



**Nonarc**  
ZHEJINAG NONARC ELECTRIC CO., LTD.  




## Company Profile ➡

Zhejiang Nonarc Electric Co., Ltd. is a modern export-oriented company which aggregates development, production and sales of its products. Our company is specialized in producing advanced distribution electric goods, such as Miniature Circuit Breaker, Earth Leakage Circuit Breaker, Moulded Case Circuit Breaker, Intelligent Air Circuit Breaker. We also produce other electrical apparatus.

There are more than 300 kinds of distributing system products which we can produce. And we have also passed the ISO9001, CCC, CE, KEMA & CB certificates. Our products sell well in Europe, Middle East, South America, South Africa, East Europe, Southeast Asia and we seek for more cooperation in other regions.

Experiences & practice: Modern products innovations, rich OEM experience, advanced R&D technicians, professional design idea, customers focused staff, stable quality and timely delivery.

Nonarc people insist on our enterprise motto of establishing the 100 years of Nonarc people, building up the 100 years of Nonarc quality, setting up the 100 years of Nonarc clients. With policy of quality—assurance, pursuing perfection, we try our best to pursue the international market, and to serve all of the clients around the world.

# Contents

## Modular Din Rail Electric Device

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NB8 High Breaking Mini Circuit Breaker .....	01
NB8L Residual Current Circuit Breaker .....	02
DZ47-63 Mini Circuit Breaker .....	03
DZ47LE-63 Residual Current Circuit Breaker with operation protection .....	04
C65N Mini Circuit Breaker .....	05
C65NLE Residual Current Circuit Breaker .....	06
NOC-125 High Breaking Mini Circuit Breaker .....	07
NOCLE-125 Residual Current Circuit Breaker with operation protection .....	08
DZ30-32 (DPN) Mini Circuit Breaker .....	09
NZ30LE (DPN) Residual Current Circuit Breaker with operation protection .....	10
NDZLE-32 (DPN) Residual Current Circuit Breaker with operation protection .....	11
NOB7 High Breaking Mini Circuit Breaker .....	12
NOB7L Residual Current Circuit Breaker .....	13
NFIN Residual Current Circuit Breaker .....	14
NBH1 Mini Circuit Breaker .....	15
NBH1L Modular Din Rail Electric Device .....	16
NOH Series Switch Disconnecter .....	17
NOD1 Series Indicator .....	18
NOD2 Series Indicator .....	19
NOD3 Series Indicator .....	20
C45D Series Indicator .....	21
NDL Series Electric Bell .....	22
NS1-(B) Surge Protective Device .....	23-24
NS1-(D.C.B)5 Surge Protective Device .....	25-26
NS3 Surge protective device .....	27-28
NS6 Surge protective device .....	29-30

# NO ARCING FOR CIRCUIT BREAKER

## MCCB

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NOM1 Series -----	31-38
NOM3 (ABB-S) Series -----	39-42
NOM8 Series -----	43-44
NOM8C Series -----	45-46

## ATS

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NQ1 Dual Power Automatic Transfer Switch -----	52
NQ2 Dual Power Automatic Transfer Switch -----	53-61
NQ3 Dual Power Automatic Transfer Switch -----	62-64

## ACB

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NOA1 Air Circuit Breaker -----	65-70
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## NB8 High Breaking Mini Circuit Breaker >>>



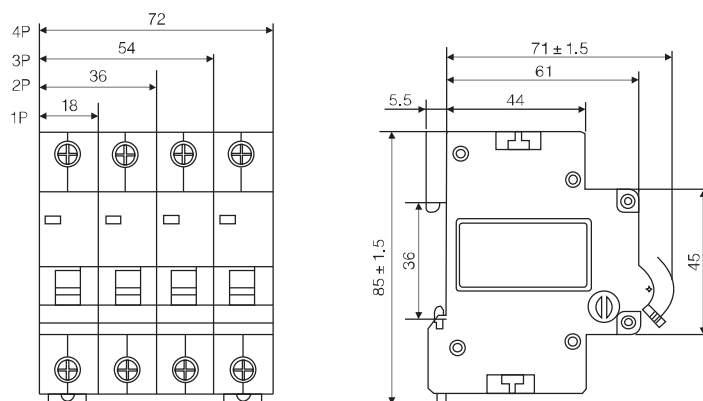
### 1.Applications

NB8 circuit breaker the new type we developed, which is used in lighting distribution system or motor distribution system for protecting overload and short circuit in the system. The product is neoteric in structure light in weight, reliable and excellent in performance .Its frame and parts adopt plastics of high fire resistant and shockproof. The product overload and short circuit protection, as well as for unfrequently switching on&of electric equipment and lighting circuit in normal case. The products comply with IEC60898

### 2.Technical data

Rated Current(In)	1,2,3,4,5,,6,10,16,20,25,32,40,50,63A
Rated Voltage(Un)	230VAC/400VAC
Breaking capacity	4.5 /6kA
Characteristic	B,C,D
Number of Poles	1P,1P+N,2P,3P,3P+N,4P
Type of Terminal	Lug type
Terminal Capacity	cable up to 25mm <sup>2</sup>
Width	18mm/module
Standards	IEC60898,EN 60898
Certification	CB,SEMKO

### 3.Dimensions(mm)



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## NB8L Residual Current Circuit Breaker >>>

The RCCBs NB8L are mainly used in varieties of factories; enterprises and building construction, 1 phase 230V and 3 phase 400V 50/60Hz, rated Current(A): 16, 20, 25, 40, 50, 63. They are not suitable for use in DC pulse system. They can cut off the fault circuit immediately on the occasion of shock hazard or earth leakage of trunk, thus, it is suitable to avoid the shock hazard and fire caused by earth leakage. They are in conformity with the standard of IEC61008.

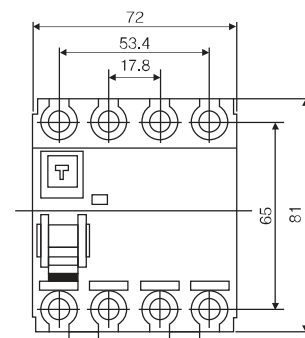
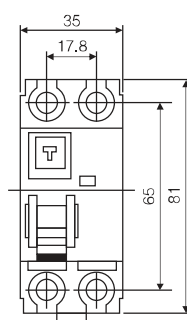
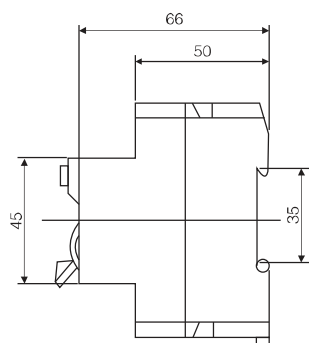
### 2.Main technical specifications

Number of poles	2P
Breaking capacity	6KA
Rated current(A)	16,25,40,63,80,100A
Rated voltage(V)	AC 2P 230/240V 4P 400/415V
Rated residual operating current(mA)	30,100,300,500mA
Rated residual non-operation current(In)	0.5In
Residual operating current scope	0.5In~In
Residual current breaking time	≤0.3s
Residual current trip characteristics	A,AC
Ultimate short-circuit breaking capacity	6000A
Endurance	≥4000
Connection Capacity	≤25mm <sup>2</sup>
Degree of protection	IP20
Standard	IEC/EN610018

### 3.Merits

Good quality, high breaking capability, updated structure, quick trip and guide installation, competitive price, excellent and safe performance, beautiful and compact appearance, etc .

### 4.Dimension & mounting



## DZ47-63 Mini Circuit Breaker >>>



### 1.Application

DZ47-63 series circuit breaker is used in lighting distribution system or motor distribution system for protecting overload and short circuit in the system. The product is neoteric in structure light in weight, reliable and excellent in performance .Its frame and parts adopt plastics of high fire resistant and shockproof. The product overload and short circuit protection, as well as for unfrequently switching on&of electric equipment and lighting circuit in normal case. The products comply with IEC60898

### 2.Specification

Setting temperature of protective characteristics at 400C

Rated Voltage:240V/415V

Rated Current:1,3,6,16,20,25,32,40,50,63A

Electrical life: no less than 6000 operations

Mechanical life:(O-C)on less than 20000

### 3.Rated making and breaking capacity

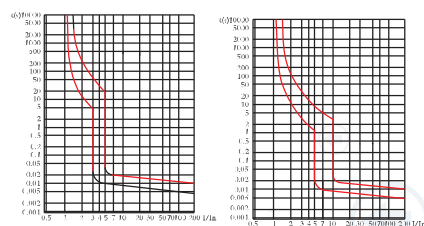
#### DZ47-63(C)

Rated current(A)	Pole number	Voltage(V)	Breaking capacity
1 ~ 40	1P	230	4500
1 ~ 40	2,3,4P	400	4500
50 ~ 60	1P	230	3000
50 ~ 60	2,3,4P	400	3000

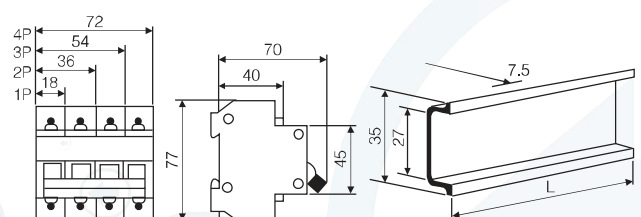
#### DZ47-63(D)

Rated current(A)	Pole number	Voltage(V)	Breaking capacity
1 ~ 60	1P	230	4000
1 ~ 60	2,3,4P	400	4000

### 4.Characteristic Curve



### 5.Dimensions



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# DZ47LE-63 Residual Current >>> Circuit Breaker with operation protection



## 1.Application

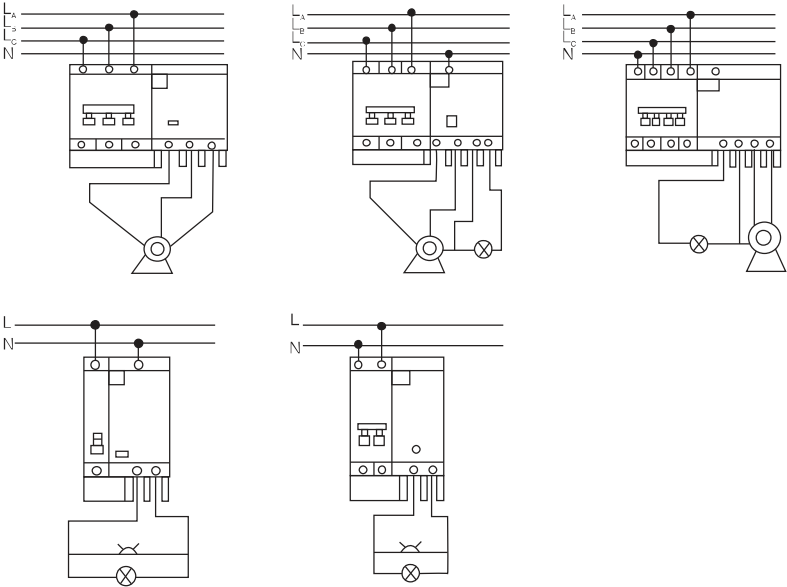
DZ47LE-63 earth leakage circuit breaker is used for protecting against electrical leakage in the circuit of 50Hz or 60Hz, rated voltage single-phase 240v, three phases 415V, rated current up to 60A. If the current exceeds the fixed value, the ELCB can cut off the power within the time of 0.1s automatically to protect the personal residual current. With this function, the ELCB can protect the unfrequent switch-over of the circuit under normal conditions .It conforms to IEC1009.1 .

## 2.Specification

Rated Voltage(v)	Pole Number	Rated current(A)	Leakage action	Leakage dead	Leakage action
220	1P	1~10	current(mA)	current(mA)	time(s)
380	2,3,4P	15~32	30	15	< 0.1
		40~60	100	50	

## 3.Wiring Diagram

Single-pole	Double-pole	Triple-pole	Triple-pole	Triple-pole
double line	double line	triple line	four line	four line
DZ47LE	DZ47LE	DZ47LE	DZ47LE	DZ47LE
1/2	2/2	3/3	3/4	4/4



## C65N Mini Circuit Breaker >>>



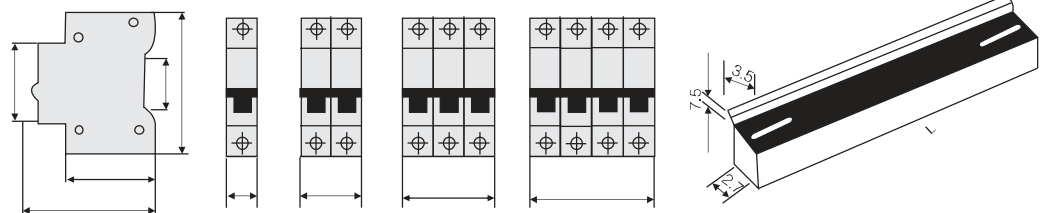
### 1.Applications

C65N MCB are suitable for circuit of AC 50HZ or 60HZ, rated voltage up to 400V, rated current up to 63A, they are mainly used in office, single-pole lighting, distribution system for overload and short circuit protection. Its frame and parts adopt plastics of high fire resistant and shockproof. The product overload and short circuit protection, as well as for unfrequently switching on&of electric equipment and lighting circuit in normal case. The products comply with IEC60898

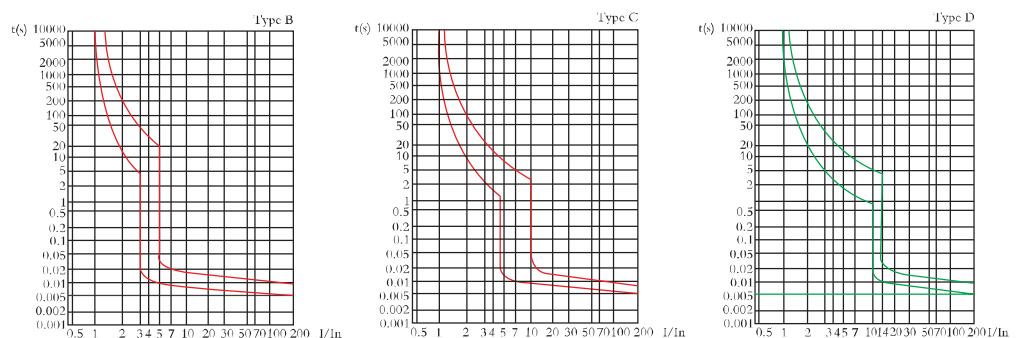
### 2.Technical parameter

rated operated voltage(V)	pole	rated current(A)	Rated short-circuit breaking capacity	
			C-test line expected Current(A)	D-test line expected Current(A)
230	1,2	6,10		
230/400	1,2	16,20	6000	10000
400	2,3, 4	25,32	6000	10000
230	1,2	40	6000	10000
230/400	1,2	50	6000	10000
400	2,3,4	63	6000	10000
			6000	10000

### 3.Dimension & mounting



### 4.Characteristics curve diagram



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## C65NLE Residual Current Circuit Breaker >>>



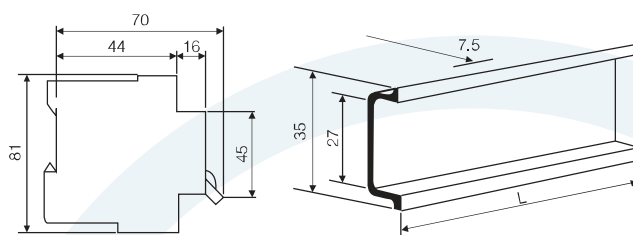
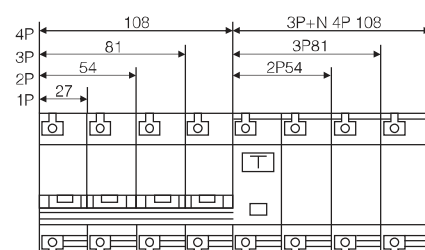
### 1.Description

C65NLE Residual current circuit breaker with over-current protection (RCBO) is used for the protection against electrical leakage in the circuit of 50Hz or 60Hz ,rated voltage 240/415 ,rated current up to 60A .When someone gets an electric shock or the residual current of the circuit exceeds the fixed value ,the ELCB can cut off the power within the time of 0.1s automatically protecting the personal safety and preventing the equipment from the fault resulted from residual current this function,the ELCB can protect the circuit breaker against overload and short circuit or can be used for the unfrequent switch over of the circuit under normal conditions.It conforms to IEC60898&IEC60755.

### 2.Specification

No of poles	1P+N,2P,3P,3P+N,4P
Rated voltage(V)	240/415V
Rated frequency	50/60HZ
Rated current(A)	1,2,4,6,10,16,20,25,32,40,50,63A
Rated operating current (mA)	30,50,100,300mA
Rated non operating(I/-En)	≤0.5 I/-En
Tripping curve	C,D Type

### 3.Dimension & mounting



# NOC-125 >>> High Breaking Mini Circuit Breaker



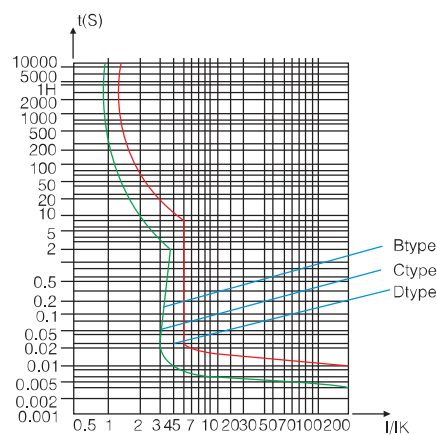
## 1.Application

NOC-125 high breaking capacity circuit breaker is used in AC 50Hz or 60Hz, single pole 240V, 2-, 3-, 4-, poles 415V, for protecting the circuit which overload and short circuit may take place. It can be used in lighting and electric motor distribution system. Meantime it is applicable to unfrequently switch the electric apparatus and light circuit under the normal conditions. The products comply with IEC 60898&GB10963-1999.

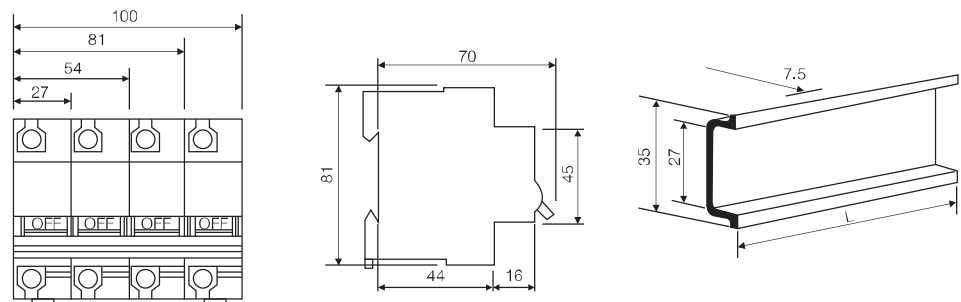
## 2.Specification

Rated current(A)	Pole number(P)	Rated Voltage(v)	Breaking capacity
50	1	130	10000
63	2,3,4	230/240	10000
80		400/415	4000
100		230/240	10000
125		400/415	10000
		440	6000

## 3.Characteristic Curve



## 4.Dimensions



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# NOCLE-125 Residual Current >>> Circuit Breaker with operation protection



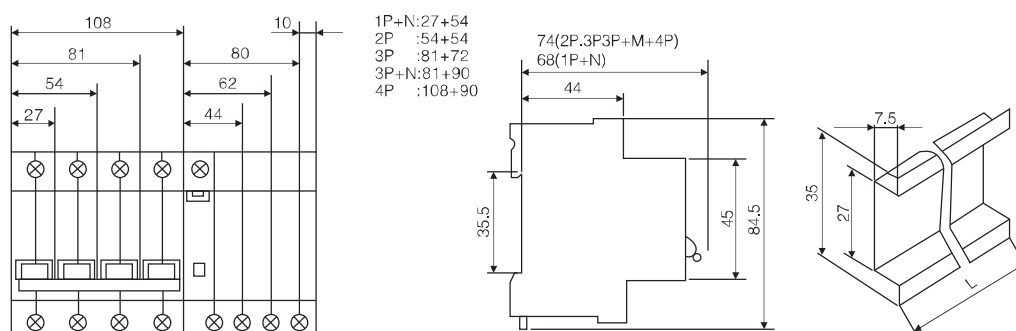
## 1.Applications

Residual current circuit breakers NOCLE-125 RCBO are used for protection against indirect touching of parts under voltage, for prevention of lasting voltage on earthed parts which should appear because of a defect in the electrical installation and for protection against direct contacts of parts under voltage in case of  $I_n < 30\text{mA}$ . Residual current circuit breakers can be used in TN-S, TT and IT network systems or with other words in all systems where neutral and protective conductor are separated (VDE 0100 Teil 410).

## 2.Specification

Standard		IEC60947-2, GB14048.2
Number of poles		1P.2P.3P.4P
Rated current( $I_n$ )		63,80,100,125A
Rated voltage( $U_n$ )		AC230/400V
Rated frequency		50/60Hz
Tripping curve		B,C,D
Release action characteristics	Time delay	$1.13I_n \geq 1\text{h non-trip}$
		$1.45I_n < 1\text{h trip}$
		$3I_n 1\text{S} < 60\text{S trip}$
	Instantaneous(Curve C)	$8-12I_n \geq 0.1\text{S non-trip}$
		$10-14I_n < 0.1\text{ trip}$
Magnetic releases operate		B curve: between 3 and $5I_n$
		C curve: between 5 and $10I_n$
Rated breaking capacity( $I_{cn}$ )		4500A, 6000A
Endurance		$\geq 2500$
Circumstance temperature		$-5^\circ\text{C} \sim +40^\circ\text{C}$
Electrical life		$\geq 6000\text{times}$
Mechanical life		20000 times
Tropical ration		Treatment 2(RH95%, at $55^\circ\text{C}$ )
Protection degree		IP20

## 3.Dimension & mounting



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## DZ30-32 (DPN) Mini Circuit Breaker >>>>



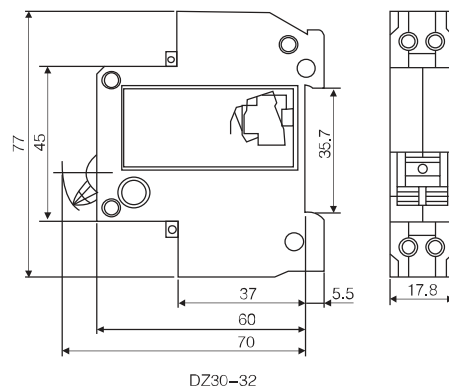
### 1.Application

DZ30-32 series Mini Circuit Breaker is mainly used in AC50HZ or 60HZ, rated 230V, rated current to 32A for overload and short-circuit protection as well as for unfrequented switching under normal case, especially applicable in lighting distribution system of industry and commercial.  
This product conform to GB10963, IEC60898 standard.

### 2.Main specification:

AS per rated current: 6A, 10A, 16A, 20A, 25A, 32A total 6 types.  
Instantaneous release type: C type (5In~10In)  
Operated short-circuit capacity: 4500A  
Mechanical and electrical life: >4000 times.

### 3.Dimension & mounting



# NZ30LE (DPN) Residual Current >>> Circuit Breaker with operation protection



## 1.Application

DZ30LE series is used in the single phase circuit of AC 50Hz/60Hz, rated voltage 230V, used as electron shock protection. It can protect circuit form overload and short circuit. This product has advantages of small volume, high breaking capacity, live and zero wire are cut off at the same time, also protecting person from electric shock when the live wire connected opposite. It conforms with the standards of IEC61009.

## 2.Main Technical Parameter

Type	DZ30LE-32	DZ30LE-63
Pole	1P+N	1P+N
Rated current(A)	6.10.16.20.25.32	6.10.16.20.25.32.40.50.63
Rated voltage(V)	230	230
Rated residual action current $I_n$ (A)	0.03	0.03
Rated residual non-action current $I_{no}$ (A)	0.015	0.015
Rated residual making/breaking capacity $I_m$ (A)	500	500
Type of instantaneous release	C	C
Rated making/breaking capacity $I_m$ (A)	4500	4500

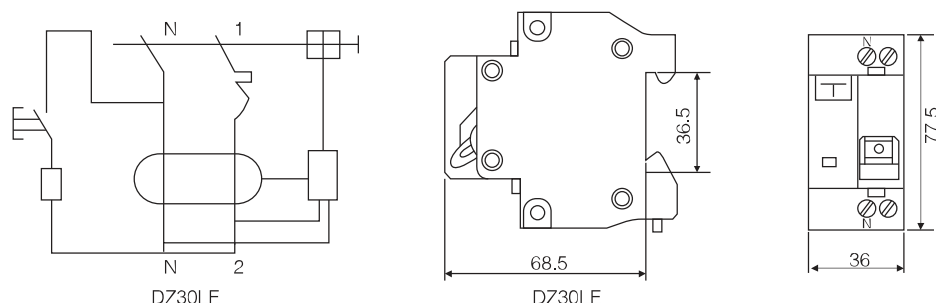
## 3.Main Technical Parameter

Rated current(A)	Nominal cross section of wire mm <sup>2</sup>
$I_n \leq 6$	1
$6 < I_n \leq 13$	1.5
$13 < I_n \leq 20$	2.5
$20 < I_n \leq 25$	4
$25 < I_n \leq 32$	6
$40 < I_n \leq 50$	10
$50 < I_n \leq 63$	16

## 4.Residual current breaking time & over-current protection property

In (A)	In (A)	Breaking time(s) when equals to rating following				
		In	2In	5In	5,10,20,50,100,200,500a(A)	Itb
6-32	0.03	0.1	0.06	0.04	0.04	0.04

## 5.Dimension & mounting



## MDZLE-32 (DPN) Residual Current >>>> Circuit Breaker with operation protection



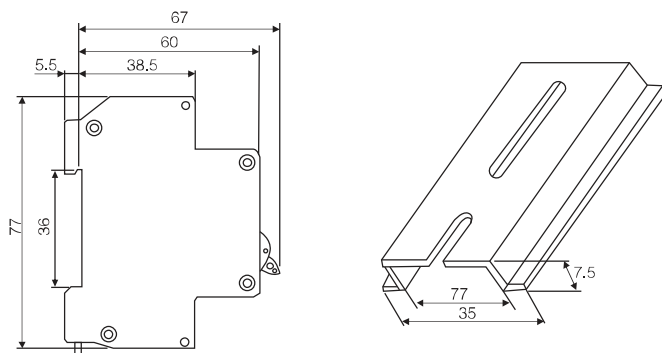
### 1.Specification

MDZLE-32 RCBO, function as combination of circuit breaker and residual current device, which protect human from the fault of electric because of over-current, short circuit, earth fault current. MDZLE-32 is self-protecting up to a maximum short-circuit current 32A. All breaking capacities comply with Standard IEC/EN 61009.

### 2.Technical Data

1. Residual current device with over-current protection
2. Combine in residual current device function and MCB over-current protection function
3. Short circuit capacity: 4.5KA
4. Rated current(A): 6, 16, 20, 25, 32A
5. Rated leakage operating current(mA): 30, 100, 300mA
6. AC and A types, B-C characteristic
7. Modular Din Rail products 35mm.

### 3.Dimension & Mounting



# NOB7 High Breaking Mini Circuit Breaker >>>

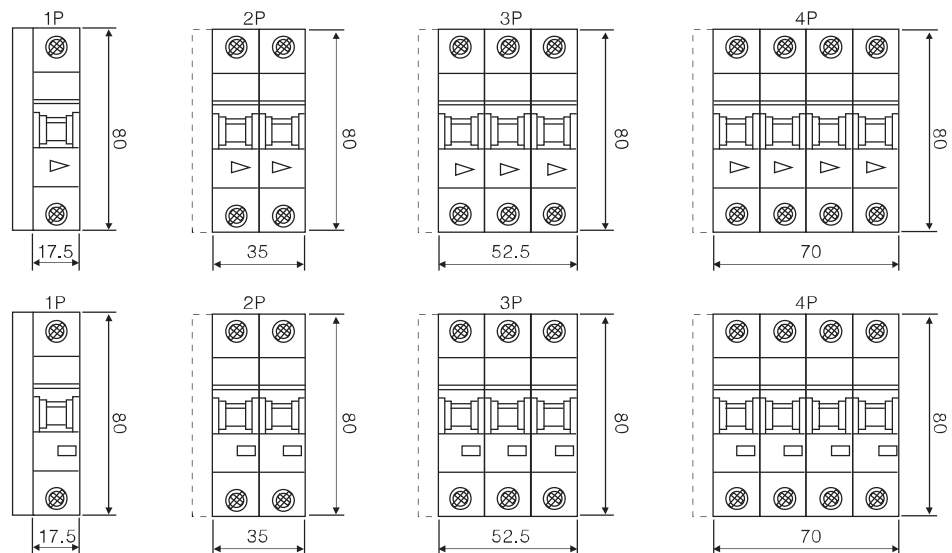
## 1.Application

The products of NOB7 belong to the advanced level of the nineties in the world instead of the older generation of L7.They have protective function as shortage as overload,and are used in lighting distribution system in industry,commerce and dwelling,and protect fractional electric motors.and they also have many merits of high protective grade(up to IP20),high breaking capacity, reliable sensitive action,convenient,multipole assembling,long life etc.They are mainly adapted to the circuit of AC 50Hz,230V in single pole, 400V in double,three,four poles for protecting overload and short circuit.Meanwhile,they are also used in turning on or off the electric apparatus and lighting circuit under the normal condition.

## 2.Specification

- Conforms to standard of electrical:EN60898(IEC898)
- Rated current (Ue):230V/400V;50/60Hz
- Rated breaking capacity:
  - 10KA IEC898(0.5~63A) ;
  - 15KA IEC947-2(0.5~63A)
- Short circuit breaking capacity of DC:
  - Max. 48V(KL7...,10KA)single pole;
  - Max. 250V(KL7-DC,6KA)single pole
- Performance:C,D characteristic curve
- Max fuse that can be connected to:100AgL(>10KA)
- Selective grade:3
- Working ambient temperature:-5 to +40° C
- Enclosed protective class:P40(Under mounting)
- Life:Electrical & Mechanical:
  - Not less of 8000 times switching operation
  - Not less of 20000 times switching operation

## 3.Mounting diagram



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**A** 13-14

## NOB7L Residual Current Circuit Breaker >>>



Combined electronic type RCD/MCB device

High breaking capacity:10kA

Line voltage-independent tripping

Compatible with standard busbar

Twin-purpose terminal(lift/open-mouthed)above and below

Switch position indicator red-green

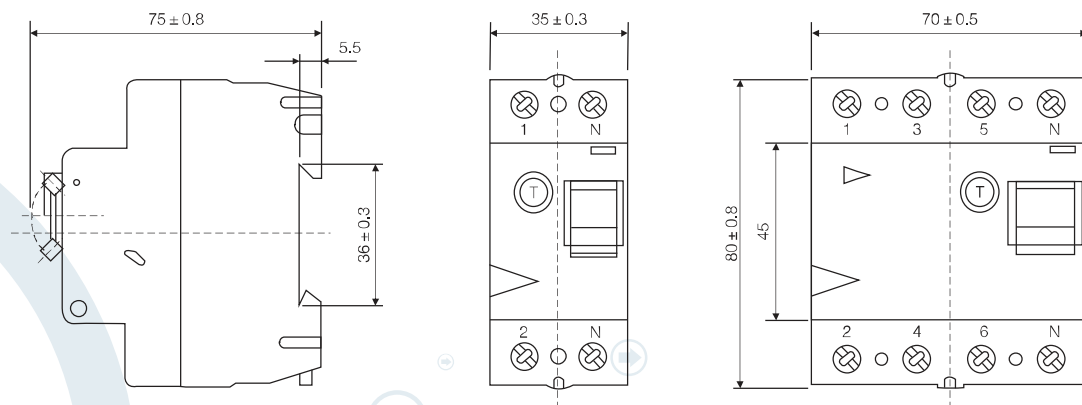
Switching toggle(MCB component)in colour designation the rated current

Busbar positioning optionally above or below

Comprehensive range of accessories suitable for subsequent installation

### Electrical technical data

Standards	IEC / EN 61009
Tripping time	Instantaneous
	Type G 10 ms delay
Rated voltage	230V 50Hz
Operational voltage range	196-253V
Rated tripping current	30, 100, 300mA
Rated non-tripping current	0.5In
Sensitivity	Type A and type AC
Selectivity class	3
Rated breaking capacity	10kA
Rated current	6-63A
Characteristic	B,C
Maximum back-up fuse(short circuit)	100A gl(>10kA)
Endurance	electrical life
	mechanical life
	>4000 operating cycles
	>20000 operating cycles



# NFIN Residual Current Circuit Breaker >>>

## 1.Application

The Residual Current Device(RCD)NFIN is mainly suitable for using in varieties of plants, enterprises, instruction,commerce,hotels and families. It can be used in circuits single phase 240V,three phases415V,rated frequency 50 or 60Hz.It can cut off the fault immediately on the occasion of shock hazard or earth leakage of trunk line.Thus it is suitable to avoid the shock hazard and fire d by earth leakage. The Residual Current Device (RCD) NFIN is conformity with the standards of IEC 1008.1,GB16916.1.

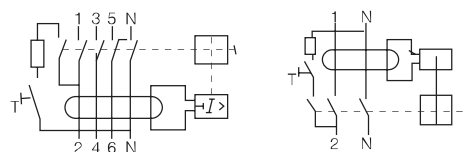
## 2.Specification

Type	NFIN25	NFIN40	NFIN63	NFIN100
Rated current In(A)	25	40	63	100
Rated operating current for earth leakage IΔn(A)	0.03,0.1,0.3,0.5		0.1,0.3,0.5	
Rated non—operating current for earth leakage IΔn(A)	0.5IΔn			
Voitage Un (V)	240(220) 415(380)			
Pole	2, 4			

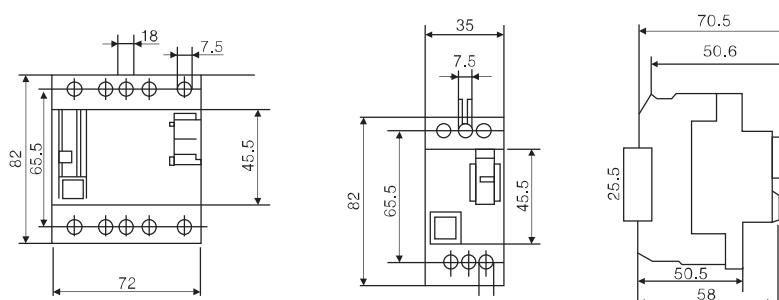
## 3.Main Technical Data

Operating time(second)	$I\Delta n$	$2\Delta n$	$0.25A$ (or $5I\Delta n$ )	
	0.2	0.1	0.04	
limited value of non-operating current for balance load or unbalance load	$2I_n$			
In minimum value of rated making and breaking capacity	$I_n=25$	$I_n=40$	$I_n=63$	
	200	300	400	
Rated conditional short circuit current $I_{nc}$ (A)	1500	2000	300	
Endurance(times)	4000			

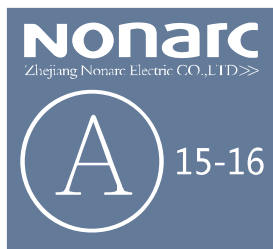
## 4.Operation Principle



## 5.Dimensions



# NBH1 Mini Circuit Breaker >>>



## 1.Applications

mini circuit breaker is used in lighting distribution system or motor distribution system for protecting overload and short-circuit in the system.the product is novel in structure,light in weight,reliable and excellent in performance,it has high breaking capacity,can trip quickly and it is installation uses with guide,it is case and items are adopted with high fire-resistant and shockproof plastics.the product,with long life,is mainly used in AC 50Hz/60Hz single-pole 246V or two,three,for-pole 415v circuit for overload and short-circuit protection as well as for un frequent on-and-off switching electric equipment and lighting circuit in normal case.this product comply with FG10963,IEC898,BS3871

## 2.Teohnical parameters

Rated temperature: 40oC.

Rate voltage: 240V/415V AC.

Rated current(C):1,3,5,6,10,15,16,20,25,32,40,50,60,63A

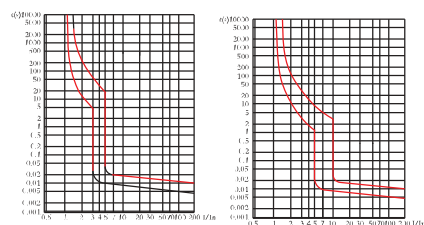
(D):1,3,5,6,10,15,16,20,25,32,40A

Electric endurance not lower than 60000 times.

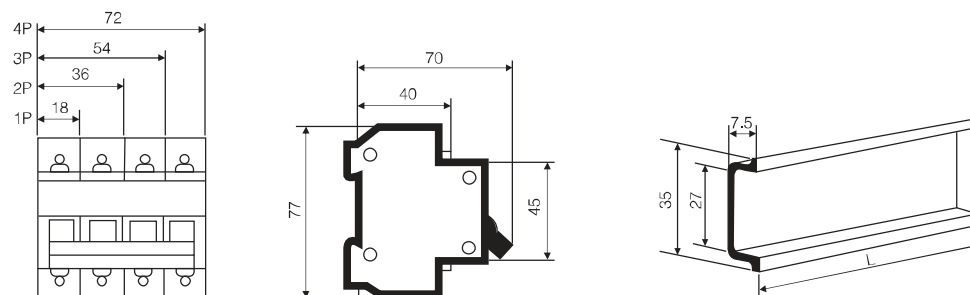
Mechanical endurance lower than 20000 times.

Tropical test:2kinds.

## 3.Characteristic Curve



## 4.Dimension & mounting



# NBH1L Modular Din Rail Electric Device >>>



## 1.Applications

The RCCB NBH1L are mainly used in varieties of factories; enterprises and building construction, 1 phase 230V and 3 phase 400V 50/60Hz, rated Current(A): 16, 20, 25, 40, 50, 63. They are not suitable for use in DC pulse system. They can cut off the fault circuit immediately on the occasion of shock hazard or earth leakage of trunk, thus, it is suitable to avoid the shock hazard and fire caused by earth leakage. They are in conformity with the standard of IEC61008.

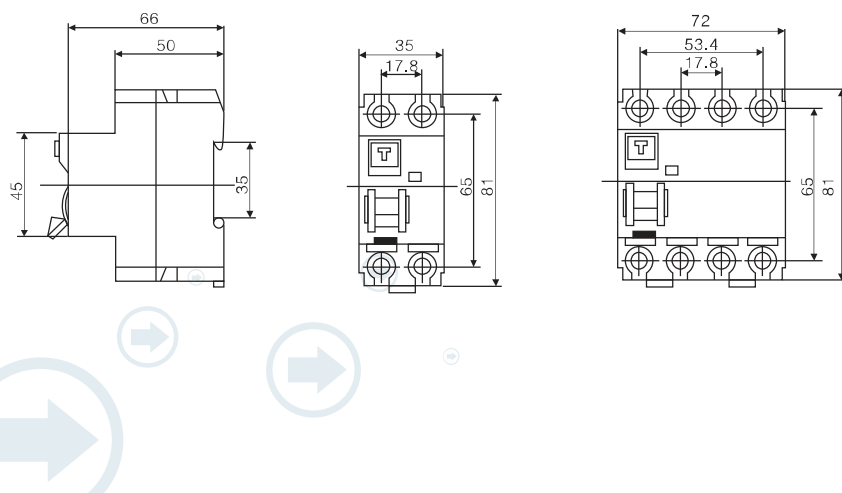
## 2.Main technical specifications

Number of poles	2P
Breaking capacity	6KA
Rated current(A)	16,25,40,63,80,100A
Rated voltage(V)	AC 2P 230/240V 4P 400/415V
Rated residual operating current(mA)	30,100,300,500mA
Rated residual non-operation current(In)	0.5In
Residual operating current scope	0.5In~In
Residual current breaking time	≤0.3s
Residual current trip characteristics	A,AC
Ultimate short-circuit breaking capacity	6000A
Endurance	≥4000
Connection Capacity	≤25mm <sup>2</sup>
Degree of protection	IP20
Standard	IEC/EN610018

## 3.Merits

Good quality , high breaking capability, updated structure,quick trip and guide installation, competitive price,excellent and safe performance,beautiful and compact appearance, etc.

## 4.Dimension & mounting



## NOH Series Switch Disconnecter >>>



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17-18

### 1.Construction and Feature

- 1.Capable of Switch electric circuit with load.
- 2.Provide function of isolation.
- 3.Contact position indication.
- 4.Used as main switch for household and simiar installation.

### 2.Technical Data

- 1.Pole:1,2,3,4Pole.
- 2.Rated Current:16,25,40,63,80,100A.
- 3.Rated Voltage:230/400V
- 4.Rated Frequency:50/60hz.
- 5.Electro-Mechanical Endurance:10K Cycles.
- 6.Connection capacity:Rigid conductor 35 sqr mm./
- 7.Connection Terminal:
  - Screw Terminal
  - Pillar terminal with clamp
- 8.Installation:
  - On symmetrical din rail 35 sqr mm.
  - Panel mounting.

## NOD1 Series Indicator >>>



### 1.modular signal lamp circuit breaker

modular signal lamp circuit breaker(MCB,modular signal) is used for visual indicator and signaling.

### 2.Specification

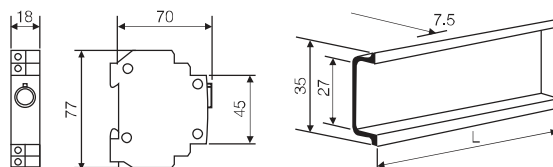
1. Rated Voltage:230V AC
2. Rated frequency:50/60Hz
3. Color:red,green,yellow
4. connection terminal:pillar conductor 10mm<sup>3</sup>

### 3.Specification and feature

1. low service duration,minimum power consumption
2. compact design in modular size
3. easy installation

### 4.Installation Size

On symmetrical DIN rail  
Panel mounting



## NOD2 Series Indicator >>>>



- 1.NOD2 series Xpole DIN rail Indicator
- 2.Light color:red,green,yellow,blue.
- 3.Din rail installation.
- 4.CE,CB,ISO9001

NOD2 series Xpole DIN rail Indicator:

Rated voltage:220/240VAC

NOD2 series Indicator light:

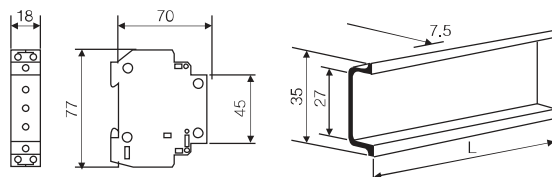
Mainly used to indicate the status of a part of the installation,heater,motor,fan and pumps etc.

Lamp:Neon Lamp or LED

Degree of protection:IP20

Din-rail mounting:EN5022

Dimension:1P length:81mm,width:18mm,height:68mm.



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## NOD3 Series Indicator >>>

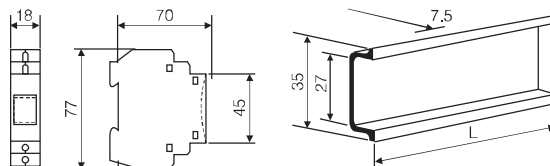


### 1.Specifications

- 1.NOD3 series modular indicator
  - 2.Neon lamp or LED
  - 3.Professional factory
  - 4.Modular indicator,electric indicator
- NOD3 series modular indicator

### 2.Description

- 1.Rated voltage:220–240VAC
- 2.LAMP:Neon lamp or LED
- 3.Lens color:red,green,orange and transparent
- 4.Degree of protection:IP20
- 5.Din-rail mounting:EN5022
- 6.Connection:1–25mm rigid conductor
- 7.Dimension:1P length:81mm,width:18mm,height 68mm



## C45D Series Indicator >>>

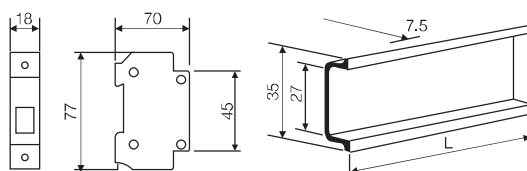


### Din Rail type LED Indicator, Neon Signal Lamp

#### 1.Specification

The DIN Rail type Modular Signal Lamp is applicable to circuit with rated voltage 230V AC, 50/60Hz for visual indication and signaling.

1. Low service duration, minimum power consumption
2. Compact design in modular size, easy installation
3. Rated voltage: 230V AC, 50/60Hz
4. Color: Red, green, yellow
5. Connection terminal: Pillar terminal with clamp
6. Connection capacity: Rigid conductor 10mm<sup>2</sup>
7. Installation:
  - On symmetrical DIN rail
  - Panel mounting
8. Illumination type:
  - A. Illumination: LED
    - Max power: 0.6W
    - Service duration: 30, 000 hours
  - B. Illumination: Neon bulb
    - Max power: 1.2W
    - Service duration: 15, 000 hours



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A 21-22

# NDL Series Electric Bell >>>



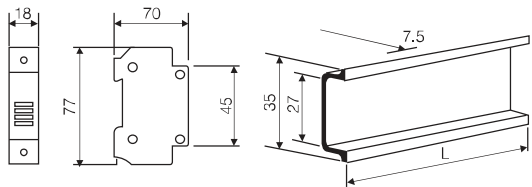
NDL NDL1 electric bell

## 1. Application

The bell can be used in 50/60Hz power circuit for alarm or indication with sound signal, and it also can be used together with our other modular products or separately.

## 2. Specification

Max. continuous duty	≤30minutes
Connection capacity	6mm <sup>2</sup>
Rated impulse withstand voltage U <sub>imp</sub>	5000V
Dielectric test voltage at ind Freq for 1 min	2.8Kv
Rated voltage	12V, 24V, 36V, 110V, 230V
Pollution degree	2
Protection class	IP20
Standard mounting	35mm DIN rail
Ambient temperature	-5 to +40
Storage temperature	-25 to +70





## 2. Model and Meaning



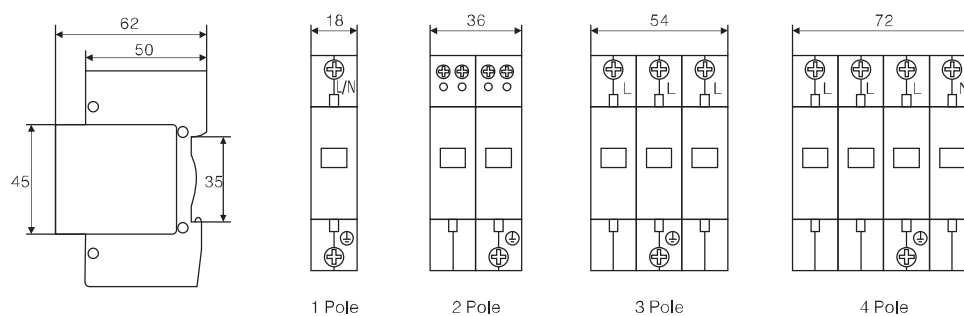
### 3.Application Scope and Installation Position

Notification: during the product design and order, you should indicate the product series, model and quantity in detail. For example: NS1-D10/2-275, 80 pieces.

#### 4. Technical Parameter

Technical Parameters	NS1-B		
Rated Operating Voltage $U_n(V\sim)$	220V 380V	220V 380V	220V 380V
Maximum Continuous Operating Voltage $U_c(V\sim)$	385V 420V	385V 420V	385V 420V
Voltage Protection Level $U_p(V\sim)kV$	$\leq 2.8 \leq 3.2$	$\leq 2.2 \leq 2.5$	$\leq 2.0 \leq 2.3$
Nominal Discharge Current $I_n(8/20\mu s)kA$	60	40	30
Maximum Discharge Current $I_{max}(8/20\mu s)kA$	100	80	60
Response Time ns	<25 ns		
Test Standard	IEC61643.1, GB18802.1		
The Cross Section of L/N Line (mm <sup>2</sup> )	16, 25	10, 16	10, 16
The Cross Section of PE Line (mm <sup>2</sup> )	25, 35	25	16, 25
Fuse or Switch(A)	63A, 100A	63A	62A, 32A
Operating Environment (centigrade)	-40℃~+85℃		
Relative Humidity (25 centigrade)	<95%		
Installation	Standard Rail 35mm		
Material of Outer Covering	Fiberglass PC		

#### 5. Dimension



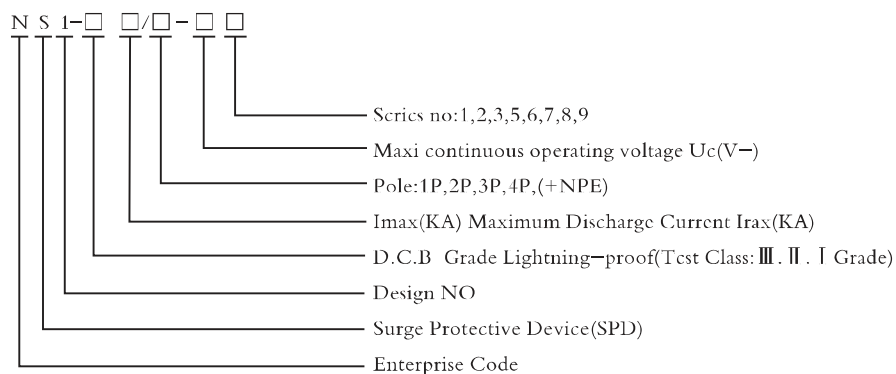
## NS1-(D.C.B)<sup>5</sup> Surge Protective Device >>>>



### 1.Product Description

NS1-(D, C, B)<sup>5</sup> series surge protection device (in short: SPD, alias: surge suppressor, surge arrester) is suitable for TN-S, TN-C-S, TT, IT etc. power supply system of AC 50/60Hz, <380V, installed on the joint of LPZ1 or LPZ2 and LPZ3, it's designed according to IEC61643-1, GB18802.1, it adopts 35mm standard rail, there is a failure release mounted on the module of surge protection device. When the SPD fails in breakdown for over-heat and over-current, the failure release will help electric equipments separate from the power supply system and give the indication signal, green means normal, red means abnormal, it also could be replaced for the module when has operating voltage.

### 2.Model and Meaning



### 3.Product Features

1. Could be replaced for the module not need power off.
2. Maximum current of endure the lightning stroke 20kA (8/20  $\mu$ s).
3. Time of response <25ns.
4. The color of visible window shows operating status, green means normal, red means abnormal.

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#### 4.Application Scope and Installation Position

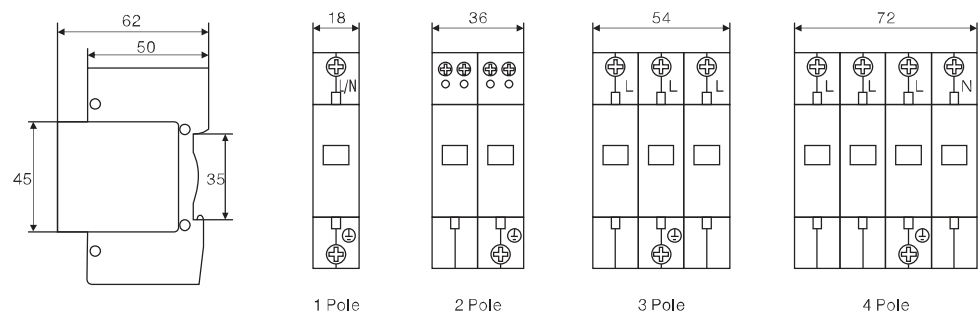
NS1-(D, C, B)5 surge protective device is applicable for D,C,B grade lightening-proof, installed on the joint of LPZOA zone or LPZOB and LPZ1 zone, which protects the electric network not shocked by thunder and lightening. These series usually installed in household distribution boards, computer equipment, frequency conversion equipment, operating room, custody, electronic equipment etc. and in the socket box in control equipment. It is also applied for below 6floor household and small villa.

Notification: during the product design and order, you should indicate the product series, model and quantity in detail. For example: 5NS1-40/4-385, 8 pieces.

#### 5.Main Technical Parameters

Technical Parameters	NS1-D.C.B				
Protection Level B,C,D Grade	D.C.B				
Rated Operating Voltage Un(V~)	380V /220V				
Maximum Continuous Operating Voltage Uc(V~)	275V	320V	385V	385V	385V
Voltage Protection Level Up(V~)kV	$\leq 1.0$	$\leq 1.2$	$\leq 1.8$	$\leq 2.0$	$\leq 2.2$
Nominal Discharge Current In(8/20s)kA	5	10	20	30	40
Maximum Discharge Current Imax(8/20s)kA	10	20	40	60	80
Response Time ns	<25 ns				
Test Standard	IEC61643.1, GB18802.1				
Operating Environment (centigrade)	-40℃~+85℃				
Max Connection Line	35mm <sup>2</sup> hard wire/ 35mm <sup>2</sup> strand wire copper line				
Recommended Connection Line	16mm <sup>2</sup> hard wire/ 25mm <sup>2</sup> strand wire copper line				
Installation	Standard Rail 35mm				
Material of Outer Covering	Burning-proof Nylon				

#### 6.Dimension



## NS3 Surge Protective Device >>>



### 1.Product introduction

NS3 series surge protective device (hereinafter called SPD) is suitably used in the IT, TT, TN-C, TN-S, TN-C-S and etc power supply system of AC 50/60Hz, rated voltage up to 380V, to protect from direct and indirect lightning impulse and other transient over voltage. As per the conditions of IEC61643-1:1998-02 standard, Class I surge protective device, it is category B surge protective device.

### 2.Operation Elements

Single pole structure, single pole or three poles combined SPD available.

SPD has built-in disconnector, when SPD is invalid due to overheating or breakdown, the disconnector can automatically separate SPD from the network, meanwhile send an indication signal.

The visible window show white color in normal service, if to be separated from network, it will show red color. It can adopt Kelvin wiring mode.

Large current carrying capacity, fast response time, low residual voltage.

### 3.Installation

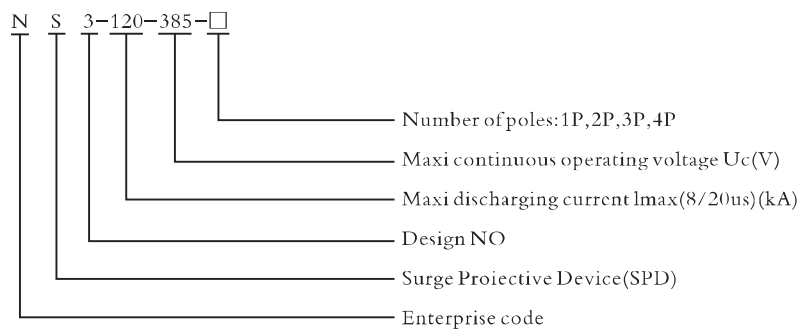
Category B surge protective device (SPD), used in the connection between equal potential electrodes while thunder occur.

To be mounted: between LPZ0A or LPZ0B zone and LPZ1 zone, adopts 35mm standard mounting rail. The cross sectional area of multi-strand soft copper conductor: 2.5~35mm<sup>2</sup>

Generally to be installed in low voltage main incoming distribution panel, overhead incoming. As required, the user can assemble single pole or three poles surge protective device freely.

Generally to be installed in low voltage main incoming distribution panel, earthing wire shall be dual color multi-strand soft copper conductor more than 16 mm<sup>2</sup>.

### 4.Model and meaning



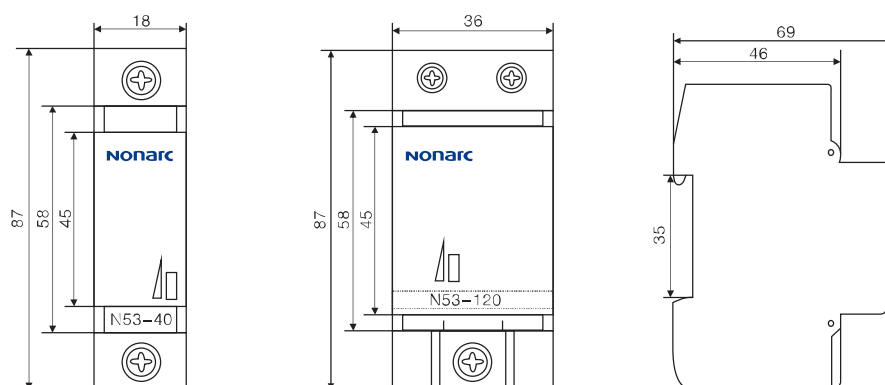
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## 5. Technical Parameter

Type& Specs	NS3-15		NS3-40		NS3-65		NS3-80		NS3-100		NS3-120	
Max Continuous operating voltage $U_c(VAC)$	420	275	420	275	420	275	420	275	420	275	420	275
Protection voltage level UP (kV) $\leq$	1.2	1.0	1.8	1.5	2.5	1.5	2.5	1.8	2.8	2.0	3.0	2.0
Max. discharging current (8/20 $\mu$ s) $I_{max}$ kA	15		45		65		80		100		120	
Nominal discharging current (8/20 $\mu$ s) $I_n$ kA	5		15		30		40		50		60	
Response time ns	<25											
Invalidation indicating	Aging invalidation: white: Normal ; red: invalidated											
Protection degree	IP20											
Application	Protection for incoming line											

## 6. Outside Size



# NS6 Surge Protective Device >>>>



## 1.Product introduction

NS6 series surge protective device (hereinafter called SPD) is suitably used in the TT、TN-S、TN-C、IT、TN-C-S and etc power supply system of AC 50/60Hz, rated voltage 380V and below, to protect from direct and indirect lightning impulse and other transient over voltage. SPD meets with GB18802.1/IEC61643-1 standard

## 2.Installation

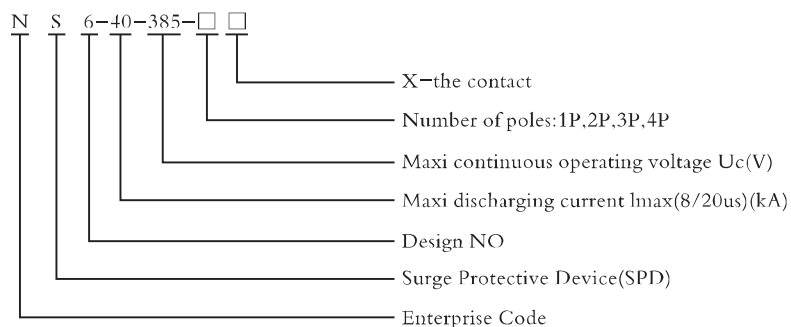
NS6-20 is mounted between LPZ1 or LPZ2 zone and LPZ3 zone. The cross sectional area of multi-strand soft copper conductor to be connected: 2.5~35 mm<sup>2</sup>. It is used in distribution boxes of living house, computer center, communication equipment, electronic equipment and control equipment or nearest socket box.

NS6-40 is mounted between LPZ0B or LPZ1 zone and LPZ2 zone. The cross sectional area of multi-strand soft copper conductor to be connected: 2.5~35 mm<sup>2</sup>.

## 3.The Contact

Contact for remote communication can be provided for SPD, the contact has one pair for transferring, 11 as middle position, 12 and 11 opened under SPD acting, 14 and 11 closed under SPD acting, 11 and 14 as NO contact. If one or more of modules of SPD is invalid, the contact will be closed and send fault signal.

## 4.Model and meaning



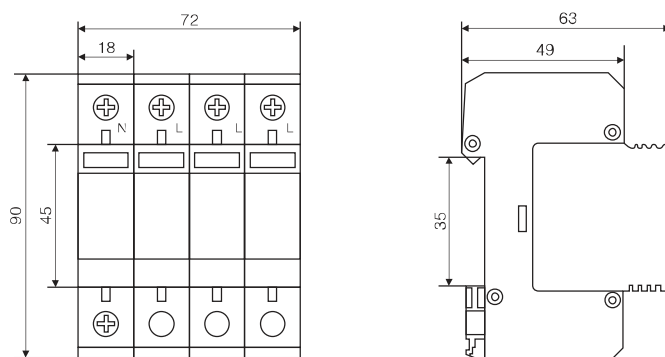
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## 5. Technical Parameter

Type& Specs	NS3-15		NS3-40		NS3-65		NS3-80		NS3-100		NS3-120		
Max Continuous operating voltage Uc(VAC )	420	275	420	275	420	275	420	275	420	275	420	275	
Protection voltage level UP (kV)≤	1.2	1.0	1.8	1.5	2.5	1.5	2.5	1.8	2.8	2.0	3.0	2.0	
Max.discharging current (8/20μs) Imax kA	15		45		65		80		100		120		
Nominal discharging current (8/20μs) In kA	5		15		30		40		50		60		
Response time ns	<25												
Invalidation indicating	Aging invalidation: white: Normal ; red: invalidated												
Protection degree	Ip20												
Application	Protection for incoming line												
Remote signal function	Can be ordered												
Remarks	Other max continuous voltage (Uc) should be customized												

## 6. Outside Size



## NOM1 Series >>>



### 1.Application

Molded Case Circuit Breakers NOM1 series (hereinafter called as NOM1 MCCB) is a new designed MCCB developed and manufactured adopting international advanced technology. NOM1 MCCB rated insulating voltage AC 800V is suitable for using in the circuit of AC 50Hz /60Hz, rated voltage up to 690V, rated working current up to 630A to distribute electric power and to protect the line and the equipment from being damaged due to overload, short current and under-voltage. It can also be used for infrequently switch and starting of motor and for motor overload, short circuit and under-voltage protections. NOM1 MCCB with the advantages of the small volume, high breaking capacity, short over-arc (some of specification is zero arcing), strong anti-vibration and so on. In accordance with the ultimate short circuit breaking capacity classified into four types: Type C (basic), Type L (standard), Type M (middle), Type H (high).

MCCB comply with the following standards:

- ★ IEC 60947-1 and GB/T 14048.1 General
- ★ IEC 60947-2 and GB/T 14048.2 Low voltage breakers.
- ★ IEC 60947-4 and GB/T 14048.4 Contactors and motor starters.
- ★ IEC 60947-5.1 and GB/T 14048.5 Electrical equipment of electro-mechanical control circuit.

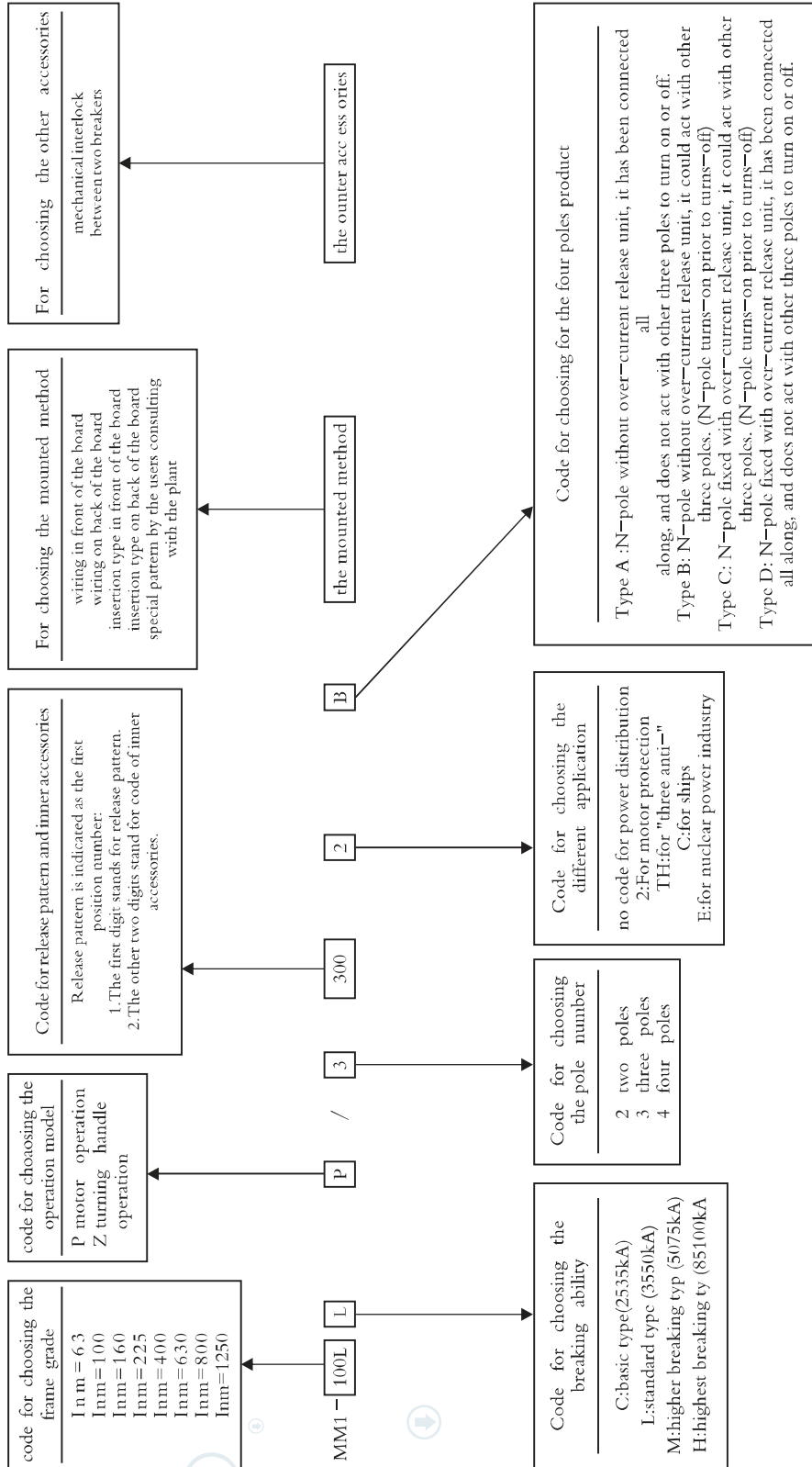
### 2.Working Condition

- ★ Not over altitude 2000m.
- ★ Ambient temperature is between -5 to +40 (+45 for using marine)
- ★ Withstand the influence of moist air;
- ★ Smoke fog, salt mist and oil mist;
- ★ Withstand the influence of fungus;
- ★ Max gradient is 22.5
- ★ Working reliably under the condition of normal vibration in ship;
- ★ Working in the medium which not any explosive, no enough dielectric to corrode metal, no gas to damage insulation and electric conduction dust.
- ★ Working in the place would not be invaded by rain and snow.
- ★ Classification according to rated current (A):  
 NOM1-63 has nine grades: (6), 10, 16, 20, 25, 32, 40, 50, 63A  
 NOM1-100 has ten grades: (10), 16, 20, 25, 32, 40, 50, 63, 80, 100A  
 NOM1-160 has four grades: 100, 120, 140, 160A  
 NOM1-225 has seven grades: 100, 125, 140, 160, 180, 200, 225A  
 NOM1-400 has five grades: 225, 250, 315, 350, 400A  
 NOM1-630 has three grades: 400, 500, 630A  
 NOM1-800 has three grades: 630, 700, 800A  
 NOM1-1250 has three grades: 800, 1000, 1250A [specifications in brackets is not recommend].
- ★ The wiring method has four ways: wiring in front of the board, wiring on back of the board, insertion type in front of the board and insertion type on back of the board.
- ★ According to the over-current release pattern, it would be divided two types: thermo-electromagnetic (double) type and electromagnetic (instantaneous) type.
- ★ According to the outfit, it also has two types: with or without outfit. The outfit include inner and outside accessories.
- ★ The inner accessories have shunt release. Under-voltage release. Auxiliary contact and alarm contacts four kinds.
- ★ The outside accessories are tuning handle operation mechanism, power-driven operation mechanism, interlocking mechanism and the connecting terminal busbar of auxiliary device.

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### 3.Model Selection Table



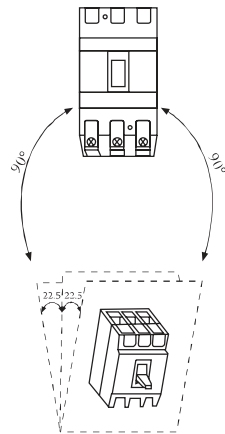
#### For example:

- ★ When placing an order MM1-100M, three pole, motor protection, rated current 80A with shunt release, auxiliary contact, front board connection, and two set mechanical interlock mechanism, which can be shortly write: MM-1-100M/33-H02 In=80A, front board connection 2sets mechanical interlock mechanism, release coil voltage: AC220V.
- ★ When placing an order for MM1-225, four pole, distribution, rated 180A, and with motor operation mechanism and shunt release, install over-current release at N-pole, and N-pole and the other three poles is ON=OFF mode, rear board connection 10 pcs, which can be shortly write: MM1-225P/4310C. In=180A rear board connection, motor voltage 220V, release coil voltage: 220V.

## NOM1 Series >>>

### 4. Protection Characteristics

NOM1 MCCB provides the feature of inverse time lag being thermodynamic release and the instant operation being the magnetic release details as shown on Table 1 (use of distribution) and Table 2 (use for motor protection circuit breaker)



Rated current of release (A)	Thermodynamic release (ambient temp land +40°C marine +45°C)		Electromagnetic release action current (A)	
	1.05I <sub>n</sub> (cold state) non-action time (h)	1.30I <sub>n</sub> (hot state) action time (h)		
I <sub>n</sub> ≤ 63	≥ 1	< 1	10I <sub>n</sub> ± 20%	
63YI <sub>n</sub> ≤ 125	≥ 2	< 2		
125YI <sub>n</sub> ≤ 250	≥ 2	< 2	5I <sub>n</sub> ± 20%、10I <sub>n</sub> ± 20%	

Rated current of release (A)	Thermodynamic release (ambient temp land +40°C marine +45°C)				Electromagnetic release action current (A)
	1.0I <sub>n</sub> (cold state) non-action time (h)	1.20I <sub>n</sub> (hot state) action time (h)	1.50I <sub>n</sub> (hot state) action time (h)	7.2I <sub>n</sub> (cold state) action time (h)	
10 < I <sub>n</sub> ≤ 225	≥ 2	< 2	4min	2s < T <sub>p</sub> ≤ 10s	12I <sub>n</sub> ± 20%
225 < I <sub>n</sub> ≤ 1250			8min	4s < T <sub>p</sub> ≤ 20s	

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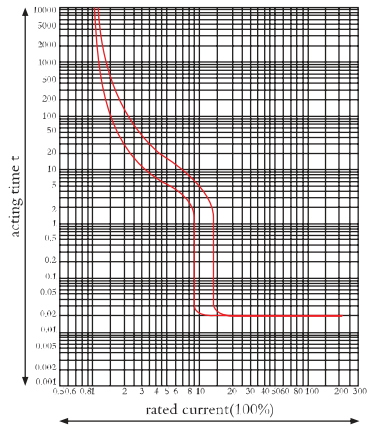


### 5. Protection Characteristics

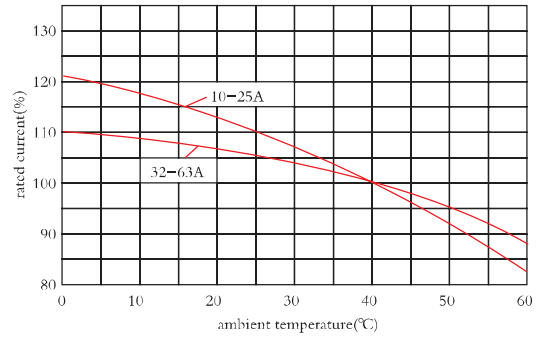
Type	Rated current	Pole number	Rated insulating voltage (V)	Rated working voltage (V)	Arcing-over distance (mm)	Limiting shortcircuit breaking capacity Icu(KA)	Operating shortcircuit breaking capacity Ics (KA)	breaking capacity Icu(KA)	
								Energized	Unenergized
NOM1-63L	6,10,16,20,25 32,40,0,63	2/3/4	800V	690V and below	0	25	18	2000	10000
NOM1-63M					0	50	35		
NOM1-100C	0				25	18			
NOM1-100L	0(≤50)				35	22			
NOM1-100M	0(≤50)				50	35			
NOM1-100H	0(≤50)				85	50			
NOM1-225C	100,25,140 160,180,200 225				≤50	25	18	2000	10000
NOM1-225L					≤50	35	22		
NOM1-225M					≤50	50	35		
NOM1-225H					≤50	85	50		
NOM1-400C	225,250,315 350,400				≤50	35	25	1000	5000
NOM1-400L					≤50	50	35		
NOM1-400M					≤100	65	42		
NOM1-630C	400,500,630				≤100	35	25		
NOM1-630L					≤100	50	35		
NOM1-630M					≤100	65	42		
NOM1-630H					≤100	100	65		
NOM1-800M	630,700,800				≤100	75	50	1000	2000
NOM1-800H					≤100	100	65		
NOM1-1250H	800,1000,1250							≤120	100

## 6.Characteristic Curve

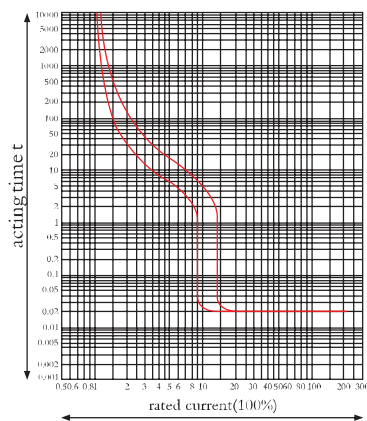
NOM1-63L、M time/current characteristic curve



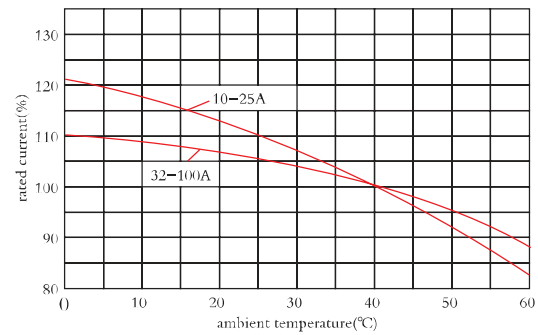
Current-temperature characteristic



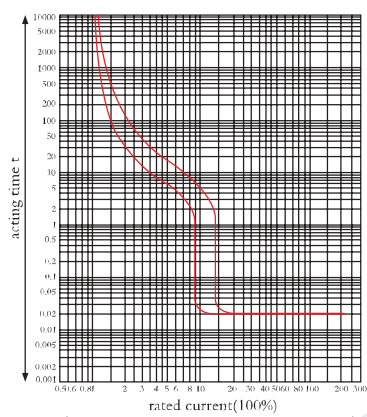
NOM1-100C、L、M、H time/current characteristic curve



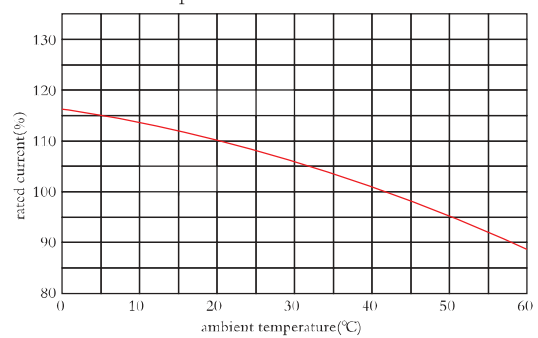
Current-temperature characteristic



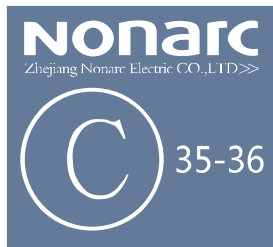
NOM1-225C、L、M、H time/current characteristic curve



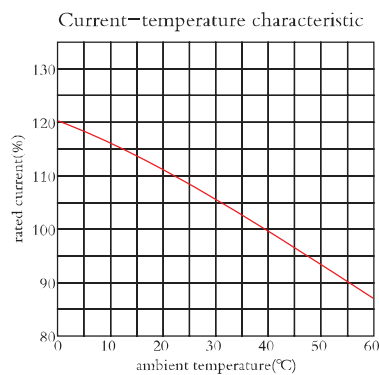
Current-temperature characteristic



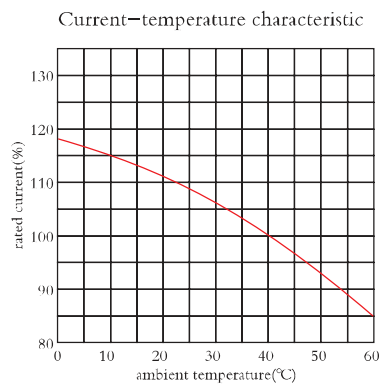
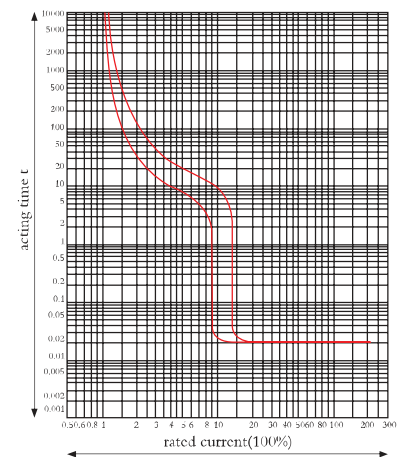
# NOM1 Series >>>



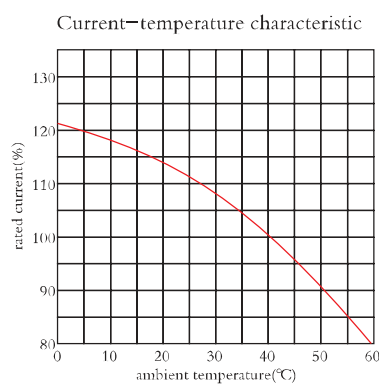
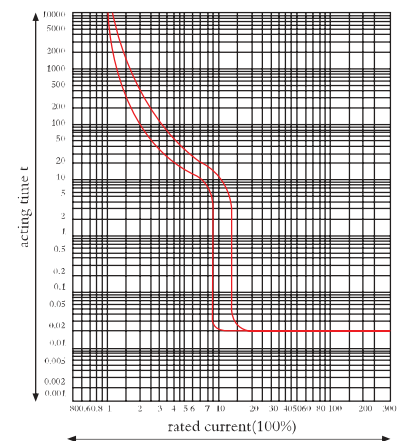
## 7.Characteristic Curve



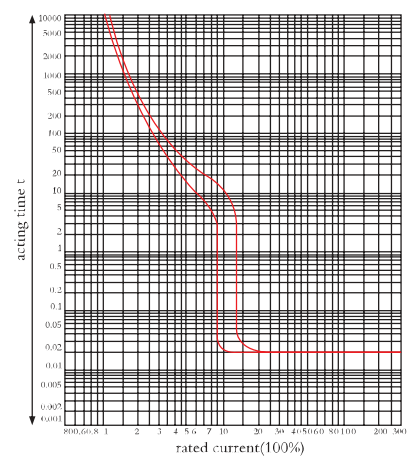
NOM1-400C、L、M、  
time/current characteristic curve



NOM1-630C、L、M、  
time/current characteristic curve



NOM1-630C、L、M、  
time/current characteristic curve



## 8.Overall and Installation Dimension

Type	NOM1										
	Unit	Symbol	63L	63M	100C/L	100M/H	225C/L	225M/H	400C/L	400M/H	630C/L/M
Overall dimension of front board wiring	mm	W	76	76	91	91	106	106	148	180	180
	mm	W1	50	50	60	60	70	70	96	116	116
	mm	L	135	135	150	150	165	165	256	270	270
	mm	L1	154	154	199	199	230	230	356	370	370
	mm	L2	117	117	132	132	144	144	223	237	237
	mm	L7	27	27	28	28	37.2	37.2	66.1	63.2	63.2
	mm	H	73.5	81	69	86	86	104	105	111.5	111.5
	mm	H1	90.5	98.5	86	104	110	127	155	160	160
	mm	H2	19.5	27.5	24	24	24	24	38	40	40
	mm	H3	7	7	7	7	4.5	4.5	8	8	8
	mm	H4	4	4	4	4	3.5	3.5	6	6	6
	mm	C	85	85	88	88	102	102	128	134	134
	mm	D	26	26	32.5	32.5	31.5	31.5	64.5	69.5	69.5
	mm	E	48	48	58	58	58	58	89	89	89
	mm	F	22	22	22.5	22.5	25	25	65	65	65
	mm	G	14	14	17	17	17.5	17.5	32.5	44.5	44.5
	mm	I	7.5	7.5	8	8	9	9	12.5	13	13
	mm	W2	103	103	121	121	141	141	196.5	238.5	238.5
	mm	W3	75	75	90	90	105	105	144	173.5	173.5
Overall dimension of rear board wiring	mm	L3	116.5	116.5	132.5	132.5	144	144	224	234.5	234.5
	mm	L4	117	117	102.5	102.5	123	123	194	200	200
	mm	H5	25	25	68	68	73	73	66	68	68
	mm	H6	49.5	49.5	102	102	110	110	118	124	124
	mm	φD	6.5	6.5	24	24	24	24	24	24	24
	mm	M	M6	M6	M8	M8	M10	M10	M12	M16	M16
	mm	L5	100	100	92	92	94	94	169	170	170
Overall dimension of insert-type wiring	mm	L6	135	135	168	168	185	185	279	299	299
	mm	H7	27.5	27.5	38	38	45.5	45.5	60	60	60
	mm	H8	36	36	65	65	68.5	68.5	81.5	92	92
	mm	H9	43	43	77	77	86.5	86.5	105.5	112	112
	mm	H10	8	8	17.5	17.5	18	18	18.5	20	20
	mm	J	60	60	56	56	54	54	129	123	123
	mm	K	50.5	50.5	60	60	70	70	60	100	100
	mm	φ d1	5.5	5.5	6.5	6.5	6.5	6.5	8.5	8.5	8.5
	mm	M1	M5	M5	M8	M8	M8	M8	M12	M12	M12
Installation Dimension	mm	A	25	25	30	30	35	35	44	58	58
	mm	B	117	117	129	129	126	126	194	200	200
	mm	φ d	3.5	3.5	4.5	4.5	5	5	7	7	7

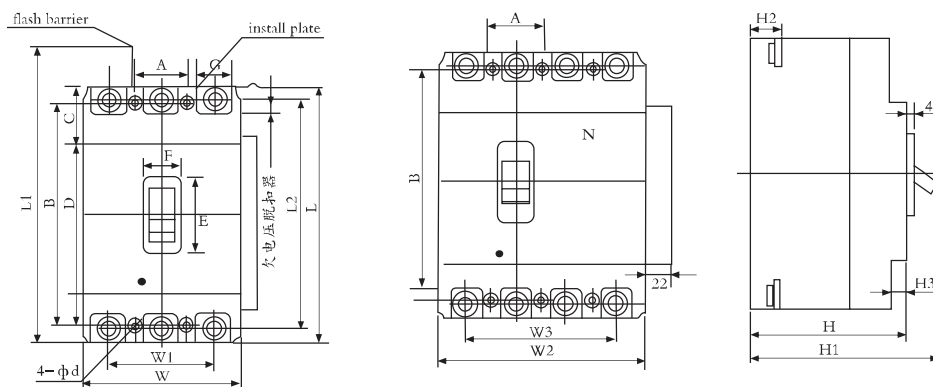
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**C** 37-38

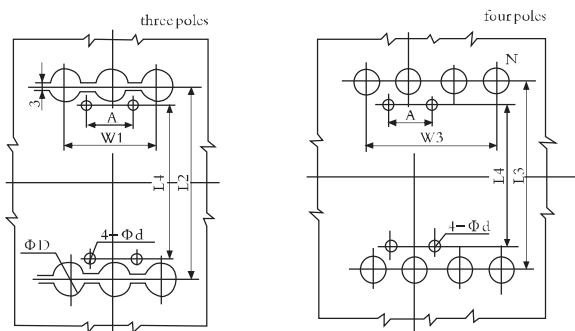
## NOM1 Series >>>

### 9.NOM1-63~630M Over and Installation Dimension

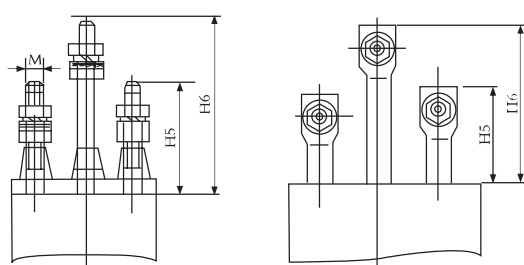
#### Front board wiring



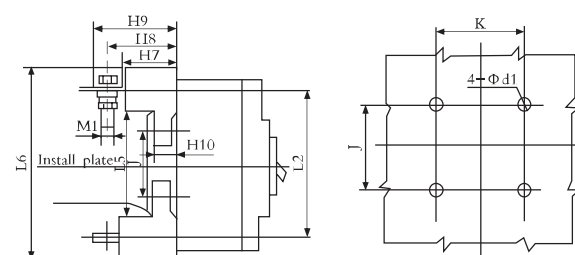
#### Aperture drawing of rear board wiring



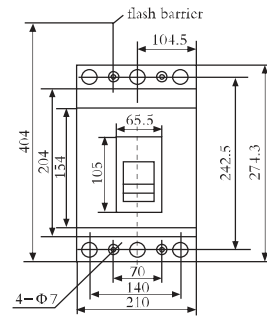
#### Rear board wiring



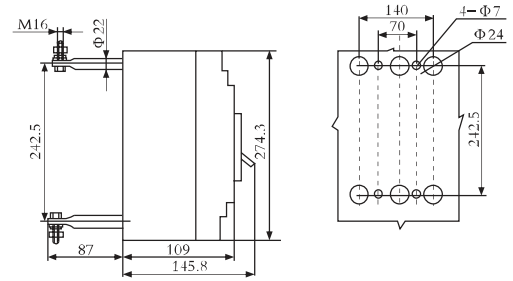
#### Insertion type



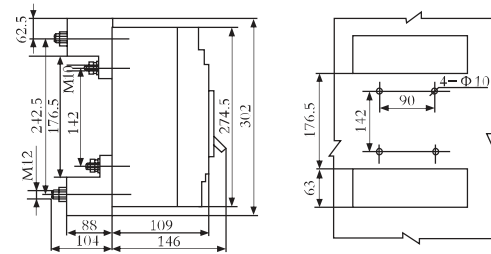
Overall dimension of front board wiring(three poles)



Overall dimension of rear board wiring(three poles)

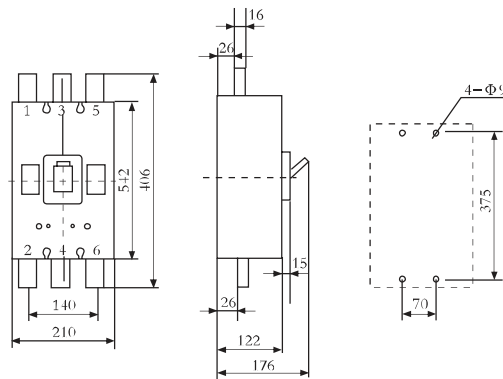


Overall Installation and Aperture Dimension of Insert-type

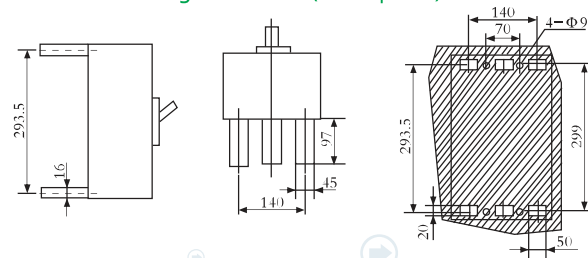


## 10.NOM1-1250 Overall and Installation Dimension

Front Board Wiring Dimension(three poles)



Rear board wiring Dimension(three poles)



## NOM3 (ABB-S) Series >>>>

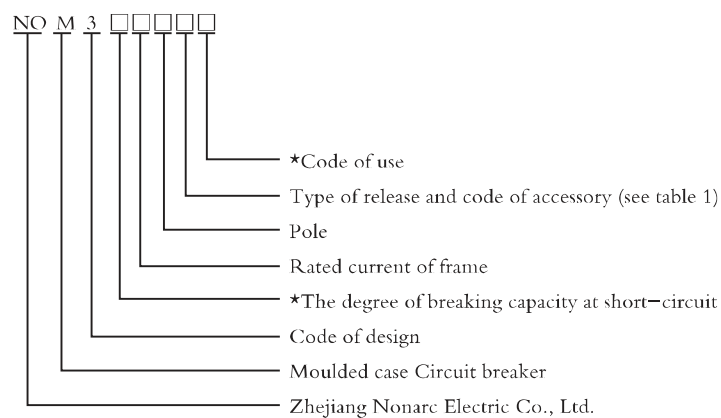


### 1.Suitable range

NOM3(ABB-S) series moulded case breaker ( named breaker below) is applicable to the distribution network of AC 50Hz, rated insulation voltage 690V (400V for the frame with rated current of 125A), max 690V or less, and max 800A as the distribution of electric energy, the breakers with 400A or less may be applied to protect the motor. Under normal condition, the breaker may be applied as unfrequent change-over of circuit and unfrequent start of motor.

This product accordance with the standards of IEC947-2-1989 and GB14048.2-1994.

### 2.Model and Meaning



#### Remark:

\* The breaker for distribution has no code, the one for motor protection is indication with " 2 " .

\* L-standard type, H-high breaking type.

table 1

Name of accessory	Code of accessory	The type of release	
		Instantaneous release	Duplex release
No		200	300
Warning contact		208	308
Shunt release		210	310
Shunt release warning contact		218	318
Auxiliary contact		220	320
Auxiliary contact warning contact		228	328
Under-voltage release		230	330
Under-voltage release warning contact		238	338
Shunt release auxiliary contact		240	340
Shunt release auxiliary contact warning contact		248	348
Two groups of contacts		260	360
Two groups of contacts and warning contact		268	368
Under-voltage release auxiliary contact		270	370
Under-voltage releaseauxiliary contact warning contact		278	378

Remark: two groups of auxiliary contacts and warning contact 268/368 effective only for the breaker with Inm equal to 630A or 800A.

### 3.Main technical parameters

See table 2 for basic parameters

table 2

Type	Rated current of frame(A)	Rated operating voltage(V)	Rated frequency (Hz)	Rated current (A)	Pole
NOM3L、H-125	125	400 690	50	12.5,16,20,25,32,40,50,63,80,100,125	3、4
NOM3L、H-160	160		50	16,20,32,40,50,63,80,100,125,160	3、4
NOM3L、H-250	250		50	100,125,160,180,200,225,250	3、4
NOM3L、H-400	400		50	200,225,250,315,350,400	3、4
NOM3L、H-630	630		50	400,500,600	3、4
NOM3L、H-800	800		50	500,630,700,800	3、4

## NOM3 (ABB-S) Series >>>

See table 3 for the breaking capacity

table 3

Rated current of frame	Rated ultimate short-circuit Icu (kA)		Rated service short-circuit breaking capacity Ics (kA)	
	AC400V	AC690V	AC400V	AC690V
NOM3L-125	16	8★	8	4★
NOM3H-125	25	12★	12.5	6★
NOM3L-160	16	6	12	4
NOM3H-160	35	8	17.5	6
NOM3L-250	35	14	26	11
NOM3H-250	65	8	48	13.5
NOM3L-400	35	20	26	15
NOM3H-400	65	25	48	25
NOM3L-630	50	20	30	20
NOM3H-630	80	25	60	25
NOM3L-800	50	20	30	20
NOM3H-800	80	25	60	25

Remark: "★" indication the breaking capacity at short-circuit under 500V.

See table 4 for the protection characteristic of short-circuit.

The setting value of short-circuit protection current reaches the precise degree of  $\pm 20\%$ .

table 4

Type	Rated current In (A)	For distribution	For motor protection
NOM3L、H-125	12.5、16、20、25、32、40	500A	500A
	50、63、80、100、125	10In	12In
NOM3L、H-160	16、20、32、40	500A	500A
	50、63、80、100、125、160	10In	12In
NOM3L、H-250	100、125、160、180、200、225、250	10In	12In
NOM3L、H-400	200、225、250、315、350、400	10In	12In
NOM3L、H-630	40、500、630	10In	
NOM3L、H-800	500、630、700、800	10In	

See table 5 for the characteristic of inverse time-delay opening of breaker for distribution (under the ambient temperature of +40)

table 5

Name of trial current	The multiple of setting current	Conventional time (h)		Start-off state
		In $\geq 63A$	In $> 63A$	
Conventional no tripping current	1.05	$\geq 1$	$\geq 2$	Cold state
Conventional tripping current	1.30	$< 1$	$< 2$	Heat state

See table 6 for the characteristic of inverse time-delay opening of breaker for motor-protection (under the ambient temperature of +40 )

table 6

Name of trial current	The multiple of setting current	Conventional time (h)	Start-off state
Conventional no tripping current	1.0	$\geq 2$	Cold state
	1.20	$< 2$	Heat state
Conventional tripping current	1.50	$\leq 2\text{min}$	Heat state
	7.20	$2s < T_p \leq 10s$	Cold state

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### The technical parameters of accessory

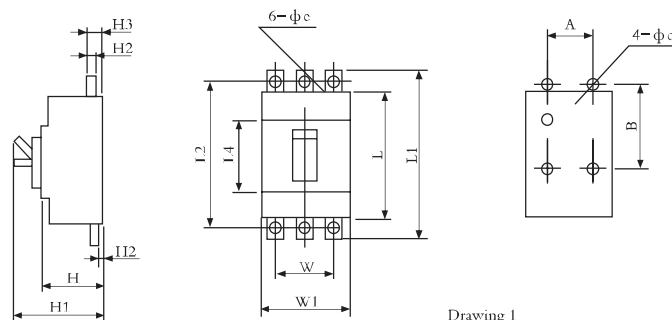
- 1) The action value of shunt release: the shunt release makes reliable action under rated control voltage of 70% to 110%
- 2) The action value of under-voltage release: when the voltage drops to between 35% and 70% as much as rated work voltage of under-voltage release, the under-voltage release makes the reliable action. When the voltage is less than 35% of rated work voltage of under-voltage release, the under-voltage release can prevent the breaker from closing. When the voltage is 85% or more of rated work voltage of under-voltage release, it can ensure the breaker closing reliably.
- 3) The action value of electric operation mechanism: when operation by motor, can ensure the breaker reliable action under any voltage between 85% and 110% of rated control voltage.
- 4) See table 7 for auxiliary contact, warning contact and rated value.

table 7

Conventional thermal current Ith (A)	Rated insulation voltage Ui (V)	Rated operating current Ie (A)			Applicable rated current of frame Inm(A)
		AC400V	AC230V	DC250V	
4	230	—	3	—	125、160
6	400	3	6	0.15	250、400
6	400	3	6	0.20	630、800

### 4.Contour and installation dimension

See drawing 1 and table 8 for contour dimension (plate-front wiring)



Drawing 1

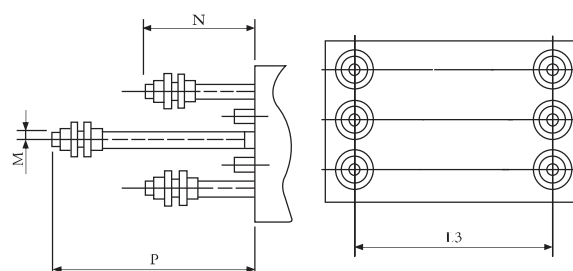
table 8

Type	Contour dimension							Installation dimension						
	W	L	H	L1	H1	H2	H3	A	B	W1	ød	L2	øe	L4
NOM3L、H-125	78	120	70		91	25.5		25	100	50	5			45
NOM3L、H-160	90	120	70		93	27.5		30	100	60	5			45
NOM3L、H-250	105	170	103.5	235	135	25	31	35	139	70	6	210	8.5	105
NOM3L、H-400	140	254	103.5	310	135	25	31	44	214	87.5	6	285	11	105
NOM3L、H-630	210	268	103.5	365	167.5	36.5	41.5	70	237	140	6	309	11	105
NOM3L、H-800	210	268	103.5	365	167.5	36.5	41.5	70	237	140	6	355	11	105

See drawing 2 and table 9 for plate-back screw terminal

table 9

Type	N	P	M	L3
NOM3L、H-125	42	75	M8	102
NOM3L、H-160	42	75	M8	102
NOM3L、H-250	55	100	M12	143
NOM3L、H-400	62	108	M16	248
NOM3L、H-630	68	68	M24×2	241
NOM3L、H-800	68	68	M2×2	241



## MOM8 Series >>>



### 1.Applicable scope

NOM8(NS) series plastic outer covering type circuit breaker is this company uses one of international vanguard technology development development new circuit breakers, its fixed insulation voltage is 950V, is suitable in exchanges 50Hz or (60Hz), fixed working voltage 690V and below, fixed operating current 12.5A to in the 630A electric current, uses for to assign the electrical energy, in normal condition mean infrequent closed and using of the separation, and overloads, owes the voltage the protective function when the line and the equipment. Fixed shell rank electric current in 400A and following circuit breaker, also may do is the cage electric motor to start not frequently, the revolution interrupts as well as overloads in the electric motor, the short circuit and owes when the voltage protective function. The product conforms to IEC60947-2 standard.

### 2.Tripping characteristics

Rated current of release(A)	Thermodynamic release(ambient temp +40° C)			operational current of magnetic release(A)	
	1.05In(cold state) in operative time(h)	1.30(heat state) inoperative time(h)			
In≤63	≥1	<1		10In±20%	
63<In≤100	≥2	<2		10In±20%	
100<In≤630	≥3	<3		5—10In±20%	
Rated current of release(A)	Thermodynamic release(ambient temp +40° C)				operational current of magnetic release(A)
	1.0 In(cold state) operative time(h)	1.20(heat state) operative time(h)	1.50(heat state) operative time(h)	1.01(heat state) operative time(h)	
12.5<In≤400	≥2	<2	≤4min	2s<tp≤400	12In±20%

### 3.Technical parameters

Type	Rated current (A)	Poles	Rated insulating voltage(V)	Rated operating voltage(V)	Arcing over distance(mm)	Icu (kA)	Ics (kA)	Operating performance (time)
NOM8-100D	12.5,16,20,25 32,40,50,63 80,100	3、 4	950	690	0	18	18	1500,8500
NOM8-100N						25	25	
NOM8-100H						70	70	
NOM8-100L						150	150	
NOM8-160D	100,125,160					25	25	1500,7000
NOM8-160N						36	36	
NOM8-160H						70	70	
NOM8-160L						150	150	
NOM8-250D	160,180,200 225,250					25	25	1000、 7000
NOM8-250N						36	36	
NOM8-250H						70	70	
NOM8-250L						150	150	
NOM8-400D	300,315 ,400					35	35	1000、 4000
NOM8-400N						45	45	
NOM8-400H						70	70	
NOM8-400L						150	150	
NOM8-630D	400,500 ,630					35	35	1000、 4000
NOM8-630N						45	45	
NOM8-630H						70	70	
NOM8-630L						150	150	

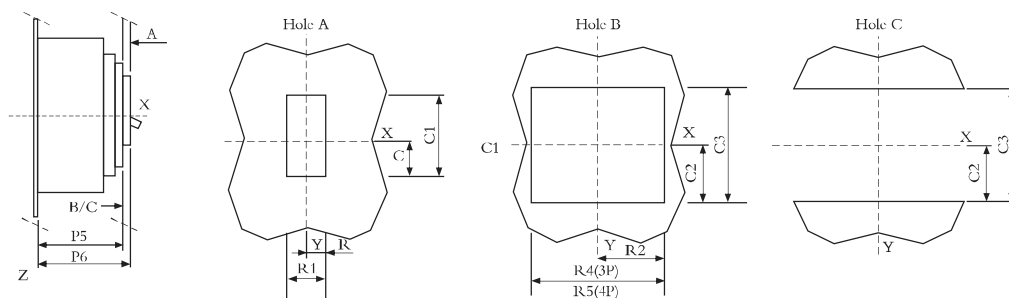
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Type	Rated current (A)	Poles	Rated insulating voltage(V)	Rated operating voltage(V)	Arcing over distance(mm)	Icu (kA)	Ics (kA)	Operating performance (time)
NOM8-1250D	800 1000 1250	3、4	950	690	0	50	50	500、2500
NOM8-1250N						65	65	
NOM8-1250H						85	85	
NOM8-1250L						160	160	
NOM8-1600D	800 1000 1250 1600					50	50	500、2500
NOM8-1600N						65	65	
NOM8-1600H						85	85	
NOM8-1600L						160	160	

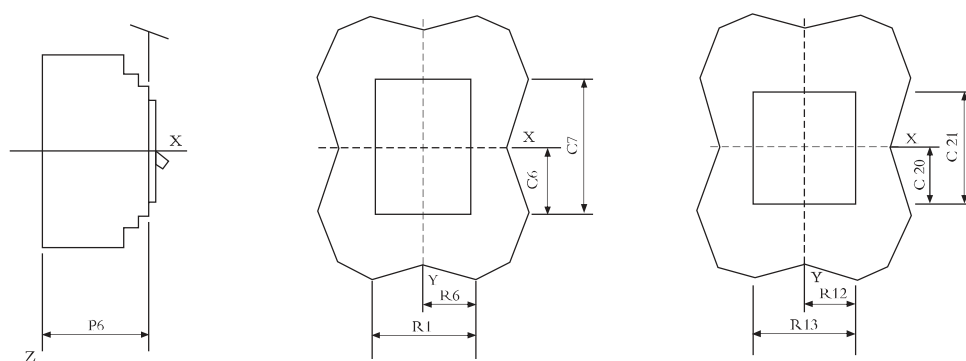
#### 4.Mounting diagram and sizes

Uses in the stationary type or the jack-in circuit breaker



Belt product label

The belt pulls out moves the switch



## MOM8C Series >>>>



### 1.Applicable scope

The NOM8C series plastic outer covering type circuit breaker is suitable in exchanges 50/60Hz, the fixed working voltage is highest to 550V, nominal current  $I_n$  in the 15–630A low pressure electrical power distribution system uses in protecting the distribution line and the current collector, exempts is overloaded, the short circuit and the earth fault harm, provides the power supply the continuity and the reliability.

### 2.Features

- 1) Its contact and arc suppression system adopt revolving double cot-off point design so as to improve breaking capability
- 2) Its tripper has therm-magnetic trip and electric trip
- 3) Rated insulating voltage:950V
- 4) Frequency:AC 50Hz (60Hz)
- 5) Rated working voltage:690V or below
- 6) Rated working current:12.5 to 1250A

### 3.Technical parameters

Specification			NOM8C-100	NOM8-250
Number of Poles			3	3
Rated Current In(A)			15、 20、 25、 30、 40 50、 60、 75、 80、 100	125、 160、 225、 250
Rated Operating Voltage Ue(V) AC50/60Hz			500	500
Rated Insulation Voltage Ui(V)			500	500
Rated Uimp (kV)			6	6
Breaking Capacity (kA ms) IEC60947-2	Icu、 AC	220/240V	50	85
		380V	30	18
		400V	20	15
	Ics%、 Icu	220/240V	25%	25%
		380V	25%	25%
		400V	25%	25%
Breaking Capacity (kA) NEMA-ABI, HIC	AC	240V	25	25
		480V	10	10
Mechanical Life (times)			8500	8500
Electrical Life (times)			4000	4000
Over Current Protection (A)	Thermal-Magnetic Protection		Fixed	Fixed
	Electronic Protection		Fixed	Fixed
Size (mm)L × W × H			130x75x65	166x110x65

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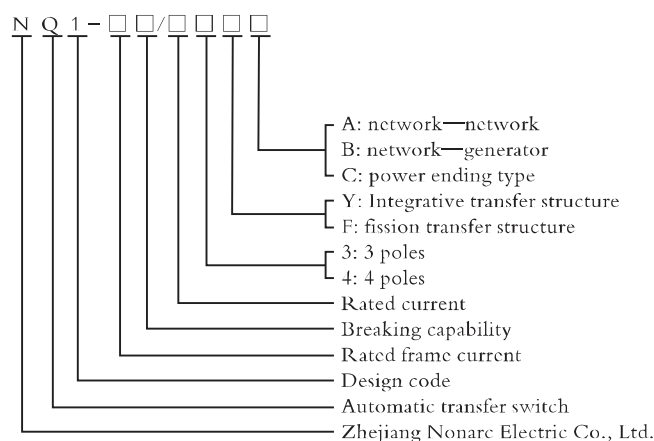
# NQ1 Dual Power Automatic Transfer Switch >>>

## 1.Application

With the development of society, people has higher requirement on reliable supply power. Lots of places use two-path power supply in order to guarantee the reliability of supply power. Under this case, we need a kind of device can reliably transfer between two-path power supply to guarantee the supply power reliably and safely. NQ1 automatic transfer switch is a special device developed for the purpose of such requirement. This product has two kind of switchover function of self-operation self-recover and selfoperation non self-recovery. It is a kind of automatic transfer goods with lately design, perfect performance, high automatic degree and wide usage.

- ★Function: power automatic transfer and overload and short circuit protection
- ★Performance: the time delay of transfer time is adjustable and action time is accurate.
- ★Structure: compact in structure, small in volume, high breaking and short arcing.
- ★Electric degree: CB
- ★Number of pole: 3,4 poles
- ★Frame current: 63, 100, 225, 400, 630, 800, 1250
- ★Current: 6、10、16、20、25、32、40、50、63、80、100、125、140、160、180、200、225、250、315、350、400、500、630、700、800、1000、1250A
- ★Standards: comply with IEC 60947-6-1、GB14048.11

## 2.Types And Meanings



## Notice

- ★Reset selection: automatic switch with restore is no code, and automatic switch without restore code is N.
- ★Release type: instantaneous code is “2” , and double is no code.

## 1.Application

NQ1 automatic transfer switch (hereinafter call as NQ1) is suitable for two-path power supply system with AC 50 HZ/60HZ, rated working voltage 400V, rated current from 6A ~ 800A. It can automatically transfer power supply to reserve power or generator when common power occurring fault so as to guarantee the reliability and safe of supply power. NQ1 has the protective function of overload, undervoltage, short circuit and lack phase which is especially suitable for using in the place where does not allow power supply failure, such as fire fighting, hospital, marketplace, military project, high-rise building, bank, TV station and so on.

Warning: to protect the switch quality, it is prohibit to do pressure-proof test with switch.

## 2.Working Condition

- ★Ambient medium temperature: less than +40℃ and more than -5℃ ;24 h average value less than+35℃ ;
- ★Altitude: not over 2000m;
- ★The max ambient air relative humidity when the maximum temperature is +40℃ does not surpass 50%,
- ★in compares under the low temperature to be possible to allow the high relative humidity, the wettest monthly average min temperature is +25℃ ,this monthly mean maximum relative humidity is 90%, the dew on the surface of the product must be taken into consideration because of the temperature change. NQ 1 NQ1 Dual Power Automatic Transfer Switch 001

## NQ1 Dual Power Automatic Transfer Switch >>>

- ★Class of pollution: 3
- ★The breaker should be put in the place where there isn't any explosive medium and conductive dust and no gas, which would corrode metal or destroy the insulation

### 3.Product Characteristics

- ★Electric degree: CB
- ★Use high performance SCM controller, display on LCD
- ★Protect function: overload, short circuit, open-phase protection, malfunction alarm and so on.
- ★Automatic start generator can complete quadrapole transfer.
- ★Transfer time delay adjustable, active time exact.
- ★EPS fire control power DC 24V, remote breaking.
- ★Small volume, high breaking, short overflash, compact struction, and pleasing outside.
- ★Good antisepticise performance, reliable electric supply.
- ★Operation with no noise, energy-saving and cost reducing, install convenient, handle easily, high stability.

### 4.Performance Characteristics

★The Controller can online check each phase voltage of two-path power supply at the same time. When the voltage supply is lower than 70-80% of rated current, the controller will directly send the inspection result to panel of controller and display on LCD after comparatively judge, and send switchover order to motor operation mechanism after time delay through time-delay circuit.

★Self-operation self-recovery: See Table 1 for control function. The intelligent automatic controller can automatically transfer two kinds of power supplies (i.e normal power and reserve power). The normal power supplies the electricity at normal condition. When the power supply occurs fault or abnormality (any of one phase occurs undervoltage or lack phase), after a certain delay time it can automatically transfer to reserve power to supply power. When the normal power recovers normal, after a certain time-delay time it can automatically return to the normal power. If it occurs fault or abnormality when is working, the controller will send out alarm to indicate operator maintain in time and guarantee power supply be in thermal back-up state for long time. Such alarm can be closed with the OFF key at the controller.

Table 1

Normal Power	Reserve Power	Control Function
Normal	Normal	Normal power supply electricity: Q2 OFF, Q1 ON
Abnormal	Normal	Q1 OFF after time-delay, Q2 ON, reserve power supply electricity
Recover Normal	Normal	Q2 OFF after time-delay, Q1 ON recovered normal power supply electricity

#### Note:

Q1—Control Normal Power Circuit Breaker

Q2—Control Reserve Power Circuit Breaker

Switchover operation time-delay (1~30s, factory default value is 3s if user has not special requirement)。

Return operation time delay (1~30s, factory default value is 3s if user has not special requirement)。

★Regarding to the transfer switch of self-operation non self-recovery, see Table 2 for its control function: under Auto state, when the normal power occurs fault or abnormality after a certain delay time it can automatically transfer to reserve power to supply power. When the normal power recovers normal, it failed automatically return to normal power. It only can return to normal power after a certain time-delay time when the reserve power occurs fault or abnormality。

Table 2

Power I	Power II	Control Function
Normal	Normal	Normal power supply electricity: Q2 OFF, Q1 ON
Abnormal	Normal	Q1 OFF after time-delay, Q2 ON, reserve power supply electricity
Recover Normal	Normal	Still supply power from reserve power
Normal	Abnormal	Q1 ON after Q2 OFF, normal power supply electricity



#### Note:

Q1—Control Common Power Circuit Breaker

Q2—Control Reserve Power Circuit Breaker

Switchover operation time—delay (0~30s, factory default value is 3S if user has not special requirement)。

Return operation time delay (0~30s, factory default value is 3S if user has not special requirement)。

★ This switch is mainly used for switchover between two—path power supply in power network as well as power network and generator. In power network – generator supply power system, the generator usually is used for reserve power. See Table 3 for other control function: when the power network voltage is lower than 70—80% of rated voltage, it can automatically start generator. When the generator mains voltage reached to normal (above 80 % rated voltage), switch on generating power supply. After the power network voltage recovers normal (reach to above 80% rated voltage), it will cut off the load circuit from generating power after a certain time—delay, and automatically return to normal power supply. the power network voltage recovers normal (reach to above 80% rated voltage), it will cut off the load circuit from generating power after a certain time—delay, and automatically return to normal power supply.

Control Function of Power Network - Generator Auto Transfer Switch

Table 3

Normal Power	Reserve Power	Control Function
Normal	Normal	Normal power supply electricity: Q2 OFF, Q1 ON
Abnormal	Normal	Generator group generating
Abnormal	Normal generation	Generator group will supply power once its generating voltage reach to above 85% rated voltage.
Recover Normal	Generation	Q1 ON after time—delay and recover power network supply power

#### Note:

Q1—Control Normal Power Circuit Breaker

Q2—Control Reserve Power Circuit Breaker

Switchover operation time delay (1~30S, factory default value is 3S if user has not special requirement)

Return operation time delay (1~30s, factory default value is 3S if user has not special requirement)。

Power terminal type— When normal power under voltage, automatic delay break normal power circuit breaker, reserve powervoltage turn on, when normal power recover, delay break reserve power circuit breaker, recover to normal power supply. It is mainly used for the end grade of electric line, for fire control, blower, emergency lighting, water supply and so on. 63A specification is composed with miniature circuit breaker, specially for lighting, mini motor control device。

### 5.Main Construction And Working Principle Of The Device

★ The device consists of two sets of circuit breaker (three—pole or four—pole) which regards as main switch of power supply, and mechanical interlock motor operator;

★ A set of automatic transfer controller: delay switchingin, undervoltage or breaking phase protective function, can realize auto switchover and selective switchover control;

★ A set special interlock mechanism: make sure two circuit rbreakers can not closing meanwhile when transter

★ A motor—driven operation mechanism: to make circuit breaker closing automactically.it adopts the newest motor mechanism, with the features of stable operation, small operation force.

★ Installation base plate: for integrated transfer device, the interlock mechanism and controller mounted in the same base plate. For split transfer device the controller mounted seperated with base plate, it used a connector and the length of cable is 2m. The cabinet type is putting the base plate of transfer device into the cabinet and mount the controller on the board, then combine a set device.

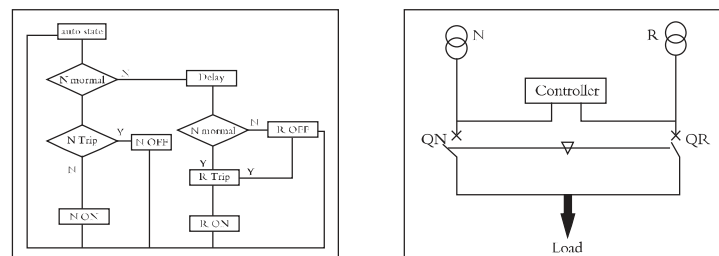
★ N is Normal (Common) Power, R is reserve Power. QN is normal power control circuit breaker, QR reserve power control circuit breaker;

★ Under Man state, it can manually select two set of circuit breaker as “ON” or “OFF” , and does not have automatic switchover function;



## NQ1 Dual Power Automatic Transfer Switch >>>

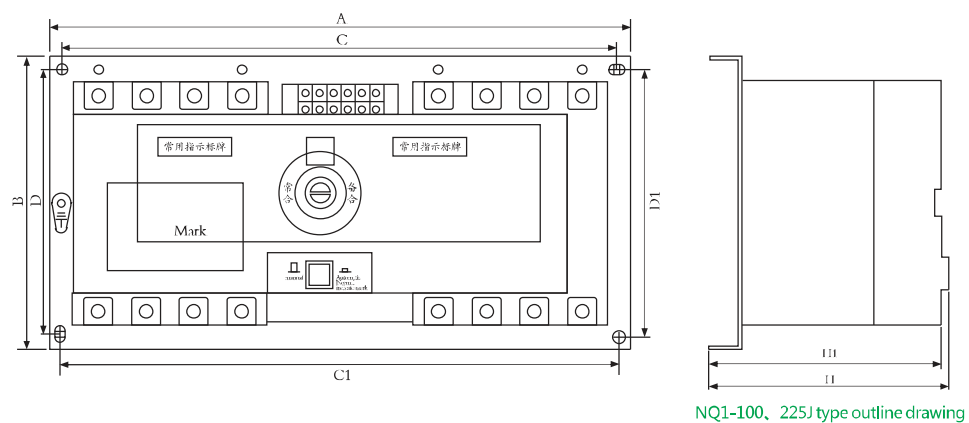
- ★Under Auto state, it can enter into automatic control state according to the present usage power supply;
- ★Under OFF state, it can fully break or OFF with installing two set of circuit breakers.
- ★Under handle turning state, It can not turn “ON” or “OFF” of two set of circuit breaker with handle until the power has been cut by pressing “OFF” key in control mode;
- ★The Principle operation frame diagram of transfer switch as following:



### 6.Main Technology Parameter

- ★The control power of the automatic controller and motor mechanism is AC230V.
- ★The transfer device is suitable the system of rated working voltage is AC400V.
- ★The operating life of the transfer device (N-R-N cycle) is 5000 times.
- ★The minimum transfer time is in 1-3s.

### 7.Overall And Mounting Dimension(J Type)



Dimensions	A(L) 3/4P	B(W)	C(L) 3/4P	C1(L) 3/4P	D(L) 3/4P	D1(L) 3/4P	H(H)	H1(H)
Specification								
NQ1-100	363	180	346.5	348	163.5	165	148.5	144
NQ1-100	408	195	391.5	393	178.5	180	164.5	160

Remark:Execute circuit breaker is MM1-100、225M/3,4P

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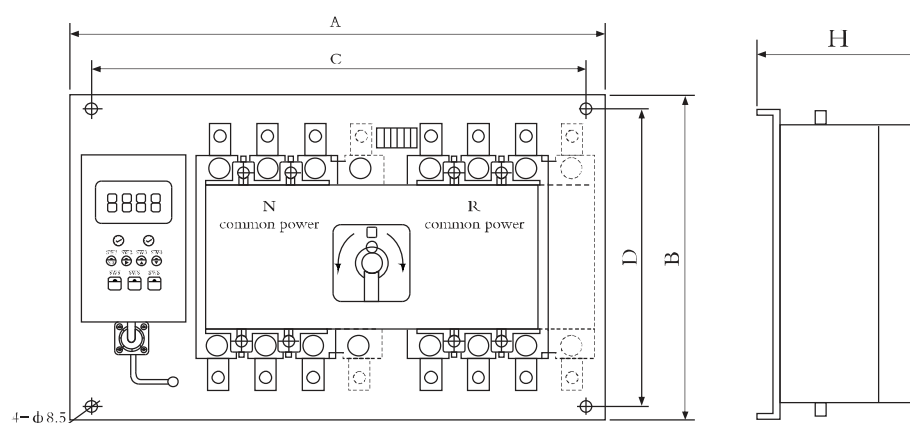


## 8.Main Technology Parameter

Type	MCCB	Frame current (A)	Rated working voltage(V)	Rated current(A)	Rated limit short circuit breaking capability(KA)	
NQ1-63	MM1-63	63	400	(6)、10、16、20、25 32、40、50、63	L	35
					M	50
NQ1-100	MM1-100	100	400	10、16、20、25、32 40、50、63、80、100	L	35
					M	50
NQ1-160	MM1-160	160	400	100、125、140、160	L	35
					M	50
NQ1-225	MM1-225	225	400	100、125、140、160 180、200、225	L	35
					M	50
NQ1-400	MM1-400	400	400	225、250、315、350、400	L	50
					M	65
NQ1-630	MM1-630	630	400	400、500、630	L	50
					M	65
NQ1-800	MM1-800	800	400	630、700、800	S	65
					H	100
NQ1-1250	MM1-1250	1250	400	800、1000、1250	S	65
					H	100

Notice: M type is 690V.

## 9.Overall And Mounting Dimension



100-800/Y(Integrative type)

# NQ1 Dual Power Automatic Transfer Switch >>>

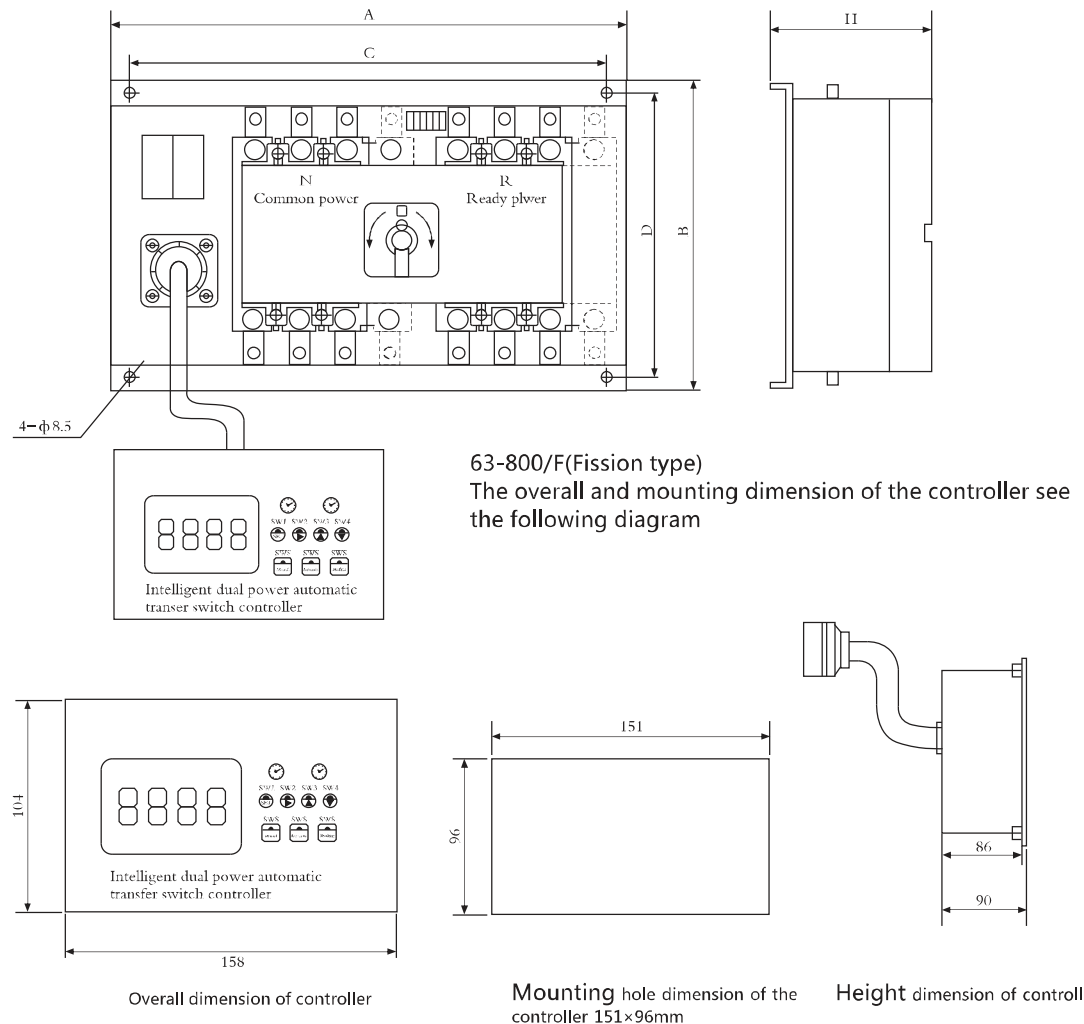
## Integrative type(Y)

unit: mm

Dimensions Specification	A(L) 3P/4P	B(W)	C(L) 3P/4P	D(W)	H(H) 3P/4P
NQ1-63	443/473	223	410/440	190	120/140
NQ1-100	443/473	223	410/440	190	124/146
NQ1-160	483/523	243	450/490	210	142/160
NQ1-225	483/523	243	450/490	210	140/160
NQ1-400	625/670	305	586/636	268	235/235
NQ1-630	660/800	300	716/766	266	240/250
NQ1-800	680/840	300	650/810	270	240/240
NQ1-1250	800/940	450	770/910	420	310/310

Notice: the height of M、H type of 3 poles is the same as 4 poles.

## 10.Overall And Mounting Dimension



### Fission type(F)

unit: mm

Dimensions Specification	A(L) 3P/4P	B(W)	C(L) 3P/4P	D(W)	H(H) 3P/4P
NQ1-63	383/ 413	213	350/380	180	125 143
NQ1-100	383/413	213	350/380	180	125/143
NQ1-160	420/470	230	390/440	200	145/165
NQ1-225	420/473	233	390/440	200	145/162
NQ1-400	570/615	300	536/586	268	235/235
NQ1-630	610/750	300	666/766	266	240/250
NQ1-800	630/790	300	600/760	270	240/240
NQ1-1250	700/840	370	670/810	420	310/310

Notice: the height of M、H type of 3 poles is the same as 4 poles.

# NQ2 Dual Power Automatic Transfer Switch >>>>

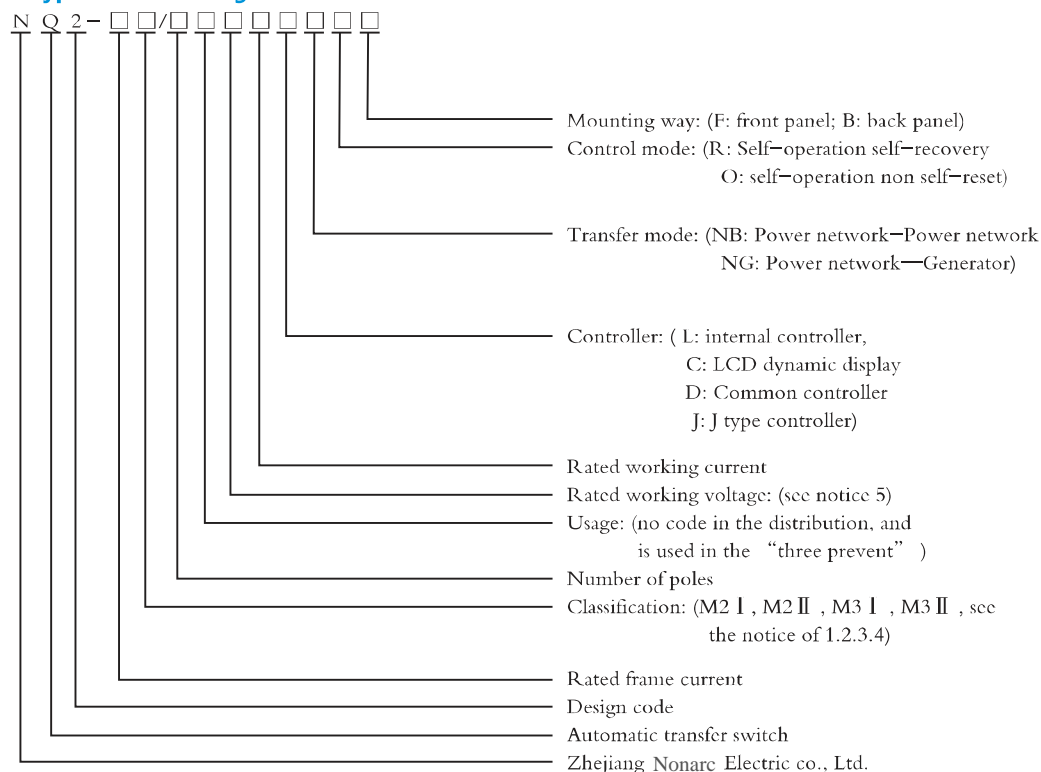
## 1.Application

NQ2 series dual power automatic transfer switch is one of adopted international ATSE technology developed by our company. It is suitable for power supply system with rated insulating voltage is AC800V, rated working voltage is AC690V, and below DC250V, and AC 50Hz/60Hz, rated working current is 20A-5000A of two-path. The transfer switch and the matching intellect display, they are main used for high building, the post and communication, coal mining, shipping, military facilities industrial assembly line etc the situation of need the interruption power supply. Under the city rapid increase power supply necessary trend, they can satisfy the higher requires of reliable power supply, the products have reliable performance, small size and easy operation etc features.

## 2.Product Characteristics

- ★ Connection mode: front panel connection, back panel connection
- ★ Structure: small volume, small current, simple in constitution, ATS integrative
- ★ Characteristics: quick transfer speed, low failure rate and convenient repair
- ★ Control device: LCD dynamic display, internal controller
- ★ Control type: self-operation and self-recovery, self-operation and no self-recovery
- ★ Conversion mode: power network—power network, power network—generating network
- ★ Classification: two steps ,three steps
- ★ Electric degree: PC
- ★ Number of poles: 2. 3. 4 poles.
- ★ Frame current: 63, 125, 250, 500, 800, 1000, 1250, 600, 2000, 3150, 4000, 5000
- ★ Current: 20. 32. 40. 63. 80. 100. 125. 160. 200. 225. 250. 350. 400. 500. 630. 800. 1000. 1250. 1600.
- ★ 2000. 2500. 3150. 4000. 5000
- ★ Standards: GB 14048.11 IEC60947-6-1

## 3.Types And Meanings



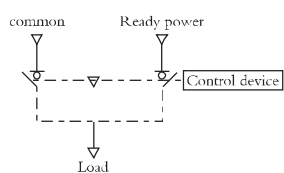
Attention: It must not do the test of insulating stand voltage for the quality guarantee.

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System sketch map



### Notice:

1.M2 I is an instantaneous transfer switch (no internal and external controller), and in the repairing or a destroyed condition, but need the power urgently, the user can use the manual operation, and can check the malfunction of the products by the slow operation.

2.The M2 II automatic transfer switch with internal controller or LED external controller, has the function of relay testing transfer, automatic manual transfer, remote start/stop generator, reality import voltage indication. in the repairing or a destroyed condition, but need the power urgently, the user can use the manual operation, and can check.

3.Type M3 I automatic transfer switch adopts three steps basic mechanism structure. It is made and followed the theory of two steps transfer. If it is automatic, the middle position will stop shortly. You can use manual operation to control OFF position, when the switch without power. You can also use manual handle to transfer the switch, when it is in the condition of examining or breakage, but needs to supply the power continuously. In this way you can look into the transfer motion, and get the main reason of malfunction.

4.Type M3 II automatic transfer switch is composed by three steps noumenon (LED external economic controller, LCD intelligent dynamic controller). It has the function of transfer between automatic and manual, test transfer of power A and power B, solving the malfunction automatically and far distance start or stop generator. It has external patulous interface, which can contact over—current relay, and have over—current protection. It also has communication interface, which can far distance watch the working condition of the controller. It can indicate each voltage in every step. It is a high capability intelligent controller. You can use manual operation to control OFF position, when the switch without power. You can also use manual handle to transfer the switch, when it is in the condition of examining or breakage, but needs to supply the power continuously. In this way you can look into the transfer motion, and get the main reason of malfunction.

5.Rated control voltage: AC220V, (AC380V, DC220V, DC110V/125V, these need to customize.)

### 4.Classification

- ★M2 is two steps: M2 I and M2 II ,M3 III
- ★M3 is three steps: M3 II and M3 III .
- ★According to the transfer controller: automatic switch with restoration, automatic switch without restoration.
- ★Transfer mode: Power network—Power network, Power network—Generator.
- ★Intelligent controller: C: LCD dynamic display, L: internal controller, J: J type controller.
- ★Number of poles: 2.3.4
- ★According to the connection way: front panel, back panel
- ★Current: 20. 32. 40. 63. 80. 100. 125. 160. 200. 225. 250. 350. 400. 500. 630. 800. 1000. 1250. 1600.2000. 2500. 3150. 4000. 5000

### 5.Environment Conditions For Operation And Installation

- ★Elevation of installation site:  $\leq 2000\text{m}$
- ★Ambient temperature:  $-5^{\circ}\text{C}$   $+40^{\circ}\text{C}$  ( $45^{\circ}\text{C}$  for boat products).
- ★Endure moist atmosphere influence.
- ★Endure salt mist ,oil mist influence.
- ★Endure leaf mold influence.
- ★Endure Gamma—ray influence.
- ★The max installation lean is  $22.5^{\circ}$
- ★Reliable working when endure ship normal vibration.
- ★Reliable working when endure earthquake(4G)
- ★The breakers used on ships can operate reliably under normal vibration.
- ★The breaker should be put in the place where there isn' t any explosive medium and conductive dust and no gas which would corrode metal or destroy the insulation.
- ★Without any rain and snow

# NQ2 Dual Power Automatic Transfer Switch >>>>

## 6.Main Function Feature

- ★Reliable and safe interlock.
- ★It has reliable connection and disconnection main circuit and second circuit function, and the setting has self-locking function.
- ★It has safety insulation isolate.
- ★Quick transfer speed,(the transfer time is 0.1s-0.2s), low malfunction, easy maintenance, and reliable capability.
- ★Small in volume, simple in constitution, large current and ATSE integrate.
- ★With the controller, the setting can transfer between the manual and automatic, and has the every protection function.
- ★Make sure the facility safe, it has neutral pole N input first and breaker later function, which can avoid of the abnormal voltage.
- ★It adopts DC instantaneous excite way.
- ★Electric degree: PC class.

## 7.Technology Parameter

Type	M2 I	M2 II	M2 III	M3 II	M3 III
Rated working current	20A-500A	20A-500A	20A-500A	20A-500A	20A-500A
Rated limit short circuit current (according to the current degree)	12.5kA-30kA	12.5kA-25kA	12.5kA-25kA	12.5kA-25kA	12.5kA-25kA
Short time stand current (according to the current degree.)	5-12kA	5-10kA	5-10kA	5-50kA	5-50kA
Transfer time (exclude the special input delay)	0.1-0.2s	0.1-0.2s	0.1-0.2s	0.1-0.5s	0.1-0.5s
With controller or not	No	Yes	Yes	Yes	Yes
Automatically start the generator	No	Yes	Yes	Yes	Yes
Control mode	Automatic switch with restore Automatic switch without restore	Automatic switch with restore	Automatic switch with restore	Automatic switch with restore	Automatic switch with restore
Connection way	Front panel connection	Front panel connection	Front panel connection	Front panel connection	Front panel connection
Rated working voltage	AC400V/690V、DC110V				
Rated control voltage	AC220V、DC110V				
Rated working frequency	50/60Hz				
Connection and disconnection capability	AC-33B(10Ie Connection 8Ie Breaking) $\cos\Phi=0.35$ 、DC-33B 1.1Ie Connection L/R=1ms				
Electric class	PC				
Usage sort	AC-33B、DC-33B				
Test mode	Power network—power network、Power network—generator				
Life	Electric life : 2500times Mechanism life: 10000times				
Auxiliary switch capacity	AC220V 2.5A、DC100V 0.5A				
Accessory	Protection cover(>630A)、Manual specification、Product certificate Credit card、Manual handle				
Number of pole	2( $\leq 500A$ )、3、4				

## 8.The Difference Of Two Steps M2 And Three Steps M3

- ★Two steps have two transfer states: power A supply  $\longleftrightarrow$  power B supply
- ★Three steps have three transfer states: A supply  $\longleftrightarrow$  middle position  $\longleftrightarrow$  power B supply, and the frame current can up to 5000A.
- ★The frame current of two steps only can up to 500A, the three steps can up to 5000A.

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## 9.CB Class VS PC Class

Structure analyse and contrast in the market of the same type:CB class VS PC class

### ★Reliability

CB class is composed of breakers and motor mechanism, and has the functions of short circuit break and over-current protection, so it needs to trip as quickly as possible. At the same time, the breaker has the problem of slipping trip and trip again. The PC class products have no this kind of problems. On the other hand, the operating mechanism is composed of AC synchronous electric machinery drive cam mechanism or two independent motor operating with interlock. However, our NQ2ATSE, whose action of mechanism is drove by DC electromagnetism and the work is instantaneous system. Sum up, the reliability of PC class is much higher than CB class.

### ★Current Ratio

CB class is composed of breakers, usually rated current only up to 800A, PC class use isolate integrative design, can up to 5000A, this is CB class cant achieve Electric clearance ratio PC class products on electric clearance creep age distance is 1.5–2 times than circuit breaker

### ★Transfer speed

The speed of NQ2 (PC class) is 0.1s–0.2s (exclude the delay for special), while the CB class is over 0.5s. (If it is used in AC incorporate electric machinery transfer power, the time will much longer.) By testing, our NQ2–M2 I (instantaneous transfer type) will be not instantaneous power cut when it transfers, and can supply the UPS, especially for some places.

### ★Volume

CB class is composed of two sets of breakers, motor mechanism, panel and controller, so the volume is big. However, PC class adopts the incorporate design, so the transmission is finished by DC electromagnetism mechanism, and only is 50%–70% of BC. It is small volume and high current.

### ★Examine and repair, malfunction

The reliability of CB is worse than PC class, so the probability of malfunction will higher. The breakers are more complex, so the repair is more difficult. The reactive signal is from the external auxiliary contacts, so it makes the repairing more complex, as it should be broke down totally. Whereas our NQ2 ATSE adopts simple mechanism design, and has the function of multi–interlock (double electric interlock and mechanism interlock), so the malfunction will hardly take place, and no mistake action or the twopowers supply together, for more it doesn't need to break it down.

## 10.NQ2 ATSE Compare With Other ATSE

Item	Transfer Facility			
	Excite contactors	CB automatic transfer switch	NQ2 automatic transfer switch	
			Two steps	Three steps (with off position)
Put in modes	Double loops permanent excite	Motor store drive connecting rod	Instantaneous excite	Instantaneous excite
Compression resistance	Bad	Better	Good	Good
Circuit isolate	Bad	Bad	Good	Good
Electric interlock	Have	Have	Have	Have
Mechanism interlock	Can add	Can add	Have	Have
Load–current shutoff capability	Bad	Good	Good	Good
Trouble current shutoff and	Bad	Good	Better	Good
Install capability	Small	Large	Large	Large
Examine and repair	Easy	Not easy	Easy	Easy
Wastage	High	Small	Small	Small
Volume	Large	Large	Small	Small
Transfer time (exclude the delay time for purpose)	>0.5s	>0.5s	0.1s–0.2s	0.1s–0.5s

# NQ2 Dual Power Automatic Transfer Switch >>>

## 11.Two-path Switch And Has Two Separated Contacts

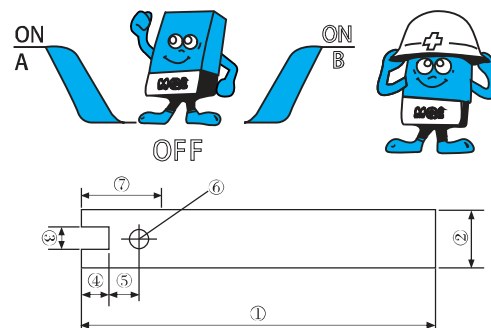
★ Have trip device, and has (OFF) position  
operating order: A → OFF → A and B → OFF → B  
A → OFF → B and B → OFF → A

## 12.Safety Design

★ It has dustproof resin protector, and operating safety.

## 13.Manual Handle

★ See the using and selection to detail.



	①	②	③	④	⑤	⑥	⑦	t
<400A	210	25(26)	10.1	15	15	Φ8	50	6(7)
600A~1600A	250	38(40)	16.1	20	15	Φ8	41	6(8)
2000A 3000A	320	50(52)	19.1	25	15	Φ8	50	9(11)
4000A 5000A	420	50(52)	19.1	25	15	Φ8	50	9(11)

## 14.Shutoff Features

★ Depend on the operating voltage, and breaking characteristic of spring-produced strength.

## 15.M2 Main Technology Index

Type			NQ2-M2					
Rated current			80A、100A、125A			160A、200A、225A、250A		
Poles			2	3	3	2	3	4
Weight ( Kg )			5	5.5	5.5	5	8	10
Operating current(A) AC220V / 220V			1.5	1.5	1.5	1.5	2	2.5
Capability	Short time stand current(kA)		5				10	
	Short time rated limit(kA)		12.5				25	
Transfer time (ms): power A side	Put in		55				55	
	Breaking		20				20	
Transfer time (ms): power B side	Put in		80				80	
	Breaking		20				20	
Rated voltage			AC400V/690V、DC110V					
Put in numbers			Double put in					
Connecting way			Front panel					
Auxiliary switch			Power A side IC, switch capability:AC220V:Power B side IC, 250A、DC100V:0.5A					
Life			Electrical life:2500times,Mechanism life:10000times					
Operating recycle time			120times/hour					
Connecting and disconnecting capability			AC-33B(10Ie Connection 8Ie Breaking)cosΦ=0.35、DC-33B 1.1Ie Connection L/R=1ms					
Accessory			Protection cover、Manual control handhold					

### Notice:

★ DC current operation situation, the structure of circuit is same, only a little part is different, please accord to DC current operation indication to operate.

★ The technology capability M2 350A-500A are the same as the M3 350A-500A.

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### 16.M3 Main Technology Index

Type		NQ2-M3													
Rated current		80A-125A			160A-250A			350A-500A			630A-800A		1000A		
Poles		2	3	4	2	3	4	2	3	4	3	4	3	4	
Weight(Kg)		6	6.5	7	6	8	10	11	14	18	33	42	39(54)	49(64)	
Operating current	DC110V	3	3	4	3	4	5	5	5	7	6	6	6	6	
	AC200V/220V	1.5	1.5	2	2.5	2.5	2.5	2.5	2.5	3.5	3	3	3	3	
Trip current	DC110V	1			1			1.5			2		2		
	AC200V/220V	0.5			0.5			0.7			1		1		
Capability	Short time stand current(KA)	5			10			12			15		22		
	Rated limit short circuit current	12.5			25			30			37.5		50		
Transfer time (ms): power A side	Put in	55			55			60			100		115		
	Breaking	20			20			25			30		25		
Transfer time (ms): power B side	Put in	80			80			90			135		145		
	Breaking	20			20			25			30		25		
Rated voltage		AC400V/690V、DC125V													
Put in numbers		Double put in													
Connecting way		Front panel										Back panel			
Auxiliary switch		Power A side IC, Power B side IC,switch capability:AC100V:5A、AC220V:250A、DC100V:0.5A													
Life	Electrical life:	1000 times						Electrical life:						Electrical life:	
	Mechanism life:	5000 times						Mechanism life:						Mechanism life:	
Operating recycle time		60times/hour												20times/hour	
Connecting and disconnecting capability		AC-33B(10Ie Connection 8Ie Breaking)cosΦ=0.35 DC-33B 1.1Ie Connection L/R=1ms													
Accessory		Protection cover、Manual control handhold													

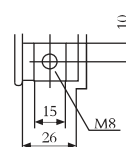
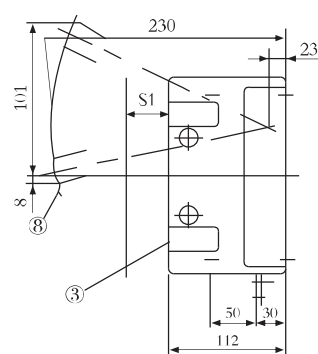
Notice: DC current operation situation, the structure of circuit is same, only a little part is different, please accord to DC current operation indication to operate.



Notice: 4000A 4P, the capacity of N contact is 2000A.

M2、 M3 20A~125A

Panel safety distance (S1 dimensions  
300mm(400V)、 600mm(690V))



	A	B
2P	206	103
3P	236	133
4P	266	163

[illegible]

Technical drawing of a mechanical part, showing a side view and a detail view. The main view includes dimensions: 140 (total height), 230 (total width), 25 (flange thickness), 8 (bottom flange thickness), 112 (base width), 50 (base offset), 4 (base thickness), 30 (base offset), and 30 (base width). A detail view shows a hole with diameter  $\phi 8$  and a distance of 30 from the center to the edge, with a total width of 40. Labels (3) and (8) are present.

	A	B
2P	221	113
3P	256	148
4P	292	183

- |                                      |   |
|--------------------------------------|---|
| ①.Operating circuit terminal         | ⑤.Main circuit terminal load side       |
| ②.Hand-operated handheld entrance    | ⑥.B power side main circuit             |
| ③.Auxiliary switch                   | ⑦.ON/OFF selector                       |
| ④.A power side main circuit terminal | ⑧.Hand-operated handheld (movable type) |

Technical drawing of a three-phase asynchronous motor showing dimensions and labels. The drawing includes a side view and a front view. Key dimensions and labels are:

- Labels:** ①, ②, ③, ④, ⑤, ⑥, ⑦, ⑧, ⑨, ⑩, ⑪, ⑫, ⑬, ⑭, ⑮, ⑯, ⑰, ⑱, ⑲, ⑳, ㉑, ㉒, ㉓, ㉔, ㉕, ㉖, ㉗, ㉘, ㉙, ㉚, ㉛, ㉜, ㉝, ㉞, ㉟, ㊱, ㊲, ㊳, ㊴, ㊵, ㊶, ㊷, ㊸, ㊹, ㊺, ㊻, ㊼, ㊽, ㊾, ㊿, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100.
- Dimensions:** 60, 60, 14, 4, 3-φ9, 200, 220, 288, 20, 21, 9, 9-φ14, A, B.

	A	B
2P	206	103
3P	236	133
4P	266	163

## NQ2 Dual Power Automatic Transfer Switch >>>

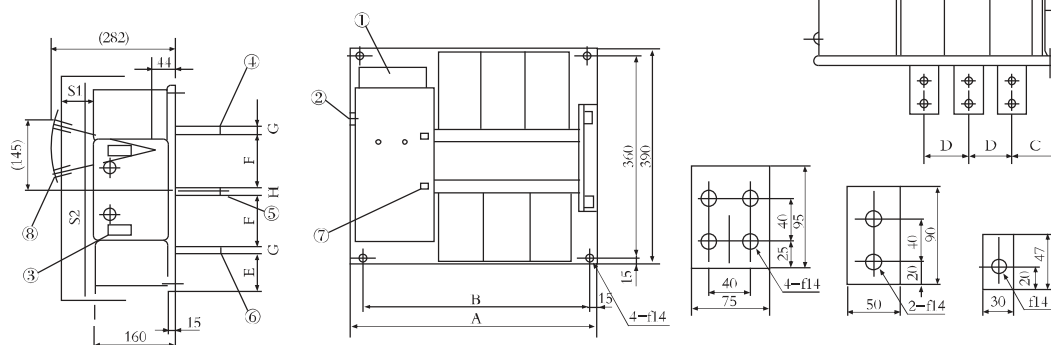
## 18.M2 M3 Overall And Mounting Dimensions

M3 630A~1600A

S1 dimensions:45mm(400V),90mm(690V)

S2 dimensions: 430mm(400V), 450mm(690V)

630A、1000A、1600A、800A、1200A

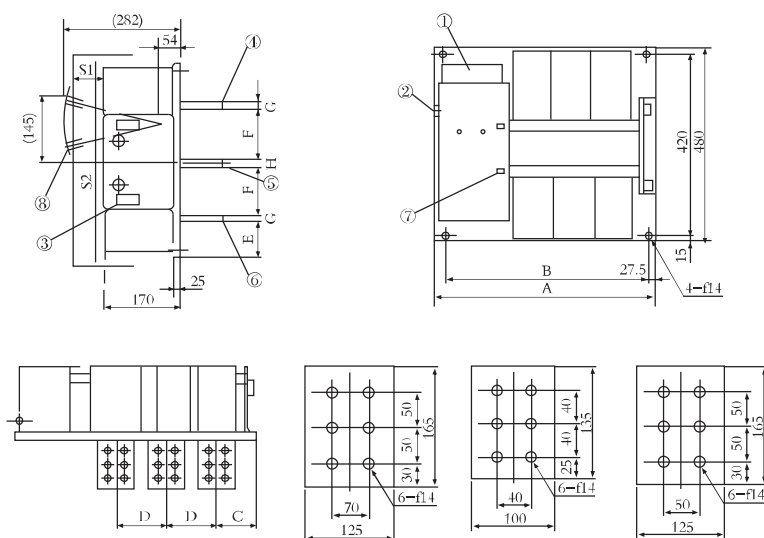


	A		B		C	D	E	F	G	H
	3P	4P	3P	4P						
630A 800A	405	470	375	440	83	65	60	117.5	10	15
1000A 1250A	450	530	420	500	90	80	60	117.5	12	15
1600A	510	615	480	580	97.5	100	57	117.5	15	15

M3 2000A~4000A

S1 dimensions: 50mm(400V), 100mm(690V)

S2 dimensions: 560mm(400V), 600mm(690V)



	A		B		C	D	E	F	G	H
	3P	4P	3P	4P						
2000A	690	831	623	767	130	135	75	115	15	20
2500A	690	831	623	767	130	135	75	115	20	20
3150A	915	1155	860	1100	135	240	75	115	20	20
4000A	915	1155	860	1100	135	240	75	115	20	20

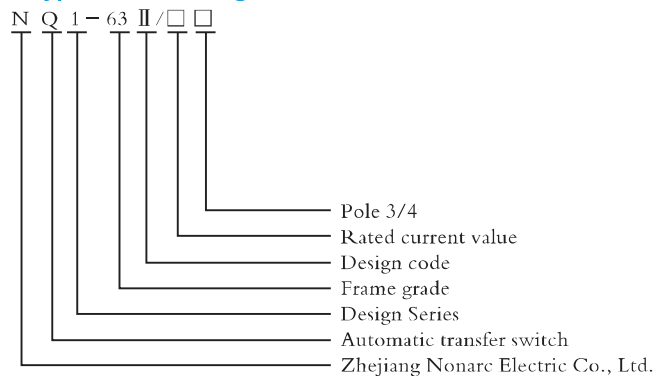
# NQ3 Dual Power Automatic Transfer Switch >>>>

## 1.Application

Mq3 series dual power automatic transfer switches (follow brief as setting) is one of adopted international technology developed by our company. The setting is suits for AC 50Hz, rated working voltage is 400V, rated current 6A–100A and under dual power supply system. It has over voltage, under voltage, lost phases protection function. The setting mainly used for hospital, shopping center, bank, and chemical industry, metallurgy, high building, military facilities.



## 2.Types And Meanings



## 3.Environment Conditions For Operation And Installation

- ★ Ambient temperature:  $-5^{\circ}\text{C}$ —  $+40^{\circ}\text{C}$ , and average temperature in 24 hours below  $+35^{\circ}\text{C}$  (except for special orders).
- ★ Elevation of installation site:  $\leq 2000\text{m}$
- ★ Relative humidity: not exceeding 50% at the maximum ambient temperature of  $+40^{\circ}\text{C}$ . With lower temperature, higher humidity would be permitted, but the lowest average temperature in a month not exceeding  $90\%$  in that month, and giving consideration to the dews on the goods surface, which would appear due to temperature change.
- ★ Pollution protection: 3 grade
- ★ The breaker should be put in the place where there isn't any explosive medium and conductive dust and no gas, which would corrode metal or destroy the insulation.

## 4.Features

- ★ Small volume, high breaking, short arcing and compact structure
- ★ Complete protection function, with short voltage, over voltage, phase faulty and under voltage etc protection.
- ★ Communicate with EPS fire control power, DC24V can remote separate stably.
- ★ No noisy, save on energy and mounting conveniently

## 5.Performance

- ★ Transfer switch is composed with 2 sets MM5-63 MCB and motor mechanism rotating device, through circuit breakers to inspect the two way power. When the circuit abnormal, the controller will make a logic determine with the inspect result. According controller order to drive the operate mechanism on or off, thereby supply electric security and stability.
- ★ Connection and breaking capacity

## 6.Connection and breaking capacity

Connection and breaking capacity test condition						
Use category	Making and breaking capacities testing conditions					
	I/Ie	U/Ue	Cos $\phi$	Conduction time(s)	Cycle period(min)	Operate cycle time
AC33B	6.0	1.05	0.5	0.05	$\leq 5$	12

Note: AC-33B under no frequently operating the motor load or include mix loading of motor and resistance.

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**D** 63-64

## NQ3 Dual Power Automatic Transfer Switch >>>>

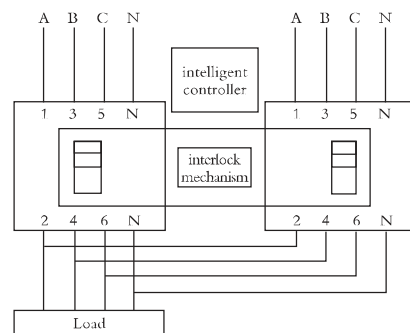
- ★ Rated short breaking capacity
- ★ Rated short connecting capacity: 3kA
- ★ Transfer time: 3s
- ★ The control voltage of transfer switch: AC230V
- ★ The mechanism life of transfer switch: 3000 times; electric life: 1500 times
- ★ Rated insulate voltage:  $U_i=500V$
- ★ Rated working current: 10A、16A、20A、25A、32A、40A、63A
- ★ Under normal conditions, the transfer switch has self operation and self recovery function, and normal power first. If need self operation and self recovery function transfer switch in special occasion, the user should consult with the manufacture.: 3kA

### 7.Operation And Installation

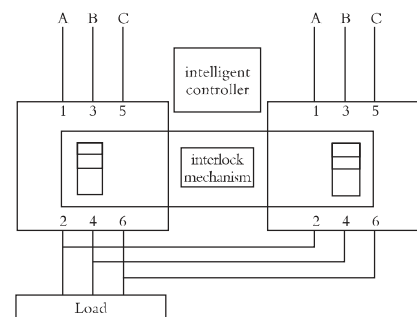
According design circuit diagram requirement, need to connect the input and output line, zero curve of normal power and reserve power. The output terminal of two circuit breakers should be parallel connection, and with same series( see pic)

If the circuit breaker is 3 poles, must connect the terminal of zero curve to transfer switch( see pic, the zero curve of normal and reserve connect to 2# and 4# separately.

#### Major loop wiring diagram

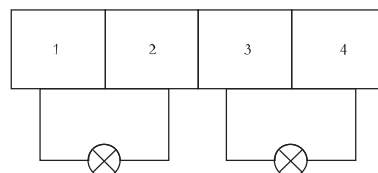


4 poles wiring diagram

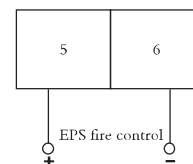


3 poles wiring diagram

External connection power closing instruction and fire control power wiring diagram



Normal closing(AC220V)Reserve closing

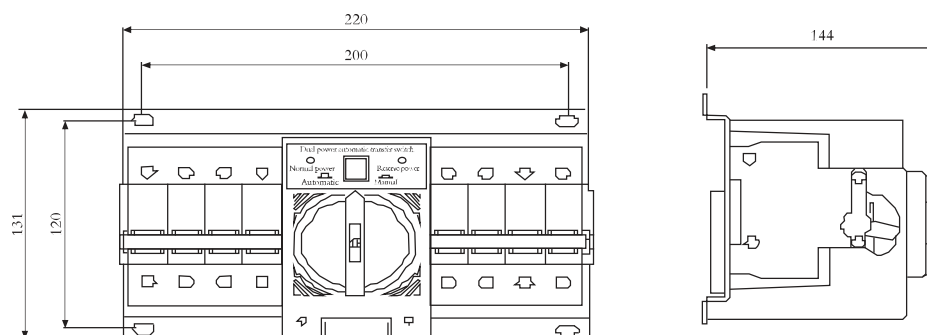


DC24V

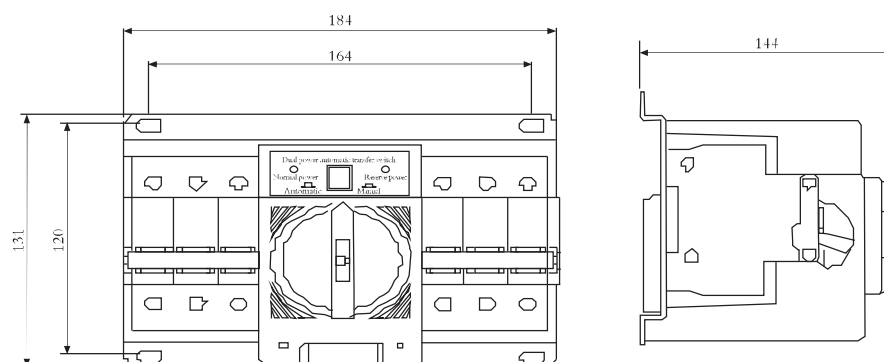
★ When transfer switch need to operated manual, if NQ3-63A, should locate the push button in manual, at that time we can use the rotating hand shank to transfer the normal and reserve. If NQ3-63II, rotating hand shank/ automatic push button, when manual pilot lamp lighting, we can use the rotating hand shank to transfer the normal and reserve. If in automatic location, transfer switch in automatic working state, normal power first.

★ When the transfer switch connect the wire according to wiring diagram, normal electrify, if both normal and reserve power is OK, the lamp of normal power and reserve power is lighting, the switch working normally.

## 8.Outline And Installation Dimension Diagram



4 poles outline drawing



3 poles outline drawing

## 9.Warranty And After-sale Service

- ★ Before using, please check first, if damped please do drying process then installation.
- ★ 18 months after shipment has three guarantee. During this period, the user should install and adjust according the use instruction. If The seal of transfer switch is good, no unload, can't use because of the quality, the manufacture will maintain and exchange in free. If over 18 months, will do paid handle with maintain and exchange.
- ★ IF natural disaster or irresistible factor and fault artificial operating caused the products abnormally, as paid service.

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## NOA1 Air Circuit Breaker >>>

### 1.basic frame sizes

For your various requirements, the Air Circuit Breaker NOA1 includes 5 basic frame sizes as followed.



NOA1-1000  
200A to 1000A



NOA1-2000  
400A to 2000A



NOA1-3200, 4000  
2000A to 4000A



NOA1-6300  
4000A to 6300A



## 2. General

### 2.1 Application scope

NOA1s series air circuit breaker is suitable for the circuit of AC 50Hz/60Hz with rated service voltage 400V, 690V and rated service current up to 6300A. It is mainly used to distribute electric energy and protect circuits and electric equipment against over-load, under-voltage, short-circuit and single-phase earthing fault. With intelligentized and selective protection functions, the breaker can improve the reliability of power supply, and avoid unnecessary power failure. The breaker is applicable for power stations, factories, mines (for 690V) and modern high-buildings, especially for the distribution system of intelligentized building.

1.2 Standard: IEC/EN 60947-2.

## 3. Operation Conditions

2.1 Temperature Condition:  $-5^{\circ}\text{C}\sim 40^{\circ}\text{C}$ ; the average value within 24h shall not exceed  $+35^{\circ}\text{C}$  (special situation excluded);

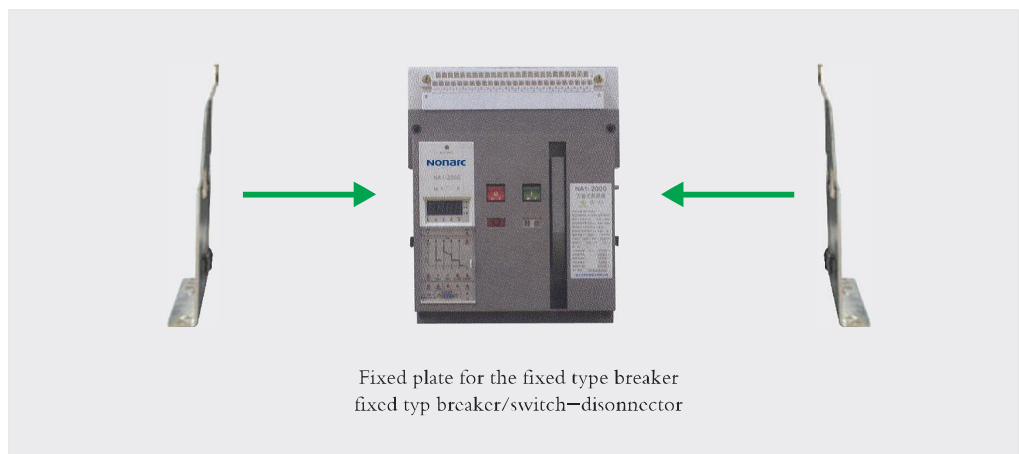
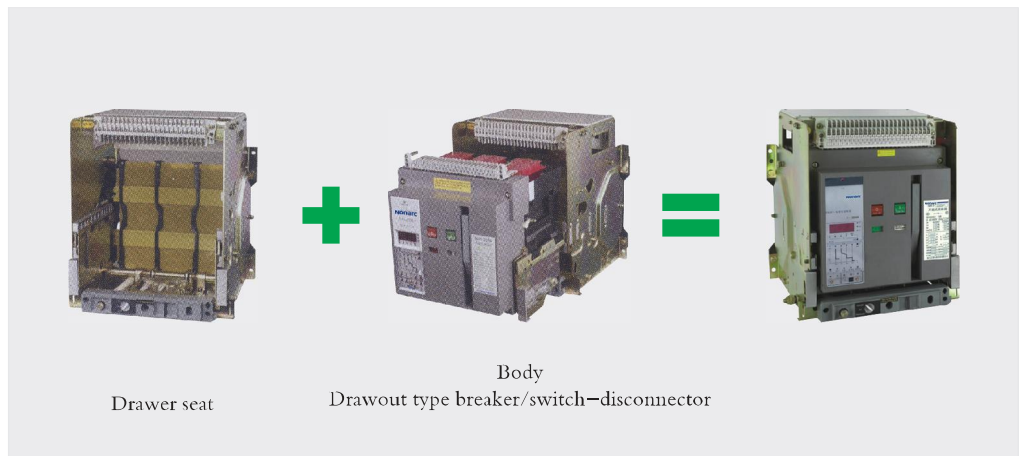
2.2 Altitude:  $\leq 2000\text{m}$ ;

2.3 Pollution grade: Grade 3;

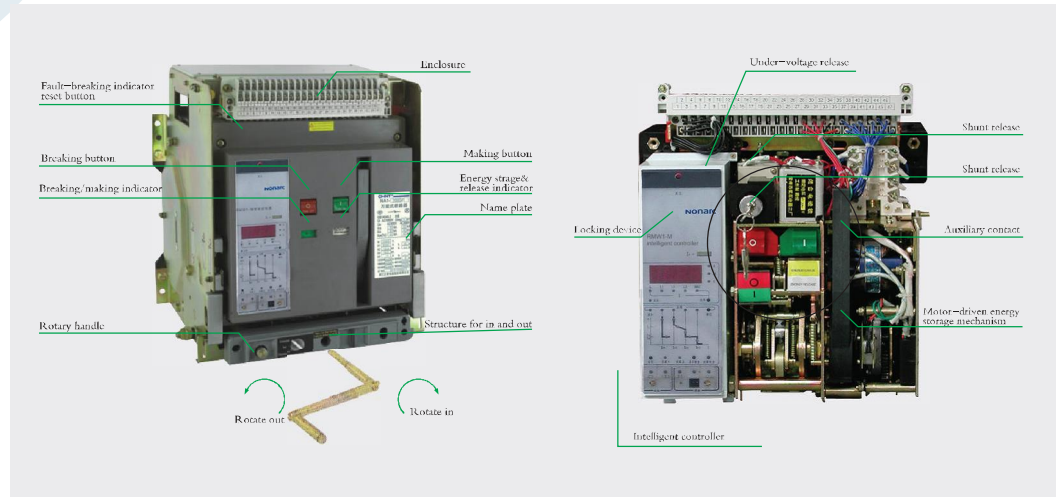
2.4 Air conditions: At mounting site, relative humidity not exceed 50% at the max temperature of  $+40^{\circ}\text{C}$ , higher relative humidity is allowable under lower temperature, RH could be 90% at  $+20^{\circ}\text{C}$ , special measures should be taken to occurrence of dews;

2.5 Note: Without the intelligent controller, the breaker functions as a switch-disconnector.

## 4. Structure



## NOA1 Air Circuit Breaker >>>



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**E** 67-68

## 6. Main technical parameter

Type		NOA1-1000				
Rated ultimate short circuit breaking capacity		Icu=42kA 400V				
Rated service short circuit breaking capacity		Ics=30kA 400V				
Rated short-time withstand current		Icw=30kA 0.5s 400V				
Rated current In (A)		200	400	630	800	1000
Number of poles		3,4				
Rated voltage Ue (V)		400				
Rated insulation voltage Ui (V)		690				
Rated current of N-pole In (A)		50%In,100%In				
Fixed disconnection time (ms)		23~32				
Intelligent controller	Standard type (M)	●	●	●	●	●
	Communication type (H)	●	●	●	●	●
Operation performance	Electric life	5000				
	Mechanical life	Non-maintenance 10,000				
		Maintenance 20,000				
Connection pattern		Horizontal, Vertical				
Weight(kg)	Drawout 3P/4P	38/55				
	Fixed 3P/4P	22/26.5				

## 7. Main technical parameter

Type		N0A1—2000						
Rated ultimate short circuit breaking capacity		Icu=80kA		400V	50kA	690V		
Rated service short circuit breaking capacity		Ics=50kA		400V	40kA	690V		
Rated short-time withstand current		Icw=50kA 1s		400V	40kA 1s	690V		
Rated current In (A)		400	630	800	1000	1250	1600	2000
Number of poles		3,4						
Rated voltage Ue (V)		400,690						
Rated insulation voltage Ui (V)		1000						
Rated current of N-pole In (A)		50%In,100%In						
Fixed disconnection time (ms)		23~32						
Intelligent controller	Standard type (M)	●	●	●	●	●	●	●
	Communication type (H)	●	●	●	●	●	●	●
Operation performance	Electric life	5000						
	Mechanical life	Non-maintenance 10,000						
		Maintenance 20,000						
Connection pattern		Horizontal, Vertical						
Weight(kg)	Drawout 3P/4P	68/77		70/80			74/81	
	Fixed 3P/4P	42/51		43/52			45/53	

## NOA1 Air Circuit Breaker >>>

Type		NOA1-3200, NOA1-4000			
Rated ultimate short circuit breaking capacity		Icu=80kA	400V	65kA	690V
Rated service short circuit breaking capacity		Ics=65kA	400V	65kA	690V
Rated short-time withstand current		Icw=65kA 1s	400V	50kA 1s	690V
Rated current In (A)		2000	2500	3200	4000
Number of poles		3,4			4
Rated voltage Ue (V)		400,690			
Rated insulation voltage Ui (V)		1000			
Rated current of N-pole In (A)		50%In,100%In			
Fixed disconnection time (ms)		23~32			
Intelligent controller	Standard type (M)	●	●	●	●
	Communication type (H)	●	●	●	●
Operation performance	Electric life	5000			
	Mechanical life	Non-maintenance 10,000			
		Maintenance 20,000			
Connection pattern		Horizontal, Vertical			
Weight(kg)	Drawout 3P/4P	94.5/117			119
	Fixed 3P/4P	52.5/65.5			

Type		NOA1- 6300		
Rated ultimate short circuit breaking capacity		Icu=120kA 400V 85kA 690V		
Rated service short circuit breaking capacity		Ics=100kA 400V 75kA 690V		
Rated short-time withstand current		Icw=100kA 1s 400V 75kA 690V		
Rated current In (A)		4000	5000	6300
Number of poles		3,4		4
Rated voltage Ue (V)		400,690		
Rated insulation voltage Ui (V)		1000		
Rated current of N-pole In (A)		50%In,100%In		
Fixed disconnection time (ms)		23~32		
Intelligent controller	Standard type (M)	●	●	●
	Communication type (H)	●	●	●
Operation performance	Electric life	2500		
	Mechanical life	Non-maintenance 5000		
		Maintenance 10,000		
Connection pattern		Horizontal, Vertical		
Weight(kg)	Drawout 3P/4P	210/233		233
	Fixed 3P/4P			

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## 8. Order sheet

Customer:

Tel:

Date:

Quantity:

Model			NOA1-1000		NOA1-2000		NOA1-3200		NOA1-4000		NOA1-6300	
Rated current(I <sub>n</sub> )A			<input type="checkbox"/> 200 <input type="checkbox"/> 400 <input type="checkbox"/> 630 <input type="checkbox"/> 800 <input type="checkbox"/> 1000		<input type="checkbox"/> 400 <input type="checkbox"/> 630 <input type="checkbox"/> 800 <input type="checkbox"/> 1000 <input type="checkbox"/> 1250 <input type="checkbox"/> 1600 <input type="checkbox"/> 2000		<input type="checkbox"/> 2000 <input type="checkbox"/> 2500 <input type="checkbox"/> 3200		<input type="checkbox"/> 4000		<input type="checkbox"/> 4000 <input type="checkbox"/> 5000 <input type="checkbox"/> 6300 (only 3 poles)	
Installation mode			<input type="checkbox"/> Drawerout type		<input type="checkbox"/> Fixed type (note: I <sub>n</sub> ≥ 4000A fixed type is not available)							
Number of poles			<input type="checkbox"/> Three poles		<input type="checkbox"/> Four poles							
Connection			<input type="checkbox"/> Horizontal		<input type="checkbox"/> Vertical							
NOA1-1000 Intelligent controller	Standard M type	Conventional setting before delivery		IR=1I <sub>n</sub> ,30s; Isd=8I <sub>n</sub> , definite time 0.4s; Ii=12I <sub>n</sub> ; Ig=0.4I <sub>n</sub> ,OFF		Ir1=1.0I <sub>n</sub> ,15s Ir2=8I <sub>n</sub> ,0.4s Ir3=12I <sub>n</sub> , 0 Ig=0.5I <sub>n</sub> , OFF						
		Long time-delay protection IR(Ir1)	Current setting			___I <sub>n</sub> (0.4-1I <sub>n</sub> )						
			Time setting			___s(15-480)						
		Short circuit short timedelay protection Isd(Ir2)	Current setting			___I <sub>n</sub> (1-15I <sub>n</sub> )						
			Time setting			___s(0.1, 0.4)						
		Short circuit instantaneous protection Ii(Ir3)	Current setting	___I <sub>n</sub> (2, 4, 6, 8, 10, 12, 15OFF)		___I <sub>n</sub> (I <sub>n</sub> -100kA)						
		Earthing protection Ig	Current setting			___I <sub>n</sub> (0.2-0.8I <sub>n</sub> ,Min,160A)						
		Time setting			___s(0.1-0.4)							
	Optional function		<input type="checkbox"/> Exceed skipping function <input type="checkbox"/> Self-diagnose alarm <input type="checkbox"/> Fault breaking alarm <input type="checkbox"/> Overload alarm <input type="checkbox"/> Earthing fault alarm		<input type="checkbox"/> Display of voltage <input type="checkbox"/> Display of frequency <input type="checkbox"/> Display of power factor <input type="checkbox"/> Display of power <input type="checkbox"/> Function of monitoring load							
	Communication H type	Conventional setting before delivery		IR=1I <sub>n</sub> ,17.2s; Isd=8I <sub>n</sub> ,inverse time 0.4s; Ii=12I <sub>n</sub> ; Ig=0.4I <sub>n</sub> ,OFF.		Ir1=1.0I <sub>n</sub> ,15s Ir2=8I <sub>n</sub> ,0.4s Ir3=12I <sub>n</sub> , 0 Ig=0.5I <sub>n</sub> , OFF						
		Long time-delay protection IR(Ir1)	Current setting	___I <sub>n</sub> (0.4-1I <sub>n</sub> )		___I <sub>n</sub> (0.4-1I <sub>n</sub> )						
			time setting (1.5I <sub>n</sub> )	s(0.61,0.98,1.47,2.46,3.68 4.9,1.6,14, 8.29,11.1,17.2 24.6,36.8,49.1,61.4,73.7, 86)		___s(15-480)						
		Short circuit short time-delay protection Isd(Ir2)	Current setting	n(1.5-15I <sub>n</sub> )		___I <sub>n</sub> (1-15I <sub>n</sub> )						
			time setting	s(0.1-0.4)		___s(0.1-0.4)						
		Short circuit instantaneous protection Ii(Ir3)	Current setting	I <sub>n</sub> (10-20I <sub>n</sub> )		___I <sub>n</sub> (I <sub>n</sub> 100kA)						
Earthing protection Ig		Current setting	I <sub>n</sub> (0.2-1.0I <sub>n</sub> )		___I <sub>n</sub> (0.2-0.8I <sub>n</sub> ,Min,160A)							
		Time setting	s(0.1-1)		___s(0.1-0.4)							