LDN85 Series

85 W DIN Rail
Switching Power Supply

LDN85 Series are single phase DIN Rail Switching Power Supplies, ideal for home automation, simple automation in machines, survey systems, telecom, but also the renewable energy field.

Its compact size, high efficiency, excellent reliability and excellent power/volume ratio, together with easy installation due to pluggable connectors makes it ideal for various industrial and renewable applications.

LDN85 Series are Class I isolation devices designed to be mounted on DIN rail and installed inside a protective enclosure.

FEATURES

- Input voltage 90 - 264 VAC or 110 - 345 VDC
- Output voltage 5 V, 24 V (adjustable)
- Operating ambient temperature range -40°C to +70°C with no derating
- Efficiency up to 87%
- Overload 150%
- Compact size in aluminum enclosure
- Dimensions: 40 x 115 x 110 mm

APPLICATIONS

- Automation
- Survey systems
- Telecom
- Renewable

1. MODEL SELECTION

MODEL	INPUT VOLTAGE RANGE	OUTPUT VOLTAGE	MAX OUTPUT CURRENT	EFFICIENCY	REDUNDANCY	MAX OUTPUT POWER
LDN85-5	120 - 240 VAC (110 - 345 VDC)	5 V	8.5 A	75 %		85 W
LDN85-24	120 - 240 VAC (110 - 345 VDC)	24 V	3.5 A	88 %		85 W
LDN85-24P	120 - 240 VAC (110 - 345 VDC)	24 V	3.5 A	87 %	Internal ORing diode	85 W

Discontinued models

2. INPUT SPECIFICATIONS

PARAMETER		DESCRIPTION / CONDITIONS	SPECIFICATION
AC Input Voltage		Nominal (UL certified) Range	100 - 240 VAC 90 - 264 VAC
DC Input Voltage			110 - 345 VDC
Input Frequency			47 - 63 Hz
AC Input Current	Vin = 120 VAC Vin = 240 VAC		1.0 A 1.5 A
DC Input Current	Vin = 110 VDC Vin = 345 VDC		0.6 A 0.9 A
Inrush Peak Current I^2t		Peak Current measured after 0.2 ms from main connection; 240 VAC / 50 Hz; Ta = 25°C; Cold Start	≤ 30 A 0.57 A^2s
Touch (Leakage) Current			≤ 0.45 mA
Internal Protection Fuse		Not user replaceable	2 AT
Recommended External Protection		It is strongly recommended to provide external surge arresters (SPD) according to local regulations.	Fuse 6 AT or MCB 6 A C curve

3. OUTPUT SPECIFICATIONS

PARAMETER	DESCRIPTION / CONDITIONS	SPECIFICATION
Output Voltage (Adjustable)	LDN85-5 LDN85-24 / LDN85-24P	4.75 - 5.25 VDC 23 - 28 VDC
Output Current (continuous)	LDN85-5 LDN85-24 / LDN85-24P	8.5 A 3.5 A
Load Regulation	LDN85-5 LDN85-24 LDN85-24P	≤ 3.5 % ≤ 1 % ≤ 2.5 %
Ripple & Noise	20 MHz BW probe terminated with a 0.1 µF MKP parallel capacitor	≤ 130 mVpp ≤ 50 mVpp
Hold-up Time	Vin = 120 VAC Vin = 240 VAC	≥ 15 ms ≥ 50 ms
Status Signals	DC OK - green LED DC OK - dry contact (NO, 24 VDC / 1 A)	
Parallel Connection	Possible for power or redundancy (with external ORing module) P models - include internal ORing diode	

4. PROTECTIONS

PARAMETER	DESCRIPTION / CONDITIONS		SPECIFICATION
Short Circuit Protection	Hiccup mode, Short circuit peak current	LDN85-5 / LDN85-24P LDN85-24	20 A 30 A
Overload Protection	Hiccup mode, Overload limit	LDN85-5 LDN85-24 / LDN85-24P	11 A 5 A
Thermal Protection			
Over Voltage Protection		LDN85-5 LDN85-24 / LDN85-24P	≥ 6.8 VDC ≥ 33 VDC

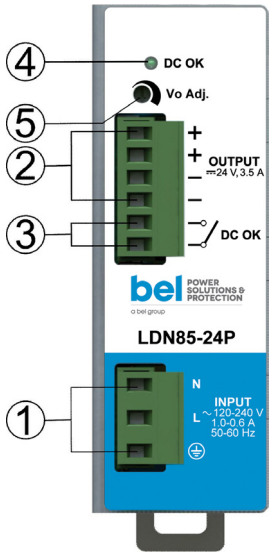
5. ENVIRONMENTAL, EMC & SAFETY SPECIFICATIONS

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	No derating up to 70°C		
Dissipated Power	LDN85-5 LDN85-24 LDN85-24P		< 14.5 W < 11.5 W < 12.5 W
Humidity	Non-condescending		5 - 95 % RH
Life Time Expectancy	Ta = 25°C, full load		138 640 (15.8) hrs (years)
MTBF	MIL-HDBK-217F at Ta = 25°C, full load		> 600 000 hrs
Overvoltage Category	EN 50178		III
Pollution Degree	IEC 60664-1		2
Protection Class	Class I		
Isolation	Input to Output Input to Ground Output to Ground		4.2 kVDC 2.2 kVDC 0.75 kVDC
Safety Standards & Approvals	UL 508 UL 61010-1 UL 61010-2-201 IEC/EN 61010-1 IEC/EN 61010-2-201		
EMC Emissions	EN 55011 / CISPR 11		Class A
EMC Immunity	EN 61000-4-2 EN 61000-4-3 EN 61000-4-4 EN 61000-4-5 EN 61000-4-6 EN 61000-4-8 EN 61000-4-11	Level 3 (Air), Level 2 (Contact) Level 3 (80 - 1000 MHz), Level 2 (1.4 - 6 GHz) Level 3 Level 3 Level 3 Level 4 Level 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

6. MECHANICAL SPECIFICATIONS

PARAMETER	DESCRIPTION / CONDITIONS	SPECIFICATION
Dimensions		40 x 115 x 110 mm 1.57 x 4.53 x 4.33 in
Weight		450 g
Mounting Rail	IEC 60715/H15/TH35-7.5(-15)	
Connection Terminals	Screw type pluggable (24 - 12 AWG)	2.5 mm²
Case Material	Aluminum	

7. PIN LAYOUT & DESCRIPTION



PIN	DESCRIPTION
1	AC/DC input
2	DC output (load)
3	Diagnostic Output (dry contact, NC output OK)
4	Green LED: Output OK
5	Output voltage adjustment

INPUT CONNECTION	**Single phase**	**DC Input**
	L = Line	L = + Positive DC
	N = Neutral	N = - Negative DC
	⏚ = Earth ground	⏚ = Earth ground
OUTPUT CONNECTION	+ = Positive DC - = Negative DC	
SIGNALLING	DC OK: dry contact • NO • COM	

8. MECHANICAL DRAWING

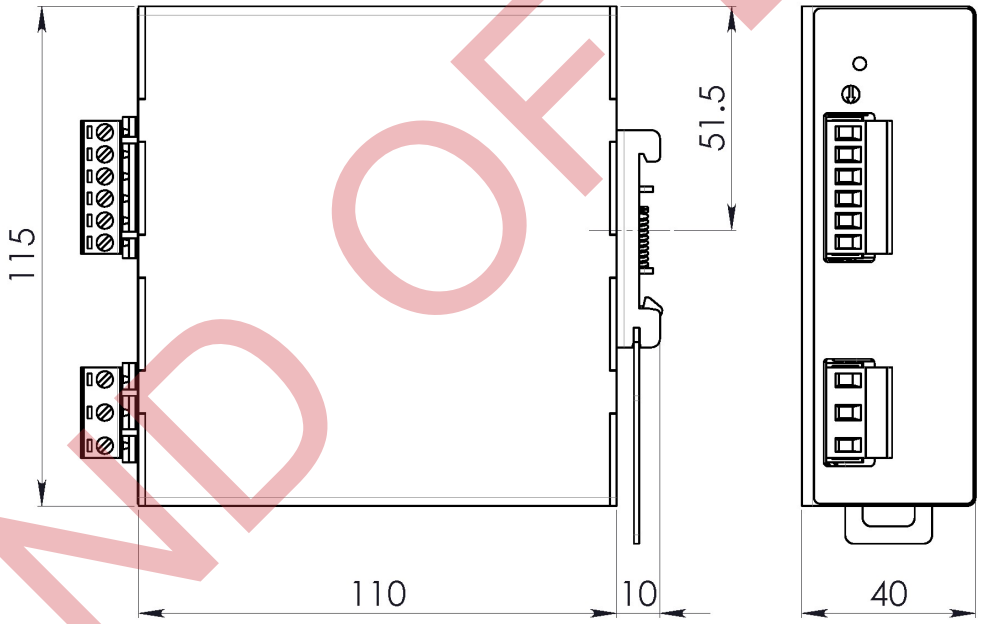


Figure 1. Mechanical Drawing

Notes:

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. 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.