



FEATURES

- Universal 90 - 264VAC or 127 - 373VDC Input voltage
- Accepts AC or DC input (dual-use of same terminal)
- Operating ambient temperature range: -20°C ~ +60°C
- The efficiency is up to 89%
- High I/O isolation test voltage up to 4000VAC
- Low ripple & noise
- Output short circuit, over-current, over-voltage, over-temperature protection
- DIN rail TS-35/7.5 or 15 mountable
- Ultra slim design with 35mm width: suitable for small chassis and narrow space installation
- Safety according to IEC/EN/UL62368, EN60335, GB4943 (CE pending)

LI120-20BxxR2 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 (35mm) installation for space saving. With good EMC performance, compliant with international IEC/EN/UL62368, EN60335, GB4943 standards for EMC and safety.

Selection Guide

Certification	Part No.	Output Power(W)	Nominal Output Voltage and Current (Vo/Io)	Output Voltage Adjustable Range(V)	Efficiency at 230VAC (%) Typ.	Max. Capacitive Load (μF)
CE (Pending)	LI120-20B12R2	120	12V/10A	12-14	85	3000
	LI120-20B24R2		24V/5A	24-28	88	1200
	LI120-20B48R2		48V/2.5A	48-55	89	800

Input Specifications





Item	Operating Conditions		Min.	Typ.	Max.	Unit
Input Voltage Range	AC input		90	--	264	VAC
	DC input		127	--	373	VDC
Input Voltage Frequency			47	--	63	Hz
Input Current	115VAC		--	--	2.7	A
	230VAC		--	--	1.6	
Inrush Current	115VAC		--	--	30	
	230VAC		Cold start		55	
Hot Plug			Unavailable			

Output Specifications

Item	Operating Conditions		Min.	Typ.	Max.	Unit	
Output Voltage Accuracy	Full load range	12V	--	±2.0	--	%	
		24V/48V	--	±1.0	--		
Line Regulation	Rated load		--	±0.5	--		
Load Regulation	0% - 100% load		--	±1.0	--		
Ripple & Noise*	20MHz bandwidth (peak-to-peak value)		12V	--	--	100	mV
			24V	--	--	120	

		48V	--	--	150	
Temperature Coefficient			--	±0.03	--	%/°C
Minimum Load			0	--	--	%
Hold-up Time	115VAC		8	--	--	ms
	230VAC		16	--	--	
Short Circuit Protection	Recovery time < 5s after the short circuit disappear.		Hiccup, continuous, self-recovery			
Over-current Protection	Room temperature, high temperature		105%-150% Io, constant current mode, automatic recovery after removal of load exception condition			
	Low temperature		110%-150% Io, constant current mode, automatic recovery after removal of load exception condition			
Over-voltage Protection	12V		≤ 16V(Output voltage turn off, re-power on for recovery)			
	24V		≤ 33V(Output voltage turn off, re-power on for recovery)			
	48V		≤ 60V(Output voltage turn off, re-power on for recovery)			
Over-temperature Protection	Output voltage turn off, re-power on for recovery					
Note: *The "Tip and barrel 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 - 	Electric strength test for 1min., leakage current <10mA	2000	--	--	VAC	
	Input-output		4000	--	--		
	Output - 		500	--	--		
Insulation Resistance	Input - 	At 500VDC	100	--	--	MΩ	
	Input - output		100	--	--		
	Output - 		100	--	--		
Operating Temperature			-20	--	+60	°C	
Storage Temperature			-40	--	+85		
Storage Humidity	Non-condensing		10	--	95	%RH	
Switching Frequency			--	65	--	kHz	
Power Derating	Operating temperature derating	All series	-20°C~-10°C	115VAC	2.0	--	% / °C
			-20°C~-10°C	230VAC	0	--	
			+40°C~+60°C	115VAC	2.5	--	
		12V	+45°C~+60°C	230VAC	3.33	--	
		24V/48V	+50°C~+60°C	230VAC	5	--	
	Input voltage derating	90VAC -115VAC	1.0	--	--	%/VAC	
Safety Standard			Meet IEC/EN/UL62368, EN60335, GB4943				
Safety Class			CLASS I				
MTBF	MIL-HDBK-217F@25°C		> 300,000 h				

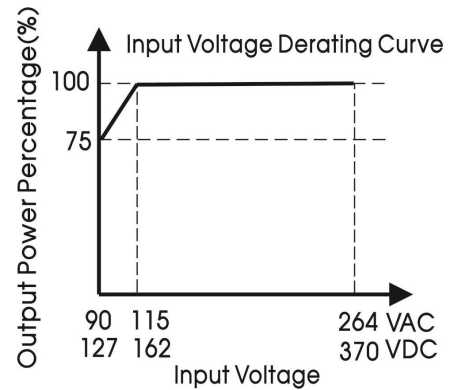
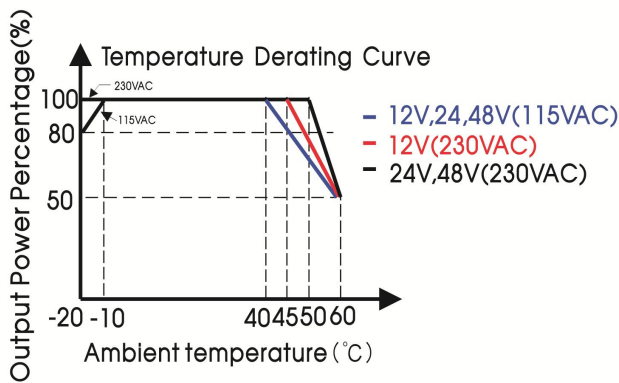
Mechanical Specifications

Case Material	Metal (AL1100, SGCC)
Dimensions	35.00 x 125.00 x 112.70mm
Weight	500g (Typ.)
Cooling Method	Free air convection

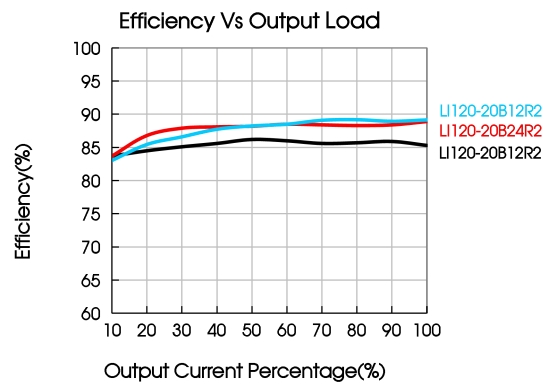
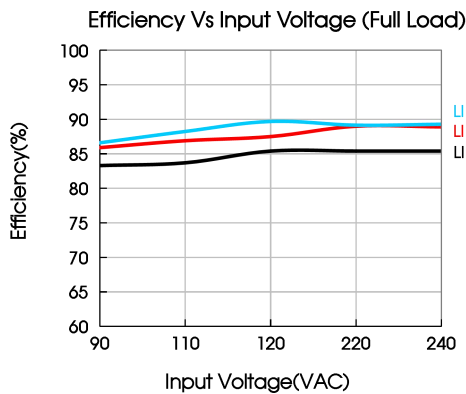
Electromagnetic Compatibility (EMC)

Emissions	CE	CISPR32/EN55032 CLASS A		
	RE	CISPR32/EN55032 CLASS A		
Immunity	ESD	IEC/EN 61000-4-2	Contact ±6KV /Air ±8KV	Perf. Criteria B
	RS	IEC/EN 61000-4-3	10V/m	perf. Criteria A
	EFT	IEC/EN 61000-4-4	±4KV	perf. Criteria B
	Surge	IEC/EN 61000-4-5	line to line ±2KV/line to ground ±4KV	perf. Criteria B
	CS	IEC/EN61000-4-6	10 Vr.m.s	perf. Criteria A
	Voltage dips, short interruptions and voltage variations immunity	IEC/EN61000-4-11	0%, 70%	perf. Criteria B


Product Characteristic Curve

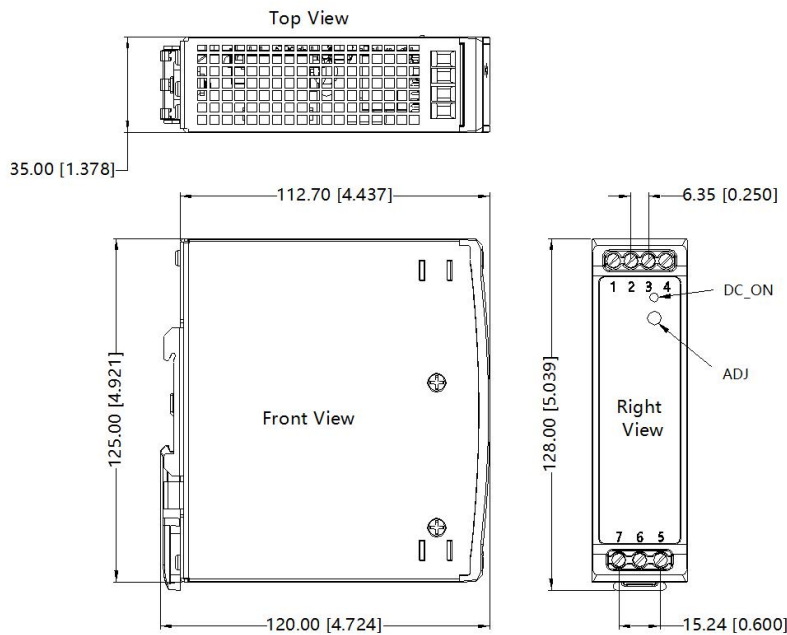


Note: ① With an input voltage between 90-115VAC and a DC input between 127-162VDC the output power must be derated as per the temperature derating curves;
② This product is suitable for applications using natural air cooling; for applications in closed environment please consult Mornsun FAE.



Dimensions and Recommended Layout

THIRD ANGLE PROJECTION 



Pin-Out	
Pin	Function
1	+Vo
2	+Vo
3	-Vo
4	-Vo
5	AC(N)
6	AC(L)
7	⏏

Note:

Unit: mm[inch]

ADJ : adjustable resistance to change output voltage

Wire range: 26-10 AWG

Tightening torque: Max 0.4 N·m
Mounting rail: TS35, rail needs to connect safety ground

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: 58220028;
2. Unless otherwise specified, parameters in this datasheet were measured under the conditions of $T_a=25^{\circ}\text{C}$, humidity<75%RH with nominal input voltage and rated output load;
3. The room temperature derating of $5^{\circ}\text{C}/1000\text{m}$ is needed for operating altitude greater than 2000m;
4. All index testing methods in this datasheet are based on our company corporate standards;
5. In order to improve the efficiency at high input voltage, there will be audible noise generated, but it does not affect product performance and reliability;
6. We can provide product customization service, please contact our technicians directly for specific information;
7. Products are related to laws and regulations: see "Features" and "EMC";
8. 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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