



### FEATURES

- Universal 85 - 264VAC or 120 - 373VDC Input voltage
- Accepts AC or DC input (dual-use of same terminal)
- Operating ambient temperature range: -40°C to +70°C
- High efficiency, high reliability
- DC OK function
- Power on the LED indicator
- Output short circuit, over-current, over-voltage, over-temperature protection
- Over-voltage class III (designed to meet EN61558)
- Safety according to IEC/EN/UL62368, IEC/EN60079, UL61010

LIF120-10BxxR2 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, IEC/EN60079, UL61010 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)
--	LIF120-10B12R2	120	12V/10A	11.8-14.0	92	5000
	LIF120-10B24R2		24V/5A	23.5-28.0	93	2000
	LIF120-10B48R2		48V/2.5A	47.0-53.0	93.5	1000

### Input Specifications

Item	Operating Conditions		Min.	Typ.	Max.	Unit
Input Voltage Range	AC input		85	--	264	VAC
	DC input		120	--	373	VDC
Input Voltage Frequency			47	--	63	Hz
Input Current	115VAC		--	--	1.5	A
	230VAC		--	--	0.75	
Inrush Current	115VAC	Cold start	--	15	--	
	230VAC		--	30	--	
Power Factor	115VAC		--	0.98	--	--
	230VAC		--	0.94	--	
Leakage Current	240VAC		<1mA			
Hot Plug			Unavailable			

### Output Specifications

Item	Operating Conditions		Min.	Typ.	Max.	Unit
Output Voltage Accuracy	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	--	--	50	mV

# AC/DC 120W Enclosed Switching Power Supply

## LIF120-10BxxR2 Series

**MORNSUN®**

	(peak-to-peak value)	24V	--	--	50	
		48V	--	--	100	
Stand-by Power Consumption			--	1.2	--	W
Hold-up Time			--	20	--	ms
Short Circuit Protection	Recovery time < 10s after the short circuit disappear		Constant current, continuous, self-recovery			
Over-current Protection	230VAC, rated load	Normal temperature, High temperature	110% - 200% Io, self-recovery			
		Low temperature	≥ 105% Io, self-recovery			
Over-voltage Protection	12V		≤ 18V (Output voltage turn off, re-power on for recover)			
	24V		≤ 35V (Output voltage turn off, re-power on for recover)			
	48V		≤ 60V (Output voltage turn off, re-power on for recover)			
Over-temperature Protection	Over-temperature protection start	230VAC, rated load	--	--	95	°C
	Over-temperature protection release		60	--	--	

Note: \*The "Tip and barrel method" is used for ripple and noise test, output parallel 47μF electrolytic capacitor and 0.1μF 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		1500	--	--	VAC
	Input - output			3000	--	--	
	Output - ⚡			500	--	--	
Insulation Resistance	Input - ⚡	At 500VDC		50	--	--	M Ω
	Input - output			50	--	--	
	Output - ⚡			50	--	--	
Operating Temperature				-40	--	+70	℃
Storage Temperature				-40	--	+85	
Storage Humidity		Non-condensing		10	--	95	%RH
Operating Humidity				20	--	95	
Switching Frequency				--	100	--	kHz
Power Derating	Operating temperature derating	-40℃ to -25℃		3.34	--	--	% /℃
		+50℃ to +70℃	85VAC-164VAC	2.0	--	--	
		+60℃ to +70℃	165VAC-264VAC	3.0	--	--	
	Input voltage derating		85VAC-100VAC	0.67	--	--	%/VAC
Safety Standard				Meet IEC/EN/UL62368/IEC/EN60079/UL61010			
Safety Class				CLASS I			
MTBF		MIL-HDBK-217F@25℃		>300,000 h			

### Mechanical Specifications

Case Material	Metal (AL1050, SGCC) and Plastic (PC940)
Dimensions	110.00 x 32.00 x 124.00 mm
Weight	495g (Typ.)
Cooling Method	Free air convection

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**Note: Under development, for preliminary evaluation only**

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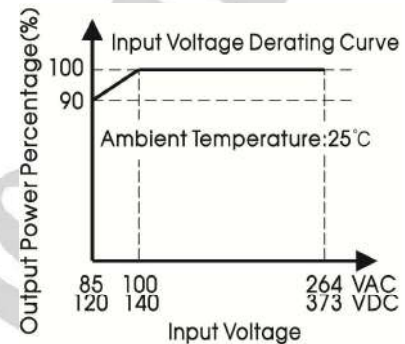
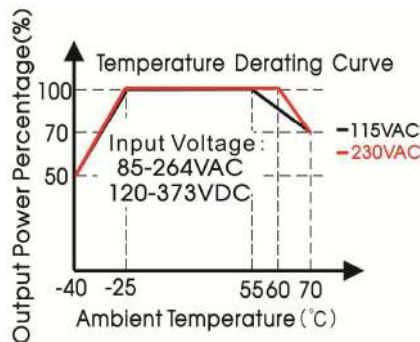
Page 2 of 4

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## Electromagnetic Compatibility (EMC)

Emissions	CE	CISPR32/EN55032	CLASS B	
	RE	CISPR32/EN55032	CLASS B	
	Harmonic current	IEC/EN61000-3-2	CLASS A	
Immunity	ESD	IEC/EN 61000-4-2	Contact $\pm 6\text{KV}$ /Air $\pm 8\text{KV}$	Perf. Criteria A
	RS	IEC/EN 61000-4-3	10V/m	perf. Criteria A
	EFT	IEC/EN 61000-4-4	$\pm 4\text{KV}$	perf. Criteria A
	Surge	IEC/EN 61000-4-5	line to line $\pm 2\text{KV}$ /line to ground $\pm 4\text{KV}$	perf. Criteria A
	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



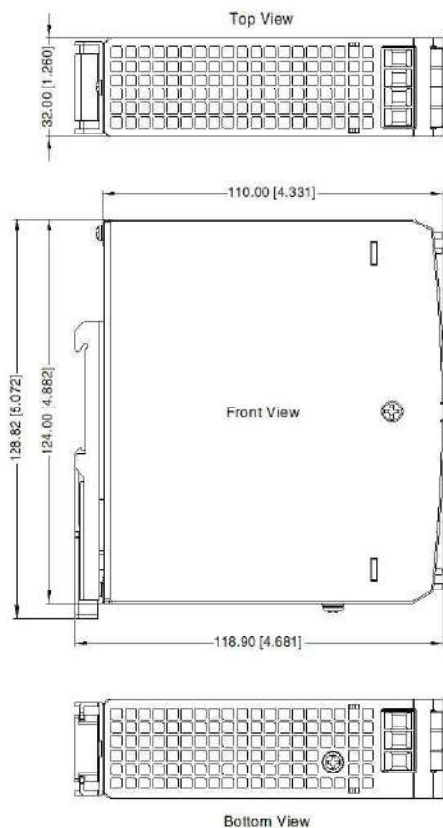
Note: 1. With an AC input voltage between 85-100VAC and a DC input between 120-140VDC the output power must be derated as per the temperature derating curves;

2. This product is suitable for applications using natural air cooling; for applications in closed environment please consult Mornsun FAE.

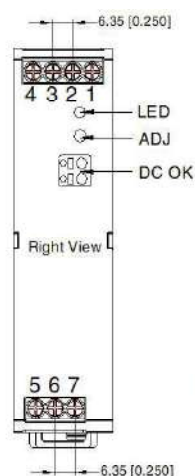
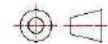
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## Dimensions and Recommended Layout



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](http://www.mornsun-power.com). Packaging bag number: XXXXXXXX;
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. 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 ( $\oplus$ ) of system when the terminal equipment in operating;
8. The output voltage can be adjusted by the ADJ, clockwise to decrease;
9. 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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Page 4 of 4

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