AC/DC 120W DIN-Rail Power Supply

LIF120-10BxxR2 Series

MORNSUN®

UL61010-1
UL61010-2-201

EN62368-1

FEATURES

- Universal 85 - 264VAC or 120 - 370 VDC Input voltage
- Accepts AC or DC input (dual-use of same terminal)
- Operating ambient temperature range: -40℃ to +70℃
- High efficiency up to 94%, high reliability
- DC OK function
- Active PFC
- 150% peak load output for 3 seconds
- DC ON output status indicator LED
- Output short circuit, over-current, over-voltage, over-temperature protection
- Operating altitude up to 5000m
- OVC Ⅱ
- Indoor use
- Safety according to IEC/UL/BS EN 62368

LIF120-10BxxR2 series is Mornsun AC-DC converter series featuring a cost-effective, energy efficient explosion-proof 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/EN/UL/BS EN 62368, UL61010. 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 environments.

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)
UL/EN	LIF120-10B12R2	120	12V/10A	11.8-14.0	93.5	80,000
	LIF120-10B24R2		24V/5A	23.5-28.0	94	50,000
	LIF120-10B48R2		48V/2.5A	47.0-53.0		30,000
--	LIF120-10B55R2	121	55V/2.2A	52.0-56.0		

Input Specifications

Item	Operating Conditions		Min.	Typ.	Max.	Unit
Input Voltage Range	Rated input (Certified voltage)		100	--	240	VAC
	AC input		85	--	264	
	DC input		120	--	370	VDC
Input Frequency	Rated AC input		50	--	60	Hz
	AC input		47	--	63	
Input Current	Rated Input		--	--	1.5	A
	115VAC		--	--	1.5	
	230VAC		--	--	0.75	
Inrush Current	115VAC	Cold start	--	15	--	
	230VAC		--	30	--	
Leakage Current	240VAC		<1mA			
Power Factor	115VAC		--	0.98	--	--
	230VAC		--	0.94	--	
Start-up Delay Time	230VAC		--	300	1000	ms
Hot Plug			Unavailable			

Output Specifications

Item	Operating Conditions		Min.	Typ.	Max.	Unit
Output Voltage Accuracy	Full load range		--	±1	--	%
Line Regulation	Rated load		--	±0.5	--	
Load Regulation	0% - 100% load		--	±1	--	
Ripple & Noise*	20MHz bandwidth (peak-peak value)	12V/24V	--	--	100	mV
		48V/55V	--	--	200	
Stand-by Power Consumption			--	2	--	W
Hold-up Time			--	20	--	ms
DC OK Signal	Resistive load		30VDC/1A Max.			
Short Circuit Protection	Recovery time < 10s after the short circuit disappear.		Hiccup mode, constant current works 1s, turn off 10s, continuous, self-recovery			
Over-current Protection	230VAC, rated load	Normal temperature, high temperature	105% - 200% Io, self-recovery			
		Low temperature	⩾105% full load after derating, self-recovery			
Over-voltage Protection	12V		⩽18V (Hiccup, self-recovery after the abnormality is removed)			
	24V		⩽35V (Hiccup, self-recovery after the abnormality is removed)			
	48V		⩽60V (Hiccup, self-recovery after the abnormality is removed)			
	55V		⩽63V (Hiccup, self-recovery after the abnormality is removed)			
Over-temperature Protection	230VAC, 70% load	Over-temperature protection start	--	90	--	℃
		Over-temperature protection release	60	--	--	

Note: 1.*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;
2.*DC OK Signal: When the output voltage is normal, the relay is connected. When the output voltage is abnormal (<90%Vo), the relay is disconnected.

General Specifications

Item		Operating Conditions		Min.	Typ.	Max.	Unit
Isolation Test	Input - ⏚	Electric strength test for 1min., leakage current <15mA		1500	--	--	VAC
	Input - output			3000	--	--	
	Output - ⏚			500	--	--	
Insulation Resistance	Input - ⏚	At 500VDC		50	--	--	MΩ
	Input - output			50	--	--	
	Output - ⏚			50	--	--	
Operating Temperature				-40	--	+70	℃
Storage Temperature				-40	--	+85	
Operating Humidity		Non-condensing		--	--	95	%RH
Storage Humidity				20	--	95	
Switching Frequency				--	100	--	KHz
Power Derating		Operating temperature derating	-40℃ to -25℃	3.34	--	--	%/℃
			+55℃ to +70℃	2.0	--	--	
			+60℃ to +70℃	3.0	--	--	
		Input voltage derating	85VAC-100VAC	0.67	--	--	%/VAC
Safety Standards		12V/24V/48V		UL61010-1, UL61010-2-201 safety approved & EN62368-1 (Report) Design refer to IEC/UL/BS EN 62368-1			
		55V		Design refer to IEC/EN/UL/BS EN 62368-1, UL61010-1, UL61010-2-201			
Safety Class				CLASS I			
MTBF		MIL-HDBK-217F@25℃		> 300,000 h			

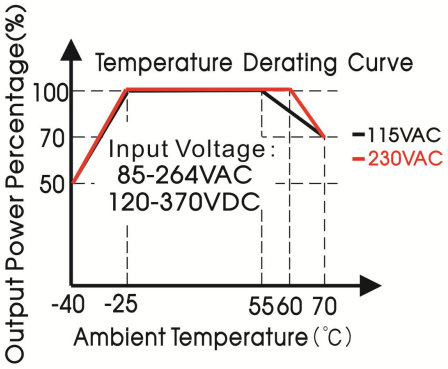
General Specifications

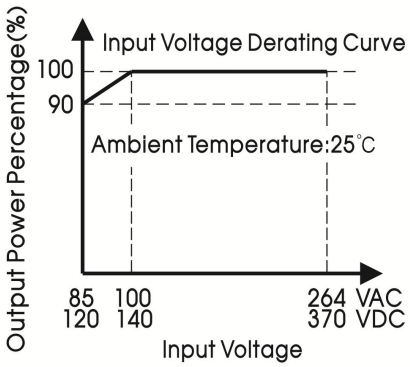
Case Material	Metal (AL5052, SPCC, SGCC)
Dimensions	110.00 x 32.00 x 124.00 mm
Weight	490g±10% (Typ.)
Cooling Method	Free air convection

EMC Specifications

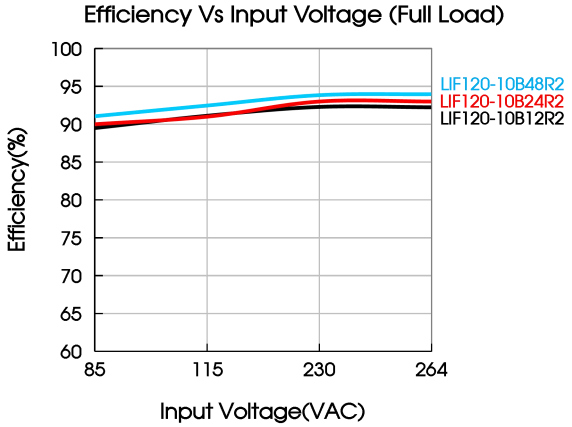
EMI	CE	CISPR32/EN55032 CLASS B	
	RE	CISPR32/EN55032 CLASS B	
	Harmonic current	IEC/EN61000-3-2 CLASS A and CLASS D	
EMS	ESD	IEC/EN 61000-4-2 Contact ±6KV/Air ±8KV	perf. Criteria A
	RS	IEC/EN 61000-4-3 10V/m	perf. Criteria A
	EFT	IEC/EN 61000-4-4 ±4KV	perf. Criteria A
	Surge	IEC/EN 61000-4-5 line to line ±2KV/line to ground ±4KV	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

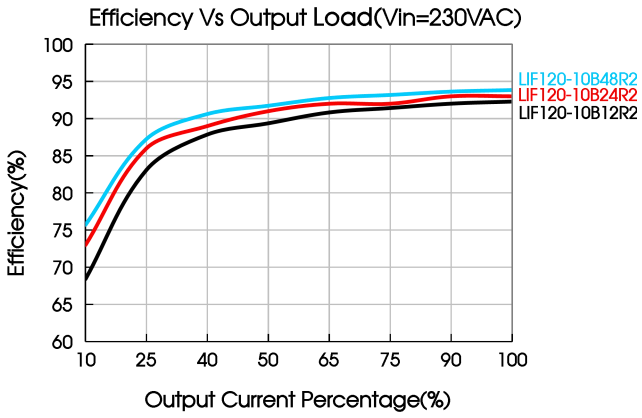
Product Characteristic Curve



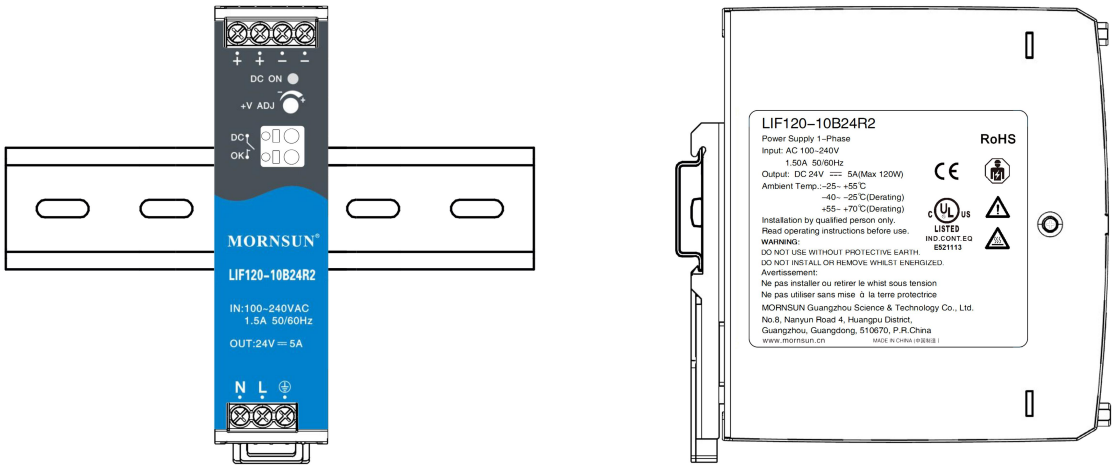


Note: 1. With an AC input voltage between 85 -100VAC and a DC input between 120-140VDC the output power must be derated as per the temperature derating curves;
2. This product is suitable for applications using natural air cooling; for applications in closed environment please consult Mornsun FAE.



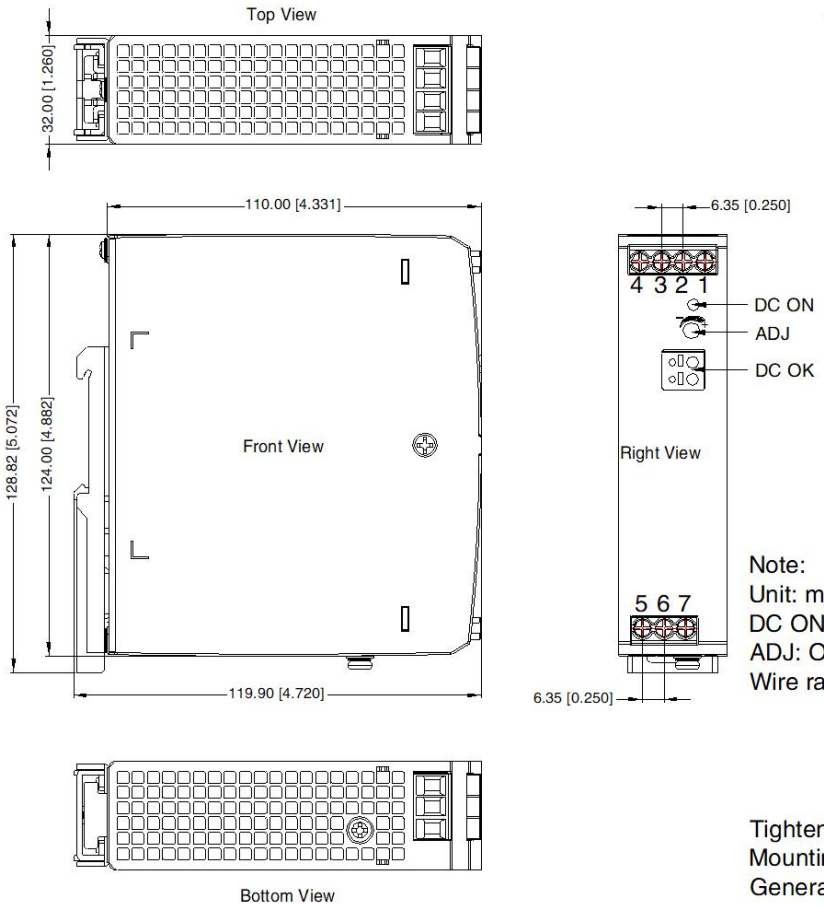


Installation Diagram



Note: Keep the following installation clearances: 20mm on top, 20mm on the bottom, 5mm on the left and right sides are recommended when the device is loaded permanently with more than 50% of the rated power. Increase this clearance to 15mm in case the adjacent device is a heat source (e.g. another power supply).

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]
DC ON: Output status indicator LED
ADJ: Output adjustable resistor
Wire range: Input: 26-10AWG(12-10AWG for pin7)
Output: 12V: 16-10AWG
24V: 20-10AWG
48V、55V: 22-10AWG
DC OK: 24-16AWG
Tightening torque: 0.79 ± 0.079 N·m
Mounting rail: TS35, rail needs to connect safety ground
General tolerances: ± 1.00[± 0.039]

WARNING Risk of electrical shock, fire, personal injury or death:
AVERTISSEMENT AVERTISSEMENT Risque de choc électrique, d'incendie, de blessures corporelles ou de décès :

1. Do not use the power supply without proper grounding (Protective Earth). Use the terminal on the input block for earth connection and not one of the screws on the housing;
   N'utilisez pas l'alimentation électrique sans mise à la terre appropriée (Terre protectrice). Utilisez le terminal sur le bloc d'entrée pour la connexion terrestre et non pas une des vis sur le boîtier;
2. Turn power off before working on the device, protect against inadvertent re-powering;
   Éteignez l'alimentation avant de travailler sur l'appareil, protégez-vous contre la réénergisation accidentelle;
3. Make sure that the wiring is correct by following all local and national codes;
   Assurez-vous que le câblage est correct en suivant tous les codes locaux et nationaux;
4. Do not modify or repair the unit;
   Ne modifiez pas ou ne réparez pas l'appareil;
5. Do not open the unit as high voltages are present inside;
   Ne modifiez pas ou ne réparez pas l'appareil;
6. Use caution to prevent any foreign objects from entering the housing;
   Faire preuve de prudence pour empêcher les objets étrangers d'entrer dans le logement;
7. Do not use in wet locations or in areas where moisture or condensation can be expected;
   Faire preuve de prudence pour empêcher les objets étrangers d'entrer dans le logement;
8. Do not touch during power-on, and immediately after power-off, hot surfaces may cause burns; 
   Ne touchez pas pendant l'alimentation et, immédiatement après l'alimentation, les surfaces chaudes peuvent causer des brûlures.
9. For ambient temperature ≤60℃, use ≥90℃ - copper wire only; for ambient temperature >60℃ to 85℃, use ≥105℃ - copper wire only; use only wires with a minimum dielectric strength of 300V (input) and 60V (output);
   Température ambiante ≤60℃, utiliser ≥90℃ - seulement fils de cuivre; Température ambiante >60℃ et 85℃, utiliser ≥105℃ - seulement fils de cuivre; Uniquement pour l'ulilisation de fils de cuivre d'une résisitance d'isolation minimale de 300V (d'entrée) et 60V (de sortie).

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