上海良信电器股份有限公司

Shanghai Liangxin Electrical Co., Ltd.

NDQ1-630 系列

NDQ1-630 Series

产品规格书

Product Specification

(IPD-ENG-DEV-T20 A1 2024-04-15)

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Prepared by	_____	Date	_____
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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
8	增加附件选型表 Add the accessory selection table	2024-04-15 April 15, 2024	张艺莲 Zhang Yilian	曹雪虎 Cao Xuehu	王继理 Wang Jili

1、适用范围与用途

1. Applicable Scope and Purpose

NDQ1-630 系列自动转换开关电器适用于工作电压至 AC400V/415V、50Hz，额定电流 400A/500A/630A 的两路电源（常用电源、备用电源）之间的切换，执行元件为塑壳断路器。本产品适用于医院、商城、银行、宾馆和消防等不允许断电的重要场合。

The NDQ1-630 series ATSE (Automatic Transfer Switching Equipment) applies to the transfer between two-way power supplies (common power supply, standby power supply) with the working voltage of AC400V/415V, 50Hz and rated current of 400A/500A/630A, with the molded case circuit breaker as the actuator. This product is suitable for hospitals, shopping malls, banks, hotels and fire protection and other important occasions where power off is not allowed.

2、产品图片（图片仅供参考，以实物为准）标配连接排

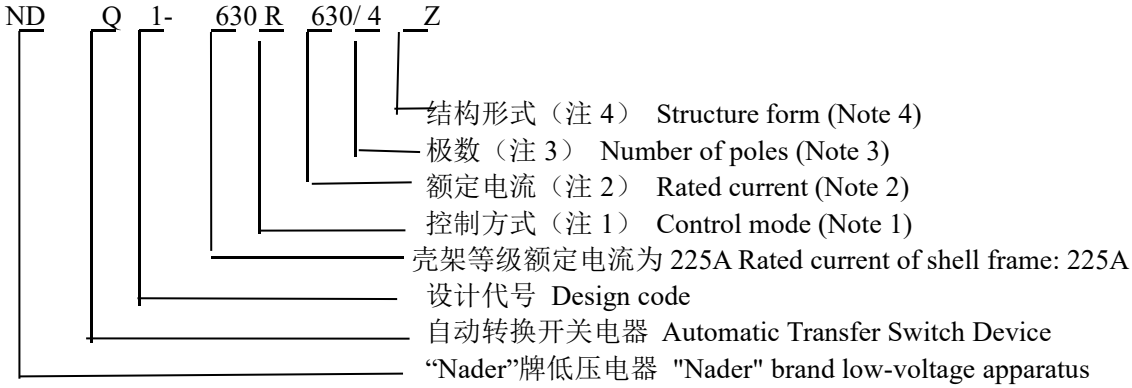
2. Product Picture (The picture is for reference only, subject to the actual product) Standard bonding bar

整体式

Integral type

3、规格型号说明

3. Specification and Model Description



注 1.R：自投自复式；S：自投不自复式；F：电网－发电机式。

Note 1.: R: Auto switch and auto recover; S: Auto switch and non-auto recover; F: Grid - Generator.

2.额定电流为：400A、500A、630A。

2. Rated current: 400A, 500A, 630A.

3.极数分为 3P、4P。

3. Pole number: 3P, 4P.

4.Z：整体式；F：分体式。

4. Z: Integral type; F: Split type.

用户可根据实际情况选择不同类型的保护特性或附件，见下表

Users can choose different types of protection characteristics or accessories according to the actual situation, and see the following table

选配附件表
Optional accessories table

壳架 Shell frame	标配断路器 Standard Circuit Breaker		可选保护 Optional protection	可选附件 Optional accessories
	3P	4P	默认复式脱扣器 Default Duplex Release 无脱扣器 No release 仅有瞬时脱扣器 Instantaneous release only 电动机保护型 Motor protection type	分励脱扣器 Shunt release 单辅助触头 Single auxiliary contact 双辅助触头 Dual-auxiliary contact
630	NDM2-630H/3300	NDM2-630/4300B		

注：表中可选功能如需订购请提前告知
Note: Please inform us in advance if you want to order the optional functions in the table

4、主要技术参数
4. Main Technical Parameters

电气特性：
Electrical characteristics:

- ▲ 额定工作电压 Ue：AC 400V/415V
  Rated working voltage Ue: AC 400V/415V
- ▲ 额定绝缘电压 Ui：690V
  Rated insulation voltage Ui: 690V
- ▲ 额定冲击耐受电压 Uimp: 8kV
  Rated impulse withstand voltage Uimp: 8kV
- ▲ 壳架等级额定电流 Inm：630A
  Rated current of frame Inm: 630 A
- ▲ 额定短路接通能力 Icm（峰值）：143kA
  Rated short circuit making capacity Icm (peak value): 143kA
- ▲ 额定短路分断能力 Icn：65kA
  Rated short-circuit breaking capacity Icn: 65kA

操作性能：
Operating performance:

- ▲ 通　电：6000 次
  With electricity: 6,000 times
- ▲ 不通电：10000 次
  Without electricity: 10,000 times
- ▲ 触头转换时间(S):≤2
  Contact switching time(S): ≤2
- ▲ 转换动作时间(S):≤3
  Switching action time(S): ≤3

5、正常工作环境
5. Normal Working Environment

- ▲ 海拔：≤2000m。
  Altitude: ≤2000m.
- ▲ 环境温度：-25℃~+70℃。
  Ambient temperature: -25℃~+70℃.

- ▲ 周围空气温度为 45℃，相对空气湿度≤95%，在较低温度下可以有较高的相对湿度，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 temperature is 45℃, the relative humidity of air is less than 95%, 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.
- ▲ 污染等级 3。
  Pollution level: 3.
- ▲ 最大倾斜度为 22.5°。
  The maximum gradient is 22.5°.
- ▲ 在无爆炸危险的介质中，且介质无足以腐蚀金属和破坏绝缘的气体与导电尘埃的地方。
  The product can be disposed in places that are free from explosive media, media corrosive to metal, insulation damaging gas, and conductive dust.
- ▲ 应安装在没有雨雪侵袭的地方。
  The product should be installed free from snow and rain.

5.1 温度变化降容系数

5.1 Temperature variation coefficient of capacity reduction

温度变化降容系数表

Derating Factor Table of Temperature Change

型号 Model	温度对应产品降容系数 Derating factor of product temperature change							
NDQ1-630	温度(℃) Temperature (℃)	40℃	45℃	50℃	55℃	60℃	65℃	70℃
	降容系数 Derating factor	1	0.979	0.958	0.937	0.915	0.893	0.871

5.2、海拔降容系数

5.2 Altitude Derating Factor

海拔降容系数表

Altitude Derating Factor Table

海拔高度(m) Altitude (m)	2000	2500	3000	3500	4000	4500	5000
工作电流修正系数 Correction factor of the working current	1	1	0.98	0.97	0.95	0.94	0.93
工频耐压(V) Power frequency withstand voltage (V)	2000	2000	1800	1800	1500	1500	1200
绝缘电压(V) Insulation voltage (V)	690	690	620	610	550	540	414

6.控制器操作使用说明
6. Operation and Use Instructions for the Controller
6.1 控制器面板（见图1）
Controller panel (see Figure 1)

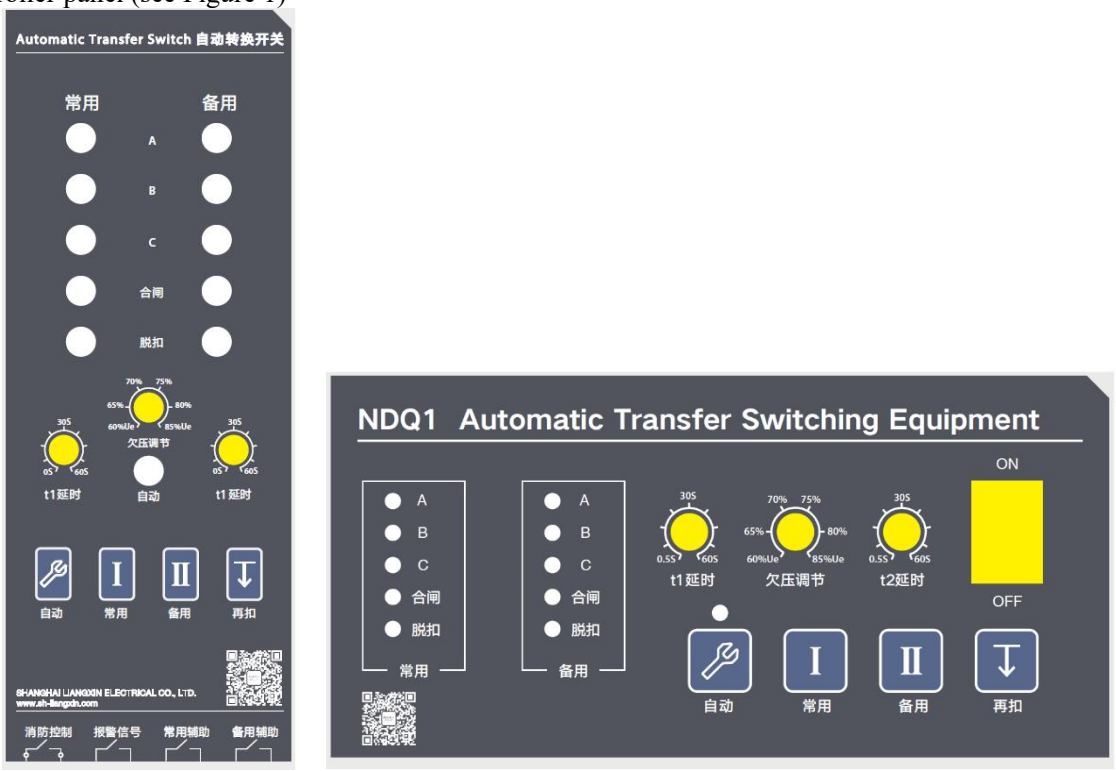


图1
Figure 1

6.1.1控制器输出端子接线说明
6.1.1 Wiring description of controller output terminal

A	B	1	2	3	4	5	6	7	8

1： A- B 为 485 通讯接口，仅分体控制器带通讯功能，整体式控制器只有 1-8 端，无通讯功能
1: A-B are 485 communication interfaces. Only the split-type controller has communication function, while the integral-type controller only has 1-8 ports, and no communication function.
2： 1 . 2 为消防控制端子，短接信号，恢复时需确认消防信号解除，在手动连续按手/自动键恢复。
2: 1, 2 are fire control terminals, shorting signal. To resume, you need to confirm that the fire signal is released and press the Manual/Automatic key continuously in the manual screen.
3： 3 . 4 为报警信号，备用电源故障时为闭合状态，R S 型有效，F 型无效
3: 3, 4 are an alarm signals, closed when the backup power supply fails. Type R, S are valid, Type F is invalid.
4： 5 . 6 在 R S 型中为常用辅助端子，F 型为发电控制（启动发电机）端子，无源节点。
4: 5, 6 are common auxiliary terminals and power generation control (starting generator) terminals respectively in Type R, S and Type F, passive node.
5: 7 . 8 在 R S 型中为备用辅助端子，F 型为卸载指令端子，无源节点。
5: 7, 8 are standby auxiliary terminals and uninstall instruction terminals respectively in Type R, S and Type F, passive node.

6.1.2指示灯功能说明（见表1）
6.1.2 Function description of indicators (see Table 1)
表1 控制器指示灯功能说明

Table 1 Function Description of Controller Indicators

名称 Name	说明 Description	功能 Function
电源指示 Power indicator	常用电源ABC三相 ABC three phases of the common power supply	正常：常亮 Normal: Constantly on 缺相：常灭 Default phase: Constantly off 过压：闪烁频率10Hz Overvoltage: Flashing frequency 10Hz 欠压：闪烁频率2Hz Undervoltage: Flashing frequency 2Hz
	备用电源ABC三相 ABC three phases of the standby power supply	
合闸指示 Closing indicator	常用电源合闸指示灯 Common power closing indicator	合闸：常亮 Closing: Constantly on 分闸：常灭 Opening: Constantly off 当开关出现转换故障或者位置反馈错误，常用、备用合闸灯同时10Hz闪烁 In case of a transfer fault or position feedback error for the switch, the common and standby closing indicators will flash at 10Hz
	备用电源合闸指示灯 Standby power closing indicator	
脱扣 Tripping	断路器脱扣状态指示灯 Tripping status indicator of the circuit breaker	脱扣：常亮 Tripping: Constantly on 合闸/分闸：常灭 Closing/opening: Constantly off
自动 Automatic	自动/手动指示灯 Automatic/manual indicator	自动方式：闪烁频率1Hz Automatic mode: Flashing frequency 1Hz 手动方式：常灭 Automatic mode: Constantly off

6.1.3按键功能说明（见表2）

6.1.3 Function description of keys (see Table 2)

表2 控制器按键功能说明

Table 2 Function Description of Controller Keys

名称 Name	说明 Description	功能 Function
自动/手动 Automatic/Manual	自动/手动方式选择 Automatic/manual mode selection	自动模式下，按下此键，变为手动方式，“自动/手动”指示灯常灭 By pressing the key, the automatic mode will become manual mode with the "Automatic/Manual" indicator constantly off 手动模式下，按下此键，变为自动方式，“自动/手动”指示灯闪烁频率1Hz By pressing the key, the automatic mode will become manual mode with the "Automatic/Manual" indicator blinks at 1Hz
常用	常用电源投入	手动状态，按下此键，开关切换至常用电源合闸位置

Common	Common power input	In manual mode, the switch transfers to the common power closing position by pressing the key 自动状态，此按键无效 In automatic mode, the key is invalid
备用 Standby	备用电源投入 Standby power input	手动状态，按下此键，开关切换至备用电源合闸位置 In manual mode, the switch transfers to the standby power closing position by pressing the key 自动状态，此按键无效 In automatic mode, the key is invalid
再扣 Re-tripping	断路器故障脱扣后再扣 Re-tripping of the circuit breaker after fault tripping	手动状态，按下此键，设备会切断负载电源，也可实现断路器故障脱扣后的再扣 In manual mode, press the key so that the equipment will cut off the load power supply for re-tripping of the circuit breaker after fault tripping 自动状态，此按键无效 In automatic mode, the key is invalid

6.1.4旋钮功能说明（见表3）
6.1.4 Function description of knobs (see Table 3)

表3 控制器旋钮功能说明
Table 3 Function Description of Controller Knobs

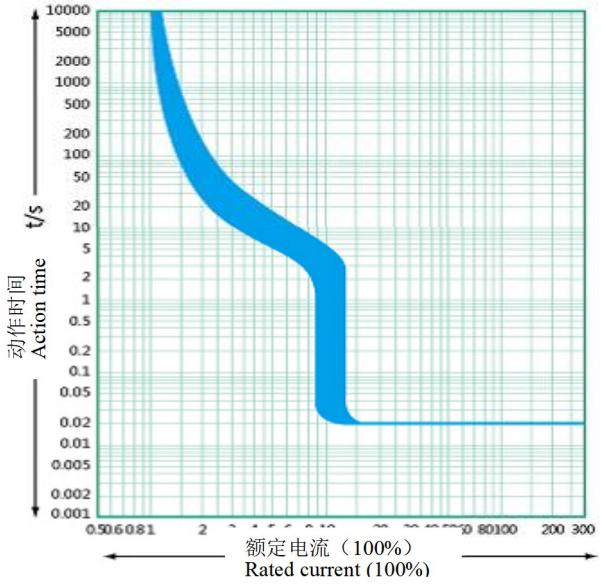
名称 Name	说明 Description	功能 Function
欠压调节 Under-voltage adjustment	调节欠压 Adjust the under-voltage 设定值 setting value	调节范围为60%Ue-85%Ue，连续可调，出厂默认值为85%Ue Adjustable range 60%Ue-85%Ue, continuously adjustable, with 85%Ue as the factory default value
t1延时 t1 delay	调节分闸 Adjust the tripping 延时时间 Delay time	调节范围0s-60s，连续可调，出厂默认值为0s Adjustable range 0s-60s, continuously adjustable, with 0s as the factory default value
t2延时 t2 delay	调节合闸 Adjust the closing 延时时间 Delay time	

注：
Notes:
从常用电源或者备用电源往断电位置切换定义为分闸动作（t1分闸延时），从断电位置往常用电源或备用电源切换定义为合闸动作（t2合闸延时）。
The tripping action (t1 tripping delay) is defined as switching from the common or the standby power supply

to the power-off position; the closing action (t2 closing delay) is defined as switching from the power-off position to the common or the standby power supply.

7、执行断路器短路过载保护特性曲线

7. Short-circuit Overload Protection Characteristic Curve of Circuit Breaker

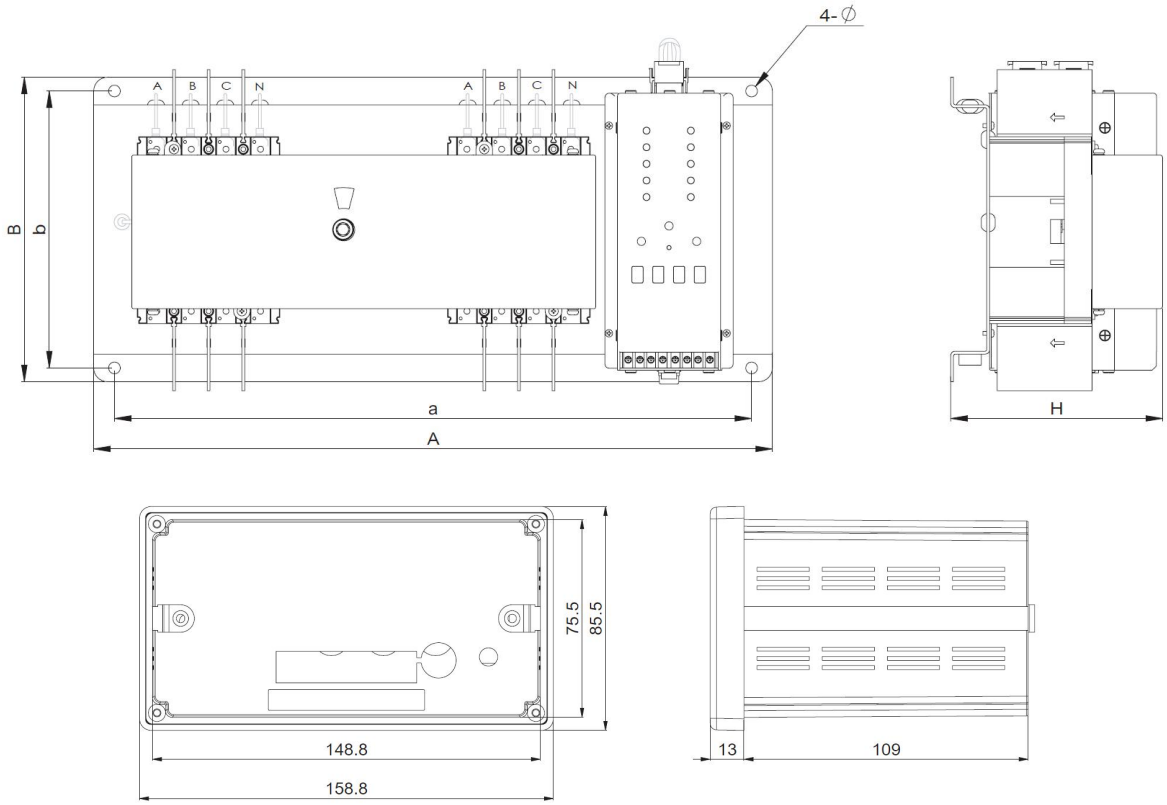


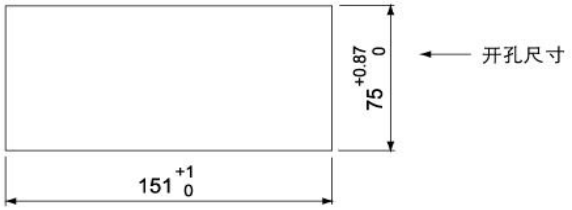
时间/电流特性曲线

Time/Current Characteristic Curve

8、产品外形及安装尺寸

8. Outline and Installation Dimensions





分体控制器
Split controller

型号 Model	外形尺寸 External dimensions					安装尺寸 Installation Dimension			
	A		B	H		a		b	Φ
	三极 3P	四极 4P		三极 3P	四极 4P	三极 3P	四极 4P		
NDQ1-630	780	850	340	226	226	740	810	310	10.5

注：未注公差尺寸的极限偏差按 GB/T 1804-v。
Note: The limit deviation not indicated with the tolerance dimensions is as per GB/T 1804-v.

8.1 接线端子螺钉拧紧扭力矩
8.1 Tightening torque of terminal screws

接线端子螺钉拧紧扭力矩
Tightening torque of terminal screws

型号 Model	螺纹直径(mm) Thread Diameter (mm)	扭力矩(N·m) Torque (N·m)
NDQ1-630	接线螺钉 M12 Terminal screw M12	28
	控制器二次端子螺钉 M3 Controller secondary terminal screw M3	1

4.1 连接母线或电缆的截面积选择：
4.1 Selection of the Connecting Bus or Cable Cross-section Area:

连接母线或电缆的截面积选择
Selection of cross-sectional area of connecting busbar or cable

额定电流(A) Rated current (A)	电缆线截面 Cable section		铜排尺寸 Copper bar size	
	数量 Quantity	截面积(mm^2) Cross-sectional area (mm^2)	数量 Quantity	截面积(mm^2) Cross-sectional area (mm^2)

400	1	240	/	/
500	2	150	2	30×5
630	2	185	2	40×5

9、安装方式
9. Installation Mode
可水平安装,也可竖直安装
To be installed horizontally or vertically

10、包装储存
10. Packaging and Storage
包装量 1 个/箱，包装成箱的产品，应在环境温度为-55℃～85℃，55℃对应相对湿度在 80%以下，周围空气中无酸性，碱性或其它腐蚀性气体的库房里贮存，在上述条件下，贮存期自生产日期不超过 18 个月。
Packaging quantity: 1 piece/box. The packaged products should be stored in a warehouse with the ambient temperature of -55℃~85℃ and the corresponding relative humidity below 80% without acidic, alkali or other corrosive gas in the surrounding air. Under the conditions above, the storage period shall be no more than 18 months since the manufacturing date.

11、**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。**
11. 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.

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/台 Quantity/Set
1	六角转动手柄 Hexagonal rotation handle	——	1