



FEATURES

- Universal 85-264VAC or 100-370VDC input voltage
- Input withstand 305VAC/5s
- Accepts AC or DC input (dual-use of same terminal)
- Operating ambient temperature range: -40℃ to +85℃ (-30℃ full load)
- High I/O isolation voltage up to 4000VAC
- Output voltage adjustable
- Output short circuit, over-current, over-voltage protection
- Surge immunity meets Level 4
- Installing in system of Safety Class I is available
- Design refer to UL/IEC62368, EN60335

LO15-20Bxx-M series is one of Mornsun's enclosed AC-DC switching power supply. It features universal AC input and at the same time accepts DC input voltage, low power consumption, high efficiency, high reliability, reinforced isolation. These converters offer excellent EMC performance and design refer to IEC/EN61000-4, CISPR32/EN55032, UL/EN/IEC/BS EN62368, EN60335 standards and they are widely used in areas of industrial, office and civil applications.

Selection Guide

Certification	Part No.	Output Power (W)	Nominal Output Voltage and Current (Vo/Io)	Output Voltage Adjustable Range ADJ (V)*	Efficiency at 230VAC (%) Typ.	Capacitive Load (μF) Max.
EN	LO15-20B05-M	15	5V/3A	4.5-5.5	81	10000
	LO15-20B12-M	15	12V/1.25A	10.8-13.5	82	2000
	LO15-20B15-M	15	15V/1A	13.5-16.5	83	1500
	LO15-20B24-M	15	24V/0.625A	21.6-27	83	500
	LO15-20B36-M	15.12	36V/0.42A	32.4-39.6	85	300
	LO15-20B48-M	15.02	48V/0.313A	43.2-52.8	85	300

Note: *The actual adjustment range may extend outside the values stated, care should be exercised to ensure that the output voltage and power levels remain within the published maximum values.

Input Specifications

Item	Operating Conditions		Min.	Typ.	Max.	Unit
Input Voltage Range	AC Input		85	--	264	VAC
	DC Input		100	--	370	VDC
Input Voltage Frequency			47	--	63	Hz
Input Current	115VAC		--	--	0.4	A
	230VAC		--	--	0.2	
Inrush Current	230VAC	Cold start	--	45	--	
Input Temporary Over-voltage	Rated load output, 305VAC input		5s/time, interval 10s, product without damaging			
Hot Plug			Unavailable			

Output Specifications

Item	Operating Conditions		Min.	Typ.	Max.	Unit
Output Voltage Accuracy	Full load range	5V	--	±2	--	%
		Other output	--	±1	--	
Line Regulation	Rated load		--	±0.5	--	
Load Regulation	230VAC	5V	--	±1	--	
		Other output	--	±0.5	--	

AC/DC 15W Open Frame Power Supply

LO15-20Bxx-M Series

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Ripple & Noise*	20MHz bandwidth (peak-to-peak value)	5V	--	50	80	mV
		12V/15V	--	80	100	
		24V	--	100	150	
		36V/48V	--	150	200	
Stand-by Power Consumption	Room temperature, 230VAC input		--	0.3	0.5	W
Temperature Coefficient	0℃ to +50℃		--	±0.03	--	%/℃
Short Circuit Protection			Hiccup, continuous, self-recovery			
Over-current Protection			115% - 300% Io, self-recover			
Over-voltage Protection	5V	≤7V	Output voltage clamp or hiccup			
	12V	≤16V				
	15V	≤22V				
	24V	≤33V				
	36V	≤46.8V				
	48V	≤63V				
Minimum Load		0	--	--	%	
Hold-up Time	115VAC input	--	20	--	ms	
	230VAC input	--	100	--		
Note: *The "Tip and barrel method" is used for ripple and noise test: by using a 12 twisted pair-wire terminated with a 0.1uf & 47uf parallel capacitor, please refer to Enclosed Switching Power Supply Application Notes for specific information.						

General Specifications

Item		Operating Conditions		Min.	Typ.	Max.	Unit
Isolation	Input - output	Electric Strength Test for 1min., leakage current <5mA		4000	--	--	VAC
	Input - 			2000	--	--	
	Output - 			500	--	--	
Insulation Resistance	Input - output	Test voltage: 500VDC		100	--	--	MΩ
	Input - 						
	Output - 						
Operating Temperature				-40	--	+85	°C
Storage Temperature				-40	--	+85	
Storage Humidity		Non-condensing		--	--	95	%RH
Operating Humidity				--	--	90	
Altitude*				--	--	4000	m
Output Power Derating		Operating temperature derating	-40°C to -30°C	6.5	--	--	% / °C
			+50°C to +70°C	2.5	--	--	
			+70°C to +85°C	1	--	--	
		Input voltage derating	85VAC - 100VAC	0.67	--	--	
Leakage Current		240VAC		<0.5mA RMS			
Safety Standard				EN62368-1, BS EN62368-1 (Report); Design refer to UL/IEC62368-1, EN60335-1			
Safety Class				CLASS I			
MTBF		MIL-HDBK-217F@25°C		≥300,000 h			

Note: *For operation of altitude between 2000-4000m, please consult Mornsun FAE.

Mechanical Specifications

Dimension	63.50 x 45.70 x 22.00mm
Weight	40g (Typ.)
Cooling Method	Air cooling

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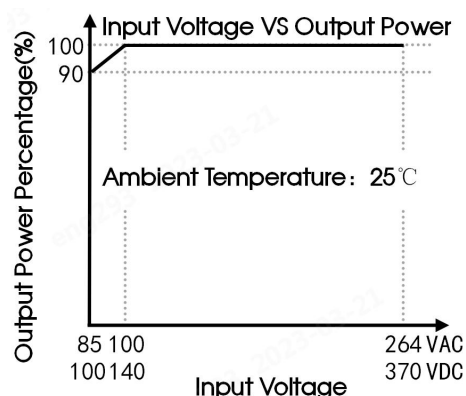
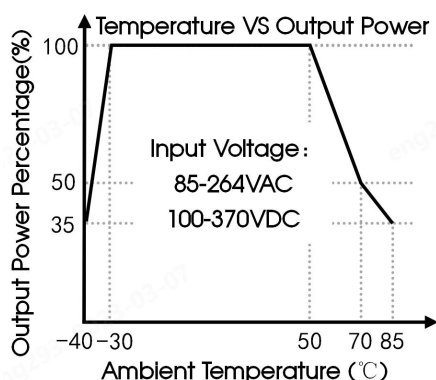
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Electromagnetic Compatibility (EMC)

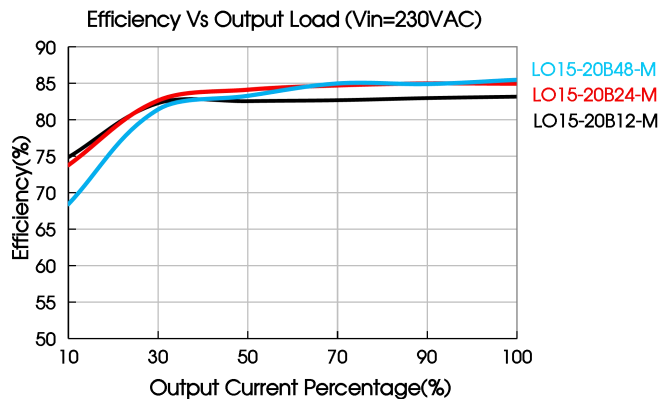
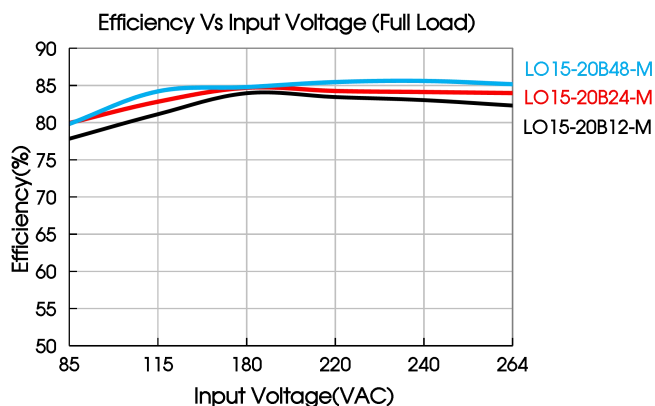
Emissions	CE	CISPR32/EN55032	CLASS B	
	RE	CISPR32/EN55032	CLASS B	
	Harmonic current	IEC/EN61000-3-2	CLASS A	
Immunity	ESD	IEC/EN61000-4-2	Contact $\pm 4\text{KV}$ /Air $\pm 8\text{KV}$	Perf. Criteria A
	RS	IEC/EN61000-4-3	10V/m	Perf. Criteria A
	EFT	IEC/EN61000-4-4	$\pm 2\text{KV}$	Perf. Criteria A
	Surge	IEC/EN61000-4-5	Line to line $\pm 2\text{KV}$ /line to PE $\pm 4\text{KV}$	Perf. Criteria A
	CS	IEC/EN61000-4-6	10Vr.m.s	Perf. Criteria A
	PFMF	IEC/EN61000-4-8	30A/m	Perf. Criteria A
	Voltage dips, short interruption and voltage variations	IEC/EN61000-4-11	100% dip 1 periods, 30% dip 25 periods (50Hz), 30 periods (60Hz)	Perf. Criteria B

Product Characteristic Curve



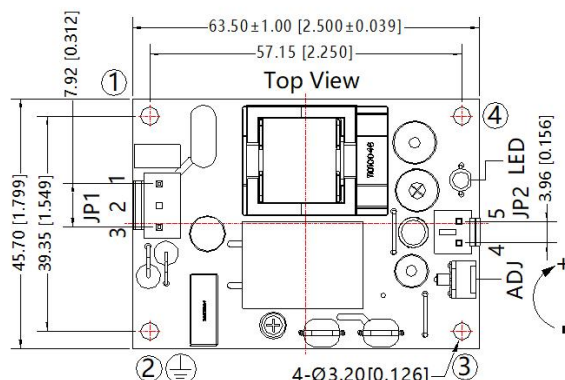
Note: 1. With an AC input voltage between 85-100VAC and a DC input between 100-140VDC the output power must be derated as per the temperature derating curves;

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



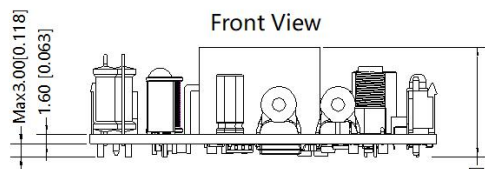
Dimensions and Recommended Layout

THIRD ANGLE PROJECTION 



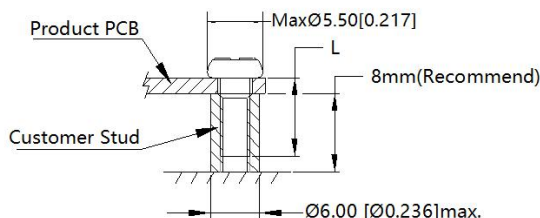
Pin-Out			
Connectors	Pin	Mark	Client Connectors
JP1	1	AC(L)	Housing: JST VHR-3N Contact: JST SVH-21T-P1.1 or equivalent
	2	No Pin	
	3	AC(N)	
JP2	4	-Vo	Housing: JST VHR-2N Contact: JST SVH-21T-P1.1 or equivalent
	5	+Vo	

② must be connected to the earth ()



Note:
Unit: mm[inch]
General tolerances: $\pm 0.50 [\pm 0.020]$
The layout of the device is for reference only,
please refer to the actual product

Position	Screw Spec.	L(Recommend)	Torque(Max)
① - ④	M3	6mm	0.4N·m



Note:

- For additional information on Product Packaging please refer to www.mornsun-power.com. Packaging bag number: 58220006;
- 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;
- The room temperature derating of $3.5^{\circ}\text{C}/1000\text{m}$ is needed for operating altitude greater than 2000m;
- All index testing methods in this datasheet are based on our company corporate standards;
- 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;
- We can provide product customization service, please contact our technicians directly for specific information;
- Products are related to laws and regulations: see "Features" and "EMC";
- The output voltage can be adjusted by the ADJ, clockwise to increase;
- Our products shall be classified according to ISO14001 and related environmental laws and regulations, and shall be handled by qualified units;
- 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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