

### EMC Filter



RoHS



### FEATURES

- Ultra wide input voltage range : 0-305VAC / 0-430VDC
- Single side three anti-paint, anti-corrosion, anti-corrosion
- Operating ambient temperature range : -40°C to +85°C
- High surge suppression capability: ±4kV/6kV
- Insertion loss: CM&DM>40dB @ 150K-1MkHz
- EMC standards compliance : IEC/EN61000-4 , CISPR32/EN55032
- Meet classification society certification standards : GD22
- Operating altitude up to 5000m
- 5 years warranty

*This product is suitable for analog circuits and other noisy sensitive occasions, EMC auxiliary module installed in the input end of the power module can significantly improve the EMC performance. The maximum input voltage of the power supply should not be greater than the maximum operating voltage of the filter, and the maximum input current should be less than the maximum operating current of the filter.*

### Selection Guide

Model	Operating Voltage(VAC)		Operating Current(A)		Surge Performance	Certification
	Typ. (Range)	Max *	Typ.	Max		
FC-L06I-CCS	115/230 (0-305)	310	-	6.0	Line - Line ±4kV Line - PE ±6kV	CE/UKCA
FC-L12I-CCS	115/230 (0-305)	310	-	12.0	Line - Line ±4kV Line - PE ±6kV	--

Note: \* The input voltage must not exceed this value, otherwise permanent and unrecoverable damage may be caused;

### General Specifications

Item	Test Conditions	Min.	Typ.	Max.	Unit	
Operating Temperature		-40	--	+85	°C	
Storage Temperature		-40	--	+105		
Operating Humidity	Non-condensing	10	--	95	%RH	
Storage Humidity		20	--	90		
Isolation Voltage	IN(L) - ⊕	Electric strength test for 1min., leakage current <5mA		2500	--	VAC
	IN(N) - ⊕	(Isolation Test for ⊕ need to remove the screw at the mark shall ⊕ *)				
MTBF	MIL-HDBK-217F@25°C	≥1000,000 h				

Altitude	80-110kPa	5000m			
Insertion loss (CM/DM)	150kHz~1MHz	40	45	-	dB
	1MHz~10MHz	20	25	-	dB
	10MHz~30MHz	18	20	-	dB

Note: \*The gas discharge tube built into the device effectively protects the power supply against damage by asymmetric disturbance variables (eg EN 61000-4-5). Each power supply continuous withstand voltage test will cause extremely high load to the power supply. Therefore, unnecessary loading or damage to the power supply due to excessive test voltage should be avoided. If necessary, disconnect the gas discharge tube built into the device to use a higher test voltage. After successful completion of the test, reconnect the gas discharge tube. Please refer to the "FC-L06I-CCS/FC-L12I-CCS Installation and Application Manual" for specific operation methods;

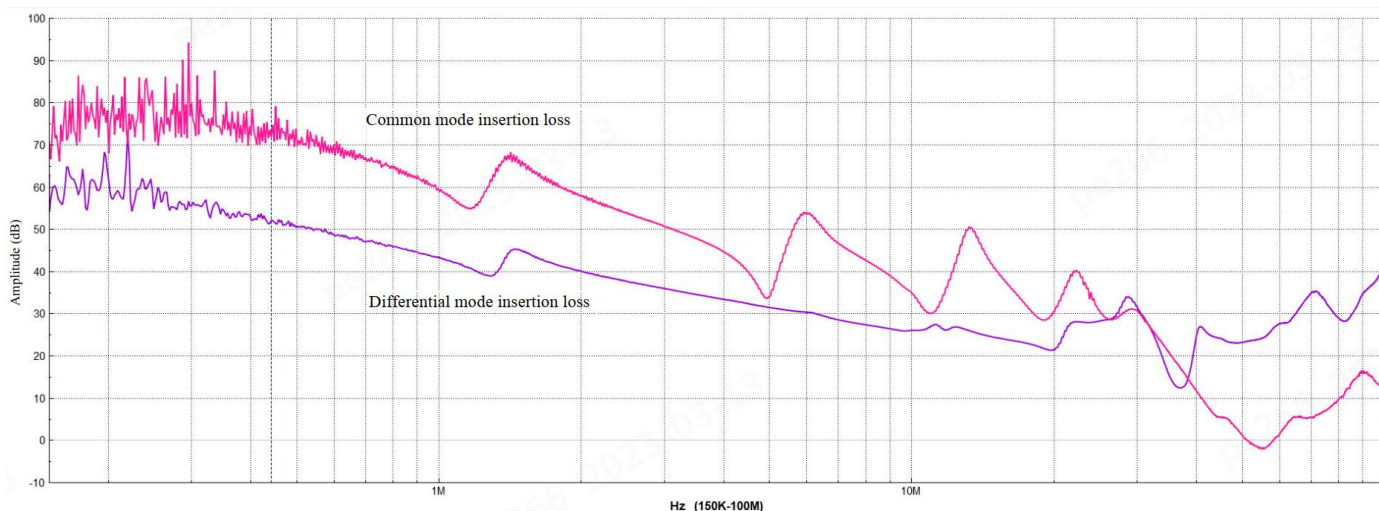
### Physical Characteristics

Case Material	Metal (AL5052, SUS304)	
Dimension	128.50 x 128.00 x 34.00 mm	
Weight	FC-L06I-CCS	475g(Typ.)
	FC-L12I-CCS	582g(Typ.)
Cooling Method	Free air convection	

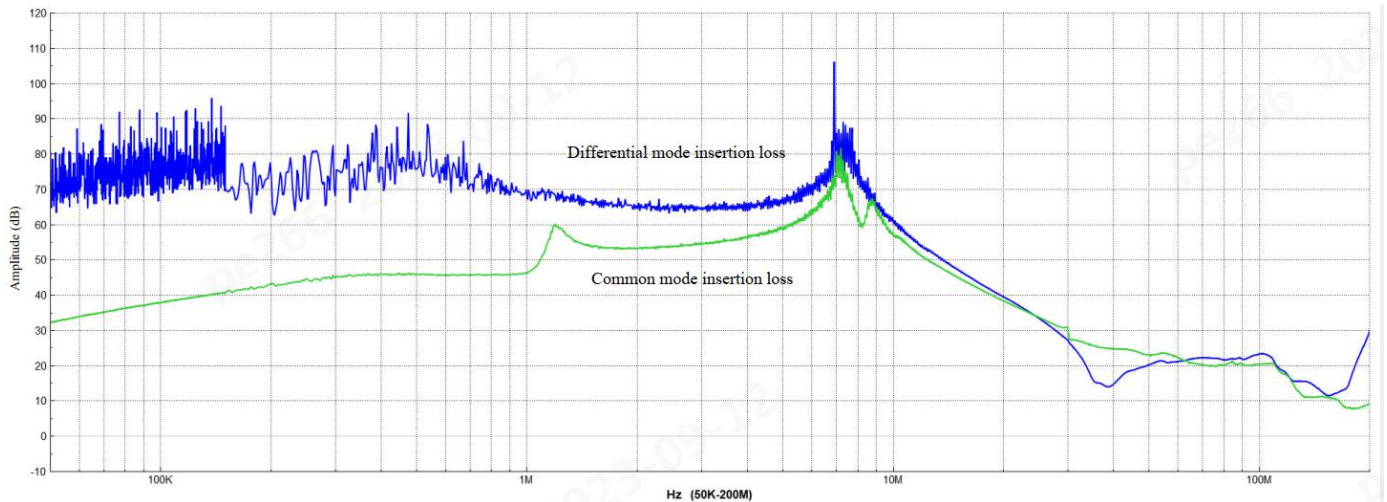
### Environmental Characteristics

Item	Operating Conditions	Standard
High and Low Temperature Working	+85°C, -40°C	GB2423.1、IEC60068-2-1
Low Temperature Storage	-40°C	GB2423.1、IEC60068-2-1
High Temperature Storage	+105°C	GB2423.2、IEC60068-2-2
High Temperature Aging	+85°C	GB2423.2、IEC60068-2-2
Sinusoidal Vibration	10 - 500Hz, 2g, x, y, z axis three directions	GB2423.10、IEC60068-2-6
Salt Mist	+35°C, 5%NaCL, 48 hours	GB2423.17、IEC60068-2-11
Temperature Shock	-40°C to +105°C	GB2423.22、IEC60068-2-14
Low Temperature Elevation	-40°C, 54KPa	GB2423.25、IEC60068-2-40
High Temperature Elevation	+55°C, 54KPa	GB2423.26、IEC60068-2-41

### FC-L06I-CCS Insertion Loss Specifications



### FC-L12I-CCS Insertion Loss Specifications

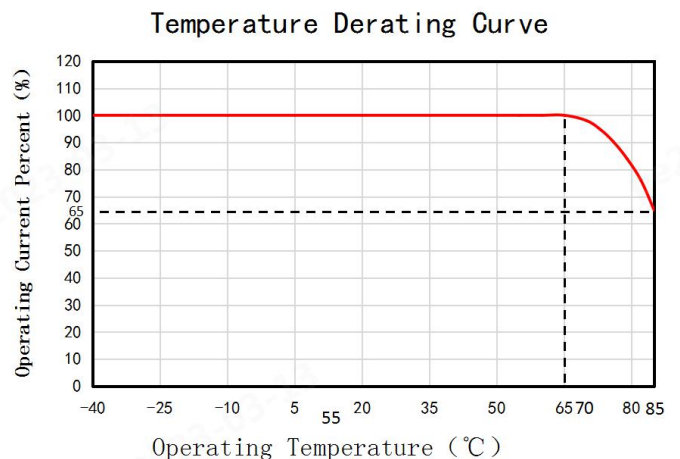
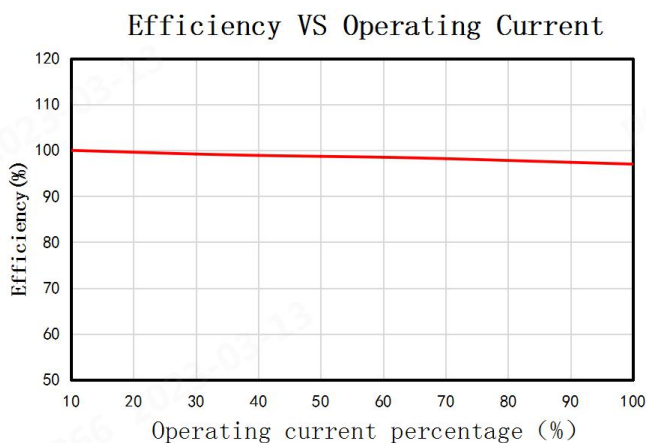


### EMC Characteristics

EMI	CE	CISPR32/EN55032	CLASS B	
		GD22	EMC1	
	RE	CISPR32/EN55032	CLASS B	
	Harmonic current	IEC/EN61000-3-2	CLASS A	
EMS	ESD	IEC/EN61000-4-2	Contact ±8kV , Air ±15kV	perf. Criteria A
	RS	IEC/EN61000-4-3	10V/m	perf. Criteria A
	EFT	IEC/EN61000-4-4	5KHz 5/50ns ±4kV	perf. Criteria A
	Surge	IEC/EN61000-4-5	Line - Line ±4kV Line - PE ±6kV	perf. Criteria A
	CS	IEC/EN61000-4-6	0.15MHz-80MHz 10V r.m.s	perf. Criteria A
	PFMF	IEC/EN61000-4-8	50/60Hz 30A/m	perf. Criteria A

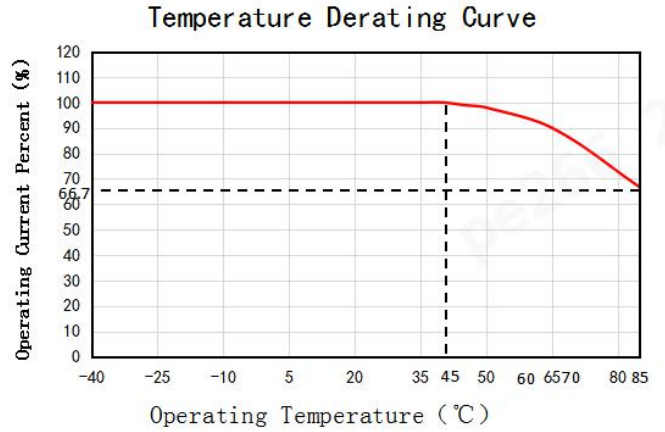
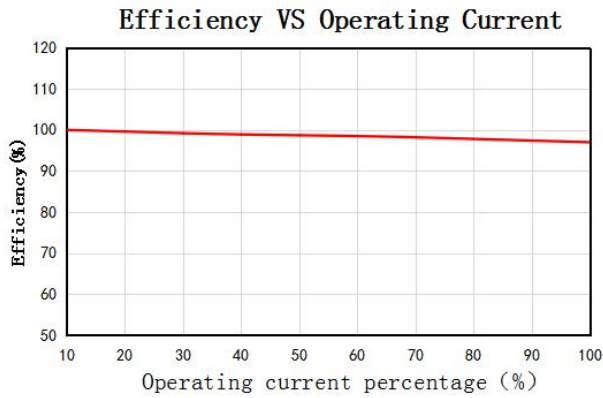
Note: Matching FC-L06I-CCS to the front end of the LIHF240/480-23Bxx Din-rail power supply/FC-L12I-CCS to the front end of the LIHF960-23Bxx Din-rail power supply can make the power module meet above EMC characteristics.

### FC-L06I-CCS Product Typical Curve

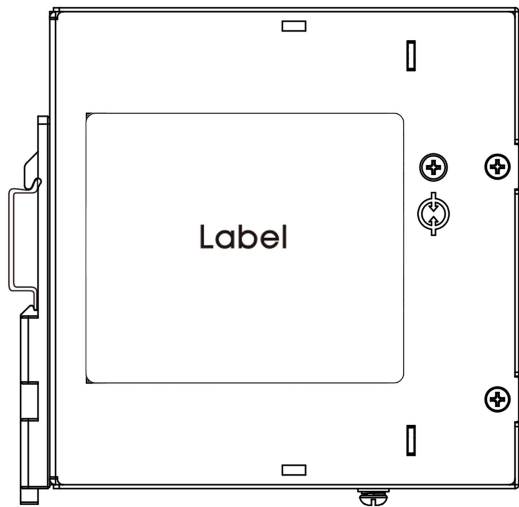
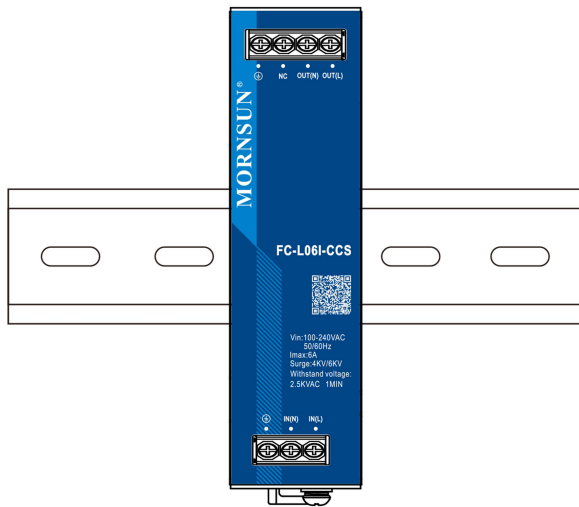


Note: This product is suitable for applications using natural air cooling; for applications in closed environment please consult factory or one of our FAE.

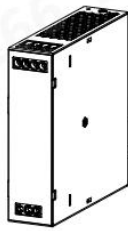
FC-L12I-CCS Product Typical Curve



Installation Diagram



Materials required in the installation		
1	Product	1PCS
2	Phillips screwdriver Slotted screwdriver	1PCS
3	TS35/7.5 or TS35/15	1PCS
4	14-10AWG Wire	/ PCS
5	The content is for reference only. Regarding the actual wire diameter and tightening torque, refer to the dimensional drawing.	



Product



Phillips screwdriver  
Slotted screwdriver  
Diameter : 3mm

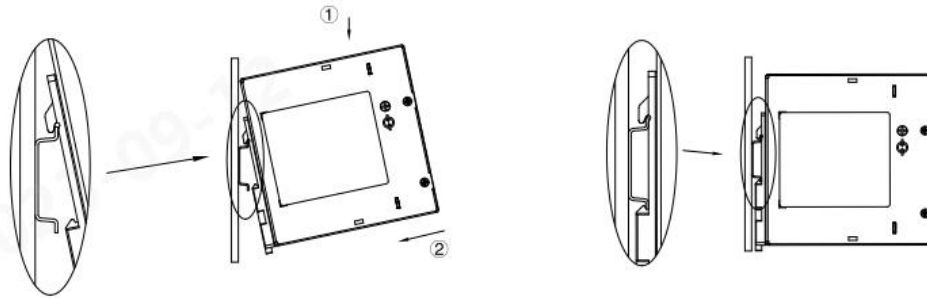


TS35/7.5 or TS35/15



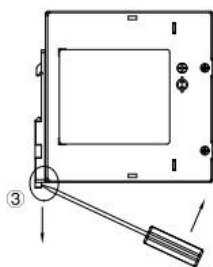
### Installation steps ①-②

① Clamp the buckle of the product into the TS35 DIN rail.

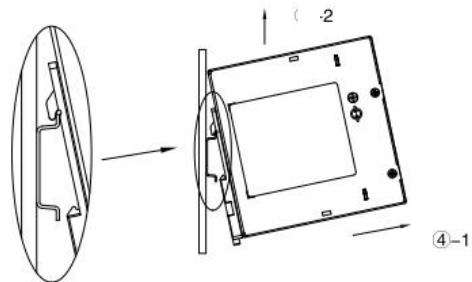


② Push the product vertically towards the TS35 DIN rail until hearing the sound of the buckle snapping into it.

### Disassembly Steps ③-④



③ After inserting the slotted screwdriver into the square groove at the bottom of the buckle, push the slider of the buckle downward in the direction shown in the figure.



④ Hold the bottom of the product and push it outwards while pushing down the slider, then lift the product up to take the product out of the DIN rail.

Wiring / Unwiring Steps ⑤-⑥



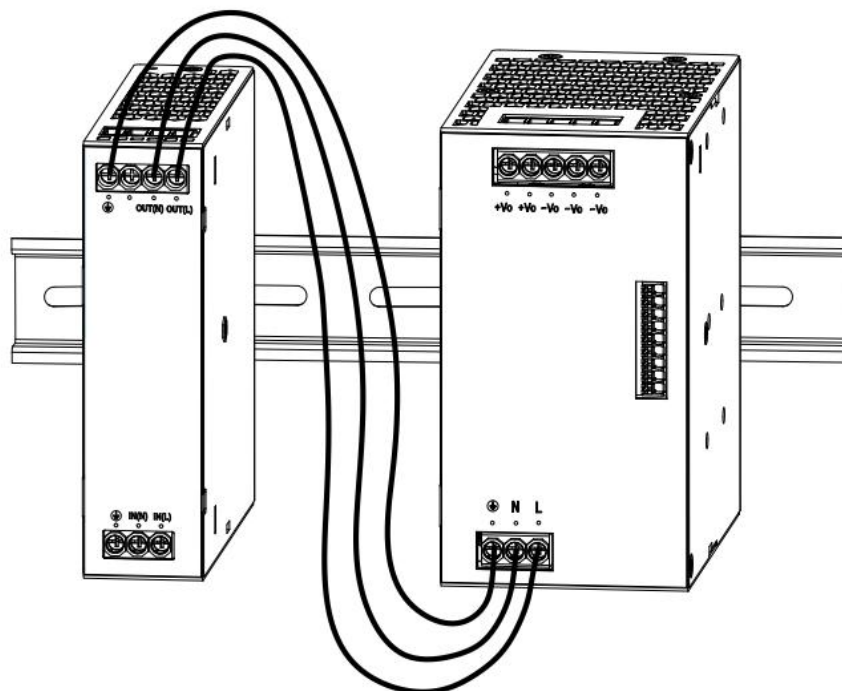
⑤ Turn the Phillips screwdriver to the left to loosen the terminal screws, insert the head of the wire into the bottom of the terminal, and then turn the screwdriver to the right to tighten the terminal screws



⑥ Turn the Phillips screwdriver to the left to loosen the terminal screw and pull the wire out of the bottom of the terminal

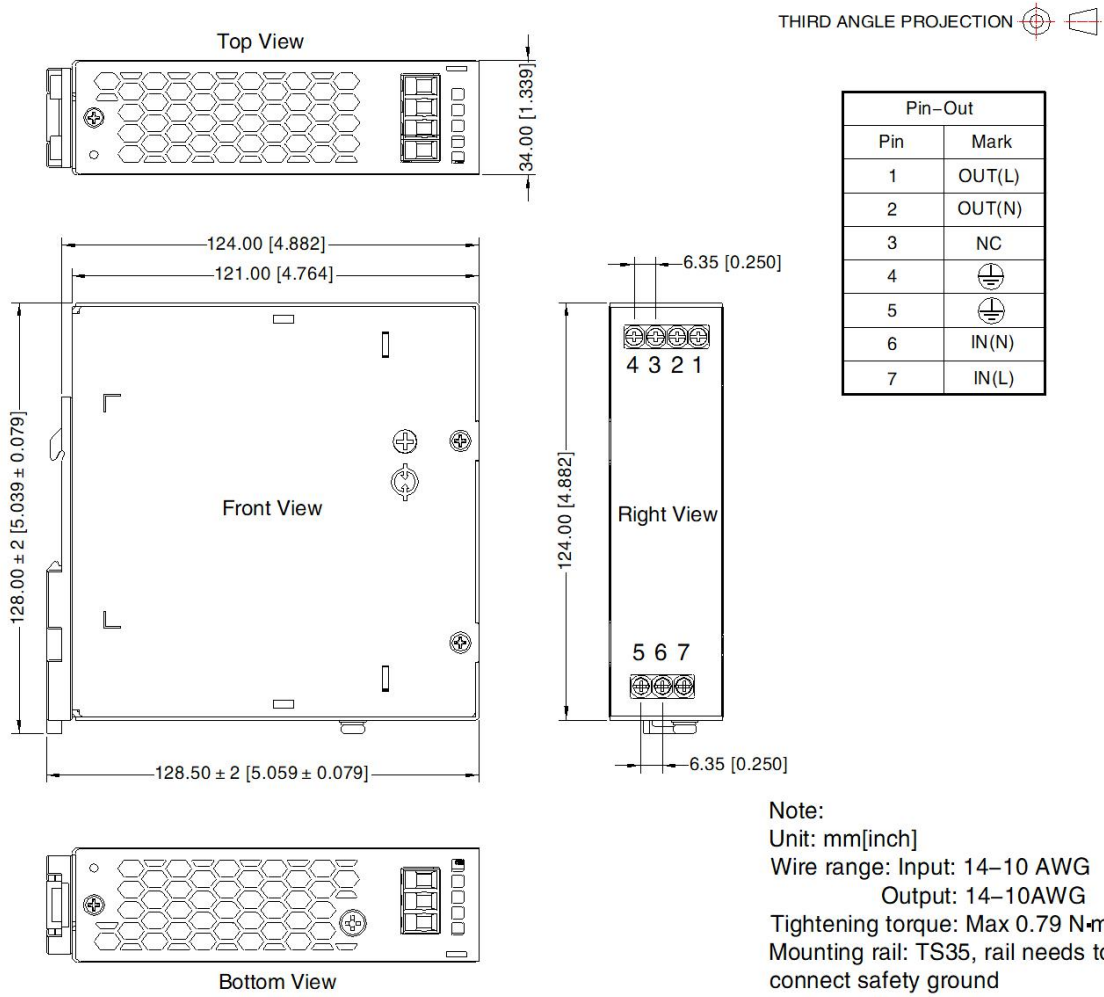
Note: Keep the following installation clearances: 20mm on top, 20mm on the bottom, 5mm on the left and right sides are recommended when the device to work long hours. Increase this clearance to 15mm in case the adjacent device is a heat source (e.g. another power supply), the same is true for FC-L121-CCS.

Wiring Diagram



Note: This figure is the connection diagram of the AC/DC Din-rail power supply LIHFxxx-23Bxx for FC-LxxI-CCS.

Dimensions and Recommended Layout



Note:  
 Unit: mm[inch]  
 Wire range: Input: 14–10 AWG  
 Output: 14–10AWG  
 Tightening torque: Max 0.79 N·m  
 Mounting rail: TS35, rail needs to connect safety ground  
 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: 58220593(FC-L06I-CCS), 58220681(FC-L12I-CCS);
2. Unless otherwise specified, data in this datasheet should be tested under the conditions of Ta=25°C, 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.

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