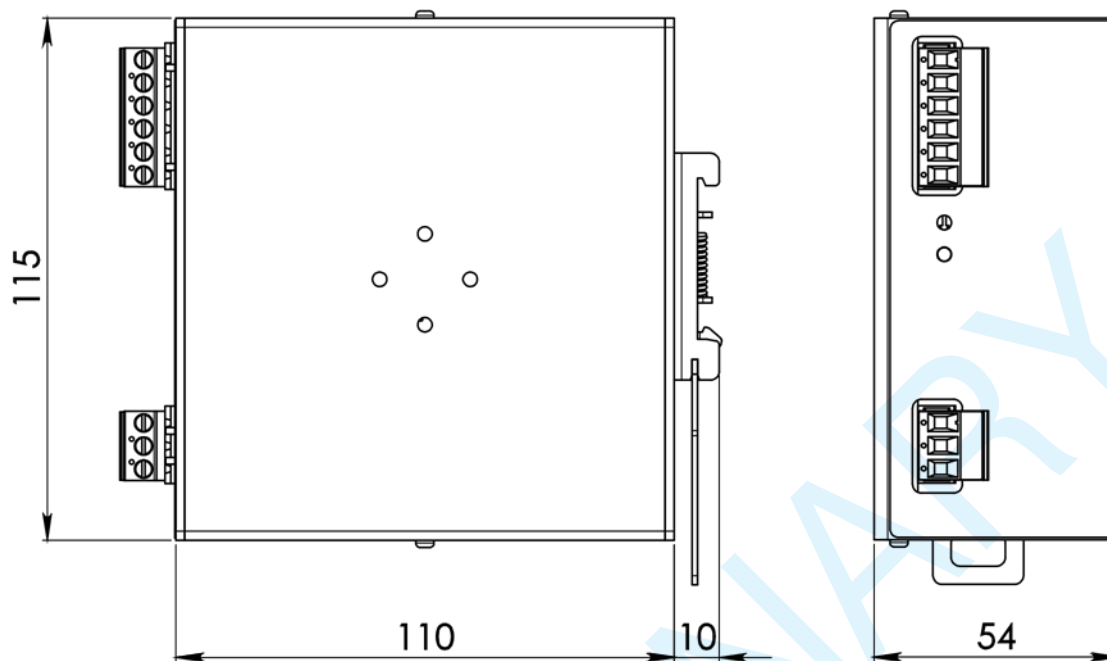
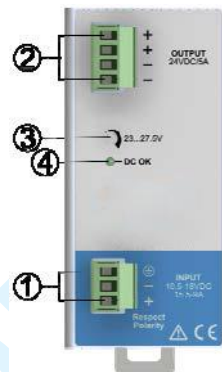


Figure 1. Mechanical Drawing

6. PIN LAYOUT & DESCRIPTION



PIN	DESCRIPTION
1	DC input
2	DC output (Load)
3	Output voltage adjustment
4	Green LED: Output OK

INPUT CONNECTION	OUTPUT CONNECTION
+ = Positive DC	+ = Positive DC
- = Negative DC	- = Negative DC
I = 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.