LDD240-WU

240 W DC-DC DIN Rail Converter 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 makes it ideal for various industrial applications.



FEATURES

- Output power up to 240 W (voltage dependent)
- Converts any voltage between 11 V and 55 V to any voltage between 5 V and 55 V
- Efficiency up to 92% (voltage dependent)
- Operating ambient temperature range -40°C to +70°C
- Constant current or hiccup mode limitation (user settable)
- Digital power regulation
- Isolated topology (2.2 kVDC)
- Modbus over USB interface for control and monitoring
- Multiple integrated protections
- Parallelable for power or redundancy (integrated ORing circuitry)
- Compact size in aluminum enclosure
- Dimensions: 40 x 115 x 110 mm

APPLICATIONS

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

1. MODEL SELECTION

MODEL	INPUT VOLTAGE RANGE	INPUT CURRENT	OUTPUT VOLTAGE	MAX OUTPUT CURRENT	EFFICIENCY [1]	MAX OUTPUT POWER
LDD240-WU	11 - 55 VDC	12 A	5 - 55 VDC	10 A	77 - 92 %	240 W

[1] *Depending on Vin/Vout*

2. INPUT SPECIFICATIONS.

PARAMETER	DESCRIPTION / CONDITIONS	SPECIFICATION
DC Input Voltage	Nominal Range (UL certified)	12 - 48 VDC 11 - 55 VDC
DC Input Current		12 A
Recommended External Protection	Use DC rated devices	Fuse 20 A or MCB 20 A C curve

3. OUTPUT SPECIFICATIONS

PARAMETER	DESCRIPTION / CONDITIONS	SPECIFICATION
Output Voltage (Adjustable)		5 - 55 VDC
Output Current (Continuous)	240 W, See *Figure 1.*	10 A
Load Regulation	@ 5 VDC @ 12 VDC @ ≥ 24 VDC	≤ 4.0 % ≤ 2.0 % ≤ 1.5 %
Ripple & Noise [2]		≤ 200 mVpp
Hold-up Time		≥ 5 ms
Parallel Connection [3]	Possible for power or redundancy with integrated ORing circuitry	

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

4. PROTECTIONS

PARAMETER	DESCRIPTION / CONDITIONS	SPECIFICATION
Input Over Voltage Protection	Active shutdown	> 60 V
Reverse Polarity Protection		
Fuse Protection	Mini ATO blade (not user replaceable)	20 A
Short Circuit Protection [4]	Constant current or Hiccup mode, Short circuit peak current	18 A
Output Overload Protection [4]	Constant current mode, Overload Limit, 264 W, See *Figure 1.* Hiccup mode, Overload Limit (max. 5 s), 360 W, See *Figure 1.*	11 A 15 A
Thermal Protection		
Output Over Voltage Protection	120% of Vout active self tracking	

[4] *User settable*

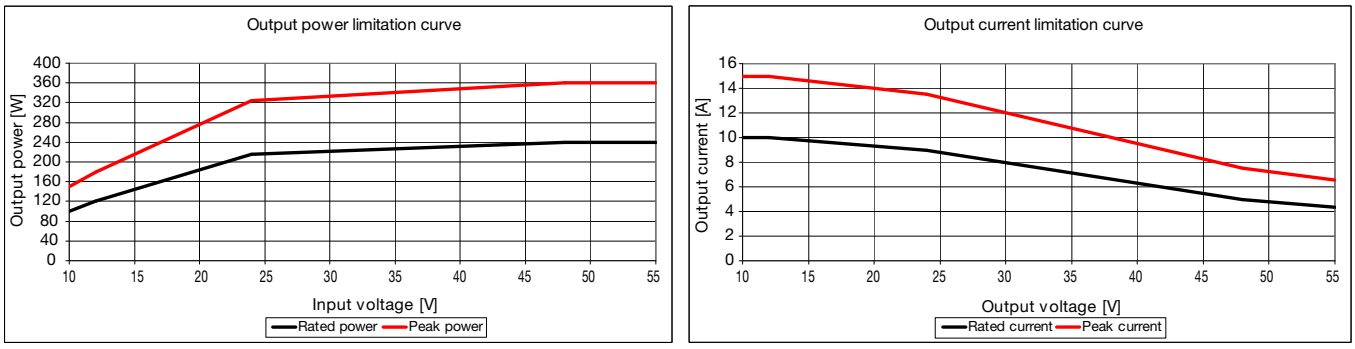


Figure 1. Voltage derating curves

5. USER INTERFACE, SIGNALLING & CONTROL

PARAMETER	DESCRIPTION / CONDITIONS
User Interface	7 segment, 2 digit display 3 programming keys DC OK - dry contact (NO, 24 VDC / 1 A) Modbus over USB interface
Measurement Precision	Output voltage: range: 5 - 55 V ± 1% ± 1 digit Output current: range: 0 - 16 A ± 3% ± 1 digit Input voltage: range: 10 - 52 V ± 3% ± 1 digit

6. ENVIRONMENTAL, EMC & SAFETY SPECIFICATIONS

PARAMETER	DESCRIPTION / CONDITIONS	SPECIFICATION
Operating Temperature	UL certified up to 60°C Start-up type tested: - 40°C, possible at Vnom with load deration.	-40 to +70 °C
Storage Temperature		-40 to +80 °C
Derating	Over 60°C, depending on Vin/Vout, see *Figure 2*	
Dissipated Power	Depending on Vin/Vout	< 28 W
Humidity	Non-condescending	5 - 95 % RH
Life Time Expectancy	Ta = 25°C, full load	180 542 (20.61) hrs (years)
MTBF	MIL-HDBK-217F at Ta = 25°C, full load	> 600 000 hrs
Overvoltage Category	EN 50178	I
Pollution Degree	IEC 60664-1	2
Protection Class	Class I	
Isolation	Input to Output Input to Ground Output to Ground	2.2 kVDC 2.2 kVDC 0.75 kVDC
Safety Standards & Approvals	UL 508 (certified) IEC/EN 61010-1 IEC/EN 61010-2-201 IEC/EN 60950	
EMC Emissions	EN 61000-6-3	
EMC Immunity	EN 61000-6-2	
Protection Degree	EN 60529	IP20
Vibration Sinusoidal	IEC 60068-2-6	5 - 17.8 Hz: ±1.6 mm; 17.8 - 500 Hz: 2 g, 2 hours / axis (X, Y, Z)
Shock	IEC 60068-2-27	30 g 6 ms, 20 g 11 ms; 3 bumps / direction, 18 bumps total

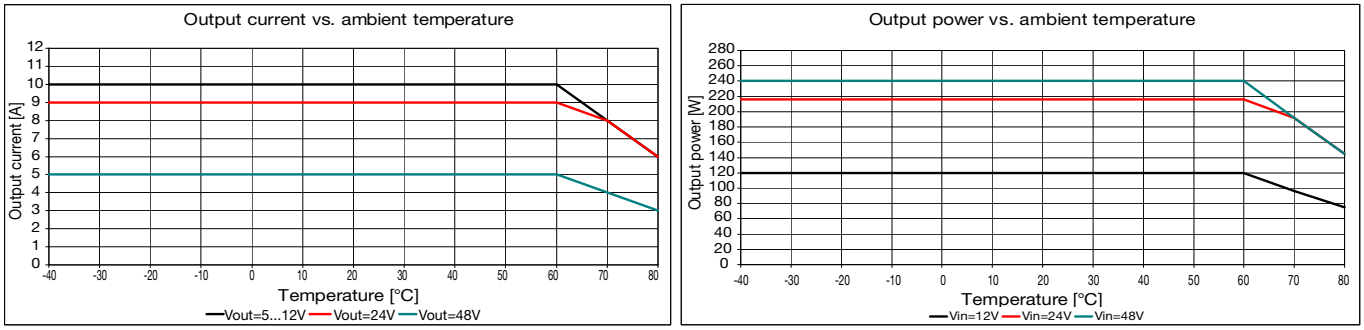


Figure 2. Temperature derating curves

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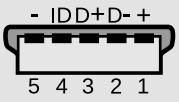
7. MECHANICAL SPECIFICATIONS

PARAMETER	DESCRIPTION / CONDITIONS	SPECIFICATION
Dimensions		40 x 115 x 110 mm 1.57 x 4.53 x 4.33 in
Weight		400 g
Mounting Rail	IEC 60715/H15/TH35-7.5(-15)	
IN/OUT Connection Terminals	Screw type pluggable (24 - 12 AWG)	2.5 mm²
Communication Interface Connector	Mini USB-B Type (virtual Com Port)	
Case Material	Aluminum	

8. PIN LAYOUT & DESCRIPTION



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



MECHANICAL DRAWING

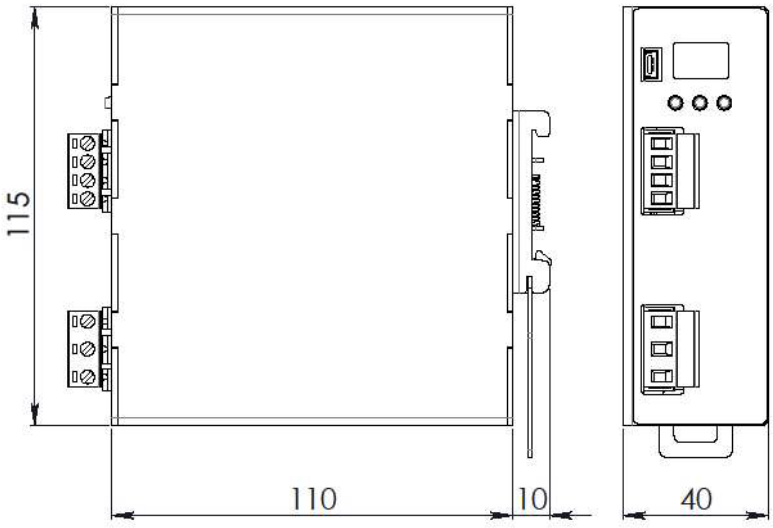


Figure 3. Mechanical Drawing

Notes:

Technical parameters are typical, measured in laboratory environment at 25°C and 24 VDC Vin/Vout, at nominal values, after min. 5 minutes of operation. Power rating, losses, efficiency, ripple, thermal behaviour and start-up may change outside of the nominal rated input range. Contact factory for details.

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.