EMC Filter





RoHS

FEATURES

- Ultra wide input voltage range：85-305VAC/120-430VDC
- Working current: 3A、6A、20A MAX
- Operating ambient temperature range：-40℃ to +85℃
- Complies with EMC standards: IEC/EN61000-4 series, CISPR32/EN55032
- Meet with safety standards IEC62368

FC-LxxM is for chassis power source connection type of EMC auxiliary device, suitable for applications that are sensitive to noise, such as analog circuits. Adding FC-LxxM to the front end of AC/DC chassis power supply can make the power supply products meet the EMC requirements of IEC/EN61000-4 series and CISPR32/EN55032 standards. When used with Mornsun AC/DC chassis power supply, the maximum input voltage of the power supply should not be greater than the maximum working voltage of this product, and the maximum input current should be less than the maximum working current of this product.

Selection Guide

Model*	Operating Voltage(VAC)		Operating Current(A)		Surge Performance	Matching power supply model
	Typ. (Range)	Max*	Typ.	Max		
FC-L03M	115/230 (85-305)	310	-	3.0	Line-Line ±2kV Line-PE ±4kV	LM200-20BxxR2S
FC-L06M	115/230 (85-305)	310	-	6.0	Line-Line ±2kV Line-PE ±4kV	LM200-20BxxR2S、LM350-20BxxR2S、LM450-12Bxx
FC-L20M	230 (0-305)	310	-	20.0	Line-Line ±2kV Line-PE ±4kV	LM1500-22Bxx

Note: *Input voltage should not exceed this value, otherwise permanent irreparable damage may be caused;

General Specifications

Item		Test Conditions		Min.	Typ.	Max.	Unit
Operating Temperature				-40	--	+85	℃
Storage Temperature				-55	--	+85	
Storage Humidity		No condensation		5	--	95	%RH
Isolation Voltage	IN(L) - ⏚ IN(N) - ⏚	FC-L03M FC-L06M	Test time 1 minute, leakage current < 5mA	--	--	2500	VAC
		FC-L20M		--	--	2000	
Insulation Resistance	IN(L) - ⏚ IN(N) - ⏚	FC-L03M FC-L06M	Environment Temperature：25 ± 5℃ Relative Humidity: less than 95%, non-condensing Test Voltage：500VDC	100	--	--	MΩ
		FC-L20M		500			

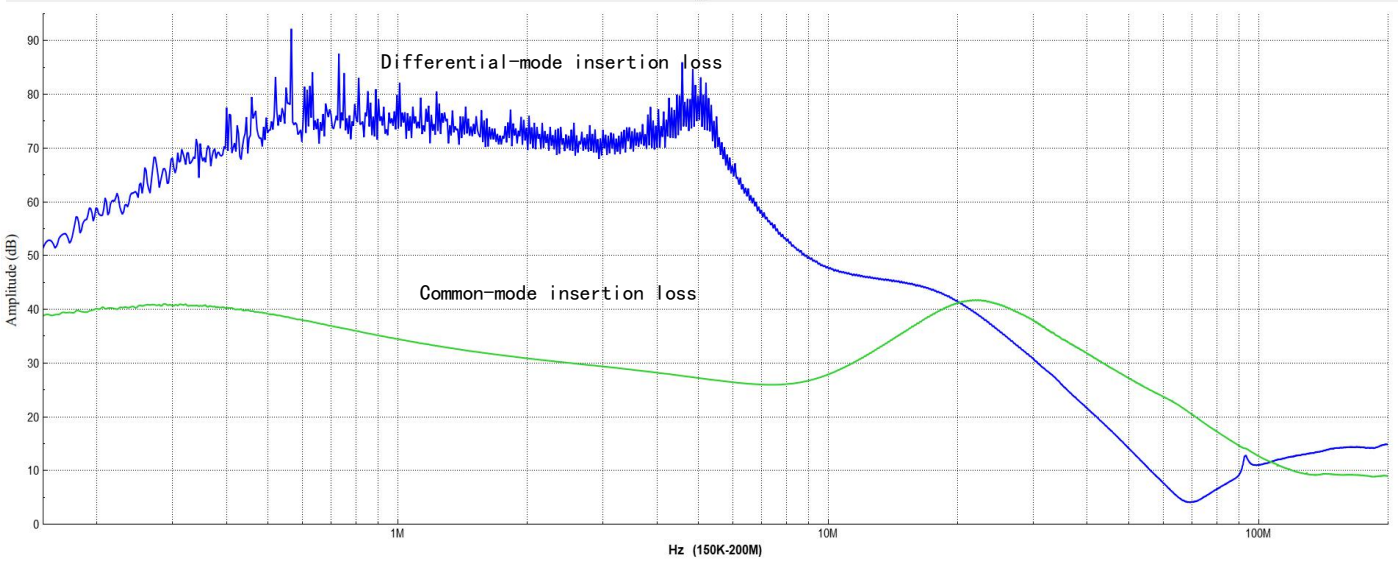
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Insertion Loss（CM/DM）	FC-L03M FC-L06M	150kHz~1MHz	30	35	-	dB
	FC-L20M		25	30	-	
	1MHz~10MHz		25	30	-	dB
	10MHz~30MHz		25	30	-	dB
Touch Leakage Current	240VAC，60Hz		--	--	0.5	mA
Altitude	80-110kPa		≦5000m			
Warranty			3 years			
MTBF			MIL-HDBK-217F@25℃≥1000,000 h			

Physical Characteristics

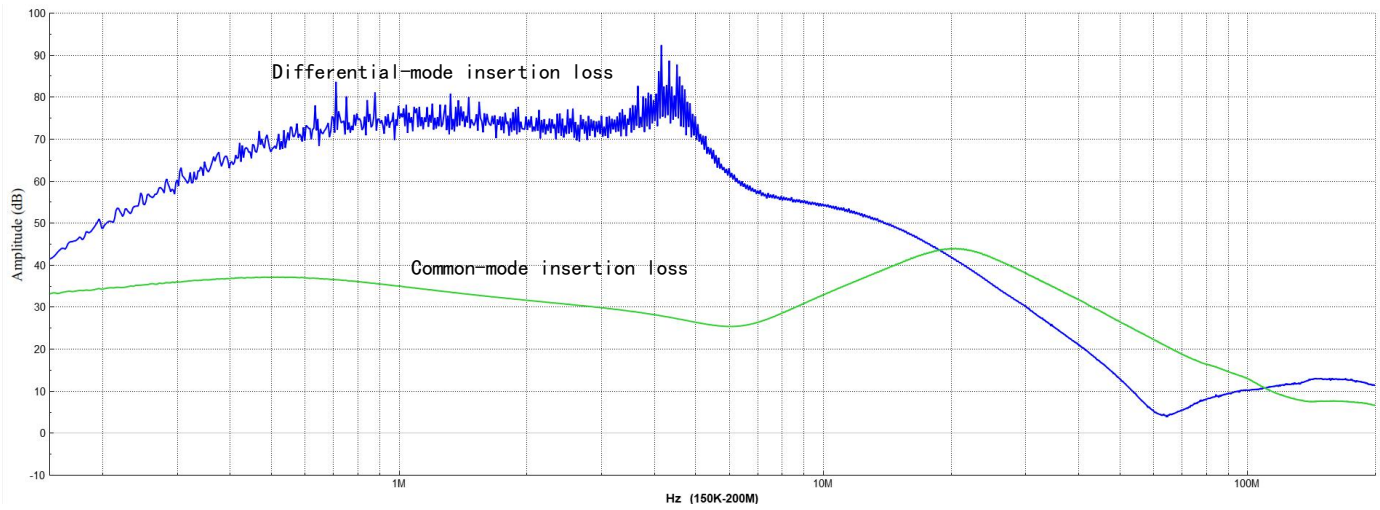
Case Material	Metal Case		
Dimension	FC-L03M FC-L06M	84.90mm x 51.80mm x 29.50mm	
	FC-L20M	143.40mm x 59.00mm x 45.00mm	
Weight	FC-L03M	165g(Typ.)	
	FC-L06M	168g(Typ.)	
	FC-L20M	370g(Typ.)	
Cooling Method	Free air convection		

Insertion Loss Specifications(FC-L03M)

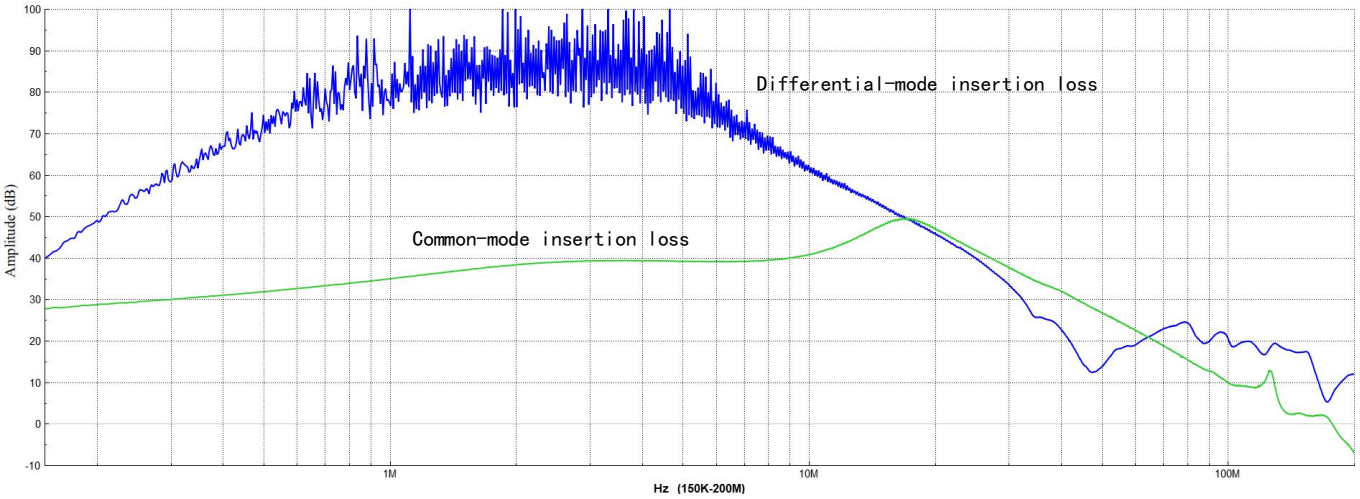


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Insertion Loss Specifications(FC-L06M)



Insertion Loss Specifications(FC-L20M)



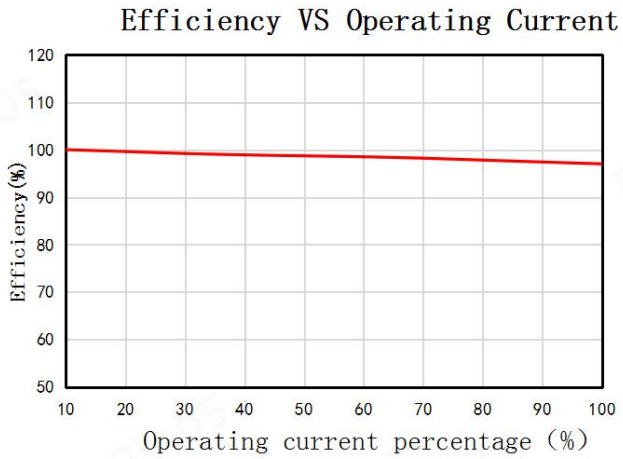
EMC Characteristics

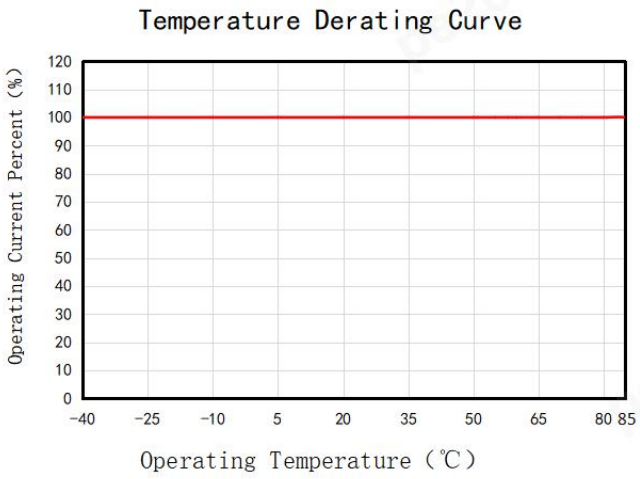
EMI	CE	CISPR32/EN55032	CLASS B	
EMS	ESD	IEC/EN61000-4-2	Contact ±6kV Air ±8kV	perf. Criteria A
	RS	IEC/EN61000-4-3	10V/m	perf. Criteria A
	EFT	IEC/EN61000-4-4	±4KV	perf. Criteria A
	Surge	IEC61000-4-5	Line-Line ±2kV Line-PE ±4kV	perf. Criteria A
	CS	IEC61000-4-6	10V r.m.s	perf. Criteria A
	PFMF	IEC61000-4-8	50/60Hz 30A/m	perf. Criteria A

Note: Matching FC-L20M to the front end of the LM1500-22Bxx， FC-L06M to the front end of the LM200-20BxxR2S、LM350-20BxxR2S、LM450-12Bxx，FC-L03M to the front end of the LM200-20BxxR2S series power supplycan make the power module meet above EMC characteristics.

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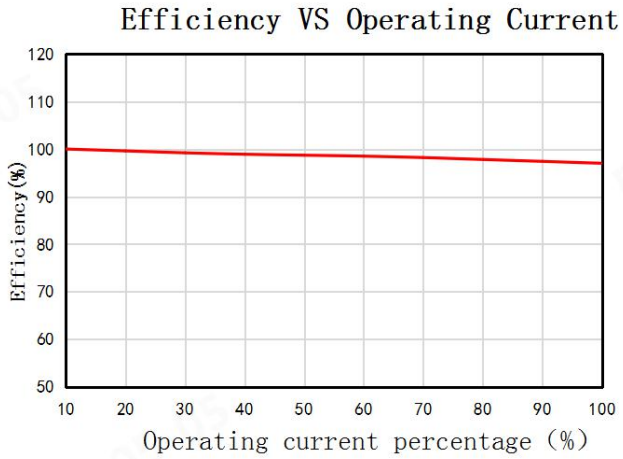
FC-L03M、FC-L06M Product Typical Curve

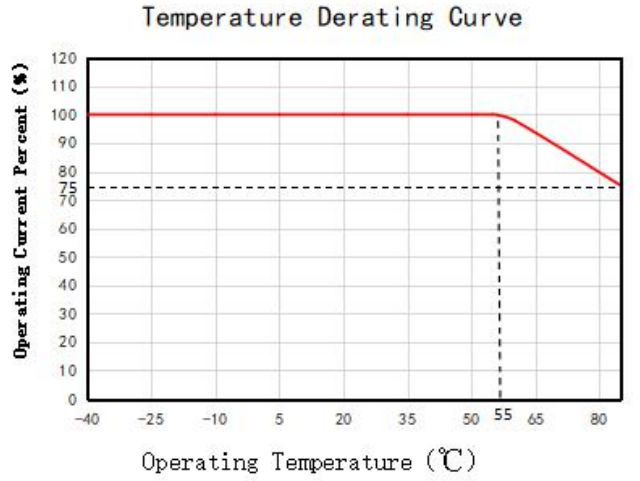




Note: This product is suitable for applications using natural air cooling; for applications in closed environment please consult factory or one of our FAE.

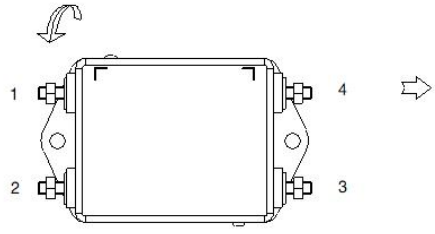
FC-L20M Product Typical Curve



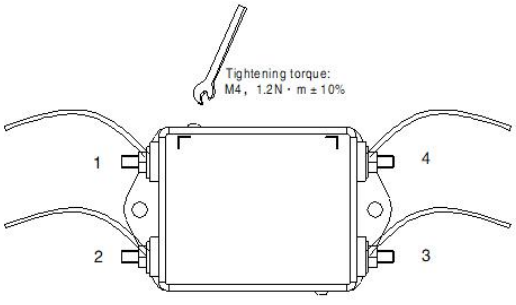


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FC-L03M、FC-L06M Installation Diagram



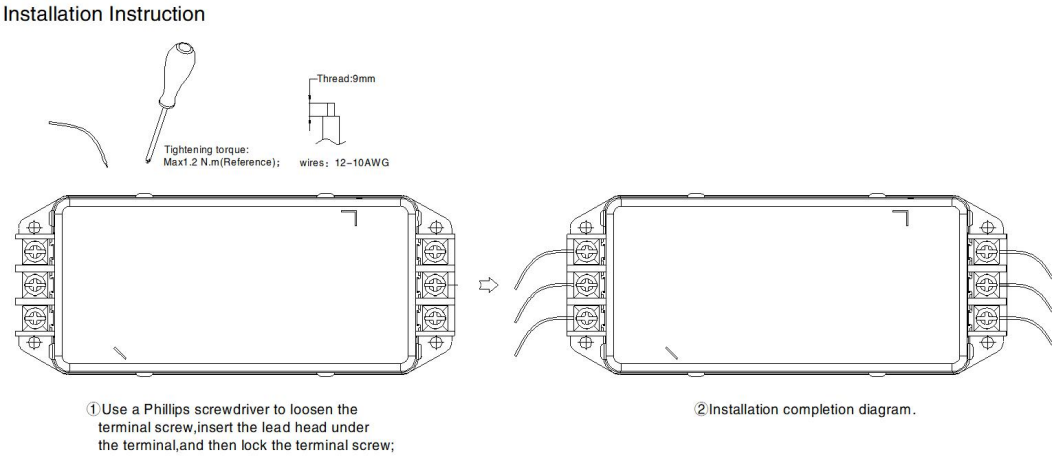
①Loosen the nut using an Allen wrench.



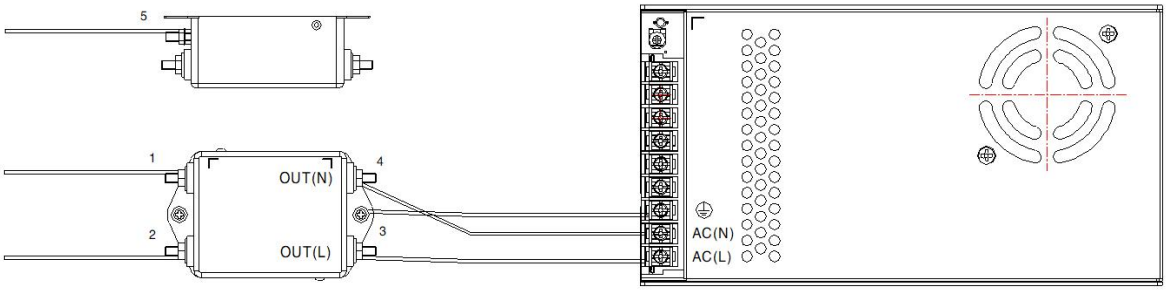
②Insert the wire into the terminal and then tighten the nut.

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FC-L20M Installation Diagram

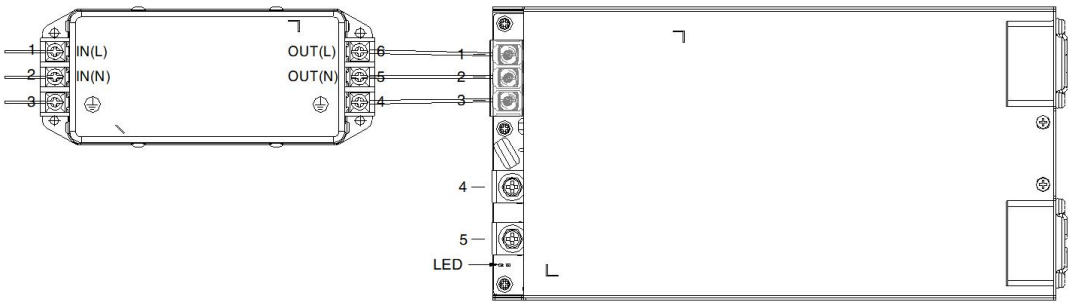


FC-L03M、FC-L06M Wiring Diagram



Note: The appropriate fuse for the filter input must be selected based on the customer's actual operating conditions.

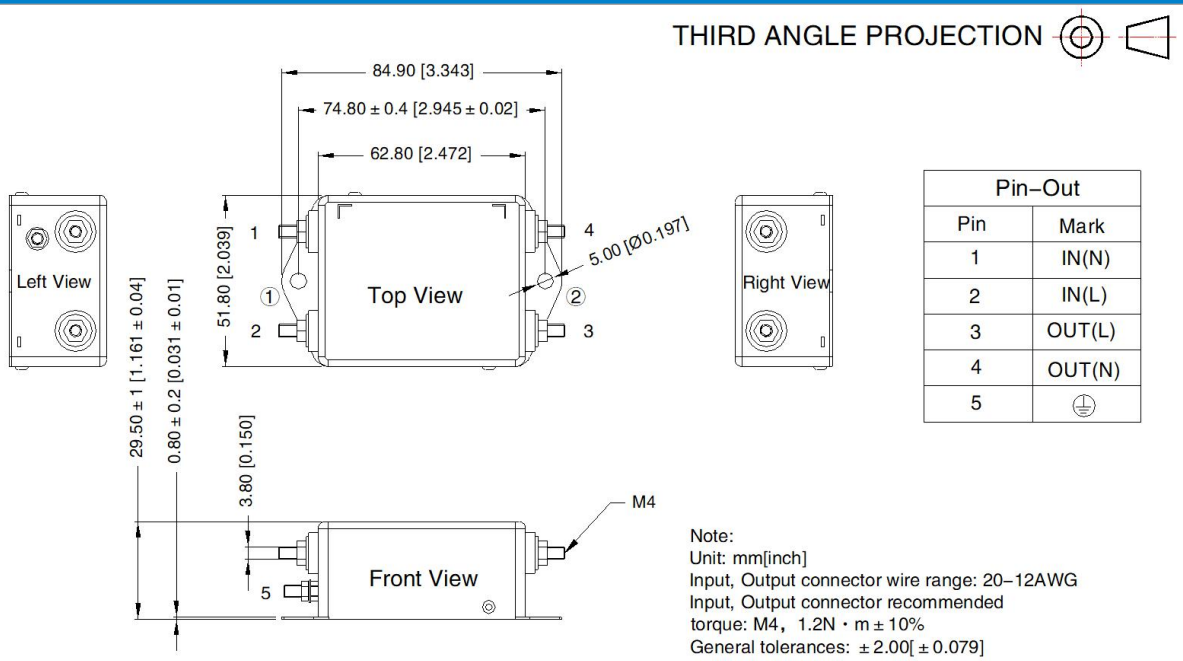
FC-L20M Wiring Diagram



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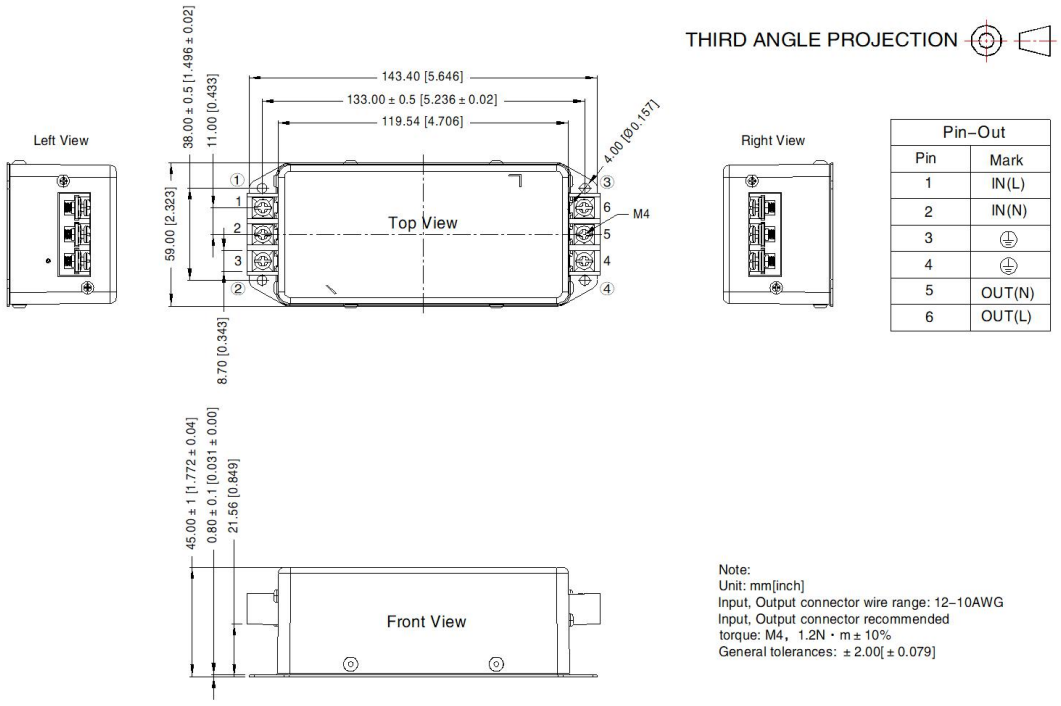
FC-L03M、FC-L06M Dimensions and Recommended Layout



Pin–Out	
Pin	Mark
1	IN(N)
2	IN(L)
3	OUT(L)
4	OUT(N)
5	⏚

Note:
Unit: mm[inch]
Input, Output connector wire range: 20–12AWG
Input, Output connector recommended
torque: M4，1.2N · m ± 10%
General tolerances: ± 2.00[± 0.079]

FC-L20M Dimensions and Recommended Layout



Pin–Out	
Pin	Mark
1	IN(L)
2	IN(N)
3	⏚
4	⏚
5	OUT(N)
6	OUT(L)

Note:
Unit: mm[inch]
Input, Output connector wire range: 12–10AWG
Input, Output connector recommended
torque: M4，1.2N · m ± 10%
General tolerances: ± 2.00[± 0.079]

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Note:

1. For additional information on Product Packaging please refer to www.mornsun-power.com. Packaging bag number: 58040024（FC-L03M、FC-L06M）、58240135（FC-L20M）;
2. Unless otherwise specified, data in this datasheet should be tested under the conditions of Ta=25℃, humidity<75%RH with nominal input voltage and rated load;
3. All index testing methods in this datasheet are based on our company corporate standards;
4. We can provide product customization service, please contact our technicians directly for specific information;
5. Products are related to laws and regulations: see "Features" and "EMC";
6. Our products shall be classified according to ISO14001 and related environmental laws and regulations, and shall be handled by qualified units;
7.When the product is in use at the terminal, the casing must be connected to the system's ground （⏚）;

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