

AC/DC 200W Enclosed Switching Power Supply

LM200-10Bxx(-Q) Series

MORNSUN®



FEATURES

- Selectable AC input range: 90 - 132VAC/
180 - 264VAC (by switch)
- DC input range: 240 - 373VDC (Switch in position of 230)
- Ultra low standby power consumption < 0.75W@230VAC
- Operating ambient temperature range: - 30℃ to +70℃
- High efficiency, high reliability
- LED indicator for power on
- 150% peak load for 5 seconds
- Output short circuit, over-current, over-voltage,
over-temperature protection
- Operating altitude up to 5000m
- 3 years warranty

CE Report

EN62368-1
EN60335-1
EN61558-1
EN61558-2-16

CQC

GB4943.1 BS EN62368-1

UK

RoHS



LM200-10Bxx series is one of Mornsun's enclosed AC-DC switching power supply. It features selectable AC input and at the same time accepts DC input voltage, cost-effective, low no load power consumption, high efficiency and high reliability. These power supply offer excellent EMC performance and design refer to IEC/EN61000-4, CISPR32/EN55032, UL/EN/IEC62368, EN60335, GB4943 standards and they are widely used in areas of industrial, LED, street light control, security, telecommunications, smart home etc.

Selection Guide

Certification	Part No.*	Output Power (W)		Nominal Output Voltage and Current (Vo/Io)	Output Voltage Adjustable Range ADJ (V)	Efficiency at 230VAC (%) Typ.	Max. Capacitive Load (μF)
		Steady state	transient**				
EN/CQC (Pending)	LM200-10B05	150	200	5V/30A	4.5 - 5.5	87.0	10000
	LM200-10B12	204	--	12V/17A	10.2 - 13.8	87.5	4000
	LM200-10B15	210	--	15V/14A	13.5 - 18.0	88.0	3300
	LM200-10B24	211.2	--	24V/8.8A	21.6 - 28.8	88.5	1500
	LM200-10B36	212.4	--	36V/5.9A	32.4 - 39.6	89.0	1500
	LM200-10B48	211.2	--	48V/4.4A	43.2 - 52.8	89.5	470

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

2. **Hold-up time 1min (Typ.);

3. If the terminal covers is required, please place an order with "PJA-033" for self-installation;

4. The product picture is for reference only. For details, please refer to the actual product.

Input Specifications

Item	Operating Conditions		Min.	Typ.	Max.	Unit
Input Voltage Range (by switch)	AC input	Low voltage (switch in position of 115)	90	--	132	VAC
		High voltage (switch in position of 230)	180	--	264	
	DC input	Switch in position of 230	240	--	373	VDC
Input Voltage Frequency			47	--	63	Hz
Input Current	115VAC		--	--	5	A
	230VAC		--	--	3	
Inrush Current	115VAC	Cold start	--	60	80	
	230VAC		--	60	80	
Hot Plug			Unavailable			

Output Specifications

Item	Operating Conditions		Min.	Typ.	Max.	Unit
Output Voltage Accuracy	Full load range	5V	--	±3.0	--	%
		12V	--	±1.5	--	

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		15V/24V/36V/48V	--	±1.0	--	
Line Regulation	Rated load		--	±0.5	--	%
Load Regulation	0% - 100% load	5V	--	±2.0	--	
		12V	--	±1.0	--	
		15V/24V/36V/48V	--	±0.5	--	
Ripple & Noise*	20MHz bandwidth (peak-to-peak value)	5V/12V/15V/24V	--	150	--	mV
		36V/48V	--	200	--	
Stand-by Power Consumption	Room temperature, 230VAC input		--	--	0.75	W
Temperature Coefficient			--	--	±0.03	%/°C
Minimum Load			0	--	--	%
Hold-up Time	Room temperature, full load	115VAC	12	--	--	ms
		230VAC	16	--	--	
Short Circuit Protection	Recovery time <5s after the short circuit disappear.		Hiccup, continuous, self-recover			
Over-current Protection	5V		110% - 200%Io, self-recover			
	12V/15V/24V/36V/48V		130% - 250%Io, last for 5s, Output voltage turn off, self-recover			
Over-voltage Protection	5V		≤8V	Output voltage hiccup, self-recover		
	12V		≤18V			
	15V		≤22V			
	24V		≤33.6V			
	36V		≤46.8V			
	48V		≤60V			
Over-temperature Protection	5V		Output voltage turn off, re-power on for recovery			
	12V/15V/24V/36V/48V		Output voltage hiccup, self-recover			
Note: *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.						

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General Specifications

Item		Operating Conditions			Min.	Typ.	Max.	Unit
Isolation	Input - ⊕	Electric strength test for 1min., leakage current <5mA			2000	--	--	VAC
	Input - output				3000	--	--	
	Output - ⊕				500	--	--	
Insulation Resistance	Input - ⊕	Test voltage: 500VDC			100	--	--	MΩ
	Input - output				100	--	--	
	Output - ⊕				100	--	--	
Operating Temperature					-30	--	+70	°C
Storage Temperature					-40	--	+85	
Storage Humidity		Non-condensing			--	--	95	%RH
Operating Humidity					--	--	90	
Power Derating	Operating temperature derating	5V output	+40°C to +70°C	1.66	--	--	% / °C	
		Other output	+50°C to +70°C	2.5	--	--		
	Input voltage derating	90VAC -100VAC	50Hz	3.5	--	--	% /VAC	
		90VAC - 100VAC	60Hz	2.0	--	--		
Safety Standard					Design refer to UL/IEC/EN/BS EN62368-1, IS13252 (Part1), GB4943.1 & EN60335-1, EN61558-1, EN61558-2-16			
Safety Class					CLASS I			
MTBF		MIL-HDBK-217F@25°C			> 300,000 h			
Warranty		Ambient temperature: <70°C			3 years			

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Mechanical Specifications

Case Material	Metal (AL1100, SGCC)	
Dimensions	179.00 x 99.00 x 30.00mm	
Weight	5V	520g (Typ.)
	Other output	500g (Typ.)
Cooling Method	Free air convection	

Electromagnetic Compatibility (EMC)

Emissions	CE	CISPR32/EN55032	CLASS A	
	RE	CISPR32/EN55032	CLASS A	
Immunity	ESD	IEC/EN61000-4-2	Contact ±6KV/Air ±8KV	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 interruptions and voltage variations	IEC/EN61000-4-11	100% dip 1 periods, 30% dip 25 periods, 100% interruptions 250 periods	Perf. Criteria B

Remark:

- One magnetic bead (nickel-zinc ferrite) should be coupled with the output load line during CE/RE testing;
- This power supply does not meet the harmonic current requirements specified in EN61000-3-2.

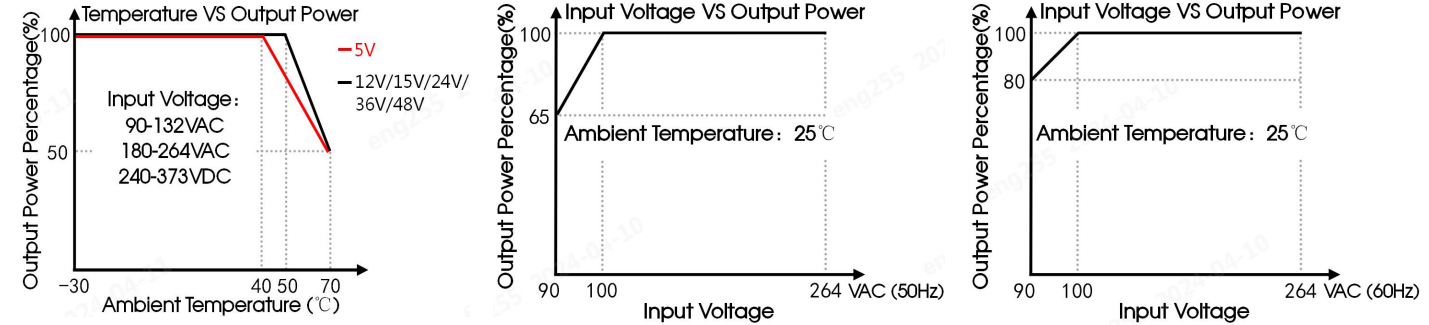
Please do not use this power supply under the following conditions:

- The terminal equipment is used in the European Union.
- Supporting terminals are connected to a public power grid with 220VAC or a higher voltage that comply with the requirements of EN61000-3-2.
- The power supply is installed in terminal equipment with average or continuous input power greater than 75W.
- The power supply belong to a part of lighting system.

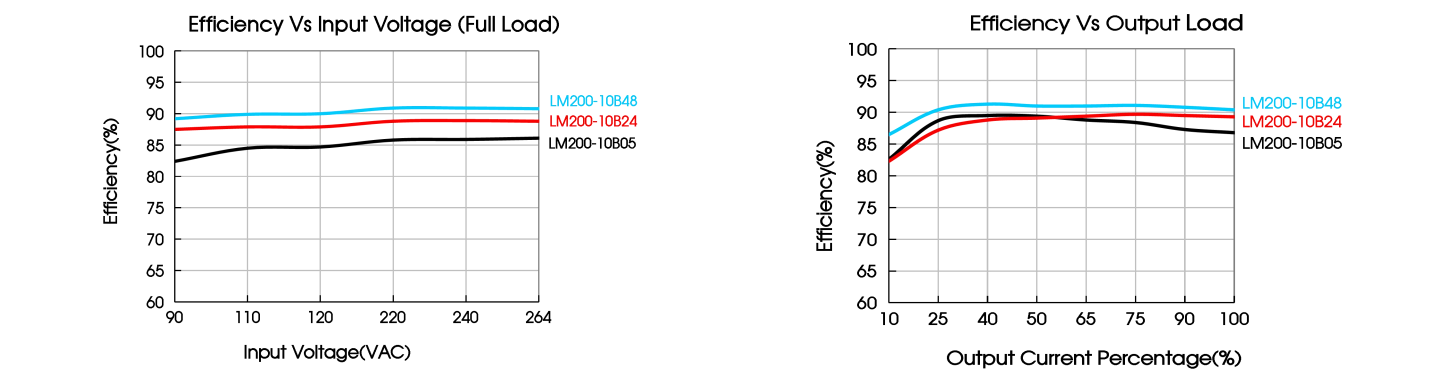
Exception: The power supply used in the following terminal equipment does not need to meet EN61000-3-2.

- Professional equipment with a total rated input power greater than 1000W.
- Symmetrically controlled heating element with a rated power less than or equal to 200W.
- If no harmonic current is required or customers can solve harmonic current problems by themselves, this product can be used.

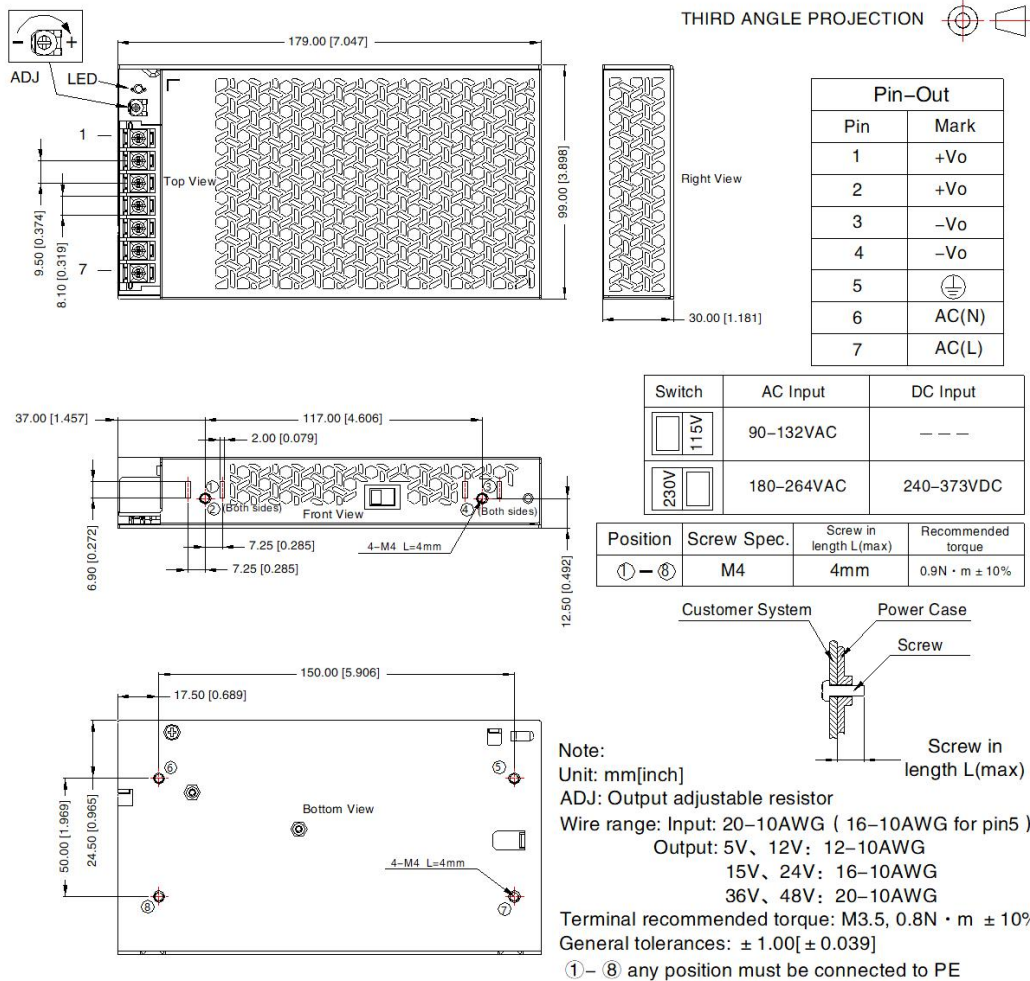
Product Characteristic Curve



Note: 1. With an input voltage between 90-100VAC the output power must be derated as per the temperature derating curves;
2. This product is suitable for applications using natural free 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: 58220727;
- 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;
- The output voltage can be adjusted by the ADJ, clockwise to increase;
- 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.

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