



FEATURES

- Input voltage Range: 176 - 264VAC or 240 - 370VDC
- Accepts AC or DC input (dual-use of same terminal)
- Operating ambient temperature range: -20°C to +60°C
- LED indicator for power on
- Operating up to 5000m altitude
- Output short circuit, over-current, over-voltage, over-temperature protection
- Built-in DC fan
- With control voltage adjustable function

LM600-12B30-ZYD 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 they are widely used in areas of industrial, LED, street light control, electricity, security, telecommunications, smart home etc, can also be used in intelligent breeding, beauty, laser lighting and other industries.

Selection Guide

Part No.	Rated Output Power (W)	Nominal Output Voltage and Current (Vo/Io)	Output Voltage Adjustable Range (V)*	Efficiency at 230VAC (%) Typ.*	Max. Capacitive Load (μF)*
LM600-12B30-ZYD	375	30V/12.5A	9.6-48.0	84	1000

Note: 1.* The maximum capacitive load of 1000μF is tested at nominal output of 30V/12.5A;

2.* During the output voltage adjustment process, the maximum output current is 12.5A, the maximum output voltage is 48V;

3.* Efficiency is measured at input nominal voltage and nominal output of 30V/12.5A.

4.*The output voltage will decrease as the CON3 control signal voltage increases. When the control signal is 0.5V and 4.8V, the output voltage will be 48V and 9.6V respectively. The relationship between them is non-linear.

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, 25°C	Cold start	--	60	--	
Leakage Current	240VAC	Input - output	--	--	0.5	mA
		Input - ⊕	--	--	2	
Hot Plug			Unavailable			

Output Specifications

Item	Operating Conditions	Min.	Typ.	Max.	Unit
Output Voltage Accuracy	5% - 100% load range	--	±5	--	%
Line Regulation	Rated load	--	±0.5	--	
Load Regulation	5% - 100% load	--	±0.5	--	
Output Ripple & Noise*	20MHz bandwidth (peak-to-peak value)	--	200	--	mV
Temperature Coefficient		--	±0.05	--	%/°C
Minimum Load	9.6V - 48.0V output	5	--	--	%
Hold-up Time	230VAC, normal temperature, rated output load	--	20	--	ms
Output Voltage Adjustable Range	Control voltage range 0.5 - 4.8V, as the control voltage increases, the output voltage decreases	--	48-9.6	--	V
Short Circuit Protection	Recovery time < 3s after the short circuit disappear.	Hiccup, continuous, self-recovery			
Over-current Protection	Output condition: 30V/12.5A	105%-180% Io, self-recovery			
Over-voltage Protection		≤60V (Hiccup, self-recovery)			

Over-temperature Protection*	Over-temperature protection activation	--	--	70	°C
	Over-temperature protection deactivation	40	--	--	
CON3 Control Signal	Full input voltage range, put 0.5-4.8VDC adjustment voltage at both ends of CON3	9.6	--	48.0	VDC

Note: 1. *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;
 2. *Over-temperature protection should be tested at 48V full load;
 3. *Put control signal voltage at CON3, the output voltage will decrease as the control signal voltage increases from 0.5 to 4.8VDC. When the control signal is 0.5V and 4.8V, the output voltage will be 48V and 9.6V respectively, the relationship between them is non-linear.

General Specifications

Item	Operating Conditions		Min.	Typ.	Max.	Unit
Isolation Test	Input - ⊕	Electric strength test for 1min., leakage current <10mA	1500	--	--	VAC
	Input - output		3000	--	--	
	output - ⊕		500	--	--	
Insulation Resistance	Input - ⊕	At 500VDC	50	--	--	MΩ
	Input - output		50	--	--	
	output - ⊕		50	--	--	
Operating Temperature			-20	--	+60	°C
Storage Temperature			-40	--	+85	
Operating Humidity	Non-condensing		20	--	90	%RH
Storage Humidity			10	--	95	
Power Derating	Operating temperature derating	+40°C to +60°C	2	--	--	% / °C
	Input voltage derating	176VAC - 200VAC	0.833	--	--	
Safety Certification			Design refer to IEC/UL/EN62368-1			
Safety Class			CLASS I			
MTBF	MIL-HDBK-217F@25°C		>300,000 h			

Mechanical Specifications

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

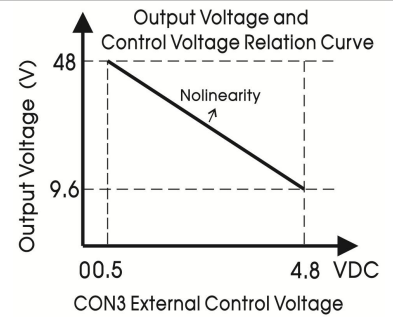
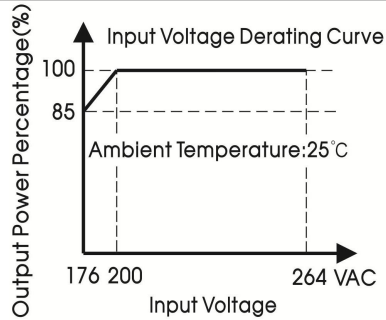
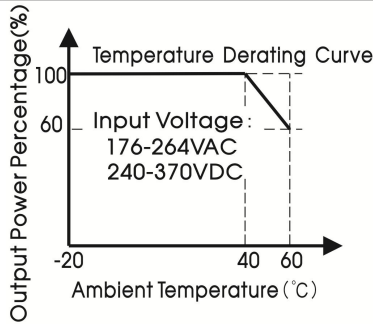
Electromagnetic Compatibility (EMC)

Emissions	CE	CISPR32/EN55032 CLASS A		
	RE	CISPR32/EN55032 CLASS A		
Immunity	ESD	IEC/EN 61000-4-2	Contact ±6KV/Air ±8KV	perf. Criteria A
	RS	IEC/EN 61000-4-3	3V/m	perf. Criteria B
	EFT	IEC/EN 61000-4-4	±1KV	perf. Criteria A
	Surge	IEC/EN 61000-4-5	line to line ±1KV/line to ground ±2KV	perf. Criteria A
	CS	IEC/EN61000-4-6	10 Vr.m.s	perf. Criteria A
	Voltage dips, short interruptions and voltage variations	IEC/EN61000-4-11	0%, 70%	perf. Criteria B

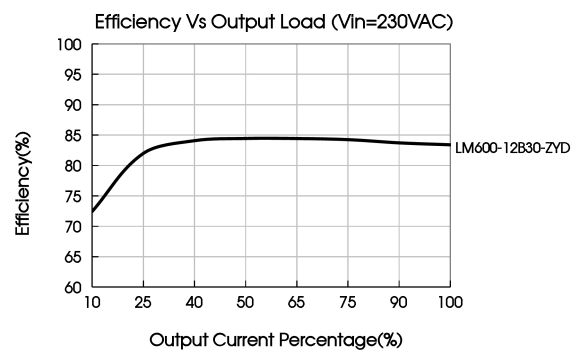
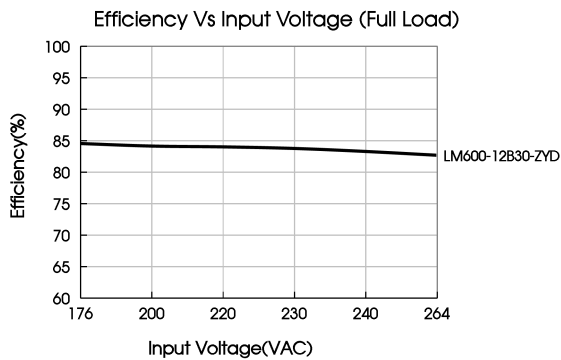
Remark: When the power supply is used in the European Union or in applications that mandatory to meet the requirements of EN61000-3-2, users need to handle the harmonic current requirements, details please refer to Mornsun FAE. Applications like:

- (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.

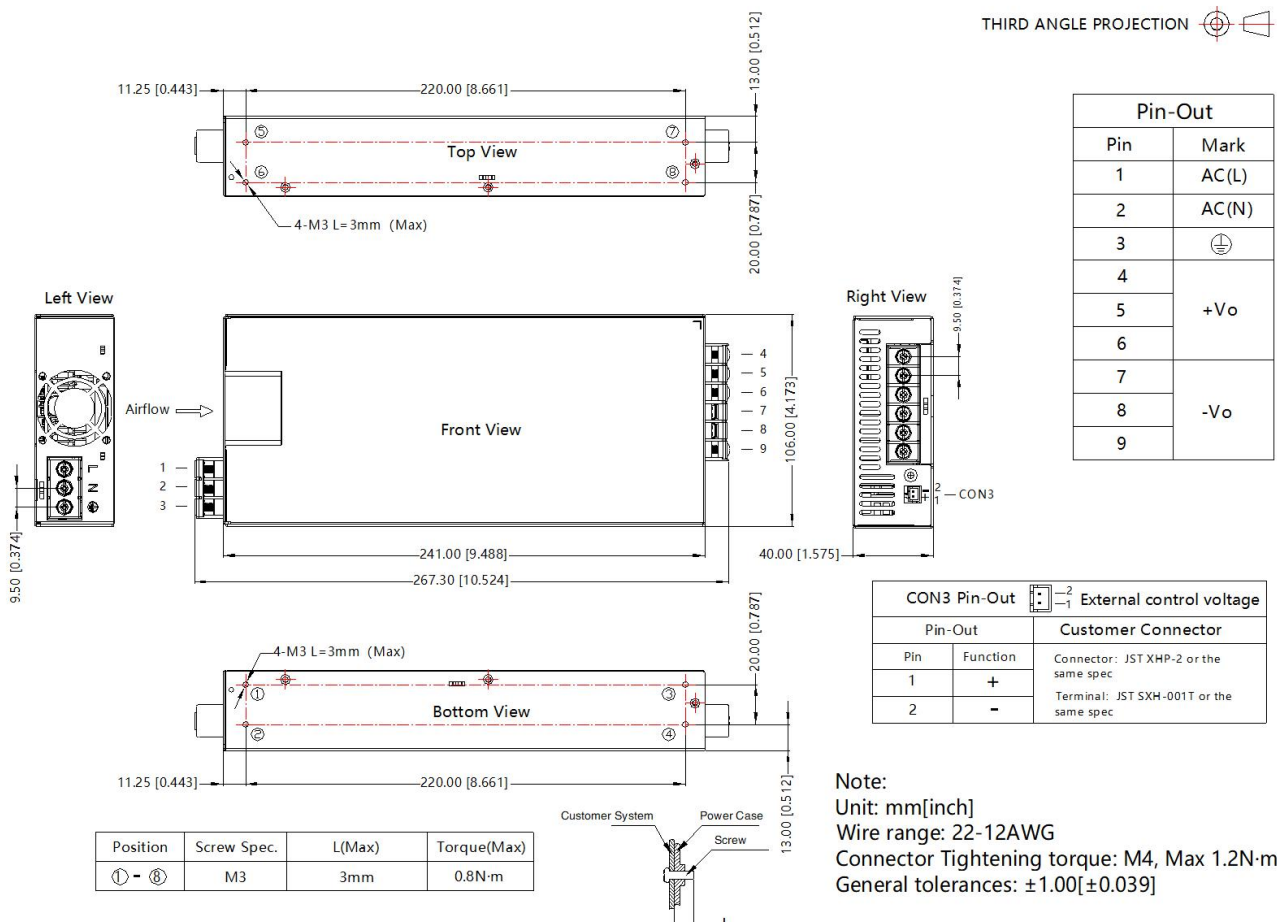
Product Characteristic Curve



- Note: 1. With an AC input voltage between 176 -200VAC the output power must be derated as per the temperature derating curves;
 2. This product is suitable for applications using forced air cooling; for applications in closed environment please consult Mornsun FAE;
 3. The output voltage will decrease as the CON3 control signal voltage increases. When the control signal is 0.5V and 4.8V, the output voltage will be 48V and 9.6V respectively. The relationship between them is non-linear.



Dimensions and Recommended Layout



Note:

1. For additional information on Product Packaging please refer to www.mornsun-power.com. Packaging bag number: 58220190;
2. 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;
3. The ambient temperature derating of $5^{\circ}\text{C}/1000\text{m}$ 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 (\oplus) of system when the terminal equipment in operating;
9. Our products shall be classified according to ISO14001 and related environmental laws and regulations, and shall be handled by qualified units.
10. 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.

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