



EN62368-1

## FEATURES

- Special switching power supply designed for professional laser galvanometer industry
- Universal 165- 264VAC or 180 - 370VDC Input voltage
- Accepts AC or DC input (dual-use of same terminal)
- Operating ambient temperature range: -30°C to +70°C
- High efficiency
- High I/O isolation test voltage up to 3000VAC
- Low ripple & noise
- Output short circuit, over-current, over-voltage protection
- Over-voltage class III (designed to meet EN61558)
- Operating altitude up to 5000m

LM150-12A15 series is one of Mornsun's dual output non-isolation enclosed AC-DC switching power supply. 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 performance and meet IEC/EN61000-4, IEC/UL/EN62368, GB4943 standards and they aren't only specific Used in the laser galvanometer industry, but also widely used in current sensors, motors and other fields.

## Selection Guide

Certification	Part No.*	Output Power (W)	Nominal Output Voltage and Current (Vo/Io)		Output Voltage Adjustable Range (ADJ) Io1 (V)	Efficiency at 230VAC (%) Typ.	Max. Capacitive Load (μF) (vo1/vo2)
			(Vo1/Io1)	(Vo2/Io2)			
EN	LM150-12A15	150	+15V/5A	-15V/5A	13.5V-16.5V	85	6000

Note: \*Use suffix "C" for terminal with protective cover and suffix "Q" for conformal coating.

## Input Specifications

Item	Operating Conditions		Min.	Typ.	Max.	Unit
Input Voltage Range	AC input		165	--	264	VAC
	DC input		180	--	370	VDC
Input Voltage Frequency			47	--	63	Hz
Input Current	230VAC		--	--	2.5	A
Inrush Current	230VAC	Cold start	--	60	--	
Leakage Current	240VAC		<0.75mA			
Hot Plug			Unavailable			

## Output Specifications

Item	Operating Conditions		Min.	Typ.	Max.	Unit
Output Voltage Accuracy	10% - 100% load (Balanced load)	Main Output Vo1	--	±1	--	%
		Auxiliary output Vo2	--	±3	--	
Line Regulation	10% - 100% load (Balanced load)	Main Output Vo1	--	±0.5	--	
		Auxiliary output Vo2	--	±0.5	--	
Load Regulation	10% - 100% load (Balanced load)	Main Output Vo1	--	±1	--	
		Auxiliary output Vo2	--	±3	--	
Ripple & Noise*	20MHz bandwidth (peak-to-peak value)	Vo1/Vo2	--	100	--	mV
Temperature Coefficient			--	±0.03	--	%/°C
Minimum Load			--	10	--	%
Stand-by Power Consumption	230VAC		--	--	5.5	W
Hold-up Time	230VAC			22	--	ms

Short Circuit Protection	Recovery time <5s after the short circuit disappear.	Hiccup, continuous, self-recover				
Over-current Protection		110%-180% Io, hiccup, self-recover				
Over-voltage Protection	Balanced load, Vo1	≤21.75VDC (Output voltage hiccup)				
Over-temperature Protection	Over-temperature Protection Activation	Hiccup	--	80	90	°C
	Over-temperature Protection Deactivation		65	--	--	
Note: *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.						

## General Specifications

Item	Operating Conditions		Min.	Typ.	Max.	Unit
Isolation Test	Input - ⊕	Electric strength test for 1min., leakage current <5mA	1500	--	--	VAC
	Input - output		3000	--	--	
	Output - ⊕		500	--	--	
Insulation Resistance	Input - ⊕	At 500VDC	50	--	--	MΩ
	Input - output		50	--	--	
	Output - ⊕		50	--	--	
Operating Temperature			-30	--	+70	°C
Storage Temperature			-40	--	+85	
Operating Humidity	Non-condensing		10	--	95	%RH
Storage Humidity			20	--	90	
Power Derating	Operating temperature derating	+50°C to +70°C	2.5	--	--	%/°C
Safety Standard			EN62368-1 (Report) Design refer to IEC/EN/UL62368-1, EN60335-1, EN61558-1, GB4943.1			
Safety Class			CLASS I			
MTBF	MIL-HDBK-217F@25°C		>300,000 h			

## Mechanical Specifications

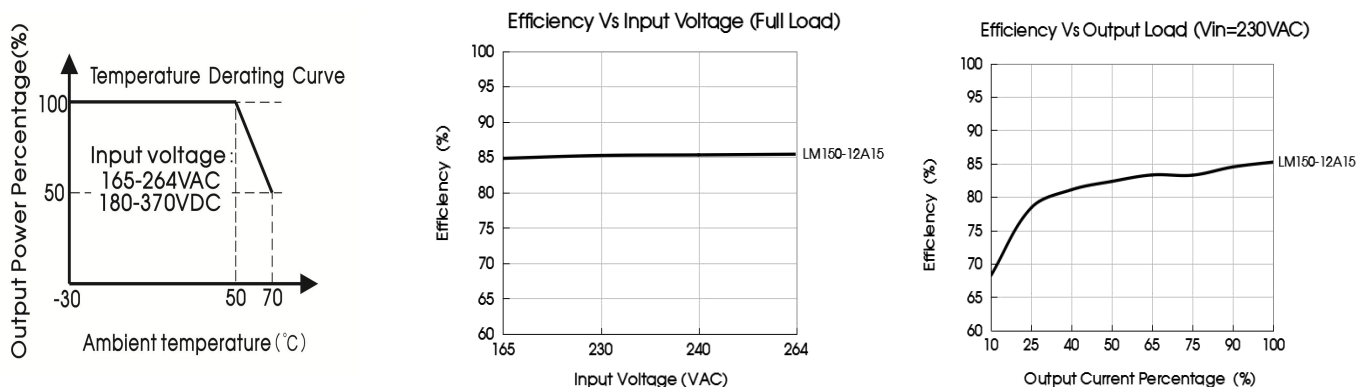
Case Material	Metal (AL1100, SGCC)
Dimensions	159 x 97 x 30 mm
Weight	420g (Typ.)
Cooling Method	Free air convection

## Electromagnetic Compatibility (EMC)

Emissions*	CE	CISPR32/EN55032 CLASS B		
	RE	CISPR32/EN55032 CLASS B		
	Harmonic current	IEC/EN61000-3-2 CLASS A (≤80% Load)		
	Flicker	IEC/EN61000-3-3		
Immunity	ESD	IEC/EN 61000-4-2	Contact ±6KV/Air ±8KV	Perf. Criteria A
	RS	IEC/EN 61000-4-3	10V/m	perf. Criteria A
	EFT	IEC/EN 61000-4-4	±4KV	perf. Criteria A
	Surge	IEC/EN 61000-4-5	line to line ±2KV/line to ground ±4KV	perf. Criteria A
	CS	IEC/EN61000-4-6	10 Vr.m.s	perf. Criteria A
	Voltage dips, short interruptions and voltage variations immunity	IEC/EN61000-4-11	0%, 70%	perf. Criteria B

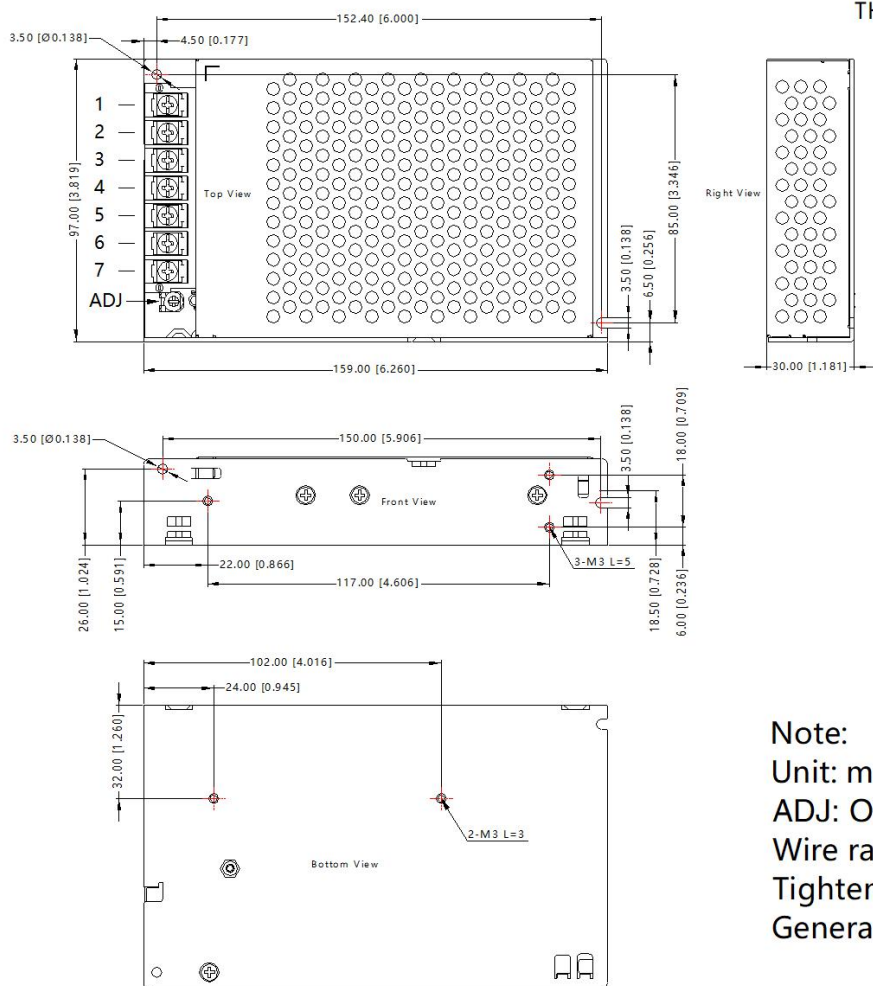
Note: 1.\*The power supply should be considered as a part of the components in the system. All EMC performance are been tested on a metal plate with a thickness of 1mm and a length of 360mm x 360mm. The power supply must be combined with the terminal equipment for electromagnetic compatibility confirmation.

## Product Characteristic Curve



Note: 1.This product is suitable for applications using natural air cooling; for applications in closed environment please consult Mornsun FAE.

## Dimensions and Recommended Layout



Pin-Out	
Pin	Function
1	AC(L)
2	AC(N)
3	⊕
4	V2
5	COM
6	COM
7	V1

Note:  
Unit: mm[inch]  
ADJ: Output adjustable resistor  
Wire range: 22-12AWG  
Tightening torque: M4, 1.2N.m  
General tolerances: ±1.00[±0.039]

Note:

1. For additional information on Product Packaging please refer to [www.mornsun-power.com](http://www.mornsun-power.com). Packaging bag number: 58220111;
2. Unless otherwise specified, parameters in this datasheet were measured under the conditions of Ta=25°C, humidity<75%RH with nominal input voltage and rated output load;
3. The room temperature derating of 5°C/1000m 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 (⊕) of system when the terminal equipment in operating;
9. The output voltage can be adjusted by the ADJ, clockwise to decrease;
10. Our products shall be classified according to ISO14001 and related environmental laws and regulations, and shall be handled by qualified units;
11. 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.

## Mornsun Guangzhou Science & Technology Co., Ltd.

Address: No. 5, Kehui St. 1, Kehui Development Center, Science Ave., Guangzhou Science City, Huangpu District, Guangzhou, P. R. China

Tel: 86-20-38601850

Fax: 86-20-38601272

E-mail: [info@mornsun.cn](mailto:info@mornsun.cn)

[www.mornsun-power.com](http://www.mornsun-power.com)