

Shanghai Liangxin Electric Co., Ltd.

# NDC1-4000~4500 AC Contactor

## Product Specification

(IPD-ENG-DEV-T20 A2 2023-03-14)

|             |                |      |            |
|-------------|----------------|------|------------|
| Compilation | Meng Xianglong | Date | 2025.12.11 |
| Review      | Lu Xiao        | Date | 2025.12.11 |
| Countersign | Xing Zhichao   | Date | 2025.12.11 |
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| Approval    | Cui Xiaoming   | Date | 2025.12.11 |

**Revision Record**

| Revision | Content of Revision | Date       | Compiler          | Reviewer | Approval        |
|----------|---------------------|------------|-------------------|----------|-----------------|
| 0        | Newly added         | 2025.12.11 | Meng<br>Xianglong | Lu Xiao  | Cui<br>Xiaoming |
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## 1 Application

The NDC1-4000~4500 AC contactors (hereinafter referred to as contactors) have the AC 50Hz (or 60Hz) and the rated insulation voltage of 1140V, and the Conventional free air thermal current of 4000A(0℃-40℃) or 4500A(0℃-40℃) as well as the AC-1 utilization category for remotely connecting and breaking the circuit.

## 2 Outline sketch of the contactor (only for reference)

NDC1-4000



NDC1-4500



## 3 Model implications of the contactor

|    |   |   |   |      |              |   |            |
|----|---|---|---|------|--------------|---|------------|
| ND | C | 1 | - | 4000 | 220V 50/60Hz | + | F1-22DS/C1 |
| 1  | 2 | 3 |   | 4    | 5            |   | 6          |

|   |                        |                                                                                   |
|---|------------------------|-----------------------------------------------------------------------------------|
| 1 | Enterprise code        | “ <b>Nader</b> ” brand low-voltage electrical appliance                           |
| 2 | Product code           | AC Contactor                                                                      |
| 3 | Design code            | 1                                                                                 |
| 4 | Rated current          | Conventional free air thermal current under the AC-1 category and voltage of 690V |
| 5 | Voltage specifications | Refer to 4.2 for the detailed optional voltage specifications                     |
| 6 | Optional accessories   | Refer to 10.1 for details                                                         |

## 4 Technical parameter

### 4.1 Main contacts characteristics

| Specification                                                                                    |                         |          | NDC1-4000        | NDC1-4500        |
|--------------------------------------------------------------------------------------------------|-------------------------|----------|------------------|------------------|
| Rated voltage Ue /V                                                                              |                         |          | 690 1000 1140    | 690 1000 1140    |
| Rated insulation voltage Ui /V                                                                   |                         |          | 1250             | 1250             |
| Impulse withstand voltage Uimp /kV                                                               |                         |          | 12               | 12               |
| Rated crent Ie /A                                                                                | AC-1                    | 1000V    | 4000             | 4500             |
| Rated breaking capacity A (40℃, AC1140V)                                                         |                         |          | 1700             | 1700             |
| Short time withstand current (starting from the cold state, θ ≤40℃, nocurrent 60 minutes before) | 1s                      |          | 13000            | 13000            |
|                                                                                                  | 10s                     |          | 12000            | 12000            |
|                                                                                                  | 30s                     |          | 10000            | 10000            |
|                                                                                                  | 1min                    |          | 8000             | 8000             |
|                                                                                                  | 3min                    |          | 6000             | 6000             |
| Mechanical life                                                                                  | Mechanical life         |          | 15×104           | 15×104           |
|                                                                                                  | Operating frequency h-1 |          | ≤600             | ≤600             |
| Electrical life (AC-1, AC300A)                                                                   | Mechanical life         |          | 5×104            | 5×104            |
|                                                                                                  | Operating frequency h-1 |          | ≤150             | ≤150             |
| Average impedance of each pole (mΩ )                                                             |                         |          | 0.05             | 0.05             |
| auxiliary contact                                                                                |                         |          | F1-22、NF1、NS1、G1 | F1-22、NF1、NS1、G1 |
| Main circuit connection capacity                                                                 | Copper bar              | number   | 6                | 6                |
|                                                                                                  |                         | size /mm | 100×10           | 100×10           |
|                                                                                                  | Tightening torqueN.m    |          | 58               | 58               |
| Impact resistance 1/2 sine wave =11ms                                                            | contactor opened (gn)   |          | 6                | 6                |
|                                                                                                  | contactor closed (gn)   |          | 10               | 10               |
| Anti-vibration performance 8•••300 Hz                                                            | contactor opened (gn)   |          | 2                | 2                |
|                                                                                                  | contactor closed (gn)   |          | 4                | 4                |

### 4.2 Coil control circuit characteristics

|                                     |                                |                |                                 |
|-------------------------------------|--------------------------------|----------------|---------------------------------|
| Model                               |                                |                | NDC1-4000、NDC1-4500             |
| Rated control voltage $U_c$ /V      |                                |                | AC: 220-230<br>DC: 220-230      |
| Pull-in voltage range               |                                |                | 85% $U_{cmin}$ ~110% $U_{cmax}$ |
| Discharge voltage range             |                                |                | 20% $U_{cmin}$ ~75% $U_{cmin}$  |
| AC coil                             | Pull-in time /ms               |                | 50~100                          |
|                                     | Discharge time/ms              |                | 90~150                          |
|                                     | Pull-in power consumption /VA  |                | $\leq 4500$                     |
|                                     | Retention power consumption/VA |                | $\leq 80$                       |
| Control circuit connection capacity | Cord/mm <sup>2</sup>           | 1piece/2pieces | 2.5                             |
|                                     | Hard wire /mm <sup>2</sup>     | 1piece         | 4                               |
|                                     | Tightening torque /N.m         |                | 0.8-1.2                         |

Note: 1. coil pull-in time: refers to the time from the minute the coil gets electricity to the time the main circuit closes.

2. coil discharge time: refers to the time from the minute the coil loses electricity to the time the main circuit disconnects.

## 5 Working condition

High temperature or high altitude environment capacity reduction,

| AC-1 Temperature drop capacity coefficient<br>Elevation≤3000m |                              |                              |
|---------------------------------------------------------------|------------------------------|------------------------------|
| Temperature                                                   | Voltage capacity coefficient | Current capacity coefficient |
| ≤40℃                                                          | 1                            | 1                            |
| ≤50℃                                                          | 1                            | 0.9                          |
| ≤60℃                                                          | 1                            | 0.85                         |
| ≤70℃                                                          | 1                            | 0.72                         |

| Elevation drop capacity coefficient<br>(temperature≤40℃) |                              |                              |
|----------------------------------------------------------|------------------------------|------------------------------|
| Elevation(meter)                                         | Voltage capacity coefficient | Current capacity coefficient |
| 3000                                                     | 1                            | 1                            |
| 4000                                                     | 0.8                          | 0.9                          |
| 5000                                                     | 0.6                          | 0.86                         |
| >5000                                                    | 不允许                          | 不允许                          |

Note: 1. When the NDC1-4000~4500 operates at the extreme temperature, the coil is required to be operated under the rated voltage, and the average temperature within 24 hours shall not be higher than 35℃;

2. Parallel main pole increases working current, multiply the current value by the following factors, which mainly consider the unbalanced current between different main poles

-2-pole parallel connection:  $K=1.6$

-3-pole parallel connection:  $K=2.25$

-4-pole parallel connection:  $K=2.8$

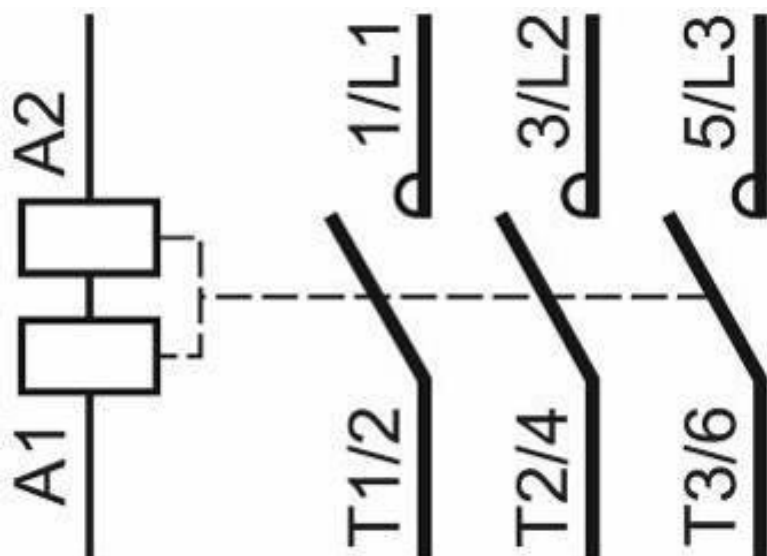
## 6 Pollution degree

Pollution degree III

### 6.1 Protection degree

Protection degree IP00, no special protection for external people and objects; no special protection for water or moisture.

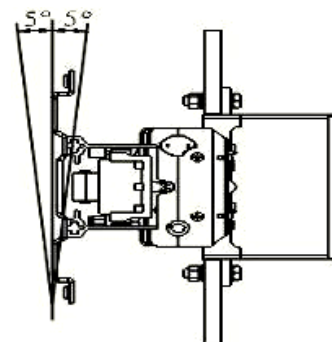
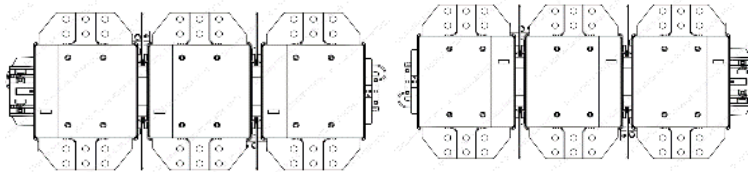
## 7 Wiring diagram





## 9 Installation Mode

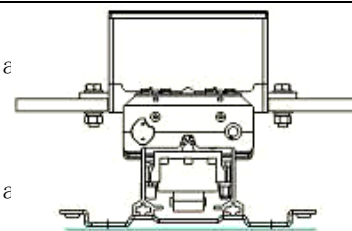
The produce is installed vertically, and the  
Inclination between the Inclinationsurface  
And the vertical surface  $\leq \pm 5^\circ$



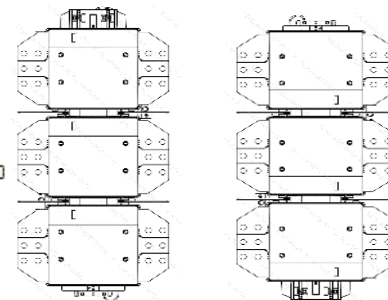
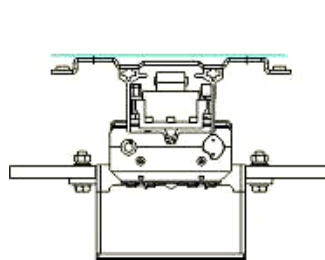
Please contact us for the use.

Note: The following derating factors apply for horizontal insta  
0.75, release voltage 0.9,  
working current 0.8.

In this mode of use, the making and breaking capacity as well a  
mechanical life cannot be guaranteed.



this mode of use prohibited



## 10 Packaging and Storage

Each set of assembled product is packed in a case, which should be stored in a warehouse with the  
air ventilation and the temperature between  $-60^\circ\text{C}$  and  $+80^\circ\text{C}$ . No acidic alkaline or other corrosive gas  
exists in the ambient air in the warehouse.

## 11 Environmental Compliance

The product complies with RoHS2.0.

## 12 Accessories

### 12.1 List of Accessories

Instantaneous auxiliary contact modules: NF1 series, F1-22DS/C1, NF1/S series

Time-delay auxiliary contact modules: NS1

Surge modules: G1

### 12.2 Optional Accessories

Instantaneous auxiliary contact modules: NF1 series, F1-22DS/C1, NF1/S series

Time-delay auxiliary contact modules: NS1

Surge modules: G1

### 12.3 Accessory Parameters

Parameters of F1-22DS/C1 auxiliary contacts:

|                                                     |                                    |                                          |
|-----------------------------------------------------|------------------------------------|------------------------------------------|
| Impulse withstand voltage $U_{imp}$                 |                                    | NC:6kV; NO:2.5 kV                        |
| Rated insulation voltage $U_i$                      |                                    | NC: 690V; NO: 250V                       |
| Contact type                                        |                                    | 2NO+2NC                                  |
| Agreed thermal current $I_{th}$ ( $\leq 60^\circ$ ) |                                    | NC:10A; NO:0.1A                          |
| Minimum connected load                              |                                    | NC: DC 17V/5mA;<br>NO:DC 5V/1mA          |
| Protection class                                    | NC                                 | IP20                                     |
|                                                     | NO                                 | IP67                                     |
| NC                                                  | AC-15                              | 380V~, 0.95A<br>480V~, 0.5A              |
|                                                     | DC-13                              | 220V-, 0.15A                             |
| NO                                                  | DC-12                              | 30V-, 0.1A                               |
|                                                     | AC-12                              | 125V~, 0.1A                              |
| Life                                                | Mechanical life, maximum frequency | 400,000 times,3600 times·h <sup>-1</sup> |
|                                                     | Electrical life, maximum frequency | 100,000 times,1200 times·h <sup>-1</sup> |
| Wiring tightening torque                            | cord: 1 piece/2 pieces             | 1 ~ 2.5mm <sup>2</sup>                   |
|                                                     | Hard wire: 1 piece/2 pieces        | 1 ~ 4.0mm <sup>2</sup>                   |
|                                                     | Tightening torque                  | 0.8~1.2N.m                               |

### 12.4 Accessory Installation Mode

A complete machine has two top-hung installation positions, and can optionally be equipped with two auxiliary modules of F1-22DS/C1

The selected accessories, after installation, shall not exceed the maximum overall dimension of the contactor.

## 13 Use and Maintenance

Storage: -60℃~+80℃;

Climatic resistance: Category B (GB 14048.4 Appendix Q), temperature range -40℃~+60℃;

Maximum allowable humidity is 95%, and there shall be no condensation in the working environment;

The product complies with GB/T2423.4 Alternating Damp Heat, at a temperature of 40℃ and a relative humidity of 95%.

## 14 Precautions

1) The product shall be installed vertically, i.e., the installation surface is perpendicular to the

horizontal plane, with an inclination not exceeding  $\pm 5^\circ$  ;

2) The main circuit wiring bolts shall be tightened according to the required torque. After tightening, it is recommended to mark the relative position of the bolts (e.g., mark with dark paint);

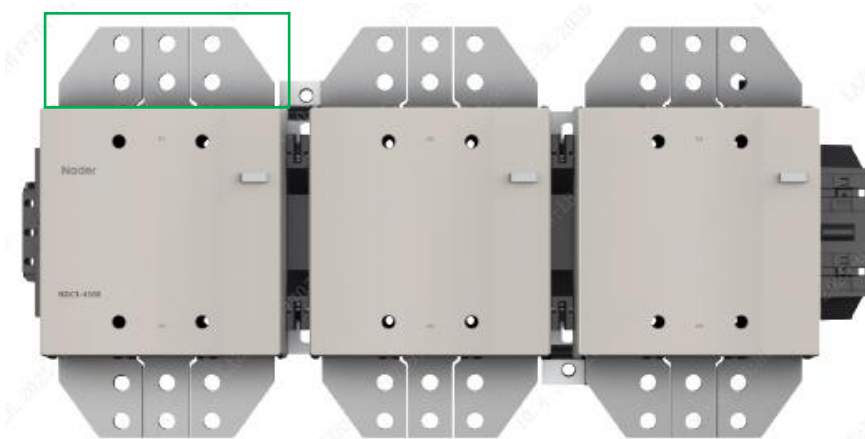
3) The wiring shall be reliable to prevent burning of the terminals due to abnormal heating at the terminals, and regular maintenance shall be carried out;

4) If there are factors such as dust in the use environment that may adversely affect the contacts and cause unreliable contact connection, the contacts shall be cleaned and maintained regularly according to on-site conditions;

5) The busbars of the product are equipped with insulating sleeves, which shall be removed before wiring, and the wiring shall be completed within 12 hours after the sleeves are removed.

6) If the product is not used, do not remove the plastic bag.

7) The single-phase (three parallel branches) is in the green box. When using it, it should be used as single-phase. It is prohibited to connect only one parallel branch. The three-phase A, B, and C are completely the same in design. Users can choose the order of three-phase A, B, and C according to their actual needs.



## 15 Ordering Specifications

The following information shall be provided when ordering:

Complete model specification and order quantity.

If accessories are selected, they shall be added after the main model specification with "+".

For example: NDC1-4000 220V 50/60Hz+F1-22, 10 units.

The product delivery list includes the following information:

Product main unit × 1

One set of accessory package mounting screws For NDC1-4000 products:

Product main unit × 1, main circuit wiring screws × 36 sets, grounding screws × 1 set.

interphase insulation partitions × 4

If optional accessories are included, the accessories will be installed on the contactor main unit by default.

Each set of main circuit wiring bolts includes: 1 bolt, 2 disc washers, 1 nut.

Each set of grounding bolts includes: 1 bolt, 1 disc washer.