Shanghai Liangxin Electrical Co., Ltd.

# Product Specification of NDC5K Series Contactors

(IPD-ENG-DEV-T20 A0 2014-04-01)

Product name: Vacuum contactor

Product model: NDC5K-630(H)~1700R/(H)

Date: April 30, 2020

| | | | |
|---|---|---|---|
| Prepared by | Li Dapeng | Date | 2020-04-30 |
| Reviewed by | Pan Wanling | Date | 2020-04-30 |
| Approved by | Cui Xiaoming | Date | 2020-04-30 |

| Revision History | | | | | |
|---|---|---|---|---|---|
| Version | Revision Reason/Content | Implementation Date | Prepared by | Reviewed by | Approved by |
| A0 | New addition | 2016.7.11 | Ran Yong | Wang Xingfeng | Gu Jianming |
| A1 | Correct the Mechanical life | 2016.9.2 | Ran Yong | Wang Xingfeng | Gu Jianming |
| A2 | Correct the Rated control voltage Uc | 2016.10.20 | Ran Yong | Luo Guorui | Gu Jianming |
| A2 | Add AC 50Hz(or 60Hz)<br>Add Product certificate and Product certification standard | 2020.04.30 | Li Dapeng | Pan Wanling | Cui Xiaoming |
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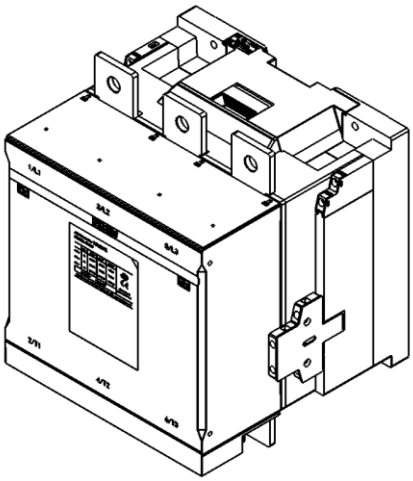
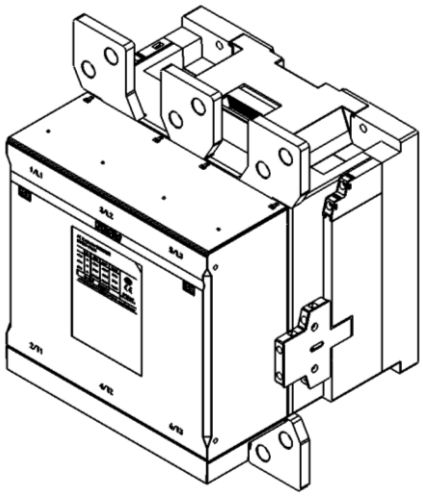
## 1. Applicable Scope and Purpose

This product is mainly used in the photovoltaic and wind power industry.It is used in AC 50Hz(or 60Hz) circuit，for remote connecting and breaking of the circuit of 50Hz（or 60Hz）. The contactor can also be used in the industrial control sector for remote connecting & breaking, and frequently starting & controlling AC motors, which can control the inverse operation or reverse brake of the AC motors.

## 2. Picture of the Product



NDC5K-630（H），800（H）



NDC5K-1450R/(H)、1700R/(H)

## 3. Specification and Model Description

ND C 5 K — □ □/ □ □ □

① ② ③④ ⑤ ⑥ ⑦ ⑧ ⑨

① "Nader" brand low-voltage apparatus

②AC contactor

③Design code

④Vacuum

⑤Specification code: 630, 800: Ie is 630A and 800A respectively at AC-3 when

Ue is 690V

1450, 1700: Ie is 1450A and 1720A at AC-1 when Ue is 1000V

⑥ No code represents the usage category when the operating current is AC-3;

R represents the usage category when the operating current is AC-1

⑦ No code and "H" represent the standard type and the long life type respectively

⑧ Type of the coil voltage: AC/DC represents the voltage is universal

⑨ Specification of the coil voltage: 48-110, 110-250 and 250-500 represent 48V-110V, 110V-250V and 250V-500V respectively

## 4. Main Technical Parameters

| Parameter name | | | Description of the specific parameters | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Specification | | | NDC5K-630 | NDC5K-630H | NDC5K-800 | NDC5K-800H | NDC5K-1450R | NDC5K-1450R/H | NDC5K-1700R | NDC5K-1700R/H |
| Number of poles | | | 3 | | 3 | | 3 | | 3 | |
| Agreed thermal current of the free air Ith/A | | | 1050 | | 1310 | | 1450 | | 1720 | |
| Rated current (A) | AC-1 Ue≤ 1000V | θ≤40°C | 1050 | | 1310 | | 1450 | | 1720 | |
| | | θ≤50°C | 931 | | 1250 | | 1450 | | 1720 | |
| | | θ≤55°C | 888 | | 1155 | | 1450 | | 1720 | |
| | | θ≤65°C | 850 | | 1100 | | 1450 | | 1450 | |
| | | θ≤70°C | 700 | | 900 | | 1080 | | 1350 | |
| | AC-3 | 380/400V | 630 | | 800 | | / | | / | |
| | | 660/690V | 630 | | 800 | | | | | |
| | | 1000V | 420 | | 580 | | | | | |
| | AC-4 | 380/400V | 510 | | 650 | | | | | |
| | | 660/690V | 510 | | 650 | | | | | |
| | | 1000V | 345 | | 465 | | | | | |
| Rated power (KW) | AC-1, +40℃ | 380/400V | 650 | | 766 | | 914 | | 1071 | |
| | | 660/690V | 1130 | | 1330 | | 1576 | | 1861 | |
| | | 1000V | 1712 | | 2015 | | 2044 | | 2417 | |
| | AC-3 | 380/400V | 355 | | 450 | | / | | / | |
| | | 660/690V | 630 | | 750 | | | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | 1000V | 600 | 800 | | |
| | AC-4 | 380/400V | 280 | 355 | | |
| | | 660/690V | 494 | 633 | | |
| | | 1000V | 509 | 678 | | |
| Average power consumption of each pole (W) | | At Ith | 69 | 96 | 135 | 188 |
| Rated operational voltage Ue | | | AC380/400V/415V, AC660/690V, AC1000V, AC1140V | | | |
| Insulation voltage Ui | | | AC1250V | | | |
| Impulse withstand voltage Uimp | | | 12kV | | | |
| Rated limit short circuit current, type "2" cooperate | Test current | | 50kA | 50kA | 50kA | 50kA |
| | SCPD | Model | RST10-1000/1000V | RST10-1250/1000V | STF5-2000/1000V | STF5-2000/1000V |
| | | Rated current (A) | 1000 | 1250 | 2000 | 2000 |
| Rated control voltage Uc | | | AC/DC: 48V-110V,110V-250V,250V-500V | | | |
| Control voltage range (The impedance voltage of the control transformer is no more than 0.7) | | | Pull-in: 0.7*Ucmin-1.15*Ucmax | | | |
| | | | Release: 0.2-0.6Ucmin | | | |
| Control loop overvoltage protection | | | In the holding state, the control voltage Uc > 1.3max is released to protect the internal circuit. | | | |
| Cold state, coil power consumption VA/W at 1.0 *Uc (The impedance voltage of the control transformer is no more than 0.7) | Pull-in | AC VA | 900 | | | |
| | | DC W | | | | |
| | Hold | AC | 45VA (apparent power) 20W (active power) | | | |
| | | DC | 15W | | | |
| Action time | A1-A2 control | | From the A1-A2 power-on to the closing of the main contact: 30-120ms | | | |
| | | | From the A1-A2 power-off to the main off-contact: 33-70ms | | | |
| | PLC control (DC24V) | | From the PLC signal input to the closing of the main contact: 30-90ms | | | |
| | | | From the PLC signal input to the main off-contact: 10-40ms | | | |
| Rated making capacity A 690V | | | 7800 | 9840 | 9840 | 9840 |
| Rated breaking capacity (A) | 400V | | 6500 | 8200 | 8200 | 8200 |
| | 690V | | 6500 | 8200 | 8200 | 8200 |
| | 1000V | | 4350 | 5800 | 5800 | 5800 |
| Mechanical life at Uc | | | 3.000,000 times | | | |
| Frequency(times/hour) | | | 600 | | | |
| Electrical life (times) | AC-1 | 400V | 650,000 | 1,000,000 | 530,000 | 80,0000 | 400,000 | 600,000 | 300,000 | 500,000 |
| | | Frequency (times/hour) | 600 | | | | 300 | | | |
| | | 690V | 300,000 | 500,000 | 260,000 | 400,000 | 180,000 | 280,000 | 130,000 | 200,000 |
| | | Frequency | | | | | 150 | | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | (times/hour) | 200 | | | | |
| | AC-3 | 400V | 650,000 | 1,000,000 | 650,000 | 1,000,000 | / |
| | | Frequency (times/hour) | 500 | | | | |
| | AC-4 | 400V | 100,000 | 150,000 | 40,000 | 60,000 | |
| | | Frequency (times/hour) | 200 | | | | |
| Short time withstand current (starting from the cold state, θ≤ 40℃, no current 60 minutes before) | | 1s | 8000A | | | 10000A | |
| | | 10s | 7200A | | | 8000A | |
| | | 30s | 5200A | | | 5200A | |
| | | 1min | 4000A | | | 4000A | |
| | | 3min | 2500A | | | 3000A | |
| | | 10min | 1700A | | | 2000A | |
| | | 15min | 1500A | | | 1800A | |
| Connection capacity of the main circuit (multiple copper bars shall be arranged up and down) | | Cable with a connector mm² | min 50 max 240 | | min 50 max 240 | / | |
| | | Width of the copper bar mm | 50 | | 60 | 70 | 80 |
| | | Thickness of a single copper bar mm | 5 | | 5 | 5 | 5 |
| Connection bolt of the main circuit | | | M12 | | M12 | M12 | M12 |
| Tightening torque N.m | | | 35±5 | | 35±5 | 35±5 | 35±5 |
| Weight Kg | | | 16 | | 16 | 18 | 18 |
| Product certificate | | | CCC，CE，TUV | | | | |
| Product certification standard | | | GB/T 14048.4，IEC 60947-4-1 | | | | |

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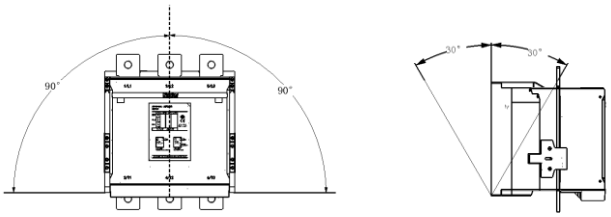
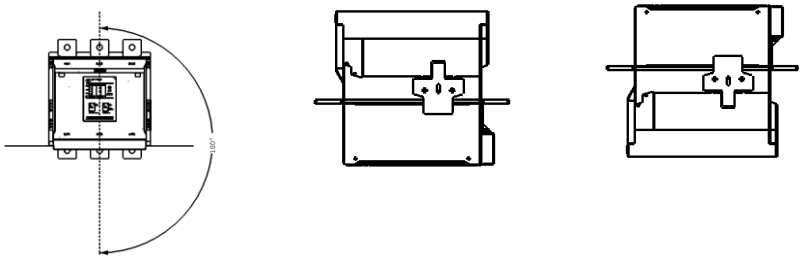
|---|---|---|
| Auxiliary contact parameters | | |
| Auxiliary contacts conforming to GB/T 14048.5、IEC 60947-5-1 | | Each contactor has 1NO and 1NC contact contacts mechanically linked on the same movable contact holder. |
| Mirror contact conforming to GB/T 14048.4、IEC 60947-4-1 | | The NC contactor on each contactor mirrors the main contact. |
| Specification | F1-11L/C5K-800 | F1—11LS/C5K-800 |
| Rated insulation voltage | 690V | 250V |
| Impulse withstand voltage | 6kV | 2.5kV |
| Agreed thermal current of the free air Ith | 16A | 0.1A |
| Usage category | AC-15 DC-13 | AC-14 DC-12 |

| | | | | | |
|---|---|---|---|---|---|
| Rated operating voltage/current | AC-15 | 230V 50/60Hz 6A | AC-14 | 125V 50/60Hz 0.1A | |
| | | 400V 50/60Hz 4A | | / | |
| | | 500V 50/60Hz 1.5A | | / | |
| | DC-13 | DC24V 6A | DC-12 | DC30V 0.1A | |
| | | DC48V 2.8A | | / | |
| | | DC220V 0.3A | | / | |
| gG fuse protection | 16A | | / | | |
| Minimum connected load | 24V 10mA | | 12V 5mA | | |
| Protection capacity | IP60(terminal IP20) | | IP67(terminal IP20) | | |
| Electrical life | 1,000,000 times | | 300,000 times | | |
| Mechanical life | 3,000,000 times | | 3,000,000 times | | |
| Connection capacity | Hard wire | 1 piece/2 pieces 1…4mm² | | | |
| | Non-prefabricated end cord | 1 piece/2 pieces 0.75…2.5 mm² | | | |
| | Prefabricated end cord | 1 piece/2 pieces 0.75…2.5 mm² | | | |
| Wiring screw | M3.5 | | | | |
| Tightening torque | 1.2N.m±0.2 | | | | |

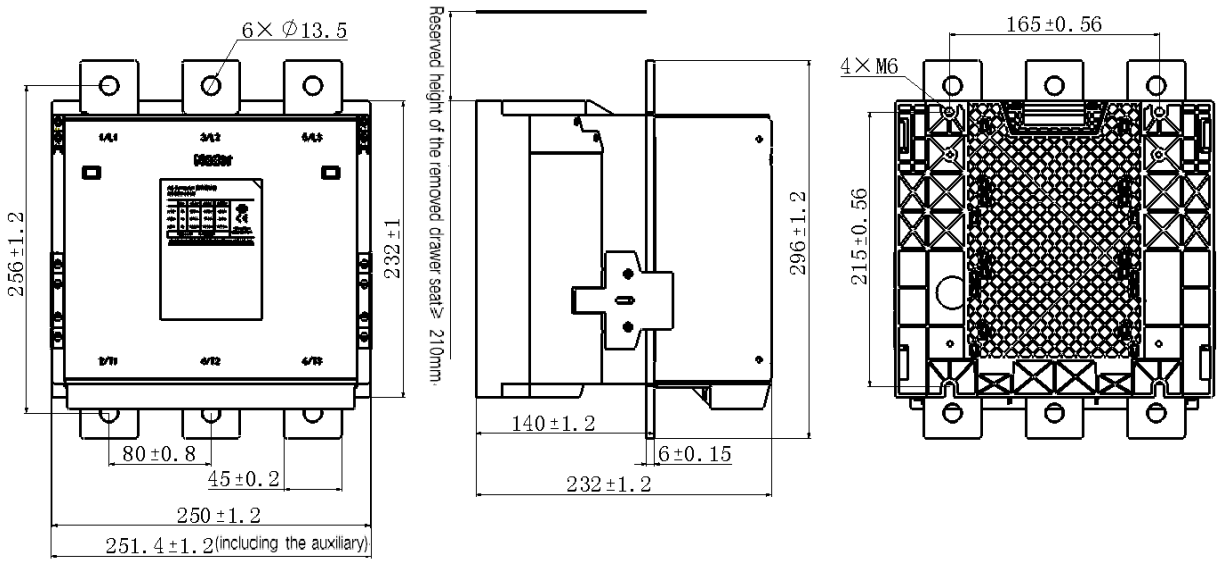
## 5. Normal Working Environment

| Environmental requirements | Description of the specific parameters |
|---|---|
| Operating ambient temperature | -40℃~+70℃ |
| Storage ambient temperature | -40℃~+80℃ |
| Pollution level | 3 |
| Altitude | The inatallation site should be no more than 5000m above sea level, and the capacity should be lower over 3000m. |
| Vibration frequency | Anti-vibration performance 5…300 Hz<br>Main contactor opened: 2g<br>Main contactor suction: 4g<br>Auxiliary contact opened: 2g |

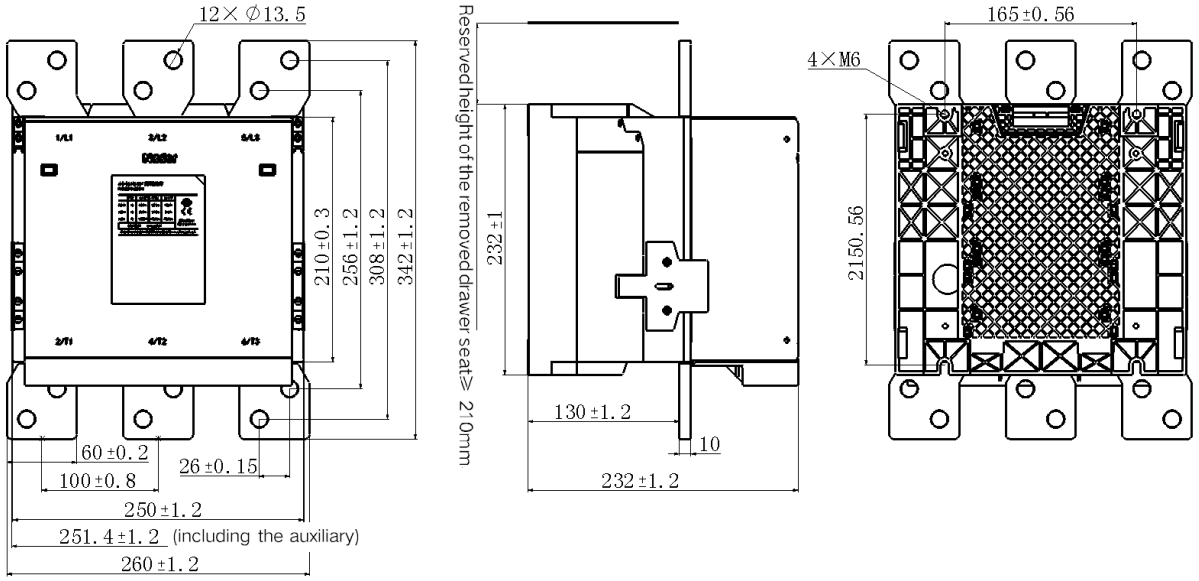
| Altitude(m) | Voltage correction factor | Current correction factor |
|---|---|---|
| 3500 | 1 | 0.92 |
| 4000 | 1 | 0.90 |
| 4500 | 1 | 0.88 |
| 5000 | 1 | 0.86 |

| | |
|---|---|
| | Auxiliary contact suction: 4g |
| Impact strength | Impact resistance 1/2 sine wave = 11 ms<br>Main contact of the contactor opened: 10g<br>Main contact of the contactor closed: 10g<br>Auxiliary contact of the contactor opened: 10g<br>Auxiliary contact of the contactor closed: 8g |
| Wet heat resistance | The relative air humidity at the installation site should not exceed 95%. The working environment does not allow condensation. |
| Installation method | Allowed installation method<br>  <br>Prohibited installation method（1）<br>  <br>Note(1) Ban carry rotate 180 ° installed outlet and inlet line of products and product level installation is prohibited. |

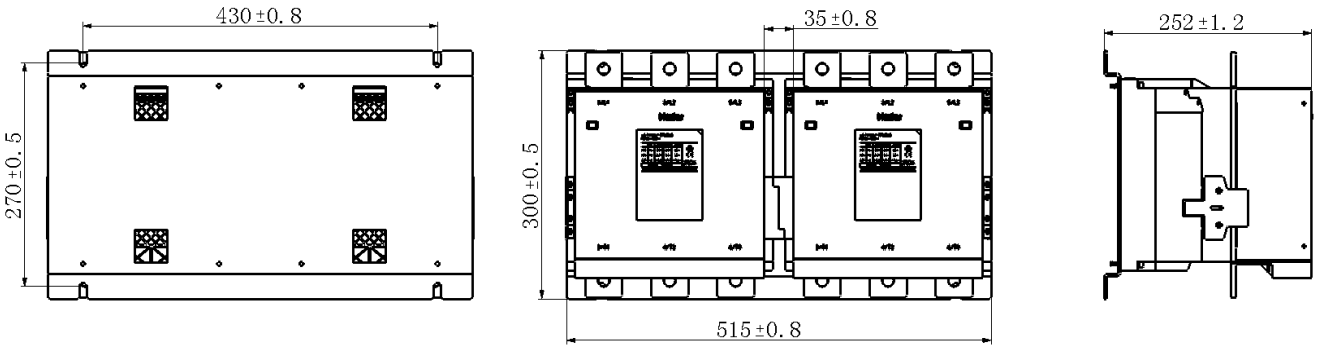
## 6. Outline and Installation Dimensions




External Dimension Diagram of NDC5K-630(H) and 800(H)

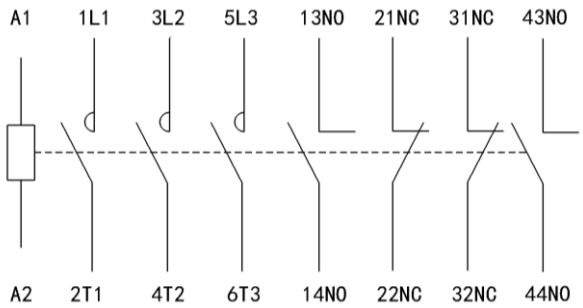



External Dimension Diagram of NDC5K-1450R(/H) and 1700R(/H)

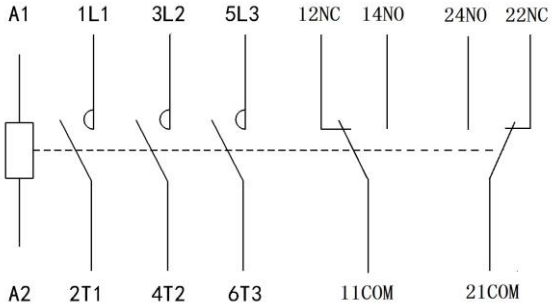



External Dimension Diagram of NDC5K-630(H)/800(H) Interlocking Products

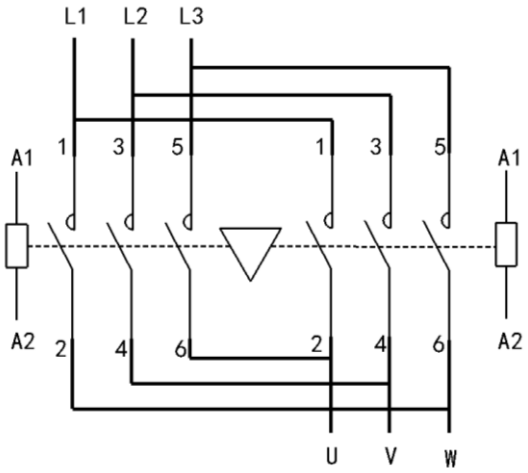
## 7. Wiring Diagram



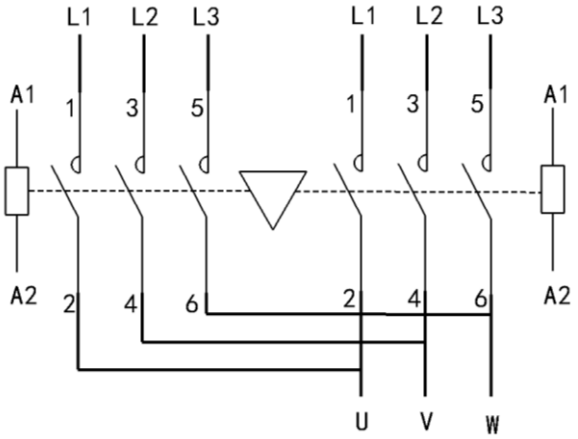

Wiring Diagram of NDC5K-630~1700+F1-11L




Wiring Diagram of NDC5K-630~1700+F1-11LS




Wiring Diagram of Motor-controlled Reversible Contactor




Wiring Diagram of Distribution Power Conversion

## 8. Installation Mode

Bolt installation, vertical installation of the product, ±30° between the installation surface and the vertical plane

## 9. Packaging and Storage

Storage ambient temperature: -40℃~+80℃. No acidic alkaline or other corrosive gas exists in the ambient air.

## 10. Environmental Compliance

All the product parts and processes conform to RoHS

## 11. List of Accessories and Installation

A copy of the operation manual, a set of mounting bolts for the main circuit

## 12. Precautions

Overvoltage suppressors must be installed on one side of the load end.