

# LDN85 Series

## 85W 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 suitable for SELV and PELV circuitry and are designed to be mounted on DIN rail and installed inside a protective enclosure.



### Key Features & Benefits

- Single phase AC input 90 – 264 VAC (110 - 345 VDC)
- High efficiencies and in compact size
- 150% overload capability
- Only 40 mm width aluminum enclosure
- Short circuit, overload and over temperature protection
- Up to 70°C operating temperature with no derating
- RoHS Compliant

### Applications

- Automation
- Telecom
- Survey Systems
- Renewable

## 1. MODEL SELECTION

MODEL	INPUT VOLTAGE	# of PHASES	OUTPUT VOLTAGE	OUTPUT CURRENT
LDN85-5	120 - 240 VAC (110 - 345 VDC)	1	5 VDC	8.5 A
LDN85-24	120 - 240 VAC (110 - 345 VDC)	1	24 VDC	3.5 A
LDN85-24P	120 - 240 VAC (110 - 345 VDC)	1	24 VDC	3.5 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 (UL certified) Operating		120 - 240 VAC 90 - 264 VAC
Input DC Voltage Range	Rated		110 - 345 VDC
Input Frequency Range			47 - 63 Hz
Input AC Current	LDN85-5	Vin = 120 VAC Vin = 240 VAC	1.0 A 0.6 A
	LDN85-24, LDN85-24P	Vin = 120 VAC Vin = 240 VAC	1.5 A 0.9 A
Input DC Current	LDN85-5	Vin = 110 VDC Vin = 345 VDC	0.7 A 0.3 A
	LDN85-24, LDN85-24P	Vin = 110 VDC Vin = 345 VDC	1.0 A 0.4 A
Inrush Peak Current			≤ 40 A
Touch (Leakage) Current			≤ 0.45 mA
Internal Protection Fuse	Not user replaceable		Fuse 2 AT
Recommended External Protection	It is strongly recommended to provide external surge arresters (SPD) according to local regulations		Fuse 6AT or MCB 6A C curve

## 3. OUTPUT SPECIFICATIONS

PARAMETER	DESCRIPTION / CONDITION		SPECIFICATION
Output Power			85 W
Rated Voltage (Adjustable Voltage Range)	LDN85-5		5 VDC (4.75 – 5.25 VDC)
	LDN85-24 / LDN85-24P		24 VDC (23 – 28 VDC)
Continuous Current	LDN85-5		8.5 A
	LDN85-24 / LDN85-24P		3.5 A
Overload Limit	LDN85-5		11 A
	LDN85-24 / LDN85-24P		5 A
Short Circuit Peak Current	LDN85-5		20 A
	LDN85-24		30 A
	LDN85-24P		20 A
Load Regulation	LDN85-5		≤ 3.5%
	LDN85-24		≤ 1%
	LDN85-24P		≤ 2.5%
Ripple & Noise <sup>1</sup>	LDN85-5		≤ 130 mVpp
	LDN85-24 / LDN85-24P		≤ 50 mVpp
Hold up Time		Vin = 120 VAC	> 15 ms
		Vin = 240 VAC	> 50 ms
Protections	Overload, short circuit: Hiccup mode		
	Thermal protection		
	Output overvoltage		
Output Over Voltage Protection	LDN85-5		> 6.8 VDC
	LDN85-24 / LDN85-24P		> 33 VDC

Status Signals	DC OK - green LED DC OK - dry contact (NO, 24 VDC / 1A)	
Parallel Connection	Possible for redundancy (with external ORing module) P (models) - include internal ORing circuit	
Efficiency	LDN85-5	> 75%
	LDN85-24	> 88%
	LDN85-24P	> 87%
Dissipated Power	LDN85-5	< 14.5 W
	LDN85-24	< 11.5 W
	LDN85-24P	< 12.5 W

<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	UL certified up to 60°C (Start-up type tested: - 40°C) <sup>2</sup>	- 40 to + 70°C
Storage Temperature		- 40 to + 80°C
Humidity	Non-condensing	5 - 95% RH
Life Time Expectancy	At 25°C ambient full load	138640 h (15.8 years)
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 (certified)	
	EN60950 (reference)	
	EN50178 (reference)	
EMC Emission	EN55011 (CISPR11)	Class A
	EN55022 (CISPR22)	Class A
	EN61000-4-2	Level 3
EMC Immunity	EN61000-4-3	Level 3
	EN61000-4-4	Level 3
	EN61000-4-5	Level 3
	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: 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

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

#### 5. MECHANICAL SPECIFICATIONS

PARAMETER	DESCRIPTION / CONDITION	SPECIFICATION
Weight		450 g
Dimensions (W x H x D)		40 x 115 x 110 mm
Mounting Rail		IEC 60715/H15/TH35-7.5(-15)
Connection Terminals	Pluggable screw type (24 – 12 AWG)	2.5 mm <sup>2</sup>
Case Material	Aluminum	

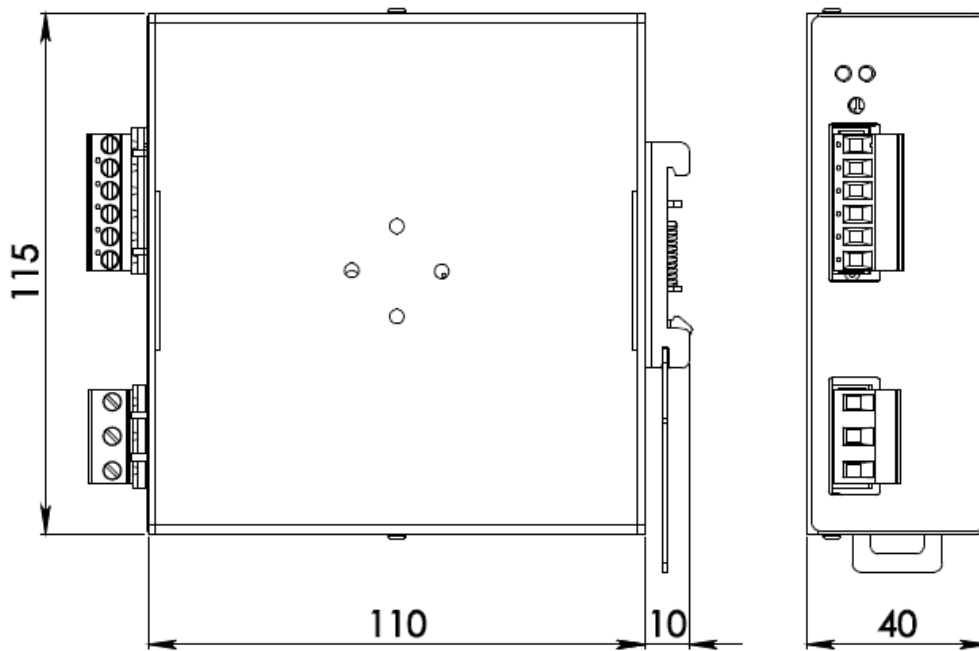
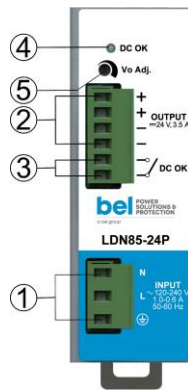


Figure 1. Mechanical Drawing

## 1. 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	OUTPUT CONNECTION
Single phase:	+ = Positive DC
L = Line	- = Negative DC
N = Neutral	
⊕ = Earth ground	
DC:	Signaling:
L = + Positive DC	DC OK: dry contact
N = - Negative DC	NO
⊕ = Earth ground	COM

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