

# LDN240 Series

## 240 W DIN Rail Switching Power Supply

LDN240 Series are single phase DIN Rail Switching Power Supplies, suitable for worldwide applications such as process control, heavy duty applications, but also building automation.

These units have received excellent market approval for their high efficiency, excellent reliability and compactness. Simple but elegant look and ease of installation due to pluggable connectors make them ideal for various industrial applications.

LDN240 Series are Class I isolation devices designed to be mounted on DIN rail and installed inside a protective enclosure.



### FEATURES

- AC input voltage 120 or 240 VAC (settable with voltage input selector)
- DC input voltage 270 - 345 VDC (only with 240 V selected)
- Output voltages 12 V, 24 V, 48 V, 72 V (adjustable)
- Operating temperature range -40°C to +70°C
- Efficiency up to 88%
- Overload 130%
- Excellent field reliability record
- Compact size in aluminum enclosure
- Dimensions: 63 x 140 x 117 mm



### APPLICATIONS

- Automation
- Process control
- Communication
- Instrumentation equipment

## 1. MODEL SELECTION

MODEL	INPUT VOLTAGE RANGE	OUTPUT VOLTAGE	MAX OUTPUT CURRENT	EFFICIENCY	REDUNDANCY	MAX OUTPUT POWER
LDN240-12	120 / 240 VAC (270 - 345 VDC)	12 V	16 - 14 A	84 - 86 %		240 W
LDN240-24	120 / 240 VAC (270 - 345 VDC)	24 V	10 A	88 %		240 W
LDN240-24P	120 / 240 VAC (270 - 345 VDC)	24 V	10 A	86 %	Internal ORing diode	240 W
LDN240-48P	120 / 240 VAC (270 - 345 VDC)	48 V	5 A	88 %	Internal ORing diode	240 W
LDN240-72P	120 / 240 VAC (270 - 345 VDC)	72 V	3.5 A	88 %	Internal ORing diode	240 W

## 2. INPUT SPECIFICATIONS

PARAMETER	DESCRIPTION / CONDITIONS	SPECIFICATION
AC Input Voltage	Nominal (UL certified), Settable with voltage input selector Range	120 / 240 VAC 90 - 132 / 187- 264 VAC
DC Input Voltage	Only with 240 V selected	270 - 345 VDC
Input Frequency		47 - 63 Hz
AC Input Current	V <sub>in</sub> = 120 VAC V <sub>in</sub> = 240 VAC	4.0 A 2.0 A
DC Input Current	V <sub>in</sub> = 270 VDC V <sub>in</sub> = 345 VDC	1.3 A 1.0 A
Inrush Peak Current I <sub>pt</sub>	Peak Current measured after 0.2 ms from main connection; 240 VAC / 50 Hz; T <sub>a</sub> = 25°C; Cold Start	≤ 32 A 1.18 A <sup>2</sup> s
Touch (Leakage) Current		≤ 0.8 mA
Internal Protection Fuse	Not user replaceable	6.3 AT
Recommended External Protection	It is strongly recommended to provide external surge arresters (SPD) according to local regulations.	Fuse 10 AT or MCB 10 A C curve

## 3. OUTPUT SPECIFICATIONS

PARAMETER	DESCRIPTION / CONDITIONS	SPECIFICATION
Output Voltage (Adjustable)	LDN240-12 LDN240-24 / LDN240-24P LDN240-48P LDN240-72P	12 - 15 VDC 23 - 28 VDC 45 - 55 VDC 72 - 85 VDC
Output Current (continuous)	LDN240-12 LDN240-24 / LDN240-24P LDN240-48P LDN240-72P	16 - 14 A 10 A 5.0 A 3.5 A
Load Regulation	LDN240-12 / LDN240-48P / LDN240-72P LDN240-24 LDN240-24P	≤ 1.5 % ≤ 1.0 % ≤ 2.5 %
Ripple & Noise <sup>1</sup>	LDN240-12 LDN240-24 / LDN240-24P / LDN240-48P / LDN240-72P	≤ 150 mVpp ≤ 100 mVpp
Hold-up Time	V <sub>in</sub> = 120 VAC V <sub>in</sub> = 240 VAC	≥ 60 ms ≥ 70 ms
Status Signals	DC OK - green LED DC OK - dry contact (NO, 24 VDC / 1 A) <sup>2</sup>	
Parallel Connection	Possible for redundancy (with external ORing module) P models - include internal ORing diode	

<sup>1</sup> 20 MHz BW probe terminated with a 0.1 μF MKP parallel capacitor

<sup>2</sup> Not present in model LDN240-72P

## 4. PROTECTIONS

PARAMETER	DESCRIPTION / CONDITIONS	SPECIFICATION				
Short Circuit Protection	Hiccup mode, Short circuit peak current	LDN240-12 LDN240-24 / LDN240-24P LDN240-48P LDN240-72P	42 A 35 A 20 A 14 A			
		Overload Protection	Hiccup mode, Overload limit	LDN240-12 LDN240-24 / LDN240-24P LDN240-48P LDN240-72P	19 - 16 A 13.5 A 6.8 A 4.6 A	
				Thermal Protection		
				Over Voltage Protection		LDN240-12 LDN240-24 / LDN240-24P LDN240-48P LDN240-72P

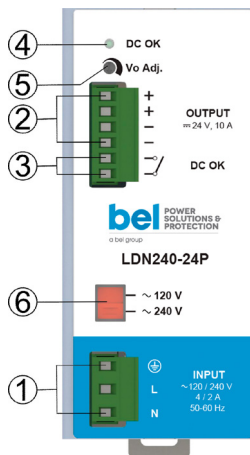
## 5. ENVIRONMENTAL, EMC & SAFETY SPECIFICATIONS

PARAMETER	DESCRIPTION / CONDITIONS	SPECIFICATION
Operating Temperature	UL certified up to 50°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 50°C	- 5.0 W/°C
Dissipated Power	LDN240-12	< 36.5 - < 34.5 W
	LDN240-24	< 33 W
	LDN240-24P	< 39 W
	LDN240-48P	< 33 W
	LDN240-72P	< 34.5 W
Humidity	Non-condescending	5 - 95 % RH
Life Time Expectancy	Ta = 25°C, full load	77 894 (8.8) hrs (years)
MTBF	MIL-HDBK-217F at Ta = 25°C, full load	> 500 000 hrs
Overvoltage Category	EN 50178	III
Pollution Degree	IEC 60664-1	2
Protection Class		Class I
Isolation	Input to Output	4.2 kVDC
	Input to Ground	2.2 kVDC
	Output to Ground	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
	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
EMC Immunity		
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		63 x 140 x 117 mm 2.48 x 5.11 x 4.61 in
Weight		750 g
Mounting Rail	IEC 60715/H15/TH35-7.5(-15)	
Connection Terminals	Screw type pluggable (24 - 12 AWG)	2.5 mm <sup>2</sup>
Case Material	Aluminum	

## 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
6	Input voltage selector

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

## 7. MECHANICAL DRAWING

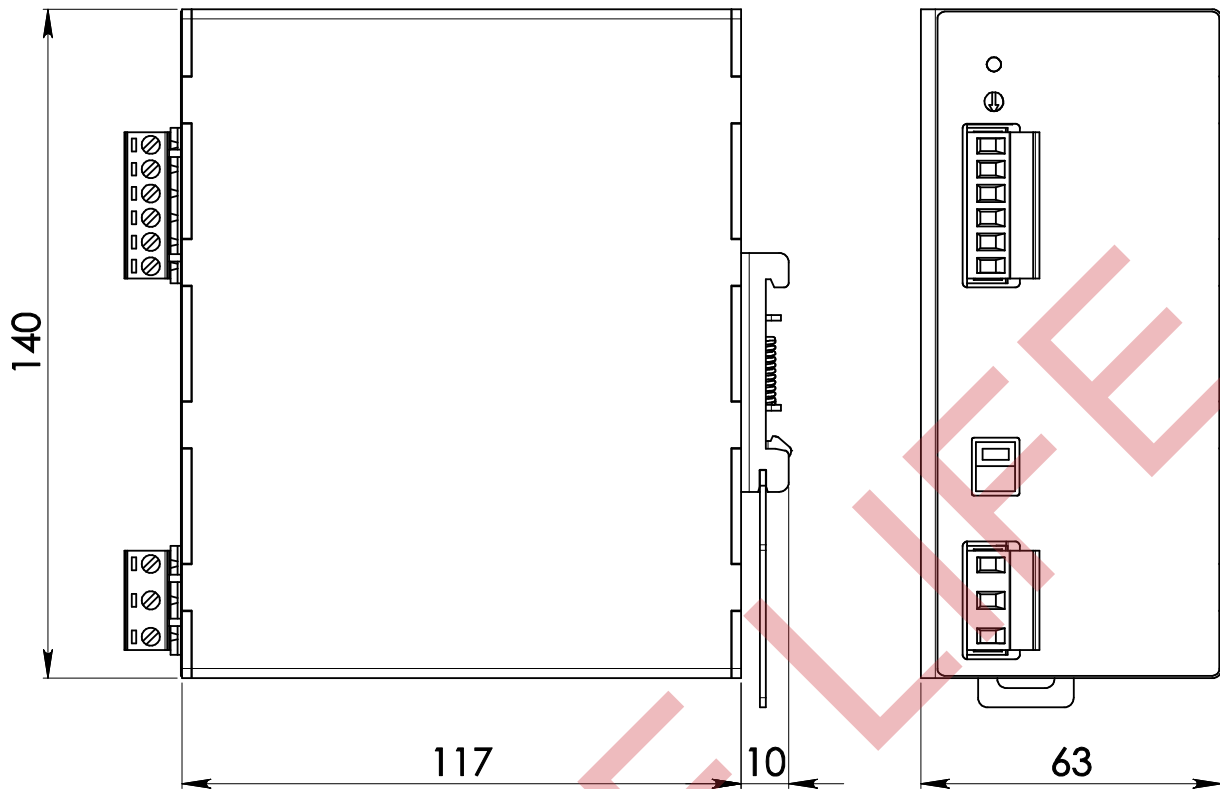


Figure 1. Mechanical Drawing

**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.