上海良信电器股份有限公司

Shanghai Liangxin Electrical Co., Ltd.

(NDQ2A-125H 自动转换开关电器)

(NDQ2A-125H Automatic Transfer Switching Equipment)

产品规格书

Product Specification

（IPD-ENG-DEV-T20A1 2016-09-23）

编制 Prepared by	曹雪虎 Cao Xuehu	日期 date	2021-09-15 September 15, 2021
审核 Reviewed by	赵振兴 Zhao Zhenxing	日期 date	2021-09-15 September 15, 2021
会签 Countersigned by	张慧锋 Zhang Huifeng	日期 date	2021-09-15 September 15, 2021
批准 Approved by	王继理 Wang Jili	日期 date	2021-09-15 September 15, 2021

修订记录 Revision History					
版本 Version	修订原因/内容 Revision Reason/Content	实施日期 Implementation Date	编制人 Prepared by	审核人 Reviewed by	批准人 Approved by
0	新增 Add	2021-07-14 July 14, 2021	曹雪虎 Cao Xuehu	赵振兴 Zhao Zhenxing	施巍 Shi Wei
1	修订 Revision	2021-08-21 August 21, 2021	曹雪虎 Cao Xuehu	赵振兴 Zhao Zhenxing	施巍 Shi Wei
2	增加降容系数 Increase the derating coefficient	2021-09-01 September 1, 2021	曹雪虎 Cao Xuehu	金建芳 Jin Jianfang	施巍 Shi Wei
3	参数修订 Parameter revision	2021-09-15 September 15, 2021	曹雪虎 Cao Xuehu	赵振兴 Zhao Zhenxing	王继理 Wang Jili

1、适用范围与用途

1. Applicable Scope and Purpose

NDQ2A-125H 自动转换开关电器适用于交流 400V/415 以下，额定频率 50Hz/60Hz 的场所。它符合 GB14048.1、GB/T14048.11 标准，也符合《高层民用建筑防火规范》、《建筑设计防火规范》、《应急照明设计指南》、《民用建筑电气设计规范》等。

The NDQ2A-125H ATSE are applicable for sites with the AC voltage below 400V/415 and the rated frequency of 50Hz/60Hz. This product complies with the GB14048.1 and GB/T14048.11 standards in accordance with “Code for Fire Protection Design of Tall Buildings”, “Code for fire protection design of buildings” and “Code for electrical design of civil buildings”.

本产品主要用于国家规定的一级负荷，广泛适用于消防、邮电通讯、医院、宾馆、城市轨道交通、高层楼宇、工业流水线、电视台等需要连续供电的重要场所。主、备电源可以是电网电源、自启动发电机组、蓄电池组等。

This product mainly applies to the compulsory level I load, which is widely used in important places that require the continuous power supply, such as fire protection, telecommunications, hospitals, hotels, urban rail transits, high-rise buildings, industrial assembly lines and TV stations. It adopts the network source, self-starting generator set and battery set as the main and standby power supplies.

2、产品图片（仅供参考）

2. Picture of the Product (for reference only)

基本型

Basic type

D 型

Type D

3、规格型号说明

3. Specification and Model Description

NDQ □- □ □ □/□ □ □ 1 2 3 4 5 6 7 8 9		
序号	序号说明	NDQ2A-125H

SN	SN Description	
1	企业代号 Enterprise code	ND:“Nader”牌低压电器 ND: Nader low-voltage apparatus
2	产品代号 Product code	Q:自动转换开关电器 Q: ATSE
3	设计序号 Design SN	2A
4	壳架等级额定电流 Rated current of frame	125
5	高参数类型 High parameter type	H
6	额定工作电流 Rated working current	16A,20A,25A,32A,40A,50A,63A,80A,100A,125A
7	极数 Number of poles	2-2P 3-3P 4-4P
8	控制方式 Control mode	R-自投自复、S-自投不自复 F-发电机 R-automatic switching and automatic recovery, S-automatic switching and non-automatic recovery, F-generator
9	控制器类型 Controller type	基本型：无代码 D:D 型 Basic type: No code D: Type D

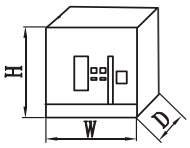
注:本产品发电机模式只有在电网-发电机模式下有效，客户可自行设置。
Note: the generator mode of this product is valid only in the grid-generator mode, and it may be set by the customer freely.

4、主要技术参数

4. Main Technical Parameters

型号规格 Model & specifications	NDQ2A-125H
壳架等级额定电流（A） Rated current of housing (A)	125
额定工作电压 Ue（V） Rated working voltage Ue (V)	230V(2P)AC400V/AC415V (3P、4P)
额定频率 f(Hz) Rated frequency f (Hz)	50/60
额定绝缘电压 Ui（V） Rated insulation voltage Ui(V)	AC800V
额定冲击耐受电压 Uimp（kV） Rated impulse withstand voltage	8

Uimp (kV)		
额定限制短路电流 Iq(kA) Rated limited short-circuit current Iq (kA)		120
额定短时耐受电流 Icw(kA) Rated short-time withstand current Icw (kA)		10kA/30ms
额定短路接通能力 Icm(峰值)(kA) Rated short-circuit making capacity Icm (peak value) (kA)		17
最小转换时间 max(ms) Minimum conversion time max (ms)		≤500
抗雷击浪涌电流（8/20μs） Anti-lightning strike surge current (8/20μs)		20kA（±5 次） 40kA（±1 次） 20kA (±5 times) 40kA (±1 time)
操作性能 Operating performance	机械寿命（次） Mechanical life (times)	12000
	电气寿命（次） Electrical life (times)	8000
电器级别 Electrical equipment level		PC-专用型 PC-special type
使用类别 Utilization category		AC-33B
极数 Number of poles		2P 3P 4P
控制电压（V） Control voltage (V)		230V
接线方式 Wiring mode		板前 Front-plate
开关位置 Switch position		三段式 Three-segment type
结构形式 Structure form		整体式 Integral type
隔离锁定 Isolating and locking		√
工作模式 Operation mode		自投自复，自投不自复 Auto switch and auto recover, auto switch and non-auto recover
电源模式 Power supply mode		电网-电网，电网-发电机 Grid-grid, grid-generator

外形尺寸： Outline dimensions: W×H×D mm 	极数 2P/3P/4P Pole number 2P/3P/4P	245×125×135		
产品认证 Product certification		CCC	CB	CE TUV

4.1 双电源连接母线或电缆的截面积选择：

4.1 Selection of the double-source connecting bus or cable cross-section area:

表 1 连接母线或电缆的截面积选择

Table 1 Selection of the Connecting Bus or Cable Cross-section Area

额定电流(A) Rated current (A)	32	63	80	125
导线截面积(mm^2) Wire cross-section area (mm^2)	6	16	25	50

4.2 双电源接线端子与安装螺钉拧紧扭力矩

4.2 Tightening Torque of the Double-Source Terminal and Mounting Screw

表 2 接线端子与安装螺钉拧紧扭力矩

Table 2 Tightening Torque of the Terminal and Mounting Screw

型号 Model	螺纹直径(mm) Thread diameter (mm)	扭力矩(N·m) Torque (N·m)
NDQ2A-125H	接线螺钉 M6 Binding screw M6	3
	安装螺钉 M4 Mounting screw M4	1.2

4.3产品重量

4.3 Product weight

型号 Model	极数 Number of poles	毛重（Kg) Gross weight (Kg)	净重（Kg) Net weight (Kg)
NDQ2A-125H	2P	4.21	4.21
	3P	4.22	4.22
	4P	4.22	4.22

5、控制器功能

5. Controller Functions

功能 Function		标准型控制器 Standard controller	D 型控制器 Type D controller
保护功能 Protection function	过电压保护 Overvoltage protection	-	187V (0.7～0.85)×230V 可调 187V (0.7-0.85)×230V adjustable
	欠电压保护 Undervoltage protection	-	264V (1.05～1.3)×230V 可调 264V (1.05-1.3)×230V adjustable
	断相保护 Open-phase protection	√	√
	过频率保护 Overfrequency protection	-	▽
	欠频率保护 Underfrequency protection	-	▽
	相序/相位保护 Phase sequence/phase protection	-	▽
	接错线报警 Wrong wiring alarm	√	√
测量功能 Measuring function	电压值 Voltage value	-	√
	频率值 Frequency value	-	√
	不平衡度 Unbalancedness	-	√
通讯功能 Communication function	MODBUS-RTU 协议 MODBUS-RTU protocol	-	√
	可接入我司配电管理云平台 yun yun云平台	-	√

	Can be accessed into our power distribution management cloud platform- yun yun platform		
节点输入/输出 Node input/output	消防信号输入 Fire signal Input	√	√
	常用合闸输出 Common closing output	√	√
	备用合闸输出 Standby closing output	√	√
	发电机启动输出 Generator starting output	√	√
	故障报警输出 Fault alarm output	√	√
	通讯端口 Communication port	-	√
	可编程端口输出 Programmable port output	-	√
供电方式 Power supply mode 选择 Select	电网-电网 Power grid- power grid	▽	▽
	电网-发电机 Power grid- Generator	▽	▽
工作模式 Operation mode 选择 Select	自投自复 Auto switch and auto recover	▽	▽
	自投不自复 Auto switch and non-auto recover	▽	▽
延时调节 Delay adjustment	分闸/转换延时 Tripping/transfer delay	0-60s 可调 0-60s adjustable	0-1800s 可调 0-1800s adjustable
	合闸/返回延时 Closing/return delay	0-60s 可调 0-60s adjustable	0-1800s 可调 0-1800s adjustable
	冷机延时调节 Cold-machine delay adjustment	固定 30s 30s fixed	0-1800s 可调 0-1800s adjustable
	发电机启动延时 Generator startup delay	固定 30s 30s fixed	0-1800s 可调 0-1800s adjustable
电源优先 Power priority	常用优先 Conventional with priority	▽	▽
	备用优先 Standby with priority	▽	▽

“ √ ”表示只有此功能；“▽”表示公司内部可调节；“-”表示无此功能

“√” indicates that the function is only available; “▽” indicates that it is adjustable inside the company; “-” indicates that the function is not available

注：控制器功能可根据实际情况进行增减
Note: The controller functions may be increased and decreased according to the actual situation

6、工作条件

6. Operating Conditions

6.1 正常使用条件
6.1 Normal working conditions
6.1.1周围空气温度
6.1.1 Ambient air temperature
周围空气温度上限值不超过+70℃，下限值不低于-25℃，并且24小时平均值不超过+35℃。高于55℃时应考虑降容使用.
The upper and lower limit value of the ambient air temperature is no more than +70℃ and no less than -25℃ respectively, while the average value within 24 hours doesn't exceed +35℃. In case the temperature is above 55℃, consider reducing the capacity for use.
6.1.2 海拔
6.1.2 Altitude
安装地点的海拔高度不超过2000m。
The altitude of the installation site doesn't exceed 2,000m.

海拔高度（m） Altitude (m)	2000	3000	4000	5000
工作电流修正系数 Correction factor of the working current	1In	0.9In	0.8In	0.75In

6.1.3 大气条件
6.1.3 Atmospheric conditions
6.1.3.1湿度
6.1.3.1 Humidity
最高温度为+40℃时，空气的相对湿度不超过50%，在较低的温度下可以允许有较高的相对湿度，例如+20℃时达90%。对由于温度变化偶尔产生的凝露应采取特殊的措施。
When the highest temperature is +40℃, the relative humidity of air should not exceed 50%; a high relative humidity is allowed under a low temperature, e.g. 90% under 20℃. Special measures should be taken to address occasional condensing due to temperature fluctuation.
6.1.3.2 污染等级：3级
6.1.3.2 Class of pollution: 3
6.2 安装条件
6.2 Installation conditions
6.2.1 ATSE可以垂直或水平安装在柜体内，特殊要求须特殊订货。
6.2.1 ATSE can be installed vertically or horizontally within the cabinet; special orders are required

upon special requests.

6.2.2 应安装在无爆炸危险的介质中，且介质中无足以腐蚀金属和破坏绝缘的气体与导电尘埃。

6.2.2 The product should be installed in places that are free from explosive media, media corrosive to metal, insulation damaging gas, and conductive dust.

6.2.3 应安装在没有雨雪侵袭的地方

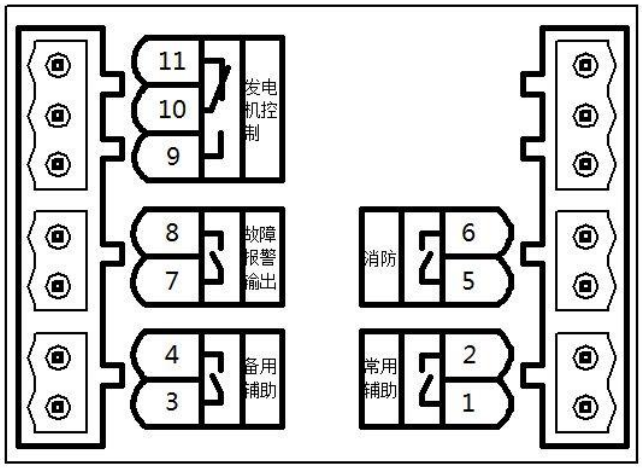
6.2.3 The product should be installed free from snow and rain

7、外部接口定义

7. Definition of External Interfaces

7.1 二次端子接口标牌示意图

7.1 Schematics for the nameplate of secondary terminal interface



7.1.1 基本型

7.1.1 Basic type

●1~2：常用合闸信号输出，电源外接状态指示信号输出，（无源节点）。

●1~2: common switching signal output, and external power connecting indication signal output, (dry contact).

●3~4：备用合闸信号输出，电源外接状态指示信号输出，（无源节点）。

●3~4: standby switching signal output, and external power connecting indication signal output, (dry contact).

●5~6：消防双分（干接点或直流24V接入均可）。

●5~6: duplex shunt for fire protection (dry contact or access to DC 24V available).

注：默认设置当撤销消防信号后，需手动操作控制面板手/自动按键即可恢复自动转换。

Note: The default setting is that when firefighting signal is withdrawn, it is required to manually operate the manual/automatic key on the control panel to recover automatic changeover.

●7~8：故障报警输出，当产品出现无法正常转换时，控制器输出故障信号，故障类型如微动开关故障、电机堵转；

●7~8: fault alarm output. When the normal changeover of the product cannot be realized, the controller outputs the fault signals with the fault types, for example, inching switch fault, and motor blocking;

●9~10~11：发电机控制信号

●9~10~11: generator control signals

9-常开端；10-公共端；11-常闭端；

9-Normally open terminal; 10-Common terminal; 11-Normally closed terminal;

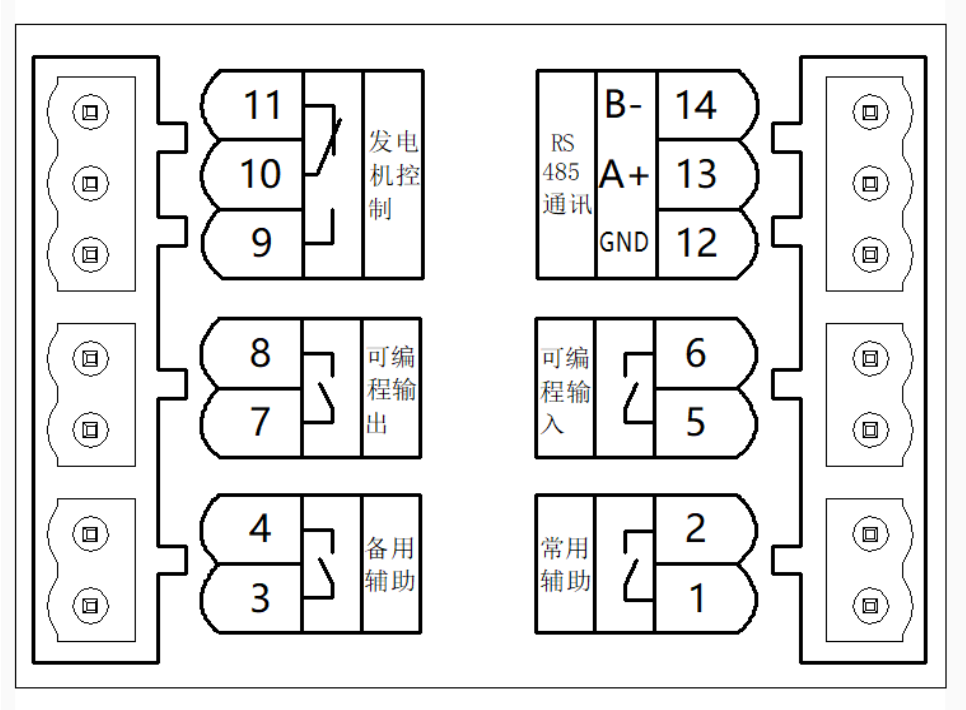
当备用电源是自启动发电机组时，用户可通过10-11端子与发电机控制器连接后完成自动启动发电机功能。9-10-11内部为一组无源继电器干节点，10为继电器公共端，11为常闭点，9为常开点；当常用电源正常时9与10闭合，10与11断开；当常用电源出现故障时9与10断开同时10与11闭合发出发电机启动信号。

When the standby power supply is the auto-start generator set, the user may finish automatic

start of the generator functions by connecting the generator controller through 10-11 terminals. Inside 9-10-11, there is a group of dry contacts for the passive relay, where 10 is common terminal for relay, 11 is normally closed terminal, 9 is the normally open point; when the common power supply is normal, 9 and 10 are closed, 10 and 11 are disconnected; when the common power supply is in fault, 9 and 10 are disconnected, 10 and 11 are closed, giving the generator start signal.

7.1.2 D 型

7.1.2 Type D



D 型外部端子接线图

Type-D External Terminal Wiring Diagram

●1~2：常用合闸信号输出，电源外接状态指示信号输出，（无源节点）。

●1~2: common switching signal output, and external power connecting indication signal output, (dry contact).

●3~4：备用合闸信号输出，电源外接状态指示信号输出，（无源节点）。

●3~4: standby switching signal output, and external power connecting indication signal output, (dry contact).

●5~6：可编程输入（出厂默认消防双分联动信号输入，干接点或直流24V接入均可）

●5~6: programmable input (factory default as signal input of duplex shunt for fire protection and linked action, with dry contact or access to DC 24V available)

编程端子：1：消防双分 （出厂默认）

Programming terminal: 1: duplex shunt for fire protection (factory default setting)

2：短路故障闭锁（客户自行设置）

2: short-circuit fault locking (customer setting)

3：远程断电（客户自行设置）

3: remote power interruption (customer setting)

5-6消防联动信号输入端（接消防联动信号无源常开点，消防启动后开关强制断开）；

5-6: input terminal of linked action signal for firefighting (connect the normally open dry contact of the linked action signal of firefighting, and after the start of firefighting, the switch will be forcibly disconnected);

注：默认设置当撤销消防信号后，需手动操作控制面板手/自动按键即可恢复自动转换。

Note: The default setting is that when firefighting signal is withdrawn, it is required to manually operate the manual/automatic key on the control panel to recover automatic changeover.

●7~8：可编程输出信号（无源节点）

●7~8: programmable output signal (dry contact)

编程端子：1：故障报警（出厂默认） 2：电网报警 （客户自行设置）

Programming terminals: 1: fault alarm (factory setting) 2: grid alarm (customer setting)

3：负荷卸载 （客户自行设置）4：消防反馈 （客户自行设置）

3: unloading (customer setting) 4: firefighting feedback (customer setting)

5：频率报警 （客户自行设置）6：相序相位报警 （客户自行设置）

5: frequency alarm (customer setting) 6: phase sequence and position alarm (customer setting)

7：不平衡报警（客户自行设置）

7: unbalance alarm (customer setting)

7~8：故障报警输出，当产品出现无法正常转换时，控制器输出故障信号，故障类型如微动开关故障、电机堵转；

7~8: fault alarm output. When the normal changeover of the product cannot be realized, the controller outputs the fault signals with the fault types, for example, inching switch fault, and motor blocking;

●9~10~11：发电机控制信号

●9~10~11: generator control signals

9-常开端；10-公共端；11-常闭端；

9-Normally open terminal; 10-Common terminal; 11-Normally closed terminal;

当备用电源是自启动发电机组时，用户可通过10-11端子与发电机控制器连接后完成自动启动发电机功能。9-10-11内部为一组无源继电器干节点，10为继电器公共端，11为常闭点，9为常开点；当常用电源正常时9与10闭合，10与11断开；当常用电源出现故障时9与10断开同时10与11闭合发出发电机启动信号。

When the standby power supply is the auto-start generator set, the user may finish automatic start of the generator functions by connecting the generator controller through 10-11 terminals. Inside 9-10-11, there is a group of dry contacts for the passive relay, where 10 is common terminal for relay, 11 is normally closed terminal, 9 is the normally open point; when the common power supply is normal, 9 and 10 are closed, 10 and 11 are disconnected; when the common power supply is in fault, 9 and 10 are disconnected, 10 and 11 are closed, giving the generator start signal.

●12~13~14：RS485通信端口（协议内型：MODBUS-RTU）

●12~13~14: RS485 communication port (protocol type: MODBUS-RTU)

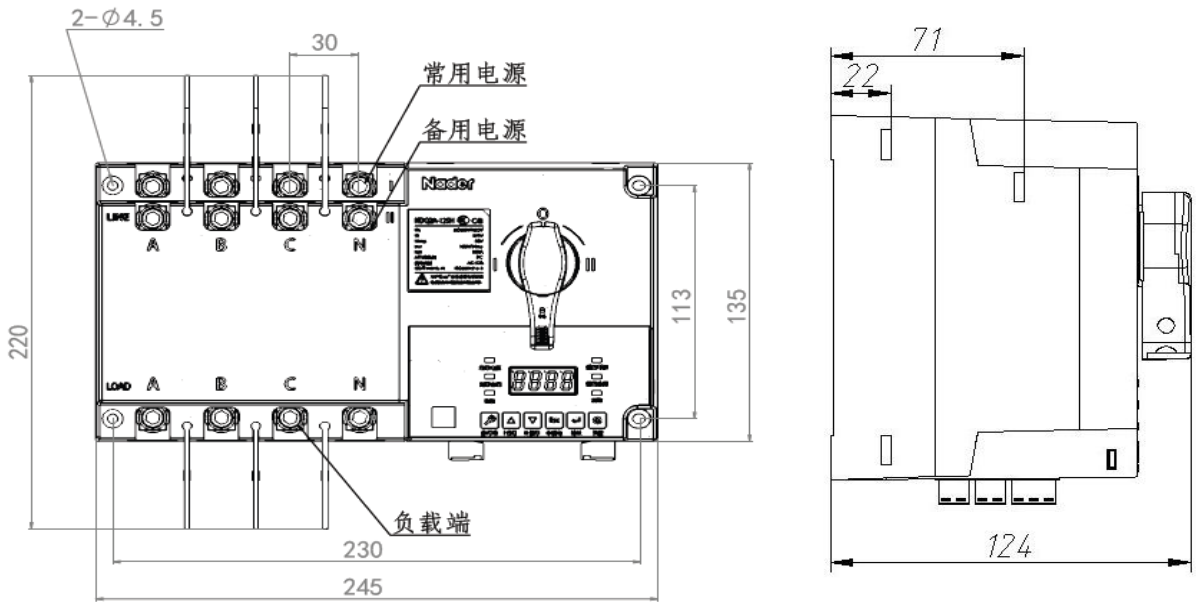
12- GND； 13- A+； 14- B-；

注：RS485通信端口使用方法见通信协议（另装成册，请寻我司400热线索取）。

Note: See the communication protocol for the use method of RS485 communication port (it is bound in additional volume. Dial up our 400 hotline number for request).

8、产品外形及安装尺寸

8. Outline and Installation Dimensions



注：2P 3P 4P外形尺寸、安装尺寸一致，外形尺寸、安装尺寸的未注公差尺寸的极限偏差按GB/T 1804-C执行。

Note: 2P, 3P and 4P are consistent in outline dimensions and installed dimensions. For outline and installation dimensions, the limit deviation not indicated with the tolerance dimensions is as per GB/T 1804-C.

9、安装方式

9. Installation Mode

产品在柜内垂直固定安装，与安装垂直面的最大倾斜度为±22.5°。接线螺钉扭力值：1.2N.m

The product is installed vertically and fixedly in the cabinet bearing the maximum slope with the vertical installation plane about ±22.5°. Torque value of the wiring screw: 1.2N.m

10、包装储存

10. Packaging and Storage

产品套上防水塑料袋，并使用珍珠棉衬垫，放到专用的纸盒包装箱中，随箱带有产品说明书及合格证。

Products covered with a waterproof plastic bag shall be cushioned with pearl wool, placed in special paper packing boxes and provided with product manuals and certificates.

产品适用的运输及存储温度范围为-25℃ ~ +75℃。在运输过程中产品应注意防湿，不得受强烈的颠簸、振动、碰撞，并防止雨雪侵袭。

The applicable transportation and storage temperature range of the product is from -25℃ to +75℃. Keep the products dry during transportation, which shall not be affected by strong turbulence, vibration and impact as well as be free from snow and rain.

11、环保符合性

11. Environmental Compliance

RoHS 2.0

12、附件清单及安装

12. List of Accessories and Installation

序号 SN	名称 Name	规格 Specification	数量 Quantity
1	隔弧片 Flash barrier	1 袋 1 bag	3P/4P 9 片,2P 6P 片 3P/4P 9 pieces, 2P 6P pieces
2	安装螺钉 Mounting screws	M4*45	4 只 4 pcs

13、注意事项

13. Precautions

1.开关应正确安装,安装前检查铭牌内容是否符合要求,确认开关处于断开状态;
1. The switch shall be correctly installed. Before installation, check whether the nameplate contents meet the requirements, and confirm that the switch is in the OFF status;

2.开关接线时,应严格按照仅限标志接线,三极产品应将中性线接至中性端子处。根据实际情况进行消防联动和发电控制的接线，最后确定产品接地良好;

2. In the wiring of the switches, it is required to finish the wiring strictly according to the marks, and the neutral wire of the three-pole products shall be connected to the neutral terminal. Carry out the wiring for the linked action of firefighting and generator control according to the actual situation, and finally confirm that the product is in good earthing;

3.隔离锁定需要产品中间位置时才可拔出锁定，在"拔出时"控制器不可操作，手柄也不可操作。

3. The isolating lock can be pulled out only when the product remains in the middle position, and when "it is pulled out", the controller is inoperable, and the handle is also inoperable.

4.请定期（建议每三个月）进行转换试验，以确认产品工作正常。请定期处理外壳表面尘埃，保持良好的绝缘。对长期不使用的开关注意防潮、防尘，在使用前按手动或自动转换进行调试，开关正常方可投入运行。

4. Regularly carry out the conversion test (preferably every three months), to confirm that the product is in normal operation. Regularly remove the dust on the surface of the shell, and keep good insulation. Switches not used for a long time shall be protected from moisture and dust. Before use, they shall be manually or automatically commissioned, and only the normal switches can only be put into operation.

5.本产品出厂前已经进行绝缘测试，错误的介电实验将破坏控制系统，严禁带 ATS 做介电实验。

5. This product has been subject to the insulation test before the factory delivery, and wrong dielectric test will damage the control system. Dielectric test is prohibited with ATS.