

# AC/DC 200W Enclosed Switching Power Supply

## LM200-10Bxx, LM200-10Bxx-Q, LM200-10Bxx-C Series

# MORNSUN®

### FEATURES

- Selectable AC input range: 90 - 132VAC/180 - 264VAC
- DC input range: 240 - 370VDC(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
- Output short circuit, over-current, over-voltage, over-temperature protection
- Operating altitude up to 5000m
- Safety according to EN60335, EN61558



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 meet IEC/EN61000-4, CISPR32/EN55032, UL/EN/IEC62368, EN60335, 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 ADJ (V)	Efficiency at 230VAC (%) Typ.	Max. Capacitive Load (μF)
		Steady state	transient**				
EN/IEC/ CQC/BIS	LM200-10B05	150	200	5V/30A	4.5 - 5.5	87	10000
	LM200-10B12	204	--	12V/17A	10.2 - 13.8	87.5	4000
	LM200-10B15	210	--	15V/14A	13.5 - 18	88	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	1500
	LM200-10B48	211.2	--	48V/4.4A	43.2 - 52.8	89.5	470

Note: 1.\*Use suffix "C" for terminal with protective cover and suffix "Q" for conformal coating;  
2.\*\*Hold-up time 1min (Typ.);  
3.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	--	370	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	--	
		15V/24V/36V/48V	--	±1.0	--	

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2024.08.12-A/1 Page 1 of 5

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Line Regulation	Rated load		--	±0.5	--	
Load Regulation	0% - 100% load	5V	--	±2.0	--	
		12V	--	±1.0	--	
		15V/24V/36V/48V	--	±0.5	--	
Output Ripple & Noise*	20MHz bandwidth (peak-to-peak value)	5V/12V/15V/24V	--	150	--	mV
		36V/48V	--	200	--	
Temperature Coefficient			--	--	±0.03	%/°C
Minimum Load			0	--	--	%
Stand-by Power Consumption	230VAC, 25°C		--	--	0.75	W
Hold-up Time	115VAC		12	--	--	ms
	230VAC		16	--	--	
Short Circuit Protection	Recovery time <5s after the short circuit disappear.		Hiccup, continuous, self-recover			
Over-current Protection			110% - 185% Io, self-recover			
Over-voltage Protection	5V		≤8VDC		Output voltage turn off, re-power on for recover	
	12V		≤18VDC			
	15V		≤22VDC			
	24V		≤33.6VDC			
	36V		≤46.8VDC			
	48V		≤60VDC			
Over-temperature Protection			Output voltage turn off, re-power on for 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 - 	At 500VDC		100	--	--	MΩ	
	Input - output			100	--	--		
	Output - 			100	--	--		
Operating Temperature				-30	--	+70	℃	
Storage Temperature				-40	--	+85		
Storage Humidity		Non-condensing		10	--	95	%RH	
Operating Humidity				20	--	90		
Switching Frequency				--	65	--	kHz	
Power Derating		Operating temperature derating	5V output	+40℃ to +70℃	1.66	--	--	% /℃
			Other output	+50℃ to +70℃	2.5	--	--	
		Input voltage derating	90VAC -100VAC	60Hz	2.0	--	--	% /VAC
			90VAC - 100VAC	50Hz	3.5	--	--	
			100VAC -132VAC		0	--	--	
			180VAC - 264VAC		0	--	--	
Safety Standard				IEC/BS EN/EN62368-1, IS13252 (Part1), GB4943.1 safety approved; Design refer to UL62368-1, EN60335-1, EN61558-1				
Safety Class				CLASS I				
MTBF		MIL-HDBK-217F@25℃		>300,000 h				

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2024.08.12-A/1 Page 2 of 5

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Mechanical Specifications

Case Material	Metal (AL1100, SGCC)
Dimensions	179.00 x 99.00 x 30.00mm
Weight	520g (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 dip, short interruption and voltage variation	IEC/EN61000-4-11	100% dip 1 periods, 30% dip 25 periods, 100% interruptions 250 periods	perf. Criteria B

Remark:

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

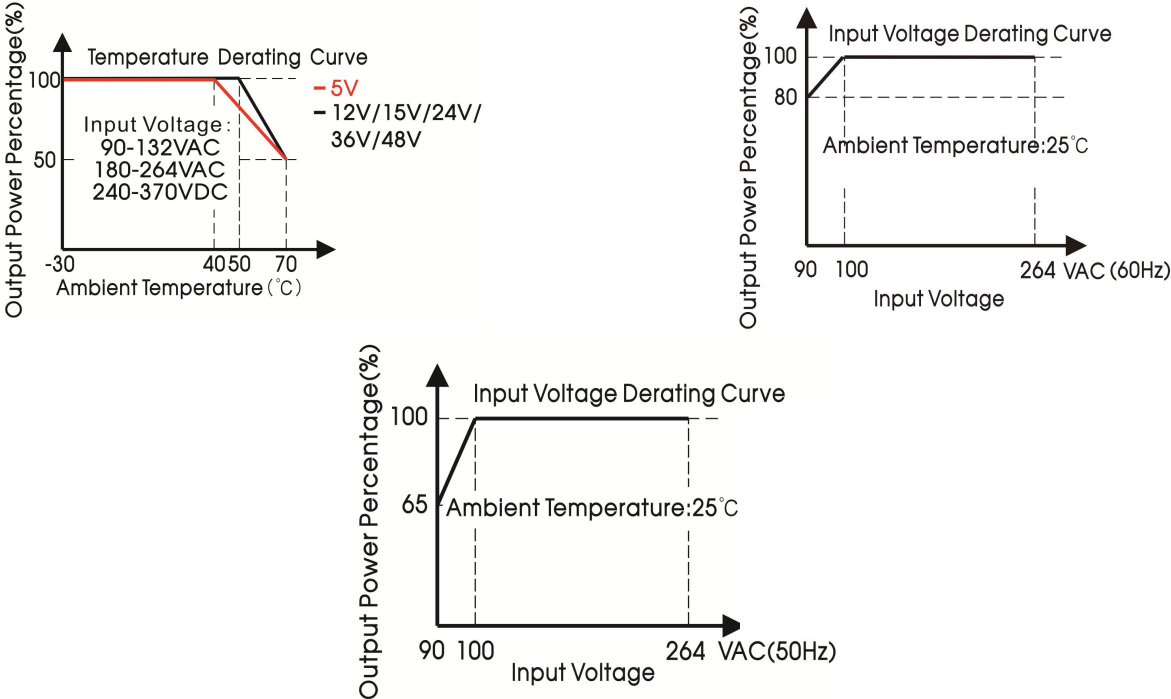
Please do not use this power supply under the following conditions:

- 1) The terminal equipment is used in the European Union.
- 2) Supporting terminals are connected to a public power grid with 220VAC or a higher voltage that comply with 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.

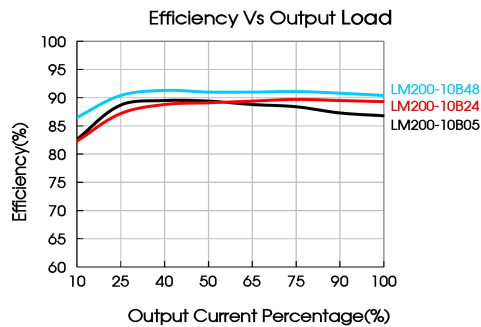
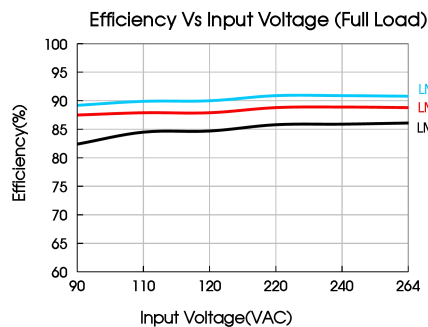
Exception: The power supply used in the following terminal equipment does not need to meet EN61000-3-2.

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

Product Characteristic Curve

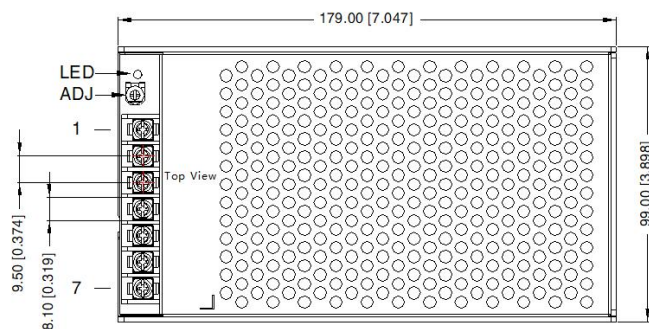


Note: 1. With an input voltage between 90-100VAC the output power must be derated as per the temperature derating curves;  
2. This product is suitable for applications using natural air cooling; for applications in closed environment please consult Mornsun FAE.



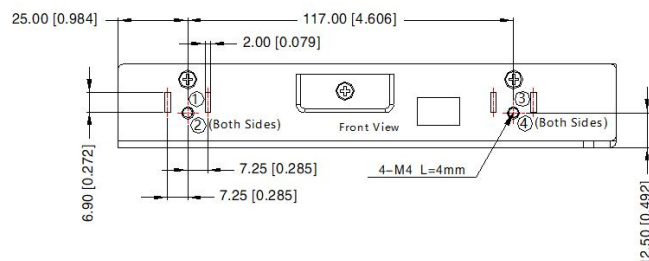
## Dimensions and Recommended Layout

### LM200-10Bxx, LM200-10Bxx-Q Series



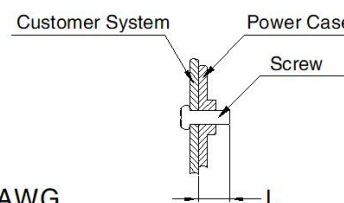
THIRD ANGLE PROJECTION

Pin-Out	
Pin	Function
1	+Vo
2	+Vo
3	-Vo
4	-Vo
5	⏏
6	AC(N)
7	AC(L)



Switch	AC Input	DC Input
115V	90-132VAC	---
230V	180-264VAC	240-373VDC

Position	Screw Spec.	L(max)	Torque(max)
① - ⑧	M4	4mm	0.9N·m



Note:

Unit: mm[inch]

Wire range: 22-12AWG

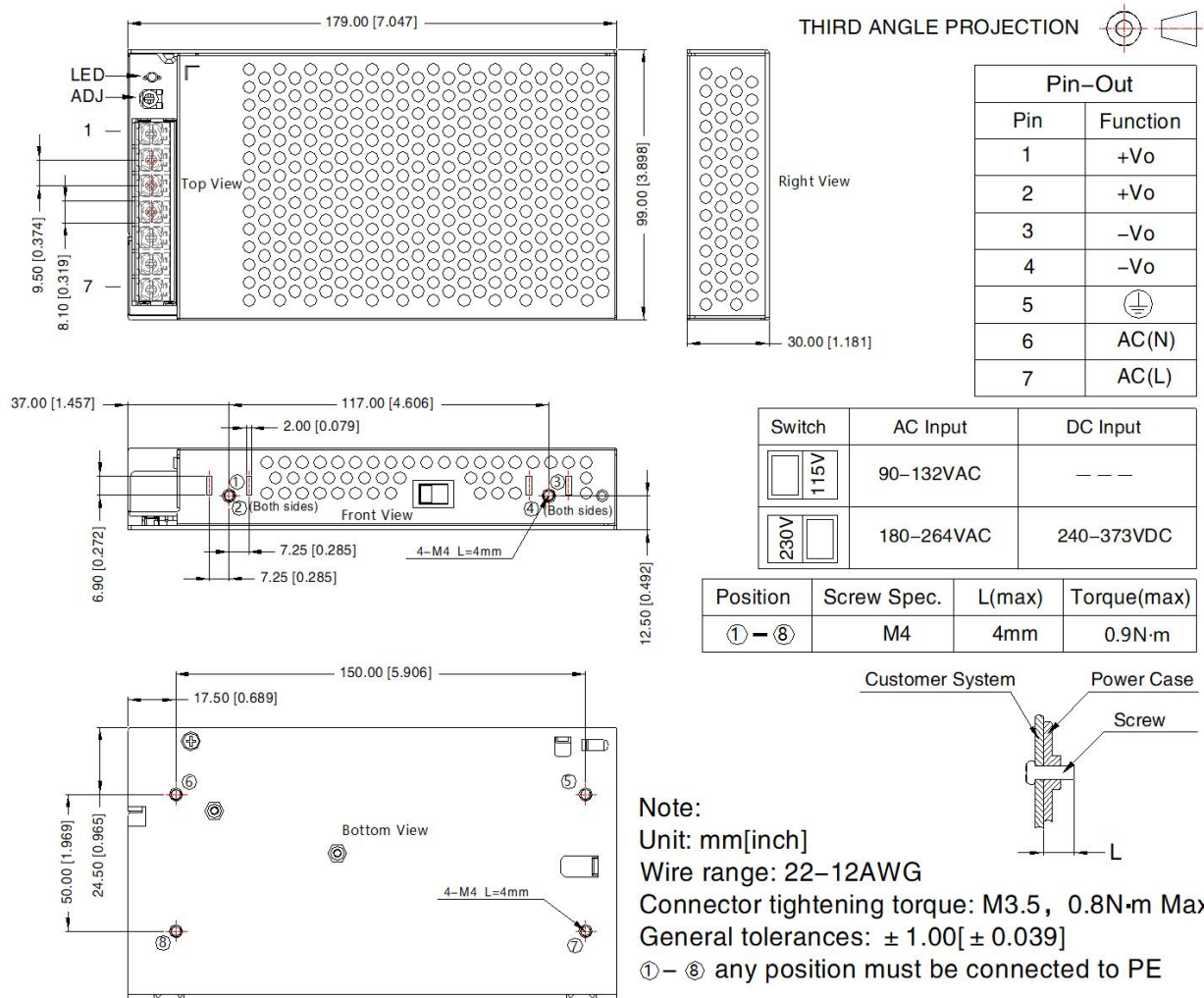
Connector tightening torque: M3.5, 0.8N·m Max

General tolerances:  $\pm 1.00[\pm 0.039]$

① - ⑧ any position must be connected to PE



### LM200-10Bxx-C Series



#### Note:

- For additional information on Product Packaging please refer to [www.mornsun-power.com](http://www.mornsun-power.com). Packaging bag number: 58220136;
- 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.

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

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

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2024.08.12-A/1 Page 5 of 5

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