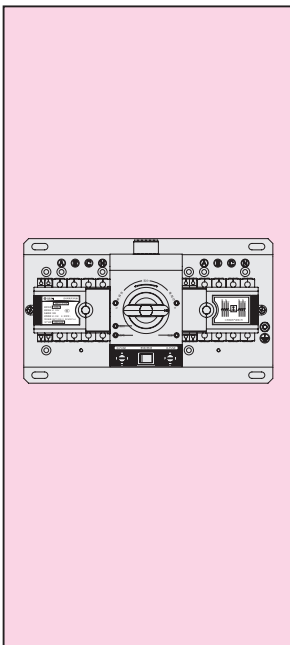


HNQ1 自动转换开关电器 使用说明书

Automatic Transfer Switching Equipment User Manual



触电危险!
Electric shock!

请一定要将此操作维护说明书交给最终的操作使用者!
Please make sure to hand this Manual to the final operator!

 伊顿辉能低压电器(江苏)有限公司
Eaton Huineng Low-Voltage Electrical (Jiangsu) Co., Ltd.

概述

Overview

HNQ1系列自动转换开关电器(以下简称ATSE)主要由两台小型断路器及双电源自动转换开关控制器等组成,适用于额定电压400V、50/60Hz,额定电流63A及以下的高层建筑、医院、商场、银行、消防、化工、冶金、军事设施等不允许断电的一类负荷,完成双回路供电系统的电源自动转换,从而保证重要用户供电的可靠性。本产品符合GB14048.11 IEC60947-6-1《低压开关设备和控制设备第6-1部分:多功能电器 转换开关电器》标准。

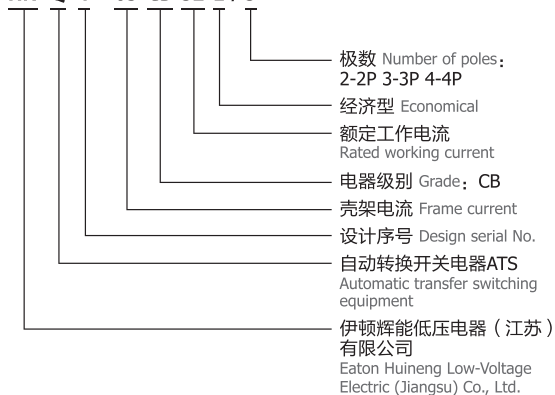
The HNQ1 series automatic transfer switching equipment (hereinafter referred to as ATSE) is mainly composed of two miniature circuit breakers and dual power automatic transfer switch controllers. It is suitable for Class I loads such as those used in high-rise buildings, hospitals, shopping malls, banks, fire protection, chemical engineering, metallurgy, military facilities, etc. with a rated voltage of 400V, 50/60Hz and a rated current of 63A and below, which are not allowed to be powered off. The equipment is able to complete the automatic power transfer of the dual circuit power supply system, thereby ensuring the reliability of power supply for important users.

This product conforms to Low-Voltage Switchgear and Controlgear-Part 6-1: Multiple Function Equipment-Transfer Switching Equipment (GB14048.11 IEC60947-6-1).

型号及其含义

Model and its meaning

HN Q 1 - 63 CB 32 E / 3



使用前有关事项

Relevant Matters before Use

在您收到订购的ATSE后,请开箱检查以下条款:

After you receive the ordered ATSE, please unpack and check the following terms:

- 检查ATSE外观是否完好,有无运输及人为造成的损坏。
Check whether the appearance of ATSE is in good condition, and whether there is transportation and man-made damage.
- 检查操作机构及执行断路器有无松动。
Check whether the operating mechanism and actuating circuit breaker are loose.

正常工作条件

Normal Operating Conditions

周围空气温度:上限不超过+40°C;下限值不低于-5°C;24h内的平均值不超过+35°C;

安装地点:安装地点的海拔高度不超过2000米;

大气条件:大气的相对湿度在周围空气温度为+40°C时不超过50%,在较低温度下可以有较高的相对湿度,最湿月的月平均最低温度为25°C时平均相对湿度为90%;并考虑到因温度变化发生在产品表面的凝露。

使用环境:ATSE应安装在无导电尘埃及无腐蚀性、无易爆、无易燃气体的干燥的环境中,应避免雨淋及进水,装置不能受到撞击和震动,其安装垂直斜度不超过5度,ATSE安装场所的外磁场,在任何方向不应超过地磁场的5倍。

Ambient air temperature: The temperature upper limit value shall not exceed +40°C; the lower limit value shall not be lower than -5°C; the average value shall not exceed +35°C within 24h;

Installation location: the altitude of the installation location shall not exceed 2000 meters;

Atmospheric conditions: the relative humidity of the atmosphere shall not exceed 50% when the ambient air temperature is +40°C, and may be higher at a lower temperature. The average relative humidity in the wettest month is 90% when the monthly average minimum temperature is 25°C; the condensation on the surface of the product due to temperature changes has been considered.

Use environment: ATSE should be installed in a dry environment without conductive dust, corrosive, explosive and flammable gases, and should be protected from rain and water. The device should not be impacted and vibrated. The vertical inclination of its installation should not exceed 5 degrees. The external magnetic field of the ATSE installation site should not exceed 5 times the geomagnetic field in any direction.

结构与特点

Structure and Characteristics

外观美观、质量可靠、寿命长、操作简单。

HNQ1系列ATSE由两台二极、三极或四极的小型断路器、机械联锁传动机构、控制器(单元)等组成。

其特点是:两台断路器之间具有可靠的机械联锁装置和电气联锁保护,彻底杜绝两台断路器同时合闸的可能性。

HNQ1具有短路、过载保护功能,缺相(常用)/停电(备用)转换功能。

Beautiful appearance, reliable quality, long service life and simple operation.

HNQ1 series ATSE is composed of two two-pole, three-pole or four-pole miniature circuit breakers, mechanical interlocking transmission mechanism, controller (unit), etc.

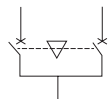
It is characterized by reliable mechanical interlocking device and electrical interlocking protection between the two circuit breakers, completely eliminating the possibility of simultaneous closing of the two circuit breakers.

HNQ1 has short-circuit and overload protection functions, and phase loss (common) / power failure (standby) conversion function.

特性

Features

- 电气符号:
Electrical symbols:



- 使用类别: AC-33IB
Category: AC-33IB

- 触头位置: 常用合 双分 备用合
Contact position: common closing, double opening and standby closing

- 转换动作时间: ≤2s
Switching action time: ≤2s

技术参数

Technical Parameters

型号 Model	HNQ1-63
符合标准 Standards	IEC60947-6-1 及 GB14048.11 IEC60947-6-1, GB14048.11
使用类别 Category	AC-33IB
电气级别 Grade	CB
执行断路器 Actuating circuit breaker	HN2-63
额定工作电压 U_e (V) Rated operating voltage U_e (V)	AC400V 50/60Hz
额定绝缘电压 U_i (V) Rated insulation voltage U_i (V)	AC690
额定工作电流 I_n (A) Rated working current I_n (A)	1、2、3、4、6、10、16、20、25、 32、40、50、63
极数 Number of poles	2P 3P 4P
额定短路分断能力 I_{cn} (kA) Rated short-circuit breaking capacity I_{cn} (kA)	5
额定短路接通能力 I_{cm} Rated short-circuit making capability I_{cm}	1.53 I_{cn}
操作性能 Operation performance	机械寿命(次) Mechanical life (time) 10000 电气寿命(次) Electrical life (times) 6000
污染等级 Class of pollution	3 Level 3
防护等级 Protection grade	IP20
正常工作条件 Normal working condition	环境温度 Ambient temperature -5°C ~ 40°C (24h的平均值≤35°C) -5°C ~ 40°C (average value in 24h≤35°C) 海拔(m) Altitude (m) ≤2000
最短转换动作时间(无延时) s Minimum switching action time (no delay) s	≤2
操作循环次数 /h Number of operation cycles (/h)	60
操作电流 A Operating current (A)	0.2
重量 kg Weight (kg)	3.5
安装 Installation	安装方式 Installation mode 螺栓固定 Bolt fixing 联接方式 Connection mode 板前接线 Wiring in front of the board
操作方式 Operation mode	手动、自动 Manual, automatic
转换模式 Conversion mode	电网-电网自投自复 Power grid-automatic switch and automatic reset ✓
消防双分 Fire fighting double opening	✓

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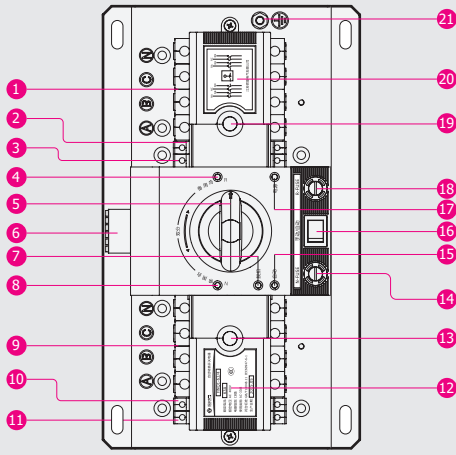


本手册采用生态纸印刷

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HNQ1结构

HNQ1 Structure



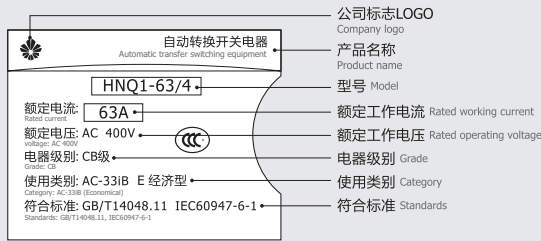
- | | |
|---|---|
| 1 备用小型断路器
Spare miniature circuit breaker | 12 左标牌 (参数标牌)
Left label (parameter label) |
| 2 备用报警触点
Spare alarm contact | 13 常用状态指示
Common state indication |
| 3 备用辅助触点
Spare auxiliary contact | 14 常用侧保险丝
Common side fuse |
| 4 备用合闸指示灯
Spare closing indicator light | 15 自动指示灯
Automatic indicator light |
| 5 转换手柄
Conversion handle | 16 手动/自动按钮
Manual/automatic button |
| 6 外接输出端子
External output terminal | 17 电源指示灯
Power indicator light |
| 7 脱扣指示灯
Tripping indicator light | 18 备用侧保险丝
Spare side fuse |
| 8 常用合闸指示灯
Common closing indicator light | 19 备用状态指示
Standby state indication |
| 9 常用小型断路器
Common miniature circuit breaker | 20 右标牌 (接线标牌)
Right label (wiring label) |
| 10 常用报警触点
Common alarm contact | 21 接地螺栓
Grounding bolt |
| 11 常用辅助触点
Common auxiliary contact | |

标牌及其含义

Labels and Their Meanings

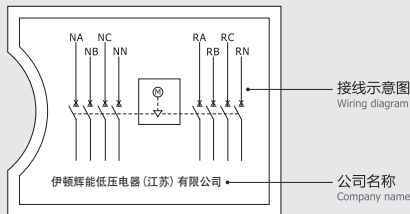
左标牌 (参数标牌)

Left label (parameter label)



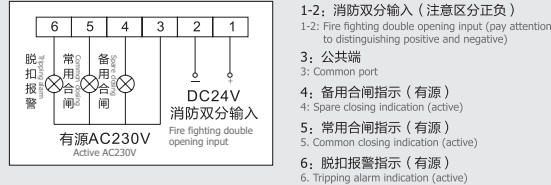
右标牌 (接线标牌)

Right label (wiring label)



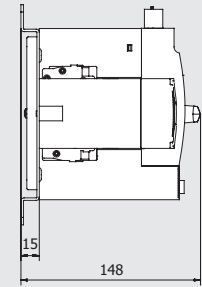
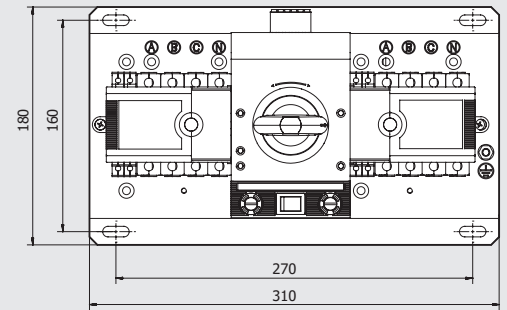
端子标牌

Terminal label



外形及安装尺寸

Overall and Installation Dimensions



HNQ1-63

接地螺栓 Grounding Bolt	安装螺栓 Mounting Bolt
M6	M6 或 M8 M6 or M8

工作模式

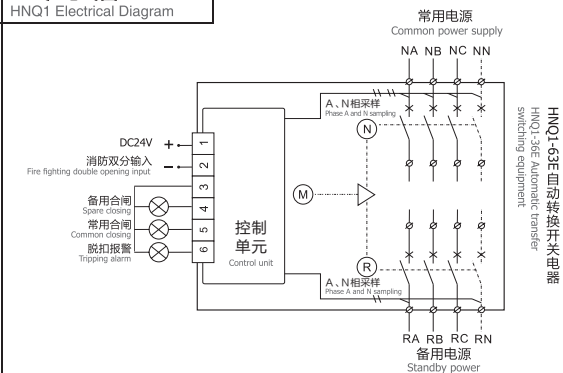
Mode of Operation

Mode of Operation

电网 - 电网自投自复 Power Grid - Automatic Switch and Automatic Reset		
常用电源N Common Power Supply N	备用电源R Standby Power Supply R	工作状态 Working Mode
正常 Normal	正常 Normal	常用电源 N 供电, Q_N 合, Q_R 分 Common power supply N supplies power, Q_N closes, Q_R opens
正常 Normal	异常 Normal	常用电源 N 供电, Q_N 合, Q_R 分 Common power supply N supplies power, Q_N closes, Q_R opens
异常 Normal	正常 Normal	经0.5s延时后 Q_N 分, Q_R 合, 备用电源R供电 After a delay of 0.5s, Q_N opens, Q_R closes, and the standby power supply R supplies power
恢复正常 Return to normal	正常 Normal	经0.5s延时后 Q_N 分, Q_N 合, 恢复常用电源N供电 After a delay of 0.5s, Q_N opens, Q_N closes, and the common power supply N supplies power
消防信号 (DC24V) Fire signal (DC24V)		Q_R 分, Q_N 分 Q_R opens, Q_N opens

HNQ1电气图

HNQ1 Electrical Diagram



- | | |
|----------------------|---|
| 1-2: 消防双分输入 (注意区分正负) | 1-2: Fire fighting double opening input (pay attention to distinguishing positive and negative) |
| 3: 公共端 | 3: Common port |
| 4: 备用合闸指示 (有源) | 4: Spare closing indication (active) |
| 5: 常用合闸指示 (有源) | 5: Common closing indication (active) |
| 6: 脱扣报警指示 (有源) | 6: Tripping alarm indication (active) |

故障及排除方法

Faults and Troubleshooting

Faults and Troubleshooting

HNQ1故障及排除方法当ATSE 发生负载短路或过载时, ATSE 的小型断路器会保护脱扣。如果电源显示正常, 负载端无电压, 则表示小型断路器已保护脱扣。此时应查明脱扣原因, 将控制器置于“手动”位置, 排除故障后, 则再将控制器置于“自动”位置。

在使用过程中, 用户若遇到以下一些简单故障, 可按以下相应方法排除:

HNQ1 fault and troubleshooting: when ATSE has load short circuit or overload, the small circuit breaker of ATSE will protect it from tripping. If the power display is normal and there is no voltage at the load end, it means that the miniature circuit breaker has protected it from tripping. At this time, find out the cause of tripping, put the controller in the "manual" position, and then put the controller in the "automatic" position after troubleshooting.

In the process of use, if the user encounters the following simple faults, they can be eliminated according to the following corresponding methods:

序号 S/N	故障现象 Faults	产生原因 Cause	排除方法 Troubleshooting
1	指示灯均不亮 The indicator lights are not on	小型断路器进线端的采样线未压紧 The sampling line at the incoming end of the miniature circuit breaker is not compacted	压紧采样线 Compact sampling line
2	指示灯显示正常, 但ATSE无法正常转换 The indicator light displays normally, but ATSE cannot convert normally	手动/自动开关不在自动位置 Manual/automatic switch is not in the "automatic" position	请将手动/自动开关切换到“自动”位置 Please switch the manual/automatic switch to the "automatic" position
3	开关在“自动”位置进线端均检测电源正常, 且不能正常转换 The switch is in the "automatic" position, it is detected that the power supply is normal at the incoming terminal, and it cannot be converted normally.	保险丝烧损 Fuse burnt	更换保险丝 Replace the fuse

注意事项

Notes

用户在进行各项调试或操作时, 还应该注意以下事项, 以确保正确安全使用我公司 ATSE:

Users should also pay attention to the following matters when carrying out various debugging or operations to ensure the correct and safe use of our ATSE:

- 安装时应注意两路电源的相序必须一致, 电压采样线必须牢固可靠, 中性线N不能接错且须接线可靠, 否则ATSE将不能正常工作, 甚至将烧毁控制器及电动操作机构。
During installation, it should be noted that the phase sequence of the two power supplies must be consistent. The voltage sampling line must be firm and reliable, the neutral line N must not be wrongly connected, and the wiring must be reliable. Otherwise, the ATSE will not work normally, and even burn the controller and electric operating mechanism.
- ATSE本体的保护接地线须可靠以确保安全。
The protective grounding of ATSE must be reliable to ensure safety.
- 工频耐压试验时不能对控制器进行耐压试验, 以免损坏内部线路。
During the power frequency voltage withstand test, the voltage withstand test cannot be carried out on the controller to avoid damaging the internal circuit.
- ATSE处于“自动”控制工作方式时, 禁止手动操作。
When ATSE is in "automatic" control mode, manual operation is prohibited.