AC/DC 240W DIN-Rail Power Supply

LIF240-10BxxR2S, LIF240-10BxxR2S-QQ Series

MORNSUN®

Report EN62368-1 | UKCA BS EN62368-1 | IS13252(Part 1):2010/ IEC 60950-1:2005 R-41202800 www.bis.gov.in | RoHS | 3 year Warranty

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℃
- High efficiency, high reliability
- Built-in active PFC function
- 150% peak load output for 3 seconds
- LED indicator for power on
- Output short circuit, over-current, over-voltage, over-temperature protection
- Safety according to IEC/UL62368, UL508, EN61558

LIF240-10BxxR2S 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/UL/BS EN 62368, UL61010, UL508, EN61558 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	LIF240-10B12R2S	192	12V/16A	12.0-14.0	93	160,000
	LIF240-10B24R2S	240	24V/10A	24.0-28.0	94	40,000
	LIF240-10B48R2S		48V/5A	48.0-53.0		10,000

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

Input Specifications

Item	Operating Conditions		Min.	Typ.	Max.	Unit
Input Voltage Range	Rated input (Certified voltage)		100	--	240	VAC
	AC input		85	--	264	VAC
	DC input		120	--	370	VDC
Input Voltage Frequency			47	--	63	Hz
Input Current	115VAC		--	--	3	A
	230VAC		--	--	1.5	
Inrush Current	115VAC	Cold start	--	15	--	
	230VAC		--	30	--	
Power Factor	115VAC		--	0.98	--	--
	230VAC		--	0.95	--	
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)		--	75	150	mV

Hold-up Time			--	20	--	ms
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	110% - 200% Io, self-recovery			
		Low temperature	⩾105% Io, self-recovery			
Over-voltage Protection	12V		⩽18V (Hiccup, self-recovery)			
	24V		⩽35V (Hiccup, self-recovery)			
	48V		⩽60V (Hiccup, self-recovery)			
Over-temperature Protection	230VAC, rated load		--	80	--	℃

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 - ⏚	Ambient temperature: 25 ± 5℃			50	--	--	MΩ
	Input - output	Relative humidity: < 95%RH, no condensation			50	--	--	
	Output - ⏚	Test voltage: 500VDC			50	--	--	
Operating Temperature					-40	--	+70	℃
Storage Temperature					-40	--	+85	
Storage Humidity		Non-condensing			--	--	95	%RH
Operating Humidity					--	--	90	
Switching Frequency					--	100	--	kHz
Power Derating		Operating temperature derating	-40℃ to -25℃		3.34	--	--	%/℃
			+40℃ to +70℃	115VAC	1.67	--	--	
			+50℃ to +70℃	230VAC	2.5	--	--	
		Input voltage derating		85VAC-100VAC	1.33	--	--	%/VAC
Leakage Current		264VAC, 60Hz	Touch current		<0.5mA			
			Earth leakage current		<1mA			
Safety Standard					IS13252 (Part1) safety approved & EN62368-1, BS EN 62368-1 (Report); Design refer to UL61010-1, IEC/UL62368-1, UL508, EN61558-1, EN61558-2-16			
Safety Class					CLASS I			
MTBF		MIL-HDBK-217F@25℃			>300,000 h			

Mechanical Specifications

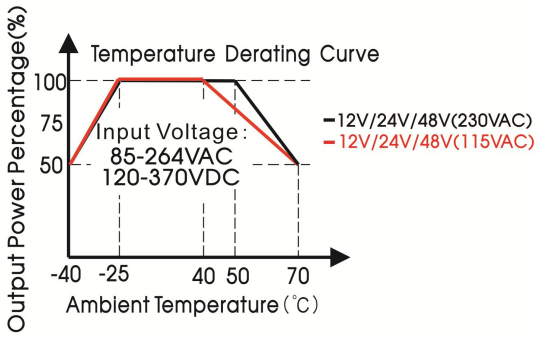
Case Material	Metal (AL1100, SPCC) and Plastic (PC945)
Dimensions	124.00 x 54.00 x 110.00mm
Weight	600g (Typ.)
Cooling Method	Free air convection

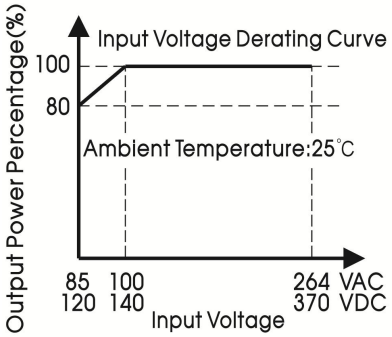
Electromagnetic Compatibility (EMC)

Emissions	CE	CISPR32/EN55032 CLASS B	
	RE	CISPR32/EN55032 CLASS B	
	Harmonic current	IEC/EN61000-3-2 CLASS A and CLASS D	
Immunity	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 ±2KV	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

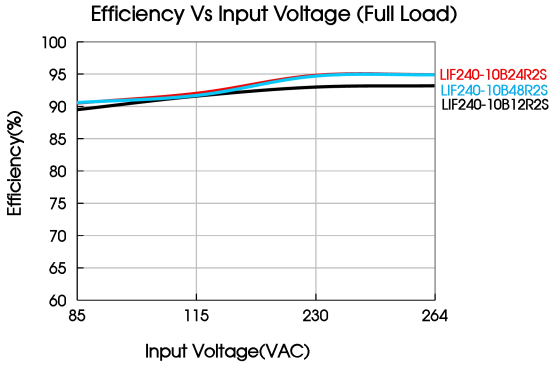
Product Characteristic Curve

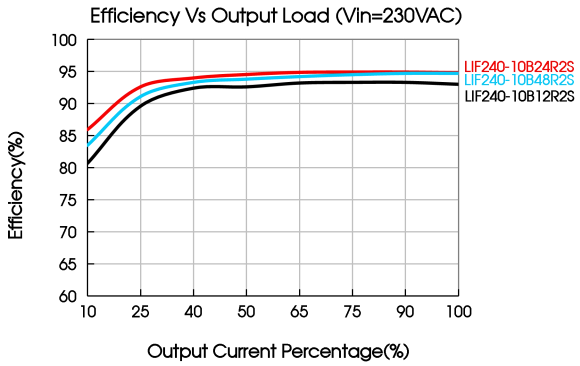




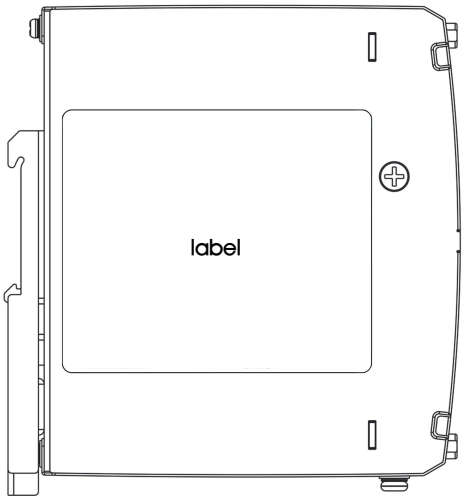
Note: 1. With an AC input voltage between 85 -100VAC and a DC input between 120-140VDC the output power must be derated as per the temperature derating curves;

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

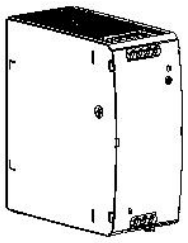


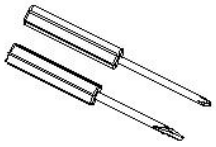


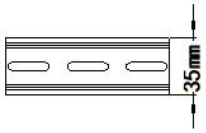
Installation Diagram



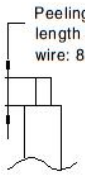
Materials required in the installation		
1	Product	1 PC
2	Phillips screwdriver Slotted screwdriver	1 PC
3	TS35/7.5 or TS35/15	1 PC
4	26–10AWG Wire	/ PCS
	The content is for reference only. Regarding the actual wire diameter and tightening torque, refer to the dimensional drawing.	


Product


Phillips screwdriver
Slotted screwdriver
Diameter of the cutting
Diameter: 3mm

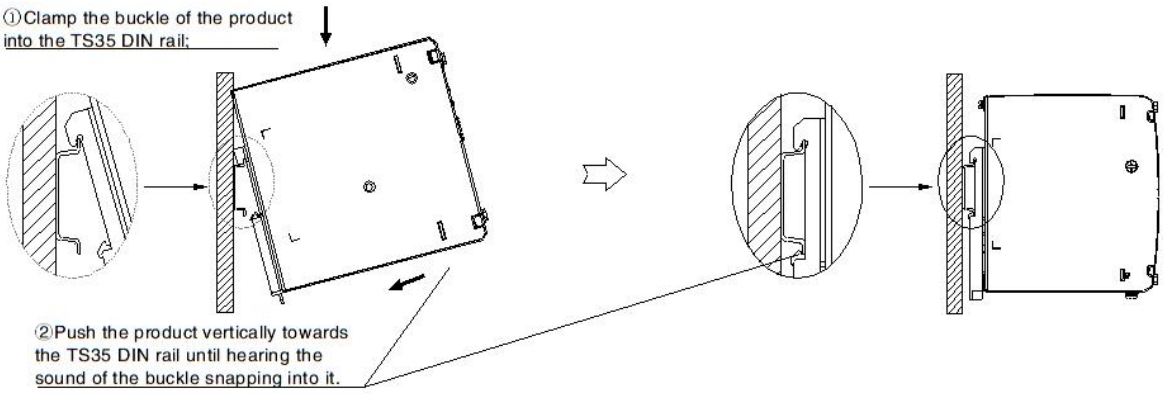


TS35/7.5 or TS35/15

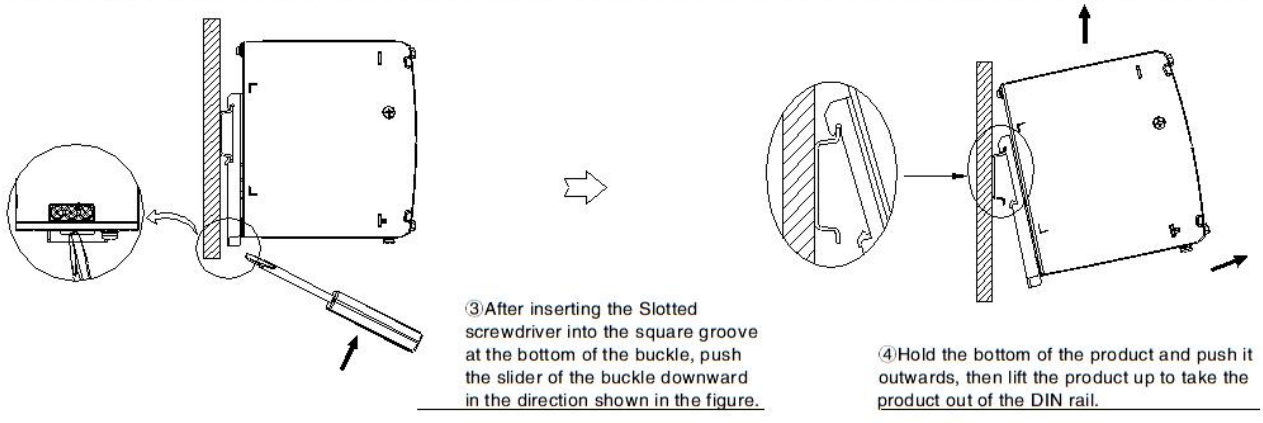


26–10AWG Wire

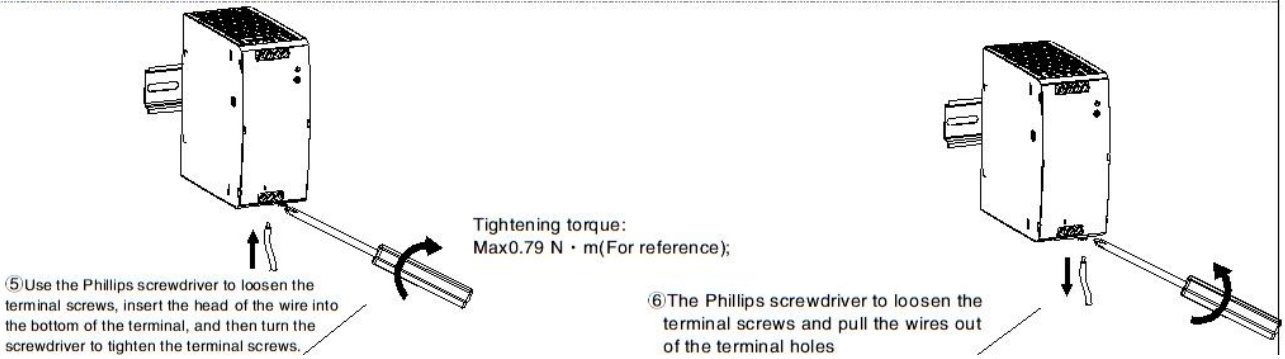
Installation Steps ①–②



Disassembly Steps ③–④

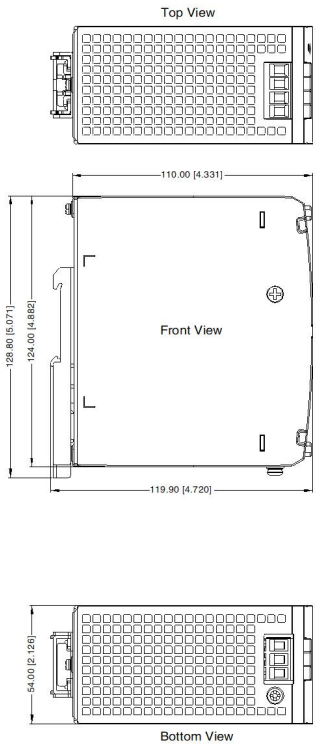


Wiring / Unwiring Steps ⑤–⑥



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

Note:
Unit: mm[inch]
LED: Output status indicator LED
ADJ: Output adjustable resistor
Wire range: Input: 26–10AWG(12–10AWG for pin7)
Output: 12V: 12–10AWG
24V: 16–10AWG
48V: 18–10AWG
Tightening torque: Max 0.79N・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: 58220231;
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. The room temperature derating of 5℃/1000m 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 PE (⏚) of system when the terminal equipment in operating;
9. The output voltage can be adjusted by the ADJ, clockwise to increase;
10. 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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