

60W, AC/DC DIN-Rail Power Supply



RoHS

## FEATURES

- Universal 85-264VAC or 120-370VDC input voltage
- Accepts AC or DC input (dual-use of same terminal)
- Operating ambient temperature range: -40°C ~ +70°C
- High I/O isolation test voltage up to 4000VAC
- Industrial product technology design
- Over-voltage class III (Designed to meet EN61558 safety standards)
- Low standby power consumption, high efficiency
- Low ripple & noise
- Output short circuit, over-current, over-voltage protection
- Withstand 300VAC surge input for 5s
- Designed to meet EN62368 safety standards (Approval Pending)

LI60-20BxxPR2 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 international IEC62368 standards for EMC are safety approved to IEC/EN61000-4, CISPR32, EN55032, UL62368, IEC62368 and EN62368. 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.

## Selection Guide

Certification	Part No.	Output Power (W)	Nominal Output Voltage and Current (Vo/Io)	Output Voltage Adjustable Range(V) (50% load)	Efficiency at 230VAC (%) Typ.	Capacitive Load (μF)Max.
CE (Pending)	LI60-20B05PR2	33	5V/6.5A	4.9-5.5	84	20000
	LI60-20B12PR2	54	12V/4.5A	10.8-13.8	88	10000
	LI60-20B15PR2	60	15V/4.0A	13.5-18.0	89	8000
	LI60-20B24PR2	60	24V/2.5A	21.6-29.0	90	4000
	LI60-20B48PR2	60	48V/1.25A	43.2-55.2	91	680

## 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	--	--	1.2	A
	230VAC	--	--	0.8	
Inrush Current	115VAC	--	30	--	A
	230VAC	--	60	--	
Leakage current	264VAC	0.25mA RMS max.			
Hot Plug		Unavailable			

## Output Specifications

Item	Operating Conditions	Min.	Typ.	Max.	Unit	
Output Voltage Accuracy	0% - 100% load	--	±2	--	%	
Line Regulation	Rated load	--	±0.5	--		
Load Regulation	230VAC	--	±1.5	--		
Output Ripple & Noise*	20MHz bandwidth (peak-to-peak value)	5V Output	--	--	100	mV
		12V Output	--	--	120	
		15V Output	--	--	120	
		24V Output	--	--	150	
		48V Output	--	--	240	
Temperature Coefficient		--	±0.02	--	%/°C	

Stand-by Power Consumption	230VAC input	5V/12V/15V/24V Output	--	--	0.3	W
		48V Output	--	--	0.4	
Short Circuit Protection			Hiccup, continuous, self-recovery			
Over-current Protection			≥120%Io, self-recovery			
Over-voltage Protection	5V Output		≤7.5V (Output voltage clamp or hiccup)			
	12V Output		≤16V (Output voltage clamp or hiccup)			
	15V Output		≤20V (Output voltage clamp or hiccup)			
	24V Output		≤36V (Output voltage clamp or hiccup)			
	48V Output		≤60V (Output voltage clamp or hiccup)			
Minimum Load			0	--	--	%
Start-up Time			--	--	3	s
Hold-up Time	115VAC		--	15	--	ms
	230VAC		--	80	--	

Note: \* Ripple & noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1uf & 47uf parallel capacitor.

### General Specifications

Item	Operating Conditions		Min.	Typ.	Max.	Unit
Isolation Test	Input - Output	Electric Strength Test for 1min., (leakage current < 5mA)	4000	--	--	VAC
Operating Temperature			-40	--	+70	°C
Storage Temperature			-40	--	+85	
Storage Humidity			--	--	95	%RH
Operating Altitude			--	--	2000	m
Switching Frequency			--	65	--	kHz
Power Derating	-40°C ~ -30°C	5V/12V/48V Output	3.0	--	--	% / °C
		24V Output	7.0	--	--	
		15V Output	8.0	--	--	
	+45°C ~ +70°C			2.0	--	--
85VAC - 100VAC			1.0	--	--	%/VAC
Safety Standard			UL62368/EN62368/IEC62368			
Safety Certification			EN62368 (Pending)			
Safety Class			CLASS II			
MTBF	MIL-HDBK-217F@25°C		> 300,000 h			

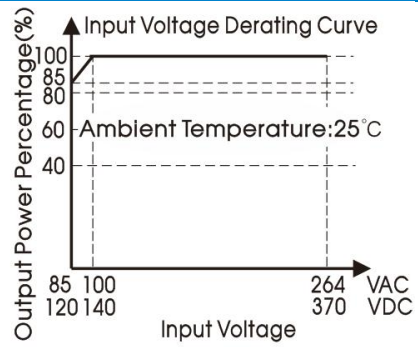
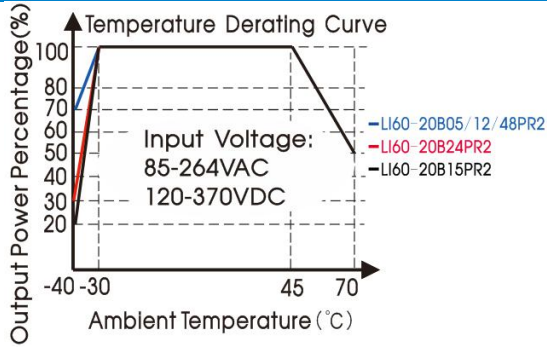
### Mechanical Specifications

Case Material	Plastic, heat-resistant (UL94V-0)
Package Dimensions	92.66 x 52.00 x 58.00 mm
Weight	175g (Typ.)
Cooling method	Free air convection

### Electromagnetic Compatibility (EMC)

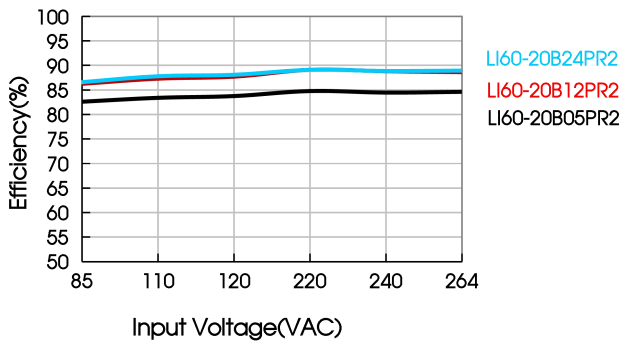
Emissions	CE	CISPR32/EN55032	CLASS B
	RE	CISPR32/EN55032	CLASS B
Immunity	ESD	IEC/EN61000-4-2	Contact ±6KV/ Air ±8KV Perf. Criteria A
	RS	IEC/EN61000-4-3	10V/m perf. Criteria A
	EFT	IEC/EN61000-4-4	±2KV perf. Criteria A
	Surge	IEC/EN61000-4-5	line to line ±2KV perf. Criteria A
	CS	IEC/EN61000-4-6	10Vr.m.s perf. Criteria A
	Voltage dips, short interruptions and voltage variations immunity	IEC/EN61000-4-11	0%, 70% perf. Criteria A

Product Characteristic Curve

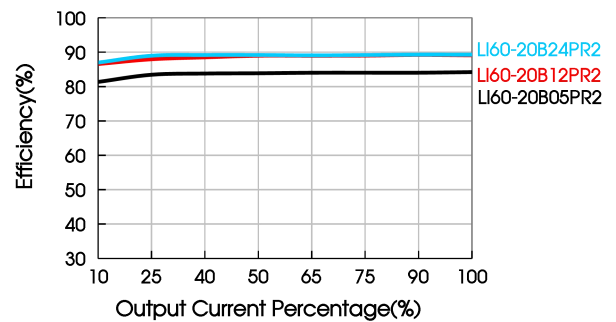


Note: ① With an AC input between 85-100VAC and a DC input between 120-140VDC, the output power must be derated as per temperature derating curves;  
② This product is suitable for applications using natural air cooling; for applications in closed environment please consult factory or one of our FAE.

Efficiency Vs Input Voltage (Full Load)

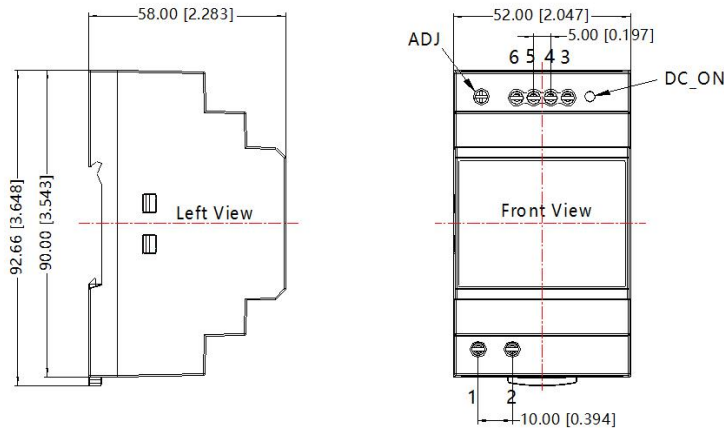


Efficiency Vs Output Load (Vin=230VAC)



Dimensions and Recommended Layout

THIRD ANGLE PROJECTION



Pin-Out	
Pin	LI60-20B
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: ±1.00[±0.039]

Note:

1. For additional information on Product Packaging please refer to [www.mornsun-power.com](http://www.mornsun-power.com). Packaging bag number: 58220078;
2. 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;
3. All index testing methods in this datasheet are based on our company corporate standards;
4. We can provide product customization service, please contact our technicians directly for specific information;
5. Specifications are subject to change without prior notice.
6. Products are related to laws and regulations: see "Features" and "EMC";
7. 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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