AC/DC 120W Enclosed Switching Power Supply

LI120-20BxxR2S Series

MORNSUN®

CE Report EN62368-1 | UKCA BS EN 62368-1 | RoHS

FEATURES

- Universal 90 - 264VAC or 127 - 370VDC Input voltage
- Accepts AC or DC input (dual-use of same terminal)
- Operating ambient temperature range: -20℃ to +60℃
- 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: suitable for small chassis and narrow space installation
- Safety according to UL61010, UL508, EN62368

LI120-20BxxR2S 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 installation for space saving. With good EMC performance, compliant with international UL61010-1, UL508, EN62368-1 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)
EN/BIS/BS	LI120-20B12R2S	120	12V/10A	12-14	85	3000
	LI120-20B24R2S		24V/5A	24-28	88	1200
	LI120-20B48R2S		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	--	370	VDC
Input Voltage Frequency			47	--	63	Hz
Input Current	115VAC		--	--	2.7	A
	230VAC		--	--	1.6	
Inrush Current	115VAC	Cold start	--	30	--	
	230VAC		--	55	--	
Leakage Current	240VAC		<1.0mA			
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	12V	--	--	100	mV
		24V	--	--	120	

	(peak-to-peak value)	48V	--	--	150	
Temperature Coefficient			--	±0.03	--	%/℃
Minimum Load			0	--	--	%
Hold-up Time	115VAC		8	--	--	ms
	230VAC		16	--	--	
Short Circuit Protection	Recovery time < 3s after the short circuit disappear.		Constant current, continuous, self-recovery			
Over-current Protection	230VAC, rated load	Normal temperature, high temperature	105%-150% Io, constant current mode, automatic recover after fault condition is removed			
		Low temperature	⩾105%Io, constant current mode, automatic recover after fault condition is removed			
Over-voltage Protection	12V		⩽16V (Output voltage turn off, re-power on for recover)			
	24V		⩽33V (Output voltage turn off, re-power on for recover)			
	48V		⩽60V (Output voltage turn off, re-power on for recover)			
Over-temperature Protection			Output voltage turn off, re-power on for recover			

Note: *The "Tip and barrel method" is used for ripple and noise test, output parallel 47uF electrolytic capacitor and 0.1uF ceramic capacitor, please refer to Enclosed Switching Power Supply 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	℃
Storage Temperature					-40	--	+85	
Storage Humidity		Non-condensing			10	--	95	%RH
Operating Humidity					20	--	90	
Switching Frequency					--	65	--	kHz
Power Derating		Operating temperature derating	All series	-20℃ to -10℃ 115VAC	2.0	--	--	%/℃
				-20℃ to -10℃ 230VAC	0	--	--	
				+40℃ to +60℃ 115VAC	2.5	--	--	
			12V	+45℃ to +60℃ 230VAC	3.33	--	--	
			24V/48V	+50℃ to +60℃ 230VAC	5	--	--	
		Input voltage derating		90VAC -115VAC	1.0	--	--	%/VAC
Safety Standard					IS13252 (Part1) safety approved & EN62368-1, BS EN 62368-1 (Report) Design refer to UL61010-1, UL508			
Safety Class					CLASS I			
MTBF		MIL-HDBK-217F@25℃			⩾300,000 h			

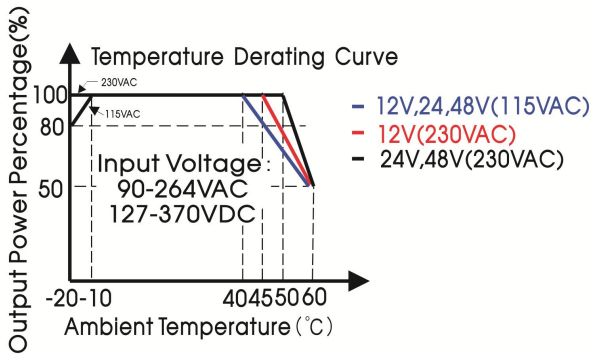
Mechanical Specifications

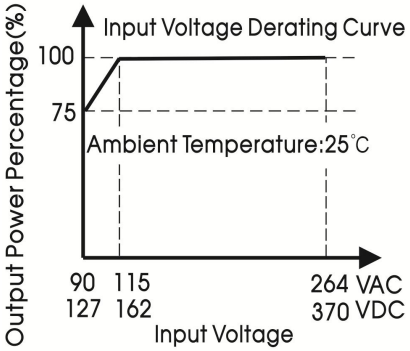
Case Material	Metal (AL1100, SGCC)
Dimensions	36.00 x 125.00 x 100.00mm
Weight	410g (Typ.)
Cooling Method	Free air convection

Electromagnetic Compatibility (EMC)

Emissions	CE	CISPR32/EN55032 CLASS A	
	RE	CISPR32/EN55032 CLASS A	
	THD	IEC/EN61000-3-2 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

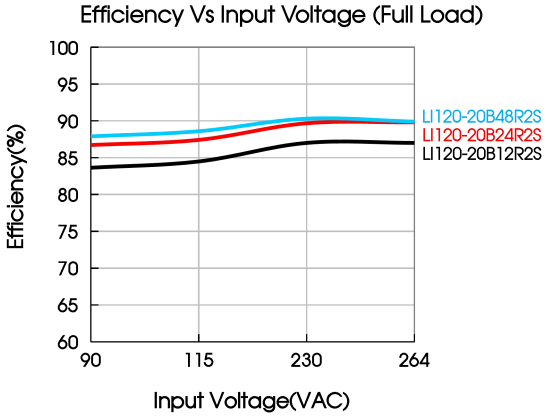
Product Characteristic Curve

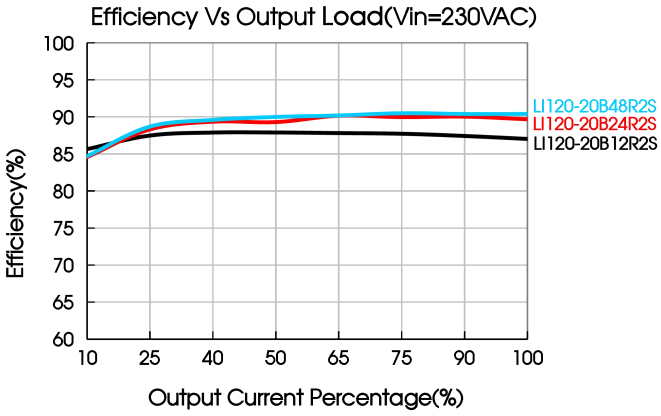




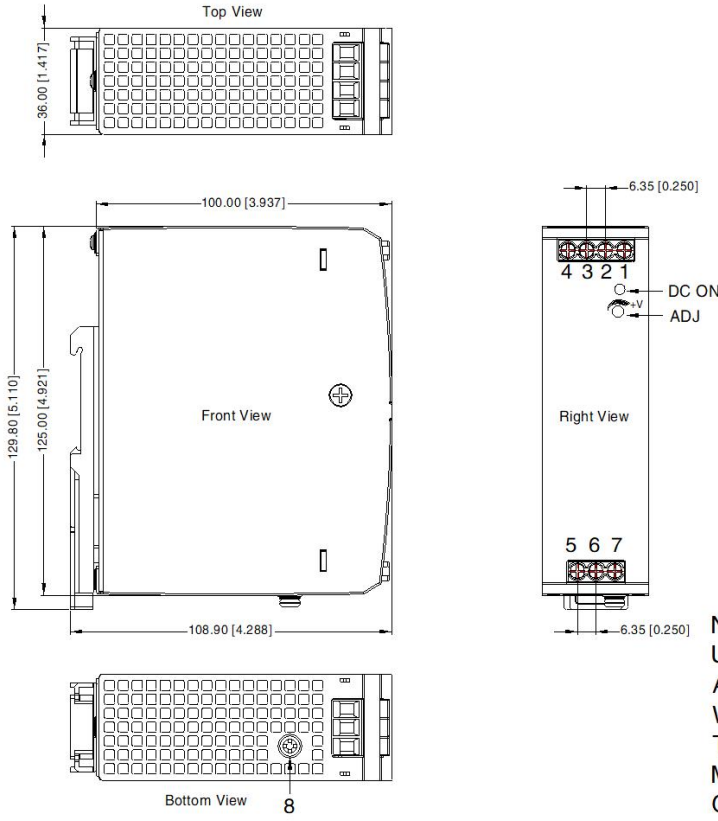
Note: 1.With an AC input voltage between 90 -115VAC and a DC input between 127-162VDC the output power must be derated as per the temperature derating curves;

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	Mark
1	–Vo
2	–Vo
3	+Vo
4	+Vo
5	AC(N)
6	AC(L)
7	⏚

7、8 any position must be connected to the earth (⏚)

Note:
Unit: mm[inch]
ADJ: Output adjustable resistor
Wire range: 26–10 AWG
Tightening torque: Max 0.4 N·m
Mounting rail: TS35, rail needs to connect safety ground
General tolerances: ± 1.00[± 0.039]

Note:

1. For additional information on Product Packaging please refer to www.mornsun-power.com. Packaging bag number: 58220163;
2. Unless otherwise specified, parameters in this datasheet were measured under the conditions of Ta=25℃, humidity<75% RH with nominal input voltage and rated output load;
3. All index testing methods in this datasheet are based on our company corporate standards;
4. 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;
5. We can provide product customization service, please contact our technicians directly for specific information;
6. Products are related to laws and regulations: see "Features" and "EMC";
7. The out case needs to be connected to PE (⏚) of system when the terminal equipment in operating;
8. Our products shall be classified according to ISO14001 and related environmental laws and regulations, and shall be handled by qualified units;
9. The power supply is considered a component which will be installed into a terminal equipment. All EMC tests should be confirmed with the final equipment. Please consult our FAE for EMC test operation instructions.

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