

FEATURES

- Universal 85-264VAC or 120-370VDC input voltage
- Withstand 305VAC surge input for 5s
- Accepts AC or DC input (dual-use of same terminal)
- Operating ambient temperature range -40°C to +85°C
- High I/O isolation voltage up to 4000VAC
- OVC III (design refer to EN62477/2000m)
- Low ripple & noise, high efficiency
- Output short circuit, over-current, over-voltage protection
- The output has CV constant current function
- DIN rail TS35X7.5/ TS35X15 mountable
- Design refer to UL/EN/BS EN62368, UL508, UL61010, IEC/EN61558, EN60335



LI15-20BxxPR3 is Mornsun's AC-DC series featuring a cost-effective, energy efficient solution for standard DIN-rail mounting. The products offer a high level of stability and immunity to noise, compliant with EN60335 standards for EMC and safety specifications meet IEC/EN61000-4, CISPR32/EN55032, UL/EN/BS EN62368, UL508, UL61010, IEC/EN61558, EN60335. These light weight AC-DC converters also have an extremely compact design for space saving and are ideal for applications such as industrial control equipment machinery and all kinds of applications in a harsh environment. For extremely harsh EMC environment, we recommend using the application circuit show in Design Reference of this datasheet.

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.
/	LI15-20B05PR3	12	5V/2.40A	4.5-5.5	80	2000
	LI15-20B12PR3	15	12V/1.25A	10.8-13.8	85	1500
	LI15-20B15PR3	15	15V/1.00A	13.5-18.0	85.5	1100
	LI15-20B24PR3	15.2	24V/0.63A	21.6-29.0	86	700
	LI15-20B48PR3	15.4	48V/0.32A	43.2-55.2	87	300

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		--	--	0.5	A
	230VAC		--	--	0.25	
Inrush Current	115VAC	Cold start	--	15	--	
	230VAC		--	25	--	
Leakage Current	240VAC		0.5mA			
Hot Plug			Unavailable			

Output Specifications

Item	Operating Conditions		Min.	Typ.	Max.	Unit
Output Voltage Accuracy	0% - 100% load	5V	--	±2	--	%
		12V/15V/24V/48V	--	±1	--	
Line Regulation	Rated load		--	±0.5	--	
Load Regulation	230VAC		--	±1	--	
Output Ripple & Noise*	20MHz bandwidth (peak-to-peak value)	5V	--	--	80	mV
		12V/15V	--	--	120	

AC/DC 15W DIN-Rail Power Supply

LI15-20BxxPR3(-Q) Series

MORNSUN®

		24V	--	--	150	
		48V	--	--	240	
Temperature Coefficient			--	±0.02	--	%/°C
Stand-by Power Consumption	230VAC	5V/12V/15V/24V	--	--	0.3	W
		48V	--	--	0.4	
Short Circuit Protection			Hiccup, continuous, self-recovery			
Over-current Protection			≥115% Io, self-recovery			
			Belch or constant current mode when output voltage < 50% or constant current mode when output voltage < 50% When the output voltage is 50%-100%, it is in constant current mode, and the load abnormal condition can be automatically restored after removal			
Over-voltage Protection	5V	≤6.75V	Output voltage hiccup			
	12V	≤16.2V				
	15V	≤22.5V				
	24V	≤36.0V				
	48V	≤64.8V				
Minimum Load		0	--	--		%
Start-up Time			--	--	2	s
Hold-up Time	115VAC	--	12	--		ms
	230VAC	--	30	--		
Note: *The "Tip and barrel method" is used for ripple and noise test, using a 12" twisted pair-wire terminated 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		-40	--	+85	°C	
Storage Temperature		-40	--	+85		
Storage Humidity	Non-condensing	--	--	95	%RH	
		--	--	90		
Operating Altitude		--	--	5000	m	
Power Derating	Operating temperature derating	-40°C to -30°C	5.0	--	--	% / °C
		+50°C to +70°C	2.5	--	--	
		+70°C to +85°C	2.0	--	--	
	Input voltage derating	85VAC - 100VAC	1.34	--	--	%/VAC
Safety Standard		Design refer to UL/EN/BS EN62368, UL508, UL61010, IEC/EN61558-1, EN60335				
Safety Class		CLASS II				
MTBF	MIL-HDBK-217F@25°C	> 300,000h				

Mechanical Specifications

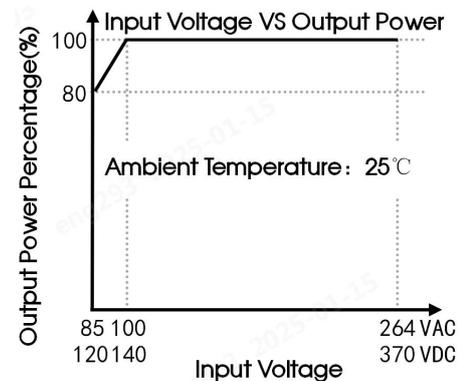
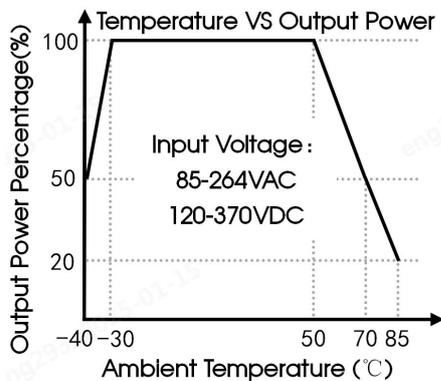
Case Material	Plastic, heat-resistant (UL94V-0)
Package Dimensions	90.00 x 58.00 x 17.50mm
Weight	60g (Typ.)
Cooling Method	Free air convection

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 $\pm 4KV$ /Air $\pm 8KV$	Perf. Criteria A
	RS	IEC/EN61000-4-3	10V/m	Perf. Criteria A
	EFT	IEC/EN61000-4-4	$\pm 2KV$	Perf. Criteria A
	Surge	IEC/EN61000-4-5	Line to line $\pm 1KV$	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

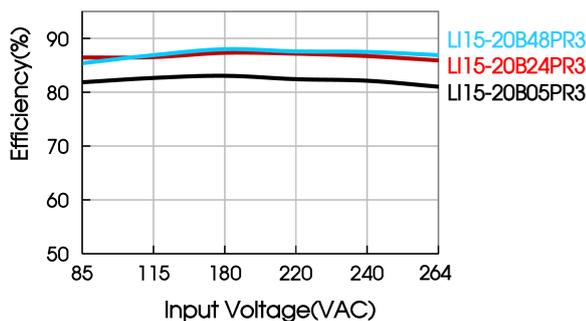
Note: * U_n , Maximum input nominal voltage.

Product Characteristic Curve

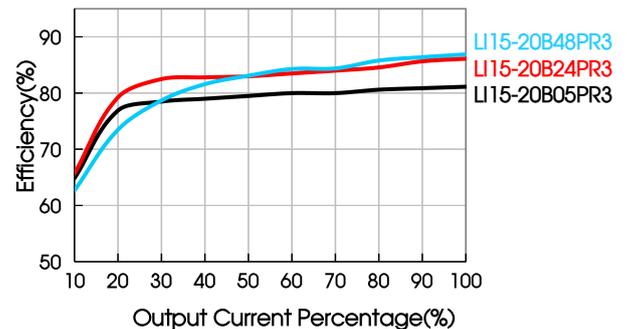


Note: 1. With an AC input between 85-100VAC and a DC input between 120-140VDC, the output power must be derated as per temperature derating curves;
2. This product is suitable for applications using natural free air cooling; for applications in closed environment please consult Mornsun FAE.

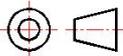
Efficiency Vs Input Voltage (Full Load)

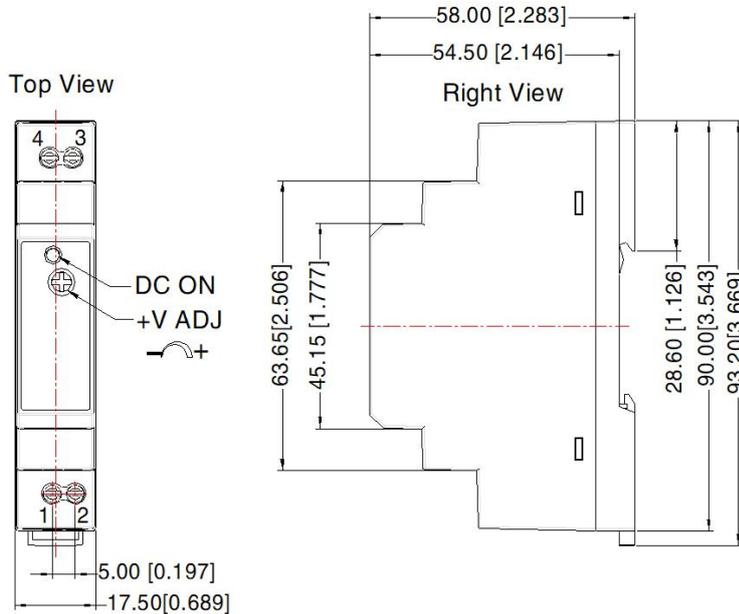


Efficiency Vs Output Load ($V_{in}=230VAC$)



Dimensions and Recommended Layout

THIRD ANGLE PROJECTION 



Pin-Out	
Pin	Mark
1	N
2	L
3	-Vo
4	+Vo

Note:
 Unit: mm[inch]
 +V ADJ: Adjustable resistance to change output voltage
 Wire range: 22-12 AWG
 Tightening torque: Max 0.4 N · m
 Mounting rail: TS35
 General tolerances: ± 1.00 [± 0.039]

- Note:
- For additional information on Product Packaging please refer to www.mornsun-power.com. Packaging bag number: 58220234;
 - Unless otherwise specified, parameters in this datasheet were measured under the conditions of Ta=25°C, humidity<75% with nominal input voltage and rated output load;
 - The room temperature derating of 3.5°C/1000m 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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