

客户料号:

CUSTOMER PART NO _____

承 认 书

SPECIFICATION FOR APPROVAL

客户料号:

CUSTOMER PART NO _____

小耳朵型号:

XED PART NO : XED-10A12VX-9L

品名规格: **12 V 10A** 开关电源

DESCRIPTION _____

编制日期:

DATE **2015/9/13**

制造商 MANUFACTURER			客户承认 CUSTOMER APPROVED
设计 DESIGN	审核 CHECKED	批准 APPROVED	请客户确认回传我司存档, 谢谢
孟宪富			



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1. 概述 Outline

1.1 目的

Purpose

本电源开发规格书是描述公司设计开发的定制电源，是公司规范定制电源的基石。其作用为：
供应厂商进行产品设计、生产和检验的依据；
品质部门验货、退货的依据；
对供应厂商产品质量进行技术认证的依据；
开发部门选用物料的依据。

本电源规格书的目的是了解公司对该物料在质量及其可靠性方面的要求，只有质量和可靠性两方面都 100% 达到要求的物料才被公司接受。公司有权取消不合格产品供应商的资格，有权在必要时修改本规格书的有关内容，届时供应商会提前收到有关更改通知并给予适当的时间来做相应的更改

The power supply specification is the description of customized power supplies, it is a cornerstone of normalizing the company customized power supply. The main function is:

For suppliers to make the product design、the basis of production and inspection;
The basis of inspection and returns of goods for Quality Department;
The basis for suppliers to make technical certification of products' quality;
The basis of choosing material for R&D department;

The purpose of the technical specification is to understand company's material requirements about quality and reliability, the product would be accepted only if the goods are compliant to the requirements of 100% quality and reliability. The company is able to cancel the qualification of unqualified suppliers, and revise the related contents of the specification, on the occasion, suppliers would receive the note of changing in advance and appropriate time would be given to make relative alteration.;

1.2 适用范围

Range of application

本规格书规定了设计开发的 AC/DC 多路电源的要求；
This specification defines the requirements of designing and developing AC/DC multi-channel power supply;

1.3 规格书编制的依据

Basis of drawing up specification

本规格书依据《新产品立项可行性评估报告》进行制定。
This specification was made in accordance with the the new product project feasibility assessment report.

2. 功能描述 Function Description

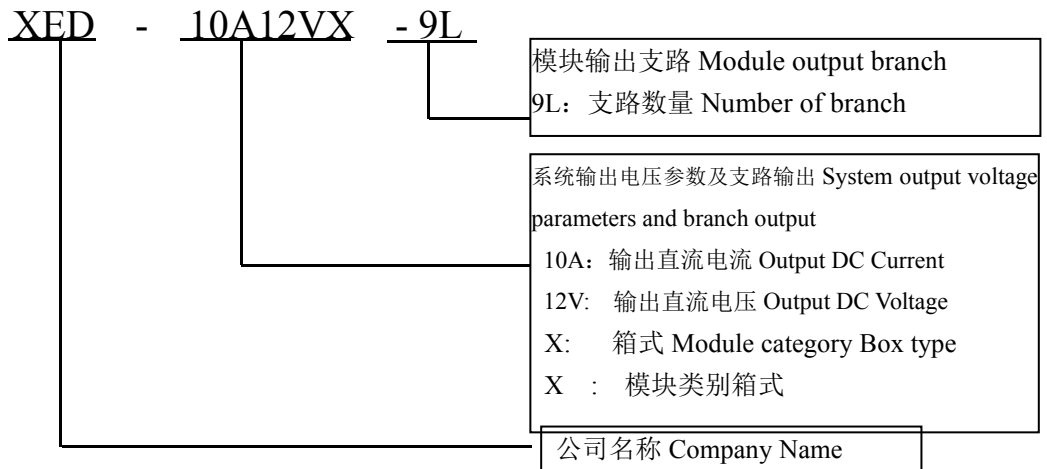
2.1 功能描述 Function Description

模块主路正常输出 12.8V10A,采用 9 路分支；
该电源具有输入过流、欠压保护、输出过压保护、过流、短路保护、过温保护和电池充放电保护功能；
整个电源严格按照安规要求设计，符合信息技术设备安全标准要求，要求取得相关认证

Normal output of the module's main road:12.8V10A,using 9 channel branch;

The power supply has an input over current, under voltage protection, output overvoltage, over current, short circuit protection, over temperature protection and battery charge and discharge protection;

The power supply is designed in accordance with safety requirements, in line with IT equipment safety standards, the requirements obtained the relevant certification.



电源模块命名规则 Power module naming rules

图 1 Picture 1

3. 使用环境

Operating Environment

表 1 环境参数表

Table 1 Environmental Parameters

项目 Items	单位 Unit	最小值 Min	典型值 Typical values	最大值 Max	备注 Remark
工作温度 Working Environment	°C	-20	25	45	
储存温度 Storage Temperature	°C	-30	25	60	
相对湿度 Relative humidity	%	5	/	95	无冷凝，在湿度范围5~95%情况下要保证工作年限内不腐蚀（设备进水腐蚀除外） Non-condensing, at a range of 5% to 95% humidity conditions to ensure that there is no corrosion during the working life (apparatus water corrosion except)
海拔高度 Altitude	m	0		2000	

4. 电气特性

Electrical Characteristics

4.1 输入特性

Input Characteristics

4.1.1 输入基本特性

Input Basic Features

表 2 输入基本特性表

Table 2 Input Basic Features

项目Items	单位Unit	最小值Min	典型值Typical values	最大值Max	备注Remark
交流输入电压范围 AC input voltage range	Vac	90	110/220	264	
交流输入电压频率 AC input voltage frequency	Hz	47	50/60	63	
输入电流 Input current	A	/	/	3	90Vac 满负载 90Vac full load
输入冲击电流 Input inrush current	A	/	/	70	220Vac 满负载/冷态 220Vac full load/cold
交流输入制式 AC input standard	/	/	单相三线制输入 Single-phase three-wire input	/	单相 Single-phase
功率因数 Power factor	%	95%			额定电压、额定负载条件 Rated voltage、rated load condition

4.1.2 输入保护特性

Input Protection Features

表 3 输入保护特性

Table 3 Input Protection Features

项目Items	单位Unit	最小值Min	典型值Typical value	最大值Max	备注 Remark
输入过流保护 Input over current protection	/	/	/	/	交流输入线(L)有保险丝 AC input line(L) has a fuse
输入欠压保护 Input under voltage protection	Vac	/	85	/	
输入欠压回差 Input voltage hysteresis	Vac	/	5		

4.2 输出特性 Output Features

4.2.1 输出基本特性 Output Basic Features

表 4 Table4 输出基本特性表 Output Basic Features

项目 Items	单位 Unit	最小值 Min	典型值 Typical Value	最大值 Max	备注Remark
输出功率Output Power	W	/	/	128	系统自冷,最小负载1A Self-cooling system,minimun load 1A.
输出整定电压V1 Output Setting voltage	Vdc	/	12.8	/	在半载输出条件下测试; Testing at half load output condition
输出电压范围 Range of output voltage	Vdc	12	12.8	13.5	全范围全负载
主路支路电流 Main and branch road current	A		1.1A		采用PTC保护 Using PTC protection
输出效率 Output efficiency	%	/	85	/	220Vac额定输入电压时, 40%—100%负载效率 \geq 85%, 最大效率 \geq 87%; 110Vac额定输入电压50%—100%时 \geq 82% Rated at 220Vac input voltage, 40% -100% load efficiency \geq 85%, maximum efficiency \geq 87%; when 110Vac rated input voltage 50% -100% \geq 82%
稳压精度 Regulation accuracy	%	/	/	± 3	全电压输入范围、全负载输出 Full input voltage range, full load output
源调整率 Line regulation	%	/	/	± 2	额定电流输出, 全电压范围变化 Rated current output, full voltage change
负载调整率 Load regulation	%	/	/	± 3	额定电压输入, 全负载变化 Rated input voltage, full load change
噪声+纹波(峰峰值) Noise + Ripple (peak to peak)	mV	/	/	120	在额定输入电压和负载范围内进行, 且测试时在输出端并0.1uF瓷片或金膜电容和10uF电解电容各一个, 示波器带宽为20MHz Within the rated input voltage and load range, and put 0.1 uF ceramic or metal film capacitors at the output terminal when testing, scilloscope bandwidth 20MHz
动态响应恢复时间 Dynamic Response Recovery Time	us	/	/	200	25%~50%~25%或50%~75%~50%负载变化, 电流变化率0.1A/us, 周期4ms 25% to 50% to 25% or 50% to 75% to 50% of the load changes, the current rate of change of 0.1A / us, cycle 4ms
动态响应过冲(25%~50%~25%或50%~75%~50%) Dynamic response overshoot (25% to 50% to 25% or 50% to 75% to 50%)	%	/	/	± 5	25%~50%~25%或50%~75%~50%负载变化, 电流变化率0.1A/us, 周期4ms 25% to 50% to 25% or 50% to 75% to 50% of the load changes, the current rate of change of 0.1A / us, cycle 4ms
动态响应过冲(0%~100%~0%) Dynamic response	%	/	/	± 10	输出从空载突加100%负载, 输出从满载到空载, 来回跳变(跳变时间5ms, 跳变后可维持几个周期), 测量输出电压波形; 模块不应出现输出振荡, 输出电压的过冲不超过输出电压整定值的10%。

overshoot (0% to 100% to 0%)					Output from no load increase to 100% load suddenly, the output from full load to no-load, back and forth transition (transition time 5ms, transitions can be maintained after a few cycles), measuring the output voltage waveform; module should not appear output oscillating. Output voltage overshoot should not 10% exceed the output voltage setting.
开关机过冲 Switch over shoot	%	/	/	±5	全电压输入范围、全负载输出 Full Input voltage range, full load output
输出上升时间 Output Rise time	ms	/	/	50	额定输入, 输出电压从10%上升到90% Rated input and output voltage to rise from 10% to 90%
开机输出延迟 Power Output Delay	s	/	/	3	220VAC下满载测试 Under 220VAC full load test
保持时间 Hold up time	ms	10	/	/	110Vac/220Vac, 额定负载, 统计时间为从AC掉电到输出降到9.5V 110Vac / 220Vac, rated load, statistical time is down from AC to 9.5V output drops
温度系数 Temperature Coefficient	/°C	/	/	±0.02	额定输出电压和输出电流, 全范围工作温度 Rated output voltage and output current, wide operating temperature

4.2.2 输出保护特性

Output Protection Features

表 5 输出保护特性表

Table 5 Output Protection Features Table

项目 Items	单位 Unit	最小值 Min	典型值 Typical	最大值 Max	备注 Remark
输出过压保护点 Output Overvoltage Protection	Vdc	14	/	16	打嗝 Hiccup
输出限流保护点 Output Current Limiting Protection	A	13	/	17	打嗝, 满载电流为100% Hiccup, Full load current is 100%
输出短路保护 Output short circuit protection	/	/	/	/	可长期短路, 自恢复 Long-term short circuit, self-healing
过温保护 Over-temperature protection	°C	/	/	/	自恢复 Self-healing

4.3 指示灯定义

Definition of Indicating Lights

表6 指示灯定义

Table 6 Definition of Indicating Lights

指示标识 Instruction mark	灯状态 Lamp Status	电源状态 Power Status	备注 Remark
电源输入指示灯 Power Input Indicator	灯亮 Light	有输入: Input:	
电源输出指示灯 Power Output Indicator	灯亮 Light	有输出: Input:	

4.4 其它要求

Other Requirements

表7 其它要求表

Table 7 Other Requirements table

项目 Items	要求 Requirements	备注 Remark
音响噪声 Audio Noise		
散热要求 Cooling Requirements	自冷 Self-cooling	
气味要求 Odor Requirements	不能产生异味和有害健康的气味 Can not produce odours and odor harmful to health	
器件要求 Device Requirements	选择的电解电容额定温度不低于105℃ Select electrolytic capacitors rated temperature not lower than 105 °C	
环保要求 Environmental Requirements		

5. 安规要求

Regulatory Standard

5.1 基本要求

Basic Requirements

该电源以独立的产品形式获得安规认证，符合其相适应安规标准的要求。在产品被认可后，任何影响产品安规要求的设计，生产流程，或物料的变更在未以书面方式通知安规工程师并被批准的情况下都是不允许的，变更需求必须以书面格式详细描述变更细节和变更原因，并由公司判断是否需要重新提供最新样品做测试评估。产品变更及变更后产品的认证不能影响产品供货时间表。

The power supply obtained safety certification with an independent product, which conforms to adapt its safety standards. After being authorized, any design affects the requirements of safety certification, change of production, or material is not allowed without writing notice to Regulatory engineers or been approval. Any change would be written down specific about the details and reasons, and then the company would judge is it necessary to provide latest sample for test again. Products changing and the certification after the change can not affect the schedule of production.

5.2 铭牌要求

Nameplate Requirements

尺寸:60*63mm

Size: 60*63mm

5.3 安规认证要求

Safety Regulatory Certification Requirements

安规认证种类包括:

Safety Regulatory Certification categories include:

5.4 安规标准

Safety Regulatory Standard

表 8 安规标准列表

Table 8 Regulatory Standard List

安规标准 Regulatory Standard	安规标准内容 Contents of Regulatory Standard
IEC60950-1	
EN 60950-1	
UL 60950-1	

5.5 安规测试

Regulatory Test

表 9 安规测试要求

Table 9 Regulatory Test Requirements

测试项目 Testing Items	安规要求
绝缘和距离 Insulation and distance	/
二次线路 Secondary circuit	/
耐压和接地连续性测试 Withstand voltage and grounding continuity test	/

5.6 产品在线测试要求

Products Online Testing Requirements

表 10 耐压测试

Table10 Pressure Test

测试项目 Testing Items	安规要求 Regulatory Requirements
初级对次级 Primary to secondary	初级对次级应能承受50Hz、1500V _{AC} 耐压1分钟，漏电流≤10mA，无击穿或飞弧现象。以上试验电压可以采用等效于交流试验电压峰值的直流电压。 Primary to secondary should be able to withstand 50Hz, 1500VAC pressure one minute, leakage current ≤ 10mA, no breakdown or flashover. The above test voltage can be replaced by the DC voltage which equivalent to the peak AC test voltage
初级对保护地 Primary protective ground	初级对保护地应能承受50Hz、1500V _{AC} 耐压1分钟，漏电流≤10mA，无击穿或飞弧现象。以上试验电压可以采用等效于交流试验电压峰值的直流电压。 Primary protection to be able to withstand 50Hz, 1500VAC pressure one minute, leakage current ≤ 10mA, no breakdown or flashover. The above test voltage can be replaced by the DC voltage which equivalent to the peak AC test voltage
次级对保护地 Secondary on protected ground	次级对保护地应能承受50Hz、500V _{AC} 耐压1分钟，漏电流≤10mA，无击穿或飞弧现象；如果电源自身的设计是次级接地，此项不需测试。以上试验电压可以采用等效于交流试验电压峰值的直流电压。 Secondary protected land should be able to withstand 50Hz, 500VAC voltage 1 minute, leakage current ≤ 10mA, no breakdown or flashover phenomenon; if the power supply itself is designed to be a secondary ground, this does not need testing. The above test voltage can be replaced by the DC voltage which equivalent to the peak AC test voltage
绝缘电阻 Insulation resistance	正常大气压，相对湿度<90%，无冷凝条件下，试验电压为500V _{DC} 时，初级对次级、初级对保护地和次级对保护地之间的绝缘电阻≥10MΩ Normal atmospheric pressure, relative humidity <90%, non-condensing conditions, test voltage is 500VDC, the primary to secondary, primary and secondary protection of ground insulation resistance between protected ≥10MΩ
漏电流 Leakage Current	<3.5mA (264V _{AC} 、50Hz输入) <3.5mA (264V _{AC} 、50Hz Input)

6. EMC要求

EMC Requirements

表 11 EMC 要求表

Table 11 EMC Requirements Table

项目Items	指标要求Index Requirements	标准Standard
传导干扰 Conducted interference	/	
辐射干扰 Radiation Interference	/	
浪涌 Surge	判据 B(1.2/50us) Criterion B(1.2/50us) 线-线 : $\pm 1\text{kV}$ Line-line : $\pm 1\text{kV}$ 线-地: $\pm 2\text{kV}$ Line-earth-: $\pm 2\text{kV}$	IEC61000-4-5
EFT	判据 B Criterion B $\pm 2\text{kV}$	IEC61000-4-4
跌落DIP	/	
静电ESD	/	
CS		
RS		
快速瞬变脉冲群Fast Transient Eft		
电压波动及闪烁 Voltage fluctuation & flicker		
电流谐波发射Current Harmonic Emission		

7. 机械结构要求

Mechanical Structure Requirements



7.1 外形、接口端子

Appearance, Interface Terminals

表 12 外形、接口端子、重量表

Table 12 Appearance, Interface Terminals, Weight Table

定义 Definition	参数 Parameters	备注 Remark
外形尺寸 Dimension	237mm(D)×213mm(W)×70mm(H)	详细尺寸见结构要素图: The specific dimension see the structural elements figure
输入插座 Input Connector	三芯交流插座 Three core AC socket	支持IEC320-C14 Support IEC320-C14
输出端子类型 Output Terminal Type	8.5mm 端子台 8.5mm terminal	
放置方式 Way of placement	壁挂式 Wall-hanging	
接地方式 Grounding Method	电源的PGND要接到机箱 Power supply's PGND should connect to the crate	/
面板要求 Panel Request		详细尺寸见结构要素图 The specific dimension see the structural elements figure
指示灯 Indicators	每支路均有 Each branch	
外壳要求	/	详细尺寸见结构要素图

Shell demand		The specific dimension see the structural elements figure
重量 Weight	不大于/1.9 Kg Not over1.9 Kg	

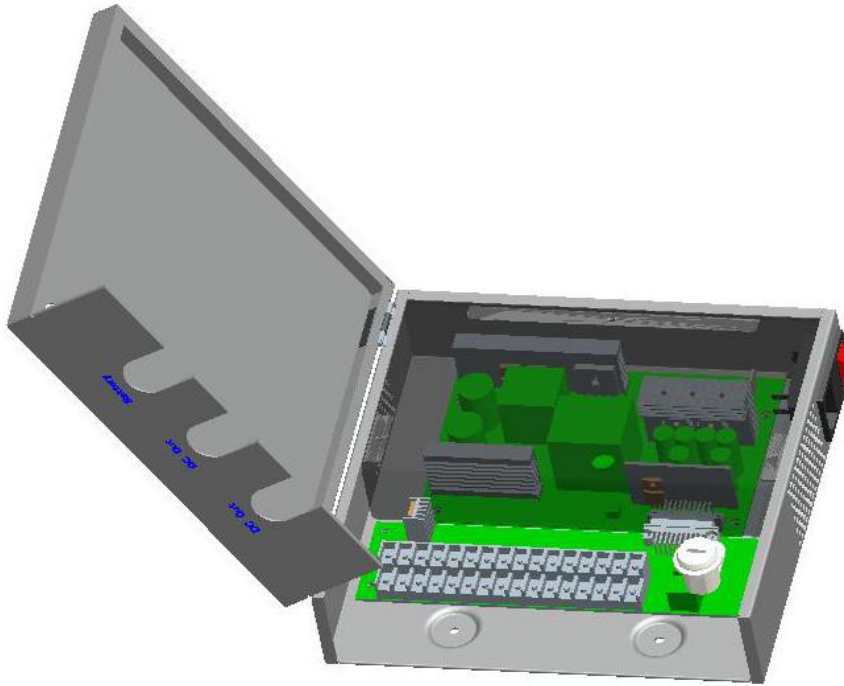


图 2 面板布局示意图

Picture 2 Panel Layout Schematic diagram

7.2 结构件型号及电气接口定义

Structure Model and Electrical Interface Definition

CON4	接线端子台 Pin 距=8.5mm Terminal Pin distance=8.5mm			
上 Up	GND			
下 Down	V+			

7.1 标签和丝印

The Labels and Screen Printing

标签上必须有商标、型号、输入条件、输出条件、生产厂家等内容，通过安规认证后需打上相应的标记，电源上的主要标签、标志、丝印等文字标识应设计为英文。

There must be logo, type, input and output conditions, manufacturers and other contents on the label. It

must be marked the corresponding mark after they have safety certification. The main label, logo, silk screen and other words logo should be designed in English

8. 可靠性实验要求

Reliability Test Requirements

8.1 常规环境试验

Conventional Environmental Test

表 13 常规环境实验要求表

Table 13 Conventional Environmental Testing Table

序号 No.	试验项目 Pilot Items	参考标准/试验参数 Reference standard/ Experimental parameters	初样阶段 Prototype sample phase	正样阶段 Approved sample phase	小批量阶段 Small batch product phase	备注 Remark
1	低温工作试验 (Low Temperature Work)	-20℃	√	√		
2	高温工作试验 (High Temperatrue Work)	45℃	√	√		
3	低温贮存试验 (LowTemperature Storage)	-30℃		√		
4	高温贮存试验 (HighTemperature Storage)	60℃		√		

8.2 包装运输实验

Shipping Test

表 14 包装运输实验要求表

Table 14 Packing and Shipping Testing Requirements Table

序号 No.	试验项目 Pilot projects	参考标准/试验参数 Reference standard/Experimental parameters	初样阶段 Prototype sample phase	正样阶段 Approved sample phase	小批量阶段 Small batch product phase	备注 Remark
1	随机振动 Random Vibration				√	

2	冲击 Impact				√	
3	碰撞 collision				√	
4						
5						
6						

9. 可靠性要求

Reliability Requirements

9.1 MTBF指标

表 15 MTBF 指标表

Table 15 MTBF Indicators Table

指标 Indicators	单位 Unit	量值 Magnitude		条件 Conditions	备注 Remark
MTBF	万小时 Thousands of hours	AC/DC电 源 AC/DC Power supply	25	25±5℃, 额定输入, 满载输出 25±5℃, rated input and full load output	可靠性预计报告 Reliability Estimate report
	5万Fifty thousand				

9.1 年返修率

Annual repair Rate

电源板年返修率小于等于 0.2%;

Power panel's annual repair rate is less than or equal to 0.2%.

9.1 使用寿命

Working Life Span

电源 2 年, 电解电容一定要保证在密封状态 25 度环境保证有 2 年寿命。

Power supply for two years, Electrolytic capacitor is 2-year lifespan at the environment of 25 degrees in a sealed state

说明: 根据具体情况要求。

Note: according to the specific situation.

9.1 可维护性要求 Maintainability Requirements

无 NO

9.2 可安装性要求 Installation Requirements

现场在线安装时, 需停掉 AC 电源。

When online site installation, you need to stop the AC power supply.

9.3 可生产性要求 Producibility Requirements

模块可生产性和工艺满足我司要求。

Module's producibility and technology are meet our company's requirement.

10. 包装、存放、运输要求;

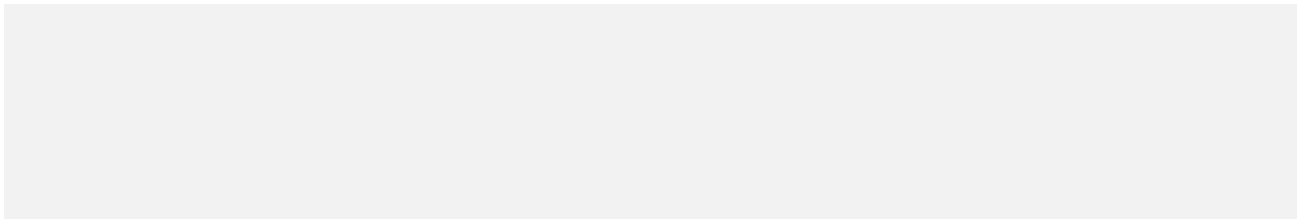
Packing, Storage and shipping Requirements;

11. 重要说明

Important Note

11.1 包装材料上的标识要求

The Label on Packing Material Requirement



标签的位置示意图 Picture 1 Diagram of the Label

图 3

11.1 包装箱内附件要求

Box Attachments Requirements

无 NO

11.2 包装要求

Packing Requirements

对于同一生产批次的产品，如果是不同时期生产的，应注明 LOT NO 并分开包装供货。

一个电源模块用一个包装盒包装。

For the same production batch, if it is produced in different periods, it should indicate the LOT NO and separate the packaging and then supply to customer. A power module should be packed in one box.

11.3 存放要求

Storage Requirements

产品应存放在-10~40℃和相对湿度不大于80%的干燥、通风、无腐蚀性气体影响的库房内。

The product should be stored in - 10 ~ 40 °C and relative humidity is not more than 80% and with dry and ventilated, no corrosive gas influence warehouse.

11.4 运输要求

Shipping Requirements

产品运输时应有牢固的包装箱。箱外面应符合相关国标的规定且应有“小心轻放”、“防潮”等标志。装有产品的包装箱允许用任何运输工具运输。运输中应避免雨、雪的直接淋袭和机械撞击。

Product transportation should have a strong packing. Outside the box should comply with the provisions of the relevant national standard and should be "handle with care", "Moisture-proof", etc. Boxes containing products allowed to use any transportation tools. Transportation should be avoided in the rain, snow of direct leaching and mechanical impact.

12. 重要说明

Important Note

对本规格书的任何修改，都必须得到本规格书制定部门的批准。

本规格书的解释权归本规格书的制定部门。

供求双方有技术上的分歧时，以本规格书作为仲裁。

Any amendments to this specification must be approved by the department of establishing this specification.

The final interpretation of this specification belongs to the establish department of this specification.

When there are technical differences between the supply and demand sides, this specification will use as the arbitration.