120W, AC-DC converter

CE RoHS
EN62368-1

3 years Warranty

FEATURES

- Universal 85-264VAC or 120-370VDC input voltage
- High power density, compact size: 4" x 2" x 1.26"
- Operating ambient temperature range: -30℃ to +70℃
- High I/O isolation test voltage up to 4000VAC
- Meets 5000m altitude requirements
- Extremely low leakage current＜100uA
- Stand-by power consumption＜0.3W
- Output short circuit, over-current, over-voltage, over-temperature protection
- Efficiency up to 91%
- Meets 2 x MOPP safety certification
- Suitable for BF application
- Over-voltage class Ⅲ (designed to meet EN61558-1)
- Installing in system of Safety Class I/II is available

LO120-20BxxMU series is one of Mornsun's AC-DC miniaturize open frame power supply and suitable for all kinds of BF type (be accessible to patients) medical system equipment. It features universal AC input and at the same time accepts DC input voltage, cost-effective, high efficiency, high reliability and double or reinforced insulation. These converters offer excellent EMC and safety performance, which meet EN60601, UL/EN/IEC62368, IEC/EN60335, EN61558 standards and GB4943 they are widely used in areas of industrial, LED, street light control, electricity, security, telecommunications, smart home, medical, etc.

Selection Guide

Certification	Part No.*	Cool Mode	Output Power	Nominal Output Voltage and Current (Vo/Io)	Output Voltage Adjustable Range ADJ (V)	Efficiency at 230VAC (%) Typ.	Capacitive Load (μF) Max.
EN	LO120-20B12MU	Air cooling	84	12V/7A	11.4-12.6	89	6000
		10CFM	120	12V/10A			
	LO120-20B15MU	Air cooling	84	15V/5.6A	14.3-15.8	89	5000
		10CFM	120	15V/8A			
	LO120-20B24MU	Air cooling	84	24V/3.5A	22.8-25.2	90	3200
		10CFM	120	24V/5A			
	LO120-20B27MU	Air cooling	84	27V/3.11A	25.6-28.4	90	2400
		10CFM	120	27V/4.44A			
	LO120-20B36MU	Air cooling	84	36V/2.33 A	35.28-37.8	90	2000
		10CFM	120	36V/3.33A			
	LO120-20B48MU	Air cooling	84	48V/1.75A	45.6-50.4	91	1600
		10CFM	120	48V/2.5A			
	LO120-20B54MU	Air cooling	84	54V/1.56A	51.3-55.5	91	1300
		10CFM	120	54V/2.22A			

Notes: *Under any conditions, the total power of the product should not exceed the rated power of 120w and the output current should not 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 Frequency		47	--	63	Hz
Input Current	115VAC	--	--	3	A
	230VAC	--	--	1.5	
Inrush Current	115VAC	--	--	30	
	230VAC	--	--	60	

Leakage Current	264VAC	Normal operation	100uA Max.
		Single fault	500uA Max.

Output Specifications

Item	Operating Conditions		Min.	Typ.	Max.	Unit
Output Voltage Accuracy	0% - 100% load	12V/15V output	--	±2	--	%
		Other output	--	±1	--	
Line Regulation	Rated load		--	±0.5	--	
Load Regulation	230VAC		--	±1	--	
Ripple & Noise*	20MHz bandwidth (peak-to-peak value)	12V/15V output	--	100	150	mV
		Other output	--	120	200	
Stand-by Power Consumption	12V/15V/24V output		--	0.25	0.3	W
	Other output		--	0.30	0.5	
Temperature Coefficient			--	±0.03	--	%/°C
Short Circuit Protection			Hiccup, continuous, self-recover			
Over-current Protection			⩾115%Io, self-recover			
Over-voltage Protection	12VDC output		⩽16V	Output voltage clamp or hiccup		
	15VDC output		⩽25V			
	24VDC output		⩽32V			
	27VDC output		⩽35V			
	36VDC output		⩽50V			
	48VDC output		⩽60V			
	54VDC output		⩽60V			
Over-temperature Protection			Output voltage turn off, re-power on to recovery after abnormal removed			
Fan power	12V/24V/27V/36V/48V/54V		Offer output power of 12V/0.5A with output voltage accuracy ±15%			
	15V		Offer output power of 15V/0.4A with output voltage accuracy ±15%			
Minimum Load			0	--	--	%
Hold-up Time	230VAC input		--	50	--	ms

Note: *The "Tip and barrel method" and "Twisted pair-wire method" are used for ripple and noise test, with a 0.1uf &47uf parallel capacitor, please refer to AC-DC Converter 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 - PE		2000	--	--	
	Output - PE		1500	--	--	
Insulation Resistance	Input - output	500VDC	⩾100x10⁶			Ω
	Input - PE					
	Output - PE					
Isolation level	Input - output		2 x MOPP			
	Input - PE		1 x MOPP			
	Output - PE		1 x MOPP			
Operating Temperature			-30	--	+70	℃
Storage Temperature			-40	--	+85	
Operating Humidity		Non-condensing	--	--	90	%RH
Storage Humidity		Non-condensing	--	--	95	
Altitude*			--	--	5000	m

Power Derating	Air cooling	+45℃ to +70℃	12V/15V	1.2	--	--	%/℃
		+50℃ to +70℃	24V/27V/36V/ 48V/54V	1.5	--	--	
	10CFM	+50℃ to +70℃		3	--	--	
	85VAC - 115VAC			0.67	--	--	%/VAC
Safety distance	Clearance			7.60	--	--	mm
	Creepage			8.00	--	--	
Safety Standard				EN62368-1 (Report); Design refer to IEC/EN60601-1, ES60601-1 (3.1 version), CAN/CSA 22.2 No.60601-1:14-Edition 3, EN60601-1-2 Edition 4, UL/IEC62368-1, EN60335-1, EN61558-1, GB4943.1			
Safety Class				CLASS I (must be connected with PE)/ CLASS II			
MTBF				MIL-HDBK-217F@25℃>300,000 h			
Note: *For operation of altitude between 2000-5000m, please consult factory or one of our FAE.							

Mechanical Specifications

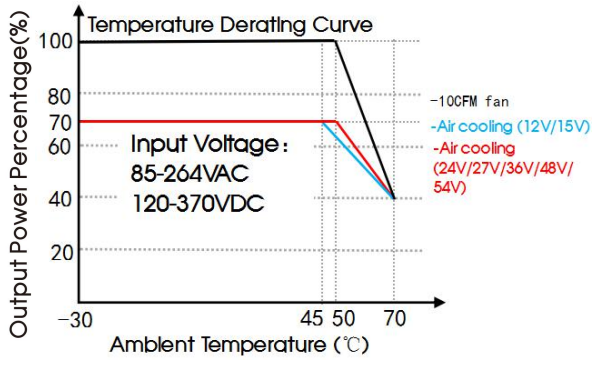
Dimension	101.60 x 50.80 x 32.00 mm
Weight	162g (Typ.)
Cooling method	Free air convection/10CFM

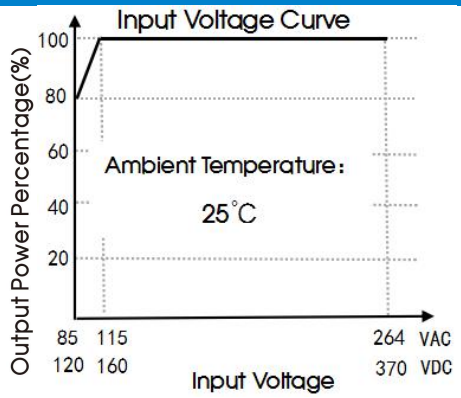
Electromagnetic Compatibility (EMC)

Emissions	CE	CISPR32/EN55032/EN55011	CLASS B	
	RE	CISPR32/EN55032/EN55011	CLASS B	
	Harmonic current	IEC/EN61000-3-2	CLASS A	
Immunity	ESD	IEC/EN61000-4-2	Contact ±8KV/Air ±15KV	Perf. Criteria A
	RS	IEC/EN61000-4-3	10V/m	perf. Criteria A
	EFT	IEC/EN61000-4-4	±2KV	perf. Criteria A
	Surge	IEC/EN61000-4-5	Line to line ±2KV/ line to ground ±4KV	perf. Criteria A
	CS	IEC/EN61000-4-6	10Vr.m.s	perf. Criteria A
	Voltage dips, short interruption and voltage	IEC/EN61000-4-11	100% dip 1 periods, 30% dip 25 periods, 100% interruptions 250 periods	perf. Criteria B

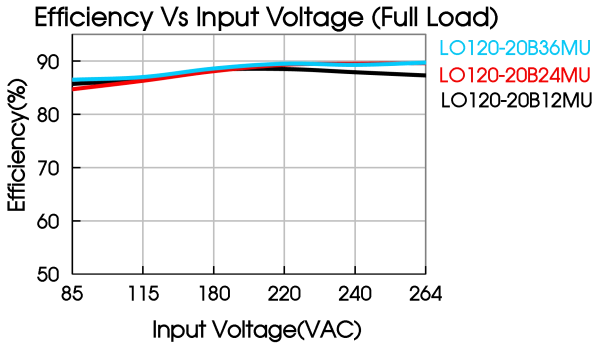
Note: 1.The power supply should be considered as a part of the components in the system, for EMC test installation method, please refer to Note 7 & 8 of the dimension drawing, or please consult factory or one of our FAE.
2.Category I products with PE (which must be connected), category II products without PE.

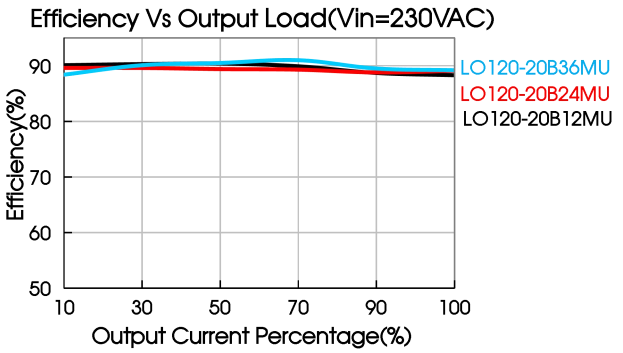
Product Characteristic Curve



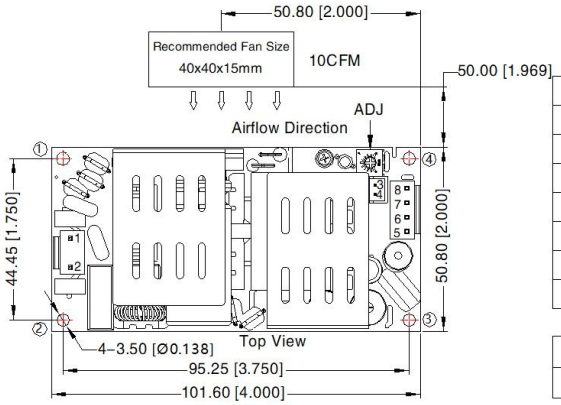


Note: ① With an AC input between 85-115VAC and a DC input between 120-160VDC, the output power must be derated as per temperature derating curves;
② This product is suitable for applications using natural air cooling; for applications in closed environment please consult factory or one of our FAE.





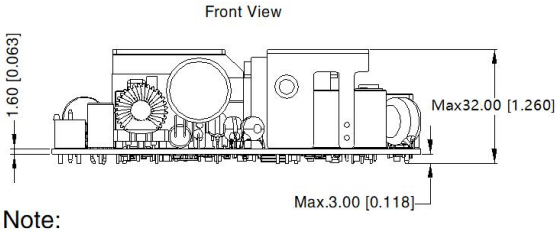
Dimensions and Recommended Layout

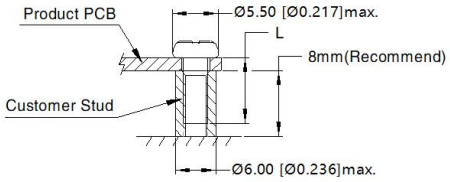


THIRD ANGLE PROJECTION

Pin-Out			
Pin	Function	Product Connector	Customer Connector
1	AC(N)/DC-	JST B3P-VH or equivalent	Housing:JST VHR Terminal:JST SVH-21T-P1.1 or equivalent
2	AC(L)/DC+		
3	Fan-	JST B2B-PH-K-S or equivalent	Housing:JST PHR-2 Terminal:JST SPH-002T-P0.56 or equivalent
4	Fan+		
5、6	-Vo	JST B6P-VH or equivalent	Housing:JST VHR Terminal:JST SVH-21T-P1.1 or equivalent
7、8	+Vo		

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





Note:
1. Unit: mm[inch]
2. ADJ: Output adjustable resistor
3. General tolerances: ±1.00[±0.039]
4. Do not use fan power to power other devices
5. The layout of the device is for reference only, please refer to the actual product
6. It is recommended 10mm distance between the PCB and other components for safety purpose
7. Class Ⅰ system ①, ③ positions must be connected to the earth(⏚)
8. Class Ⅱ system ①, ③ positions must be connected together

Note:
1. For additional information on Product Packaging please refer to www.mornsun-power.com. Packaging bag number: 58220192;
2. Unless otherwise specified, parameters in this datasheet were measured under the conditions of Ta=25℃, humidity<75% with nominal input voltage and rated output load;
3. All index testing methods in this datasheet are based on our company corporate standards;
4. We can provide product customization service, please contact our technicians directly for specific information;
5. Products are related to laws and regulations: see "Features" and "EMC";
6. 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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