

# AC/DC Converter

## LI30-20BxxPR2 Series

# MORNSUN®

30W, 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 ~ +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
- EN62368 safety approved

LI30-20BxxPR2 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	LI30-20B05PR2	15	5V/3A	4.9-5.5	82	12000
	LI30-20B12PR2	24	12V/2A	10.8-13.8	88	6000
	LI30-20B15PR2	30	15V/2A	13.5-18.0	89	5000
	LI30-20B24PR2	36	24V/1.5A	21.6-29.0	89	1400
	LI30-20B48PR2	36	48V/0.75A	43.2-55.2	90	600

### 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	--	--	0.9	A
	230VAC	--	--	0.5	
Inrush Current	115VAC	--	25	--	
	230VAC	--	45	--	
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	--	80	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	

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Page 1 of 4

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Short Circuit Protection		Hiccup, continuous, self-recovery			
Over-current Protection		$\geq 120\%$ Io, self-recovery			
Over-voltage Protection	5V Output	$\leq 7.5V$ (Output voltage clamp or hiccup)			
	12V Output	$\leq 16V$ (Output voltage clamp or hiccup)			
	15V Output	$\leq 20V$ (Output voltage clamp or hiccup)			
	24V Output	$\leq 36V$ (Output voltage clamp or hiccup)			
	48V Output	$\leq 60V$ (Output voltage clamp or hiccup)			
Minimum Load		0	--	--	%
Start-up Time		--	--	3	s
Hold-up Time	115VAC	--	12	--	ms
	230VAC	--	60	--	

Note: \* The "parallel cable" method is used for ripple and noise test, please refer to AC-DC Converter Application Notes for specific information.

## 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	℃
Storage Temperature				-40	--	+85	
Storage Humidity				--	--	95	%RH
Operating Altitude				--	--	2000	m
Switching Frequency				--	65	--	kHz
Power Derating	-40℃ ~ -30℃	5V/48V Output	3.0	--	--	% /℃	
		12V/15V Output	7.0	--	--		
		24V Output	5.0	--	--		
	+50℃ ~ +70℃		2.5	--	--	% /VAC	
	85VAC - 100VAC		1.0	--	--		
Safety Standard				UL62368/EN62368/IEC62368			
Safety Certification				EN62368			
Safety Class				CLASS II			
MTBF		MIL-HDBK-217F@25℃		> 300,000 h			

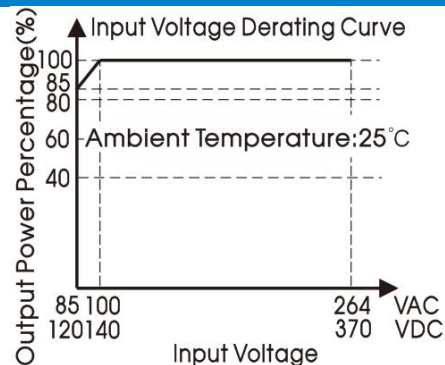
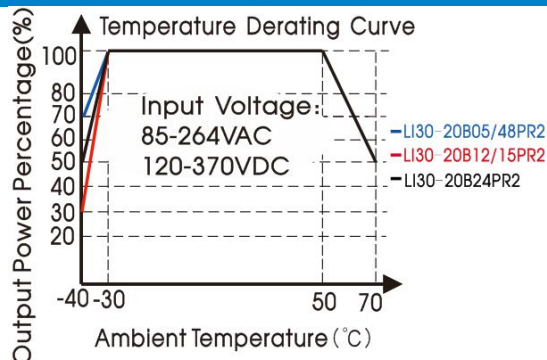
## Mechanical Specifications

Case Material	Plastic, heat-resistant (UL94V-0)
Package Dimensions	92.66 x 35.00 x 58.00 mm
Weight	115g (Typ.)
Cooling method	Free air convection

## Electromagnetic Compatibility (EMC)

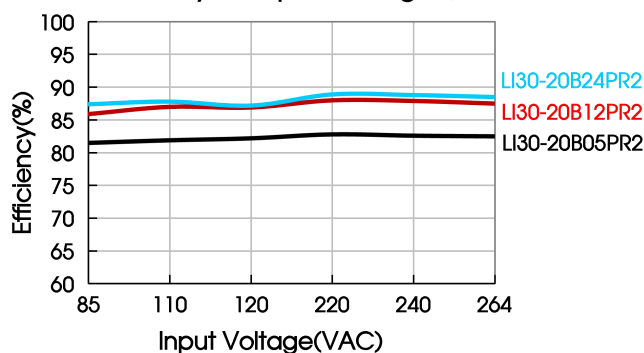
Emissions	CE	CISPR32/EN55032	CLASS B	
	RE	CISPR32/EN55032	CLASS B	
Immunity	ESD	IEC/EN61000-4-2	Contact $\pm 6KV$ /Air $\pm 8KV$	Perf. Criteria A
	RS	IEC/EN61000-4-3	10V/m	perf. Criteria A
	EFT	IEC/EN61000-4-4	$\pm 2KV$	perf. Criteria A
	Surge	IEC/EN61000-4-5	line to line $\pm 2KV$	perf. Criteria A
	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

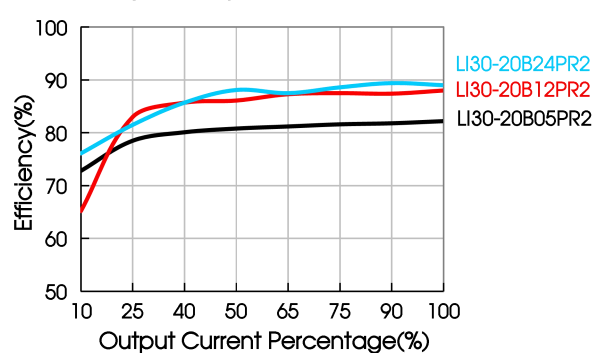


Note: ① With an AC input between 85-100VAC and a DC input between 120-140VDC, the output power must be derated as per temperature derating curves;  
② This product is suitable for applications using natural air cooling; for applications in closed environment please consult factory or one of our FAE.

#### Efficiency Vs Input Voltage (Full Load)

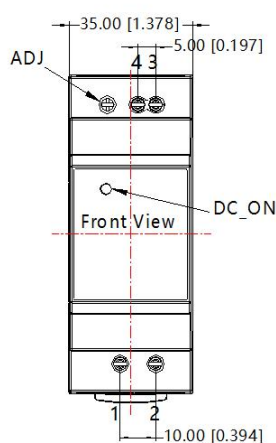
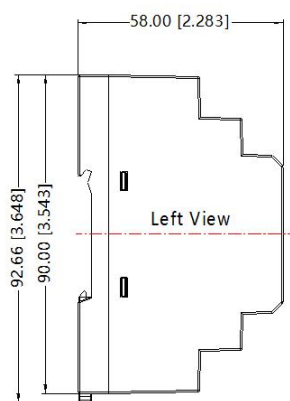


#### Efficiency Vs Output Load (Vin=230VAC)



### Dimensions and Recommended Layout

THIRD ANGLE PROJECTION



Pin-Out	
Pin	LI30-20B
1	AC(N)
2	AC(L)
3	-Vo
4	+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](http://www.mornsun-power.com). Packaging bag number: 58220077;
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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