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CHANGSONG ELECTRIC CO.,LTD



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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

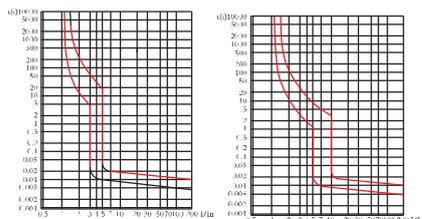
DZ47-63(C)

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

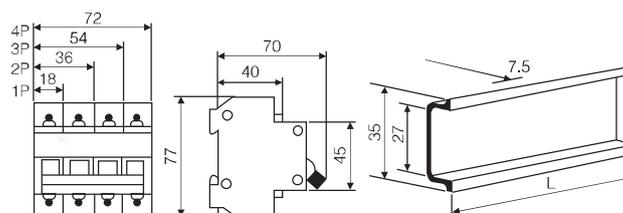
DZ47-63(D)

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



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



1.Application

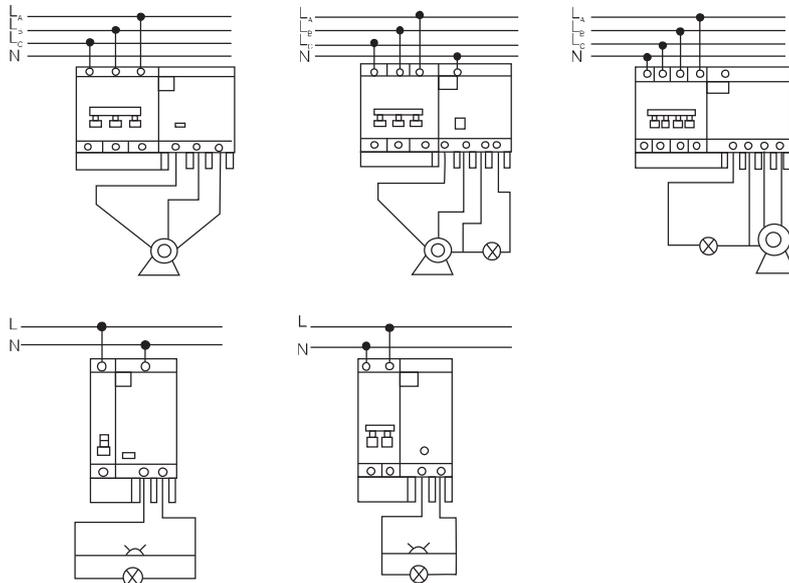
DZ47LE-63 earth leakage circuit breaker is used for protecting against electrical leakage in the circuit of 50Hz or 60Hz, rated voltage single-phase 240V, three phases 415V, rated current up to 60A. If the current exceeds the fixed value, the ELCB can cut off the power within the time of 0.1s automatically 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 line	Double-pole double line	Triple-pole triple line	Triple-pole four line	Triple-pole four line
DZ47LE	DZ47LE	DZ47LE	DZ47LE	DZ47LE
1/2	2/2	3/3	3/4	4/4



CS65 Mini Circuit Breaker >>>



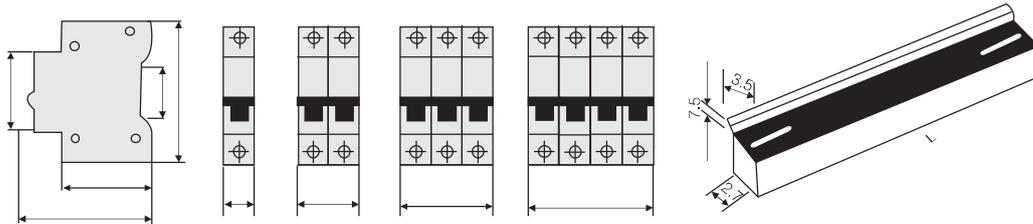
1.Applications

CS65 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

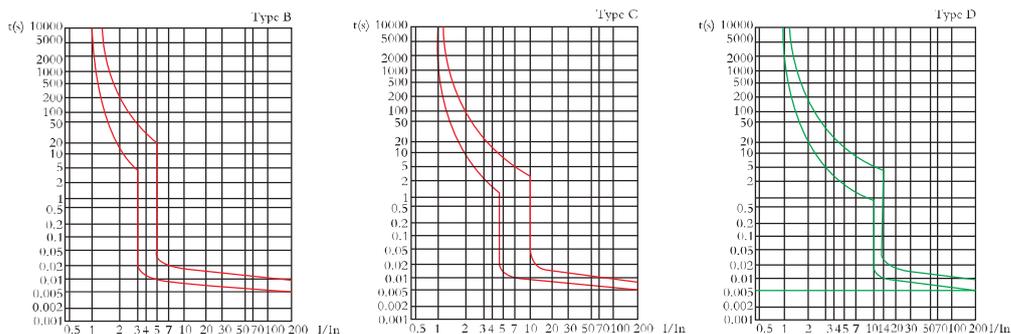
2.Technical parameter

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



CS65LE Residual Current Circuit Breaker >>>



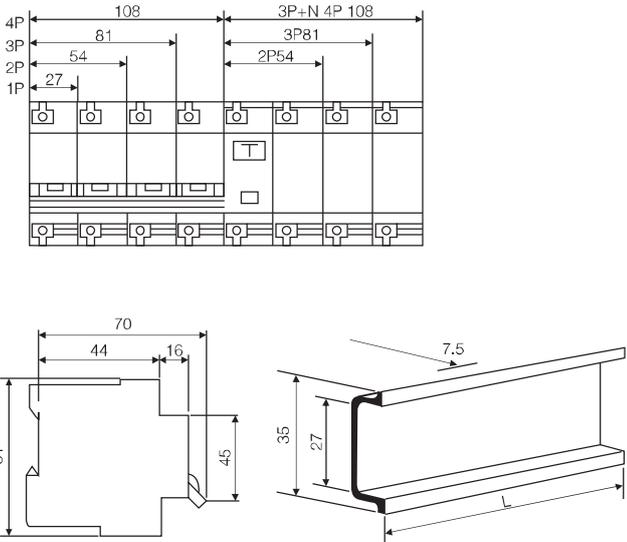
1. Description

CS65LE 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 118alue ,the ELCB can cut off the power within the time of 0.1s automatically protecting the personal safely 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



DZ47-125 >>> High Breaking Mini Circuit Breaker



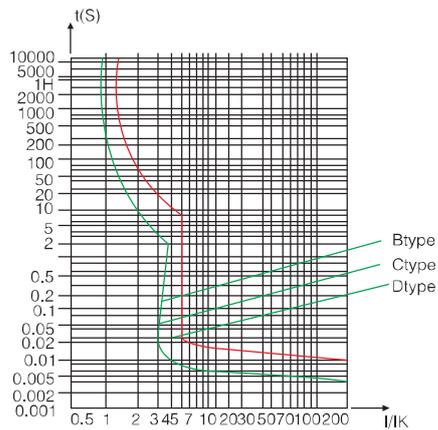
1.Application

DZ47-125 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.

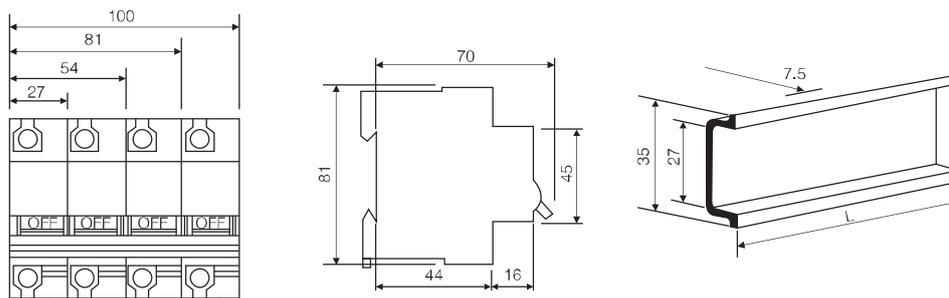
2.Specification

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

3.Characteristic Curve



4.Dimensions



DZ47LE-125 Residual Current >>>> Circuit Breaker with operation protection



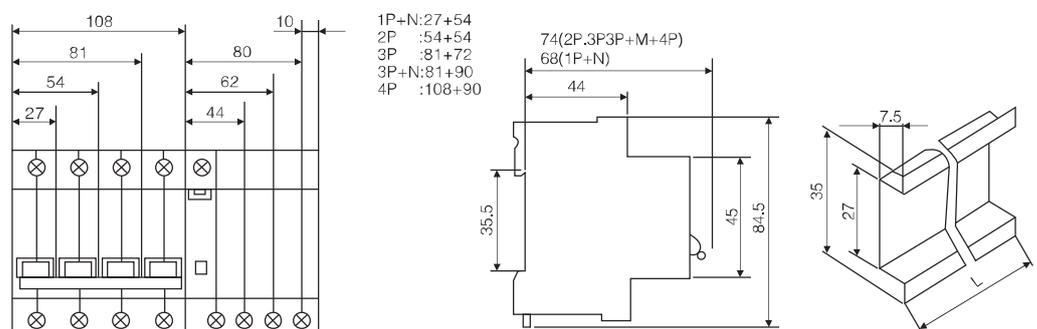
1.Applications

Residual current circuit breakers DZ47LE-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	1.13 $I_n \geq 1\text{h}$ non-trip 1.45 $I_n < 1\text{h}$ trip 3 I_n 1S<60S trip
	Instantaneous(Curve C)	8-12 $I_n \geq 0.1\text{S}$ non-trip 10-14 $I_n < 0.1$ trip
Magnetic releases operate		B curve:between 3 and 5 I_n C curve:between 5 and 10 I_n
Rated breaking capacity(I_{cn})		4500A,6000A
Endurance		≥ 2500
Circumstance temperature		-5°C+40°C
Electrical life		≥ 6000 times
Mechanical life		20000 times
Tropical ration		Treatment 2(RH95%,at 55°C)
Protection degree		IP20

3.Dimension & mounting



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



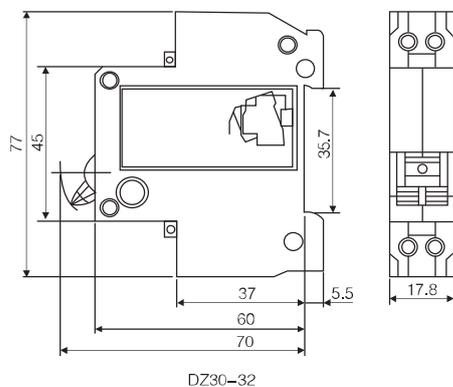
1.Application

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 (5I_n~10I_n)
Operated short-circuit capacity: 4500A
Mechanical and electrical life: >4000 times.

3.Dimension & mounting



DZ30LE (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

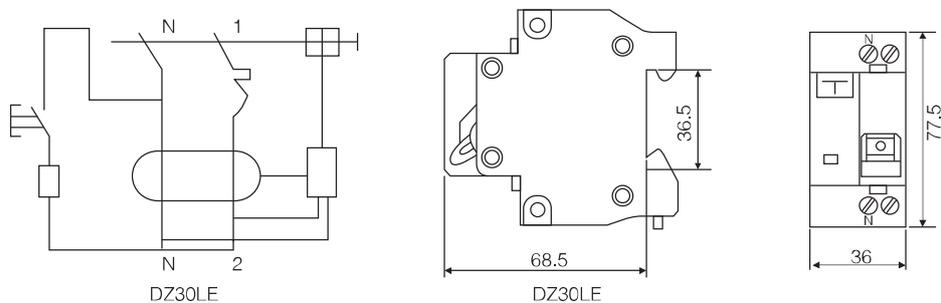
3.Main Technical Parameter

Rated current(A)	Nominal cross section of wire mm ²
$I_n \leq 6$	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

I_n (A)	I_n (A)	Breaking time(s) when equals to rating following					I_{tb}
		I_n	$2I_n$	$5I_n$	5,10,20,50,100,200,500a(A)	I_{tb}	
6-32	0.03	0.1	0.06	0.04	0.04	0.04	

5.Dimension & mounting



CS32LE (DPN) Residual Current >>>> Circuit Breaker with operation protection



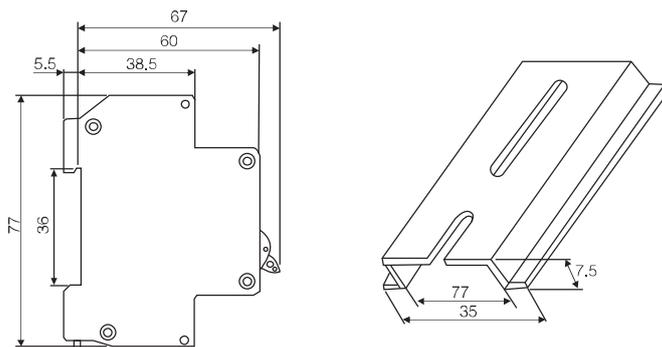
1.Specification

CS32LE 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. CS32LE 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



L7 High Breaking Mini Circuit Breaker >>>>

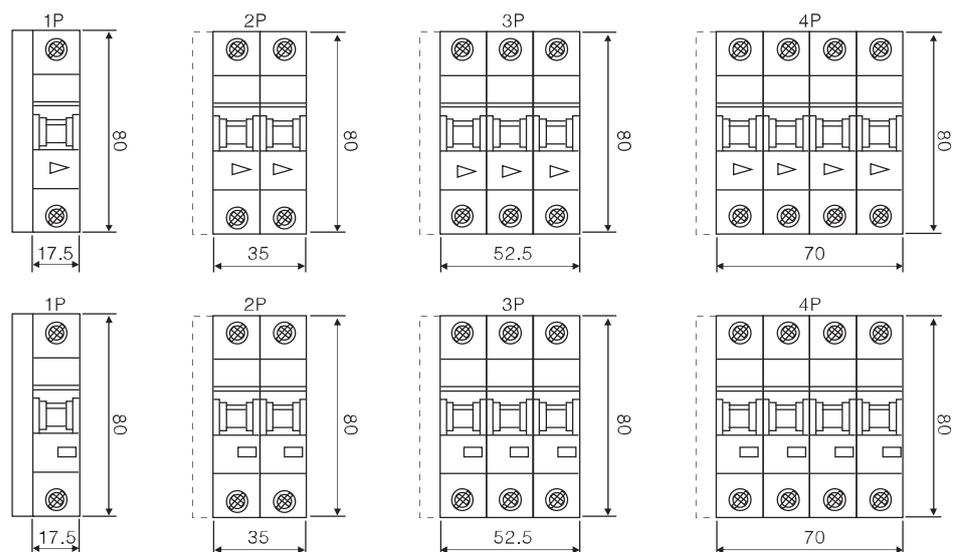
1.Application

The products of L7 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 (I_n): 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



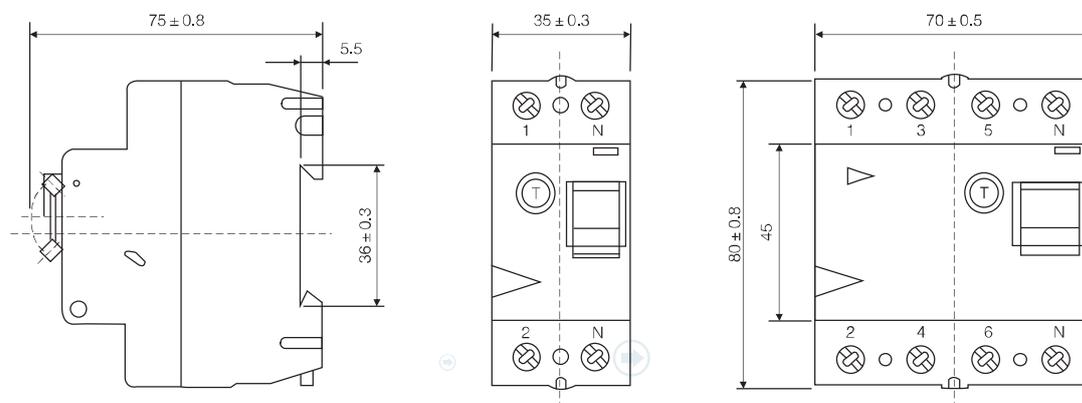
L7L Residual Current Circuit Breaker >>>



- Combined electronic type RCD/MCD 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 designating 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	6-40A	
Characteristic	B,C	
Maximum back-up fuse(short circuit)	100A gl(>10kA)	
Endurance	electrical life	>4000 operating cycles
	mechanical life	>20000 operating cycles



CS30L Residual Current Circuit Breaker >>>



1.Application

The Residual Current Device(RCD) CS30L 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.

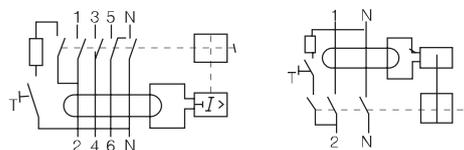
2.Specification

Type	NFIN25	NFIN40	NFIN63	NFIN100
Rated current I_n (A)	25	40	63	100
Rated operating current for earth leakage $I_{\Delta n}$ (A)	0.03,0.1,0.3,0.5		0.1,0.3,0.5	
Rated non-operating current for earth leakage $I_{\Delta n}$ (A)	0.5 $I_{\Delta n}$			
Voitage U_n (V)	240(220) 415(380)			
Pole	2, 4			

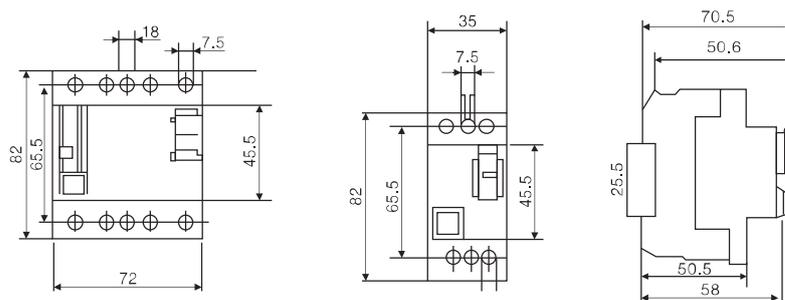
3.Main Technical Data

Operating time(second)	$I_{\Delta n}$	$2I_{\Delta n}$	$0.25A$ (or $5I_{\Delta n}$)	
	0.2	0.1	0.04	
limited value of non-operating current for balance load or unbalance load	2 I_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



CSH1 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.Teohncial 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

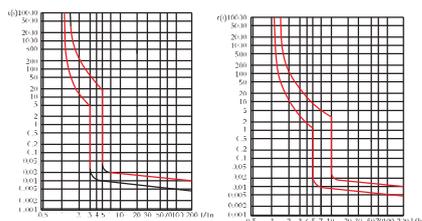
(D):1,3,5,6,10,15,16,20,25,32,40A

Electric endurance not lower than 60000 times.

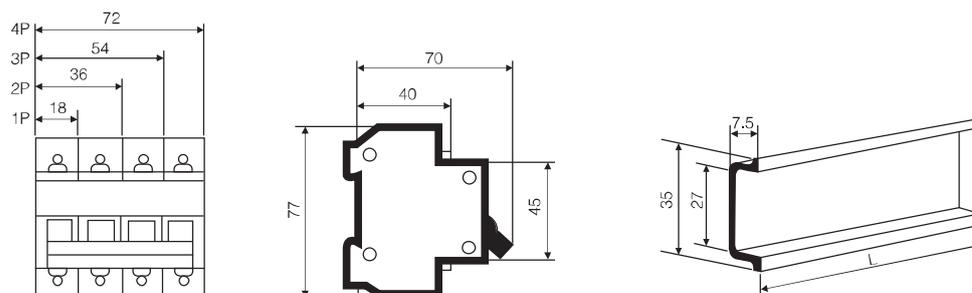
Mechanical endurance lower than 20000 times.

Tropical test:2kinds.

3.Characteristic Curve



4.Dimension & mounting



CSH1L Modular Din Rail Electric Device >>>



1.Applications

The RCCB CSH1L 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.

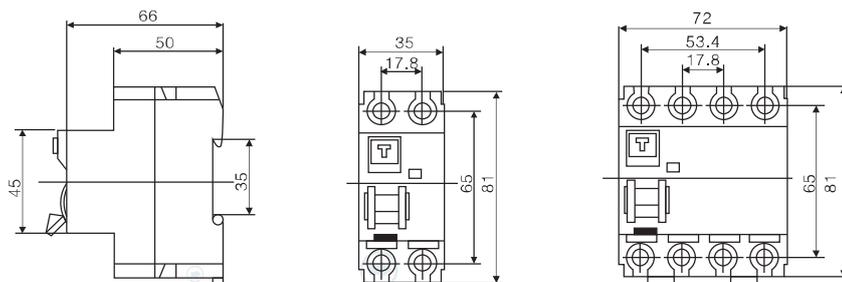
2.Main technical specifications

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 ²
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



CSH3 Series Switch Disconnecter >>>



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 similar installation.

2. Technical Data

1. Pole: 1, 2, 3, 4 Pole.
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 sq mm./
7. Connection Terminal:
 - Screw Terminal
 - Pillar terminal with clamp
8. Installation:
 - On symmetrical din rail 35 sq mm.
 - Panel mounting.

CSD1 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

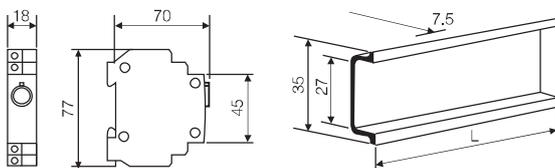
1. Rated Voltage:230V AC
2. Rated frequency:50/60Hz
3. Color:red,green,yellow
4. connection terminal:pillar conductor 10mm³

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



CSD2 Series Indicator >>>>



1. CSD2 series Xpole DIN rail Indicator

2. Light color:red,green,yellow,blue.

3. Din rail installation.

4. CE,CB,ISO9001

CSD2 series Xpole DIN rail Indicator:

Rated voltage:220/240VAC

CSD2 series Indicator light:

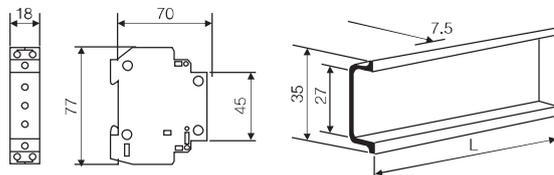
Mainly used to indicate the status of a part of the installation,heater,motor,fan and pumps etc.

Lamp:Neon Lamp or LED

Degree of protection:IP20

Din-rail mounting:EN5022

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



CSD3 Series Indicator >>>

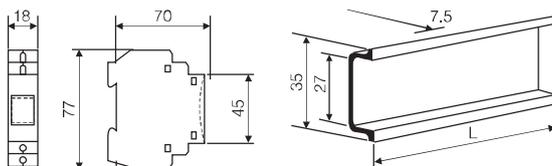


1.Specifications

1. CSD3series modular indicator
 2. Neon lamp or LED
 3. Professional factory
 4. Modular indicator,electric indicator
- CSD3 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



CS45D Series Indicator >>>

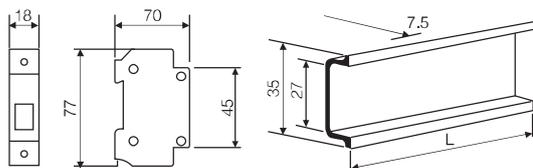


Din Rail type LED Indicator, Neon Signal Lamp

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 10mm²
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



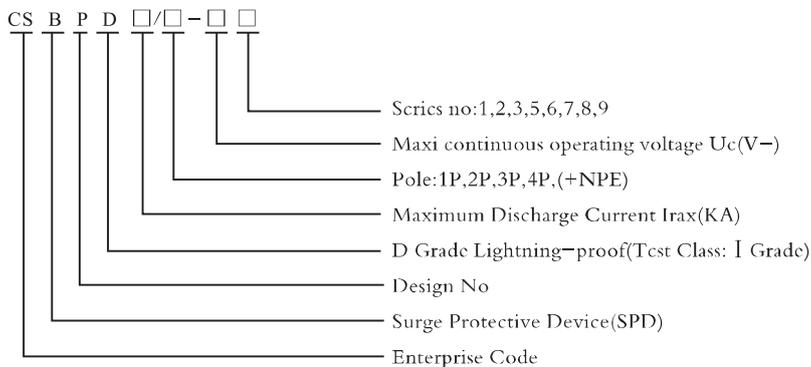
CSBPD Surge Protective Device >>>>



1.Product Description

CSBPD 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.Application Scope and Installation Position

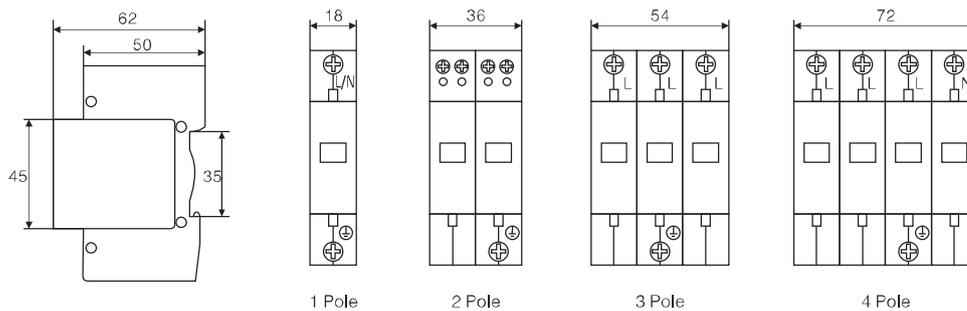
CSBPD series surge protective device is suitable for B grade lightning proof, installed on the joint of LPZOA or LPZOB and LPZ1 zone, which protects the electric network not shocked by thunder or surge over voltage, NS1-B100, CSBPD80 are usually installed in low voltage main distribution box connected to the incoming of the buildings.

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

4. Technical Parameter

Technical Parameters	CSBPD		
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 $U_p(V\sim)kV$	$\cong 2.8 \cong 3.2$	$\cong 2.2 \cong 2.5$	$\cong 2.0 \cong 2.3$
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 ²)	16, 25	10, 16	10, 16
The Cross Section of PE Line (mm ²)	25, 35	25	16, 25
Fuse or Switch(A)	63A, 100A	63A	62A, 32A
Operating Environment (centigrade)	-40°C~+85°C		
Relative Humidity (25 centigrade)	<95%		
Installation	Standard Rail 35mm		
Material of Outer Covering	Fiberglass PC		

5. Dimension



4.Application Scope and Installation Position

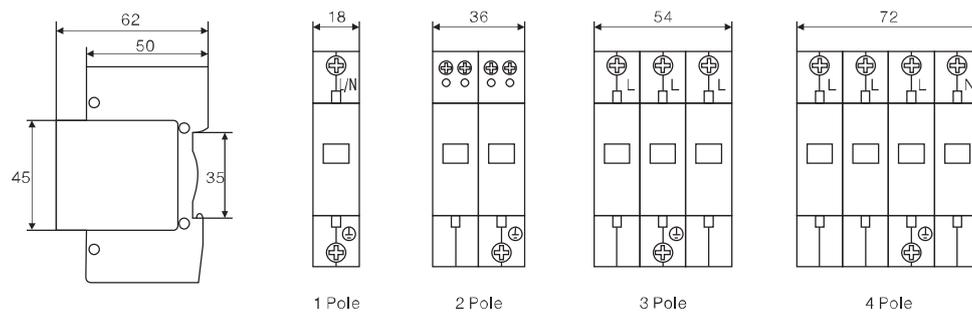
CSBPD-(D, C, B)5 surge protective device is applicable for D,C,B grade lightning-proof, installed on the joint of LPZOA zone or LPZOB and LPZ1 zone, which protects the electric network not shocked by thunder and lightning. These series usually installed in household distribution boards, computer equipment, 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	CSBPD-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	≅ 1.0	≅ 1.2	≅ 1.8	≅ 2.0	≅ 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 ² hard wire/ 35mm ² strand wire copper line				
Recommended Connection Line	16mm ² hard wire/ 25mm ² strand wire copper line				
Installation	Standard Rail 35mm				
Material of Outer Covering	Burning-proof Nylon				

6.Dimension



CSBPD6 Surge Protective Device >>>>



1.Product introduction

CSBPD6 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

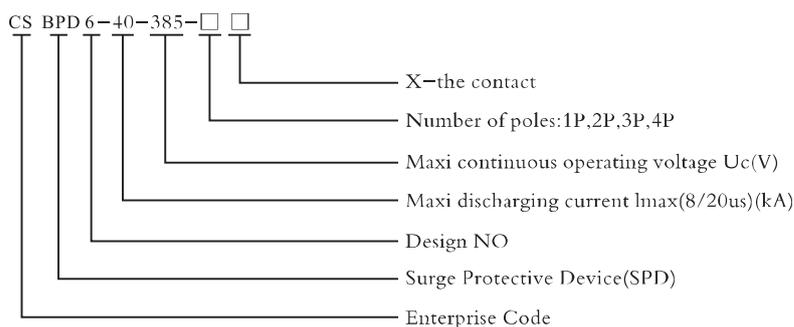
2.Installation

CSBPD6-20 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 mm². It is used in distribution boxes of living house, computer center, communication equipment, electronic equipment and control equipment or nearest socket box. CSBPD6-40 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 mm².

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.

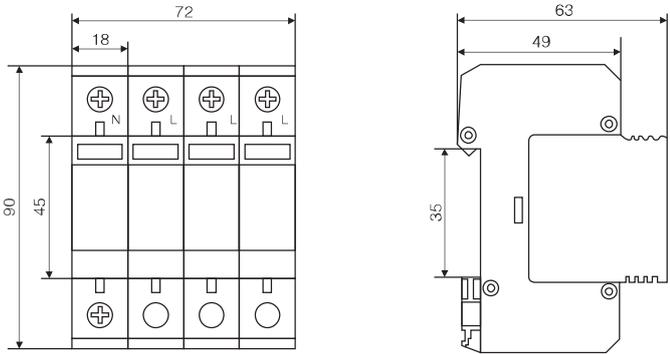
4.Model and meaning



5. Technical Parameter

Type& Specs	CSBPD3-15		CSBPD3-40		CSBPD3-65		CSBPD3-80		CSBPD3-100		CSBPD3-120	
Max Continuous operating voltage U_c (VAC)	420	275	420	275	420	275	420	275	420	275	420	275
Protection voltage level U_P (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 μ s) I_{max} kA	15		45		65		80		100		120	
Nominal discharging current (8/20 μ 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											
Remote signal function	Can be ordered											
Remarks	Other max continuous voltage (U_c) should be customized											

6. Outside Size



CSM1 Series >>>>



1.Application

Molded Case Circuit Breaker CSM1 series (hereinafter called as NOM1 MCCB) is a new designed MCCB developed and manufactured adopting international advanced technology. CSM1 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. CSM1 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).

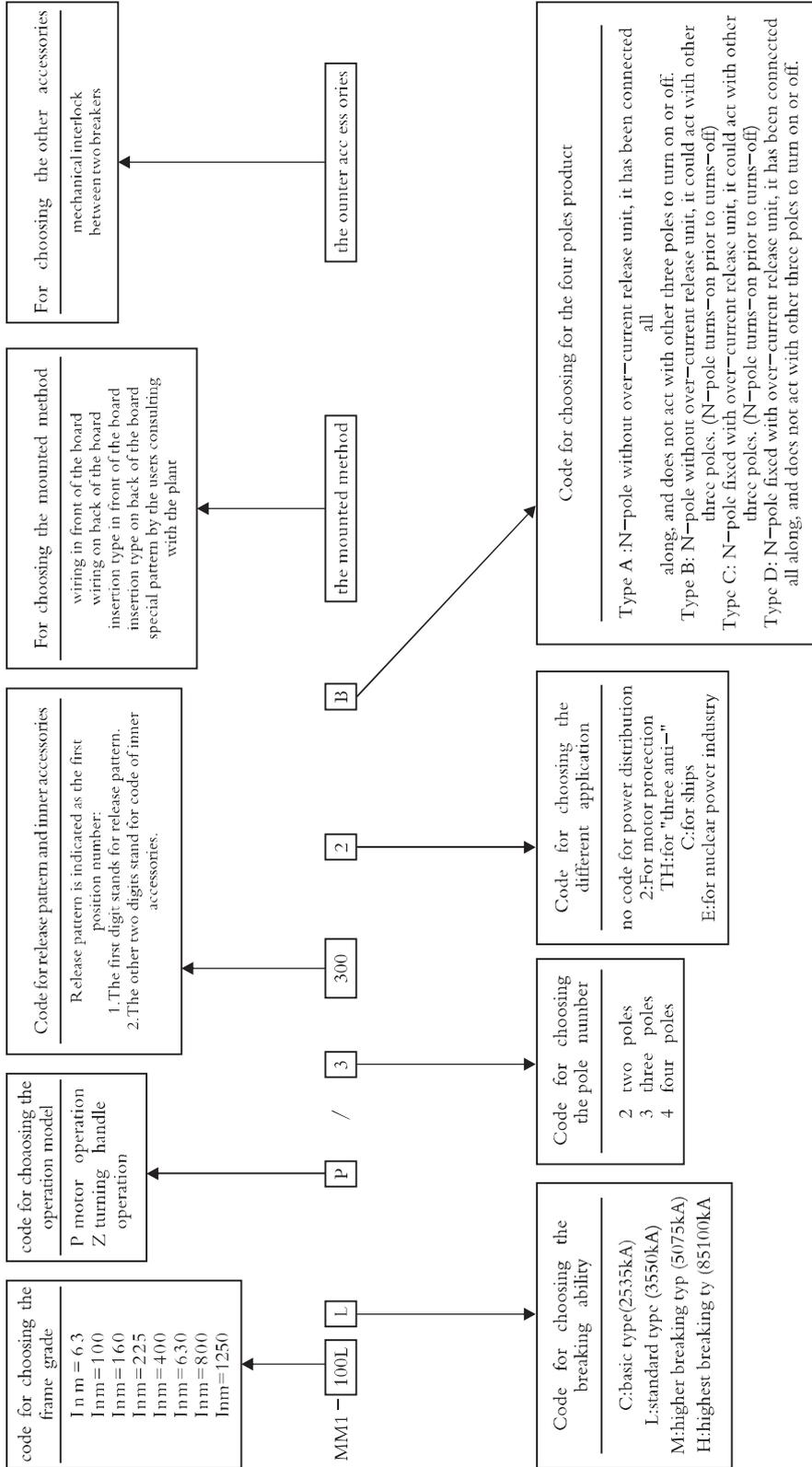
MCCB comply with the following standards:

- ★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):
CSM1-63 has nine grades: (6), 10, 16, 20, 25, 32, 40, 50, 63A
CSM1-100 has ten grades: (10), 16, 20, 25, 32, 40, 50, 63, 80, 100A
CSM1-160 has four grades: 100, 120, 140, 160A
CSM1-225 has seven grades: 100, 125, 140, 160, 180, 200, 225A
CSM1-400 has five grades: 225, 250, 315, 350, 400A
CSM1-630 has three grades: 400, 500, 630A
CSM1-800 has three grades: 630, 700, 800A
CSM1-1250 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.

3. Model Selection Table



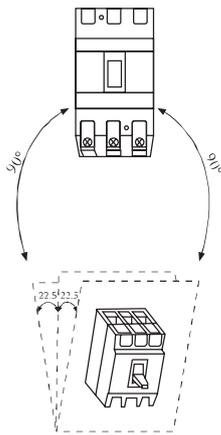
For example:

- ★ When placing an order CSM1-100M, 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: CSM-1-100M/33-02 In=80A, front board connection 2sets mechanical interlock mechanism, release coil voltage: AC220V.
- ★ When placing an order for CSM1-225, 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: CSM1-225P/4310C, In=180A rear board connection, motor voltage 220V, release coil voltage: 220V.

CSM1 Series >>>

4. Protection Characteristics

CSM1 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 _n (cold state) non-action time(h)	1.30I _n (hot state) action time(h)		
I _n ≤ 63	≥ 1	< 1	10I _n ± 20%	
63YI _n ≤ 125	≥ 2	< 2		
125YI _n ≤ 250	≥ 2	< 2	5I _n ± 20%、10I _n ± 20%	

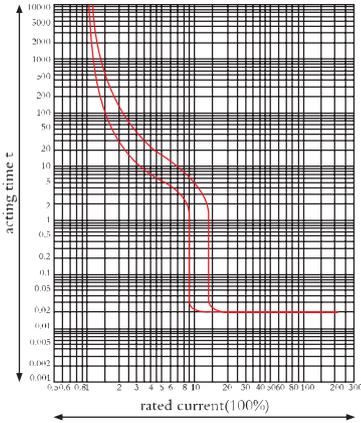
Rated current of release (A)	Thermodynamic release (ambient temp land +40°C marine +45°C)				Electromagnetic release action current (A)
	1.0I _n (cold state) non-action time(h)	1.20I _n (hot state) action time(h)	1.50I _n (hot state) action time(h)	7.2I _n (cold state) action time(h)	
10 < I _n ≤ 225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

5. Protection Characteristics

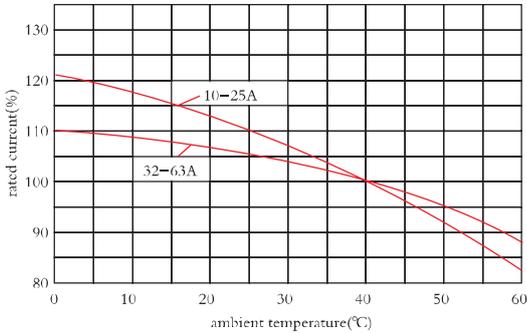
Type	Rated current	Pole number	Rated insulating voltage (V)	Rated working voltage (V)	Arcing-over distance (mm)	Limiting shortcircuit breaking capacity I _{cu} (KA)	Operating shortcircuit breaking capacity I _{cs} (KA)	breaking capacity I _{cu} (KA)				
								Energized	Unenergized			
CSM1-63L	6,10,16,20,25 32,40,0,63	2/3/4	800V	690V and below	0	25	18	2000	10000			
CSM1-63M										0	50	35
CSM1-100C	10,16,20,25 32,40,50,63 80,100									0	25	18
CSM1-100L										0(≤50)	35	22
CSM1-100M										0(≤50)	50	35
CSM1-100H										0(≤50)	85	50
CSM1-225C	100,25,140 160,180,200 225							≤ 50	25	18		
CSM1-225L								≤ 50	35	22		
CSM1-225M								≤ 50	50	35		
CSM1-225H								≤ 50	85	50		
CSM1-400C	225,250,315 350,400							≤ 50	35	25		
CSM1-400L								≤ 50	50	35		
CSM1-400M		≤ 100	65	42								
CSM1-630C		400,500,630	≤ 100	35	25							
CSM1-630L	≤ 100		50	35								
CSM1-630M	≤ 100		65	42								
CSM1-630H	≤ 100		100	65								
CSM1-800M	630,700,800	≤ 100	75	50								
CSM1-800H		≤ 100	100	65								
CSM1-1250H	800,1000,1250		≤ 120	100	65	1000	2000					

6.Characteristic Curve

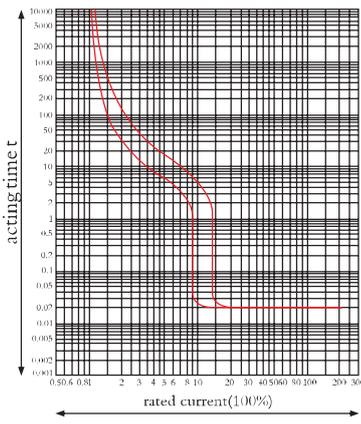
CSM1-63L、M time/current characteristic curve



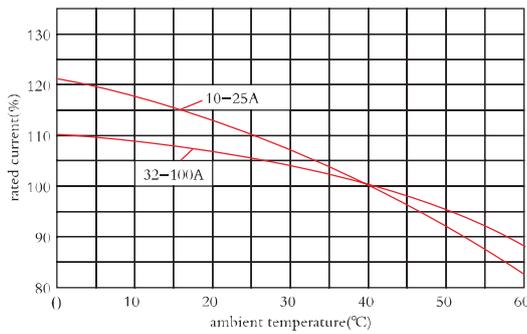
Current-temperature characteristic



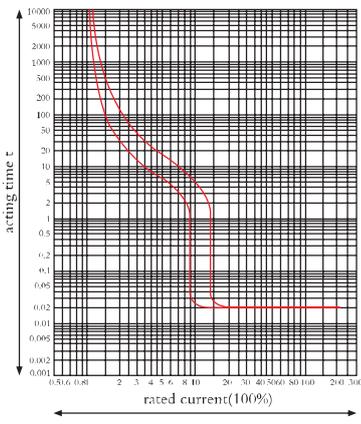
CSM1-100C、L、M、H time/current characteristic curve



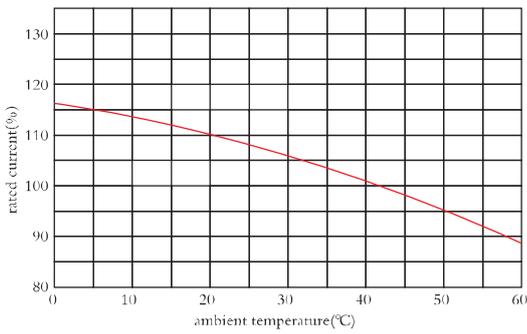
Current-temperature characteristic



CSM1-225C、L、M、H time/current characteristic curve

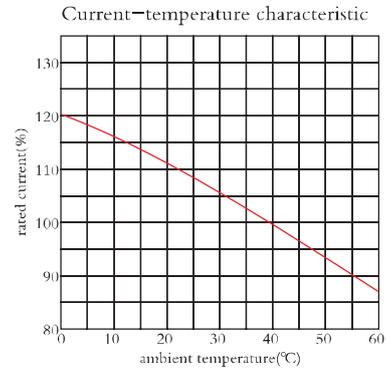


Current-temperature characteristic

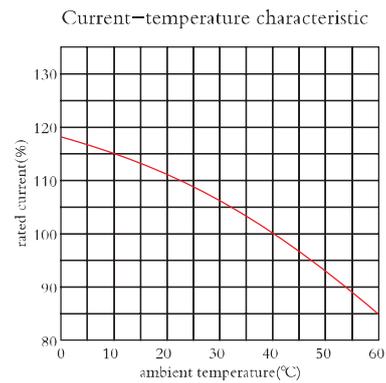
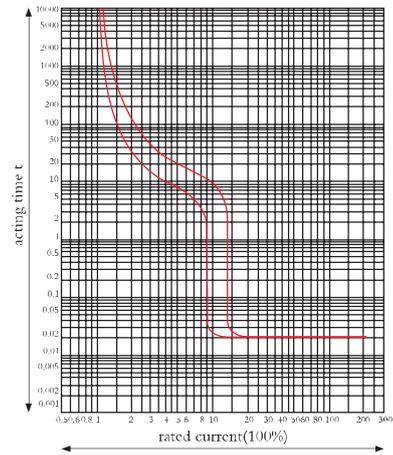


CSM1 Series >>>

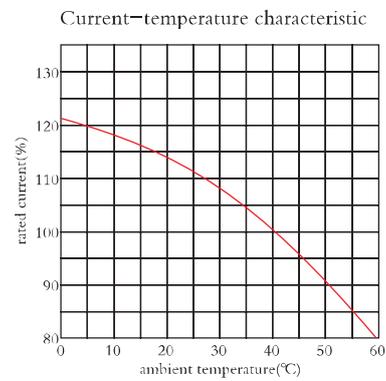
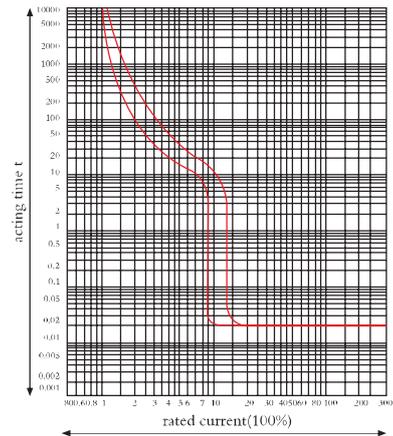
7.Characteristic Curve



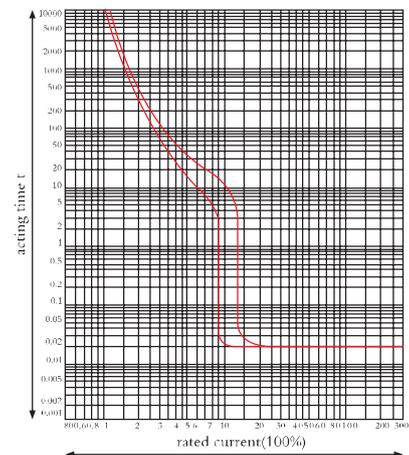
CSM1-400C、L、M、
time/current characteristic curve



CSM1-630C、L、M、
time/current characteristic curve



CSM1-630C、L、M、
time/current characteristic curve



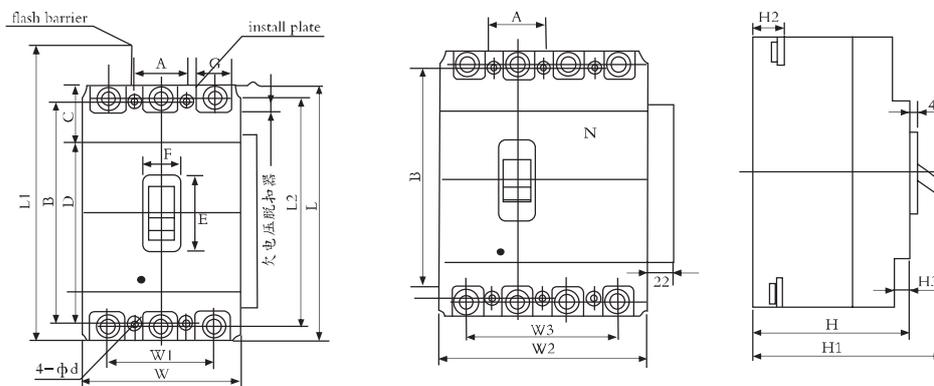
8. Overall and Installation Dimension

Type	CSM1										
	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
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	φd1	5.5	5.5	6.5	6.5	6.5	6.5	8.5	8.5	8.5
Installation Dimension	mm	M1	M5	M5	M8	M8	M8	M8	M12	M12	M12
	mm	A	25	25	30	30	35	35	44	58	58
	mm	B	117	117	129	129	126	126	194	200	200
mm	φd	3.5	3.5	4.5	4.5	5	5	7	7	7	

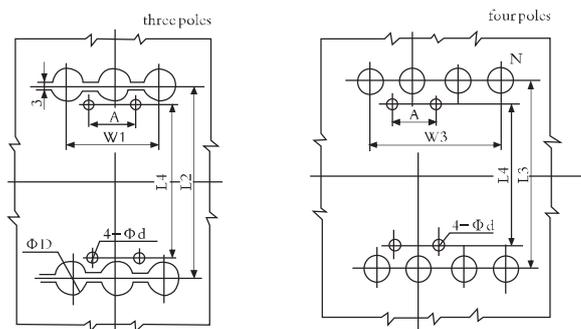
CSM1 Series >>>

9. CSM1-63~630M Over and Installation Dimension

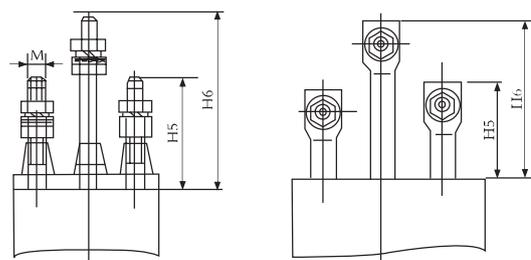
Front board wiring



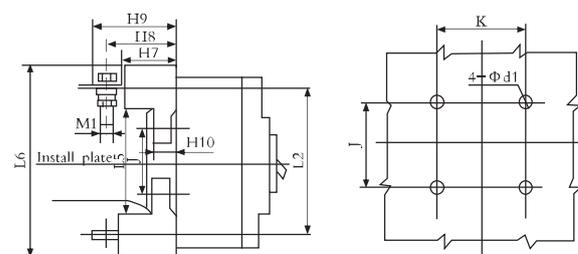
Aperture drawing of rear board wiring



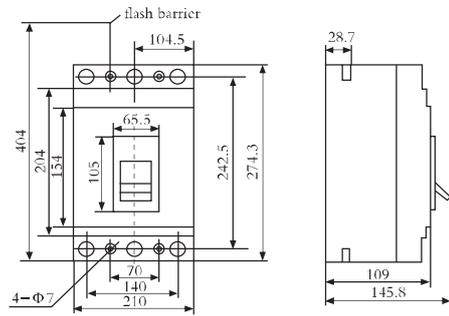
Rear board wiring



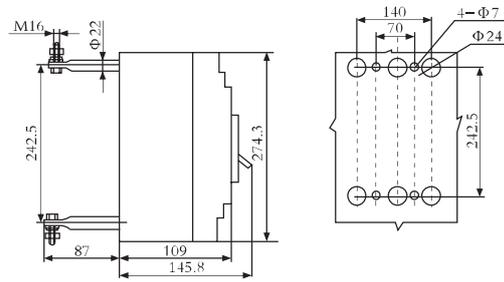
Insertion type



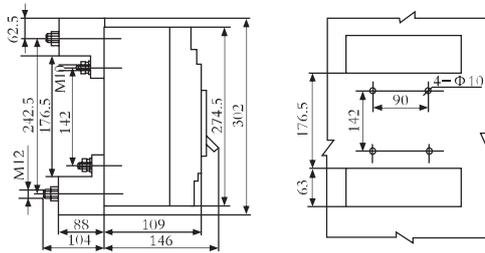
Overall dimension of front board wiring(three poles)



Overall dimension of rear board wiring(three poles)

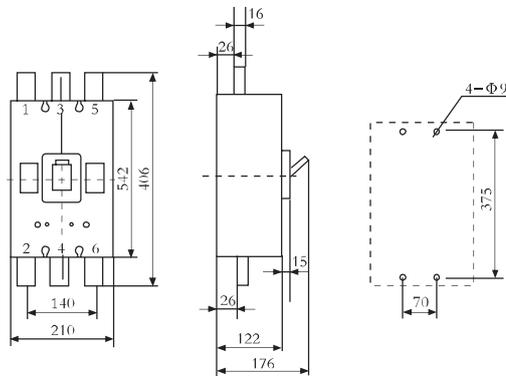


Overall Installation and Aperture Dimension of Insert-type

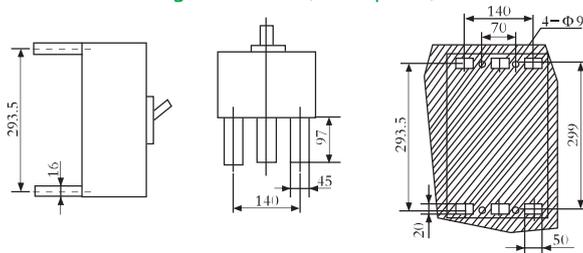


10. CSM1-1250 1600 overall and Installation Dimension

Front Board Wiring Dimension(three poles)



Rear board wiring Dimension(three poles)



CSM3 (ABB-S) Series >>>>

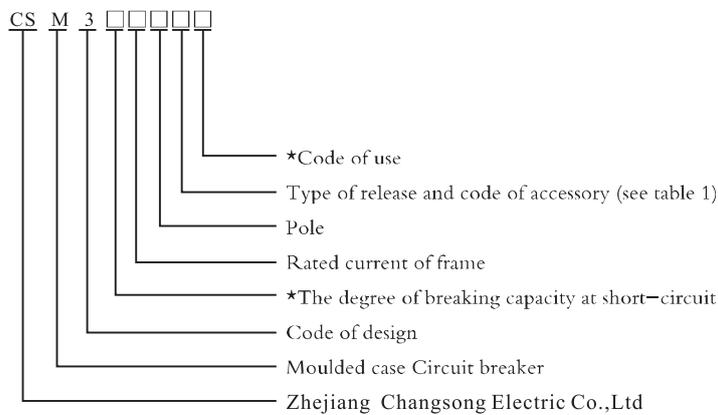


1. Suitable range

CSM3 (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 release auxiliary 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
CSM3L、H-125	125	400	50	12.5,16,20,25,32,40,50,63,80,100,125	3、4
CSM3L、H-160	160		50	16,20,32,40,50,63,80,100,125,160	3、4
CSM3L、H-250	250	690	50	100,125,160,180,200,225,250	3、4
CSM3L、H-400	400		50	200,225,250,315,350,400	3、4
CSM3L、H-630	630		50	400,500,600	3、4
CSM3L、H-800	800		50	500,630,700,800	3、4

CSM3 (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
CSM3L-125	16	8*	8	4*
CSM3H-125	25	12*	12.5	6*
CSM3L-160	16	6	12	4
CSM3H-160	35	8	17.5	6
CSM3L-250	35	14	26	11
CSM3H-250	65	8	48	13.5
CSM3L-400	35	20	26	15
CSM3H-400	65	25	48	25
CSM3L-630	50	20	30	20
CSM3H-630	80	25	60	25
CSM3L-800	50	20	30	20
CSM3H-800	80	25	60	25

Remark: "*"indicatuon the brteraking 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
CSM3L、H-125	12.5、16、20、25、32、40	500A	500A
	50、63、80、100、125	10In	12In
CSM3L、H-160	16、20、32、40	500A	500A
	50、63、80、100、125、160	10In	12In
CSM3L、H-250	100、125、160、180、200、225、250	10In	12In
CSM3L、H-400	200、225、250、315、350、400	10In	12In
CSM3L、H-630	40、500、630	10In	
CSM3L、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	≥ 1	≥ 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	≥ 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

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.

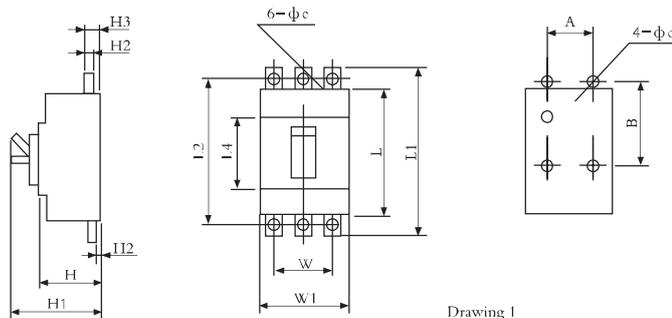
4) See table 7 for auxiliary contact, warning contact and rated value.

table 7

Conventional thermal current I_{th} (A)	Rated insulation voltage U_i (V)	Rated operating current I_e (A)			Applicable rated current of frame I_{nm} (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

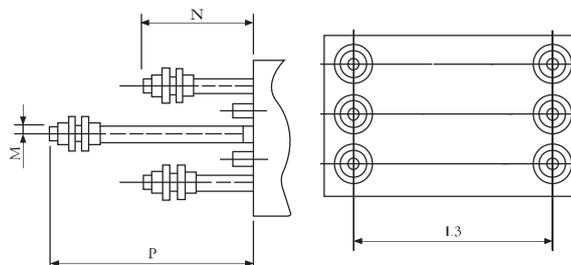
table 8

Type	Contour dimension							Installation dimension						
	W	L	H	L1	H1	H2	H3	A	B	W1	ϕd	L2	ϕe	L4
CSM3L、H=125	78	120	70		91	25.5		25	100	50	5			45
CSM3L、H=160	90	120	70		93	27.5		30	100	60	5			45
CSM3L、H=250	105	170	103.5	235	135	25	31	35	139	70	6	210	8.5	105
CSM3L、H=400	140	254	103.5	310	135	25	31	44	214	87.5	6	285	11	105
CSM3L、H=630	210	268	103.5	365	167.5	36.5	41.5	70	237	140	6	309	11	105
CSM3L、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
CSM3L、H=125	42	75	M8	102
CSM3L、H=160	42	75	M8	102
CSM3L、H=250	55	100	M12	143
CSM3L、H=400	62	108	M16	248
CSM3L、H=630	68	68	M24×2	241
CSM3L、H=800	68	68	M2×2	241



CSNS Series >>>



1. Applicable scope

CSNS 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%

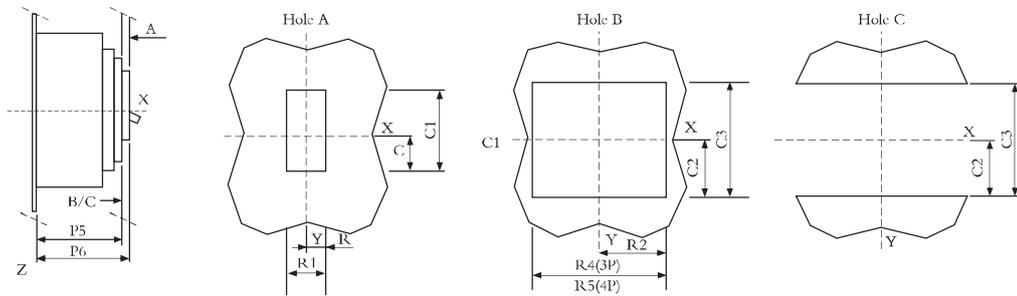
3. Technical parameters

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

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

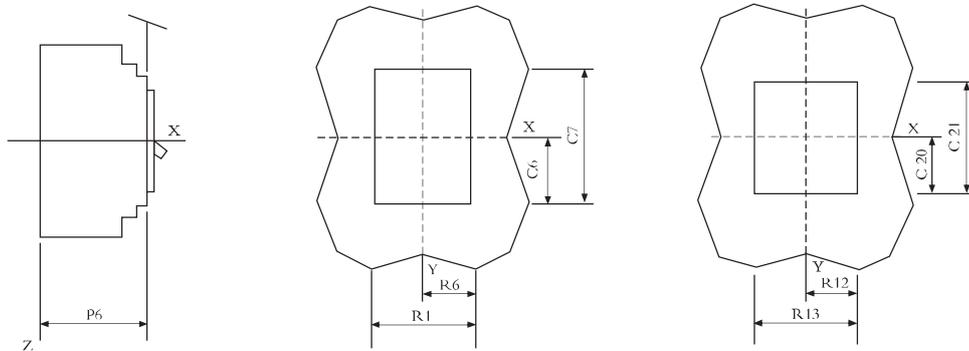
4. Mounting diagram and sizes

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



Belt product label

The belt pulls out moves the switch



CSEZD Series >>>



1.Applicable scope

The CSEZD series plastic outer covering type circuit breaker is suitable in exchanges 50/60Hz, the fixed working voltage is highest to 550V, nominal current 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		CSEZD-100	CSEZD-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	

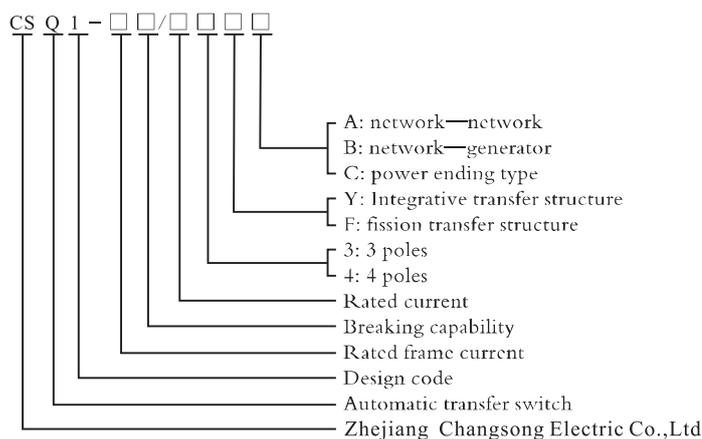
CSQ1 Dual Power Automatic Transfer Switch >>>>

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. CSQ1 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

CSQ1 automatic transfer switch (hereinafter call as CSQ1) 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. CSQ1 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

CSQ1 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 quadrupole transfer.
- ★Transfer time delay adjustable, active time exact.
- ★EPS fire control power DC 24V, remote breaking.
- ★Small volume, high breaking, short overflash, compact structure, and pleasing outside.
- ★Good antiseptic 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 transfer

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

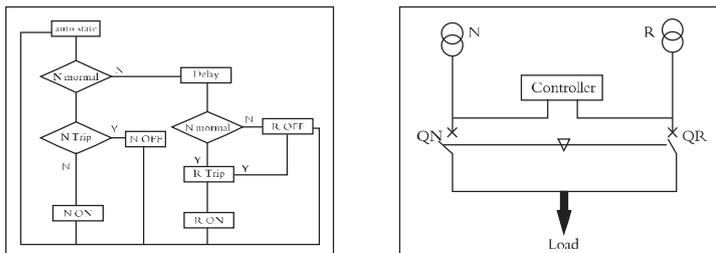
★ Installation base plate: for integrated transfer device, the interlock mechanism and controller mounted in the same base plate. For split transfer device the controller mounted seperated with base plate, it used a connector and the length of cable is 2m. The cabinet type is putting the base plate of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

CSQ1 Dual Power Automatic Transfer Switch >>>>

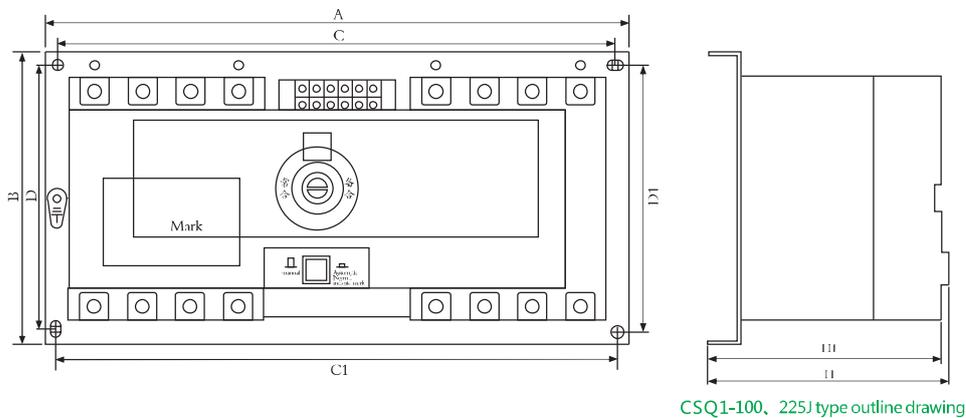
- ★Under Auto state, it can enter into automatic control state according to the present usage power supply;
- ★Under OFF state, it can fully break or OFF with installing two set of circuit breakers.
- ★Under handle turning state, It can not turn "ON" or "OFF" of two set of circuit breaker with handle 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								
CSQ1-100	363	180	346.5	348	163.5	165	148.5	144
CSQ1-100	408	195	391.5	393	178.5	180	164.5	160

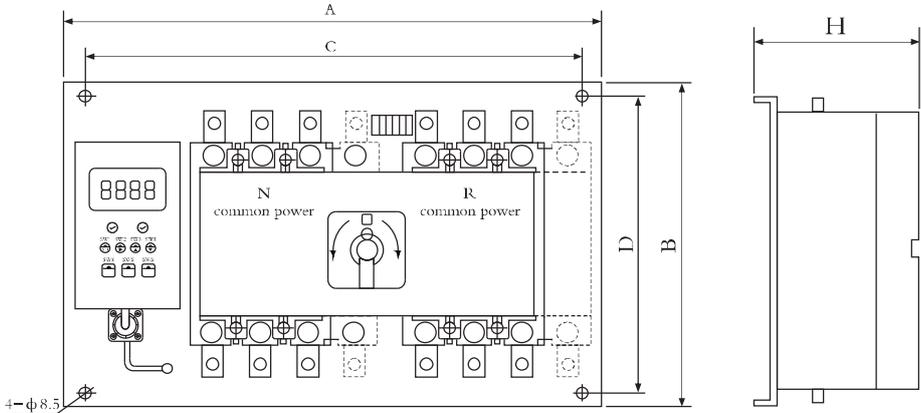
Remark:Execute circuit breaker is CSM1-100、225M/3,4P

8.Main Technology Parameter

Type	MCCB	Frame current (A)	Rated working voltage(V)	Rated current(A)	Rated limit short circuit breaking capability(KA)	
CSQ1-63	MM1-63	63	400	(6)、10、16、20、25 32、40、50、63	L	35
					M	50
CSQ1-100	MM1-100	100	400	10、16、20、25、32 40、50、63、80、100	L	35
					M	50
CSQ1-160	MM1-160	160	400	100、125、140、160	L	35
					M	50
CSQ1-225	MM1-225	225	400	100、125、140、160 180、200、225	L	35
					M	50
CSQ1-400	MM1-400	400	400	225、250、315、350、400	L	50
					M	65
CSQ1-630	MM1-630	630	400	400、500、630	L	50
					M	65
CSQ1-800	MM1-800	800	400	630、700、800	S	65
					H	100
CSQ1-1250	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 >>>

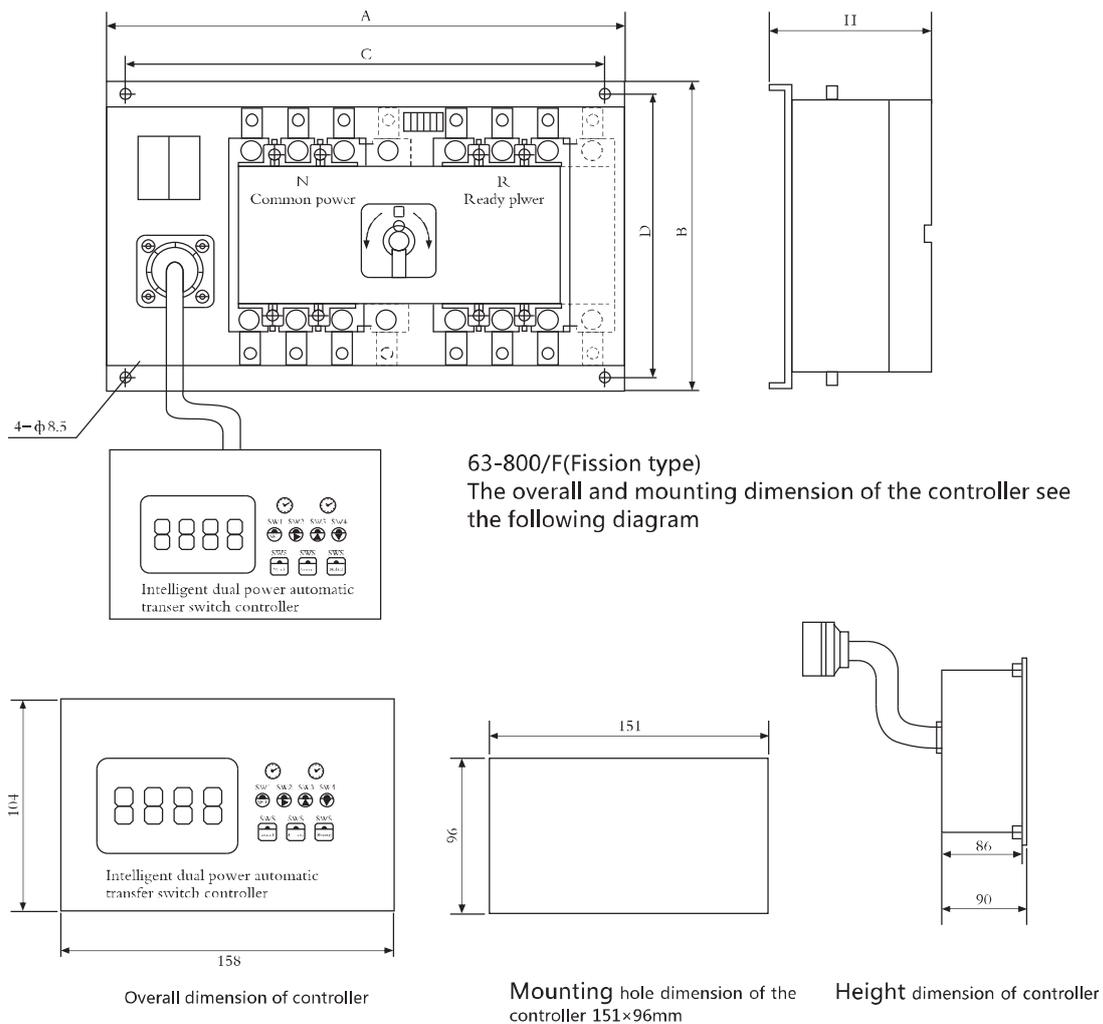
Integrative type(Y)

unit: mm

Dimensions Specification	A(L) 3P/4P	B(W)	C(L) 3P/4P	D(W)	H(H) 3P/4P
CSQ1-63	443/473	223	410/440	190	120/140
CSQ1-100	443/473	223	410/440	190	124/146
CSQ1-160	483/523	243	450/490	210	142/160
CSQ1-225	483/523	243	450/490	210	140/160
CSQ1-400	625/670	305	586/636	268	235/235
CSQ1-630	660/800	300	716/766	266	240/250
CSQ1-800	680/840	300	650/810	270	240/240
CSQ1-1250	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
CSQ1-63	383/ 413	213	350/380	180	125 143
CSQ1-100	383/413	213	350/380	180	125/143
CSQ1-160	420/470	230	390/440	200	145/165
CSQ1-225	420/473	233	390/440	200	145/162
CSQ1-400	570/615	300	536/586	268	235/235
CSQ1-630	610/750	300	666/766	266	240/250
CSQ1-800	630/790	300	600/760	270	240/240
CSQ1-1250	700/840	370	670/810	420	310/310

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

CSQ3 Dual Power Automatic Transfer Switch >>>>

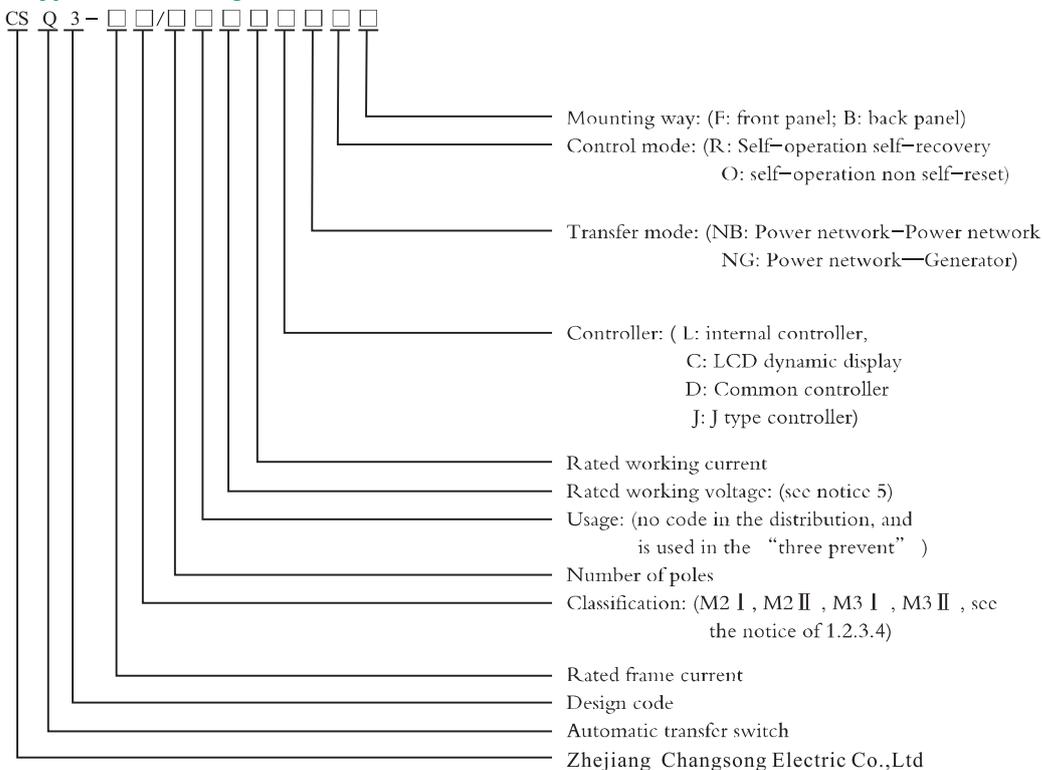
1.Application

CSQ3 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, 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

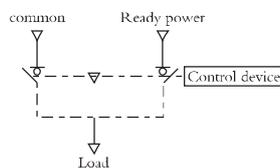
3.Types And Meanings



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



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°C $+40^{\circ}\text{C}$ (45°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°
- ★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

CSQ3 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)	12.5kVA-30kVA	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.

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.

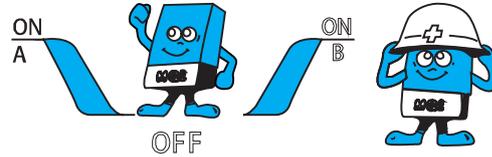
10. CSQ3 ATSE Compare With Other ATSE

Item	Transfer Facility			
	Excite contactors	CB automatic transfer switch	CSQ3 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

CSQ3 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

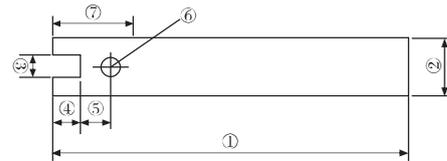


12. Safety Design

- ★ 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	r
<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.

16.M3 Main Technology Index

Type	CSQ3-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			4			5		7		
	AC200V/220V			1.5			1.5			2		2.5		
Trip current	DC110V			1			1			1.5		2		
	AC200V/220V			0.5			0.5			0.7		1		
Capability	Short time stand current(KA)			5			10			12		15		
	Rated limit short circuit current			12.5			25			30		37.5		
Transfer time (ms): power A side	Put in			55			55			60		100		
	Breaking			20			20			25		30		
Transfer time (ms): power B side	Put in			80			80			90		135		
	Breaking			20			20			25		30		
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: 1000 times				Electrical life: 500 times					
	Mechanism life: 5000 times				Mechanism life: 3000 times				Mechanism life: 2500 times					
Operating recycle time	60times/hour											20times/hour		
Connecting and disconnecting capability	AC-33B(10Ie Connection 8Ie Breaking) $\cos\Phi=0.35$ DC-33B 1.1Ie Connection L/R=1ms													
Accessory	Protection cover、 Manual control handhold													

Notice: DC current operation situatNotice: 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.

CSQ3 Dual Power Automatic Transfer Switch >>>>

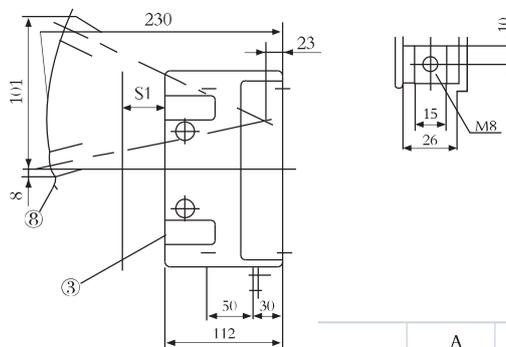
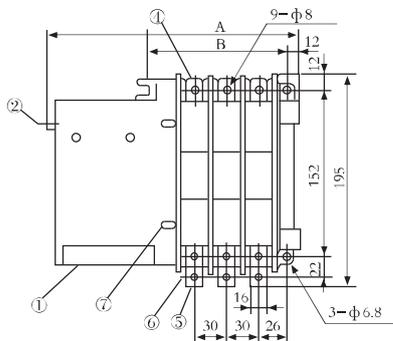
Type	CSQ3-M3										
Rated current	1250A		1600A		2000A		3150A		5000A		
Poles	3	3	3	4	3	4	3	4	3	4	
Weight(Kg)	40(56)	51(66)	47(62)	51(66)	115	135	152	192	207	265	
Operating current	DC110V	6	6	8	6	10	12	12	14	16	18
	AC220V	3	4	4	4	5	6	7	8	8	9
Trip current	DC110V	2		2		4		4		4	
	AC220V	1		1		1		1		1	
Capability	Short time stand current(KA)	22		25		35		50		50	
	Rated limit short circuit current	50		55		65		80		100	
Transfer time (ms): power A side	Put in	115		115		140		180		200(190) 210(190)	
	Breaking	25		25		25		30		30 35	
Transfer time (ms): power B side	Put in	145		150		190		220		220(240) 230(270)	
	Breaking	25		25		25		30		30 30(35)	
Rated voltage	AC400V/690V、DC110V										
Put in numbers	Double put in										
Connecting way	Back panel										
Auxiliary switch	Power A side 1C, Power B side 1C, switch capability: AC100V:5A AC220V:250A、DC100V:0.5A										
Life	Electrical life:500times					Electrical life:500times					
	Mechanism life:2500times					Mechanism life:1500times					
Operating recycle time	20times/hour					10times/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: 4000A 4P, the capacity of N contact is 2000A.

17.M3 Main Technology Index

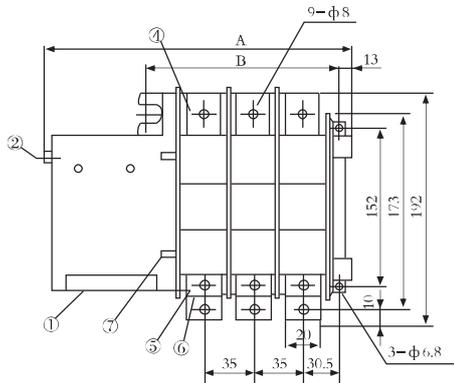
M2、M3 20A~125A

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

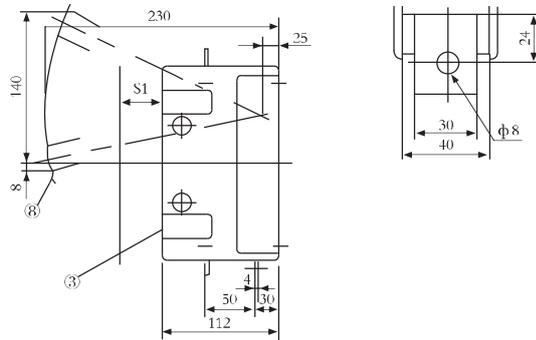


	A	B
2P	206	103
3P	236	133
4P	266	163

M2, M3 160A ~ 250 A



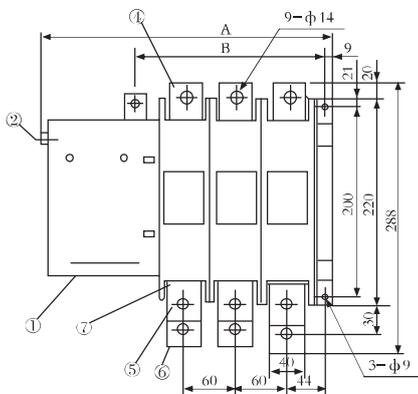
Panel safety distance (S1 dimensions 300mm(400V)、60mm(690V))



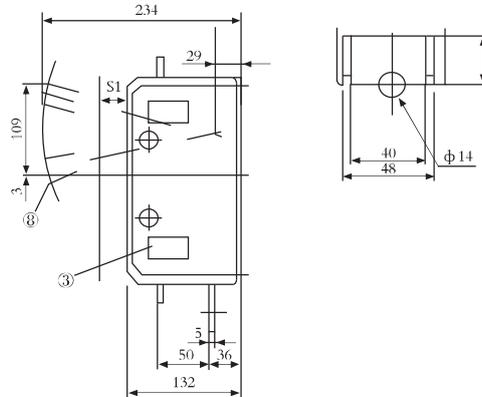
	A	B
2P	221	113
3P	256	148
4P	292	183

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

M2, M3 350A ~ 500 A



Panel safety distance (S1 dimensions 300mm(400V)、60mm(690V))



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

CSQ1-63 Dual Power Automatic Transfer Switch >>>

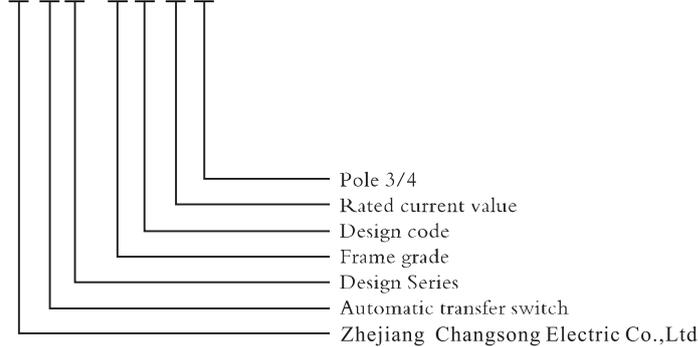
1.Application

CSQ1-63series 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

CS Q 1-63 II / □ □



3.Environment Conditions For Operation And Installation

- ★ Ambient temperature: -5°C — $+40^{\circ}\text{C}$, and average temperature in24 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 DZ47-63 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	Cosφ	Conduction time(s)	Cycle period(min)	Operate cycle time
AC33B	6.0	1.05	0.5	0.05	≤ 5	12

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

CSQ1-63 Dual Power Automatic Transfer Switch >>>>

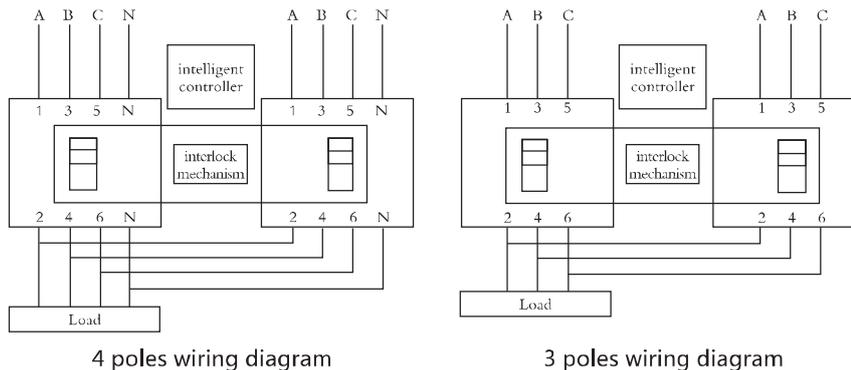
- ★ Rated short breaking capacity
- ★ Rated short connecting capacity: 3kA
- ★ Transfer time: 3s
- ★ The control voltage of transfer switch: AC230V
- ★ The mechanism life of transfer switch: 3000 times; electric life: 1500 times
- ★ Rated insulate voltage: $U_i=500V$
- ★ Rated working current: 10A、16A、20A、25A、32A、40A、63A
- ★ 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

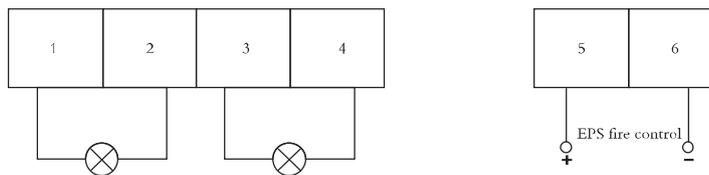
According design circuit diagram requirement, need to connect the input and output line, zero curve of normal power and reserve power. The output terminal of two circuit breakers should be parallel connection, and with same series(see pic)

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



External connection power closing instruction and fire control power wiring diagram



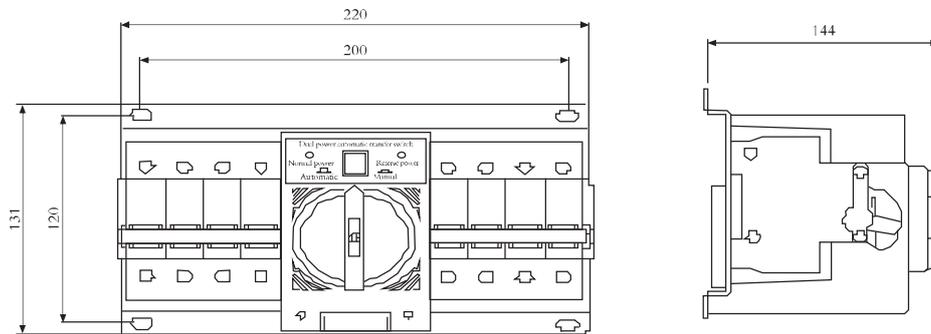
Normal closing(AC220V)Reserve closing

DC24V

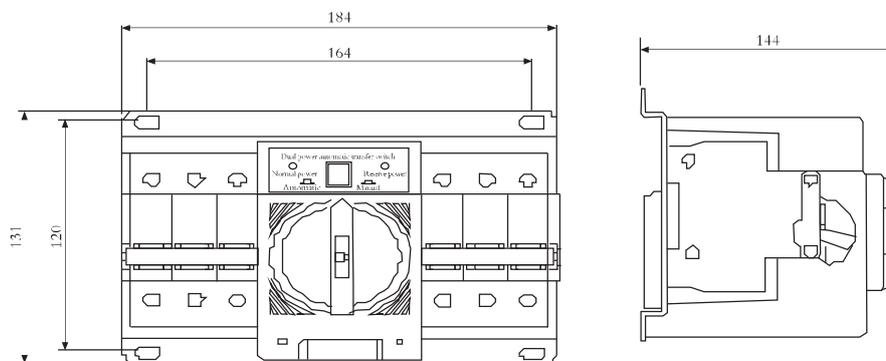
★ When transfer switch need to operated manual, if NQ3-63A, should locate the push button in manual, at that time we can use the rotating hand shank to transfer the normal and reserve. If NQ3-63II, rotating hand shank/ automatic push button, when manual pilot lamp lighting, we can use the rotating hand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

CSW1 Air Circuit Breaker >>>

1. basic frame sizes

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



2. General

2.1 Application scope

CSW1s 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);

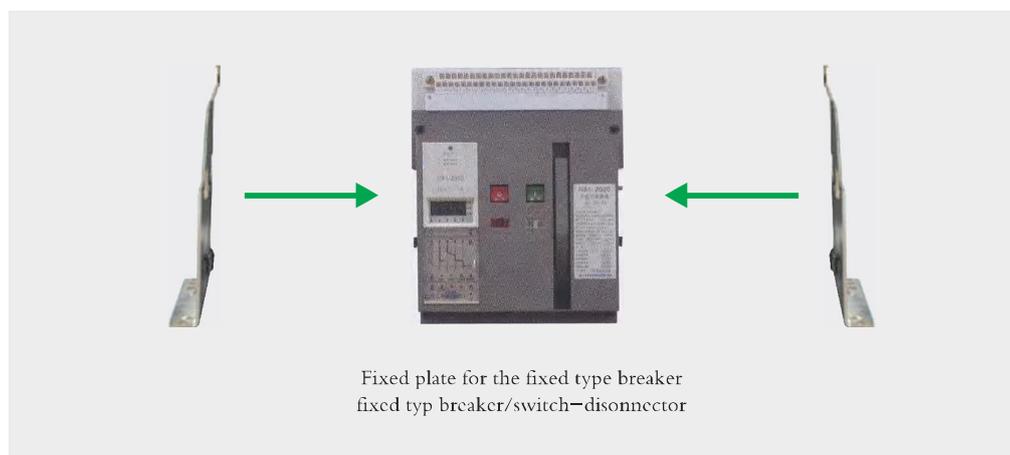
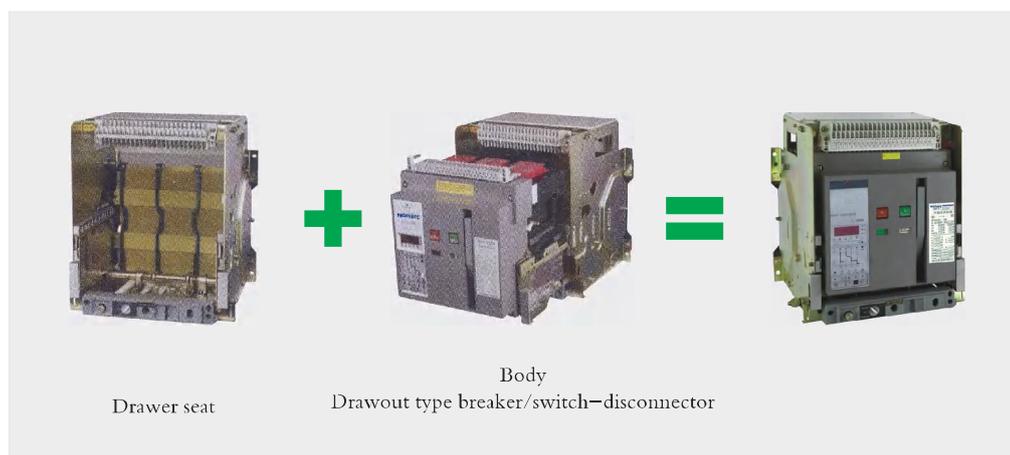
2.2 Altitude: $\leq 2000\text{m}$;

2.3 Pollution grade: Grade 3;

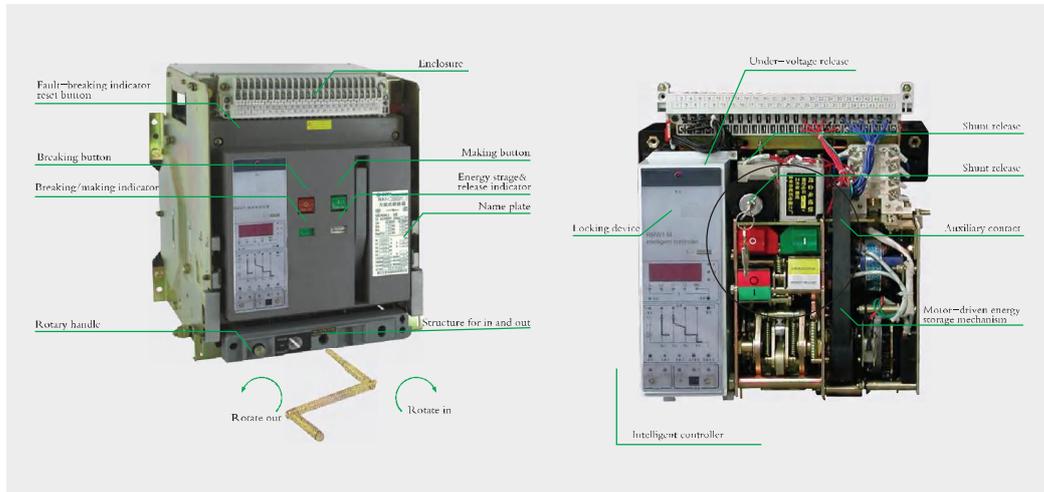
2.4 Air conditions: At mounting site, relative humidity not exceed 50% at the max temperature of $+40^{\circ}\text{C}$, higher relative humidity is allowable under lower temperature, RH could be 90% at $+20^{\circ}\text{C}$, special measures should be taken to occurrence of dew;

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

4. Structure



CSW1 Air Circuit Breaker >>>>



6. Main technical parameter

Type	CSW1-1000					
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	CSW1-2000							
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	

CSW1 Air Circuit Breaker >>>

Type		CSW1-3200, CSW1-4000			
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		CSW1- 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				

Switch Disconnecter, Fuse-switch Disconnecter, Changeover Switch

Switch Disconnecter



HH15-QA
Switch Disconnecter

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HH15-QP
Switch Disconnecter

Page M-06



CSGL
Switch Disconnecter

Page M-09

Fuse-switch Disconnecter



HH15/QSA
Fuse-switch
Disconnecter

Page M-14



GL17
Fuse-switch
Disconnecter

Page M-17



CSGLR
Fuse-switch
Disconnecter

Page M-19



CSG4
Vertical
Fuse-switch
Disconnecter

Page M-22

Changeover Switch



**HH15/QAS/
QPS/QSS**
Changeover Switch

Page M-38



CSG4
Automatic
Changeover Switch

Page M-45

8. Order sheet

Customer:
Quantity:

Tel:

Date:

Model		CSW1-1000	CSW1-2000	CSW1-3200	CSW1-4000	CSW1-6300
Rated current(I _n)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"/> 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 _n ≥ 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 _n ,30s; Isd=8I _n , definite time 0.4s; Ii=12I _n ; Ig=0.4I _n ,OFF	Ir1=1.0I _n ,15s Ir2=8I _n ,0.4s Ir3=12I _n , 0 Ig=0.5I _n , OFF	
		Long time-delay protection IR(Ir1)	Current setting	___I _n (0.4-1I _n)		
			Time setting	___s(15-480)		
		Short circuit short timedelay protection Isd(Ir2)	Current setting	___I _n (1-15I _n)		
			Time setting	___s(0.1, 0.4)		
		Short circuit instantaneous protection Ii(Ir3)	Current setting	___I _n (2, 4, 6,8, 10, 12, 15OFF)		
	Optional function	Earthing protection Ig	Current setting	___I _n (0.2-0.8I _n ,Min,160A)		
		Time setting	___s(0.1-0.4)			
			<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 _n ,17.2s; Isd=8I _n ,inverse time 0.4s; Ii=12I _n ; Ig=0.4I _n ,OFF.	Ir1=1.0I _n ,15s Ir2=8I _n ,0.4s Ir3=12I _n , 0 Ig=0.5I _n , OFF	
		Long time-delay protection IR(Ir1)	Current setting	___I _n (0.4-1I _n)		
			Time setting	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)		
		Short circuit short time-delay protection Isd(Ir2)	Current setting	n(1.5-15I _n)		
			Time setting	s(0.1-0.4)		
Short circuit instantaneous protection Ii(Ir3)		Current setting	I _n (10-20I _n)			
Earthing protection Ig	Current setting	I _n (0.2-1.0I _n)				
	Time setting	s(0.1-1)				
				___I _n (In100kA)		
				___I _n (0.2-0.8I _n ,Min,160A)		
				___s(0.1-0.4)		

Switch Disconnecter

Thermal current	16	32	40	63	80	100	125	160	200	250
HH15/QA							HH15-125/QA	HH15-160/QA	HH15-200/QA	
HH15/QP										HH15-250/QP
CSGL	CSGL-16	CSGL-32	CSGL-40	CSGL-63	CSGL-80	CSGL-100	CSGL-125	CSGL-160	CSGL-200	CSGL-250

HH15-/QA



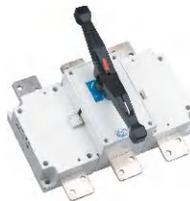
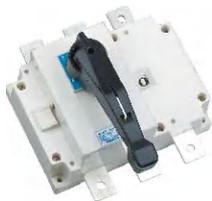
HH15-/QP



NH40



315	400	630	1000	1250	1600	2000	2500	3150
	HH15-400/ QA	HH15-630/ QA	HH15-1000/ QA	HH15-1250/ QA	HH15-1600/ QA			
		HH15-630/ QP	HH15-1000/ QP	HH15-1250/ QP	HH15-1600/ QP		HH15-2500/ QP	HH15-3150/ QP
CSGL-315	CSGL-400	CSGL-630	CSGL-1000	CSGL-1250	CSGL-1600	CSGL-2000	CSGL-2500	CSGL-3150





HH15-QA Switch Disconnector



1. General

1.1 Application

Mainly used in the distributing and motor circuit which has high short-circuit current, and acted as main switch or master switch infrequently operated by hand, it is particularly suitable in the relative high class with drawable low voltage complete equipment. They provide safety isolation and protection against overcurrent for any low voltage electrical circuit.

1.2 Standard: IEC/EN 60947-3.

1.3 General characteristic

Full-enclosed structure
Unique rolling insert type contact system.

2. Switch disconnector, with connection contact in series

2.1 Ordering information

HH15 - □ / □ □ QA

No fuse,
with connection contacts in series

No. of auxiliary contacts

0: no auxiliary contact

1: 1 pair of auxiliary contact

2: 2 pairs of auxiliary contact

No. of poles

2: 2 poles

3: 3 poles

4: 4 poles

Rated operating current

Series No.

Note: This switch may only be operated outside the cabinet.

2.2 Property

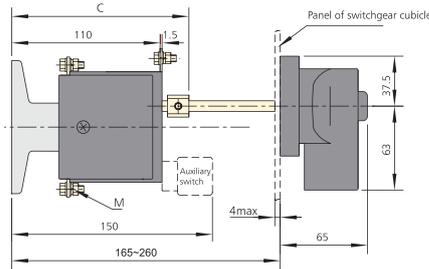
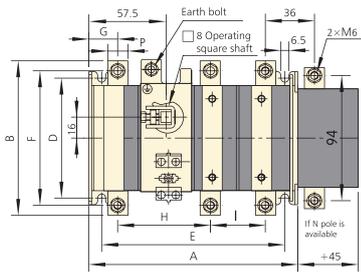
Specification	125	160	200	400	630	1000	1250	1600
No. of poles	3, 4, 3+N						3, 4	
Rated insulating voltage(V)	Ue=400V, Ui=690V. Ue=690V, Ui=1000V.						800	
Rated operating voltage Ue(V)	AC400						AC415	
	AC690						AC690	
Conventional thermal current(A)	125	160	200	400	630	1000	1250	1600
Rated operating current(A)	400V:AC-22B;415V:AC22B							
	125	160	200	400	630	1000	1250	1600
	690V: AC-21B							
	125	160	160	315	425	630	800	1000
Rated Short-circuit making capacity (Peak)(kA)	20	20	20	50	50	50	65	85
Rated Short-time withstand current(kA)	8	8	8	12.8	22.5	32	50	50
Mechanical life	15000	15000	15000	12000	12000	3000	1000	1000
Electric Life	1000	1000	1000	300	300	150	100	100
Operating torque (N · m)	7.5	7.5	7.5	16	16	30	30	30
Conventional thermal current of auxiliary contact Ith 400, AC-15(A)	5	5				-		

Switch Disconnecter HH15-QA

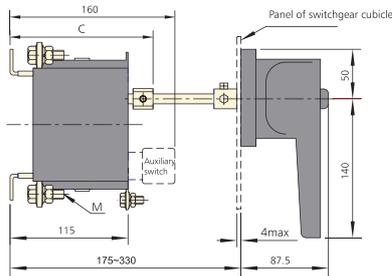
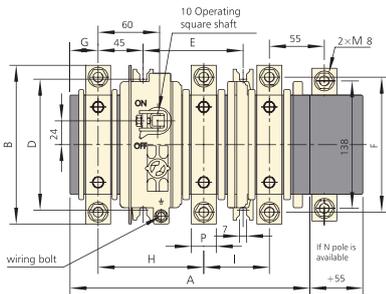
CNCSGK

2.3 Dimension (mm)

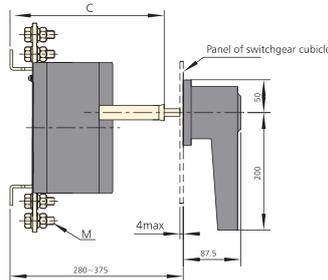
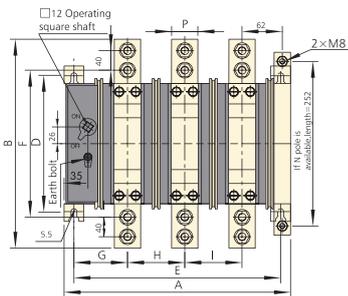
HH15-125/QA, 160/QA, 200/QA



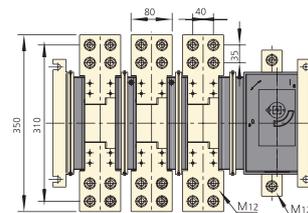
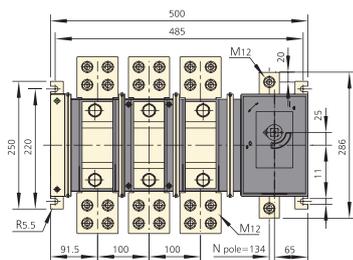
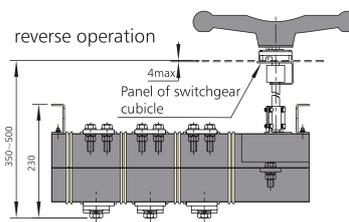
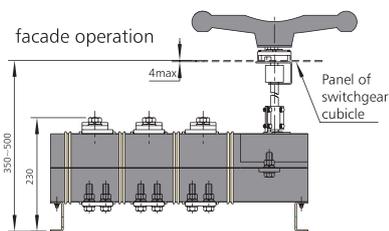
HH15-400/QA, 630/QA



HH15-1000/QA

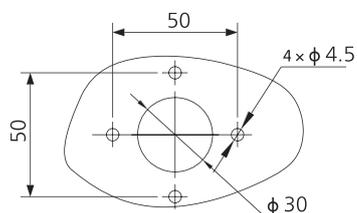
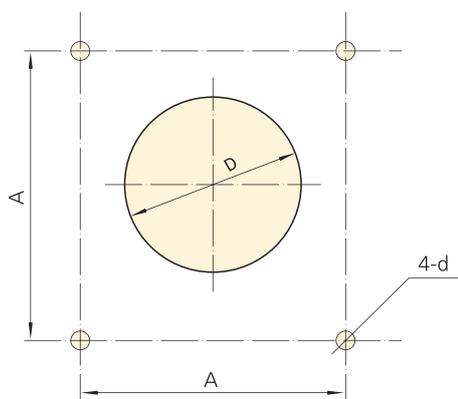


HH15-1250, 1600/QA



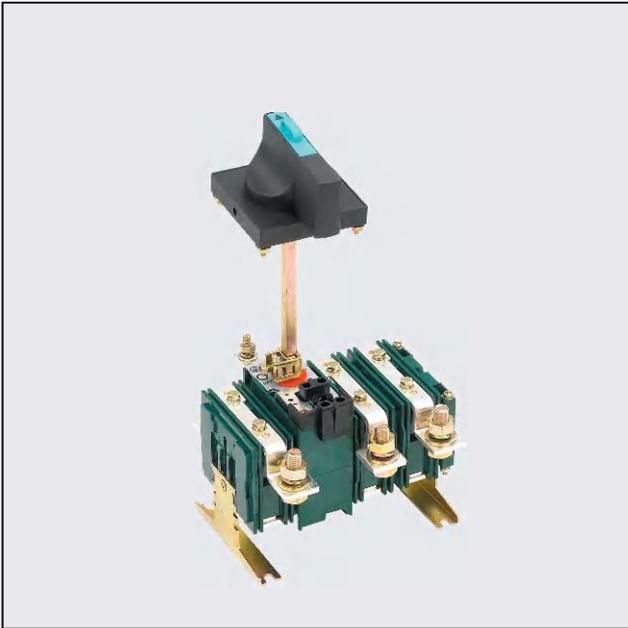
Specification	A	B	C	D	E	F	G	H	I	M	P
HH15-125/QA	155	116	133	90	135	101	21.5	69	41	6	15
HH15-160/QA	155	127	133	90	135	107	22.5	65	45	10	25
HH15-200/QA	155	127	133	90	135	107	22.5	65	45	10	25
HH15-400/QA	240	160	142	130	100	135	27	106	65	10	25
HH15-630/QA	240	200	142	130	100	135	27	106	65	12	40
HH15-1000/QA	345	350	188	208	315	230	82	87	87	12	50

2.4 Boring dimension (mm)



HH15-1250, 1600/QA
Openingsizeofthehandlemountingpanel

Specification	A	D	d
HH15-125~200/QA HH15-250/QP	65 ± 0.2	$\phi 42 \begin{smallmatrix} +4 \\ 0 \end{smallmatrix}$	$\phi 4.5 \begin{smallmatrix} +0.5 \\ 0 \end{smallmatrix}$
HH15-400~1000/QA	88 ± 0.2	$\phi 63 \begin{smallmatrix} +2 \\ 0 \end{smallmatrix}$	$\phi 5.5 \begin{smallmatrix} +0.5 \\ 0 \end{smallmatrix}$



HH15-QP Switch Disconnecter



3. Switch disconnecter, with connection contact in parallel

3.1 Ordering information

HH15 - □ / □ □ QP

No fuse,
with connection contacts in parallel

No. of auxiliary contacts
0: no auxiliary contact
1: 1 pair of auxiliary contact
2: 2 pairs of auxiliary contact

No. of poles
2: 2 poles
3: 3 poles
4: 4 poles

Rated operating current

Series No.

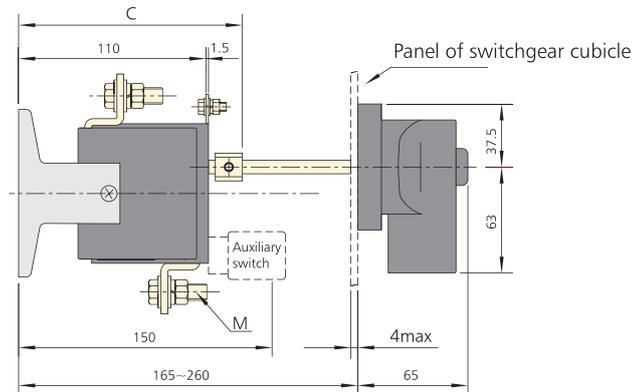
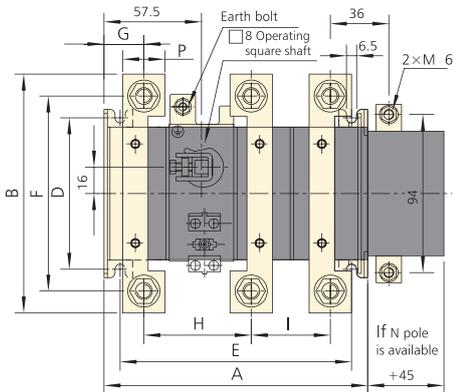
Note: This switch may only be operated outside the cabinet.

3.2 Property

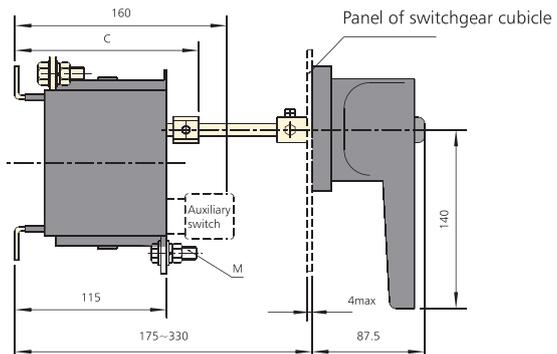
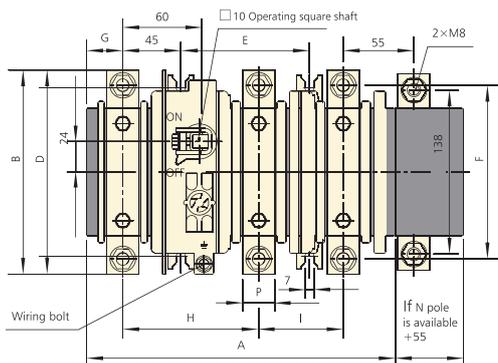
Specification	250	400	630	1000	1250	1600	2500	3150	
No. of poles	3, 4, 3+N				3, 3+N				
Rated insulating voltage(V)	Ue=400V,Ui=690V.Ue=690V,Ui=1000V.								
Rated operating voltage Ue(V)	AC400								
	AC690								
Conventional thermal current(A)	250	400	630	1000	1250	1600	2500	3150	
Rated operating current(A)	400V:AC-22B	250	400	630	1000	1250	1600	2500	3150
	690V:AC-21B	250	400	630	1000	1250	1470	2500	2500
	690V:AC-22B	250	400	500	630	800	800	-	-
Rated Short-circuit making capacity (Peak)(kA)	39	50	60	60	85	85	130	130	
Rated Short-time withstand current(kA)	8	12.8	25	32	50	50	80	80	
Mechanical life	15000	12000	12000	12000	1000	1000	500	300	
Electric Life	1000	1000	300	150	100	100	100	100	
Operating torque (N · m)	16	30	30	40	45	60	75	90	
Conventional thermal current of auxiliary contact Ith 400, AC-15(A)	5								

3.3 Dimension (mm)

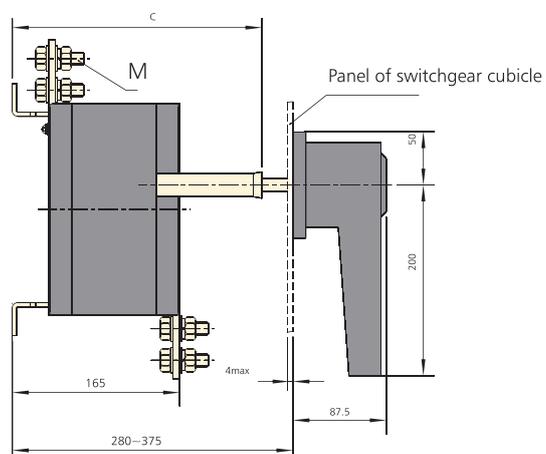
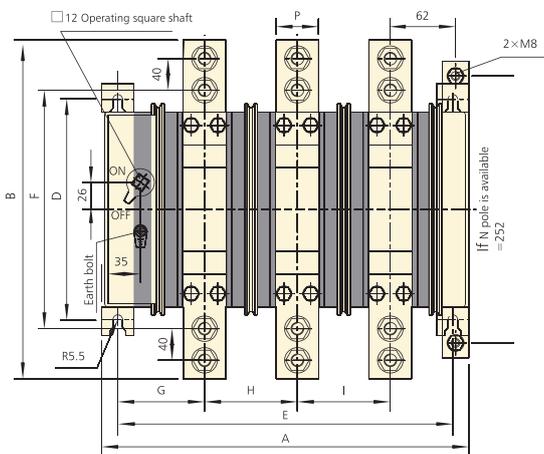
HH15-250/QP

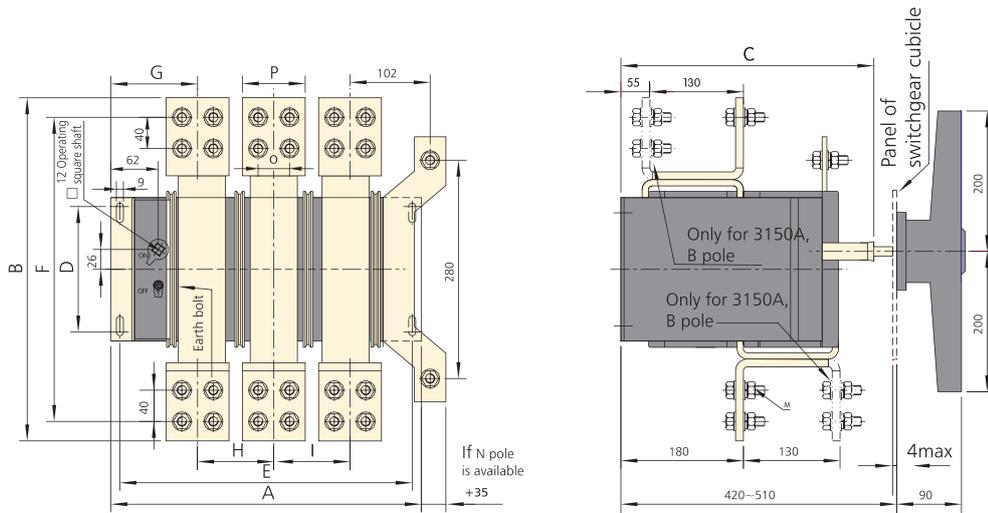


HH15P-400~1000/QP



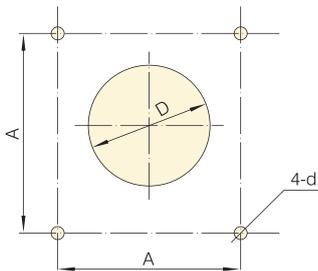
HH15P-1250/QP, 1600/QP



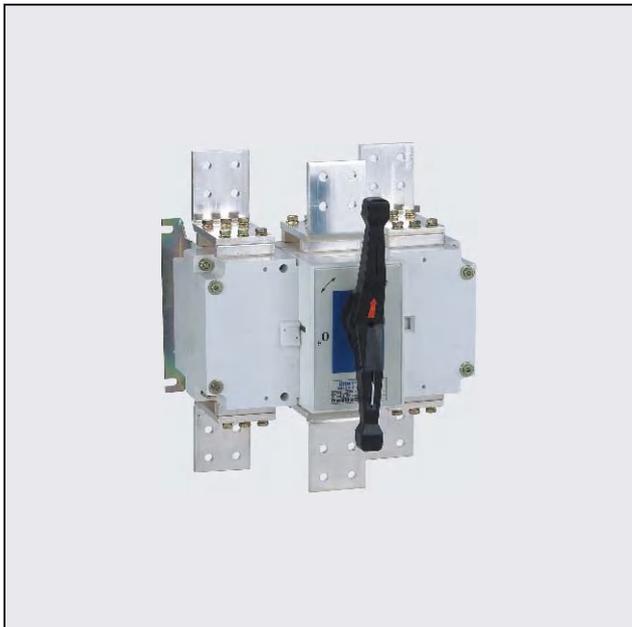


Specification	A	B	C	D	E	F	G	H	I	M	O	P
HH15-250/QP	155	143	133	90	135	118	22.5	65	45	10	-	25
HH15-400/QP	240	170	142	130	100	140	27	106	65	10	-	25
HH15-630/QP	240	170	142	130	100	140	27	106	65	10	-	25
HH15-1000/QP	240	218	142	130	100	178	27	106	80	12	-	40
HH15-1250/QP	345	350	188	208	315	230	82	87	87	12	-	40
HH15-1600/QP	345	350	188	208	315	230	82	87	87	12	-	50
HH15-2500/QP	395	440	342	152	372	390	115	97	97	12	40	80
HH15-3150/QP	395	470	342	152	372	420	115	97	97	12	50	100

3.4 Boring dimension (mm)



Specification	A	D	d
HH15-250/QP	65 ± 0.2	$\phi 42 \begin{smallmatrix} +4 \\ 0 \end{smallmatrix}$	$\phi 4.5 \begin{smallmatrix} +0.5 \\ 0 \end{smallmatrix}$
HH15-630~1000/QP HH15P-1250~3150/QP	88 ± 0.2	$\phi 63 \begin{smallmatrix} +2 \\ 0 \end{smallmatrix}$	$\phi 5.5 \begin{smallmatrix} +0.5 \\ 0 \end{smallmatrix}$



CSGL Switch Disconnecter

1. General

1.1 Application

CSGL series Switch-disconnector is applicable for AC 50Hz, rated voltage AC 690V and below, DC440V and below, rated current up to 3150A. It can be applied for manually infrequent making & breaking and disconnecting of the circuit. Products with I_{th} under 1000A can be used as load break switch. They provide safety isolation for any Low voltage circuit.

1.2 Standard: IEC/EN60947-3.



2. Switch-disconnector

2. Ordering information

CSGL - □ / □ □ □ □

With "F": terminal protection type (only for 125~250A)
Without "F": without terminal protection

With "W": the handle is operated outside the cabinet
Without "W": the handle is operated inside the cabinet

With "C": front lateral operation
Without "C": front central operation

3 represents three poles: 31 represents three poles with auxiliary, one open and one closed
32 represents three poles with auxiliary, two open and two closed
4 represents four poles: 41 represents four poles with auxiliary, one open and one closed
42 represents four poles with auxiliary, two open and two closed

Thermal current I_{th} (A)

Series No.

2.2 Property



Thermal current I _{th} (A)	16	32	40	63	80	100	125	160	200	250	315	400	630	
Associated fuse rating (A)	16	32	40	63	80	100	125	160	200	250	315	400	630	
Rated insulation voltage(V) Ui	800													
Rated current (A)	400V AC21B	16	32	40	63	80	100	125	160	200	250	315	400	630
	400V AC22B	-	-	-	-	-	-	125	125	200	250	315	400	630
	400V AC23A	-	-	-	-	-	-	125	160	200	250	315	400	630
	690V AC21B	16	32	40	63	80	80	125	160	200	200	315	400	500
	690V AC22B	-	-	-	-	-	-	100	100	160	160	200	250	315
	690V AC23A	-	-	-	-	-	-	50	63	70	80	125	160	200
Operation force (N)	30~50						40~60			65~100				

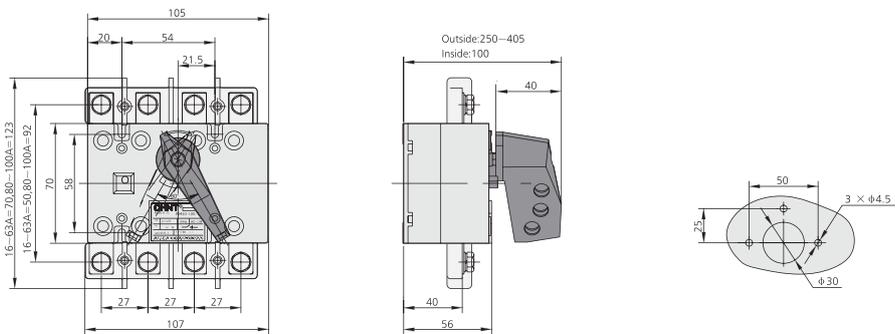


Thermal current I _{th} (A)	1000	1250	1600	2000	2500	3150	
Associated fuse rating (A)	1000	1250	2×800	2×1000	2×1250		
Rated insulation voltage(V) U _i	800						
Rated current (A)	400V AC21B	1000	1250	1600	2000	2500	3150
	400V AC22B	1000	1250	1600	2000	2500	3150
	690V AC21B	800	800	1000	1600	1600	2000
	690V AC22B	800	800	800	1000	1000	1250
Operation force (N)	200~300						

2.3 Handle in the middle position

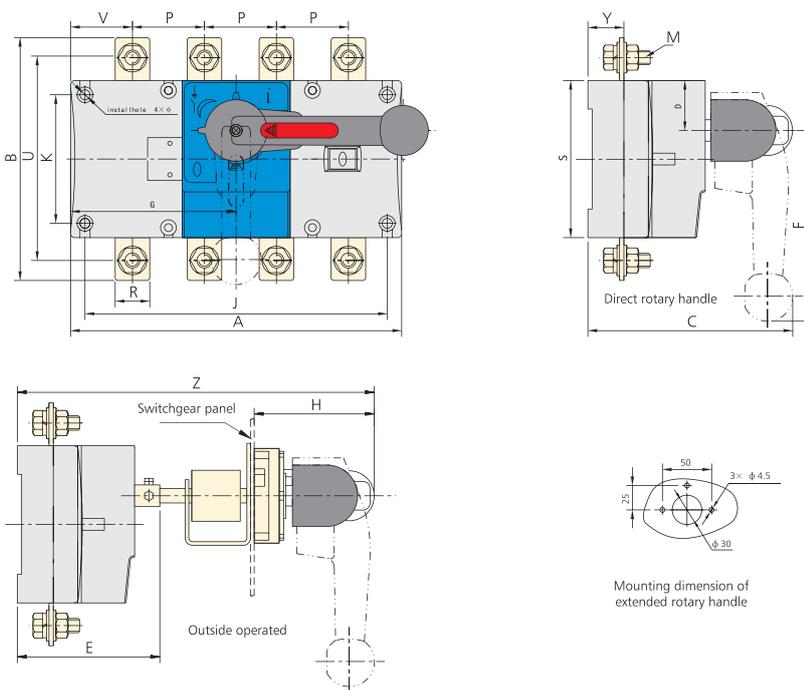
2.3.1 Overall and mounting dimensions(63A~100A)

CSGL-16A~100A



Mounting dimension of externally mounted handle

2.3.2 Overall and mounting dimensions(125A~630A)



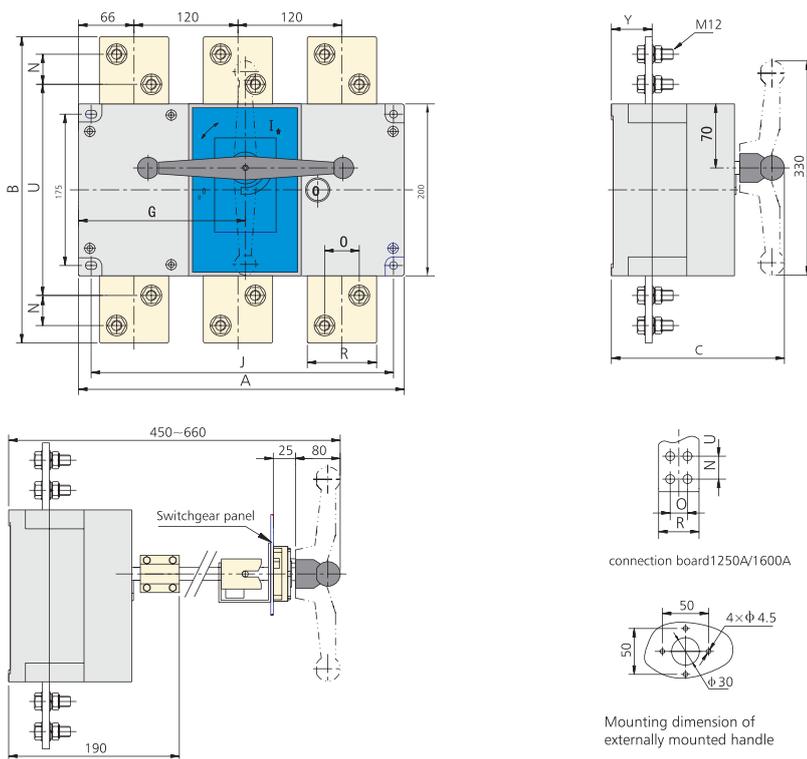
Mounting dimension of extended rotary handle

Mounting dimension of CSGL switch disconnecter

Specification	CSGL-□ CSGL-□□/W Overall and mounting dimensions (mm)																		
Current	A	B	C	D	E	F	Φ	J	H	K	G	P	R	S	U	M	V	Y	Z
125A/3	140	135	130	27	93	135	5.5	120	85	65	54	36	18	85	115	8	32	24	355~460
160A/3	140	135	130	27	93	135	5.5	120	85	65	54	36	20	85	115	8	33	24	355~460
125A/4	170	135	130	27	93	135	5.5	150	85	65	79	36	18	85	115	8	31	24	355~460
160A/4	170	135	130	27	93	135	5.5	150	85	65	79	36	20	85	115	8	32	24	355~460
200A/3	180	170	145	35	103	135	6.5	160	85	90	60	50	25	110	142	10	44	25	365~470
250A/3	180	170	145	35	103	135	6.5	160	85	90	60	50	25	110	142	10	44	25	365~470
200A/4	230	170	145	35	103	135	6.5	210	85	90	110	50	25	110	142	10	38	25	365~470
250A/4	230	170	145	35	103	135	6.5	210	85	90	110	50	25	110	142	10	38	25	365~470
315A/3	230	240	195	50	135	160	7	210	105	140	84	65	32	160	205	12	53	37	440~555
400A/3	230	240	195	50	135	160	7	210	105	140	84	65	35	160	205	12	50	37	440~555
630A/3	230	260	195	50	135	160	7	210	105	140	84	65	40	160	220	12	53	37	440~555
315A/4	290	240	195	50	135	160	7	270	105	140	144	65	32	160	205	12	48	37	440~555
400A/4	290	240	195	50	135	160	7	270	105	140	144	65	35	160	205	12	45	37	440~555
630A/4	290	260	195	50	135	160	7	270	105	140	144	65	40	160	220	12	48	37	440~555

2.3.3 Overall and mounting dimensions(1000A-1600A)

1000A~1600A with direct rotary handle

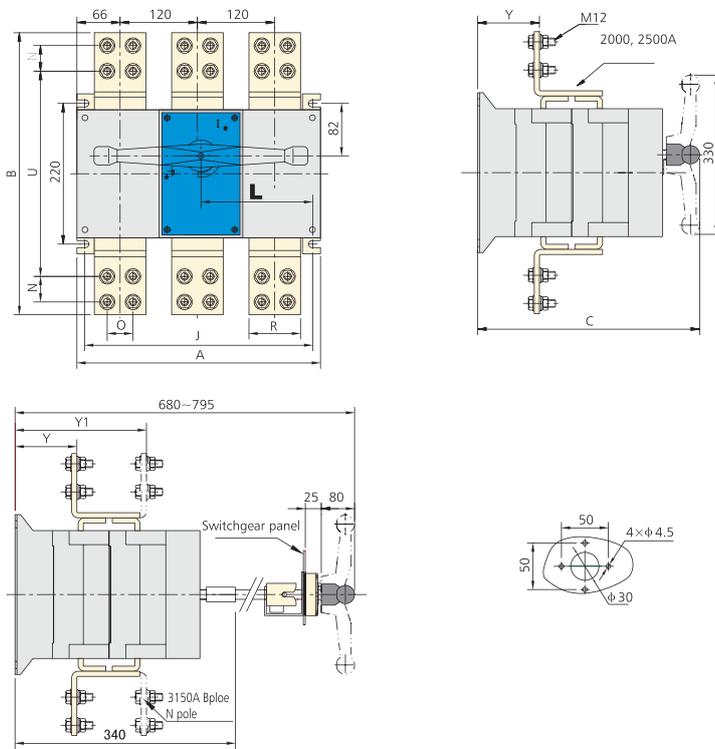


Mounting dimension of CSGL switch disconnector

Specification	CSGL-□□ CSGL-□□/W Overall and mounting dimensions (mm)									
	A	B	C	G	J	N	R	O	U	Y
1000A/3	378	316	240	192.5	353	20	60	35	240	48
1250A/3	378	356	240	192.5	353	35	70	40	246	48
1600A/3	378	356	240	192.5	353	35	80	40	246	48
1000A/4	498	316	240	252.5	473	20	60	35	240	48
1250A/4	498	356	240	252.5	473	35	70	40	246	48
1600A/4	498	356	240	252.5	473	35	80	40	246	48

2.3.4 Overall and mounting dimensions(2000A-3150A)

Operation outside the switchgear Remark:
C is the longest one among outside operation dimensions.

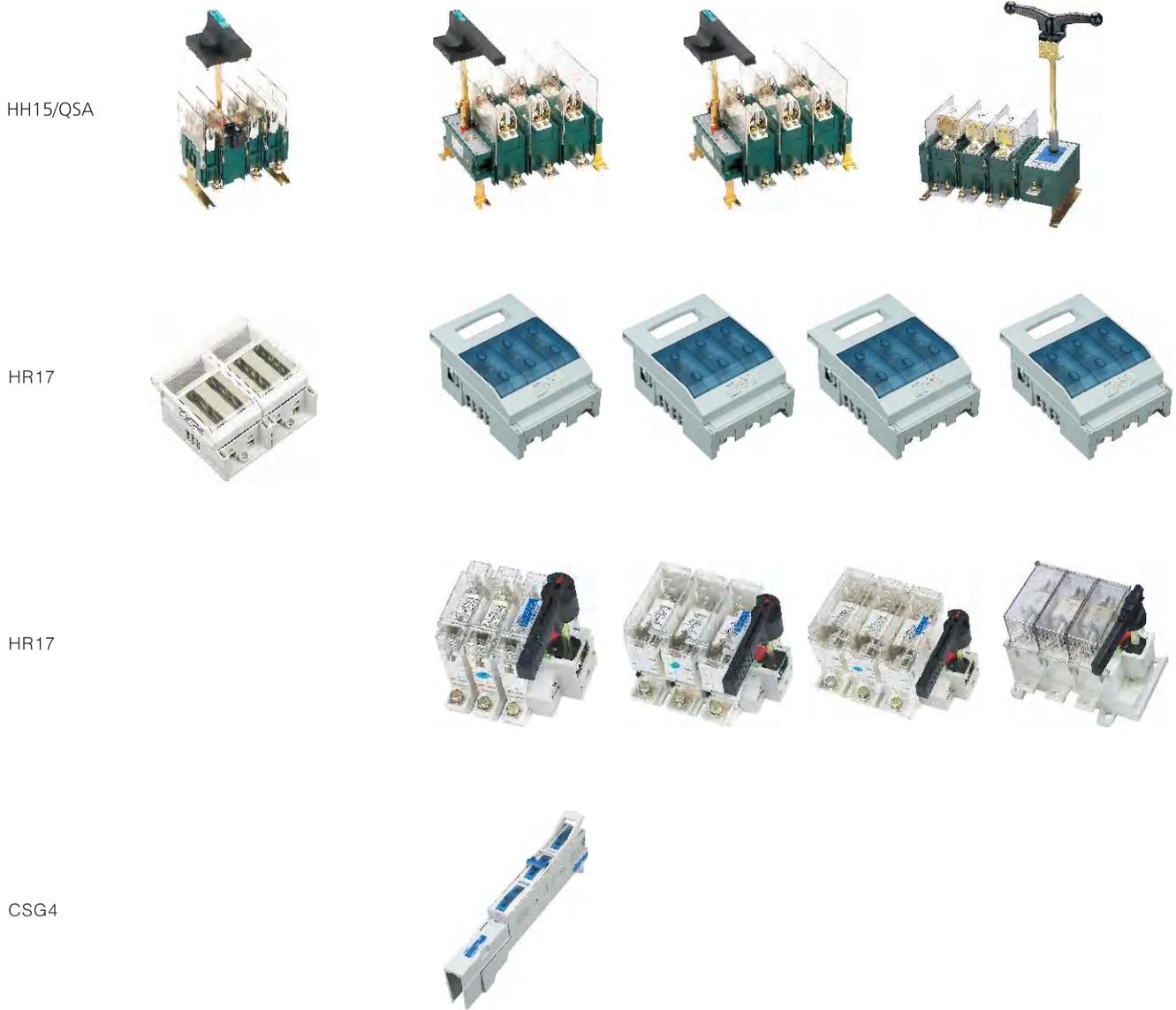


Mounting dimension of CSGL inside operation and NH40 switch disconnector

Specification	CSGL-□□ CSGL-□□/W Overall and mounting dimensions (mm)									
	A	B	C	J	L	N	O	R	Y	Y1
2000A/3	378	450	374	353	173.5	40	40	80	80	-
2500A/3	378	450	374	353	173.5	40	40	80	80	-
3150A/3	378	510	374	353	173.5	50	50	120	80	230
2000A/4	498	450	374	473	235	40	40	80	80	-
2500A/4	498	450	374	473	235	40	40	80	80	-
3150A/4	498	510	374	473	235	50	50	120	80	230

Fuse-Switch Disconnecter

Thermal current	63	125	160	250	400	630	800	1000	1250
HH15/QSA	HH15-63/ QSA	HH15-125/ QSA	HH15-160/ QSA	HH15-250/ QSA	HH15-400/ QSA	HH15-630/ QSA	HH15-800/ QSA	HH15-1000/ QSA	HH15-12500/ QSA
HR17			HR17-160	HR17-250	HR17-400	HR17-630			
NHR40			NHR40-160	NHR40-250	NHR40-400	NHR40-630			
NHRT40			NHRT40-160	NHRT40-250	NHRT40-400	NHRT40-630			





HH15/QSA Fuse-switch Disconnecter

1. General

1.1 Application

Mainly used in the distributing and motor circuit which has high short-circuit current, and acted as main switch or master switch infrequently operated by hand, it is particularly suitable in the relative high class with drawable low voltage complete equipment. They provide safety isolation and protection against overcurrent for any low voltage electrical circuit.

1.2 Standard: IEC/EN 60947-3.

1.3 General characteristic

Full-enclosed structure
Unique rolling insert type contact system.

2. Switch disconnecter (with fuse)

2.1 Ordering information

HH15 - □ / □ □ □

QSA: Switch-disconnector fuse
(to be matched with fuse)

No. of auxiliary contacts

0: no auxiliary contact

1: 1 pair of auxiliary contact

2: 2 pairs of auxiliary contact

No. of poles

2: 2 poles

3: 3 poles

4: 4 poles

Rated operating current

Series No.

Note: User should order RT(NT) series additional to assemble a switch-disconnector fuse



Note: This switch should be used with RT36 (NT,RT16) or RT20 series fuses provided by the user. This switch may only be operated outside the cabinet.

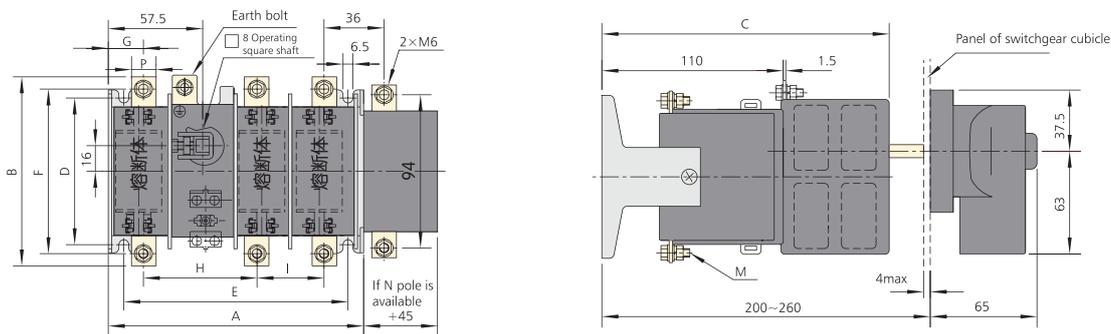
2.2 Property

Specification	HH15-63	HH15-125	HH15-160	HH15-250	HH15-400	HH15-630	HH15-800	HH15-1000	HH15-1250
No. of poles	3, 4, 3+N						3, 4		
Rated insulating voltage Ui(V)	Ue=400V,Ui=690V.Ue=690V,Ui=1000V.						800V		
Rated operating voltage Ue(V)	AC400						AC415		
	AC690						AC690		
Conventional thermal current(A)	63	125	160	250	400	630	800	1000	1250
Rated operating current(A)	400V:AC-23B/415V:AC-22B								
	63	125	160	250	400	630	800	1000	1250
Rated Limiting Short-circuit current 400-V/H(kA)	690V:AC-23B/690V:AC22B								
	63	100	160	250	315	425	500	500	500
Rated Limiting Short-circuit current when 690V(kA)	100	100	100	100	100	100	100	100	100
Rated Limiting Short-circuit current when 690V(kA)	50	50	50	50	50	50	50	50	50
Mechanical life	15000	15000	12000	12000	12000	3000	500	500	500
Electric Life	1000	1000	300	300	300	200	100	100	100
Rated current of fuse 400V/690V(A)	63/63	125/100	160/160	250/250	400/315	630/425	800/500	1000/630	1250/800

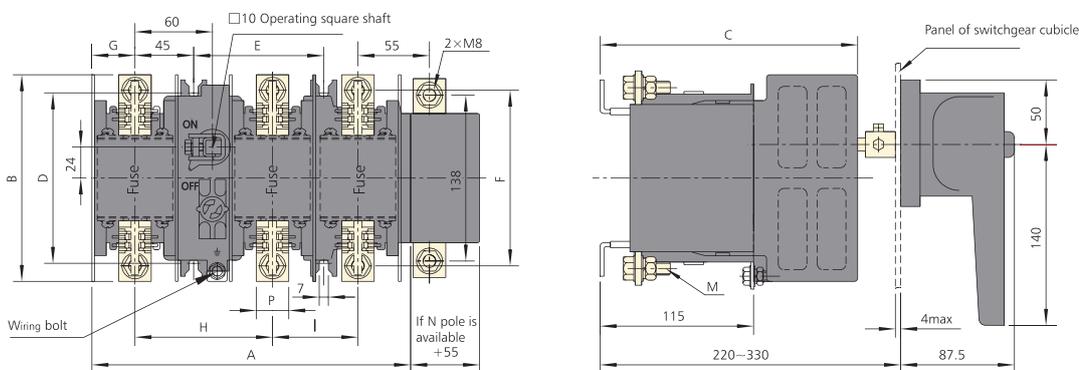
Specification		HH15-63	HH15-125	HH15-160	HH15-250	HH15-400	HH15-630	HH15-800, 1000, 1250
Model of fuse	400V/415V	RT16-00	RT16-00	RT16-00	RT16-1	RT16-2	RT16-3	HDLRS3
		RT20	RT20	RT20	RT20	RT20	RT20	
		NT00	NT00	NT00	NT1	NT2	NT3	
Operating torque (N · m)	690V	RT16-00	RT16-00	RT16-00	RT16-1	RT16-2	RT16-3	HDLRS3
		NT00	NT00	NT00	NT1	NT2	NT3	
		7.5	7.5	16	16	16	30	
Conventional thermal current of auxiliary contact Ith 400, AC-15(A)		5	5	5	5	5	5	5

2.3 Dimension (mm)

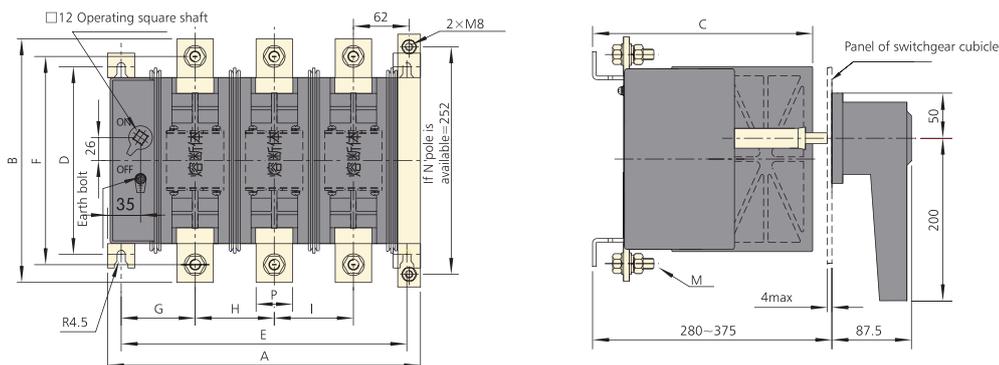
HH15-63, 125/QSA

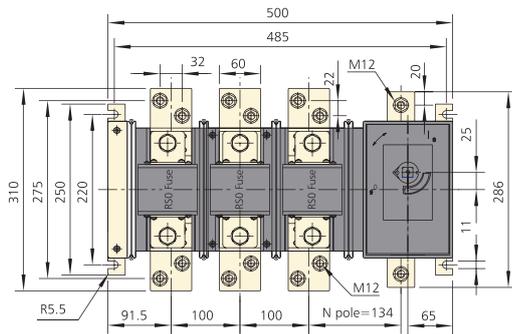
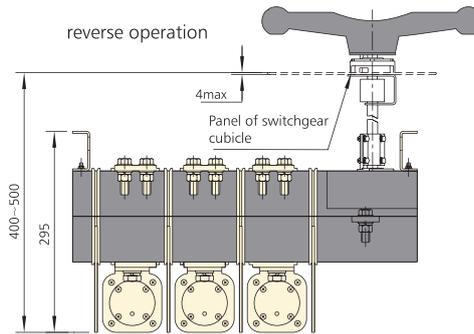
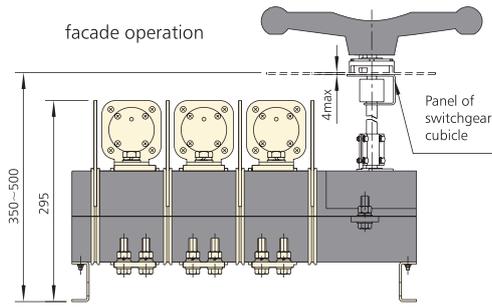


HH15-160, 250, 400/QSA

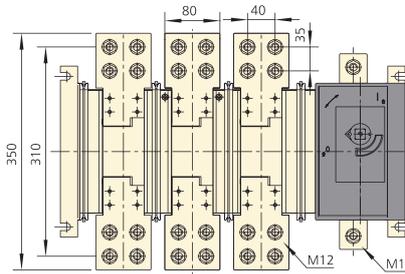


HH15-630/QSA





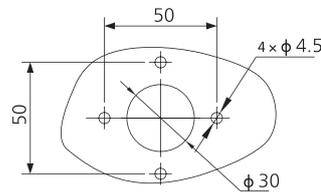
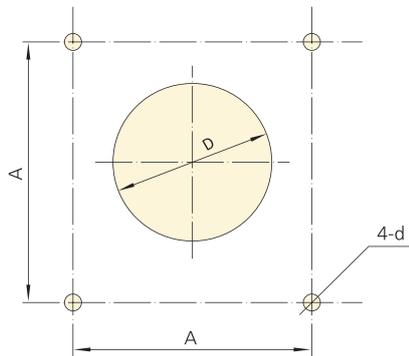
800~1000A



1250A

Specification	A	B	C	D	E	F	G	L1	L2
HH15-63	155±1.25	100±1.10	175±1.25	90±0.75	135±1.25	88±1.10	M5	165~225	165~385
HH15-125	155±1.25	116±1.10	175±1.25	90±0.75	135±1.25	101±1.10	M6	165~225	160~385
HH15-160	240±1.45	146±1.25	178±2.0	130±1.25	100±1.1	126±1.25	M8	220~270	220~390
HH15-250	240±1.45	160±1.25	198±2.3	130±1.25	100±1.1	135±2.0	M10	220~270	220~390
HH15-400	240±1.45	160±1.25	198±2.3	130±1.25	100±1.1	135±2.0	M10	220~270	220~390
HH15-630	345±1.8	270±2.6	242±2.6	208±1.6	315±1.6	230±2.3	M12	250~265	250~529

2.4 Boring dimension



HH15-800~1250/QSA

Opening size of the handle mounting panel

Specification	A	D	d
HH15-63, 125/QSA	65±0.2	$\phi 42 \begin{smallmatrix} +4 \\ 0 \end{smallmatrix}$	$\phi 4.5 \begin{smallmatrix} +0.5 \\ 0 \end{smallmatrix}$
HH15-160~630/QSA	88±0.2	$\phi 63 \begin{smallmatrix} +2 \\ 0 \end{smallmatrix}$	$\phi 5.5 \begin{smallmatrix} +0.5 \\ 0 \end{smallmatrix}$



HR17 Fuse-Switch Disconnecter

1. General

- 1.1 HR17 series fuse-switch disconnecter is a new product developed by our company. Rated insulation voltage up to 800V. rated operational voltage up to 690V. rated operational current up to 630A, rated frequency 50Hz, in the distribution circuit and motor circuit which has high short-circuit current as the power switch, isolating switch, emergency switch as well as circuit protection, but normally it is not used to make and break a single motor directly.
- 1.2 Standard: IEC/EN 60947-3.

2. Type designation

HR 17 - □ / □ □

1: With micro-gap switch
0: Without micro-gap switch

No. of poles

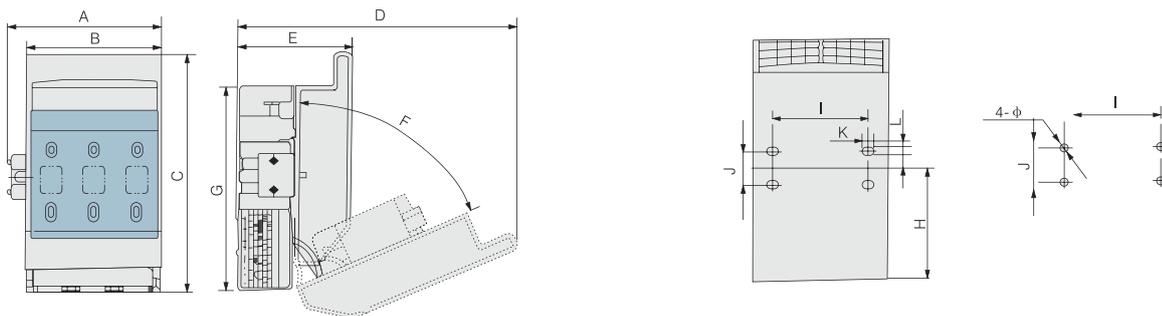
Conventional thermal current

Series No.

3. Primary parameters

Conventional thermal current(A)		63(32)	160	250	400	630
Rated insulation voltage V		800				
Rated current A	690V AC21	32、63	160	250	400	630
	400V AC22	32、63	160	250	400	630
	400V AC23	-	160	250	400	630
	690V AC21	-	160	250	400	630
	690V AC22	-	100	200	315	425
	690V AC23	-	100	160	315	315
	Operating force N		≤120	≤250	≤350	≤350
Associated fuse	Model	RT19-125	NT00、RT16-00	NT1、RT16-1	NT2、RT16-2	NT3、RT16-3
	Rated current of matched fuse in 400V (breaking capacity)	20, 25, 32, 35,40, 50, 63 (≥20kA)	20, 25, 32, 35, 40, 50, 63, 80, 100, 125,160 (≥100kA)	80, 100, 125, 160,200, 224, 250 (≥100kA)	125,160, 200, 224, 250, 300, 315, 355,400 (≥100kA)	315, 355, 400, 425, 500, 630 (≥100kA)
	Rated current of matched fuse in 690V (breaking capacity)	-	20, 25, 32, 35, 40, 50, 63, 80,100 (≥50kA)	80, 100, 125, 160, 200 (≥50kA)	125, 160, 200, 224, 250, 300, 315(≥50kA)	315, 355, 400, 425 (≥50kA)

4. Overall and mounting dimensions (mm)



Specification	A	B	C	D	E	F	G	H	I	J	K	L	φ
63(32)/2	-	75	135	165	77	70°	120	72	-	104	-	-	6
63(32)/3	-	105	135	165	77	70°	120	72	31	104	-	-	6
63(32)/3	-	150	135	165	77	70°	120	72	75	104	-	-	6
160/3	123	106	186	215	90	66°	160	86	74	25	9.5	6.5	-
250/3	196	184	266	240	118	70°	230	125	114	50	25	9	-
400/3	260	250	330	390	145	72°	295	155	150	50	-	-	9
630/3	260	250	330	390	145	72°	295	155	150	50	-	-	9



CSGLR Fuse-switch Disconnecter

1. General

- 1.1 CSGLR series switch-disconnector with fuse is applicable in the circuit of AC50Hz, rated voltage AC690V and below, DC440V and below, rated current up to 630A. CSGLR series are infrequently manually operated multipolar fuse combination switches, They break or switch off on load and provide safely isolation and protection against overcurrent for any voltage electrical circuit.
- 1.2 Standard: IEC/EN 60947-3.

2. Type designation

CSGLR - □ / □ □ □

W: Extended rotary handle
Blank: Direct rotary handle

C: Lateral operation
Blank: Front operation

Three-pole
Four-pole

Conventional thermal current

Series No.

Note: This switch should be used with RT36 (NT,RT16) or RT20 series fuses provided by the user.

3. Primary parameters

Conventional thermal current (A)		63	160	250	400	630
Rated current voltage (A)		20、32、63	100、125、160	200、250	315、400	630
Rated insulation voltage (V)		690V				800V
Associated current (A)	400V ac22	20、32、63	100、125、160	200、250	315、400	630
	400V AC23	20、32、63	100、125、160	200、250	315、400	630
	690V AC22	20、32、63	100、125、160	200、250	315	425
	690V AC23	20、32、63	100、125、160	200、250	315	425
Rated current (A)	230V DC22	20、32、63	100、125、160	200、250	315、400	630
	230V DC23	20、32、63	100、125、160	200、250	315、400	630
	440V DC22	20、32、63	100、125、160	200、250	315	425
	440V DC23	20、32、63	100、125、160	200、250	315	425
Operation force (N)		60~80	65~100	80~120	100~150	230
Associated fuse	Specification	00C	00	1	2	3

Remark:

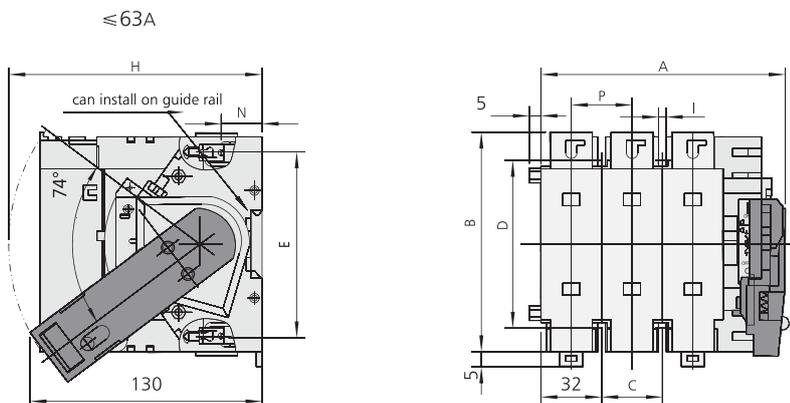
- 1) With terminal shield
- 2) Two phases are connected in series according to the phase character

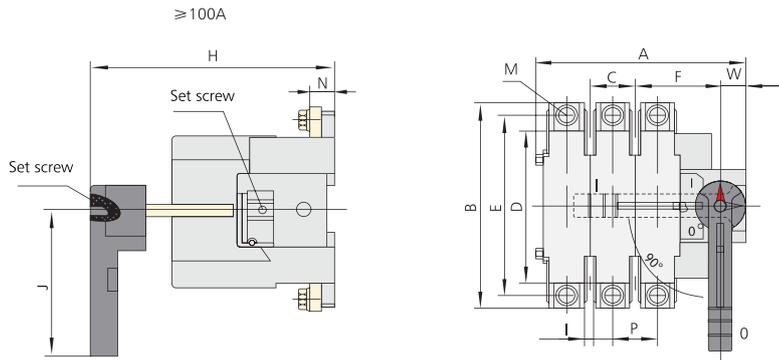
4. Structure and features

- 4.1 The switch adopts full-enclosed structure of reliable thermal characteristic to ensure reliable operation.
- 4.2 Each phase has two groups of contact system with double breaking points, these two groups of contacts are serially connected, which has improved its current breaking capability, and ensures the reliability of power supply disconnecting.
- 4.3 Manual rotated operation mechanism has energy storage spring, so the active contact can operate swiffly with no relation with operation speed.

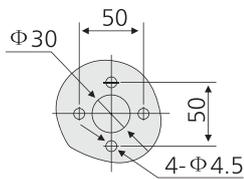
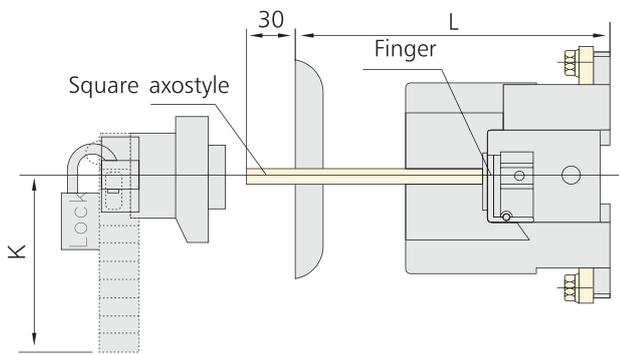
5. Overall and mounting dimensions (mm)

Facade operation inside the switchgear

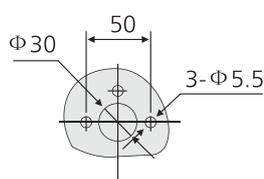




Facade operation outside the switchgear

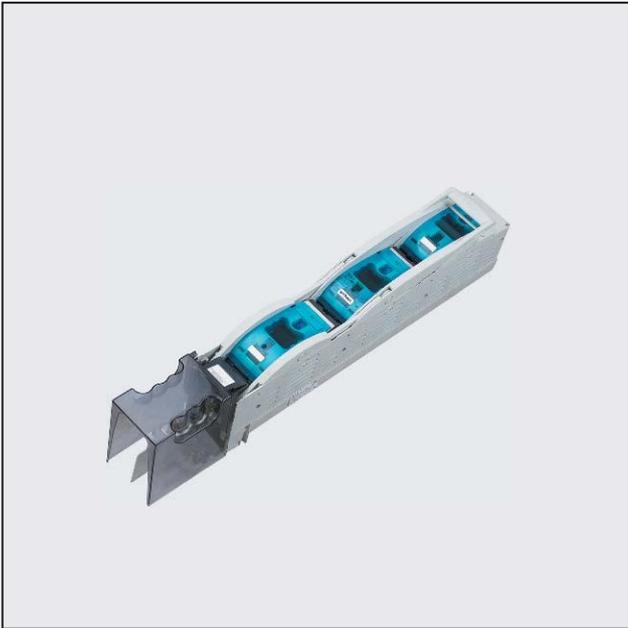


100-400A Boring dimension on the panel



630A Boring dimension on the panel

Specification	Overall and mounting dimensions														
	A	B	C	D	E	F	H	I	J	L	M	N	W	P	K
63/2	108	120	-	92	96	-	160	4.5	-	-	-	22	-	32	-
63/3	140	120	32	92	96	-	160	4.5	-	-	-	22	-	32	-
63/4	172	120	60	92	96	-	160	4.5	-	-	-	22	-	32	-
160/2	128	162	36	120	142	67.5	190	5.5	115	205~325	8	19	21	36	126
160/3	165	162	36	120	142	67.5	190	5.5	115	205~325	8	19	21	36	126
160/4	202	162	36	120	142	67.5	190	5.5	115	205~325	8	19	21	36	126
250/2	185	195	60	160	166	91.5	210	5.5	145	205~325	10	19	21	60	126
250/3	240	195	60	160	166	91.5	210	5.5	145	205~325	10	19	21	60	126
250/4	300	195	60	160	166	91.5	210	5.5	145	205~325	10	19	21	60	126
400/2	214	205	66	170	176	122	210	5.5	145	205~325	10	25	21	66	126
400/3	280	205	66	170	176	122	210	5.5	145	205~325	10	25	21	66	126
400/4	346	205	66	170	176	122	210	5.5	145	205~325	10	25	21	66	126
630/3	346	300	250	250	268	39	350	Φ9	190	330~440	12	72	37	80	190
630/4	426	300	250	250	268	39	350	Φ9	190	330~440	12	72	37	80	190



CSG4 Vertical Fuse-switch Disconnecter

1. General

1.1 Application

CSG4 series vertical fuse-switch disconnecter is applicable in the circuit of rated voltage AC690V and below, rated current AC 160A-630A, rated frequency of 50Hz.

CSG4 series are infrequently manually operated multipolar fuse combination switches.

They break or switch off on load and provide safely isolation and protection against overcurrent for any voltage electrical circuit.

1.2 Standard: IEC 60947-3.

2. Type designation

CSG4 - □ / □ □

L: Three phases breaking and making simultaneously;
 Blank: independent operation phase to phase

No. of poles

Conventional thermal current

Series No.

3. Structure and feature

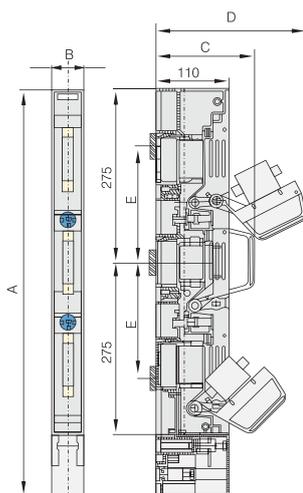
- 3.1 Structure: The switch is consisted of underpan, base, cover, handle and shield.
- 3.2 NT series fuse link is installed in the cover to act as knife of active contact.
- 3.3 The handle moves fan-shapely based on the pivot of underpan, makes the cover and fuse make and break together, it is with enough space and remarkable disconnection point which meets the requirement of disconnecter switch.
- 3.4 It is convenient to dismount the base and underpan, which is easy to mount the base to the busbar safely and reliably.
- 3.5 There is arc extinguisher on the underpan, which ensures breaking capacity of the switch.

4. Primary parameter

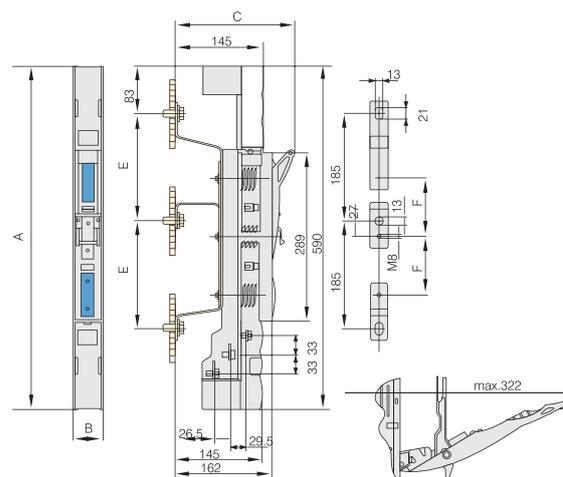
Conventional thermal current (A)		160	250	400	630
Rated insulation voltage (V)		800			
Rated current (A)	400V AC20	160	250	400	630
	400V AC21	160	250	400	630
	400V AC22	160	250	400	630
	690V AC20	160	250	400	630
	690V AC21	100	200	315	425
	690V AC22	100	160	315	315
Specification of associated fuse	Model	00	1	2	3
	400V Rated current of fuse (Breaking capacity) A	20, 25, 32, 35, 40, 50, 63, 80, 100, 125, 160 (≥100kA)	80, 100, 125, 160, 200, 224, 250 (≥100kA)	125, 160, 200, 224, 250, 315, 355, 400 (≥100kA)	315, 355, 400, 425, 500, 630 (≥100kA)
	690V Rated current of fuse (Breaking capacity) A	20, 25, 32, 35, 40, 50, 63, 80, 100 (≥50kA)	80, 100, 125, 160, 200 (≥50kA)	125, 160, 200, 224, 250, 300, 315 (≥50kA)	315, 355, 400, 425 (≥50kA)

5. Overall and mounting dimensions (mm)

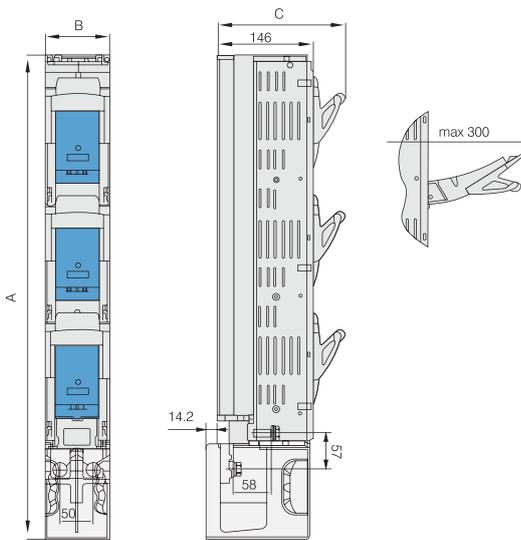
CSG4-160 Independent operation phase to phase



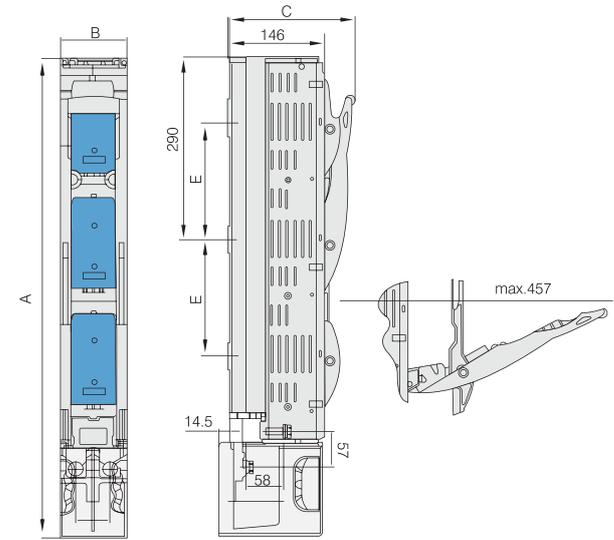
CSG4-160 Simultaneous operation of three phases



CSG4-250, 400, 630 Independent operation phase to phase



CSG4-250, 400, 630 Simultaneous operation of three phases



Model	A	B	C	D	E	F
CSG4-160 Independent operation phase to phase	650	49	150	230	185	
CSG4-160 Simultaneous operation of three phases	590	49	198	322	185	100
CSG4-250, 400, 630 Independent operation phase to phase	764	99	195	300	185	
CSG4-250, 400, 630 Simultaneous operation of three phases	764	99	195	457	185	

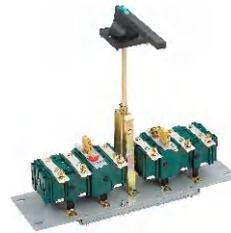
Changeover Switch

Thermal current	16, 32, 40, 63, 80, 100	125	160	200	250	315	400
HH15/QAS		HH15-125/QAS	HH15-160/QAS				HH15-400/QAS
HH15/QPS					HH15-250/QPS		
HH15/QSS	HH15-63/QSS	HH15-125/QSS	HH15-160/QSS		HH15-250/QSS		HH15-400/QSS
NH40S		NH40-125S	NH40-160S	NH40-200S	NH40-250S	NH40-315S	NH40-400S
NH40SZ	NH40-16, 32, 40, 63, 80, 100SZ	NH40-125SZ	NH40-160SZ	NH40-200SZ	NH40-250SZ	NH40-315SZ	NH40-400SZ

HH15/QAS



HH15/QPS



HH15/QSS



NH40S



NH40SZ



630	1000	1250	1600	2000	2500	3150
HH15-630/QAS	HH15-1000/QAS					
HH15-630/QPS	HH15-1000/QPS	HH15-1250/QPS	HH15-1600/QPS		HH15-2500/QPS	HH15-3150/QPS
HH15-630/QSS						
NH40-630S	NH40-1000S	NH40-1250S	NH40-1600S	NH40-2000S	NH40-2500S	NH40-3150S
NH40-630SZ	NH40-1000SZ	NH40-1250SZ	NH40-1600SZ			





NZ7 Automatic Transfer Switching Equipment

1. General

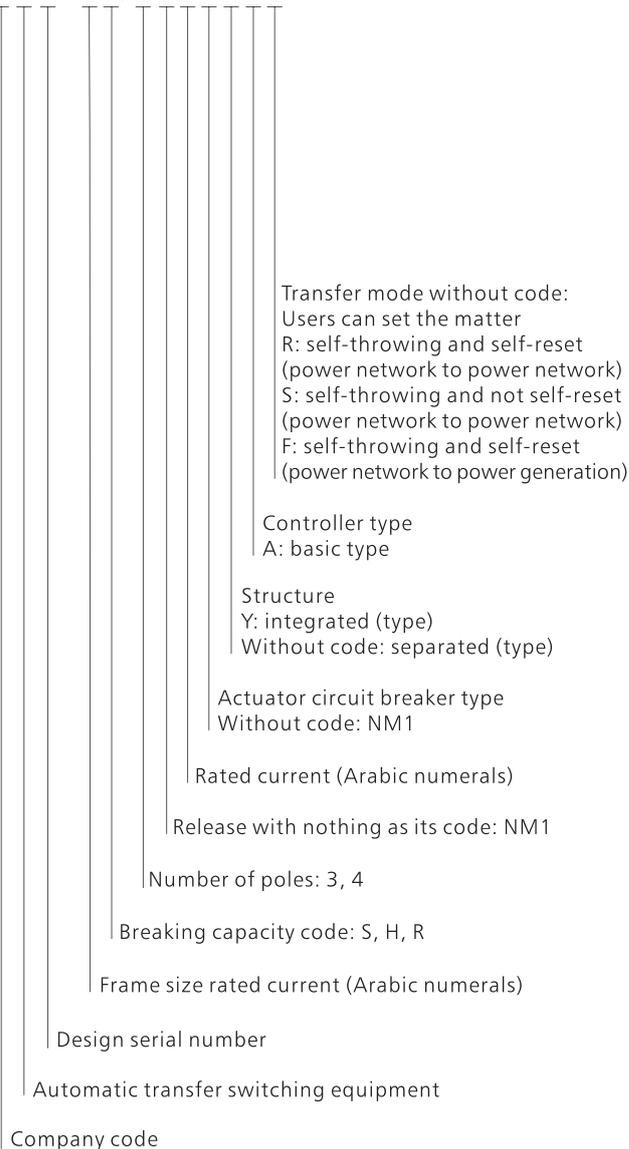
Applicable to the three-phase four-line two-circuit power supply network with an AC power frequency of 50Hz, rated operational voltage of AC400V, and rated operational current of up to 630A, the NZ7 series automatic transfer switching equipment can automatically connect one or several loads from one power source to another to ensure the normal power supply of the load circuit.

This product is applicable to the important places such as industrial, commercial, and storied buildings, and residential houses.

Certificate: KEMA
Execution standard: IEC/EN 60947-6-1

2. Type designation

N Z 7 — □ □ / □ □ □ □ □ □ □ □



3. Operation conditions

3.1 Ambient air temperature
The upper limit for the ambient air temperature is +40°C, lower limit -5°C, and the mean value of the temperature is not greater than +35°C within 24 hours;



3.2 Altitude
Altitude: not higher than 2,000m for the installation site.



3.3 Atmospheric conditions:
When the ambient air temperature is +40°C, the relative humidity of the air shall not be higher than 50%, a higher relative humidity is allowed at a lower temperature, e.g. 90% at +20°C, and special measures shall be taken for the condensation occasionally produced due to temperature changes.

3.4 Class of pollution:
Class of pollution: 3

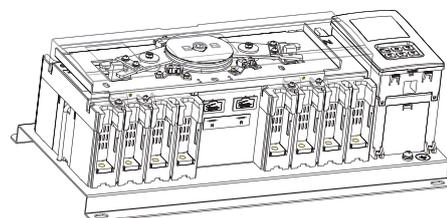


4. Technical data

Product type	NZ7-63	NZ7-125	NZ7-250	NZ7-400	NZ7-630
Up to standard	IEC/EN 60947-6-1				
Actuator circuit breaker	NM1-63	NM1-125	NM1-250	NM1-400	NM1-630
Parameters of electrical characteristics					
Operating environment temperature	-5°C ~ +40°C				
Altitude	2000m				
Class of pollution	3				
Specification for current	10,16,20,25, 32,40,50,63A	16,20,25,32,40, 50,63,80,100A	100,125,160, 180,200,225A	250,315, 350,400A	400,500, 630A
Rated operational voltage (Ue)	400V 50Hz				
Nominal insulation voltage (Ui)	AC500V		AC800V		
Rated impulse withstand voltage	6kV		8kV		
Number of poles	3P 4P	3P 4P	3P 4P	3P, 4P	3P, 4P
Short circuit breaking capacity codes	S H H	S H R H	S H R H	S H R	S H R
Rated short circuit making capacity (Icm)	31.5 73.5 73.5	52.5 105 143 105	52.5 105 143 105	73.5 110 154	73.5 110 154
Rated short circuit breaking capacity (Icn)	15 35 35	25 50 65 50	25 50 65 50	35 50 70	35 50 70
Service life	6000 times	6000 times	6000 times	4000 times	3000 times
Usage category	AC-33B				
Electric equipment grade	CB Class				
Protection level	IP30 (except the main circuit terminal)				
Protection	Overload protection/short circuit protection				
Controller characteristic					
Controller	Type A(basic type)				
Rated control supply voltage Us	230V 50Hz				
Installation mode for the controller	Integrated/separated (as installed on the surface of the cabinet)				
Operating transfer time (no time delay)	≤3.2s	≤3.5s	≤3.6s	≤4s	≤5s
Power consumption	≤10W				
Installation and connection					
Installation mode	Fixed type				
Connection mode	Front connection				

5. Characteristics and functions

The NZ7 series automatic transfer switching equipment (hereinafter referred to as automatic transfer switch) is the CB class product of a new generation combined with the advanced digital electronic control technique. The product features compactness, energy conservation, convenient installation, reliable dual-interlock protection, etc., and is advanced and complete in terms of function.



Single motor structure, compact



Visualized management

5.1 Compactness

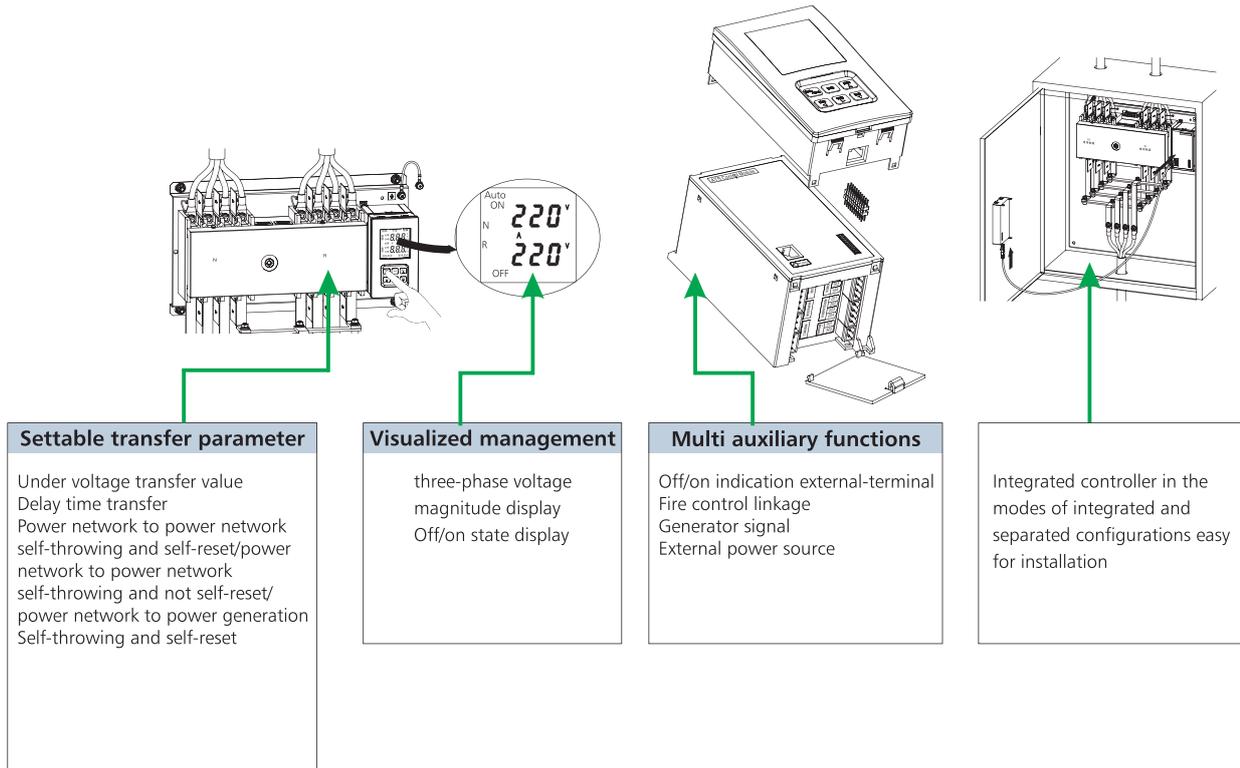
The transfer function is achieved via using the forward and backward rotation of the only one motor which allows for reducing the product's height and room for its installation.

5.2 Energy saving

The driving mechanism works in the mode of motor drive with less power consumption and noise.

Type A controller (long-term service)	Transmission mechanism (short-term service)		
	Type 63/Type 100	Type 225	Type 400/Type 630
≤10W	20W	40W	20W

5.3 Advanced and multipurpose functions



5.4 Dual-interlock protection

The mechanical-electrical interlock duplex protection is used to prevent two power sources from being connected simultaneously to the load, wherein the electrical interlock works in the breaker contact position mode for directly indicating the automatic transfer switch to perform the genuine electrical interlock so that the automatic transfer does not take place automatically in such cases as contact fusion welding, breaker handle damage, and circuit fault breaker tripping.

6. Controller

Type and function	Type A (basic type)
Modes of manual and automatic transfer	■
Working position of the main contact (actuator circuit breaker)	
Prime power turned on	■
Standby power turned on	■
OFF	■
Automatic control	
Monitoring the prime power	Failures such as loss of phase/voltage, under and over voltage for any of three phases of the power supply
Monitoring the standby power	Failures such as loss of phase/voltage, under and over voltage for any of three phases of the power supply
Self-throwing and self-reset	■
Self-throwing and not self-reset	■
Power network to power network	■
Power network to power generation	■
No-voltage transfer	■
Under voltage transfer	■
Over voltage transfer	■
Adjustable delay time	■
Transfer delay a	Continuously adjustable in the range of 0s~180s
Return c	Continuously adjustable in the range of 0s~180s
Generator control	■
Fire control linkage (inactive contact)	■
Indication	
Indication for on, off, and double-break	■
Prime power indication	■ (Displaying voltage magnitude)
Standby power indication	■ (Displaying voltage magnitude)
Fault tripping indication	■
External indication signal terminal	■
Parameter setting indication	■
Interlock protection	
Mechanical interlock	■
Electrical interlock	■ (not transfer automatically with faulty tripping)

6.1 The Type A integrated controller works in the modes of integrated or separated configurations, and is installed in the cabinet or on the panel to allow operation outside the cabinet.

Whether to transfer from one power source to another depends on the state of the operational power supply.

Generating set control

Press-key manually forced transfer operating

6.2 Control voltage

AC230V 50Hz

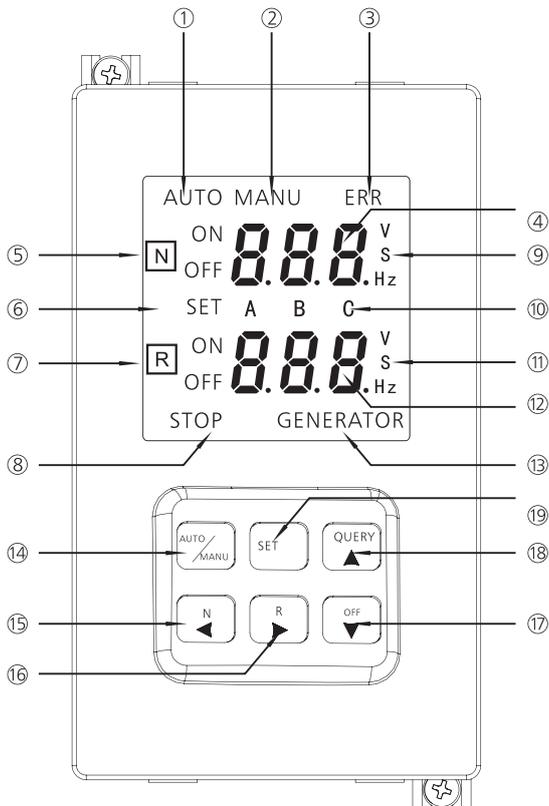
6.3 Operation: automatic operation, manual operation

6.4 Setting delay

Transfer delay: adjustable in the range of 0s - 180s, prime power failure, time before off for QN

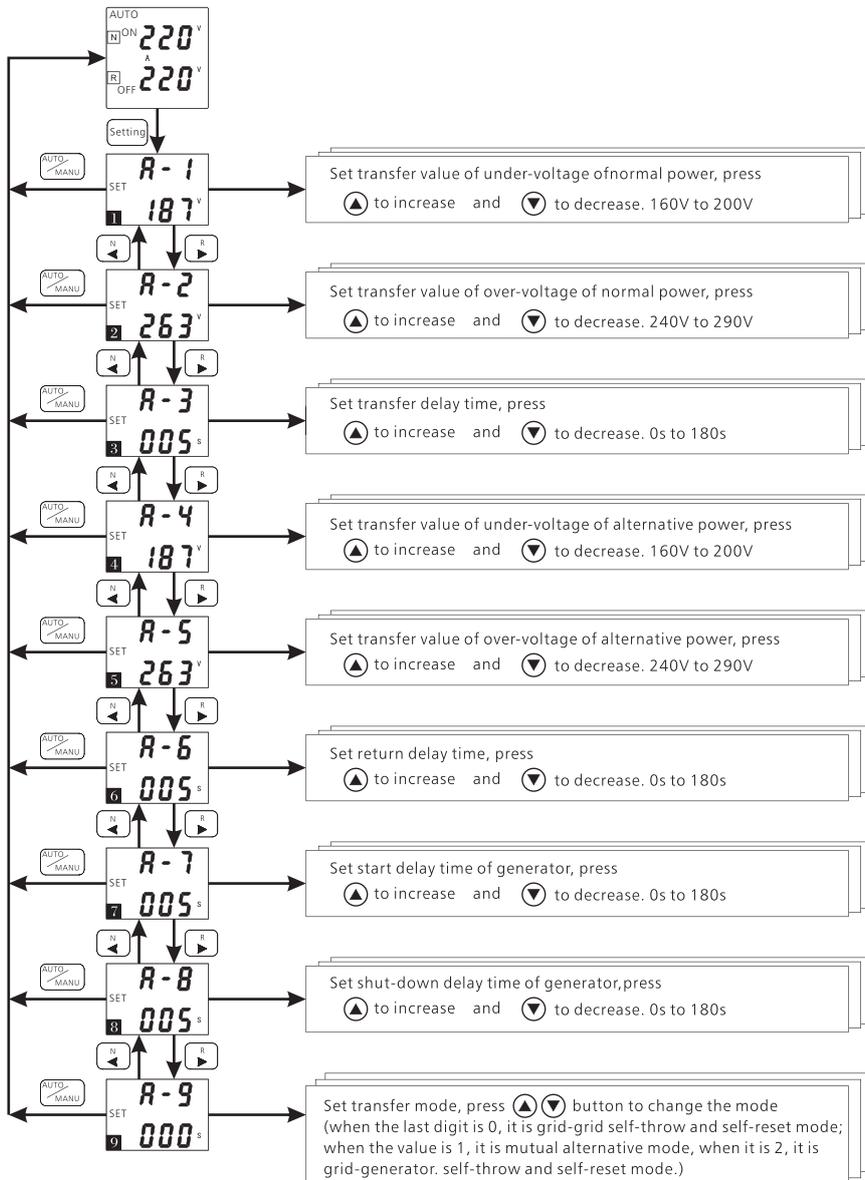
Return delay: continuously adjustable within the range of 0s - 180s, prime power recovery, time before off for QR

6.5 Interface for display and operation LED digital display



1. Indication of automatic working mode;
2. Indication of manual working mode;
3. Failure indication
When the breaker is disengaged due to the failure or short-circuit of the switch, this lamp will be on;
4. Display area of normal power voltage parameters
It displays normal power voltage parameters and changeover delay time under the working condition, and setting items under the setting condition;
5. Indication of the on or off of breaker on the normal power side
6. Indication of setting condition
7. Indication of the on or off of breaker on the alternative power side
8. Indication of the start of stop function;
9. Units of voltage, time, and frequency of the normal power;
10. Phases A, B, and C;
11. Units of voltage, time, and frequency of the alternative power;
12. Display area of alternative power voltage parameters;
It displays alternative power voltage parameters and transfer delay time under the working condition, and setting items under the setting condition;
13. Indication of the start signal of generator
14. Selection button of automatic/manual transfer
When it is regularly used, it can be used for selecting the automatic or manual mode; it saves and exits the functions when it is under the setting condition.
15. Button for compulsorily turn off the normal power
Under the manual control mode, if this button is pressed, it can compulsorily switch to the normal power; if it is setting condition, this button is the "scroll up" button of setting programs;
16. Button for compulsorily turn off the alternative power
Under the manual control mode, if this button is pressed, it can compulsorily switch to the alternative power; if it is setting condition, this button is the "scroll up" button of setting programs;
17. Off button
Under the manual control mode, if either line of both power lines are normal and this button is pressed, it will switch to the disengagement position; this button is the minus button for setting parameters when it is under setting condition;
18. Failure inquiry button
When the switch fails and malfunction lamp on the failure screen is on, the detail malfunction code can be inquired if it is pressed; this button is the plus button if it is under the setting condition;
19. Setting button
When this button is pressed, it may enter into the parameter setting menu of the controller.

6.6 Operation description on parameter setting



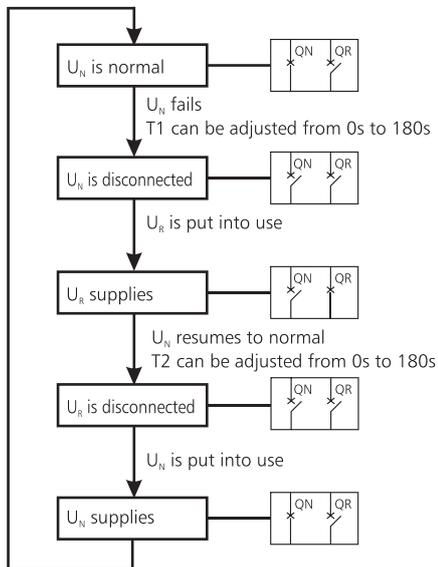
Note for keys

Button Description:

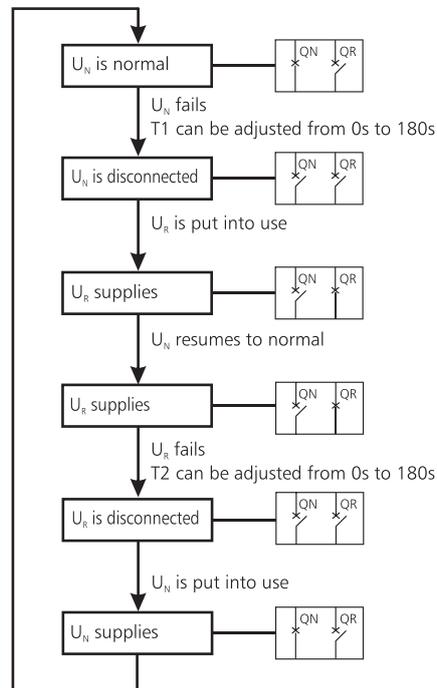
Press the Setting Button when the controller is working, LED will display the parameter setting menu interface displayed in Figure ; press " " and "▶" buttons in the setting menu to scroll up the setting options; if the automatic/ manual button is pressed, it will exit the setting menu; press "▼" or "▲" to change parameters.

Working processes of typy A controller

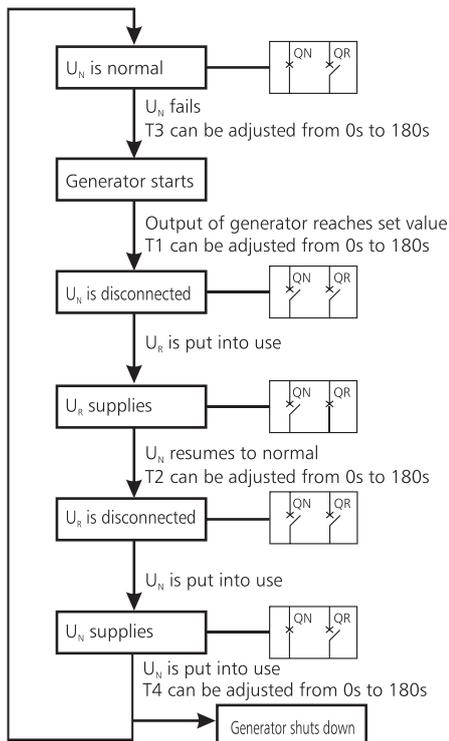
Grid – Grid
self-throw and self-reset operation



Grid – Grid
mutual alternative operation



Grid-Power Generation
self-throw and self-reset operation

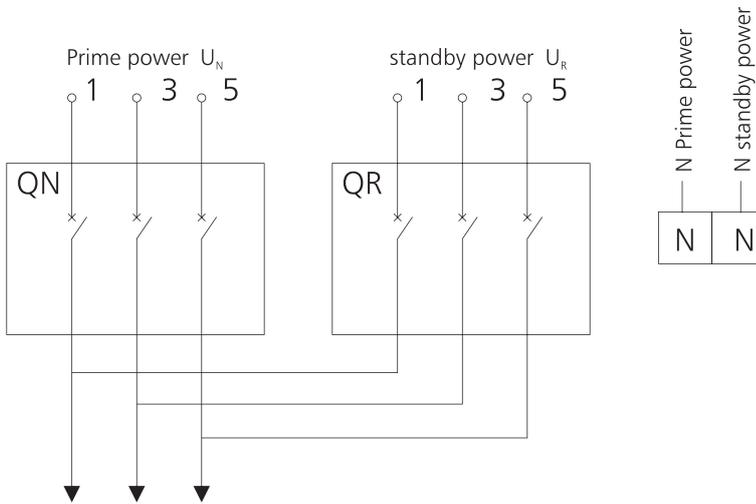


- T1: Transfer delay can be adjusted from 0s to 180s
Failure of UN , time before disconnecting QN
- T2: Return delay time can be adjusted from 0s to 180s
Normal of UN , time before disconnecting QR
- T3: Delay time in starting generator can be adjusted from 0s to 180s

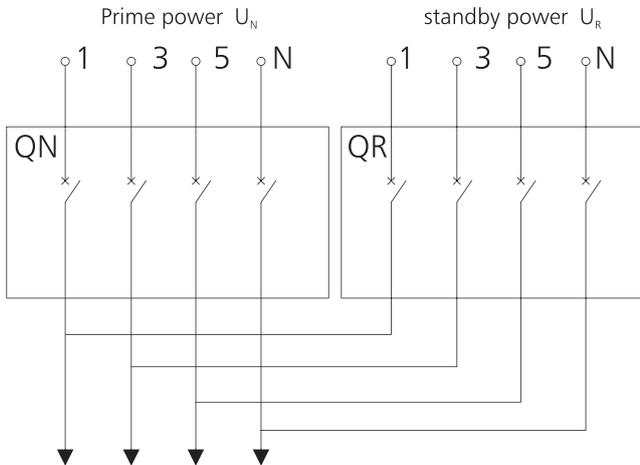
- T4: Delay time in shutting-down generator can be adjusted from 0s to 180s
- QN: Operating breaker on the frequently used side
- QR: Operating breaker on the stand-by side
- UN : Normal power supply
- UR : Alternative power supply

7. N27 external connection diagram

7.1 product connection diagram

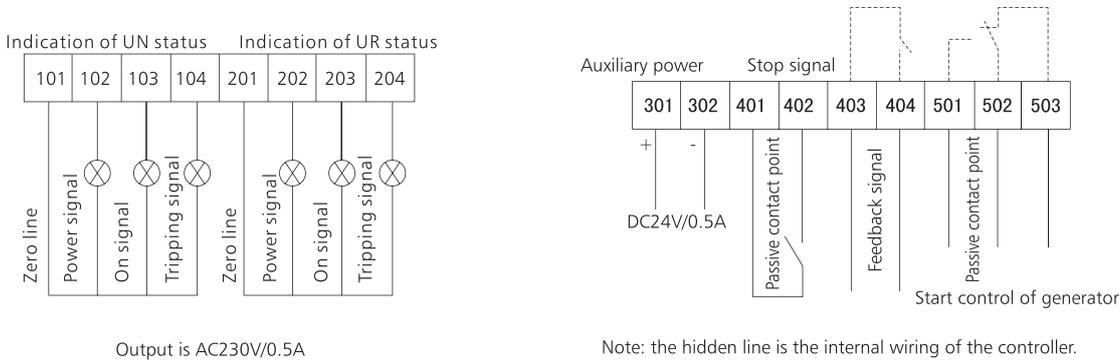


7.2 4P product connection diagram

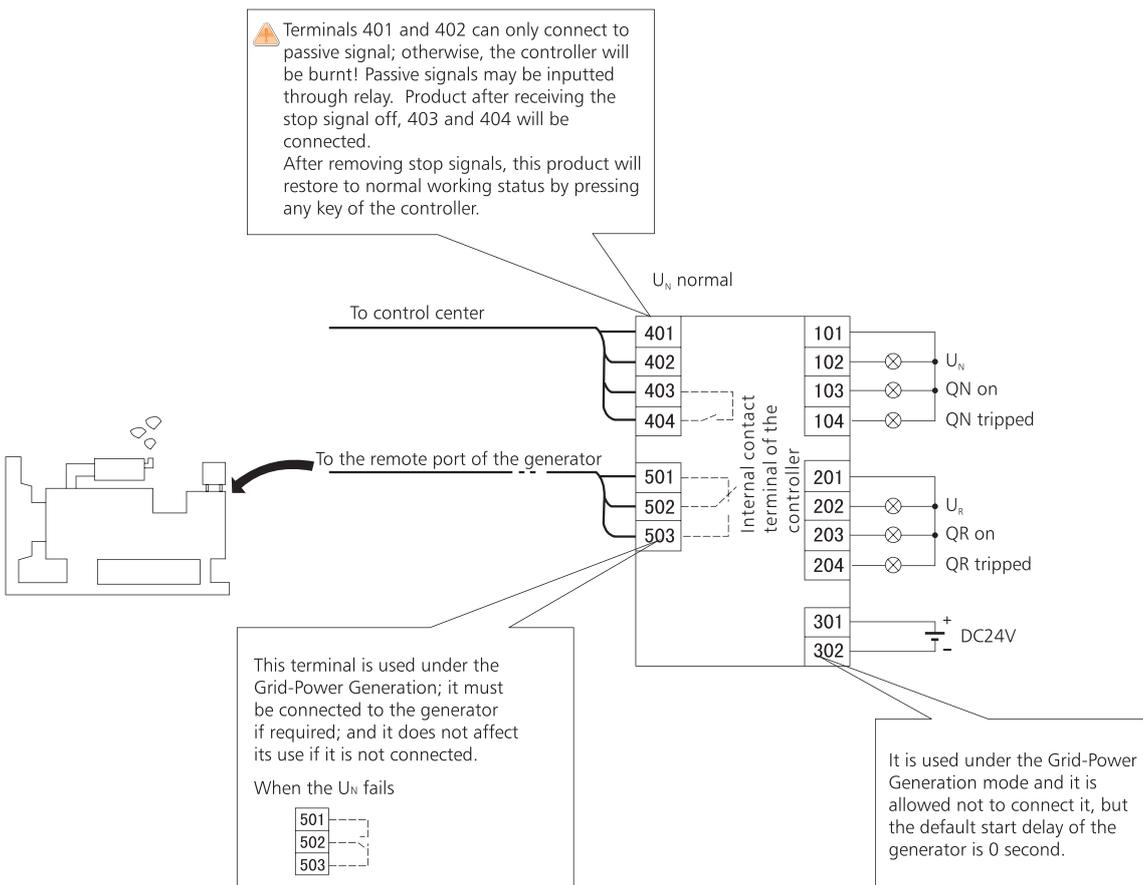


Note :
 QN actuator circuit breaker on the prime (normal) side
 QR actuator circuit breaker on the standby (reserve) side

7.3 Wiring diagram of external terminals of the controller

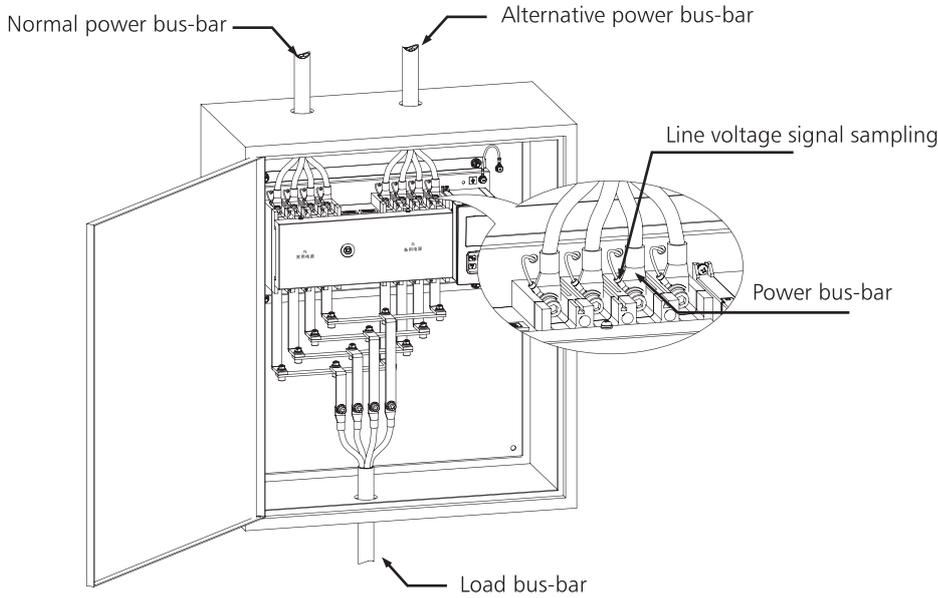


7.4 Application



8. Line incoming pattern

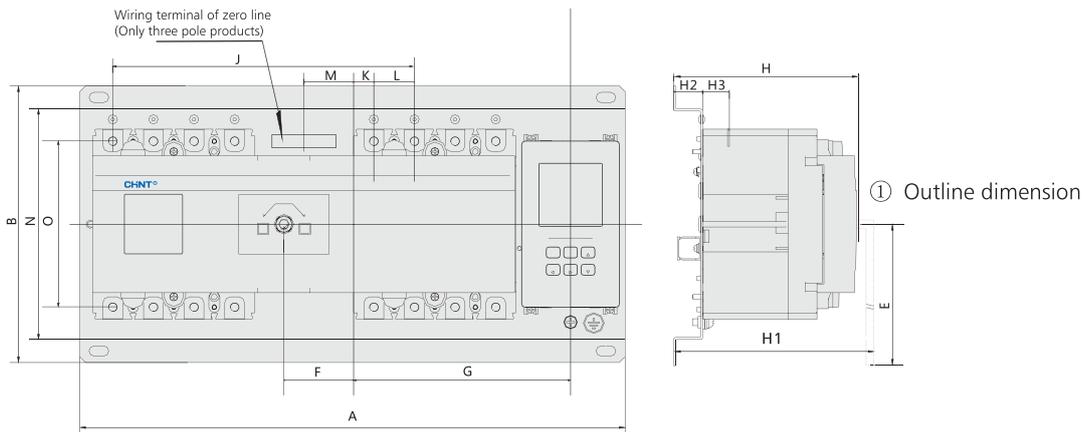
8.1 Connecting bus-bar type



8.2 Installation mode: vertical installation or horizontal installation

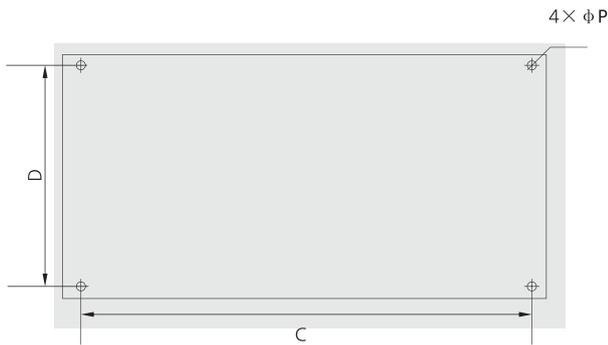
9. Overall and mounting dimensions (mm)

9.1 Outline dimension & Installation dimension



Dimension Modle	A		B	E	F		G		J	K		L	M	N	O	H	H1	H2	H3
	3P	4P			3P	4P	3P	4P		3P	4P								
NZ7-63	355	380	240	200	40	52.5	132.5	145	178	24	11.5	25	40	200	117	150	170	25	18/28
NZ7-125	390	420	240	200	43	58	148	163	194	24	9	30	43	200	136	150	180	25	24
NZ7-250	435	470	240	200	41.5	59	170.5	188	225	36	18.5	35	41.5	200	144	160	190	25	24
NZ7-400	565	615	330	225	43.5	68.5	232.5	257.5	304	61.5	36.5	48	43.5	265	224	200	227	24	40
NZ7-630	680	740	330	225	45.5	74.5	291	320	385	89	60	58	45.5	270	234	200	232	24	42

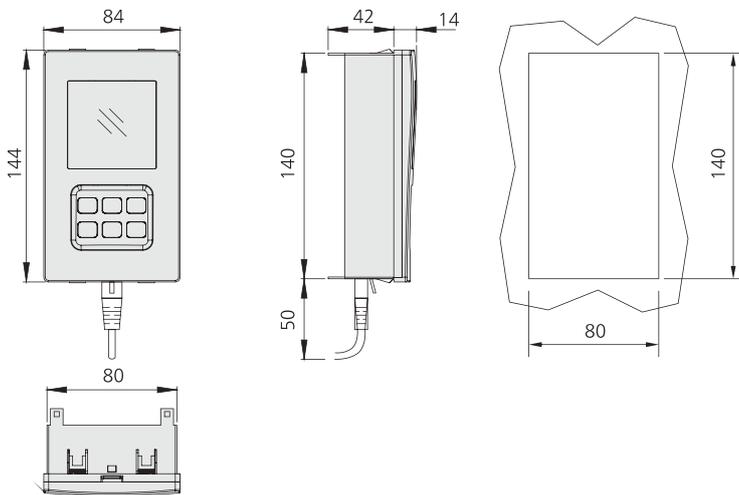
9.2 Installation dimension



Dimension Modle	C		D	P
	3P	4P		
NZ7-63	322	347	220	φ 8
NZ7-100	357	387	220	φ 8
NZ7-225	402	437	220	φ 8
NZ7-400	505	555	300	φ 10
NZ7-630	622	680	300	φ 10

9.3 Controller Module

Installation dimension of the controller
when it is installed by split type



10. Ordering information

The user shall indicate such items as the type, current specification, number of poles.

Example: If you order an auto transfer switch equipment, shell current 100A, rated current 100A, breaking capacity of Type H, 4 poles, Type A controller, you can write it as NZ7-100H/4100YA.

Changeover Switch HH15/QAS/QPS/QSS



HH15/QAS/QPS/QSS Changeover Switch

1. General

1.1 Application

Mainly used in the distributing and motor circuit which has high short-circuit current, and acted as main switch or master switch infrequently operated by hand, it is particularly suitable in the relative high class with drawable low voltage complete equipment. They provide safety isolation and protection against overcurrent for any low voltage electrical circuit.

1.2 Standard: IEC/EN 60947-3.

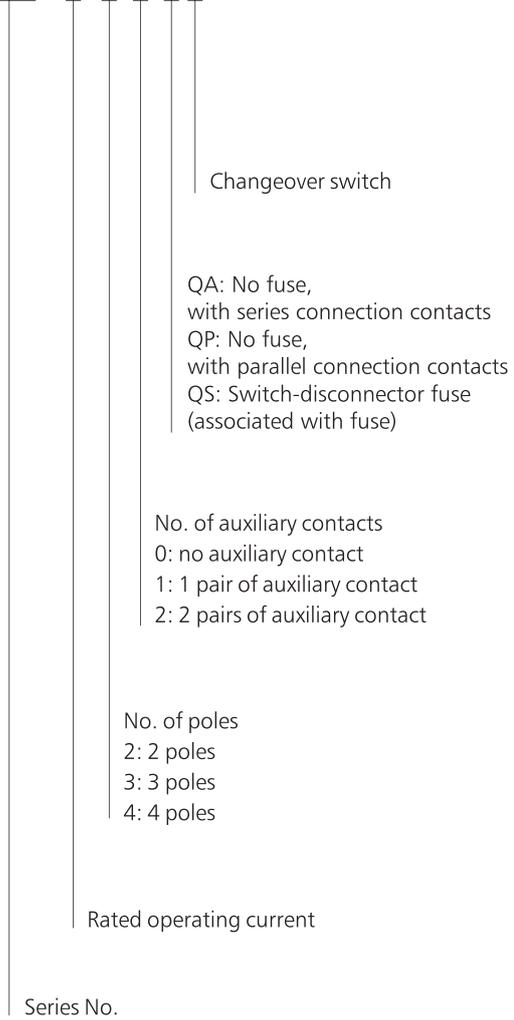
1.3 General characteristic

Full-enclosed structure
Unique rolling insert type contact system.

2. Switch disconnecter, with connection contact in series

2.1 Ordering information

HH15 - □ / □ □ □ S



**Note: This switch may only be operated outside the cabinet.
QSS series switch should be used with RT36 (NT,RT16) or
Rt20 series fuses provided by the user.**

2.2 Property

HH15/QAS

Specification	125	160	200	400	630	1000
No. of poles	3	3	3	3	3	3
Rated insulating voltage(V)	U _e =400V, U _i =690V. U _e =690V, U _i =1000V.					
Rated operating voltage U _e (V)	AC400	AC400	AC400	AC400	AC400	AC400
	AC690	AC690	AC690	AC690	AC690	AC690
Conventional thermal current(A)	125	160	200	400	630	1000
Rated operating current(A)	400V: AC-21B	125	160	200	400	630
	400V: AC-22B	125	160	160	315	400
	690V: AC-23B	125	160	160	400	400
Rated Short-circuit making capacity (Peak)(kA)	20	20	20	50	50	50
Rated Short-time withstand current(kA)	1.5	1.6	2.4	4.8	8	12
Mechanical life	1400	1400	1400	800	800	500
Electric Life	200	200	200	200	200	100
Operating torque (N • m)	7.5	16	16	16	30	40
Conventional thermal current of auxiliary contact I _{th} 400, AC-15(A)	5	5	5	5	5	5

HH15/QPS

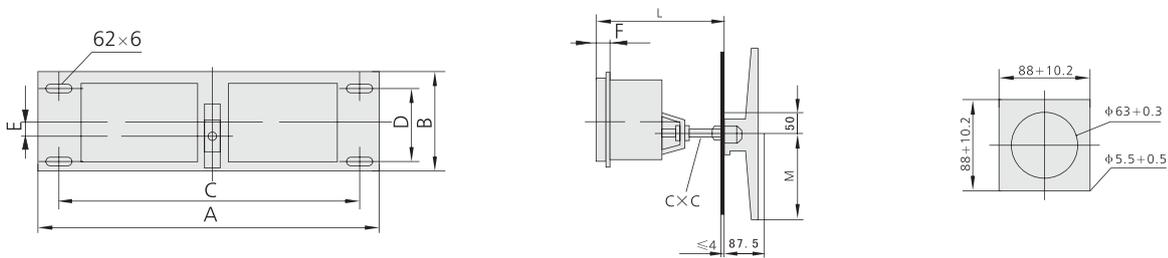
Specification	250	630	1000	1250	1600	2500	3150
No. of poles	3	3	3	3	3	3	3
Rated insulating voltage(V)	U _e =400V, U _i =690V. U _e =690V, U _i =1000V.						
Rated operating voltage U _e (V)	AC400	AC400	AC400	AC400	AC400	AC400	AC400
	AC690	AC690	AC690	AC690	AC690	AC690	AC690
Conventional thermal current(A)	250	630	1000	1250	1600	2500	3150
Rated operating current(A)	400V:AC-21B	250	630	1000	1250	1600	2500
	400V:AC-22B	250	630	630	630	800	-
	690V:AC-21B	250	630	1000	1250	1470	2500
Rated Short-circuit making capacity (Peak)(kA)	39	60	60	85	85	130	130
Rated Short-time withstand current(kA)	3	8	12	15	20	30	38
Mechanical life	1400	800	500	500	500	500	300
Electric Life	200	200	100	100	100	100	100
Operating torque (N • m)	16	30	40	45	60	75	90
Conventional thermal current of auxiliary contact I _{th} 400, AC-15(A)	5	5	5	5	5	5	5

HH15/QSS

Specification	HH15-63	HH15-125	HH15-160	HH15-250	HH15-400	HH15-630
No. of poles	3	3	3	3	3	3
Rated insulating voltage U _i (V)	U _e =400V, U _i =690V. U _e =690V, U _i =1000V.					
Rated operating voltage U _e (V)	AC400	AC400	AC400	AC400	AC400	AC400
	AC690	AC690	AC690	AC690	AC690	AC690
Conventional thermal current(A)	63	125	160	250	400	630
Rated operating current(A)	400V:AC-23B	63	125	160	250	400
	690V:AC-23B	63	100	160	250	315
Rated Limiting Short-circuit current 400:V/H(kA)	50/100	50/100	50/100	50/100	50/100	50/100
Rated Limiting Short-circuit current when 690V(kA)	50	50	50	50	50	50
Mechanical life	1700	1400	1400	1400	800	800

Specification	HH15-63	HH15-125	HH15-160	HH15-250	HH15-400	HH15-630	
Electric Life	300	200	200	200	200	200	
Rated current of fuse 400V/690V(A)	63/63	125/100	160/160	250/250	400/315	630/425	
Model of fuse	400V	RT16	RT16	RT16	RT16	RT16	RT16
		RT20	RT20	RT20	RT20	RT20	RT20
		NT00	NT00	NT00	NT2	NT2	NT3
		690V	RT16	RT16	RT16	RT16	RT16
	NT00	NT00	NT1	NT2		NT3	
Operating torque (N · m)	7.5	7.5	16	16	16	30	
Conventional thermal current of auxiliary contact Ith 400, AC-15(A)	5	5	5	5	5	5	

2.3 Mounting dimension(mm)



Model	A	B	C	D	E	F	G	L	M
HH15-63/QSS	430	170	386	120	14	25	10	300	140
HH15-125/QSS	430	170	386	120	14	25	10	300?	140
HH15-125/QAS	430	170	386	120	14	25	10	300	140
HH15-160/QAS	430	170	386	120	14	25	10	300	140
HH15-250/QPS	430	170	386	120	14	25	10	300	140
HH15-160/QSS	630	190	590	120	25	25	12	300	200
HH15-250/QSS	630	190	590	120	25	25?	12	300	200
HH15-400/QSS	630	190	590	120	25	25	12?	300	200
HH15-400/QAS	630	190	590	120	25	25	12	300	200
HH15-630/QAS	630	190	590	120	25	25	12	300	200
HH15-630/QPS	630	190	590	120	25	25	12	300	200
HH15-1000/QPS	630	190	590	120	25	25	12	300	200
HH15-630/QSS	950	250	906	180	28	28	12	400	200
HH15-1000/QAS	950	250	906	180	28	28	12	400	200
HH15-1250/QPS	950	250	906	180	28?	28	12	400	200
HH15-1600/QPS	950	250	906?	180	28	28	12	400	200
HH15-2500/QPS	950	250	906	180	28	28	12	400	400
HH15-3150/QPS	950	250	906	180	28	28	12	400	400



CSGLZ1 Changeover Switch

1. General

1.1 Application

Mainly used in the distributing and motor circuit which has high short-circuit current, and acted as main switch or master switch infrequently operated by hand, it is particularly suitable in the relative high class with drawable low voltage complete equipment. They provide safety isolation and protection against overcurrent for any low voltage electrical circuit.

1.2 Standard: IEC/EN 60947-3.

1.3 General characteristic

Full-enclosed structure
Unique rolling insert type contact system.

2. Changeover switch

2.1 Ordering information

CSGLZ1 - □ / □ C S □ □

With "F": terminal protection type
(only for 125~250A)
Without "F": without terminal protection

With "W": the handle is operated outside the cabinet
Without "W": the handle is operated inside the cabinet

S: Changeover switch

C: lateral operation
Blank: front operation

3 represents three poles: 31 represents three poles with auxiliary, one open and one closed
32 represents three poles with auxiliary, two open and two closed
4 represents four poles: 41 represents four poles with auxiliary, one open and one closed
42 represents four poles with auxiliary, two open and two closed

Conventional thermal current

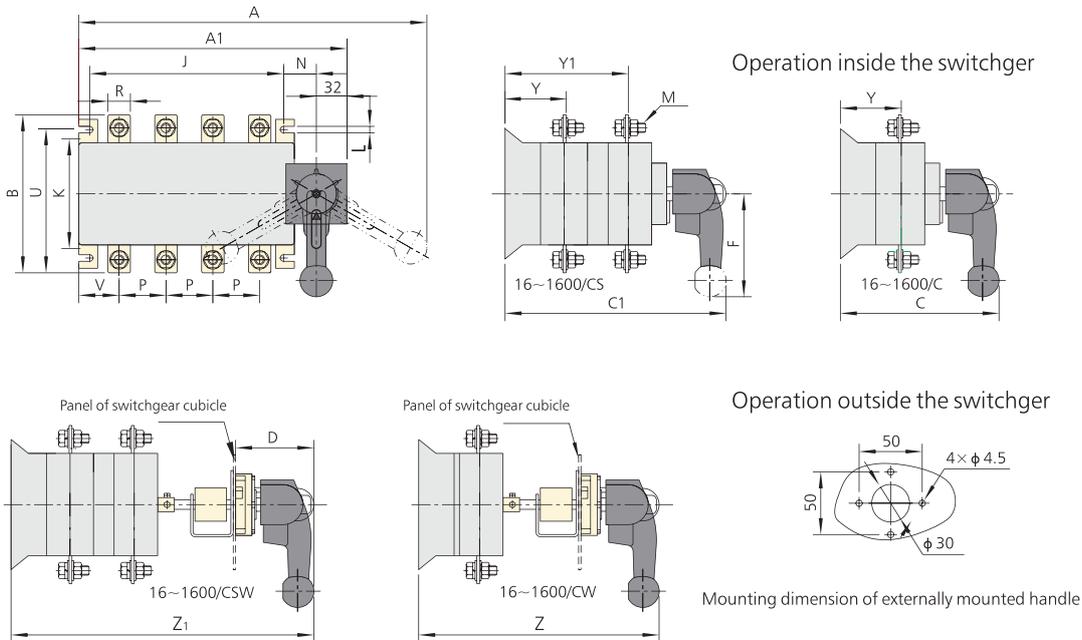
Series No.

2.2 Property

Conventional thermal current	16	32	40	63	80	100	125	160	200	250	315	400	630	
Associated fuse rating (A)	16	32	40	63	80	100	125	160	200	250	315	400	630	
Rated insulation voltage(V) Ui	800													
Rated current (A)	400V AC21B	16	32	40	63	80	100	125	160	200	250	315	400	630
	400V AC22B	-	-	-	-	-	-	125	125	200	250	315	400	630
	400V AC23A	-	-	-	-	-	-	125	160	200	250	315	400	630
	690V AC21B	16	32	40	63	80	80	125	160	200	200	315	400	500
	690V AC22B	-	-	-	-	-	-	100	100	160	160	200	250	315
	690V AC23A	-	-	-	-	-	-	50	63	70	80	125	160	200
Operation force (N)	30~50						40~60				65~100			

Conventional thermal current	1000	1250	1600	2000	2500	3150	
Associated fuse rating (A)	1000	1250	2×800	2×1000	2×1250		
Rated insulation voltage(V) Ui	800						
Rated current (A)	400V AC21B	1000	1250	1600	2000	2500	3150
	400V AC22B	1000	1250	1600	2000	2500	3150
	690V AC21B	800	800	1000	1600	1600	2000
	690V AC22B	800	800	800	1000	1000	1250
Operation force (N)	200~300						

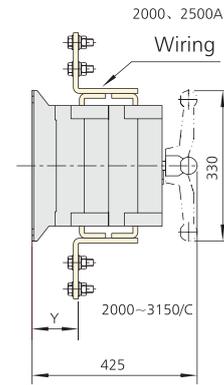
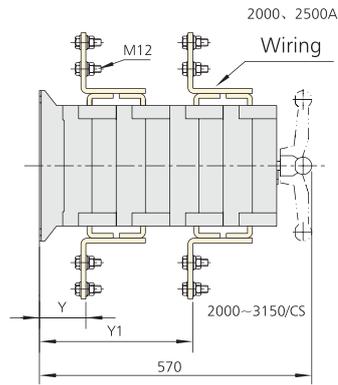
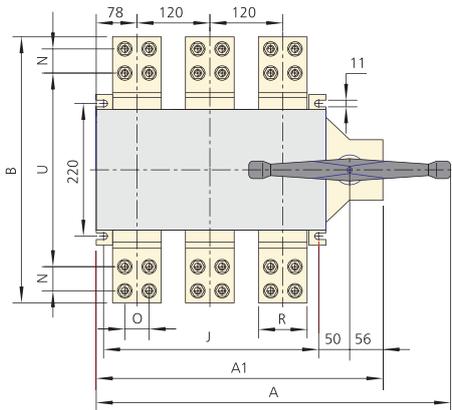
Mounting dimensions of NH40-16~1600/C and NH40-16~1600/CS



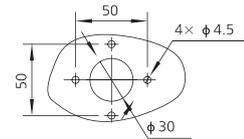
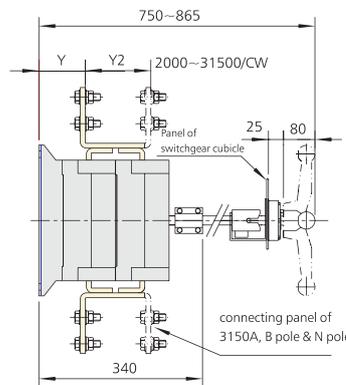
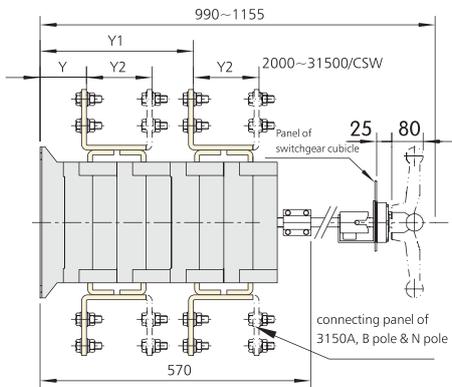
Mounting dimension of CSGL lateral operation and CSGL changeover switch disconnecter

Specification	CSGL-XX/C CSGL-XX/CS Overall and mounting dimensions (mm)																			
	A	A1	B	C	C1	D	F	J	K	L	N	P	R	U	V	M	Y	Y1	Z	Z1
16~100A/3	290	170	107	135	185	85	135	116	84	7	25	30	14	90	20	6	39	90	360~465	440~545
16~100A/4	290	170	107	135	185	85	135	116	84	7	25	30	14	90	20	6	39	90	360~465	440~545
125A/3	295	192	135	155	235	85	135	120	95	7	29.5	36	18	115	31	8	58	122	410~515	480~595
160A/3	295	192	135	155	235	85	135	120	95	7	29.5	36	20	115	29	8	58	122	410~515	480~595
125A/4	325	222	135	155	235	85	135	150	95	7	29.5	36	18	115	31	8	58	122	410~515	480~595
160A/4	325	222	135	155	235	85	135	150	95	7	29.5	36	20	115	29	8	58	122	410~515	480~595
200A/3	335	232	170	176	260	85	135	160	115	7	29.5	50	25	142	37	10	67	148	430~535	510~615
250A/3	335	232	170	176	260	85	135	160	115	7	29.5	50	25	142	37	10	67	148	430~535	510~615
200A/4	385	282	170	176	260	85	135	210	115	7	29.5	50	25	142	37	10	67	148	430~535	510~615
250A/4	385	282	170	176	260	85	135	210	115	7	29.5	50	25	142	37	10	67	148	430~535	510~615
315A/3	430	298	240	233	335	105	160	210	180	9	43	65	32	205	48	12	84	196	515~630	620~735
400A/3	430	298	240	233	335	105	160	210	180	9	43	65	35	205	48	12	84	196	515~630	620~735
630A/3	430	298	260	233	335	105	160	210	180	9	43	65	40	220	48	12	84	196	515~630	620~735
315A/4	490	358	240	233	335	105	160	270	180	9	43	65	32	205	48	12	84	196	515~630	620~735
400A/4	490	358	240	233	335	105	160	270	180	9	43	65	35	205	48	12	84	196	515~630	620~735
630A/4	490	358	260	233	335	105	160	270	180	9	43	65	40	220	48	12	84	196	515~630	620~735
1000A/3	580	472	316	280	424	105	165	353	220	11	50	120	60	240	78	12	108	253	605~720	750~865
1250A/3	580	472	356	280	424	105	165	353	220	11	50	120	70	246	78	12	108	253	605~720	750~865
1600A/3	580	472	356	280	424	105	165	353	220	11	50	120	80	246	78	12	108	253	605~720	750~865
1000A/4	700	592	316	280	424	105	165	473	220	11	50	120	60	240	78	12	108	253	605~720	750~865
1250A/4	700	592	356	280	424	105	165	473	220	11	50	120	70	246	78	12	108	253	605~720	750~865
1600A/4	700	592	356	280	424	105	165	473	220	11	50	120	80	246	78	12	108	253	605~720	750~865

Mounting dimensions of CSGL-2000~3150/C and CSGL-2000~3150/CS



Operation inside the switchgear



Mounting dimension of externally mounted handle

Operation outside the switchgear

Mounting dimension of CSGL changeover switch disconnect

Specification	NH40-XX/C NH40-XX/CS Overall and mounting dimensions (mm)										
	A	A1	B	R	J	U	O	N	Y	Y1	Y2
2000A/3	580	472	440	80	353	325	40	40	80	420	-
2500A/3	580	472	440	80	353	325	40	40	80	420	-
3150A/3	580	472	510	120	353	360	50	50	80	420	230
2000A/4	700	592	440	80	473	325	40	40	80	420	-
2500A/4	700	592	440	80	473	325	40	40	80	420	-
3150A/4	700	592	510	120	473	360	50	50	80	420	230



CSQ1G Automatic Changeover Switch

1. General

CSQ1G automatic changeover switch disconnecter integrates electrical and mechanical interlocking systems to guarantee safe transfer operation. It is applicable for the three-phase four-wire power supply system of AC 50Hz, rated voltage AC 380V and below, DC 440V and below, rated current up to 3200A. It can realize automatic and manual changeover between normal and back up power supply power, and stop power supplying to load when changeover process of power supply is carried out. The switch is applicable for two circuits power supply and in the condition which requires high quality power supply.
Standard: IEC/EN 60947-3, 60947-6-1



2. Switch Disconnecter

CSQ1G - □ / □ SZ □

Blank: common type
Main power supply —— standby power supply, automatic change and automatic recovery;
I : mains supply-mains supply, mutual standby, phase loss protection;
II : mains supply-mains supply, automatic change and automatic recovery, phase loss protection, overvoltage and undervoltage protection;
III : mains supply-oil engine, automatic change and automatic recovery, phase loss protection, overvoltage and undervoltage protection;

Dual-power supply automatic transfer

"3" represents three poles
"4" represents four poles

Rated operational current

Design sequence No.

Isolating switch

Company code

3. Povrameter

Conventional thermal current (A)	16	32	40	63	80	100	125	160	200	250	315	400	630	1000	1250	1600
Rated current of fuse (A)	16	32	40	63	80	100	125	160	200	250	315	400	630	1000	1250	2×800
Rated insulation voltage (V)	800															
400V AC-33IB	16	32	40	63	80	100	125	160	200	250	315	400	630	1000	1250	1600
Rated current(V)																
Operation force (N)	30~50			40~60			65~100			75~120			200~300			

4. Control characteristics and product structure

4.1 Control characteristics:

There are two types of switch products, three-pole and four-pole (three poles + switchable neutral pole).

Four control types (common type, I, II, III).

- a. Common type: Main power supply-standby power supply, automatic change and automatic recovery.
- b. I : mains supply-mains supply, mutual standby, phase loss protection.
- c. II : mains supply-mains supply, automatic change and automatic recovery, overvoltage and undervoltage protection, phase loss protection.
- d. III : mains supply-oil generator, automatic change and automatic recovery, overvoltage and undervoltage detection.
The automatic change-over control mechanism uses a key switch for the selection of operation mode.
The position can be maintained by padlock.

Control characteristics of common type switch:

- a. This switch applies to the automatic change and automatic recovery of main power supply-standby power supply (including manual oil generator; Note: Manual oil generator does not have to be used with type III switches) systems. Power supply I precedes. When power supply I is normal, it is switched on; when power supply I fails and power supply II is normal, the switch changes to power supply II; when power supply I resumes, the switch automatically changes to power supply I.

Control characteristics of type I switch:

- a. This switch applies to the mutual standby of mains supply-mains supply systems. When the switch is in the "0" position, power supply I precedes. When power supply I fails and power supply II is normal, the switch changes to power supply II; when power supply II is on and power supply I resumes, the switch does not automatically change to power supply I, it will change to power supply I only when power supply II fails. The main power supply changes to the standby power supply (the delay continuously adjustable between 1~999s), the standby power supply changes to the main power supply (the delay continuously adjustable between 1~999s).
- b. Phase loss detection protection function.

4.2 Product structure

16A-100A/4(Common type)

Control characteristics of type II switch:

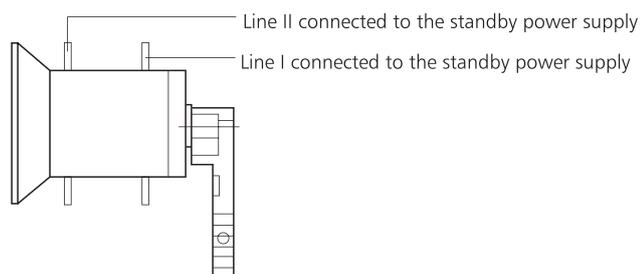
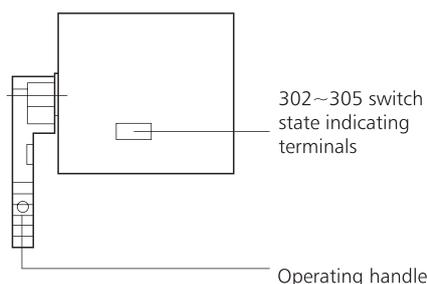
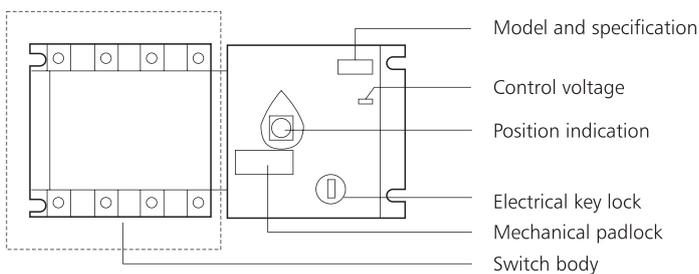
- a. This switch applies to the automatic change and automatic recovery of mains supply-mains supply systems. Power supply I precedes. When power supply I is normal, it is switched on; when power supply I fails and power supply II is normal, the switch changes to power supply II; when power supply I resumes, the switch automatically changes to power supply I. The main power supply changes to the standby power supply (the delay continuously adjustable between 1~999s), the standby power supply changes to the main power supply (the delay continuously adjustable between 1~999s).
- b. Three-phase overvoltage, undervoltage and phase loss detection protection functions.

Control characteristics of type III switch:

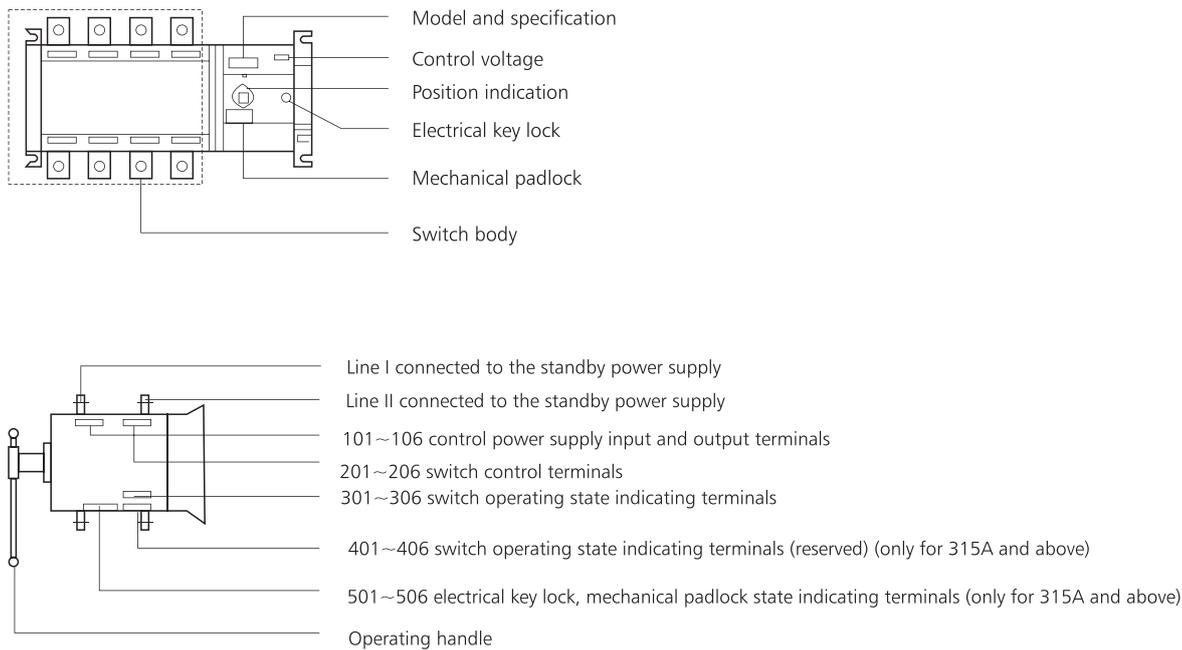
- a. This switch applies to the mutual standby or automatic change and automatic recovery of mains supply-oil generator (automatic oil generator with signals) systems. Power supply I (the mains supply) precedes. When power supply I fails, the switch gives a signal to start the oil generator. The oil generator has warm-up delay (continuously adjustable between 0~180s) function. After the oil generator has started, the switch changes to power supply II (the oil generator). When power supply I resumes, the switch automatically changes to power supply I, the oil generator automatically stops after a cooling delay (continuously adjustable between 0~180s).
- b. Three-phase overvoltage and undervoltage protection functions for mains supply and oil generator.

Type I, type II and type III switches have:

- 1) Automatic, remote and manual control functions
- 2) A 0.5s delay of the detection signal, to prevent misoperation.
- 3) A remote control "0" position in automatic state.
- 4) A key switch for the selection of operation mode.



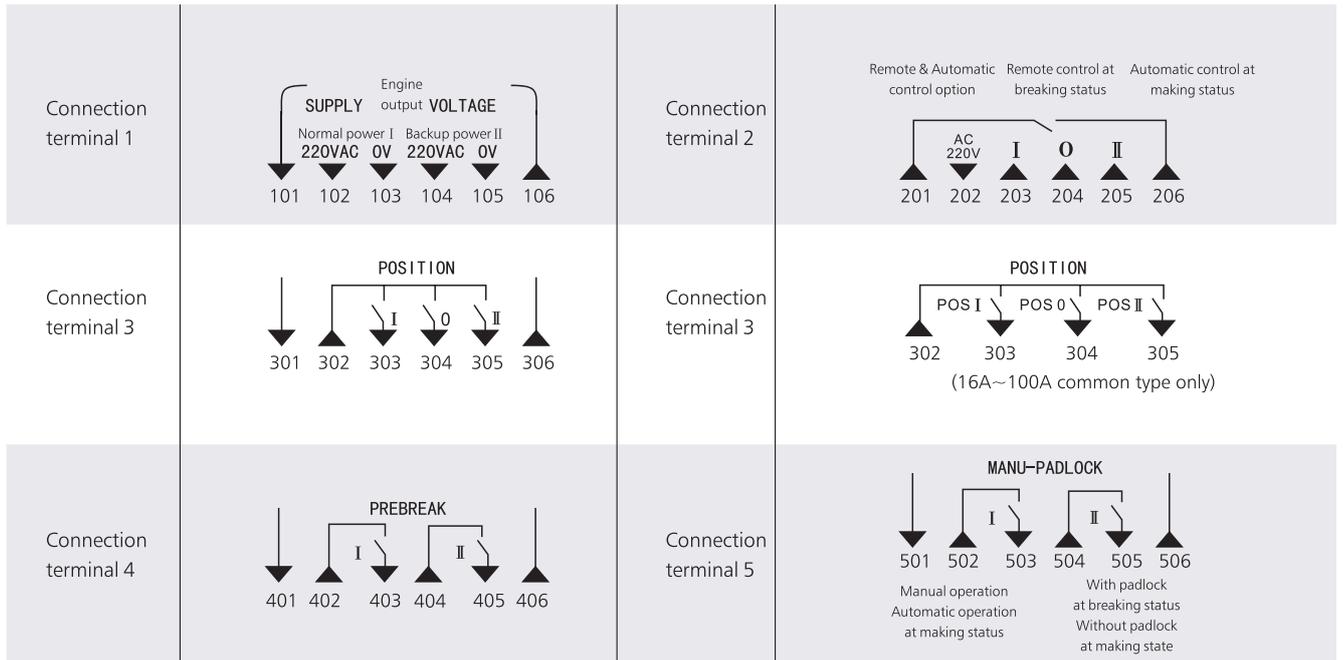
100A/3 common type; 100A/3, 4 type I, type II, type III; 125A-3200A/3, 4 common type, type I, type II, type III



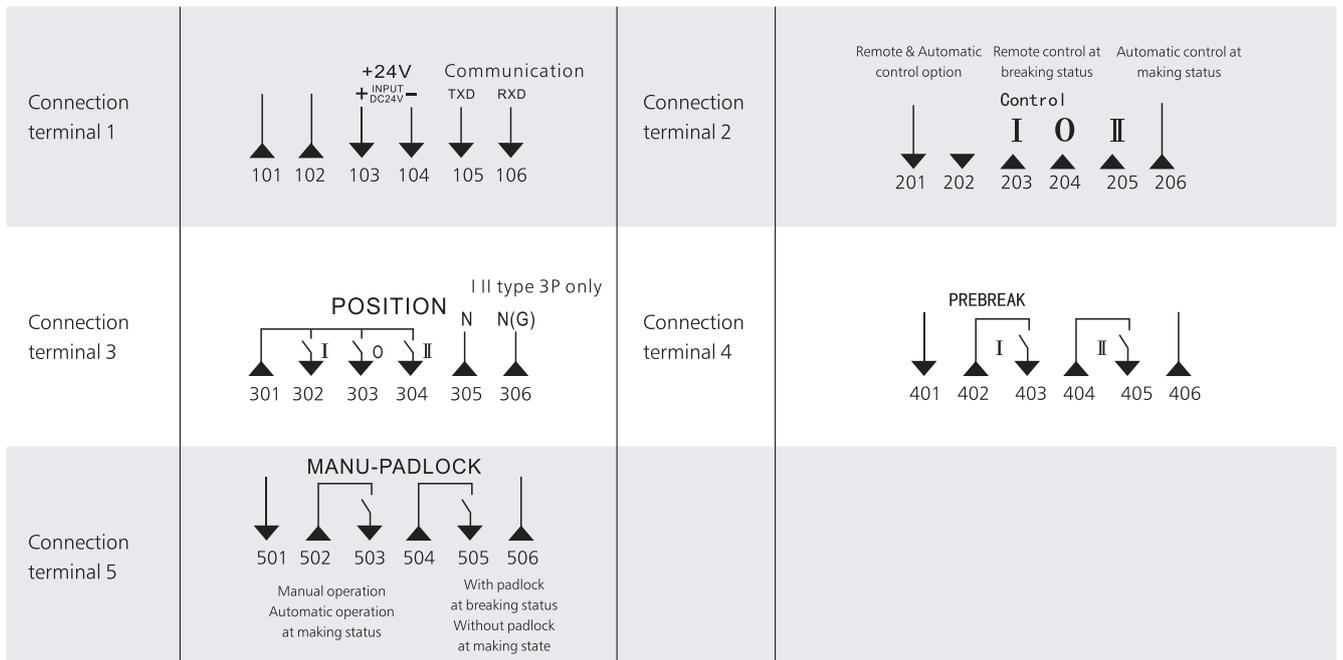
- a. Electrical key lock: It controls the power supply of the internal control circuit of the switch. When the electrical lock is in the "Automatic" position, the switch can be operated automatically or remotely. When the electrical lock is in the "Manual" position, the switch can only be operated manually;
- b. Operating handle: When operating the switch with the operating handle, the electrical lock must be in the "Manual" position;
- c. Mechanical padlock: Before maintenance, put the switch to the 0 position with the operating handle, pull up the padlock structure and lock the padlock. (Pulling up the mechanical padlock switches off the internal control power supply of the switch so that it cannot be operated electrically or manually);
- d. Position indication: It indicates the operating position (I; 0; II) of the switch;
- e. Control voltage: The control voltage class of the switch is 220VAC;
- f. Switch body: The front part is line I, which is connected to the "Normal power supply"; the rear part is line II, which is connected to the "Standby power supply".

4.3 Connection terminal of control circuit

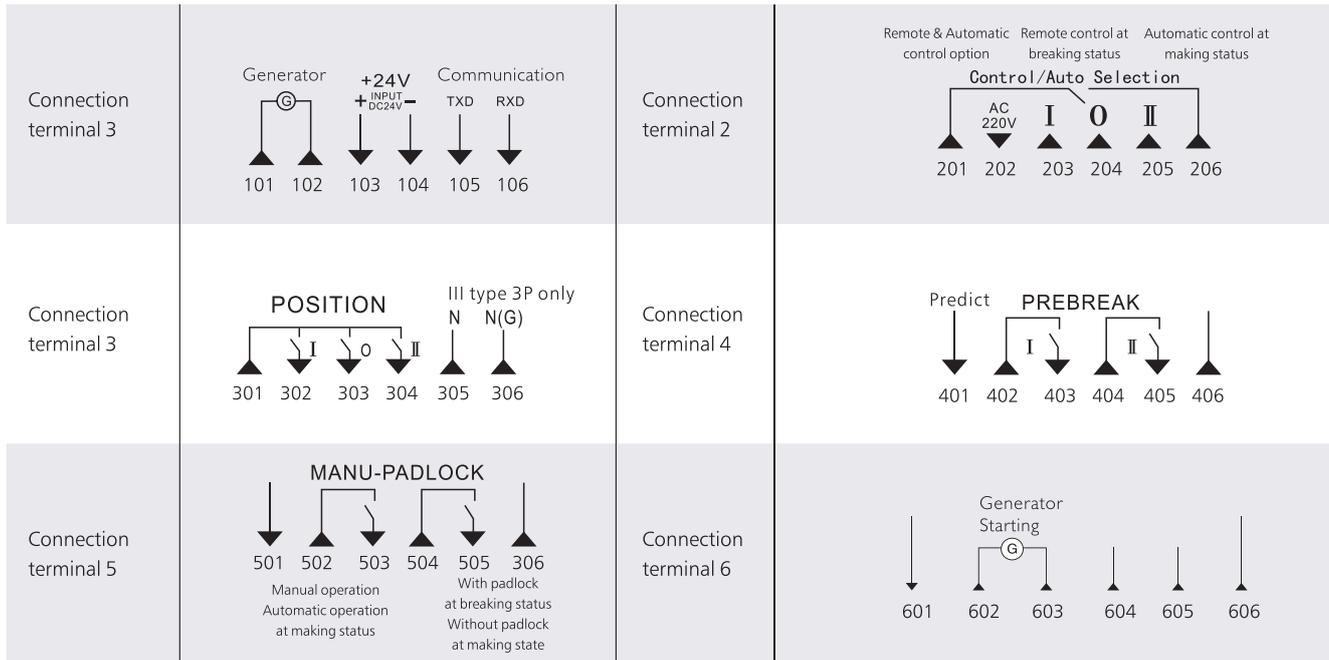
Common type



Type I and type II



Type III



Terminal 1, main options

- 101, 106-AC220V output terminals of engine (only for common type)
- 102, 103-Power control terminal of circuit I (only for common type)
- 104, 105-Power control terminal of circuit II (only for common type)
- 101, 102-Generator starting signal input (for type III)
- 103, 104-Firefighting +24V input, enforce "0", both switches breaks (for type I, II, III)
- 105, 106-Communication Interface (Reserved)

Terminal 2, remote control

- 201, 206-Terminal of remote controlling, automatic controlling functions, Remote control at breaking status and automatic control at making status.
- 202, 203-Making switch I.
- 202, 204-At "0" position, both switches breaks (for type I, II, III) (include preferring position "0")
- 202, 205-Making switch II.

Terminal 3, position indication and zero-line terminal

- 301, 302-Switch I position
- 301, 303-At "0" position, all swithes breaks
- 301, 304-Switch II position, (301~304 for I II III, 4 poles switch)
- 302, 303-Switch I position
- 302, 304-"0" position
- 302, 305-Switch II position (302~305 for common type)
- 305-Type I, II, switch I controls zero-line "N1"; type III switch I controls zero-line "N" (only for 3 poles)

Terminal 4, pre-breaking auxiliary contact

- 306-Type I, II, switch II controls zero-line "N2"; type III, switch II controls zero-line "N(G)"
- 402, 403, Pre-breaking position of indication switch I .
- 404, 405, Pre-breaking position of indication switch II .

Terminal 5 Manual

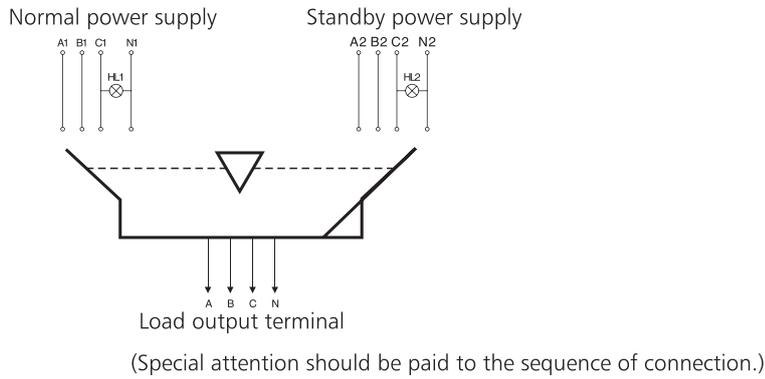
- and automatic operation mode and whether locking the switch
- 502, 503, Automatic and manual control indication
- 504, 505, Indcation of whether locking the switch

Terminal 6, control generator

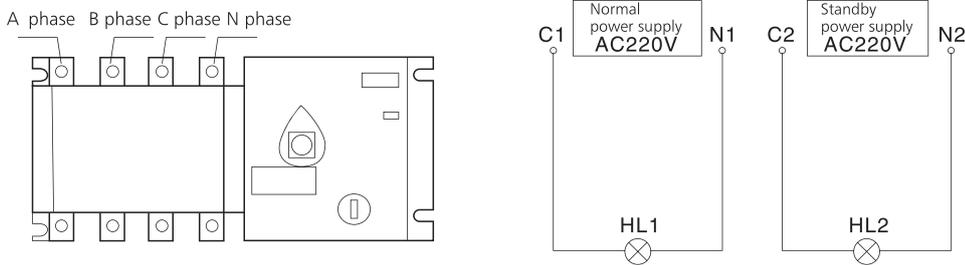
- 602, 603, Generator starting terminal. (Only for type III). Two zero-lines of 3-poles switch should be connected to the terminal 305, 306 (1~1.5mm² copper), at right side switch. (for Type III ≥800A)

5 Connection diagram

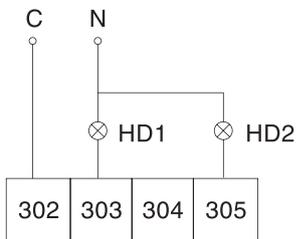
5.1 16A~100A 4 poles main switch wiring diagram



Secondary connection diagram

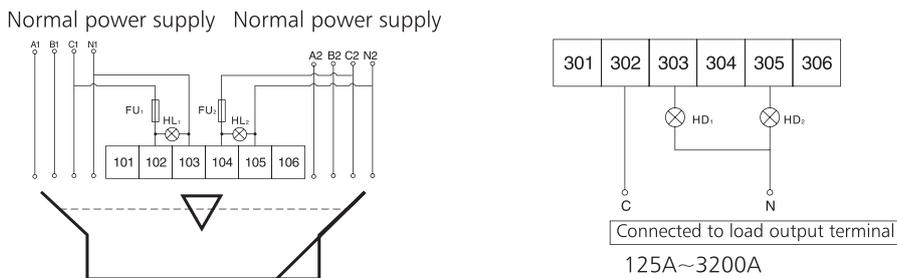


Connected to load output terminal



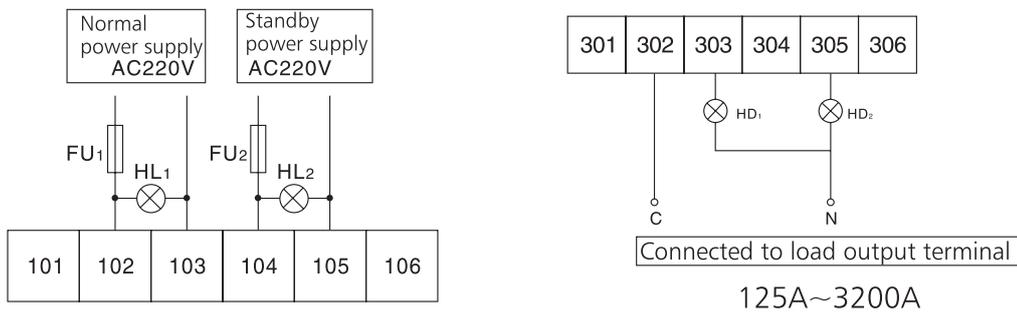
HL1 and HL2 are respectively the resumption indicators of the normal and standby power supplies;
HD1 and Hd2 are respectively the service indicators of the normal and standby power supplies;
302~305 are switch terminals.

5.2 125A~3200A main switch wiring diagram



Note: Secondary connection of terminal 1 is required (for 16A~100A with forced reset, the connection mode is the same as above).

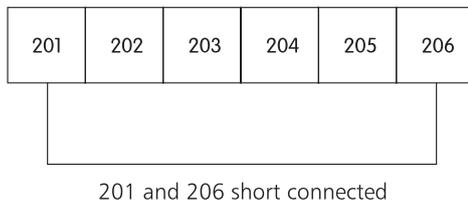
5.3 125A~3200A Secondary wiring diagram (3P, 4P)



HL1 and HL2 are respectively the resumption indicators of the normal and standby power supplies;
 HD1 and HD2 are respectively the service indicators of the normal and standby power supplies;
 FU1 and FU2 are 5A fuses;
 101~106, 201~206, 301~306 are switch terminals.

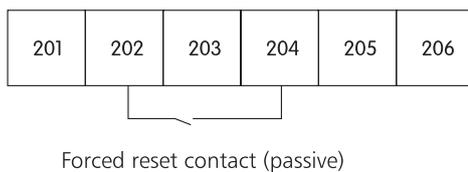
5.4 Depending on the operating mode, the following connection modes can be used for terminal 2:

a. Fully automatic connection mode



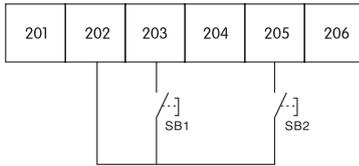
Note: Secondary connection of terminal 1 is required.

b. Remote reset (the two power supplies are disconnected) connection mode



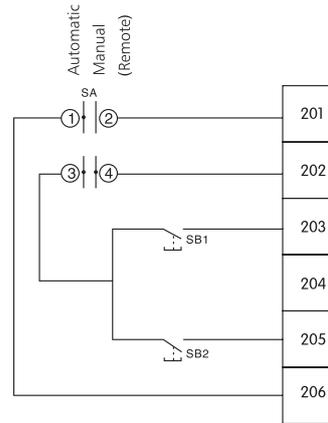
Only for 16A~3200A (Type I II III)

c. Remote connection mode (Note: SB1 and SB2 are external push-button switches)



Note: When switch SA is in the automatic position, ① and ② are connected.
When switch SA is in the manual position, ④ and ③ are connected.

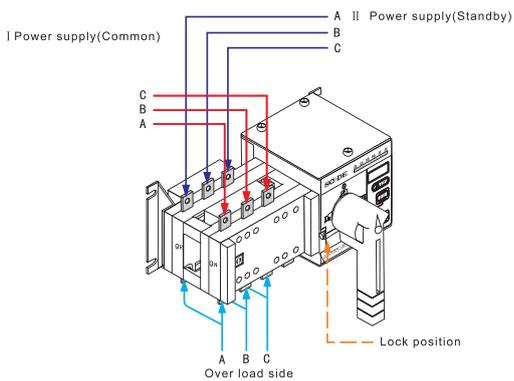
d. Fully automatic + manual (remote) connection mode (Note: SB1 and SB2 are external push-button switches)



5.5 Connection diagram

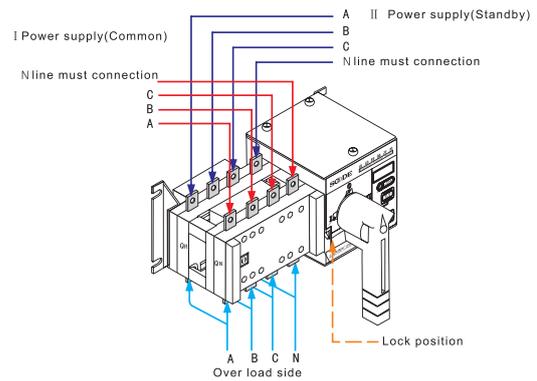
CSGL-16~100

16~100A 3P connection chart



16~100A 3P connection chart

16~100A 4P connection chart



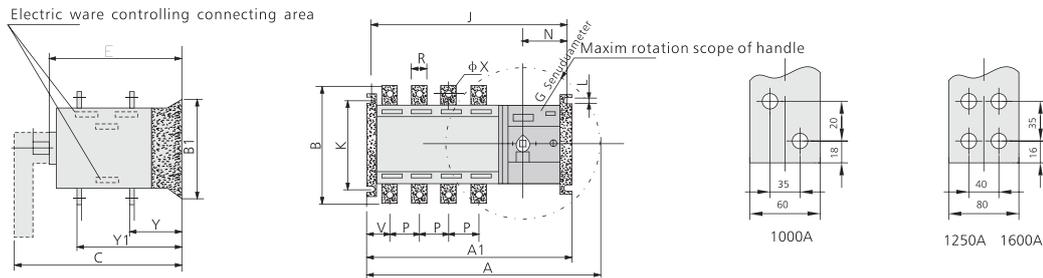
16~100A 4P connection chart

Correct mounting of the switch:

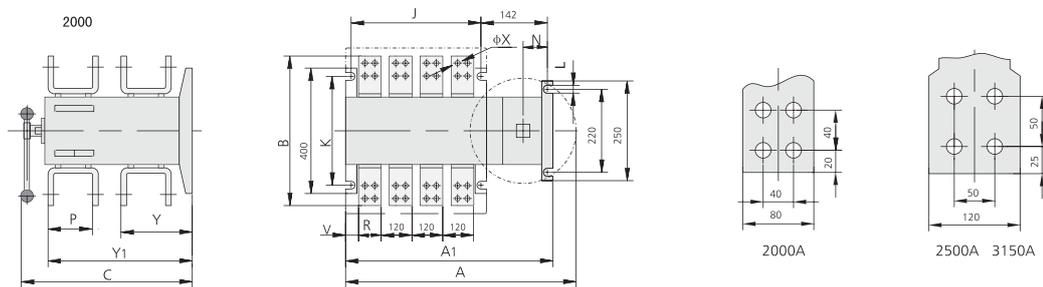
- Copper busbars I and II are respectively connected to phases A, B, C, N of the normal (front) and standby (rear) power supplies from left to right.
- The control power supplies are obtained respectively from phases C and N of the normal and standby power supplies.
- AC220V control power supplies I and II are respectively connected to terminals 102~103 and 104~105, among which 102 and 104 are respectively the live wires of the normal and standby power supplies.
- Terminals 1.1 and 106 are only used as the control power supplies of the signal lamps. Note: They should not be connected to any other lines.
- When upper (lower) incoming line is used, phases A, B, C, N of the lower (upper) lines I and II are respectively connected with copper busbars or conductors as the output.

6. Mounting dimension of NH40SZ automatic changeover switch disconnecter

≤ 1600A



≥ 2000A



Specification	NH40SZ Mounting dimensions														
lth/Poles	A	A1	B	C	E	J	K	L	N	P	R	V	φX	Y	Y1
16A/3、4	380	245	106	170	133	234	84	7	75	30	14	10.5	6	36	86
32A/3、4	380	245	106	170	133	234	84	7	75	30	14	10.5	6	36	86
40A/3、4	380	245	106	170	133	234	84	7	75	30	14	10.5	6	36	86
63A/3、4	380	245	106	170	133	234	84	7	75	30	14	10.5	6	36	86
80A/3、4	380	245	106	170	133	234	84	7	75	30	14	10.5	6	36	86
100A/3、4	380	245	106	170	133	234	84	7	75	30	14	10.5	6	36	86
125A/3	405	270	135	240	208	255	95/110	7	87	36	20	20	9	58	135
160A/3	405	270	135	240	208	255	95/110	7	87	36	20	20	9	58	135
125A/4	435	300	135	240	208	285	95/110	7	87	36	20	20	9	58	135
160A/4	435	300	135	240	208	285	95/110	7	87	36	20	20	9	58	135
200A/3	416	310	170	240	208	293	95/110	7	87	50	25	27	11	60	140
250A/3	416	310	170	240	208	293	95/110	7	87	50	25	27	11	60	140
200A/4	466	360	170	240	208	343	95/110	7	87	50	25	27	11	60	140
250A/4	466	360	170	240	208	343	95/110	7	87	50	25	27	11	60	140
315A/3	465	375	240	315	270	355	180	11	95	65	32	37.5	11	84	195
400A/3	465	375	240	315	270	355	180	11	95	65	32	37.5	11	84	195
630A/3	465	375	260	315	270	355	180	11	95	65	40	37.5	13	84	195
315A/4	525	435	240	315	270	415	180	11	95	65	32	37.5	11	84	195
400A/4	525	435	240	315	270	415	180	11	95	65	32	37.5	11	84	195
630A/4	525	435	260	315	270	415	180	11	95	65	40	37.5	13	84	195
1000A/3	887	515	310	368	320	490	220	13	88	120	60	198	13	108	252
1250A/3	887	515	360	368	320	490	220	13	88	120	70	198	13	108	252
1600A/3	887	515	360	368	320	490	220	13	88	120	80	198	13	108	252
1000A/4	1007	635	310	368	320	610	220	13	88	120	60	198	13	108	252
1250A/4	1007	635	360	368	320	610	220	13	88	120	70	198	13	108	252
1600A/4	1007	635	360	368	320	610	220	13	88	120	80	198	13	108	252
2000A/4	1007	633	455	562	495	467	220	11	85	147	80	33	13	226	457
2500A/4	1007	633	455	562	495	467	220	11	85	152	120	33	13	230	462
3200A/4	1007	633	505	562	495	467	220	11	85	152	120	33	13	230	462