Shanghai Liangxin Electrical Co., Ltd.

(NDUH1 Surge Backup Protection Circuit Breaker)

Product Specification

（IPD-ENG-DEV-T22 A1 2016-09-23）

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Approved		Date	2020.04.24

2020.04.24 文件控制

Revision information					
Version	Revised contents and reasons	Date	Prepared	Reviewed	Approved
0	New addition	20200304	Zhang Jingyang	Yang Na	Tang Rui
1	Model description updat	20200424	Zhang Jingyang	Zhang Yang	Tang Rui

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1、 Application Scope and Purpose

According to the relevant provisions in the GB50057-2010 and IEC61643-4-43 standards: “Before the circuit causes dangers, an appropriate over-current protection device should be adopted to solve the safety issues caused by rapid tripping when there is a dangerous power frequency continuous current or dangerous power frequency leakage current in SPD as well as wrong tripping when the lighting current passes through, so as to ensure that the SPD does not fire and the lightning protection of equipment is continuously effective”.

For a large number of miniature circuit breakers and fuses to be currently used with SPD, the following defects exist:

1) The lightning current impulse is easily damaged - leading to the failure of lightning protection;

2) High residual voltage of the lightning impulse current - resulting in a lower reliability of lightning protection and even damage to the back-end equipment;

3) As the power frequency small current didn’t reach the tripping value of circuit breakers and fuses, the circuit breakers and fuses don’t trip - thus causing the SPD fire due to the abnormal power supply;

4) Wrong tripping of the lightning impulse, SPD protection failure, and failure of the lightning current to be completely released - causing lightning protection failure.

As the current fuse and the miniature circuit breaker fail to coordinate with SPD, in case of the abnormal power supply or fire caused by the SPD deterioration failure, the equipment has been damaged by lightning strike, which has seriously affected the normal operation of production and operation.

The low-voltage surge backup protection circuit breaker (protection device SSD for surge protector) has the following advantages:

1) Power frequency tripping current: 3A (±1A);

2) Large non-tripping impulse current;

3) Low residual voltage of lightning impulse.

SSD works with SPD: To ensure SPD doesn’t fire and the lighting current impulse isn’t tripped.

The NDUH1 series surge backup protection circuit breaker is mainly used for protecting the voltage-limiting type low voltage surge protector in the system with the AC 50Hz or 60Hz and the rated voltage no more than 440V (between phases).

The NDUH1 series surge backup protection circuit breaker applies to isolation.

2、 Picture of the Product (Subject to material object）

2.1 Picture of the single-mode product

1P 2P 3P

4P

2P (non-linkage)

3P (non-linkage)

4P (non-linkage)

2.2 Picture of the dual-mode product

1P

2P

3P

4P

2P (non-linkage)

3P (non-linkage)

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4P (non-linkage)

3. Specification and Model Description

ND	UH	1	I	—	25	100	/	2	/	F
1	2	3	4		5	6		7		8

SN	Name	Specification, type code	Description
1	Enterprise code	“Nader” brand low-voltage apparatus	
2	Product code	Surge backup protector	
3	Design SN	1	
4	Derived code of the series	I: Level 1 surge; not marked: Level 2 surge	
5	Rated level (specification) (kA)	Impulse current (Level I): 25/15	
		Maximum discharge current (level II): 120/100/80/65/40/20	
6	Rated short-circuit breaking capacity (kA)	100/65/50/35/25/15	
7	Number of poles	1=1P,2=2P,3=3P,4=4P	
8	Handle mode	No label: multipole linkage;F: multipole non-linkage	

4. Main Technical Parameters

● Functional parameter

Lighting level	Level T1	Level T2
Rated working voltage Ue/V	AC230/240V (1P, 2P), AC230/400V (3P, 4P)	
Rated insulation voltage Ui/V	500V	
Rated working frequency f/Hz	50/60Hz	
Rated impulse withstand voltage Uimp/kV	Level T1 withstand voltage: 6; Level T2 withstand voltage: 4	
Minimum time-delay action current Id/A	3±1A, tripping time ≤5s	
Minimum instantaneous action current	10±1A, time≤0.1s	

Ii/A																							
Nominal discharge current In/kA (8/20μs)	50				60		50		40		35		20		10								
Maximum discharge current Imax/kA (8/20μs)	100				120		100		80		65		40		20								
Maximum impact current Iimp/kA (10/350μs)	25		15		-		-		-		-		-		-								
Rated short-circuit breaking capacity Icn/kA	100	65	100	65	100	65	100	65	50	35	50	35	25		15								
Voltage protection level (+NDU1) Up kV	3.4				3.6		3.4		3.3		2.2		1.8		1.3								
Modulus	Dual mode								Single mode														
Modulus width	Single-mode 1P: 18mm, dual-mode 1P: 36mm																						
Number of poles	1P, 2P, 3P, 4P																						
Enclosure protection grade	IP20																						
Mechanical life (times)	1000																						
Operating ambient environment ℃	-25~+60																						
Operating ambient humidity	20%～90%																						
Storage temperature ℃	-40~+70																						
Neutral salt mist resistance H	48																						
Protection class	IP20																						
Pollution level	3																						
Rated torque (Tn) N.m	3.5																						
Ultimate torque (Tn) N.m	6.5																						
Mechanical impact resistance	30G, 3 impacts, duration of 11ms																						
Assembled accessories	OF2																						
Connection capacity mm²	2.5~25 (soft wire), 2~35 (hard wire)																						
Installation mode	TH35×7.5 (EN60715) standard guide rail																						

- Product certification and implementing standards
  - Product certificate: CQC
  - Product certification standard: NB/T 42150-2018

5. Normal Working Environment

- Ambient temperature: -25℃~+60℃;
- Altitude: ≤2000m;
- Ambient humidity: 20%~90%;
- Pollution level: 3;
- Vibration frequency: Sine vibration (frequency 10Hz~50Hz, amplitude 1.5mm).

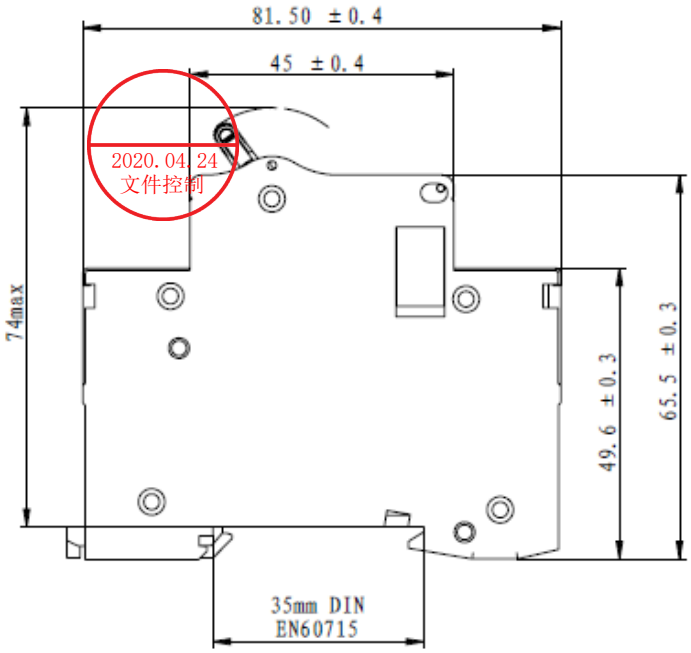
6. Tripping Characteristics

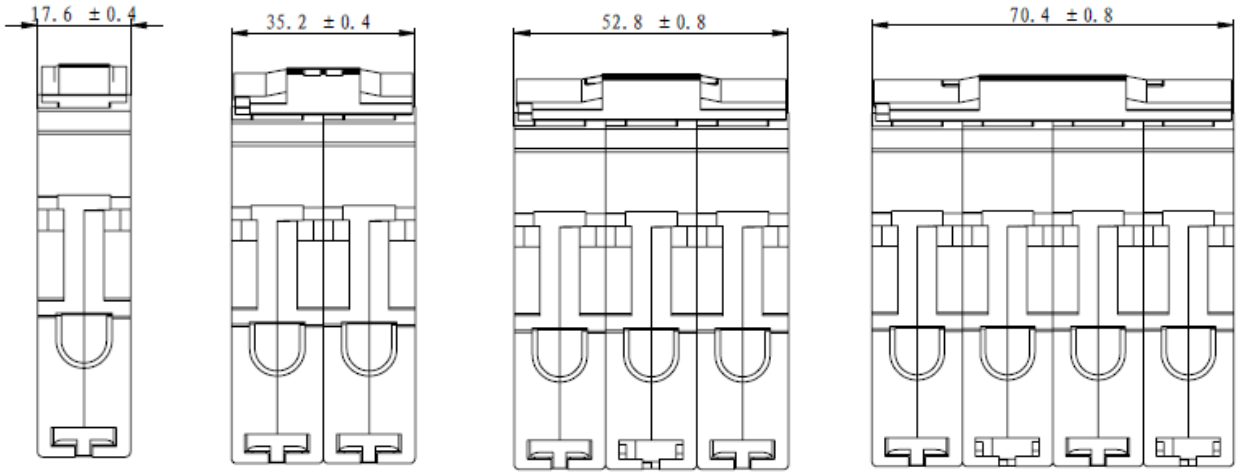
Minimum time-delay action current Id/A	3±1A, tripping time ≤5s
Minimum instantaneous action	10±1A, time≤0.1s

current Ii/A	

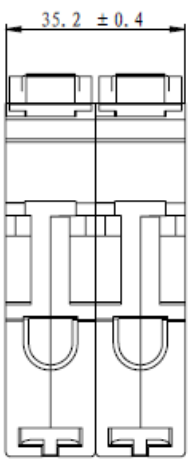
7. Product Outline and Installation Dimensions

7.1 Outline and installation dimensions of the single-mode product





1P 2P 3P 4P



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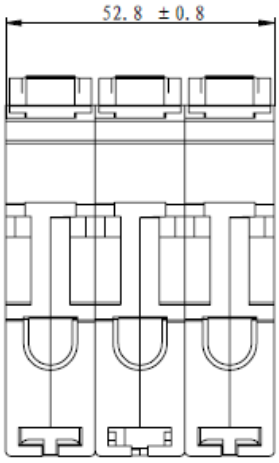

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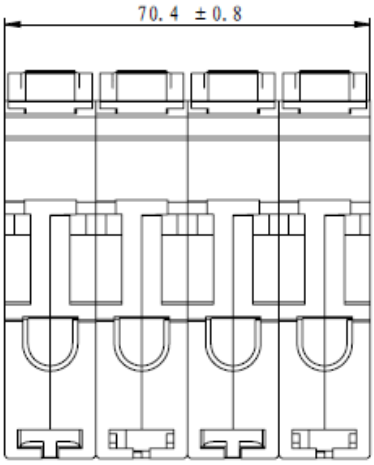
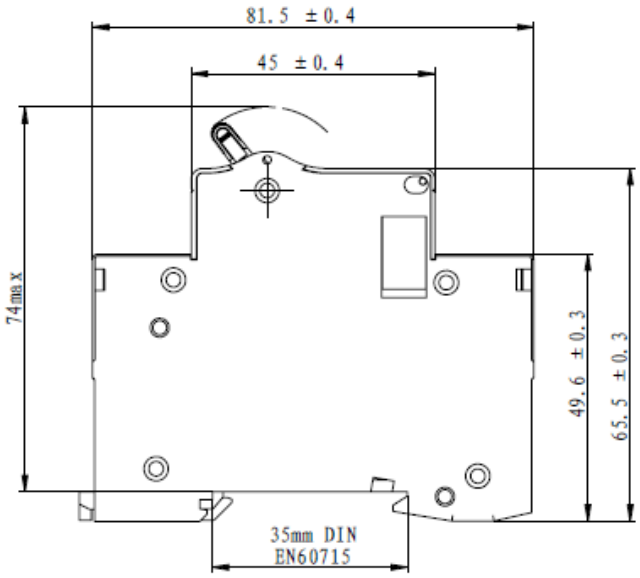
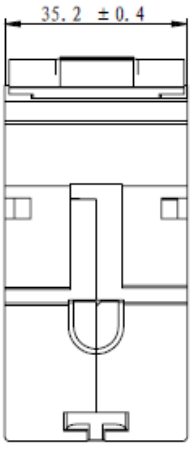


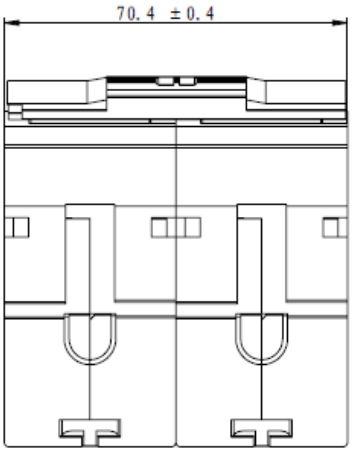
4P (non-linkage)

7.1 Outline and installation dimensions of the dual-mode product

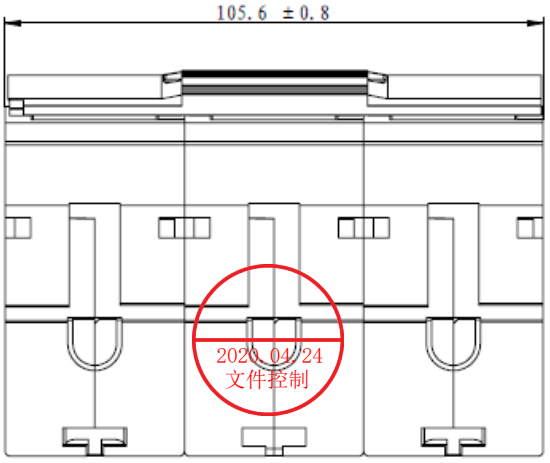




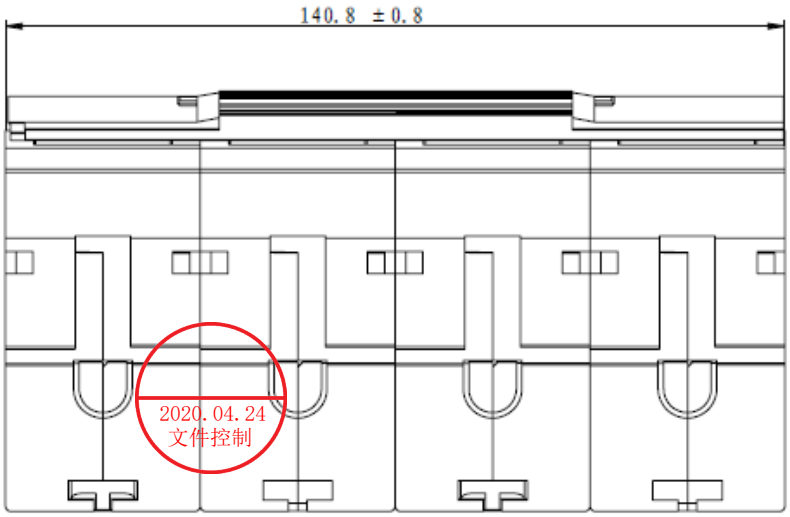
1P



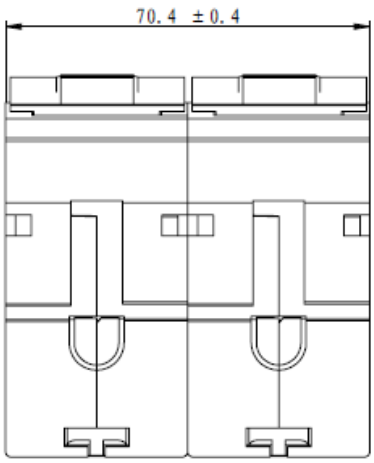
2P



3P



4P



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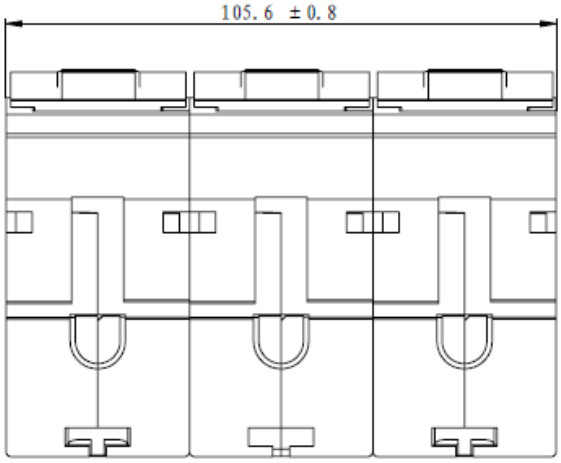

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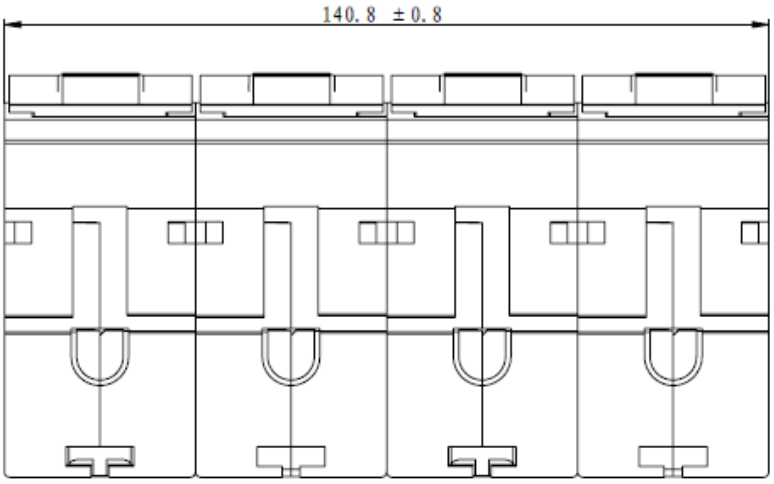

4P (non-linkage)

8. Installation Mode

Based on the modular structure, it can be easily installed on the TH35×7.5 (EN60715) standard guide rail.

9. Packaging and Storage

Maximum packaging quantity (single-mode 1P product: 12 pieces/box, 2P product: 6 pieces/box, 3P product: 4 pieces/box, 4P product: 3 pieces/box; dual-mode 1P product: 6 pieces/box, 2P product: 3 pieces/box, 3P product: 2 pieces/box, 4P product: 1 pieces/box). The packaged products should be stored in a warehouse with the air ventilation and the relative humidity no more than 80% and the temperature between -40℃ and +70℃. No acidic alkaline or other corrosive gas exists in the ambient air in the warehouse. Under the above conditions, the storage period shall be no more than three years since the manufacturing date.

10. Environmental Compliance

The product complies with the RoHS standard.

11. List of Accessories and Installation

OF2 auxiliary contact: Install on the left side of the circuit breaker for indicating the on-off state of the circuit breaker.

12. Precautions

- Any quality problem due to disassembly without permission will be the liability of the user;
- Under the energized operation state, do not touch the exposed portion of the uninsulated parts on the circuit breaker with bare hand;
- Do not commission the characteristics of the circuit breaker randomly; the manufacturer shall not be responsible for any quality problem caused;
- Wiring must be reliable to prevent the malfunction of the circuit breaker or terminal burning due to the abnormal heat generation on the terminal;
- For assembling of accessories, be sure to remove the cover without burrs or depressions to avoid abnormal slipping;

Refer to OF2 Accessories Manual for details.