

一、适用范围与用途 Application

NDB3-50&100 系列设备用断路器适用于额定电流至 100A、交流 50/60Hz、额定电压为 AC250/415V 和 DC80V 及以下的电气系统作线路的过载、短路保护，亦可作不频繁的接通和分断之用。广泛应用于计算机及其外围设备、工业自动化装置、电讯设备、通信电源等系统和 UPS 设备、铁路机车、船用电气系统、电梯控制系统及移动电源设备中。

NDB3 series circuit breaker for equipment is applied in electrical system, of which the rated current is up to 100A and the rated voltage is AC240/415V(50/60Hz) or up to DC80V, to protect the circuit against the overload current and short-circuit current. It is also can be used to make and break the circuit infrequently. The product is widely used in computer and its peripheral equipment, industrial automation devices, telecommunication equipments, power supply for telecommunication, UPS equipments, railway-engine, marine electrical systems, elevator control systems and mobile power equipments.

二、规格型号说明 Models and Implication

NDB 3-50 Z4 10/1 L L A1 A Q
1 2 3 4 5 6 7 8 9 10 11 12

| 序号 S/N | NDB3-50 | | | NDB3-100 | | |
|--------|---------------------------|--|---|---|--|--|
| 1 | 企业代号 Enterprise code | ND "Nader" 牌低压断路器 "Nader" brand | | | | |
| 2 | 产品代号 Product code | B 设备用断路器 Circuit Breaker for Equipment | | | | |
| 3 | 设计序号 Design code | 3 | | | | |
| 4 | 壳架等级 Frame rating | 50 | | 100 | | |
| 5 | 脱扣曲线代号 Tripping Curve | Z2 直流短延时 DC short delay Z4 直流中延时 DC medium delay Z6 直流长延时 DC long delay | J2 交流短延时 AC Short delay J4 交流中延时 AC Medium delay J6 交流长延时 AC Long delay | | | |
| 6 | 额定电流 (A) Rated Current | 1、2、3、4、5、6、8、10、12、15、16、20、24、25、30、35、40、45、50 | | 1、2、3、4、5、6、8、10、12、15、16、20、24、25、30、32、35、36、40、45、50、60、70、80、90、100 | | |
| 7 | 极数 poles | 1 1极 One-Pole 2 2极 Two-Pole 3 3极 Three-Pole | | | | |
| 8 | 安装方式代号 Mounting method | L 螺钉式安装 screw mounting Q 嵌入式安装 Snap-in mounting | | S 螺钉式安装 screw mounting | | |
| 9 | 接线方式代号 Wiring Method | L 螺钉式端子 screw wiring H 快速连接片式端子 C 插入式接线柱端子 F 上翻接线片螺钉端子 Screw-in with upturned lug type | | S 螺栓式接线 Stud type C 插入式接线 Push-in type | | |

| | | | |
|---|---|---|--|
| 10 | 操作方式代号 Actuator type | S1 黑色长手柄, 白字: ON/OFF, 带电流规格 Black long handle, white marked ON/OFF and current | S1 黑色长手柄, 白字: ON/OFF, 带电流规格 Black long handle, white marked ON/OFF and current |
| | | S2 黑色长手柄, 白字: ON/OFF, I/O, 带电流规格 Black long handle, white marked ON/OFF/I/O and current | S2 黑色长手柄, 白字: ON/OFF, I/O, 带电流规格 Black long handle, white marked ON/OFF/I/O and current |
| | | S3 白色长手柄, 黑字: ON/OFF, 带电流规格 White long handle, black marked ON/OFF and current | S3 白色长手柄, 黑字: ON/OFF, 带电流规格 White long handle, black marked ON/OFF and current |
| | | S4 白色长手柄, 黑字: ON/OFF, I/O, 带电流规格 White long handle, black marked ON/OFF/I/O and current | S4 白色长手柄, 黑字: ON/OFF, I/O, 带电流规格 White long handle, black marked ON/OFF/I/O and current |
| | | D1 黑色短手柄, 白字: ON/OFF, 带电流规格 Black short handle, white marked ON/OFF and current | D1 黑色短手柄, 白字: ON/OFF, 带电流规格 Black short handle, white marked ON/OFF and current |
| | | D2 黑色短手柄, 白字: ON/OFF, I/O, 带电流规格 Black short handle, white marked ON/OFF/I/O and current | D2 黑色短手柄, 白字: ON/OFF, I/O, 带电流规格 Black short handle, white marked ON/OFF/I/O and current, vertic legend |
| | | D3 白色短手柄, 黑字: ON/OFF, 带电流规格 White short handle, black marked ON/OFF and current | D3 白色短手柄, 黑字: ON/OFF, 带电流规格 White short handle, black marked ON/OFF and current, horizontal legend |
| | | D4 白色短手柄, 黑字: ON/OFF, I/O, 带电流规格 White short handle, black marked ON/OFF/I/O and current | D4 白色短手柄, 黑字: ON/OFF, I/O, 带电流规格 White short handle, black marked ON/OFF/I/O and current, vertic legend |
| | | Y1 单色按钮, 垂直白字: ON/OFF, I/O, 带电流规格 Black rock, white marked ON/OFF I/O and current, vertic legend | Y1 单色按钮, 垂直白字: ON/OFF, I/O, 带电流规格 Black rock, white marked ON/OFF I/O and current, horizontal legend |
| | | Y2 单色按钮, 水平白字: ON/OFF, I/O, 带电流规格 Black rock, white marked ON/OFF I/O and current, horizontal legend | Y2 单色按钮, 水平白字: ON/OFF, I/O, 带电流规格 Black rock, white marked ON/OFF I/O and current, horizontal legend |
| Y3 单色按钮, 垂直白字: ON/OFF, I/O, 带电流规格 Black rock, white marked ON/OFF I/O, vertic legend | Y3 单色按钮, 垂直白字: ON/OFF, I/O, 带电流规格 Black rock, white marked ON/OFF I/O, vertic legend | | |
| Y4 单色按钮, 水平白字: ON/OFF, I/O, 带电流规格 Black rock, white marked ON/OFF I/O, horizontal legend | Y4 单色按钮, 水平白字: ON/OFF, I/O, 带电流规格 Black rock, white marked ON/OFF I/O, horizontal legend | | |
| 11 | 操作器数量 Number of actuator | A 每极 1 个 One per pole B 每多极 1 个 One per multipole unit | |
| 12 | 附件代号 Accessories | 0 无附件 Without accessories 1 带辅助触头 With auxiliary acontact | |

注:

- 对于操作方式为 Y 的产品, 多级产品的操作器数量类型只有 B 型; 对于操作方式为 D 的产品, 无多极产品。
- 对于操作器数量类型为 B 型的多级产品, 2 级的操作器在左侧一极上, 3 级的操作器在中间一极上, 辅助触头均在最左侧的一极上。
- 只有壳架电流为 50A 的产品有 Q 型安装方式, 且 Q 型安装方式的产品没有 Y 型的操作方式。
- 表中所列型号为常规型号, 该产品可以按照用户的要求变更脱扣曲线、电流规格等, 变更后的型号为特工型号, 不在上表所列范围内。

Note:

- For "Y" actuator type product, only "B" type is available for multi-pole circuit breaker. For "D" actuator type, we don't have multi-pole circuit breaker.
- For the product with "B" type actuator, the actuator is installed on the left pole of two-pole circuit breaker. And on the middle pole of triple-pole circuit breaker. And the auxiliary switch is always installed on the leftmost pole of the product.
- "Q" mounting type is only available for NDB3-50 series product at present and "Y" type actuator is not available for the products with "Q" mounting type.
- Above table lists are common types. The tripping curve, rated current, etc. can be made according to the client's requirement. Special type will be made for those products which are made according to client's requirement and won't be listed in this table.

三、正常使用、安装及运输条件 Normal condition for operation and transportation

环境温度: $-40^{\circ}\text{C} \sim +85^{\circ}\text{C}$
 Ambient temperature: $-40^{\circ}\text{C} \sim +85^{\circ}\text{C}$
 空气相对湿度: $\leq 95\%$
 Relative humidity: $\leq 95\%$
 海拔: $\leq 2000\text{m}$
 Altitude: $\leq 2000\text{m}$
 无雨雪侵袭的地方
 Place without attack of rain and snow

四、主要技术参数

额定工作电压: AC230/400V (50/60Hz), DC80V
 Rated voltage: AC230/400V (50/60Hz), DC80V
 机械电气寿命: 10000次 (其中电气寿命6000次)
 Mechanical and electrical endurance: 10000(include electrical endurance:6000)
 辅助触头参数: AC250V 5A
 Parameters of auxiliary contact: AC250V 5A

断路器的脱扣特性:

Tripping characteristic

| 脱扣曲线 Tripping curve | 脱扣时间 Tripping time (s) | I _n | 额定电流的百分比 % of rated current | | | |
|------------------------|---------------------------|----------------|--------------------------------|-----------------|-----------------|------------------|
| | | | 1.25I _n | 2I _n | 5I _n | 10I _n |
| Z2 | 无脱扣 No tripping | 不动作 | 0.5~6.5 | 0.13~1.2 | 0.011~0.12 | 0.004~0.06 |
| Z4 | | | 2~60 | 0.6~20 | 0.011~1.3 | 0.004~0.1 |
| Z6 | | | 45~345 | 9~60 | 0.15~5.8 | 0.005~1.7 |
| J2 | | | 0.7~12 | 0.13~1.3 | 0.008~0.13 | 0.004~0.005 |
| J4 | | | 10~160 | 2.2~20 | 0.02~1.3 | 0.005~0.065 |
| J6 | | | 50~700 | 10~90 | 0.1~7 | 0.006~2 |

五、主要结构特点

采用了液压电磁脱扣装置, 使过流脱扣和短路脱扣一体化;

Adopting hydraulic-magnetic trip mechanism makes it capable of protecting the circuit against both the

overload and short circuit current.

脱扣性能只决定于流过线圈电流产生的磁通量, 受环境温度变化影响小, 故可不考虑因温度高而降容;

Tripping characteristic depends much on the magnetic energy and less on temperature. Temperature change may not be considered when choosing specification.

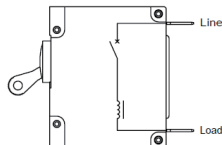
断路器没有热元件, 不需要冷却时间, 只要故障电流消失, 就可立即再闭合;

The breaker can close immediately when the abnormal current disappears as it has no thermal elements.

断路器的动静触头开距大 (NDB3-50 不小于 8.5mm, NDB3-100 不小于 10mm), 外壳用绝缘性能优良的材料制成, 也可用于安全开关隔离器。

When long distance between the fixed and moving contacts (NDB3-50: not less than 8.5mm, NDB3-100:

六、接线图 Wiring diagram



七、接线能力 Wiring diagram

NDB3-50: 10mm² 及以下导线

NDB3-50: 10mm² and below conducting wire

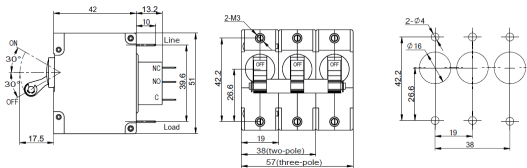
NDB3-100: 35mm² 及以下导线

NDB3-50: 35mm² and below conducting wire

八、外形、安装尺寸及接线方式 Outline, installation dimensions and connection type

(1) NDB3-50

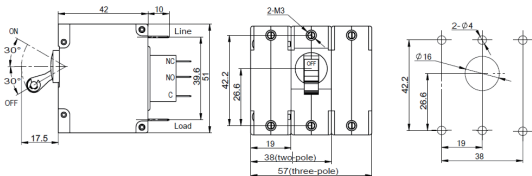
a) NDB3-50 XX/XLX1A1 (长手柄式, 螺钉安装 Long handle actuator and screw mounting)



外形尺寸图
outline dimensions

安装尺寸图
panel cutout dimensions

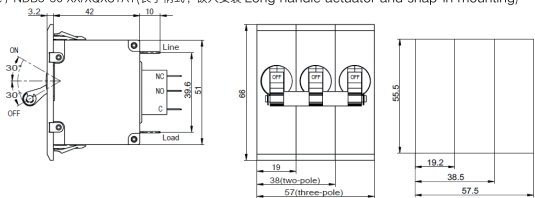
b) NDB3-50 XX/XLXS1B1 (长手柄、螺钉安装 Long handle actuator and screw mounting)



外形尺寸图
outline dimensions

安装尺寸图
panel cutout dimensions

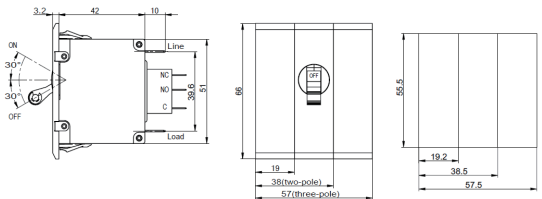
c) NDB3-50 XX/XQXS1A1 (长手柄式、嵌入安装 Long handle actuator and snap-in mounting)



外形尺寸图
outline dimensions

安装尺寸图
panel cutout dimensions

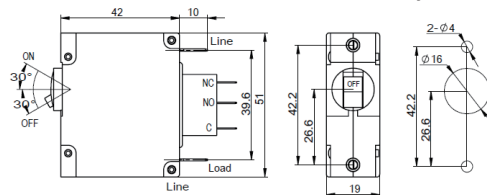
d) NDB3-50 XX/XQXS1B1 (长手柄式、嵌入安装 Long handle actuator and snap-in mounting)



外形尺寸图
outline dimensions

安装尺寸图
panel cutout dimensions

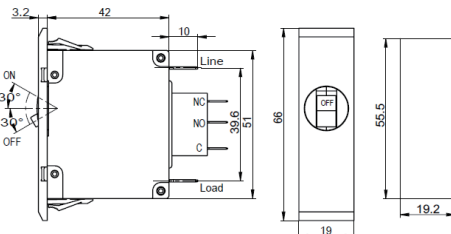
e) NDB3-50 XX/1LXD1A1 (短手柄式、螺钉安装 Short handle actuator and screw mounting)



外形尺寸图
outline dimensions

安装尺寸图
panel cutout dimensions

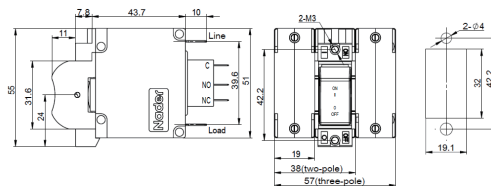
f) NDB3-50 XX/1QX1A1 (短手柄式、嵌入安装 Short handle actuator and snap-in mounting)



外形尺寸图
outline dimensions

安装尺寸图
panel cutout dimensions

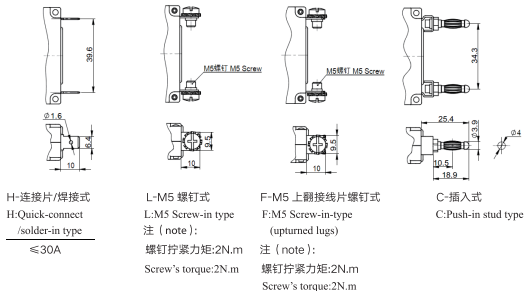
g) NDB3-50 XX/XYL3B1 (摇臂式、螺钉安装 Rocker actuator and screw mounting)



外形尺寸图
outline dimensions

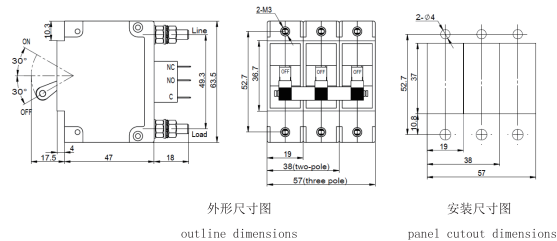
安装尺寸图
panel cutout dimensions

h) 端子类型与尺寸图 Terminal type and dimensions

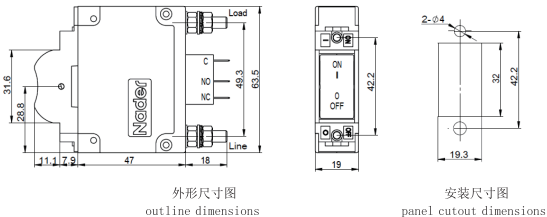


(2) NDB3-100

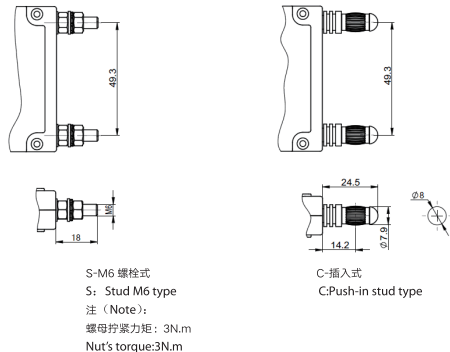
a) NDB3-100 XX/XLXS1A1 (手柄式, 螺钉安装 Handle actuator and screw mounting)



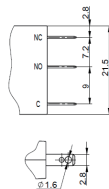
b) NDB3-100 XX/1LXY3A1 (插键式, 螺钉安装 Rocker actuator and screw mounting)



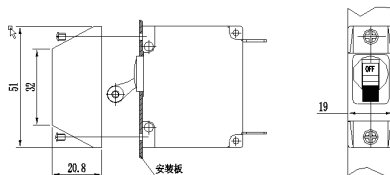
c) 端子类型与尺寸图 Terminal type and dimensions



(3) 辅助触头端子图 Terminal of auxiliary contact dimensions



九、NDB3-50 产品+防护罩 NZ1 图 Diagram of NDB3-50 with guard NZ1



十、安装、使用及维护

用户在产品正常的安装、使用及检验条件下，从制造厂发货起3年内，产品由于质量原因而发生损坏或不能正常工作的情况，制造厂无做为为用户更换。

Replace the quality defective or abnormal working products for free in 3 years since delivery when the products are in the right way of mounting, using and inspecting.

十一、注意

- a. 因私自拆开产品而引起的质量问题，责任自负；
- b. 在工作通电状态下，手请勿触及断路器非绝缘件裸露部分；
- c. 请不要随意对断路器的特性进行调节，由此引起的产品质量问题厂方不予负责；
- d. 接线必须可靠，防止因接线端异常发热引起断路器误动作或造成接线端烧损；
- e. 为了安装方便，对于操动器数量为A型的NDB3-50两极、三级螺钉式安装产品的手柄连接轴套为散装发送，请在产品安装后，将轴和黑色套筒穿在手柄上，卡上两端的挡圈即可；
- f. 带防护罩的产品安装，应该先将产品嵌入安装板，然后再放置好防护罩，用螺钉固定好；
- g. 产品安装时，螺钉的扭紧力矩为0.5N.m。
 - a. The manufacture takes no responsibility for problems occurred by disassembly private.
 - b. Attention to live part when the breaker is electrical and avoid toching them.
 - c. The manufacture takes no responsibility for problems occurred by adjusting products' characters privately.
 - d. Please make sure reliable connection to avoid fault tripping or damage of terminal caused by exceptional heat resulting from unsuitable connection.
 - e. For screw mounting two-pole or three-pole NDB3 series circuit breaker with A type actuator, each pole circuit breaker shall be installed first. Then insert axis into handles. Finally fasten two split washers.
 - f. When installing the circuit breaker with guard, please place the circuit breaker with the installation panel first, When fix the guard, installation panel and circuit breaker with screws.
 - g. The fasten torque of screw is 0.5N.m.