AC/DC Bidirectional Power Supply

LMBT8000-16B15F

MORNSUN®

RoHS 3年质保

FEATURES

- AC-DC bidirectional full isolation, bidirectional energy conversion
- AC Voltage: 3 phase, 304 - 480VAC
- Low harmonic, high power factor
- Advanced algorithm control, intellectualized design
- Bidirectional seamless switching without voltage difference
- Reliable islanding protection
- High efficiency, high-reliability
- Power status LED indicator
- Output short, over-current, over-voltage, over-temperature protection, high reliability protection
- 3 years warranty
- Operating altitude up to 3000m
- Comply with UL/EN/BS EN62368, UL62477

LMBT8000-16B15F is a metal shell type bidirectional power supply provided by Mornsun for customers. The power supply can be bidirectional input to achieve AC-DC bidirectional energy conversion, with cost-effective, high power density, high efficiency, high reliability and double or reinforced insulation. These converters offer excellent EMC performance and meet UL/EN/BS EN62368,UL62477 standards and they are widely used in chemical composition, battery detection, aging, charge and discharge, equalization and other related fields.

Selection Guide

Certification	Part No.	Power Grid	Rated input (Vin/Iin)	Rated Output (Vo/Io)	Power(W)	Efficiency (%) Max	State
--	LMBT8000-16B15F	3 phase 380VAC	380VAC	15VDC/533.3A	8000	91.0	AC to DC direction
			15VDC/426.7A	380VAC	6400	90.0	DC to AC direction

Input Specifications/AC to DC Direction

Item	Operating Conditions		Min.	Typ.	Max.	Unit
Input Voltage Range	AC input	Line voltage	304	380	480	VAC
Input Voltage Frequency			45	--	65	Hz
Input Current	380VAC		--	--	16	A
Inrush Current	380VAC	Cold start	--	--	25	
Power Factor	380VAC, full load, 25℃		0.99			
Hot Plug			Unavailable			
Current Harmonic	380VAC, full load		<5%			
Input Under-voltage Protection	Full load range	Line voltage	277	--	295	VAC
Input Over-voltage Protection	Full load range	Line voltage	495	--	510	
Input Frequency Protection	Full input range, full load range		Available			

Output Specifications/AC to DC Direction

Item	Operating Conditions		Min.	Typ.	Max.	Unit
Output Voltage Accuracy	Full load range	15V	--	±1.0	--	%
Line Regulation	Rated load		--	±1.0	--	
Load Regulation	Rated input voltage	15V	--	±1.0	--	
Ripple & Noise*	25℃, 20MHz bandwidth (peak-to-peak value), ripple	15V	--	--	400	mV

Temperature Coefficient		--	--	±0.03	%/℃
Minimum Load		0	--	--	%
Load Sharing Accuracy	Supports up to 4 parallel power supplies, CAN1 or CAN2 are interconnected	--	--	±5.0	%
Short Circuit Protection		Hiccup protection, self-recover			
Over-current Protection		⩾105% Io, 500ms	Hiccup protection, self-recover		
		⩾110% Io, 200ms			
Over-voltage Protection	15V	⩽18VDC, output voltage turn off, self-recover after AC restart			
Over-temperature Protection		Output voltage turn off, self-recover after the temperature drops			

Note: *The "Tip and barrel method" is power frequency ripple, it 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.

Input Specifications/DC to AC Direction

Item	Operating Conditions	Min.	Typ.	Max.	Unit
DC Input Voltage Range	DC input	--	15	--	VDC
Input Current	DC input (rated voltage)	--	426.7	--	A
Input Power			6400		W

Output Specifications/DC to AC Direction

Item	Operating Conditions		Min.	Typ.	Max.	Unit
Output Voltage Range	AC Output	Line voltage	304	380	480	VAC
Output Voltage Frequency			45	--	65	Hz
Output Current			--	--	16	A
Power Factor	380VAC, full load			0.99		
Current Harmonic	380VAC, full load			＜5%		
Islanding Protection				Available		

General Specifications

Item		Operating Conditions		Min.	Typ.	Max.	Unit
Insulation Resistance	Input - ⏚	Ambient temperature: 25 ± 5℃ Relative humidity: < 95%RH, no condensation Test voltage: 500VDC		100	--	--	MΩ
	Input - output			100	--	--	
	Output - ⏚			100	--	--	
Operating Temperature				-10	--	+60	℃
Storage Temperature				-40	--	+85	
Operating Humidity		Non-condensing		20	--	90	%RH
Storage Humidity				10	--	95	
Power Derating		Operating temperature derating	-10℃ to +45℃	0	--	--	%/℃
			+45℃ to +55℃	1	--	--	
			+55℃ to +60℃	2	--	--	
		Input voltage derating	304VAC - 323VAC	1	--	--	%/VAC
Indicator Status		Fault		Red			
		AC/DC forward Charging		Blue			
		DC/AC reverse inversion		Green			
Bidirectional Switching Time				Seamless switching			
Communication				CAN			
Fan Fault protect				Self-recovery after fault clearance			

Fan Speed Measurement	Forced cooling	Intelligent speed regulation
Online upgrade Function		Available
Safety Standards		Design refer to UL/EN/BS EN62368-1(OVC II), UL62477(OVC III)
Safety Class		CLASS I

Mechanical Specifications

Case Material	Metal (SGCC)
Dimensions	435.00mm x 268.00mm x 86.00mm
Weight	8.86kg (Typ.)
Cooling Method	Forced cooling

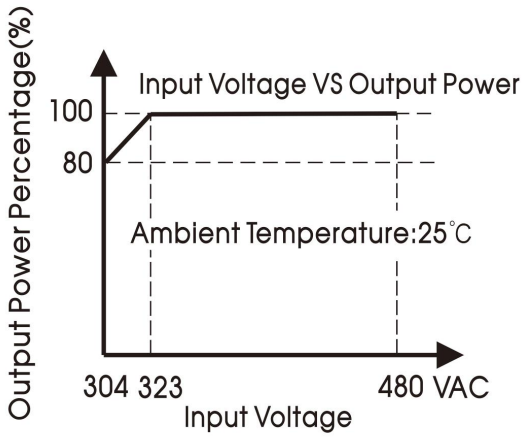
Note: 1. * Cooling mode and power derating refer to the product characteristic curve;
2. * Tips: Built-in fan, not air.

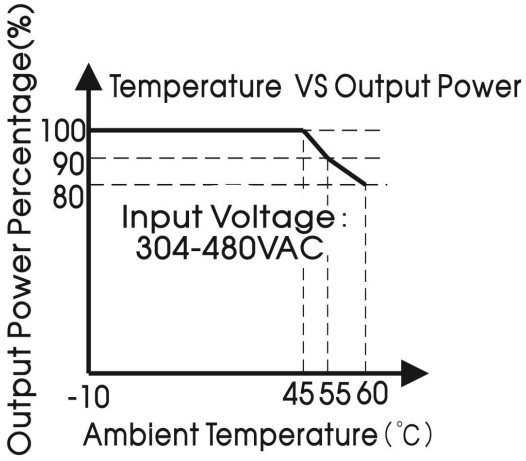
Electromagnetic Compatibility (EMC)

Emissions	Harmonic current	IEC/EN61000-3-2		CLASS A
	THD			5%
Immunity	ESD	IEC61000-6-2/IEC61000-4-2	Contact ±6KV/Air ±8KV	Perf. Criteria B
	RS	IEC61000-6-2/IEC61000-4-3	80MHz – 1GHz 10V/m	Perf. Criteria A
	EFT	IEC61000-6-2/IEC61000-4-4	AC Port: ±4kV , 100kHz	Perf. Criteria B
	Surge	IEC61000-6-2/IEC61000-4-5	line to line ±2KV/line to ground ±4KV	Perf. Criteria B
	CS	IEC61000-6-2/IEC61000-4-6	0.15MHz-80MHz 10V r.m.s	Perf. Criteria A
	Power frequency magnetic field	IEC61000-6-2/IEC61000-4-8	30A/m	Perf. Criteria A

Note: *perf. Criteria:
A: The equipment shall continue to operate as intended without operator intervention;
B: After the test, the equipment shall continue to operate as intended without operator intervention;
C: Loss of function is allowed, provided the function is self-recoverable, or can be restored by the operation of the controls by the user in accordance with the manufacturer's instructions.

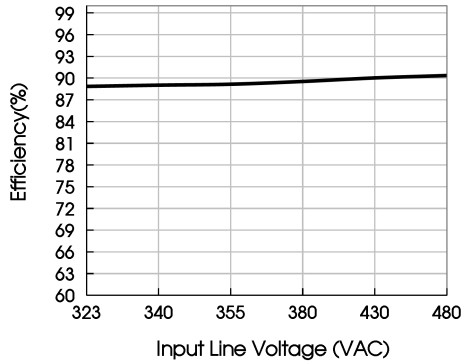
Product Characteristic Curve



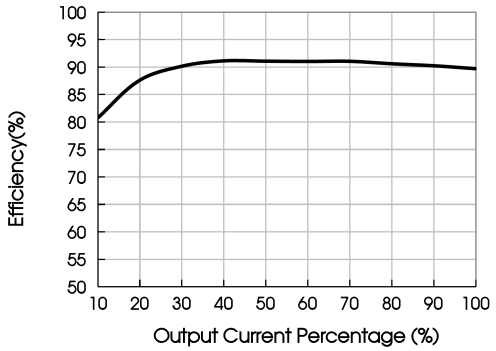


Note: 1. The input voltage described by the above curve is line voltage;
2.This product is suitable for use in natural air-cooled environments. If used in closed environments, please consult MORNSUN FAE.

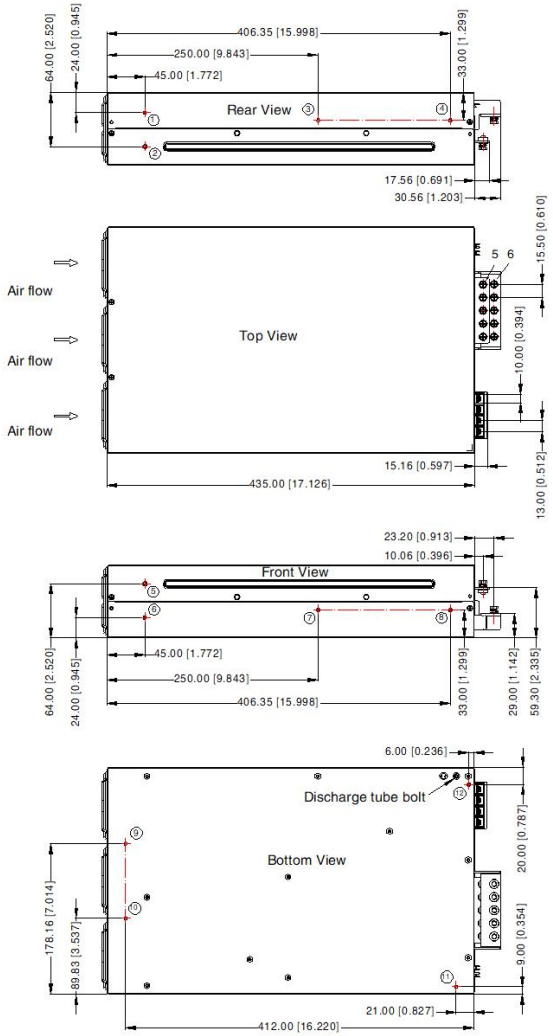
Efficiency VS Input Line Voltage (Full Load)

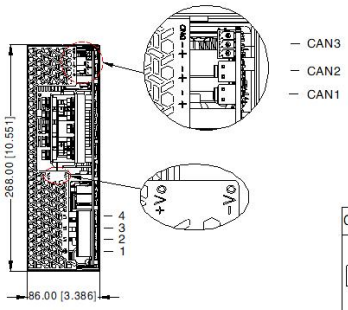


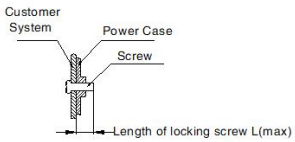
Efficiency VS Output Load (Vin=380VAC)



Dimensions and Recommended Layout







Position	Screw Spec.	Length of locking screw L(max)	Torque(max)
① - ⑫	M4	4mm	0.9N · m

Connector wires range:

Pro. No	Input connector	Output connector
8KW	14-8 AWG	0-000AWG (Three cables)
Screw/torque	M4, Max 0.9N · m	M6, Max 4.0N · m

Pin-Out	
Pin	Mark
1	⏚
2	L1
3	L2
4	L3
5	+Vo
6	-Vo

CAN1/CAN2	Pin-Out	
	Pin	Mark
	1	+CAN
	2	-CAN
Customer Connector	Connector: JST VHR-2N or equivalent Terminal: JST SVH-21T-P1.1 or equivalent	

CAN3	Pin-Out	
	Pin	Mark
	1	+CAN
	2	-CAN
	3	GND
Customer Connector	Connector: DEGSON 15EDGKD-3.5-03P or equivalent	

Note:
Unit: mm[inch]
General tolerances: ±1.00[±0.0
Pin1-4 connector tightening torque: M4, 0.9N · m max.

Note:

1. For additional information on Product Packaging please refer to www.mornsun-power.com. Packaging bag number: 58220679;
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 3000m;
4. All index testing methods in this datasheet are based on our company corporate standards;
5. We can provide product customization service, please contact our technicians directly for specific information;
6. Products are related to laws and regulations: see "Features" and "EMC";
7. The out case needs to be connected to PE (⏚)of system when the terminal equipment in operating;
8. Our products shall be classified according to ISO14001 and related environmental laws and regulations, and shall be handled by qualified units;
9. 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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