



FEATURES

- Universal 85-264VAC (277VAC available) or 120-370VDC (390VDC available) input voltage
- Withstand 305VAC surge input for 5s
- Operating ambient temperature range: -30°C to +85°C
- High I/O isolation voltage up to 4000VAC
- OVC III (design refer to EN61558, EN62477/2000m)
- Low ripple & noise, high efficiency
- Output short circuit, over-current, over-voltage over-temperature protection
- The output has CV constant current function
- DIN rail TS35X7.5/ TS35X15 mountable
- Ultra-thin design: width 105mm (6SU)
- Design refer to UL/EN/IEC/BS EN62368, UL508, UL61010, EN/IEC60335, EN61558, EN62477

LI150-20BxxPR3 is Mornsun AC-DC converter series featuring a cost-effective, energy efficient green power supply solution for standard DIN-rail mounting. The products offer a high level of stability and immunity to noise for industrial control equipment, machinery, and other industrial equipment in a variety of harsh environments. These light weight AC-DC converters have an extremely compact design and the standard rail installation for space saving. With good EMC performance, design refer to UL/EN/IEC/BS EN62368, UL508, UL61010, EN/IEC60335, EN61558, EN62477 standards for EMC and safety.

Selection Guide

Certification	Part No.*	Output Power (W)	Nominal Output Voltage and Current (Vo/Io)	Output Voltage Adjustable Range ADJ (V)**	Efficiency at 230VAC (%) Typ.	Capacitive Load (μF) Max.
/	LI150-20B12PR3	135.6	12V/11.3A	10.8 - 13.8	89.0	10000
	LI150-20B15PR3	142.5	15V/9.5A	13.5 - 18.0	89.5	8000
	LI150-20B24PR3	150.0	24V/6.25A	21.6 - 29.0	91.5	5000
	LI150-20B48PR3	153.6	48V/3.2A	43.2 - 52.8	91.0	2400

Note: *Use suffix "Q" for bottom conformal coating;

**The actual adjustment range may extend outside the values stated, care should be exercised to ensure that the output voltage and power levels remain within the published maximum values.

Input Specifications

Item	Operating Conditions	Min.	Typ.	Max.	Unit
Input Voltage Range	AC input	85	--	264	VAC
	DC input	120	--	370	VDC
Input Frequency		47	--	63	Hz
Input Current	115VAC	--	--	3	A
	230VAC	--	--	1.8	
Inrush Current	115VAC	--	35	--	
	230VAC	--	70	--	
Leakage Current	240VAC/50Hz	0.5mA RMS Max.			
Hot Plug		Unavailable			

Output Specifications

Item	Operating Conditions	Min.	Typ.	Max.	Unit
Output Voltage Accuracy	0% - 100% load	12V	--	±2	%
		Other output	--	±1	
Line Regulation	Rated load	--	±1	--	
Load Regulation	230VAC	--	±1	--	

AC/DC 150W DIN-Rail Power Supply

LI150-20BxxPR3(-Q) Series

MORNSUN®

Output Ripple & Noise*	20MHz bandwidth (peak-to-peak value)	12V	--	--	100	mV
		15V	--	--	120	
		24V/48V	--	--	150	
Temperature Coefficient			--	±0.03	--	%/°C
Stand-by Power Consumption	230VAC	Other output	--	--	0.3	W
		48V	--	--	0.4	
Short Circuit Protection			Hiccup, continuous, self-recovery			
Over-current Protection	≥ 105% Io, self-recovery		Hiccup mode or constant current limiting when output voltage <50%, recovers automatically after fault condition is removed			
			Constant current limiting within 50% -100% rated output voltage, recovers automatically after fault condition is removed			
Over-voltage Protection	12V		≤16.0V	Output voltage hiccup		
	15V		≤21.5V			
	24V		≤32.4V			
	48V		≤60.0V			
Over-temperature Protection	230VAC, rated load	Over-temperature protection activation	--	60	--	°C
		Over-temperature protection deactivation	--	45	--	
Minimum Load			0	--	--	%
Start-up Delay Time			--	500	800	ms
Hold-up Time	115VAC		--	12	--	
	230VAC		--	30	--	
Note: The "Tip and barrel method" is used for ripple and noise test, with a 0.1uf ceramic capacitor & 47uf parallel capacitor, please refer to Enclosed Switching Power Supply Application Notes for specific information.						

General Specifications

Item		Operating Conditions		Min.	Typ.	Max.	Unit
Isolation	Input - output	Electric Strength Test for 1min., leakage current<5mA		4000	--	--	VAC
Insulation Resistance	Input - output	Test voltage: 500VDC		100	--	--	MΩ
Operating Temperature				-30	--	+85	℃
Storage Temperature				-40	--	+85	
Storage Humidity		Non-condensing		--	--	95	%RH
Operating Altitude				--	--	5000	m
Output Power Derating	Operating temperature derating	+45℃ to +70℃		2.0	--	--	% /℃
		+70℃ to +85℃		2.66	--	--	
	Input voltage derating	85VAC - 100VAC	12V/15V	1.1	--	--	% /VAC
			24V/48V	0.784	--	--	
		100VAC - 120VAC	12V	--	--	122.0	W
			15V	--	--	128.3	
			24V	--	--	127.5	
			48V	--	--	130.6	
Safety Standard				Design refer to UL/EN/IEC/BS EN62368-1, UL508, UL61010-1, EN/IEC60335-1, EN61558-1, EN62477			
Safety Class				Class II			
MTBF		MIL-HDBK-217F@25℃		>300,000 h			

Mechanical Specifications

Case Material	Plastic, heat-resistant (UL94V-0)
Package Dimensions	105.00 x 90.00 x 58.00mm
Weight	330g (Typ.)
Cooling Method	Free air convection

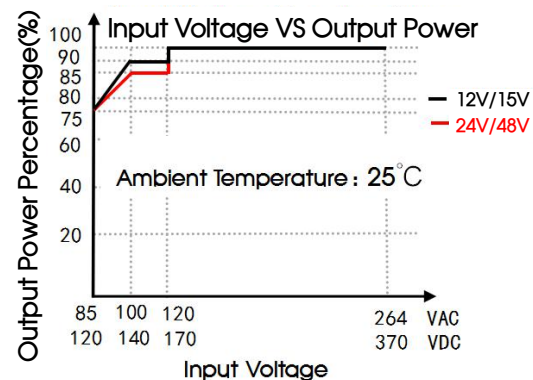
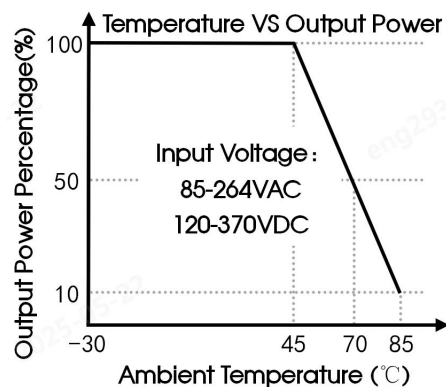
Electromagnetic Compatibility (EMC)

EMI	CE	CISPR32/EN55032	CLASS B	
	RE	CISPR32/EN55032	CLASS B	
	Harmonic current*	IEC/EN61000-3-2	CLASS A	
EMS	ESD	IEC/EN61000-4-2	Contact ±4KV/Air ±8KV	Perf. Criteria A
	RS	IEC/EN61000-4-3	10V/m	Perf. Criteria A
	EFT	IEC/EN61000-4-4	±4KV	Perf. Criteria B
	Surge	IEC/EN61000-4-5	Line to line ±2KV	Perf. Criteria A
	CS	IEC/EN61000-4-6	10Vr.m.s	Perf. Criteria A
	PFMF	IEC/EN61000-4-8	30A/m	Perf. Criteria A
	Voltage Variations**	IEC61000-6-2/IEC61000-4-11	70% U _n , 25/30cycle(50/60Hz); 40% U _n , 10/12cycle(50/60Hz); 0% U _n , 1cycle	Perf. Criteria B
	Short interruptions**	IEC61000-6-2/IEC61000-4-11	0% U _n , 250/300cycle(50/60Hz)	Perf. Criteria C

Note: *Test harmonic current at 70% load;

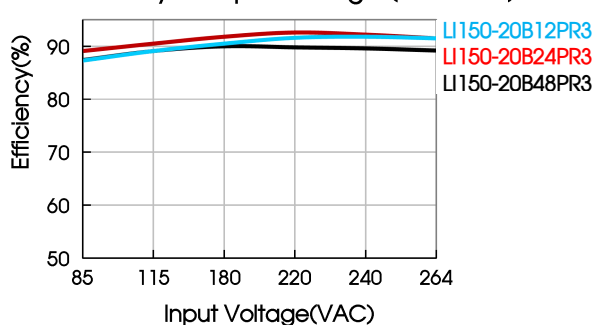
** U_n Maximum input nominal voltage.

Product Characteristic Curve

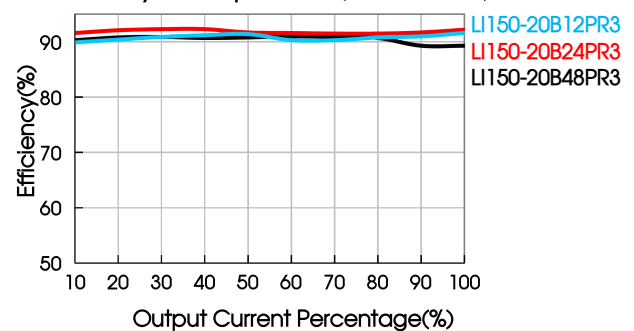


Note: 1. With an AC input between 85-120VAC and a DC input between 120-170VDC, the output power must be derated as per temperature derating curves;
2. This product is suitable for applications using natural free air cooling; for applications in closed environment please consult Mornsun FAE.

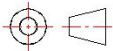
Efficiency Vs Input Voltage (Full Load)

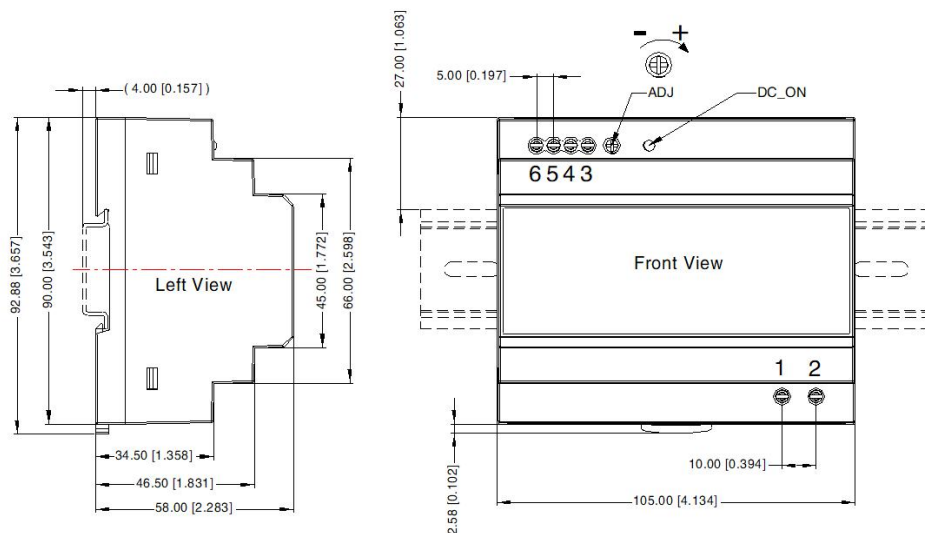


Efficiency Vs Output Load ($V_{in}=230\text{VAC}$)



Dimensions and Recommended Layout

THIRD ANGLE PROJECTION 



Pin-Out	
Pin	Mark
1	AC(L)
2	AC(N)
3	-Vo
4	-Vo
5	+Vo
6	+Vo

Note:
Unit: mm[inch]
ADJ: adjustable resistance to change output voltage
Wire range: 24-12 AWG
Tightening torque: Max 0.4 N · m
Mounting rail: TS35
General tolerances: $\pm 1.00[\pm 0.039]$

Note:

- For additional information on Product Packaging please refer to www.mornsun-power.com. Packaging bag number: 58220215;
- Unless otherwise specified, parameters in this datasheet were measured under the conditions of $T_a=25^{\circ}\text{C}$, humidity<75% with nominal input voltage and rated output load;
- The room temperature derating of $3.5^{\circ}\text{C}/1000\text{m}$ is needed for operating altitude greater than 2000m;
- All index testing methods in this datasheet are based on our company corporate standards;
- We can provide product customization service, please contact our technicians directly for specific information;
- Specifications are subject to change without prior notice;
- Products are related to laws and regulations: see "Features" and "EMC";
- The output voltage can be adjusted by the ADJ, clockwise to increase;
- Our products shall be classified according to ISO14001 and related environmental laws and regulations, and shall be handled by qualified units.

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