

AC/DC 600W Enclosed Switching Power Supply

LM600-12Bxx, LM600-12Bxx-Q Series

MORNSUN®



FEATURES

- Input voltage Range: 176 - 264VAC or 240 - 370VDC
- Accepts AC or DC input (dual-use of same terminal)
- Operating ambient temperature range: -20℃ to +60℃
- LED Indicator for power on
- Operating up to 5000m altitude
- Over-temperature protection, output short circuit, over-current, over-voltage protection
- Built-in DC fan
- Remote sense function
- 3 years warranty



LM600-12Bxx series is one of Mornsun's enclosed AC-DC switching power supply. It features AC input and at the same time accepts DC input voltage, cost-effective, low no load power consumption, high efficiency and high reliability. These converters offer excellent EMC performance and meet IEC/EN61000-4, CISPR32/EN55032, IEC/UL/EN62368, GB4943 standards and they are widely used in areas of industrial, LED, street light control, electricity, security, telecommunications, smart home, etc.

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/CQC BIS	LM600-12B12	600	12V/50A	10-13.5	85	3000
	LM600-12B15	600	15V/40A	13.5-16.5	86	3000
	LM600-12B24	600	24V/25A	22-26.4	87	1000
	LM600-12B27	599.4	27V/22.2A	24-30	87	1000
	LM600-12B36	597.6	36V/16.6A	32-40	87	1000
	LM600-12B48	600	48V/12.5A	43-56	88	1000

Note:1. *Use suffix "Q" for bottom conformal coating.

Input Specifications

Item	Operating Conditions		Min.	Typ.	Max.	Unit
Input Voltage Range	AC input		176	--	264	VAC
	DC input		240	--	370	VDC
Input Voltage Frequency			47	--	63	Hz
Input Current	230VAC		--	7.5	10	A
Inrush Current	230VAC	Cold start	--	60	--	
Leakage Current	240VAC		--	--	2	mA
Hot Plug			Unavailable			

Output Specifications

Item	Operating Conditions		Min.	Typ.	Max.	Unit
Output Voltage Accuracy	Full load range		--	±1	--	%
Line Regulation	Rated load		--	±0.5	--	
Load Regulation	0% - 100% load					
Output Ripple & Noise*	20MHz bandwidth	12V/15V/24V/27V	--	150	--	mV
	(peak-to-peak value)	36V/48V	--	200	--	
Temperature Coefficient			--	±0.05	--	%/℃
Minimum Load			0	--	--	%

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Hold-up Time	230VAC	--	20	--	ms
Short Circuit Protection	Recover time <3s after the short circuit disappear.	Hiccup, continuous, self-recover			
Over-current Protection		105%-180% Io, self-recover			
Over-voltage Protection	12V	≤16.2V (Hiccup, self-recover)			
	15V	≤21V (Hiccup, self-recover)			
	24V	≤32.4V (Hiccup, self-recover)			
	27V	≤36.5V (Hiccup, self-recover)			
	36V	≤50V (Hiccup, self-recover)			
	48V	≤60V (Hiccup, self-recover)			
Over Temperature Protection*	Over-temperature Protection Activation	--	--	70	°C
	Over-temperature Protection Deactivation	40	--	--	
Remote Sense	Total compensate voltage (RS+/RS- shorted to Vo+/Vo- respectively)	--	0.5	--	V

Note: 1.*The "Tip and barrel method" is used for ripple and noise test, output parallel 47μF electrolytic capacitor and 0.1μF ceramic capacitor, please refer to Enclosed Switching Power Supply Application Notes for specific information;
2.*Over-temperature Protection needs to be tested under rated full load conditions.

General Specifications

Item		Operating Conditions		Min.	Typ.	Max.	Unit
Isolation Test	Input - $\oplus$	Electric strength test for 1min., leakage current <10mA		1500	--	--	VAC
	Input - Output			3000	--	--	
	Output - $\oplus$			500	--	--	
Insulation Resistance	Input - $\oplus$	Ambient temperature: 25 ± 5℃		50	--	--	M Ω
	Input - Output	Relative humidity: < 95%RH, no condensation		50	--	--	
	Output - $\oplus$	Test voltage: 500VDC		50	--	--	
Operating Temperature				-20	--	+60	℃
Storage Temperature				-40	--	+85	
Operating Humidity		Non-condensing		20	--	90	%RH
Storage Humidity				10	--	95	
Power Derating		Operating temperature derating	+40℃ to +60℃	2	--	--	%/℃
		Input voltage derating	176VAC - 200VAC	0.833	--	--	%VAC
			200VAC - 264VAC	0	--	--	
Safety Standard				GB4943.1, IS13252 (Part1) Safety Approval & EN62368-1, BS EN 62368-1 (Report) Design refer to IEC/EN/UL62368-1			
Safety Class				CLASS I			
MTBF		MIL-HDBK-217F@25℃		>300,000 h			

Mechanical Specifications

Case Material	Metal (SGCC)
Dimensions	267.30mm x 106.00mm x 40.00 mm
Weight	1100g (Typ.)
Cooling Method	Forced air cooling

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Electromagnetic Compatibility (EMC)

Emissions	CE	CISPR32/EN55032	CLASS A	
	RE	CISPR32/EN55032	CLASS A	
Immunity	ESD	IEC/EN 61000-4-2	Contact $\pm 6\text{KV}$ /Air $\pm 8\text{KV}$	perf. Criteria A
	RS	IEC/EN 61000-4-3	3V/m	perf. Criteria B
	EFT	IEC/EN 61000-4-4	$\pm 1\text{KV}$	perf. Criteria A
	Surge	IEC/EN 61000-4-5	line to line $\pm 1\text{KV}$ /line to ground $\pm 2\text{KV}$	perf. Criteria A
	CS	IEC/EN 61000-4-6	10 V _{r.m.s}	perf. Criteria A
	Voltage dips, short interruptions and voltage variations	IEC/EN 61000-4-11	0%, 70%	perf. Criteria B

Note: 1. One magnetic bead should be coupled with the output load line during CE/RE testing.

2. Matching our filter FC-L10WX series, can meet the higher level of EMC.

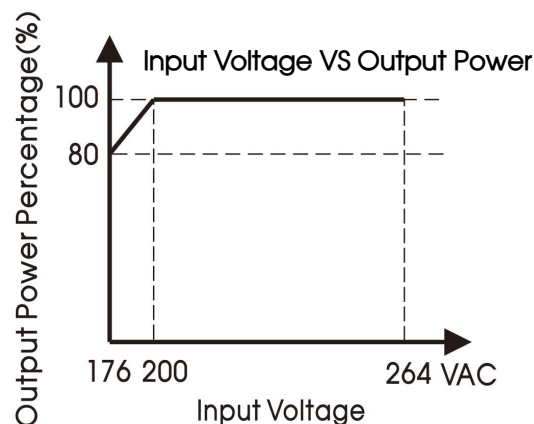
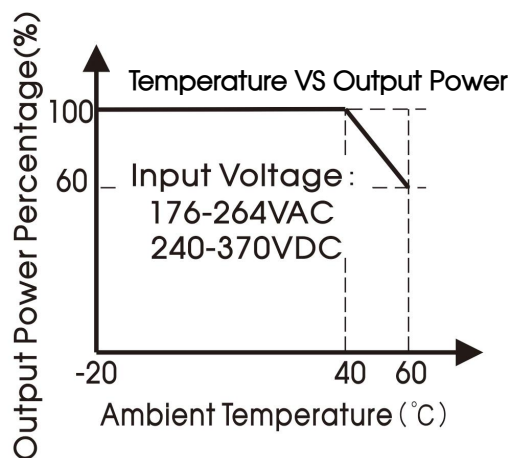
3. The power supply does not meet the requirements of harmonic current stipulated in EN61000-3-2; This power supply is not suitable for the following situations.

- 1) The terminal equipment is used in the European Union;
- 2) The terminal equipment is connected to public mains supply with 220VAC or greater rated nominal voltage that mandatory to meet the requirements of EN61000-3-2;
- 3) The power supply is installed in terminal equipment with average or continuous input power greater than 75W;
- 4) The power supply belong to a part of lighting system;

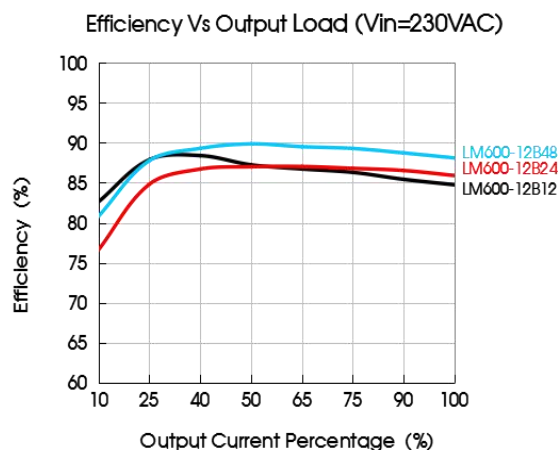
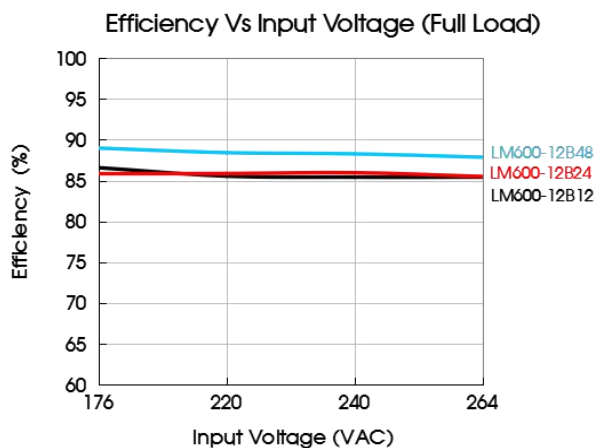
In addition, the power supply can be used in the following terminals which do not need to meet EN61000-3-2;

- (1) Professional equipment with total fixed input power greater than 1000W;
- (2) symmetrical controlled heating element with rated power less than or equal to 200W.
4. If no harmonic current is required or customers can solve harmonic current problems by themselves, this product can be used.

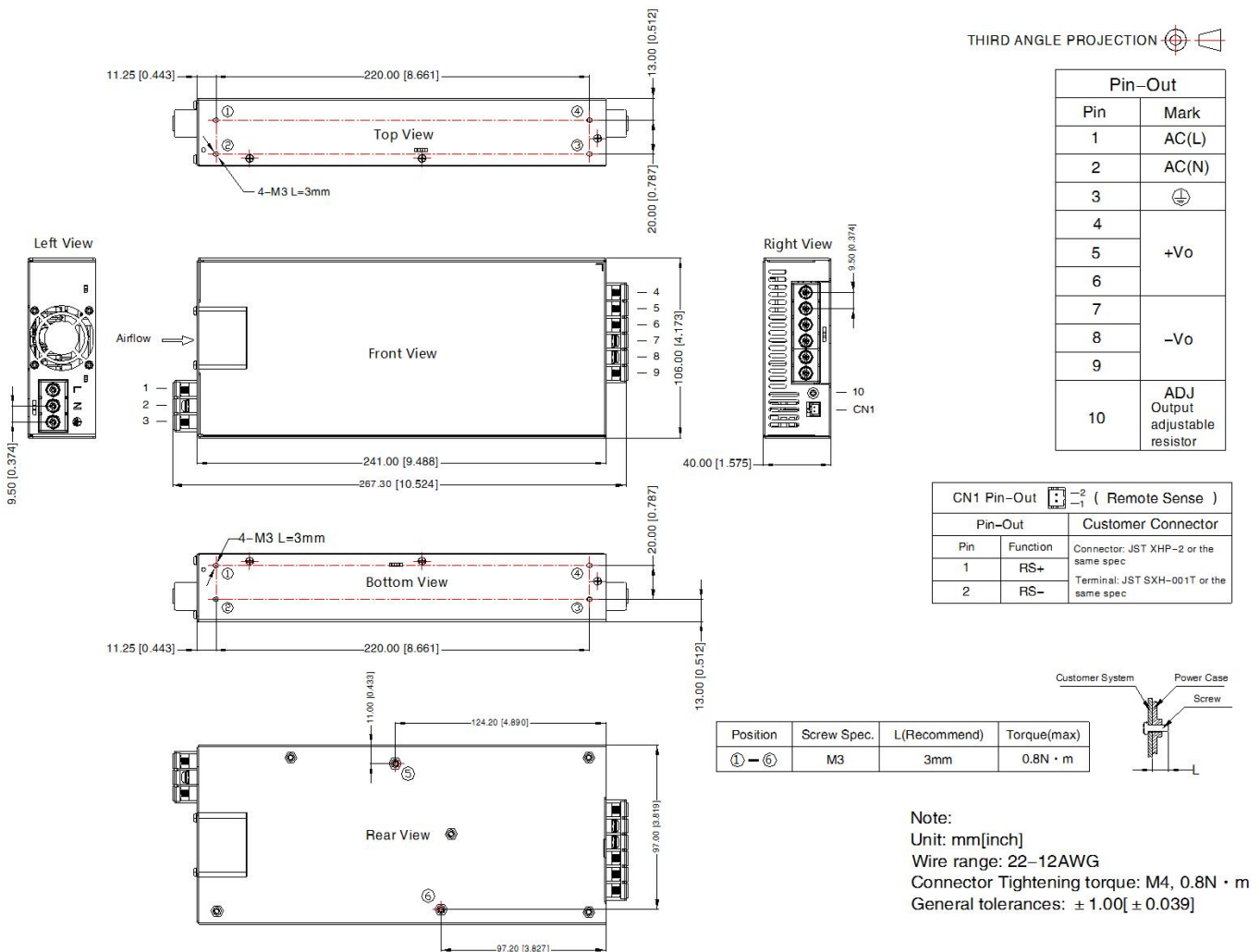
Product Characteristic Curve



Note: This product is suitable for applications using forced air cooling; for applications in closed environment please consult Mornsun FAE.



Dimensions and Recommended Layout



Note:

- For additional information on Product Packaging please refer to www.mornsun-power.com. Packaging bag number: 58220190;
- 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 ambient temperature derating of $5^{\circ}\text{C}/1000\text{m}$ 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 out case needs to be connected to PE (⊥) of system when the terminal equipment in operating;
- 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 final equipment. All EMC tests should be confirmed with the final equipment. Please consult our FAE for EMC test operation instructions.

Mornsun Guangzhou Science & Technology Co., Ltd.

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