

AC/DC 480W Din Rail Power Supply

LIF480-10BxxR2, LIF480-10BxxR2-QQ Series

MORNSUN®



RoHS



FEATURES

- Universal 85- 264VAC or 120- 370VDC Input voltage
- Accepts AC or DC input (dual-use of same terminal)
- Operating ambient temperature range: -40℃ to +70℃
- The efficiency is up to 94.5%
- High I/O Isolation test voltage up to 3000VAC
- DC OK function
- Active PFC, PF > 0.99
- Low ripple & noise
- Output short circuit, over-current, over-voltage, over-temperature protection, input undervoltage protection
- DIN rail TS-35/7.5 or 15 mountable
- Ultra slim design with 48mm width
- Safety according to IEC/EN/UL62368, UL61010, IS13252 (Part1)

LIF480-10BxxR2 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 installation for space saving. With good EMC performance, compliant with international IEC/EN/UL62368, UL61010 standards for EMC and safety.

Selection Guide

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)
LIF480-10B24R2	480	24V/20A	24-28	94.5	20000
LIF480-10B48R2		48V/10A	48-55		10000

Note: 1. *Use suffix "QQ" for double-faced conformal coating;

2. *Under any conditions, the total power of the product should not exceed the 480W rated power, and the output current cannot exceed the rated output current.

Input Specifications

Item	Operating Conditions		Min.	Typ.	Max.	Unit
Input Voltage Range	AC input		85	--	264	VAC
	DC input		120	--	370	VDC
Input Voltage Frequency			47	--	63	Hz
Input Current	115VAC		--	--	5	A
	230VAC		--	--	2.5	
Inrush Current	115VAC	Cold start	--	--	15	
	230VAC		--	--	15	
Power Factor	115VAC		0.99	--	--	--
	230VAC		0.99	--	--	
Leakage Current	240VAC		<0.8mA			
Hot Plug			Unavailable			

Output Specifications

Item	Operating Conditions		Min.	Typ.	Max.	Unit
Output Voltage Accuracy	Full load range		--	±1.0	--	%
Line Regulation	Rated load		--	±0.5	--	

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Load Regulation	0% - 100% load		--	±1.0	--	
Ripple & Noise*	20MHz bandwidth (peak-to-peak value)	24V	--	--	50	mV
		48V	--	--	70	
Temperature Coefficient			--	±0.03	--	%/°C
Minimum Load			0	--	--	%
Hold-up Time			16	22	--	ms
DC OK Signal			30VDC/1A Max.			
Short Circuit Protection	Recovery time 10s after the short circuit disappear.		Constant current hiccup mode, constant current works 1s, turn off 10s, continuous, self-recovery			
Over-current Protection	230VAC, rated load	Normal temperature, high temperature	110% - 250% Io, the output turned off after working normally for 1s, self-recovery			
		Low temperature	≥105% Io, automatic recover after fault condition is removed			
Over-voltage Protection	24V		29-35V (Hiccup, self-recovery)			
	48V		56-60V (Hiccup, self-recovery)			
Over-temperature Protection	230VAC, 100% Io	Over-temperature protection start	--	--	90	°C
		Over-temperature protection release	60	--	--	
Input Undervoltage Protection	Protection start (Input voltage drops from high to low)		--	60	--	VAC
	Protection release (Input voltage rises from low to high)		--	75	--	

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			3000	--	--	
	Output - ⊕			500	--	--	
Insulation Resistance	Input - ⊕	At 500VDC		100	--	--	MΩ
	Input - output			100	--	--	
	Output - ⊕			100	--	--	
Operating Temperature				-40	--	+70	℃
Storage Temperature				-40	--	+85	
Storage Humidity		Non-condensing		10	--	95	%RH
Operating Humidity				20	--	90	
Switching Frequency				--	--	--	kHz
Power Derating	Operating temperature derating		+50℃ to +70℃	2.5	--	--	%/℃
	Input voltage derating		85VAC -100VAC	1.0	--	--	%/VAC
Safety Standard				Design refer to IEC/EN/UL62368-1, UL61010-1, UL61010-2-201, IS13252 (Part1)			
Safety Class				CLASS I			
MTBF		MIL-HDBK-217F@25℃		>300,000 h			

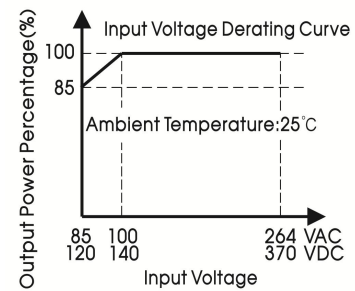
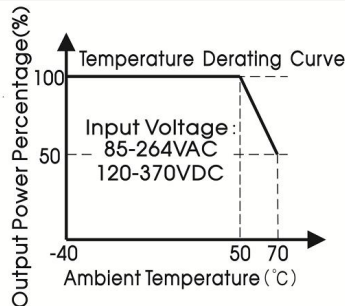
Mechanical Specifications

Case Material	Metal (AL1100, SPCC) and Plastic (PC940)
Dimensions	131.50 x 48.00 x 125.00 mm
Weight	980g (Typ.)
Cooling Method	Free air convection

Electromagnetic Compatibility (EMC)

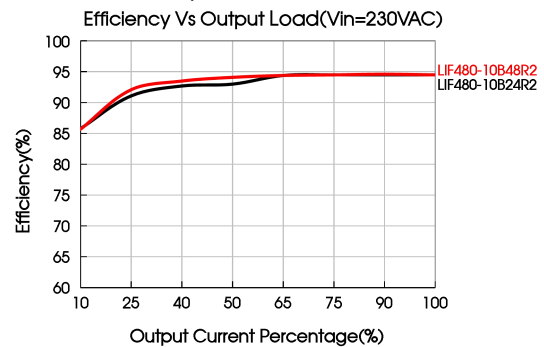
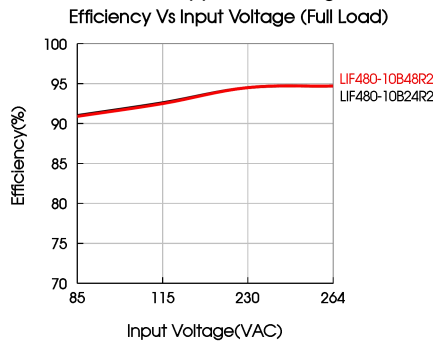
Emissions	CE	CISPR32/EN55032	CLASS B	
	RE	CISPR32/EN55032	CLASS B	
	Harmonic current	IEC/EN 61000-3-2	CLASS A and CLASS D	
Immunity	ESD	IEC/EN 61000-4-2	Contact $\pm 8\text{KV}$ /Air $\pm 15\text{KV}$	perf. Criteria A
	RS	IEC/EN 61000-4-3	10V/m	perf. Criteria A
	EFT	IEC/EN 61000-4-4	$\pm 4\text{KV}$	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/EN 61000-4-6	10 Vr.m.s	perf. Criteria A
	Voltage dips, short interruptions and voltage variations immunity	IEC/EN 61000-4-11	0%, 70%	perf. Criteria A

Product Characteristic Curve

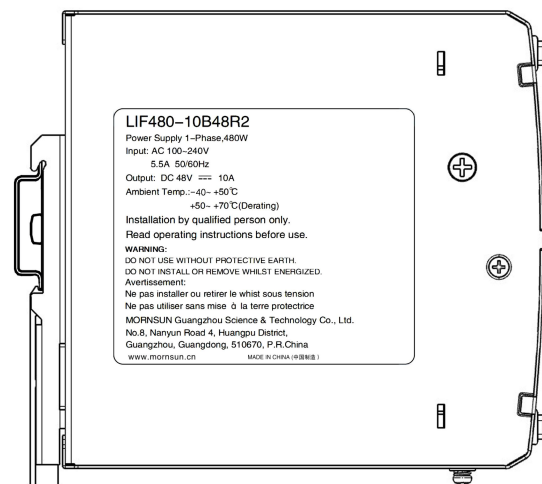
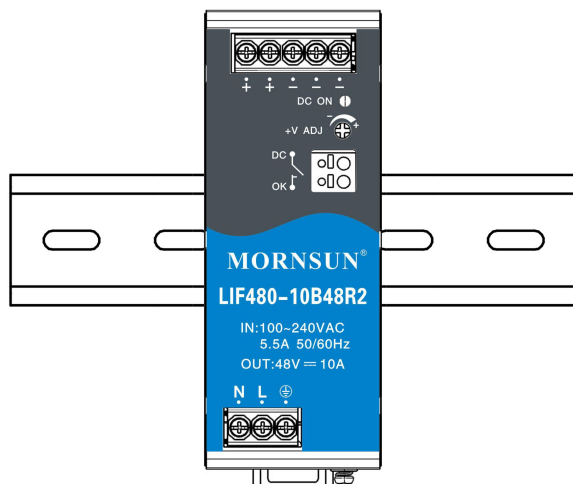


Note: 1. With an AC input voltage between 85 -100VAC and a DC input between 120-140VDC the output power must be derated as per the temperature derating curves;

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



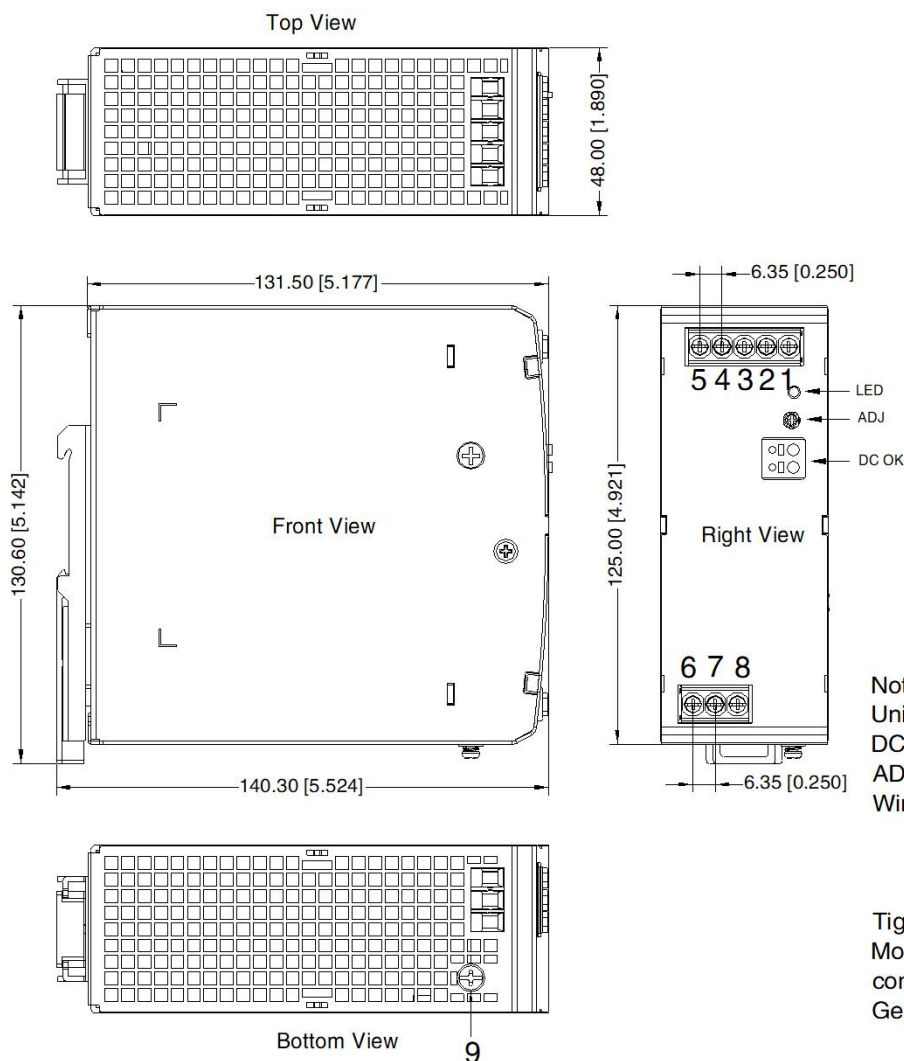
Installation Diagram



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 works above 240W for a long time. 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	Mark
1	-Vo
2	-Vo
3	-Vo
4	+Vo
5	+Vo
6	AC(N)
7	AC(L)
8	

8、9 any position must be connected to the earth()

Note:

Unit: mm[inch]

DC ON: Output status indicator LED

ADJ: Output adjustable resistor

Wire range: Input: 20-10 AWG

Output: 24V: 14-10AWG

48V: 18-10AWG

DC OK: 24-16AWG

Tightening torque: Max 0.5 N·m

Mounting rail: TS35, rail needs to connect safety ground

General tolerances: $\pm 1.00[\pm 0.039]$



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 $\leq 60^{\circ}\text{C}$, use $\geq 90^{\circ}\text{C}$ - copper wire only; for ambient temperature $> 60^{\circ}\text{C}$ to 85°C , use $\geq 105^{\circ}\text{C}$ - copper wire only; use only wires with a minimum dielectric strength of 300V (input) and 60V (output);
Température ambiante $\leq 60^{\circ}\text{C}$, utiliser $\geq 90^{\circ}\text{C}$ - seulement fils de cuivre; Température ambiante $> 60^{\circ}\text{C}$ et 85°C , utiliser $\geq 105^{\circ}\text{C}$ - seulement fils de cuivre; Uniquement pour l'utilisation de fils de cuivre d'une résistance d'isolation minimale de 300V (d'entrée) et 60V (de sortie).

Note:

1. For additional information on Product Packaging please refer to www.mornsun-power.com, Packaging bag number: 58220210;
2. Unless otherwise specified, parameters in this datasheet were measured under the conditions of $T_a=25^{\circ}\text{C}$, humidity $<75\%\text{RH}$ 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. The out case needs to be connected to the earth ($\oplus$) of system when the terminal equipment in operating;
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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