AC/DC 200W Enclosed Switching Power Supply

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

MORNSUN®

FEATURES

- Selectable AC input range: 90 ~ 132VAC/180 ~ 264VAC
- DC input range: 240 ~ 373VDC(Switch in position of 230)
- Ultra low standby power consumption: < 0.75W @230VAC
- Operating ambient temperature range: - 30℃ ~ +70℃
- Compact size with 1U low profile
- LED indicator for power on
- Output short circuit, over-current, over-voltage, over-temperature protection
- Safety according to IEC/EN/UL62368, EN60335, GB4943
- Withstand 300VAC surge input for 5s (Switch in position of 230)
- Operating altitude up to 5000m

CE CQC RoHS 3 years Warranty

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, IEC/UL/EN62368, 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(V)	Efficiency at 230VAC (%) Typ.	Max. Capacitive Load (μF)
CE, CQC	LM200-10B05	200	5V/40A	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 "Q" for conformal coating, which are CE/CQC pending.

Input Specifications

Item	Operating Conditions		Min.	Typ.	Max.	Unit
Input Voltage Range	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	--	%
		12V	--	±1.5	--	
		15V/24V/36V/48V	--	±1	--	

Line Regulation	Rated load		--	±0.5	--	%
Load Regulation	0% - 100% load	5V	--	±2	--	%
		12V	--	±1	--	%
		15V/24V/36V/48V	--	±0.5	--	%
Output Ripple & Noise*	20MHz bandwidth (peak-to-peak value)	5V/12V/15V/24V	--	150	--	mV
		36V/48V	--	200	--	mV
Temperature Coefficient			--	±0.03	--	%/℃
Minimum Load			0	--	--	%
Stand-by Power Consumption	230VAC, 25℃		--	--	0.75	W
Hold-up Time	115VAC		--	12	--	ms
	230VAC		--	16	--	ms
Short Circuit Protection	Recovery time <5s after the short circuit disappear.		Hiccup, continuous, self-recovery			
Over-current Protection			110% - 185% Io, self-recovery			
Over-voltage Protection	5V		5.75V - 8V（Hiccup, self-recovery）			
	12V		13.8V -18V（Hiccup, self-recovery）			
	15V		18V - 22V（Hiccup, self-recovery）			
	24V		28.8V - 33.6V（Hiccup, self-recovery）			
	36V		41.4V - 46.8V（Hiccup, self-recovery）			
	48V		55.2V -60V（Hiccup, self-recovery）			
Over-temperature Protection			Hiccup, self-recovery			

Note：*The "Tip and barrel method" is used for ripple and noise test, please refer to AC-DC Converter Application Notes for specific information.

General Specifications

Item		Operating Conditions			Min.	Typ.	Max.	Unit
Isolation Test	Input - ⏚	Electric strength test for 1min., leakage current <10mA			2000	--	--	VAC
	Input - Output				3000	--	--	VAC
	Output - ⏚	Electric strength test for 1min., leakage current <5mA			500	--	--	VAC
Insulation Resistance	Input - ⏚	At 500VDC			100	--	--	MΩ
	Input - Output				100	--	--	MΩ
	Output - ⏚				100	--	--	MΩ
Operating Temperature					-30	--	+70	℃
Storage Temperature					-40	--	+85	℃
Storage Humidity		Non-condensing			10	--	95	%RH
Switching Frequency					--	65	--	kHz
Power Derating		Operating temperature derating	5V Output	+40℃ ~ +70℃	1.66	--	--	%/℃
			Other output	+50℃ ~ +70℃	2.5	--	--	%/℃
		Input voltage derating	90VAC~100VAC		2	--	--	%/VAC
			100VAC ~132VAC		0	--	--	%/VAC
			180VAC ~ 264VAC		0	--	--	%/VAC
Safety Standard					Meet IEC/EN/UL62368, GB4943			
Safety Class					CLASS I			
MTBF		MIL-HDBK-217F@25℃			>300,000 h			

Mechanical Specifications

Case Material	Metal (AL1100, SGCC)
Dimensions	179.00 x 99.00 x 30.00 mm
Weight	600g (Typ.)
Cooling Method	Free air convection

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 10V/m	perf. Criteria A
	EFT	IEC/EN 61000-4-4 ±2KV	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	IEC/EN61000-4-11 0%,70%	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.

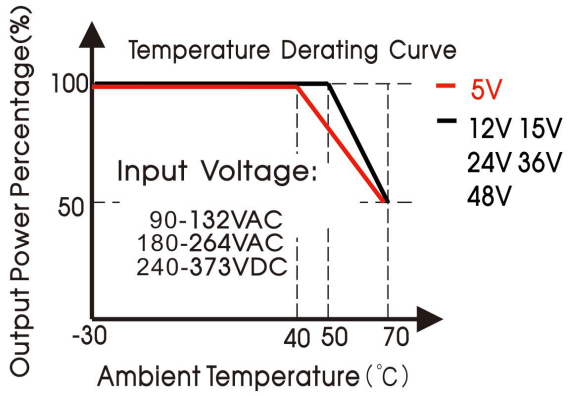
3) The power supply is installed in terminal equipment with average or continuous input power greater than 75W, and the power supply belongs to a part of lighting system.

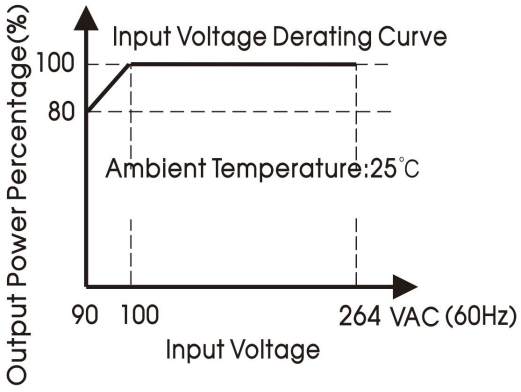
Exception: The power supply used in the following terminal equipment does not need to meet EN61000-3-2.

1) Professional equipment with a total rated input power greater than 1000W.

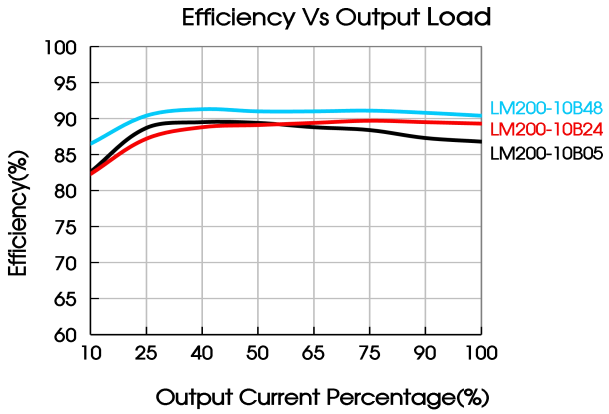
2) Symmetrically controlled heating element with a rated power less than or equal to 200W.

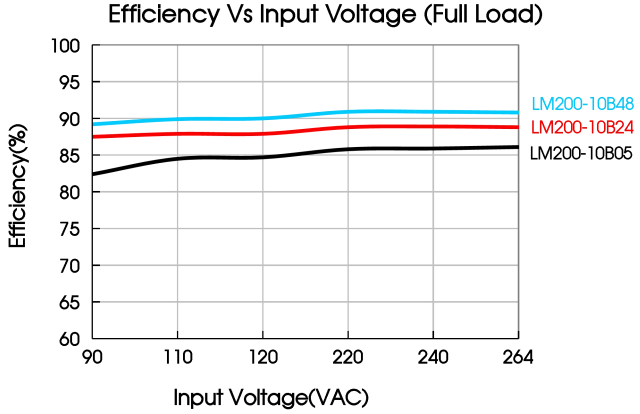
Product Characteristic Curve



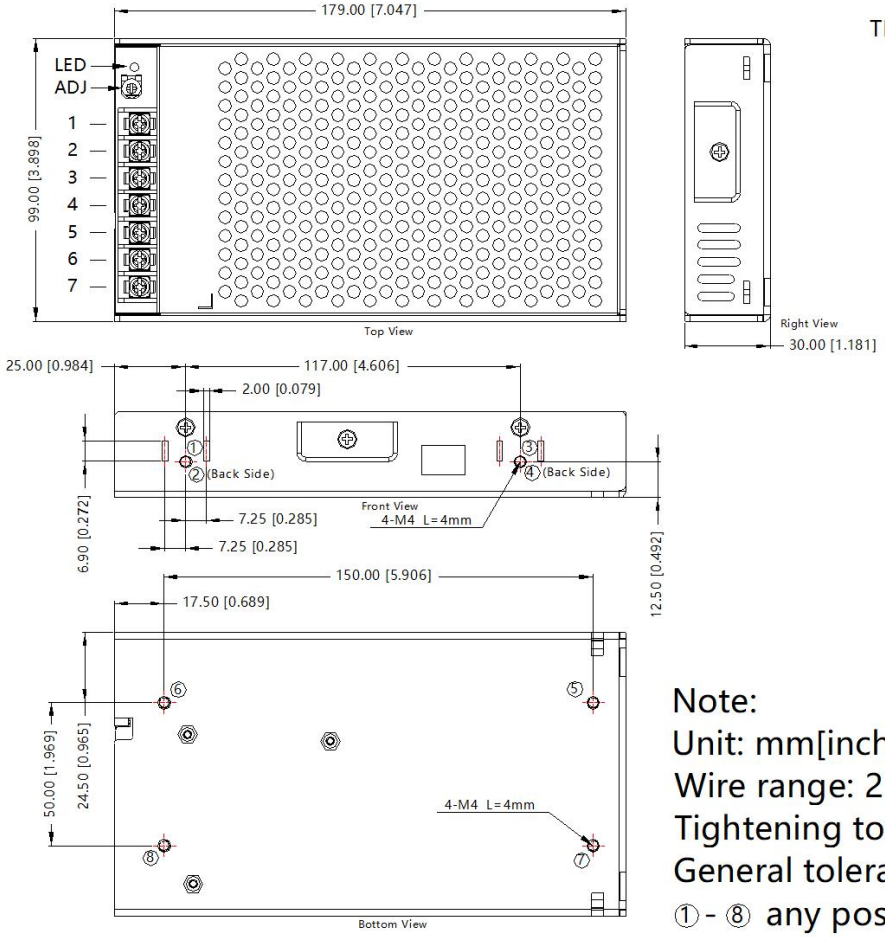


Note: This product is suitable for applications using natural air cooling; for applications in closed environment please consult our FAE.





Dimensions and Recommended Layout



THIRD ANGLE PROJECTION

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

Note:
Unit: mm[inch]
Wire range: 22-12AWG
Tightening torque: M4 , 1.2N·m
General tolerances: ±1.00[±0.039]
①- ⑧ any position must be connected to PE

Note:

1. For additional information on Product Packaging please refer to www.mornsun-power.com. Packaging bag number: 58220068;
2. Unless otherwise specified, parameters in this datasheet were measured under the conditions of Ta=25℃, humidity<75%RH with nominal input voltage and rated output load;
3. The ambient temperature derating of 5℃/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. 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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