

# LDW240 Series

## 240 W AC-DC DIN Rail Switching Power Supply

LDW240 Series are single, two or three phase DIN Rail Switching Power Supplies.

Its compact size, high efficiency, excellent reliability together with easy installation makes it ideal for various industrial, telecom and renewable energy applications.

LDW240 Series are Class I isolation devices and are designed to be mounted on DIN rail and installed inside a protective enclosure.



### FEATURES

- Single, two or three phase AC input 187 - 550 VAC or wide DC input voltage range 250 - 725 VDC
- Output voltages 12 V 24 V, 48 V, 72 V (adjustable)
- Operating ambient temperature range -40°C to +70°C
- Efficiency up to 93%
- Overload 150%
- Excellent field reliability record
- Compact size in aluminum enclosure
- Dimensions: 54 x 115 x 110 mm



### APPLICATIONS

- Industrial control equipment
- Telecom
- Renewable energy applications

## 1. MODEL SELECTION

MODEL	INPUT VOLTAGE RANGE	# OF PHASES	OUTPUT VOLTAGE	MAX OUTPUT CURRENT	EFFICIENCY	MAX OUTPUT POWER
LDW240-12	200 - 500 VAC (250 - 725 VDC)	1 / 2 / 3	12 - 15 V	15 - 12 A	89 %	240 W
LDW240-24	200 - 500 VAC (250 - 725 VDC)	1 / 2 / 3	24 V	10 A	93 %	240 W
LDW240-48P <sup>1</sup>	200 - 500 VAC (250 - 725 VDC)	1 / 2 / 3	48 V	5 A	91 %	240 W
LDW240-72P <sup>1</sup>	200 - 500 VAC (250 - 725 VDC)	1 / 2 / 3	72 V	3.5 A	92 %	240 W

<sup>1</sup> P models include internal ORing diode

## 2. INPUT SPECIFICATIONS

PARAMETER	DESCRIPTION / CONDITIONS		SPECIFICATION
AC Input Voltage	Nominal 1 / 2 / 3 phases (UL certified) Range		200 - 500 VAC 187 - 550 VAC
DC Input Voltage	UL certified Range		300 - 500 VDC 250 - 725 VDC
Input Frequency			47 - 63 Hz
AC Input Current	Vin = 200 VAC	1 / 2 phases 3 phases	2.2 A 1.5 A
	Vin = 500 VAC	1 / 2 phases 3 phases	1.1 A 0.8 A
DC Input Current	Vin = 250 VDC	12 V model 24 V, 48 V, 72 V models	0.9 A 1.4 A
	Vin = 725 VDC	12 V model 24 V, 48 V, 72 V models	0.4 A 0.5 A
Inrush Peak Current I <sup>2</sup> t	Peak Current measured after 0.2 ms from main connection; 400 VAC / 50 Hz; Ta = 25°C; Cold Start		≤ 45 A 1.31 A <sup>2</sup> s
Touch (Leakage) Current			≤ 1.3 mA
Internal Protection Fuse	None, external fuse must be provided		
Recommended External Protection	It is strongly recommended to provide external surge arresters (SPD) according to local regulations.		Fuse 6.3 AT or MCB 6 A C curve or MCB 4 A D curve

## 3. OUTPUT SPECIFICATIONS

PARAMETER	DESCRIPTION / CONDITIONS		SPECIFICATION	
Output Voltage (Adjustable)	12 V model		12 - 15 VDC	
	24 V model		23 - 28 VDC	
	48 V model		45 - 55 VDC	
	72 V model		72 - 85 VDC	
Output Current (continuous)	12 V model		15 - 12 A	
	24 V model		10 A	
	48 V model		5 A	
	72 V model		3.5 A	
Load Regulation	12 V & 24 V models 48 V & 72 V models		≤ 1.0 % ≤ 1.5 %	
Ripple & Noise <sup>2</sup>			≤ 100 mVpp	
Hold-up Time	Vin = 240 VAC Vin = 500 VAC		≥ 15 ms ≥ 100 ms	
Status Signals	DC OK - green LED OVERLOAD - red LED DC OK - dry contact (NO, 24 VDC / 1 A)			
Parallel connection	Possible for redundancy (with external ORing module) P (models) - include internal ORing circuit			

<sup>2</sup> Ripple and Noise are measured with 20 MHz bandwidth, probe terminated with a 0.1  $\mu$ F MKP parallel capacitor.

## 4. PROTECTIONS

PARAMETER	DESCRIPTION / CONDITIONS	SPECIFICATION
Short circuit protection	Hiccup mode, Short Circuit Peak Current:	12 V model 24 V model 48 V model 72 V model 34 A 38 A 18 A 13 A
Overload protection	Hiccup mode, Overload Limit (max. 6 s):	12 V model 24 V model 48 V model 72 V model 20 A 15 A 7.5 A 5 A
Thermal protection		
Over voltage protection		12 V model 24 V model 48 V model 72 V model ≥ 18 VDC ≥ 33 VDC ≥ 68 VDC ≥ 100 VDC

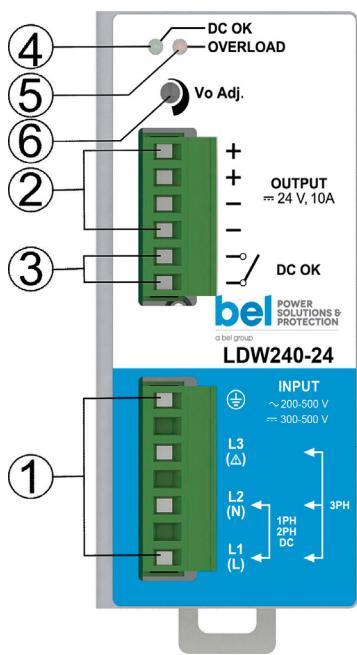
## 5. ENVIRONMENTAL, EMC & SAFETY SPECIFICATIONS

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	- 4.2 W/°C
Dissipated Power	12 V model 24 V model 48 V model 72 V model	< 22.5 W < 18.0 W < 23.5 W < 22.0 W
Humidity	Non-condensing	5 - 95 % RH
Life Time Expectancy	Ta = 25°C, full load	81 648 (9.3) 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 Input to Ground Output to Ground	4.2 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 55011 / CISPR 11 EN 55022 / CISPR 22	Class A Class A
EMC Immunity	EN 61000-4-2 EN 61000-4-3 EN 61000-4-4 EN 61000-4-5 EN 61000-4-11	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		54 x 115 x 110 mm 2.12 x 4.53 x 4.33 in
Weight		650 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	

## 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	Red LED: Overload
6	Output voltage adjustment

INPUT CONNECTION	Single-phase	Two-phase
	L = Line N = Neutral ⏚ = Earth ground	L1 = Phase 1 L2 = Phase 2 ⏚ = Earth ground

THREE-PHASE	DC INPUT
L1 = Phase 1 L2 = Phase 2 L3 = Phase 3 ⏚ = Earth ground	L1(L) = + Positive DC L2(N) = - Negative DC L3 = do not connect ⏚ = Earth ground

OUTPUT CONNECTION	+	= Positive DC
	-	= Negative DC

SIGNALLING	DC OK: dry contact
	• NO • COM

## 8. MECHANICAL DRAWING

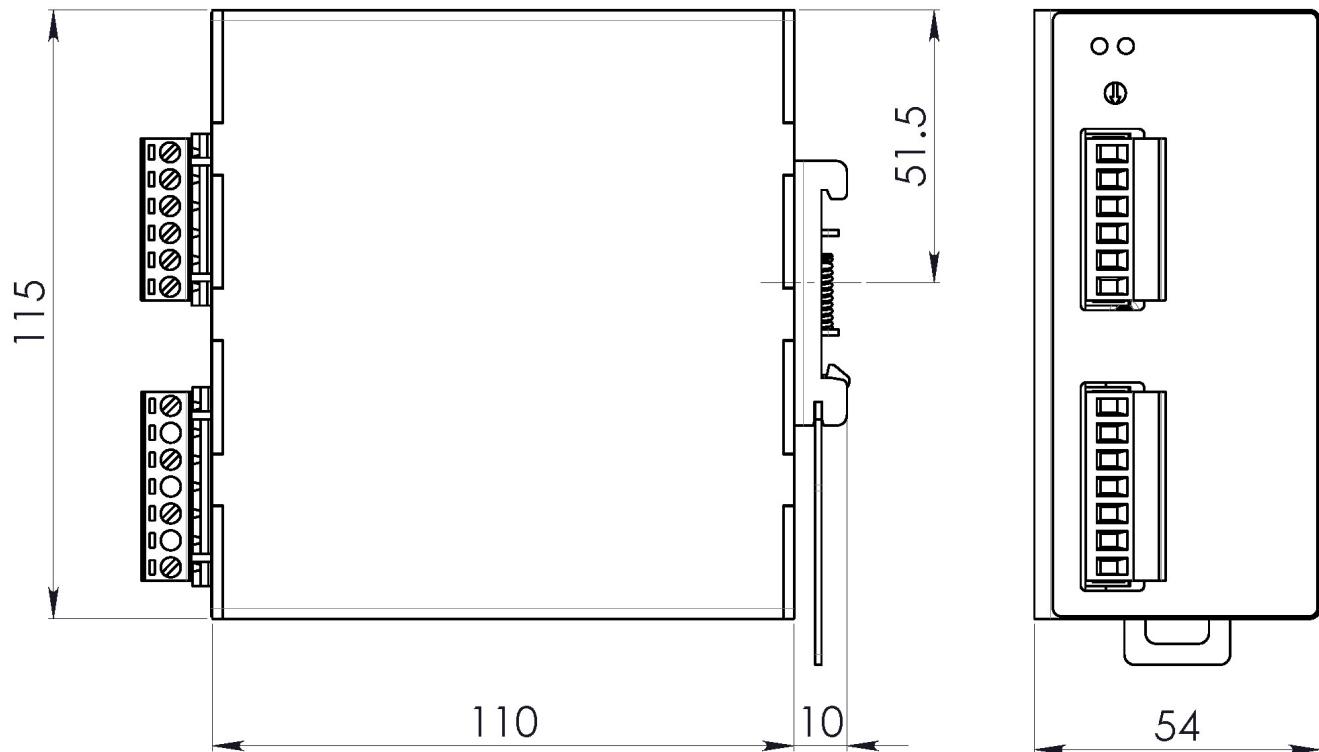


Figure 1. Mechanical Drawing

**Notes:**

Technical parameters are typical, measured in laboratory environment at 25°C and 400 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.



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