

60W, AC/DC DIN-Rail Power Supply



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 to +70°C
- High I/O isolation test voltage up to 4000VAC
- Industrial-grade design
- OVC III (EN61558-1 standards)
- Low standby power consumption, high efficiency
- Low ripple & noise
- Output short circuit, over-current, over-voltage protection
- Withstand 300VAC surge input for 5s
- DIN rail TS35X7.5/ TS35X15 mountable
- Safety according to EN61558



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 and safety specifications meet 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 SRange ADJ (V)**	Efficiency at 230VAC (%) Typ.	Capacitive Load (μF) Max.
UL/EN/IEC/BIS/UKCA	LI60-20B05PR2	32.5	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

Note: *LI60-20B24PR2-Q with 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	--	--	1.2	A
	230VAC	--	--	0.8	
Inrush Current	115VAC	--	30	--	
	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				
	15V output	≤20V				
	24V output	≤36V				
	48V output	≤60V				
Minimum Load		0	--	--	%	
Start-up Delay 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	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 to -30°C	5V/12V/48V output	3.0	--	--	% / °C
		24V output	7.0	--	--	
		15V output	8.0	--	--	
	+45°C to +70°C		2.0	--	--	
	85VAC - 100VAC	1.0	--	--	%/VAC	
Safety Standard	LI60-20BxxPR2	UL/IEC62368-1, IS13252 (Part1) safety approved & EN62368-1, BS EN 62368-1 (Report); Design refer to EN61558-1				
	LI60-20B24PR2-Q	Design refer to UL/IEC62368-1, IS13252 (Part1) & EN61558-1, EN62368-1, BS EN 62368-1				
Safety Class		CLASS II				
MTBF	MIL-HDBK-217F@25°C	> 300,000 h				

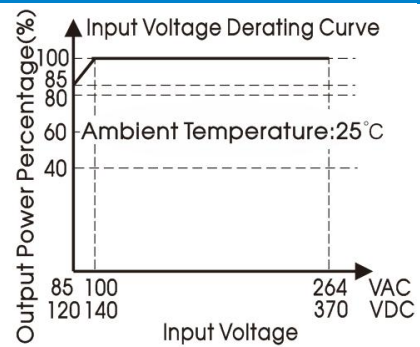
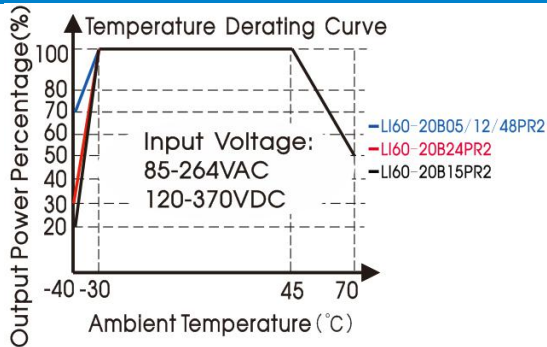
Mechanical Specifications

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

Electromagnetic Compatibility (EMC)

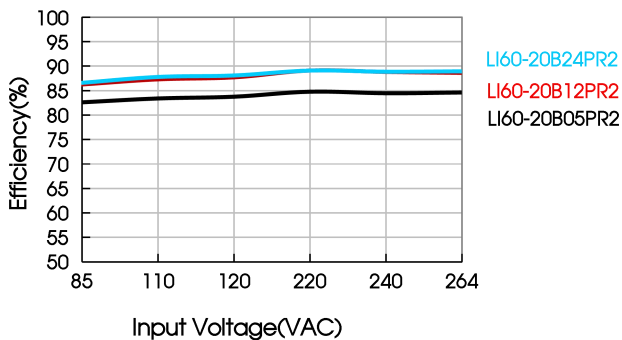
Emissions	CE	CISPR32/EN55032	CLASS B	
	RE	CISPR32/EN55032	CLASS B	
Immunity	ESD	IEC/EN61000-4-2	Contact ±6KV/Air ±8KV	Perf. Criteria A
	RS	IEC/EN61000-4-3	10V/m	Perf. Criteria A
	EFT	IEC/EN61000-4-4	±2KV	Perf. Criteria A
	Surge	IEC/EN61000-4-5	line to line ±2KV	Perf. Criteria A
	CS	IEC/EN61000-4-6	10Vr.m.s	Perf. Criteria A
	Voltage dips, short interruptions and voltage variations immunity	IEC/EN61000-4-11	100% dip 1 periods, 30% dip 25 periods, 100% interruptions 250 periods	Perf. Criteria A

Product Characteristic Curve

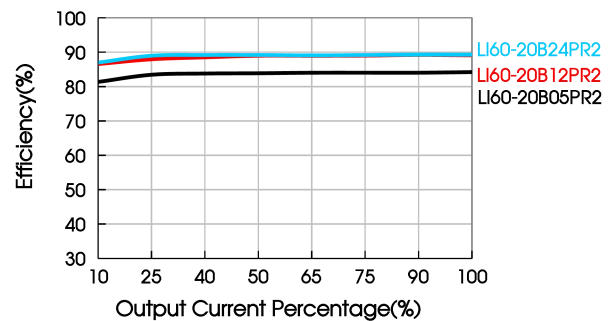


Note: ① With an AC input between 85-100VAC and a DC input between 120-140VDC, the output power must be derated as per temperature derating curves;
② This product is suitable for applications using natural air cooling; For applications in closed environment please consult Mornsun FAE.

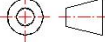
Efficiency Vs Input Voltage (Full Load)

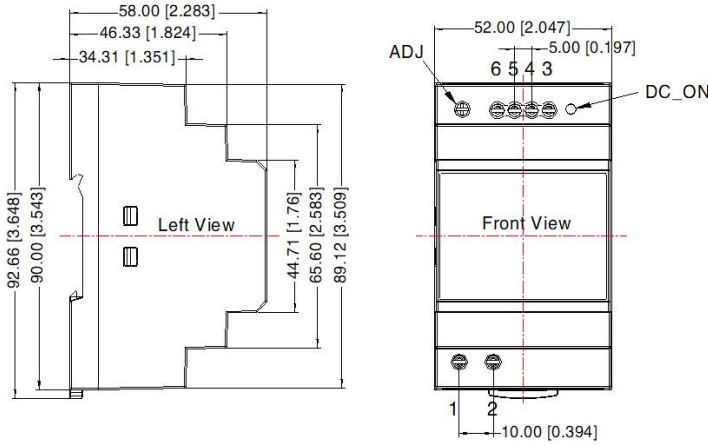


Efficiency Vs Output Load (Vin=230VAC)



Dimensions and Recommended Layout (LI60-20BxxPR2、LI60-20B24PR2-Q)

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: $\pm 1.00 [\pm 0.039]$

- Note:
1. For additional information on Product Packaging please refer to www.mornsun-power.com. Packaging bag number: 58220196;
 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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