LDD240-WU

240W DIN Rail DC-DC Converter
Wide Input with Programmable Output

This LDD240-WU DC/DC converter is the optimal response to the applications where compactness and high reliability are requested. It is isolated and offers a wide range of input and output voltages.

Simple but elegant look and ease of installation make it ideal for various industrial applications.

RoHS Compliant

Key Features & Benefits

- Up to 240 W output power (voltage dependent)
- Converts any voltage between 11 V and 55 V to any voltage between 5 V and 55 V
- High efficiency and compact size
- Constant current or hiccup mode limitation, user settable
- Digital Power regulation
- Isolated topology (4.2 kVDC)
- Modbus over USB interface for control and monitoring
- Multiple protections integrated
- Parallelable for power or redundancy (integrated ORing circuitry)

Applications

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

1. MODEL SELECTION

MODEL	INPUT VOLTAGE	INPUT CURRENT	OUTPUT VOLTAGE	OUTPUT CURRENT
LDD240-WU	12 - 48 VDC (11 - 55 VDC)	12 A	5 – 55 VDC	10 A

2. INPUT SPECIFICATIONS

Technical parameters are typical, measured in laboratory environment at 25°C and 24 VDC input and output voltage, at nominal values, after minimum 5 minutes of operation.

PARAMETER	DESCRIPTION / CONDITION	SPECIFICATION
Input DC Voltage Range	Nominal UL Certified	12 - 48 VDC 11 - 55 VDC
Input DC Current	Rated	12 A
Protections	Input Overvoltage > 60 V active shutdown Reverse polarity Fuse 20 A mini ATO blade (not user replaceable)	
Recommended External Protection	Use DC rated devices	20 A Fuse or MCB 20 A C curve

3. OUTPUT SPECIFICATIONS

PARAMETER	DESCRIPTION / CONDITION	SPECIFICATION
Output Power		240 W
Rated Voltage / Adjustable Voltage Range		5 - 55 VDC
Continuous Current / Power		10 A / 240 W (see Figure 1)
Overload Limit in Constant Current Mode		11 A / 264 W (see Figure 1)
Overload Limit in Hiccup Mode (max. 5s)		15 A / 360 W (see Figure 1)
Short Circuit Peak Current		18 A
Load Regulation		≤ 4% @ 5 VDC, ≤ 2% @ 12 VDC, ≤ 1.5% @ ≥ 24 VDC
Ripple & Noise[1]		≤ 200 mVpp
Hold up Time		≥5 ms
Protections	Overload and short circuit: Constant current or Hiccup mode (user settable) Thermal protection Output overvoltage	
Output Over Voltage Protection		120% of Vout active self-tracking
User Interface	7 segment, 2 digit display 3 programming keys DC OK - dry contact (NO, 24 VDC / 1 A) Modbus over USB interface	
Parallel Connection[2]	Possible for power or redundancy with integrated ORing circuitry	
Efficiency		77% - 92% (depending on Vin / Vout)
Dissipated Power		< 28 W (depending on Vin / Vout)

[1] Ripple and Noise are measured with 20 MHz bandwidth, probe terminated with a 0.1 µF MKP parallel capacitor.
[2] Pay attention, set the operating mode to “parallel” when connecting more units in parallel, see Instruction Manual for details.

NOTE: Power rating, losses, efficiency, ripple, thermal behaviour and start-up may change outside of the nominal rated input range. Contact factory for details.

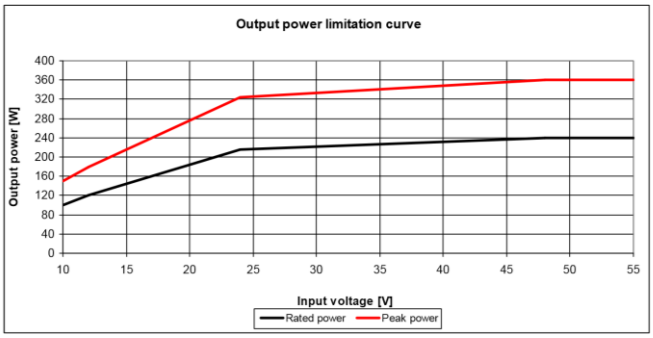
4. ENVIRONMENTAL, EMC & SAFETY SPECIFICATIONS

PARAMETER		DESCRIPTION / CONDITION	SPECIFICATION
Operating Temperature[3]		Overtemperature protection UL certified up to 60°C	- 40 to + 70°C
Storage Temperature			- 40 to + 80°C
Derating		Depending on Vin and Vout over 60°C (See Figure 2)	
Humidity		Non-condensing	5 - 95% RH
Life Time Expectancy		At 25°C ambient, full load	180 542 h (20.61 years)
MTBF		MIL-HDBK-217F	> 600'000h at 25°C ambient full load
Overvoltage Category Pollution Degree		EN50178 IEC60664-1	I 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 E356563) EN60950 (reference)	
EMC Standards	Emission	EN55022 (CISPR11) EN55011 (CISPR22)	Class B Class B
	Immunity	EN61000-4-2 EN61000-4-3 EN61000-4-4 EN61000-4-5	Level 3 Level 3 Level 2 Level 1
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

[3] Start-up type tested: - 40°C, possible at nominal voltage with load derating

5. MECHANICAL SPECIFICATIONS

PARAMETER	DESCRIPTION / CONDITION	SPECIFICATION
Weight		400 g
Dimensions		40 x 115 x 110 mm
Mounting Rail		IEC 60715/H15/TH35-7.5(-15)
Connection Terminals	Screw type pluggable (24 - 12 AWG)	2.5 mm²
Communication Interface Connector	Mini USB-B Type (virtual Com Port)	
Case Material	Aluminum	



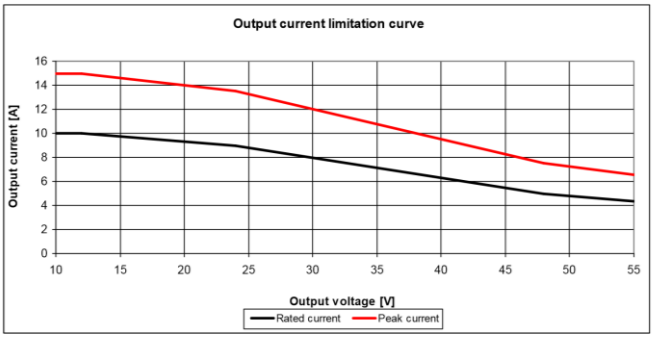
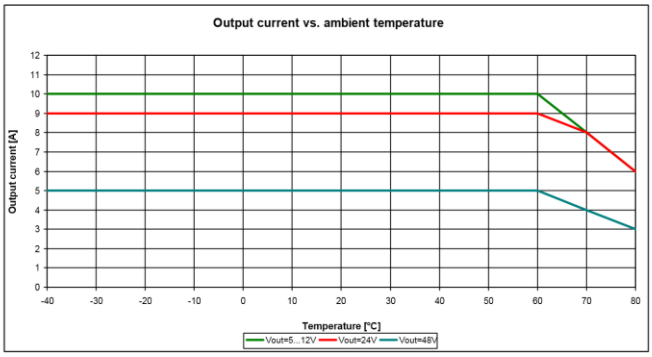


Figure 1. Limitation Curves



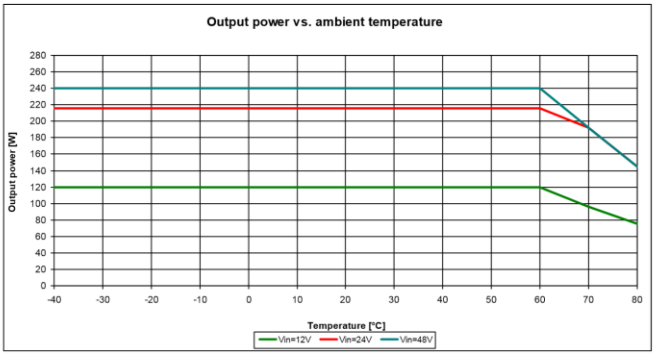


Figure 2. Temperature Derating Curves

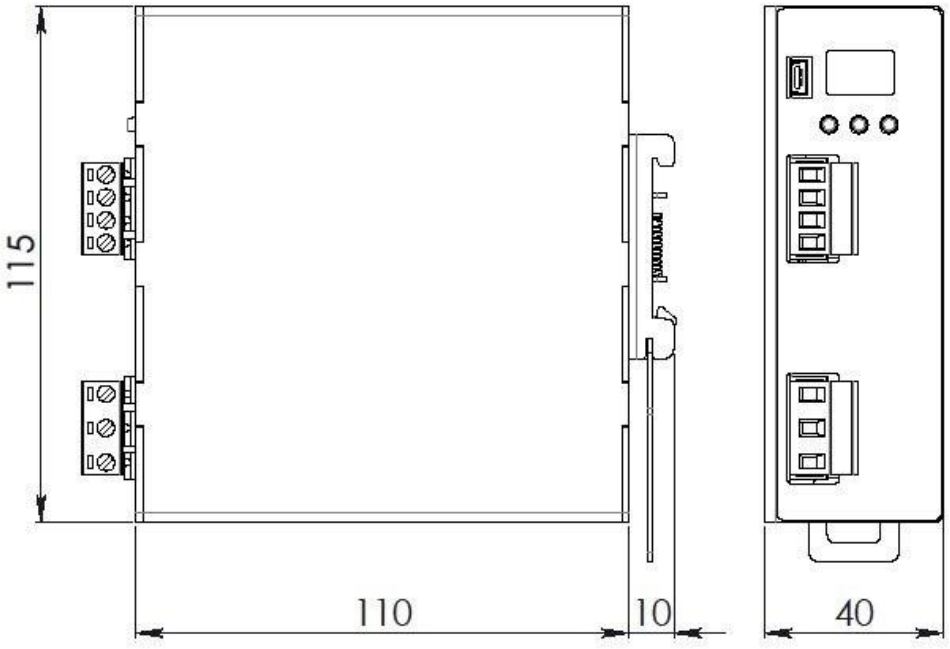
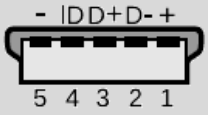


Figure 3. Mechanical Drawing

6. PIN LAYOUT & DESCRIPTION

INPUT CONNECTION	OUTPUT CONNECTION
+ = Positive DC - = Negative DC ⏚ = Earth ground	+ = Positive DC - = Negative DC
SIGNALING:	
DC OK (dry contact) NO COM	
MINI USB TYPE	
1 = VBUS (+5V) 2 = Data (D-) 3 = Data (D+) 4 = Not connected (ID) 5 = GND	

For more information on these products consult: tech.support@psbel.com

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