CN Aiso

LOW-VOLTAGE SERIES
PRODUCT CATALOGUE

Dual power automatic transfer switch
Load isolation switch
Motor soft starter
Intelligent universal circuit breaker
Moulded case circuit breaker
Fuse-switch disconnector

www.aisoelectric.com

CN Aiso

YUEQING AISO ELECTRIC CO.,LTD.

Add: Xinguang Industrial Zone, Liushi, Yueqing, Wenzhou, Zhejiang, China
Tel: +86-577-62697170
Mobile Phone: +86-13566272279
WeChat: +0086-13566272279
What's app: +0086-13695879122
Skype: eleven@aisoelectric.com
E-mail: aiso@aisoelectric.com

www.aisoelectric.com

COMPANY PROFILE

WHO WE ARE?

Yueqing AISO Electric Co., Ltd. located in Liushi Town, Yueqing City, Wenzhou City, Zhejiang Province. We are professional electric manufacturer.

1. Quality is the first, our culture.
2. "With us your money in safe" full refund in case of bad not in accordance with technical requirements or delay delivery time.
3. "Time is gold" for you and for us, we have professional team work whom can making better quality in short time.

Please feel free to contact us for more details.
And fully utilize our 8 years experience and wide contacts.



WORKSHOP






With excellent team work, professional engineers and advanced equipments, we're able to provide quality products and offer you the best customized solutions.

CONTENTS

Committed to creating a better, safer and more efficient electrical world for global customers

DUAL POWER AUTOMATIC TRANSFER SWITCH SERIES

YUEQING AISO ELECTRIC CO.,LTD.

www.aisoelectric.com

Brief introduction of dual power automatic transfer switch

◆ General

ASQ type A.T.S intelligent dual power automatic transfer switch (hereinafter referred to as the switch), is a kind of emergency continued power switch, the switch is composed of circuit breaker and circuit controller. This product employs the latest control system as core; it has advantages of work reliably and stably for long term. Therefore, it is an ideal new type of automatic transfer switching equipment with mechanical electrical integration.

The products are in conformity with standards of GB/T14048.11 " Low-voltage switchgear and control equipment Part No.6: Multifunctional electric apparatus No.1: automatic transfer switching device".

◆ Application

This switch is suitable for the double-circuit power supply system of AC50/60Hz, rated voltage below 1000V, to realize automatic or manual transfer between common power (Ⅰ) and standby power (Ⅱ), (Main and standby power supply can be a grid, starting generator, battery, main and standby power supply is defined by the users) then to get an unmanned transformer station for dual power users. The product is applicable to the provisions of the state for class or I class load user, where power failure is impermissible such as high-rise building, post and telecommunications, coal ship, industrial assembly line, medical, military facilities, airports, fire protection, metallurgy, chemical industry, textile, petroleum and etc.

◆ Operating conditions

- The air temperature is -5℃～+40℃, the average value within 24 hours should not be over 35℃.
- The relative humidity should not exceed 50% at max temperature +40℃, the higher relative humidity is permissible at lower temperature, for instance, 90% at +20℃, but the condensation will be produced due to temperature change, which should be considered.
- The altitude of mounting place should not exceed 2000m.
- Classification: Ⅳ; Inclination is not more than ±23°.
- Pollution grade: 3.
- If beyond above mentioned conditions, users should negotiate with the manufacturer. If the product is used for mining, sea, petroleum and nuclear power station, the technical agreement shall be signed separately.

◆ Structural features and functions

The ASQ switch is driven by a single motor driving, simple structure, stable and reliable switching, no noise, small impact force. The operator drive motor is performed only by current switching instant, no need to provide working current steady-state operation, obvious energy saving. No temperature rise of fever, node welding and motor burnout phenomenon; switch with mechanical interlock protection, to ensure that the main power supply is not switched on at the same time, and keep normal power and standby power reliable work, mutual non-interference. The switch can load switch, and it can be used to manually switch by handle emergency. The switch has electrical or mechanical closing instructions, A.T.S control power are from the main power supply of AC 220V (without additional control current).

The intelligent controller also provides functions with loss of pressure, phase failure control, under-voltage, delay control, generator control, fire reset, feedback signal and etc, and strong anti-interference ability; having auto-charge & auto-recovery, auto-charge & non-auto-recovery and mutual standby three working modes; with common power ON, standby power OFF; common power OFF, standby power ON; common power OFF, standby power OFF three steady working states.

Easy installation, control loop uses plug-in terminal connection.

Available special handle for manual conversion in manual mode.

ASQ3-63(M)

Dual power automatic
transfer switch

General

Control device: built-in controller
Product structure: small size, high current, simple structure, ATS integration
Features: fast switching speed, low failure rate, convenient maintenance, reliable performance
Connection: front connection
Conversion mode: power on the grid, grid generator, auto-charge & auto-recovery
Frame current: 63
Product current: 10, 16, 20, 25, 32, 40, 50, 63A
Product classification: circuit breaker
Pole No.: 2, 3, 4
Standard: GB/T14048.11
ATSE: CB class, with overload and short-circuit protection

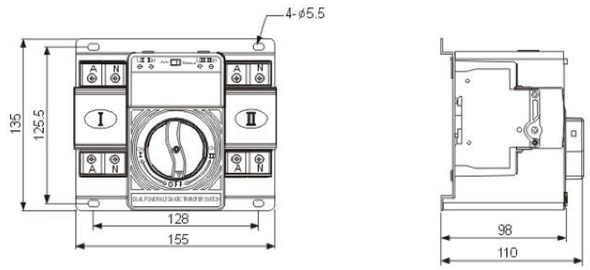
Model and meaning

AS Q 3 - 63 (M) / □P - □ □

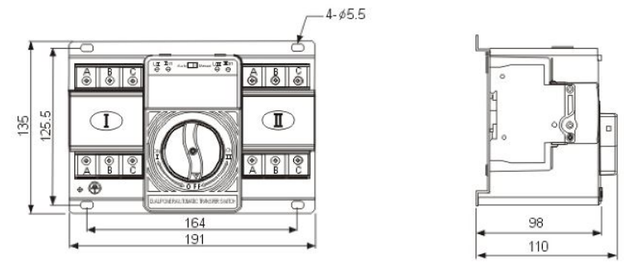
- Rated current
- Basic type, X: fire-fighting type, XFZ: fire-fighting, generation, feedback
- Pole No.: 2, 3, 4
- Serial No.
- Frame current
- Design No.
- Dual power automatic transfer switch
- Enterprise code

Overall and Installation dimension

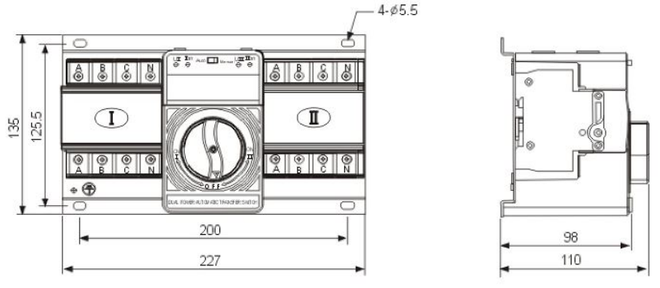
● Overall and installation dimension of ASQ3-63(M)/2P



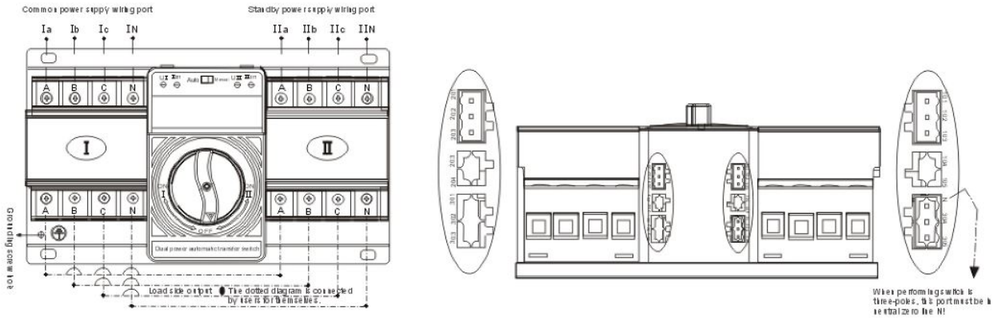
● Overall and installation dimension of ASQ3-63(M)/3P



● Overall and installation dimension of ASQ3-63(M)/4P



Wiring principle drawing



Note: the external signal port of the users:

● Basic type:

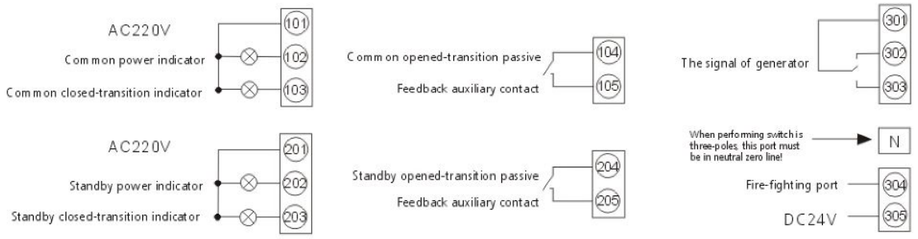
1.Product standard port of out of factory (101-103, 201-203) signal lamp;
2.Users according to the requirements to connect by themselves.

● Basic fire-fighting type (X type):

1.Product standard port of out of factory (101-103, 201-203) signal lamp, (304-305) fire-fighting port;
2.Users according to the requirements to connect by themselves.

● Basic fire-fighting, generation, feedback type (XFZ type):

1.Product standard port of out of factory (101-103, 201-203) signal lamp, (304-305) fire-fighting, (104-105, 204-205) feedback, (301-303) generation;
2.Users according to the requirements to connect by themselves.



Note: If needing fire-fighting passive port or 220VAC output, to specify when ordering.

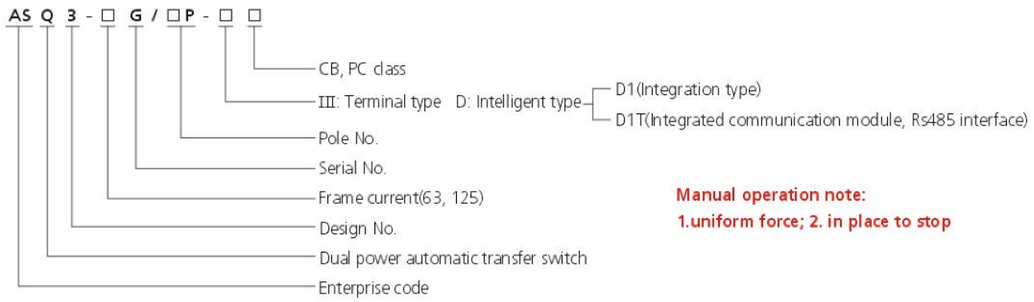
ASQ3-63G/125G

Dual power automatic transfer switch (Terminal type, intelligent type)

General

Control device: built-in controller
Product structure: small size, high current, simple structure, ATS integration
Features: fast switching speed, low failure rate, convenient maintenance, reliable performance
Connection: front connection
Conversion mode: power on the grid, grid generator, auto-charge & auto-recovery
Frame current: 63, 125
Product current: 10, 16, 20, 25, 32, 40, 50, 63, 80, 100, 125A
Product classification: DZ47 type, C65 type, isolation type
Pole No.: 2, 3, 4
Standard: GB/T14048.11
ATSE: CB class, with overload and short-circuit protection
PC class, without overload and short-circuit protection

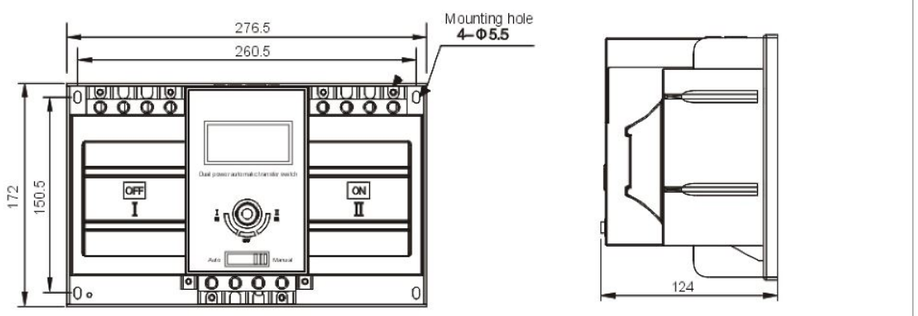
Model and meaning



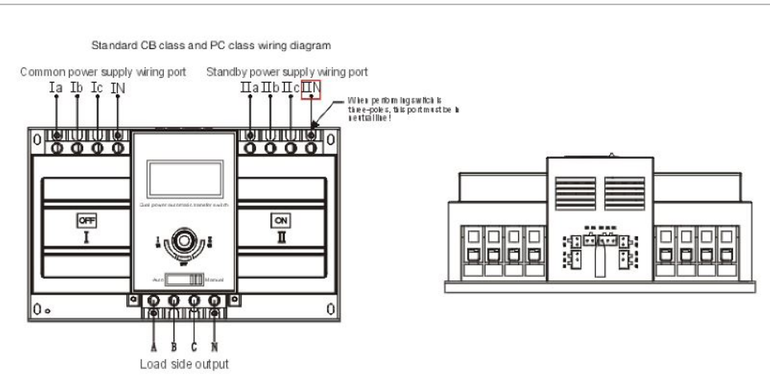
Manual operation note:
1.uniform force; 2. in place to stop

Note:
If needing split type, it should be customized. For example: ASQ3-63G/4P-D2 split type; ASQ3-63G/4P-D2Z split with feedback auxiliary contact.

◆ Overall and Installation dimension



◆ Wiring principle drawing



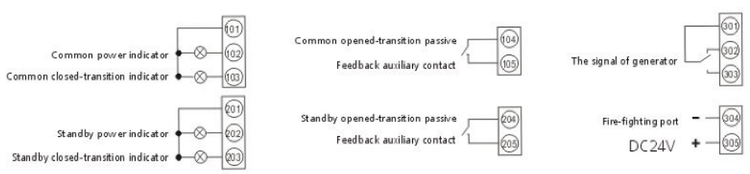
Note: the external signal port of the users:

● Terminal type(III type):

1. Product standard port 101-103, 201-203;
2. If the user needs other ports, to specify when ordering;
3. Terminal type is not with fire-fighting function;
4. The signal lamp AC220V, users according to the requirements to connect by themselves.

● Intelligent type(D type):

1. Product standard port 101-103, 201-203, 301-305 ;
2. If the user needs feedback signal port (104-105, 204-205), to specify when ordering.



ASQ1-III/D

Dual power automatic transfer switch
(Terminal type, intelligent type)

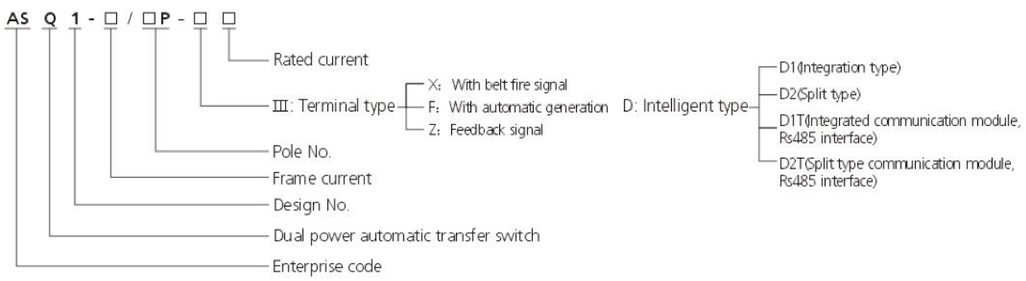
ASQ1–100/4P–III(Terminal type)

ASQ1–100/4P–D1(Intelligent type)

◆ General

Control device: LCD controller
Product structure: small size, high current, simple structure, ATS integration
Features: fast switching speed, low failure rate, convenient maintenance, reliable performance(with automatic switching time can be adjusted, 1s～99s)
Connection: front connection
Conversion mode: power on the grid, grid generator, auto-charge & auto-recovery, auto-charge & non-auto-recovery and mutual standby
Frame current: 63, 100, 225, 400, 630, 800, 1250, 1600
Product current: 20, 32, 40, 63, 80, 100, 125, 160, 200, 225, 250, 315, 400, 500, 630, 800, 1000, 1250, 1600A
Product classification: circuit breaker (CM1, TM30)
Pole No.: 3, 4
Standard: GB/T14048.11
ATSE: CB class, with overload and short-circuit protection

◆ Model and meaning

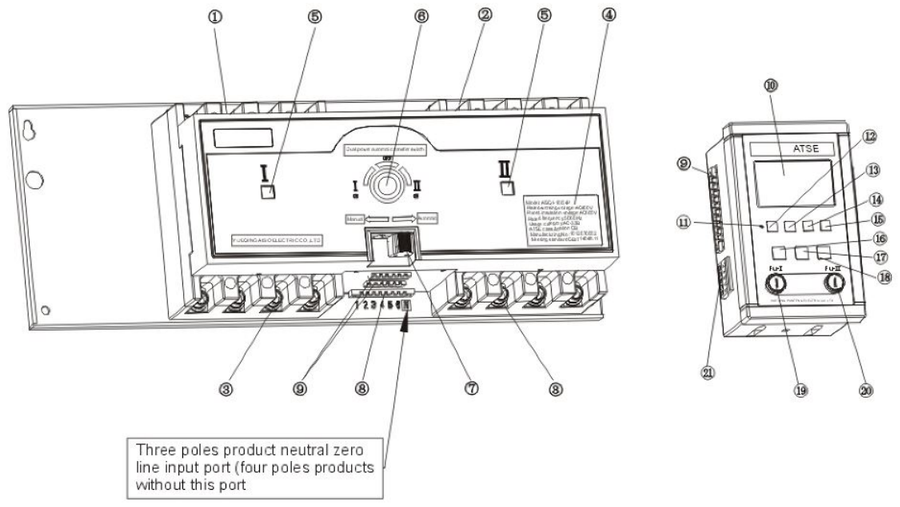


Note: 1. D type controller, its standard configuration have DC24V and automatic generation function.
2. III type standard is no fire-fighting, automatic generation power, if necessary, ording further notice.

Technical requirement

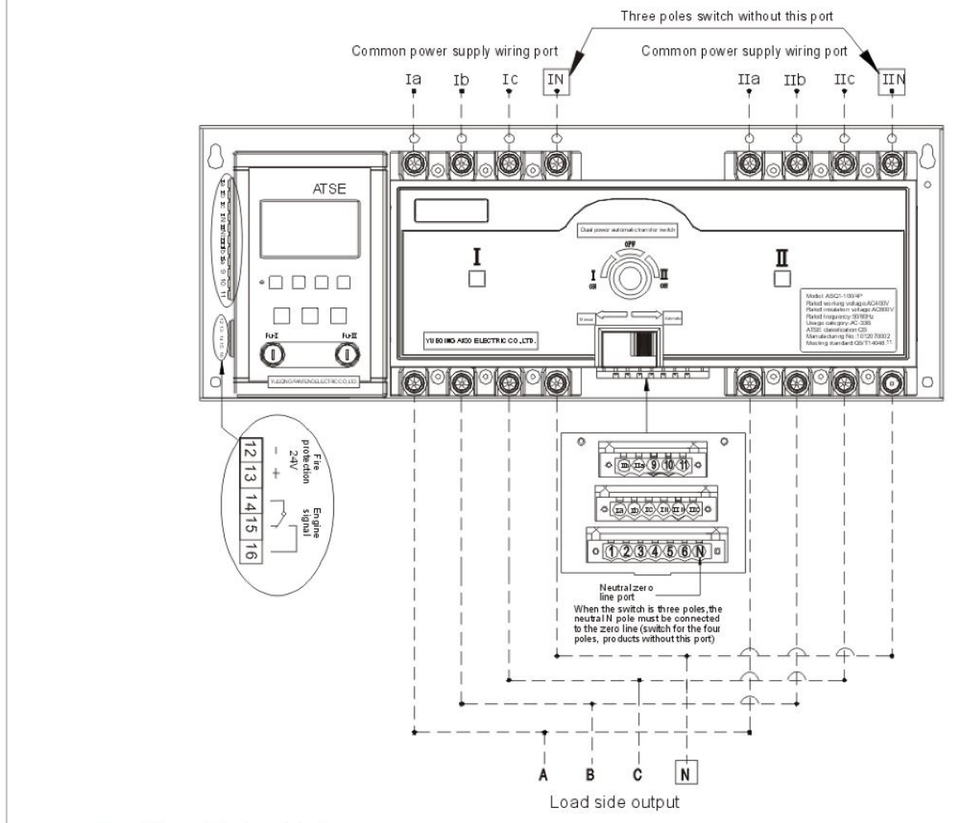
- In the automatic, when the common power supply, under-voltage, over-voltage, loss of pressure transferred to the standby power supply. When the standby power appeared in the same failure, converted to double position, display screen will display and alarm automatically at the same time.
- LCD screen is protecting in the 30s, on the button for the first time display screen will display, the second time can enter the settings, enter setup requires a password input.
- When the artificial set garbled (crash), the reset button reset to set the value of silence;
- When the controller is arranged in the automatic, manual position, pressing the control panel double key display double, but not alarm.
- The controller sets delay switching time, when there is a power failure recovery in the value set, dual power supply without switching, opposite, and switching.

Products panel illustrates



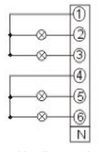
①Into the line of the main terminal of normal power
②Into the line of the main terminal of standby power
③Load side of the main terminal
④Nameplate
⑤Normal power switch indicator
⑥Handle socket
⑦Jack board button
⑧External signal terminal for user
⑨Controller signal connection terminal
⑩LCD display
⑪Restore factory default key
⑫Set key
⑬Shift key
⑭Digital "+" key
⑮Digital "-" key
⑯Manual key
⑰Automatic key
⑱Double bond key
⑲The insurance holder of normal power supply
⑳The insurance holder of standby power supply
㉑Generator signal port and fire connection port

Wiring principle drawing



Note: 1)External signal terminal of user:

Normal power indicator(1-2)
Normal power switch-on indication(1-3)
Standby power indication(4-5)
Standby power switch-on indication(4-6)



Users is according to requirements to connect by themselves about the signal lamp AC220V

2)When the switch is split, the port of signal terminal controller (NA-11 #) uses wire harness with the switch to connect.

3)When the switch is integrated, the port of signal terminal controller (NA-11 #) has been connected which is out of factory, the user does not need to connect.

4)The dotted line part is connected by the users for themselves.

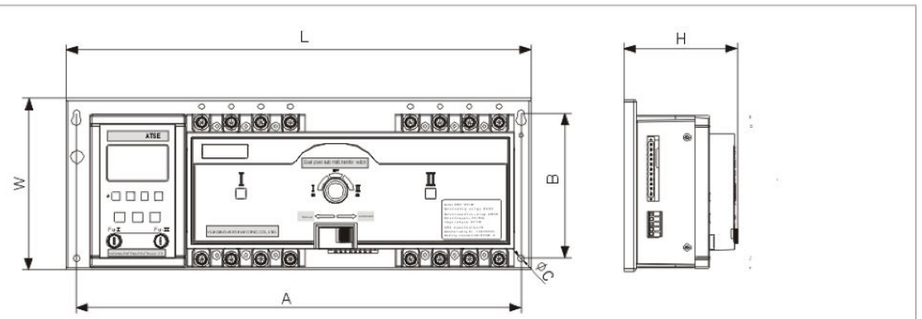
Warning: the controller connector is strictly forbidden to plug and pull with electric!

◆ Main technical parameters

Item \ Model		ASQ1 -100(63)	ASQ1 -225	ASQ1 -400	ASQ1 -630	ASQ1 -800	ASQ1 -1250	ASQ1 -1600
Usage category		AC-33iB						
Rated working voltage Ue		AC400V					AC380V	
Rated insulation voltage Ui		690V						
Rated impulse withstand voltage Uimp		6kV	6kV	6kV	6kV	6kV	8kV	8kV
Rated short circuit breaking capacity Icn		10kA	10kA	20kA	30kA	30kA	30kA	30kA
Rated short circuit making capacity Icm		17kA	17kA	40kA	63kA	63kA	63kA	63kA
Service life(times)	Mechanical	4500	5000	3000	2000	2000	2500	2500
	Electrical	1500	1000	1000	1000	1000	500	500
Pole No.		3, 4						
Operating cycles(S/times)		30S		60S				
Switching time		0~99S						

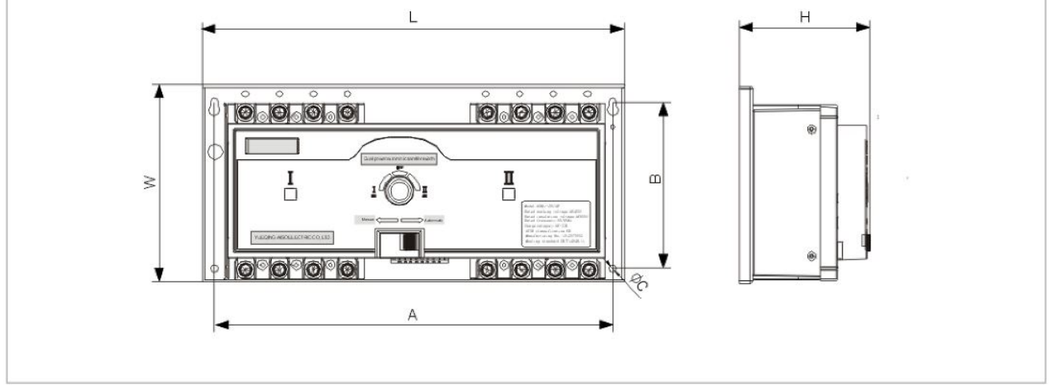
◆ Overall and Installation dimension

1. The switch body, overall dimension and installation dimension



● Integration type overall and installation dimension

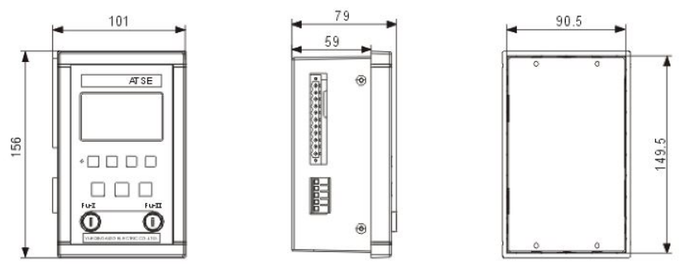
Model \ Dimension / Pole No.		Overall dimension(mm) L	W	H	Installation dimension(mm) A	B	ϕC
ASQ1-63	3P	390	157	130	370	130	5.5
	4P	415			395		
ASQ1-100	3P	442	174	115	422	147	6.5
	4P	472			452		
ASQ1-225	3P	481	189	135	461	162	6.5
	4P	516			496		
ASQ1-400	3P	608	282	195	582	252	8
	4P	655			629		
ASQ1-630	3P	685	295	200	659	264.5	8
	4P	742			716		
ASQ1-800	3P	713	305	190	689	274.5	10
	4P	836			812		
ASQ1-1250	3P	713	358	240	689	328	10
	4P	836			812		
ASQ1-1600	3P	713	475	240	689	350	10
	4P	836			812		



● Split type, terminal type overall and installation dimension

Model \ Dimension / Pole No.		Overall dimension(mm) L	W	H	Installation dimension(mm) A	B	ϕC
ASQ1-63	3P	285	157	130	265	130	5.5
	4P	310			290		
ASQ1-100	3P	337	174	115	317	147	6.5
	4P	367			347		
ASQ1-225	3P	376	189	135	356	162	6.5
	4P	411			391		
ASQ1-400	3P	503	282	195	479	252	8
	4P	550			524		
ASQ1-630	3P	584	295	200	558	264.5	8
	4P	641			615		
ASQ1-800	3P	616	305	190	592	274.5	10
	4P	743			719		
ASQ1-1250	3P	616	358	240	592	328	10
	4P	743			719		
ASQ1-1600	3P	616	475	240	592	350	10
	4P	743			719		

2. Overall dimension and hole size of intelligent controller



Overall dimension　Overall dimension(thickness)　Hole size

ASQ5

Dual power automatic transfer switch (Isolation type)

◆ General

Control device: built-in controller
Product structure: small size, high current, simple structure, ATS integration
Features: fast switching speed, low failure rate, convenient maintenance, reliable performance
Connection: front connection
Conversion mode: power on the grid, grid generator, auto-charge & auto- recovery
Frame current: 100, 160, 250, 400, 630, 800, 1250, 1600, 2500, 3200
Product current: 20, 32, 40, 63, 80, 100, 125, 160, 200, 225, 250, 315, 400, 500, 630, 800, 1000, 1250, 1600, 2000, 2500, 3200A
Product classification: load switch type
Pole No.: 2, 3, 4
Standard: GB/T14048.11
ATSE: PC class

◆ Performance and features

- Adopt double row composite contact, horizontal pulling mechanism, micro-machine pre-stored energy and micro electronic control technology, basically realize zero flashover (no arc extinguishing chamber).
- Adopt reliable mechanical interlock and electrical interlock, the executive component adopts independent load-disconnector switch, safe and reliable use.
- Adopt current-zero position technology, under emergency situations, it can be forced to zero setting (cut off two power supply at the same time), meet the needs of fire control linkage.
- The swithover of execution load isolating switch is driven by the single motor, the switchover is stable and reliable, without noise, small impact force.
- The current only passes through the manipulator d riving motor at the moment when the execution load-disconnector switch is switched on, no need to provide working current in steady operation, significantly save energy.
- The execution load-disconnector switch is equipped with a mechanical interlock device to ensure that the common and standby power supply work reliably without interference.
- Own obvious the on-off position indicating and padlock functions, which reliably achieves isolation between the power supply and the load.
- Good safety performance, high degree of automation, high reliability, its service life is more than 8000 times.
- Mechanical-electrical integration design, the switch is accurate, flexible and smooth; use international advanced logic control technology; strong anti-interference ability, external interference free.
- Three kinds of stable work (I-O-II): the main power supply closes, standby power supply opens; the main power supply opens, standby power supply closes; the main power supply and standby power supply both opens.
- Easy to install, the control circuit adopts the plug-in terminal connection.
- Four kinds of operating functions: emergency manual operation, electric remote control operation, emergency disconnection operation in automatic control state and automatic control operation.

◆ Control characteristics

1. Basic type: main-standby power supply, automatic charge and automatic recovery.
- I type: electric power-electric power(full-automatic);
- II type: full-automatic, force "0", remote control, with generator.

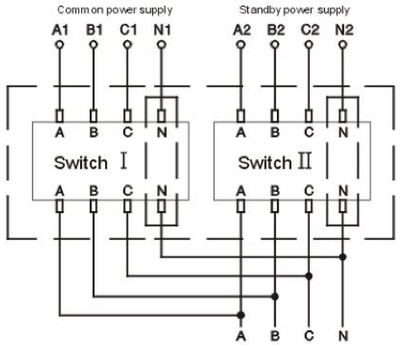
2. Basic type switch control characteristics:
Apply to the main and standby systems of two power sources, automatic charge and automatic recovery;
Can be externally connected to expand the function.

◆ Main technical parameters

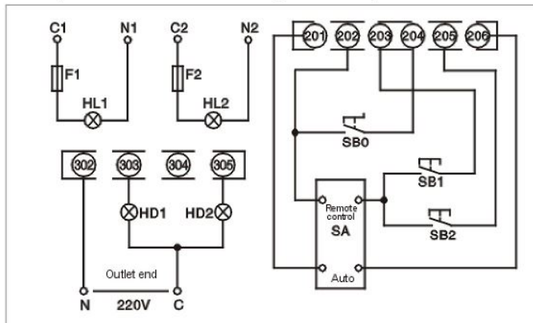
Item	Model	ASQ5 -100	ASQ5 -160	ASQ5 -250	ASQ5 -400	ASQ5 -630	ASQ5 -800	ASQ5 -1250	ASQ5 -1600	ASQ5 -2500	ASQ5 -3200
Usage category		AC-33iB									
Rated working voltage Ue		AC400V	AC380V	AC380V	AC400V	AC400V	AC400V	AC400V		AC400V	
Rated insulation voltage Ui		690V	690V	690V	690V	690V	690V	690V		690V	
Rated impulse withstand voltage Uimp		6kV	6kV	6kV	6kV	6kV	8kV	6kV		8kV	
Rated short-time withstand current Icw		10kA	-	-	20kA	20kA	30kA	-		-	
Service life(times)	Mechanical	4500	5000	5000	3000	2000	2500	2500		1500	
	Electrical	1500	1000	1000	1000	1000	500	500		500	
Pole No.		3, 4									
Operating cycles(S/times)		30S				60S					
Switching time		0 ~ 99S									

◆ Wiring methods of switch

1. Main circuit wiring



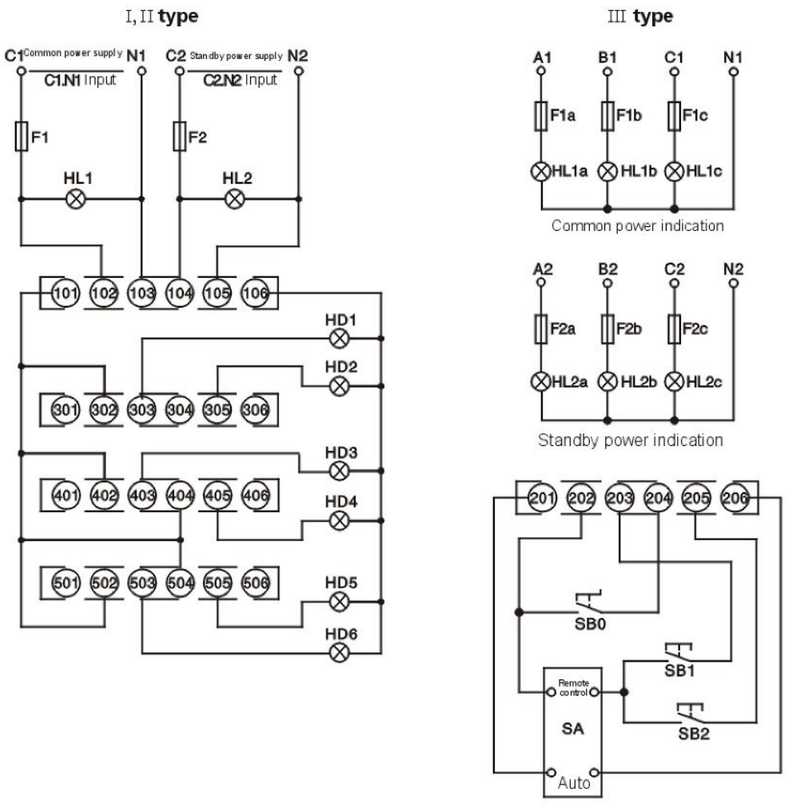
2. ASQ5-16 ~ 100A full-automatic, force "0", remote control wiring



F1-2: (2A)Fuse
HL1: The common power supply with electrical indication
HL2: The standby power supply with electrical indication
HD1: The common power supply input instruction
HD2: The standby power supply input instruction
SA: Functional transfer switch
SB0: Forced "0" self locking button
SB1: The common power supply input button
SB2: The standby power supply input button

1) Only I and II switches are provided under 100A.
2) HD1-2 and HL1-2 indicator lamps can be selected according to the needs.
3) The inside of switch has been connected to the common power supply C1.N1 and the stand by power C2.N2.
4) The inside of the I type (fully automatic) switch has 201 and 206 short connections, so there are no 201-206 terminals.
5) The 201-206 terminal of the II type switch can choose the corresponding function connection according to the need.

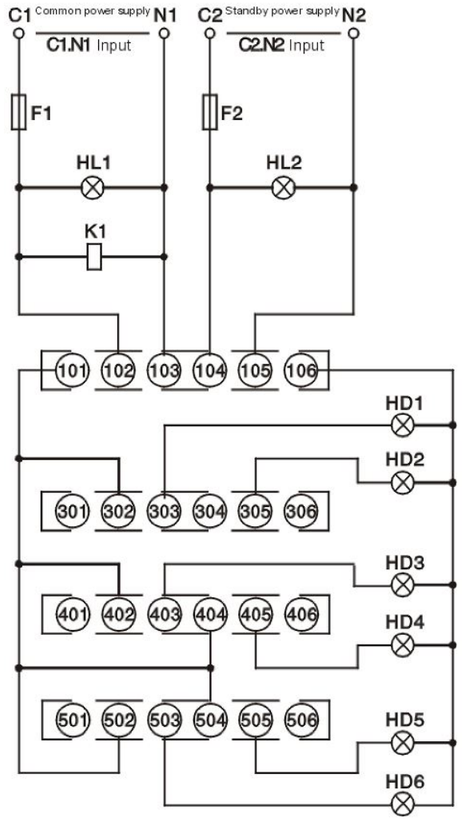
3. ASQ5-125 ~ 630A full-automatic, force "0", remote control wiring

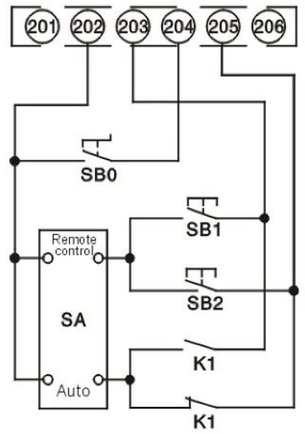


1) HD1-6 and HL1-2 indicator lamps can be selected according to the needs.
2) The 401-406 and 501-506 terminals are only above 400A.
3) 101 and 106 is the indicator light power supply for switching output, of which 106 is a fire line.
4) The 201 and 206 I type(fully automatic) switches have short connection when they come out of the factory.
5) The 201-206 terminal of the II and III type switch can choose the corresponding function connection according to the need.
6) The III switch has been connected to the three-phase power supply, and 102-105 can not be connected to the power supply. Only the 103 of the three pole switch connects the zero line N1 of common power supply, and the 105 connects the zero line N2 of standby power supply.

HD1: The common power supply input instruction
HD2: The standby power supply input instruction
HD3: The common power supply prejudge breaking-off indication
HD4: The standby power supply prejudge breaking-off indication
HD5: Mechanical padlock on / off indication
HD6: Electrical padlock on / off indication
SA: Functional transfer switch
SB0: Forced "0" self locking button
SB1: The common power supply input button
SB2: The standby power supply input button
F1-2: (2A)Fuse
HL1: The common power supply with electrical indication
HL2: The common power supply with electrical indication

4. ASQ5-1000 ~ 3200A full-automatic, force "0", remote control wiring



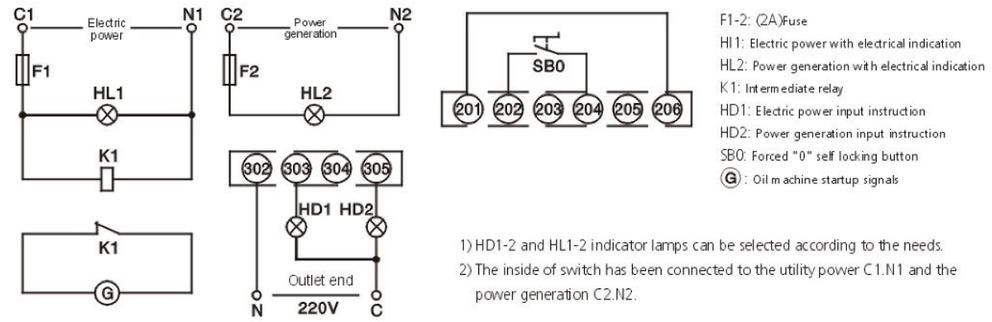


SA: Functional transfer switch
SB0: Forced "0" self locking button
SB1: The common power supply input button
SB2: The standby power supply input button
F1-2: (2A)Fuse
HL1: The common power supply with electrical indication
HL2: The common power supply with electrical indication

HD1: The common power supply input instruction
HD2: The standby power supply input instruction
HD3: The common power supply prejudge breaking-off indication
HD4: The standby power supply prejudge breaking-off indication
HD5: Mechanical padlock on / off indication
HD6: Electrical padlock on / off indication
K1: Intermediate relay

1) Over 1000A only provides II switch.
2) HD1-6 and HL1-2 indicator lamps can be selected according to the needs.
3) 101 and 106 is the indicator light power supply for switching output, of which 106 is a fire line.
4) The 201-206 terminal can choose the corresponding function connection according to the need.
5) The K1 relay is used only when it is fully automatic.

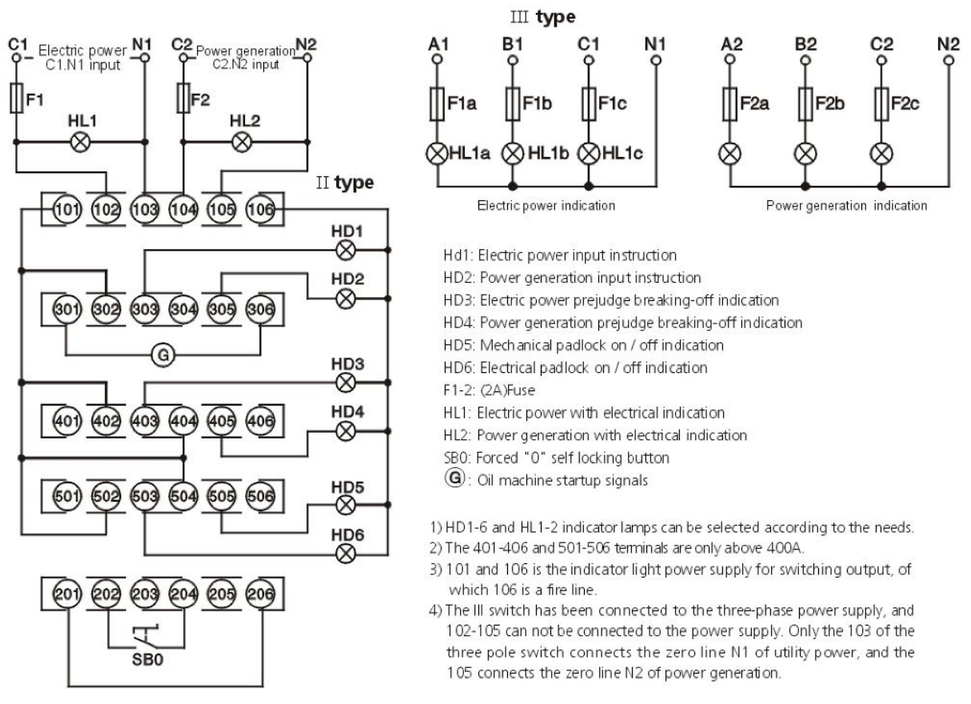
5. ASQ5-16 ~ 100A wiring with generator



F1-2: (2A)Fuse
HI1: Electric power with electrical indication
HL2: Power generation with electrical indication
K1: Intermediate relay
HD1: Electric power input instruction
HD2: Power generation input instruction
SB0: Forced "0" self locking button
Ⓖ: Oil machine startup signals

1) HD1-2 and HL1-2 indicator lamps can be selected according to the needs.
2) The inside of switch has been connected to the utility power C1.N1 and the power generation C2.N2.

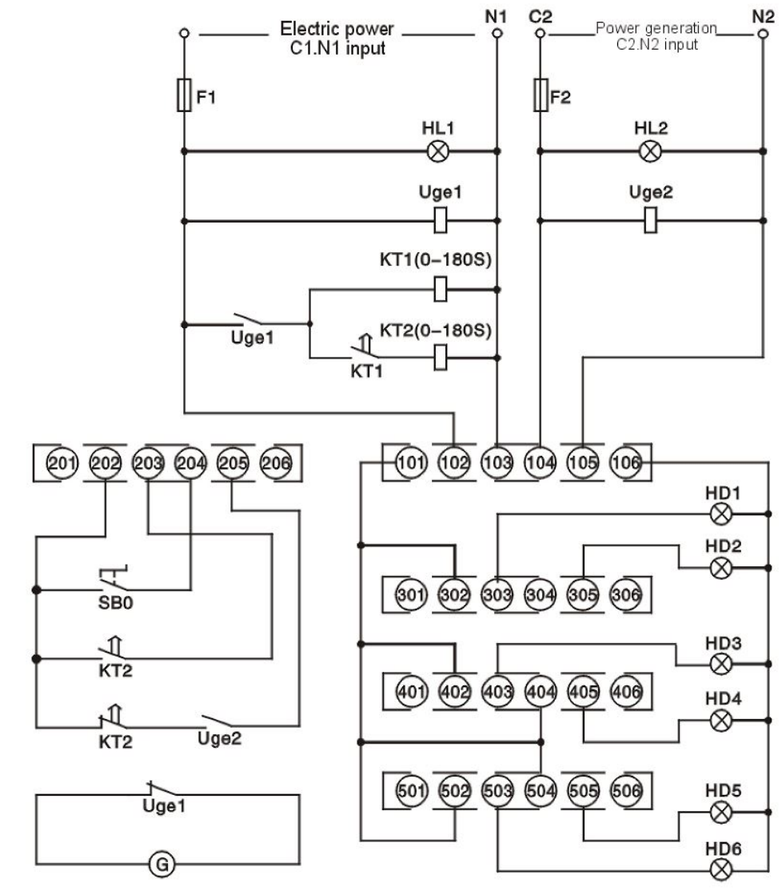
6. ASQ5-125 ~ 630A wiring with generator



Hd1: Electric power input instruction
HD2: Power generation input instruction
HD3: Electric power prejudge breaking-off indication
HD4: Power generation prejudge breaking-off indication
HD5: Mechanical padlock on / off indication
HD6: Electrical padlock on / off indication
F1-2: (2A)Fuse
HL1: Electric power with electrical indication
HL2: Power generation with electrical indication
SB0: Forced "0" self locking button
Ⓖ: Oil machine startup signals

1) HD1-6 and HL1-2 indicator lamps can be selected according to the needs.
2) The 401-406 and 501-506 terminals are only above 400A.
3) 101 and 106 is the indicator light power supply for switching output, of which 106 is a fire line.
4) The III switch has been connected to the three-phase power supply, and 102-105 can not be connected to the power supply. Only the 103 of the three pole switch connects the zero line N1 of utility power, and the 105 connects the zero line N2 of power generation.

7. ASQ5-1000 ~ 3200A wiring with generator

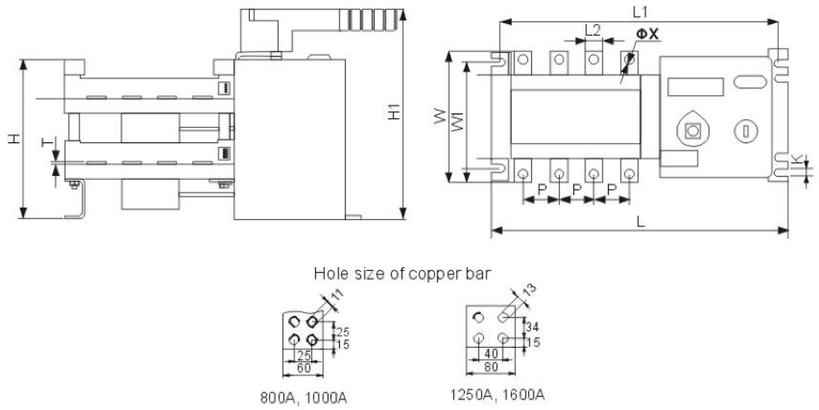


F1-2: (2A)Fuse
HI1: Electric power with electrical indication
HL2: Power generation with electrical indication
Uge1: Voltage relay
Uge2: Voltage relay
KT1: Electrified delay relay
KT2: Power off delay relay
SB0: Forced "0" self locking button
Ⓖ: Oil machine startup signals

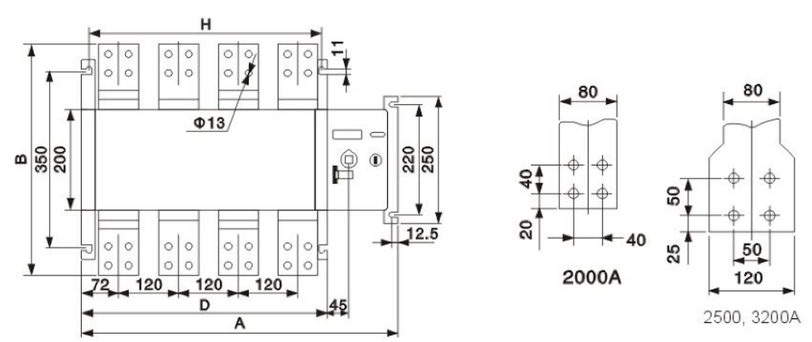
HD1: Electric power input instruction
HD2: Power generation input instruction
HD3: Electric power prejudge breaking-off indication
HD4: Power generation prejudge breaking-off indication
HD5: Mechanical padlock on / off indication
Hd6: Electrical padlock on / off indication

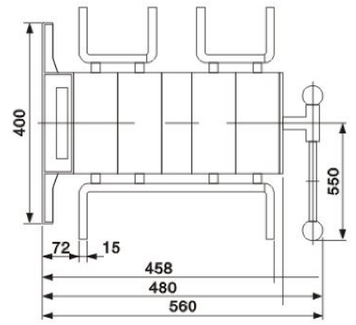
1) HD1-6 and HL1-2 indicator lamps can be selected according to the needs.
2) 101 and 106 is the indicator light power supply for switching output, of which 106 is a fire line.
3) The Uge1, Uge2, KT1, KT2 of relay asks the user to prepare itself,

Overall and Installation dimension



Model	Overall dimension				Installation dimension			Copper bar dimension			
	L	W	H	H1	L1	W1	K	L2	T	ΦX	P
ASQ5-100/4	245	112	117	175	225	85	6.5	14	2.5	6.2	30
ASQ5-160/4	298	150	160	225	275	103	7	20	3.5	9	36
ASQ5-250/4	363	176	180	240	343	108	7	25	3.5	11	50
ASQ5-400/4	435	260	240	320	415	180	9	32	5	11	65
ASQ5-630/4	435	260	240	320	415	180	9	40	6	12.2	65
ASQ5-800,1000/4	635	344	300	370	610	220	11	60	8	11	120
ASQ5-1250/4	635	368	300	370	610	220	11	80	8	13	120
ASQ5-1600/4	635	368	300	370	610	220	11	80	10	13	120



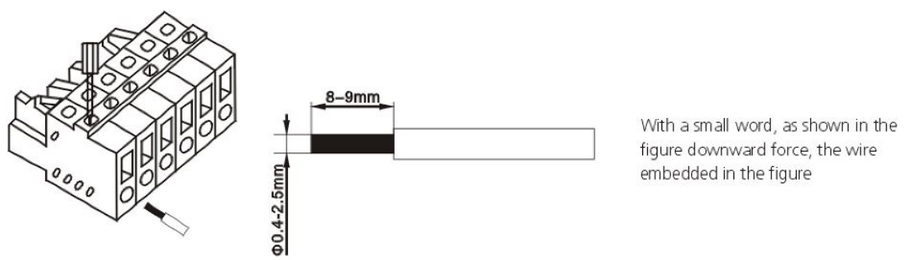


Model	A	B	D	H
ASQ5-2000/4	640	460	498	470
ASQ5-2500/4	640	460	498	470
ASQ5-3200/4	640	510	498	470

Switch debugging instructions

1. When using the operation handle, the switch is operated repeatedly for three times. The switch should be operated flexibly.
2. Automatic debugging: connecting the corresponding line according to wiring diagram, reopen the electrical lock after confirmation, and then connect the dual power supply, the switch is turned to the "I" file. Then again disconnect the common power supply, the switch is turned to the "II" file; then through the common power supply, the switch should be returned to the "I" file.
3. Forced "0" debugging: in any case, start the forced "0" self locking button, the switch should be turned to the "0" file.
4. Remote control debugging: starting the "I" button, the switch should go to the "I" file; starting the "II" button, the switch should be turned to the "II" file.
5. Detection signal indicator: when the common / standby power is on / off, when the switch "I / II" is on / off, when the electrical / padlock is on / off, all the signal lights should be directed accordingly.
6. After the debugging, please turn off the power first, then the switch is turned to the "0" by handle.

Terminal connection operation instructions



ASQ

Dual power automatic transfer switch (two sections, three sections)

◆ General

Control device: LCD controller
Product structure: small size, high current, simple structure, ATS integration
Features: fast switching speed, low failure rate, convenient maintenance, reliable performance(with automatic switching time can be adjusted, 1s~99s)
Connection: front connection(63, 125, 250, 630); rear connection(800, 1250, 2000, 2500)
Conversion mode: power on the grid, grid generator, auto-charge & auto-recovery, auto-charge & non-auto-recovery and mutual standby
Frame current: 63, 125, 250, 630, 800, 1250, 2000, 2500
Product current: 20, 32, 40, 50, 63, 80, 100, 125, 160, 200, 225, 250, 315, 350, 400, 500, 630, 800, 1000, 1250, 1600, 2000, 2500A
Product classification: two sections without double-break position, three sections with intermediate double-break position
Pole No.: 2, 3, 4
Standard: GB/T14048.11
ATSE: PC class

◆ Model and meaning

AS Q - □ / □P - □

- □: two sections; □: three sections
  - □(Split type)
  - □T(Split type communication module, RS485 interface)
- P: Pole No.
- Rated current(A)
- Dual power automatic transfer switch
- Enterprise code

Note: 1. Three sections type controller, its standard configuration have fire-fighting linkage (constant voltage DC24V and automatic generation) function.
2. Two sections type standard is no fire-fighting, automatic generation power, if necessary, ordering further notice.

◆ Product panel description

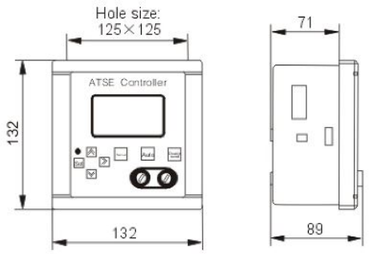
① Nameplate
② Manual switch-on handle
③ Double breaking button
④ Main and standby power selecting button
⑤ Main and standby power on-off indicator
⑥ Main circuit terminal of main power supply (I) side
⑦ Clear up arc room
⑧ Auxiliary switch
⑨ Main circuit terminal of standby power supply (II) side
⑩ Power sampling signal output port
⑪ Main circuit terminal of load side
⑫ Closing coil
⑬ Earthing terminal
⑭ Signal connection port

◆ Technical requirement

- In the automatic, when the common power supply, under-voltage, over-voltage, loss of pressure transferred to the standby power supply. When the standby power appeared in the same failure, converted to double position, display screen will display and alarm automatically at the same time.
- LCD screen is protecting in the 30s, on the button for the first time display screen will display, the second time can enter the settings, enter setup requires a password input.
- When the artificial set garbled (crash), the reset button reset to set the value of silence.
- When the controller is arranged in the automatic, manual position, pressing the control panel double key display double, but not alarm.
- The controller sets delay switching time, when there is a power failure recovery in the value set, dual power supply without switching, opposite, and switching.

◆ Intelligent controller settings

1. LCD display
2. The original factory reset button
3. Set key
4. Digital "+" key
5. Digital "-" key
6. Right shift key
7. Manual key
8. Automatic key
9. Double bond key
10. The insurance holder of common power supply
11. The insurance holder of standby power supply

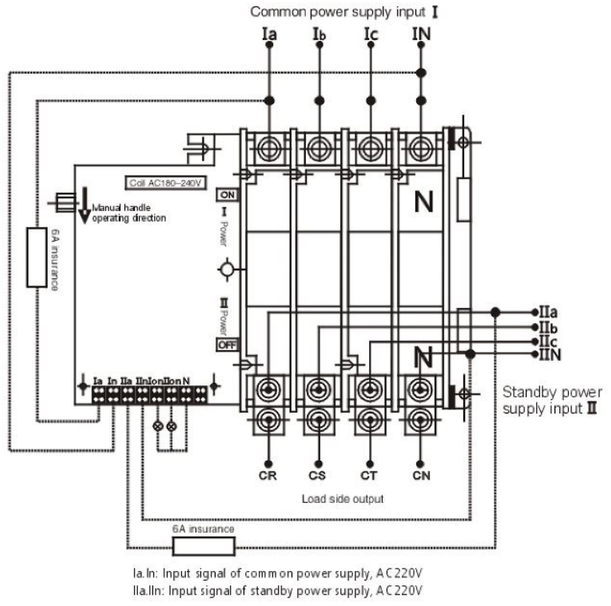


Overall dimension and hole size of intelligent controller

Main technical parameters

Item \ Model		ASQ -63	ASQ -125	ASQ -250	ASQ -630	ASQ -800	ASQ -1250	ASQ -1600	ASQ -2500
Usage category		AC-33B				AC-33iB			
Rated working voltage Ue		AC400V							
Rated insulation voltage Ui		690V							
Rated impulse withstand voltage Uimp		6kV	6kV	8kV	6kV	8kV	8kV	8kV	8kV
Rated limiting short circuit current Iq		/	/	/	50kA	65kA	65kA	65kA	65kA
Rated short circuit making capacity Icm		7.65kA	17kA	17kA	/	/	/	/	/
Service life(times)	Mechanical	4500	5000	5000	2000	2500	2500	2500	2500
	Electrical	1500	1000	1000	1000	500	500	500	500
Pole No.		2	2	2	/	/	/	/	/
		3	3	3	3	3	3	3	3
		4	4	4	4	4	4	/	/
Operating cycles(S/times)		30S				60S			
Switching time		0~99S							

The wiring drawing of standard two sections and working state



Note:

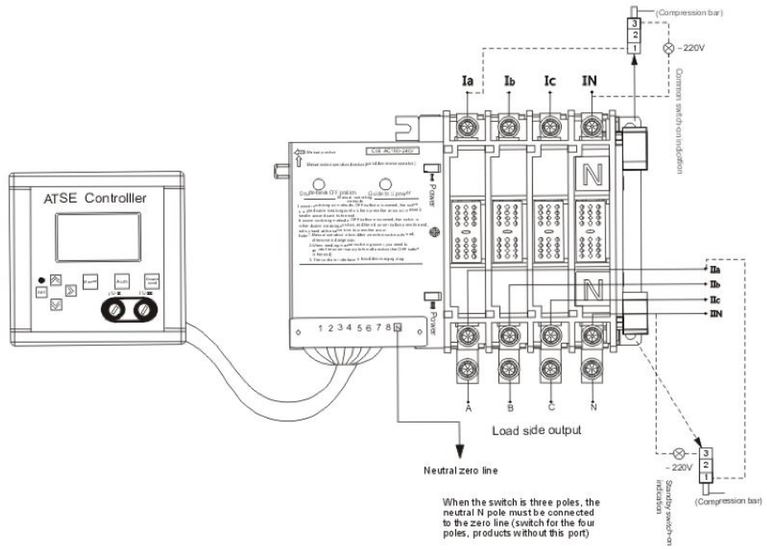
①The dashed part is connected by the user; Ion and N are common closing indicator lights, IIon and N are standby closing indicator lights, Ion, IIon, respectively, and N are active (AC220V) outputs.

②As in the dashed part customers have special requirements, it can be customized to the manufacturer.

③No manual operation when there is power supply. When manual operating, handle down pressure and power conversion once.

Ia.In: Input signal of common power supply, AC220V
IIa.IIn: Input signal of standby power supply, AC220V

The wiring drawing of standard three sections and working state



The wiring drawing of standard three sections and working state

Company guarantee the switching performance of products electric operation, but for manual operation because of the individual differences, opening and closing force, speed is different, so can not guarantee. Opening and closing or opening and closing with load in manual operation function, the contact point will have to produce. Such as the need for manual please apply in the following cases, other occasions avoid manual operation.

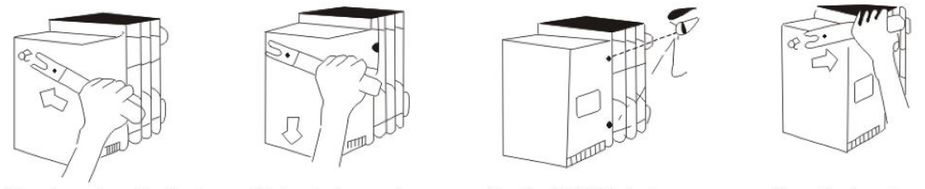
◎Safe without operating power.

◎Do the inspection of the operating mechanism, and the contact part.

◎When producing obstacles, it can't act.

Note: the manual operating power supply must be in the "OFF" case.

The input manner of ASQ two sections Ⅰ, Ⅱ power side



Manual operation of the front end of the handle shaft gap insert left operation shaft

The handle downwards, and can be put into Ⅰ, Ⅱ power cycle

View the ON / OFF indicator to confirm the input

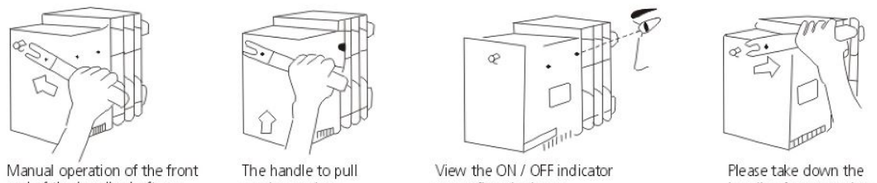
Please take down the handle after operation

◆ The input manner of ASQ three sections I, II power side

Artificial jump method

Remove the handle for manual operation state, the screwdriver insert left TRIP hole jumping and can go to the internal pressure (please confirm whether the switch by ON/OFF indicator jump)

The manner of I power input



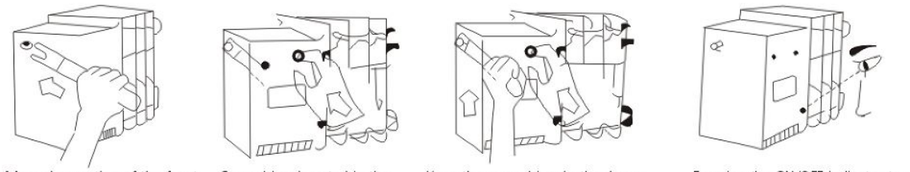
Manual operation of the front end of the handle shaft gap insert left operation shaft

The handle to pull can be put into

View the ON / OFF indicator to confirm the input

Please take down the handle after operation

The manner of II power input



Manual operation of the front end of the handle shaft gap insert left operation shaft

Screwdriver inserted in the right SELECT hole and to internal pressure

Keep the screwdriver in the down position, at the same time, manual handle to pull. It can be put into the II side switch

Examine the ON/OFF indicator to confirm the investment and take down the operating handle after operating

◆ The switch body, overall dimension, installation dimension

① ASQ-63 ~ 630A (before board installation) see Table 1

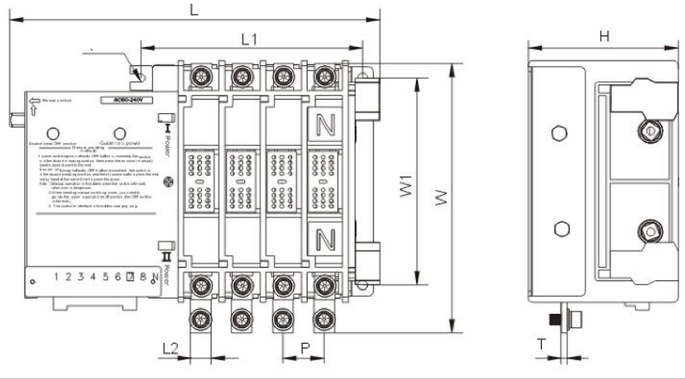


Table 1

Model	Overall dimension					Installation dimension					Copper bar dimension		
	L			W	H	L1			W1	3-Φ	L2	T	P
	2P	3P	4P			2P	3P	4P					
ASQ-63(Two sections)	159	173	205	193	112	88	110	132	152	Φ7	12	2	22
ASQ-63(Three sections)	196	210	242	193	112	88	110	132	152	Φ7	12	2	22
ASQ-125	216	246	276	193	112	103	133	163	152	Φ7	15	4	30
ASQ-250	228	263	298	193	112	113	150	185	152	Φ7	20	4	35
ASQ-630		350	410	290	132		224	290	200	Φ7	40	5	62

② ASQ-800 ~ 2500A(after board installation) see Table 2

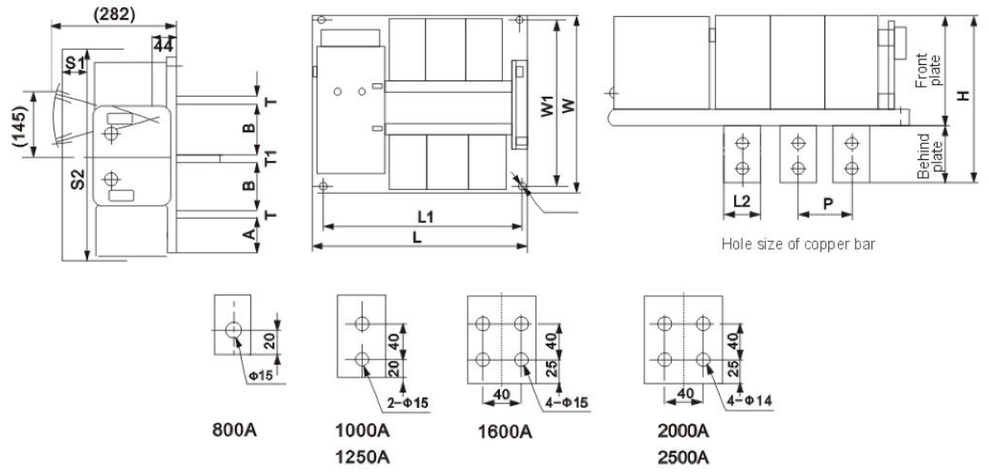


Table 2

Model	Overall dimension				Installation dimension						Copper bar dimension						
	L		W	H	L1		W1	4-Φ	Front plate	Behind plate	A	B	L2	T	T1	P	
	3P	4P			3P	4P										A, B Phase C, N Phase	B, C Phase
ASQ-800	405	470	390	210	373	438	358	Φ14	160	50	60	117	30	12	15	65	65
ASQ-1250	450	530	390	250	418	498	358	Φ14	160	90	58	117	50	12	15	80	80
ASQ-1600	509	610	390	255	477	578	358	Φ14	160	95	55	117	75	15	15	101	101
ASQ-2000	680	825	479	280	625	770	420	Φ14	170	110	100.5	117	100	15	15	145	160
ASQ-2500	680	825	479	280	625	770	420	Φ14	170	110	95.5	114.5	100	20	20	145	160

ASQ-G

Dual power automatic transfer switch (two sections, three sections)

◆ General

ASQ-G series automatic transfer switch uses patented technology developing, develops PC class power supply automatic transfer device for my company. The product is suitable for AC 50Hz-60Hz, rated working voltage 440V and below, rated current to 800A distribution or motor network main or mutual standby power conversion system, as not to frequent switching on, breaking circuit and circuit isolation in.

Products are widely used in fire fighting, hospital, bank, and other highrise buildings do not allow power transmission, power distribution and automation system in the important power supply place. For the domestic similar product upgrading products. Product design novel, beautiful appearance, small volume, complete functions, which is the best choice of similar products.

◆ Model and meaning

AS Q - □/□P - G□ □

- R-auto-charge & auto-recovery; S-auto-charge & non-auto-recovery
- G-basic type; M-handle type
- Pole No.
- Frame size rated current(A)
- Dual power automatic transfer switch
- Enterprise code

◆ Structure and performance characteristics

- Product is novel, beautiful, practical; small size, spacing is the same as most domestic low-voltage electrical components, convenient installation; Implementation of components is using independent isolation switch, usage is safe and reliable.
- Implementation of isolation switch is driven by AC motor, stable and reliable conversion, no noise, small impact force.
- The driving motor of the operator is only in the implementation of isolation switch moments through the current, no need to provide working current in the steady state operation, obvious energy saving. No temperature rise of fever, node welding and the coil burns phenomenon.
- Implementation of isolation switch with mechanical interlock, which normal and standby power supply reliable work, mutual non-interference.
- According to the requirements of the users may be provided for terminal controller with loss of pressure, phase control and basic controller with loss of pressure, phase control, under-voltage, delay control, also can increase the generator control, fire reset, feedback signal number of optional features, and strong anti-jamming capability.
- Three steady working states: normal power ON, standby power OFF; normal power OFF, standby power ON; normal power OFF, standby power OFF.
- Easy installation, control loop uses plug-in terminal connection; It is carrying on manual conversion and using handle special in the manual state.

◆ Main technical parameters

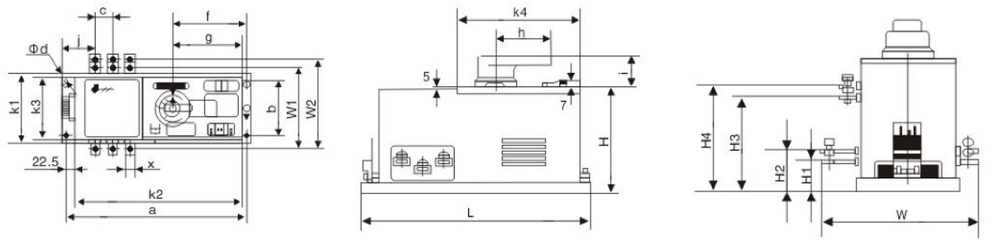
Model	ASQ-32/G ASQ-63/G ASQ-100/G	ASQ-125/G ASQ-160/G ASQ-200/G ASQ-250/G	ASQ-320/G ASQ-400/G	ASQ-500/G ASQ-630/G ASQ-800/G
Rated working voltage	380V			
Rated insulation voltage	750V			
Rated impulse withstand voltage	8000V	8000V	8000V	8000V
Rated short-time withstand current(Icw)effective value	5kA	10kA	10kA	16kA
Rated short circuit making capacity	1.7×5kA	1.7×10kA	1.7×10kA	32kA
Operating cycles	12	12	12	12
Mechanical life	10000	10000	10000	10000
Electrical life	5000	5000	3000	2500

◆ Controller function

G basic type: electric power-electric power type, suitable for two electric power main and standby system. When the main power supply circuit loss of pressure or under-voltage, phase failure and etc fault, switch automatically input standby power supply circuit (adjustable delay time); in the auto-charge & auto-recovery of the working state, when the main power supply circuit power supply back to normal, the switch will load automatically cast main power supply circuit (adjustable delay time). The controller can be set from auto-charge & non-auto-recovery and mutual standby function.

◆ Overall and Installation dimension

ASQ-32/G ASQ-63/G ASQ-100/G
ASQ-125/G ASQ-160/G ASQ-200/G ASQ-250/G

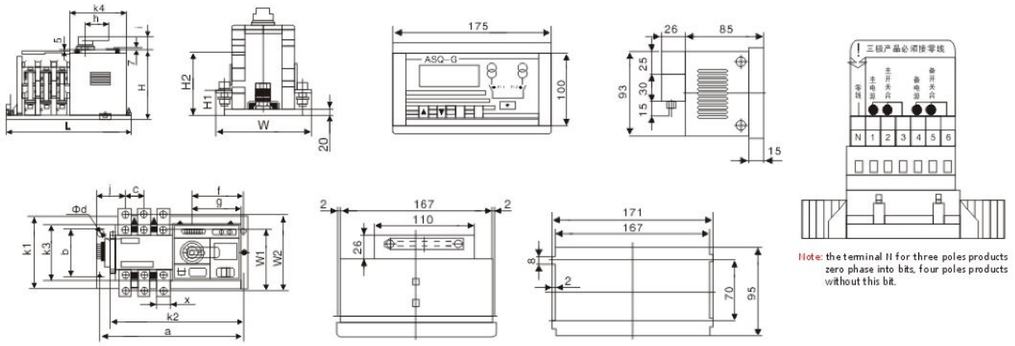


Unit(mm)

Model	L	W	W1	W2	H	H1	H2	H3	H4	a	b	c	Φd	f	g	h	i	j	x	k1	k2	k3	k4
ASQ-32/3(4)-G	330(360)	174	140	154	152	35	47	108	120	315(345)	95	30	5.5	128	121	65	47	59	16	120	290(320)	110	175
ASQ-63/3(4)-G	330(360)	174	140	154	152	35	47	108	120	315(345)	95	30	5.5	128	121	65	47	59	16	120	290(320)	110	175
ASQ-100/3(4)-G	330(360)	174	140	154	152	35	47	108	120	315(345)	95	30	5.5	128	121	65	47	59	16	120	290(320)	110	175
ASQ-125/3(4)-G	370(405)	205	170	185	167	42	57	111	126	355(390)	120	35	5.5	168	159	95	47	65	22	145	325(360)	135	200
ASQ-160/3(4)-G	370(405)	205	170	185	167	42	57	111	126	355(390)	120	35	5.5	168	159	95	47	65	22	145	325(360)	135	200
ASQ-200/3(4)-G	370(405)	205	170	185	167	42	57	111	126	355(390)	120	35	5.5	168	159	95	47	65	22	145	325(360)	135	200
ASQ-250/3(4)-G	370(405)	205	170	185	167	42	57	111	126	355(390)	120	35	5.5	168	159	95	47	65	22	145	325(360)	135	200

Note: h and i size is manual type (ASQ-G) switch handle assembly dimensions.

ASQ-320/G ASQ-400/G ASQ-500/G
ASQ-630/G ASQ-800/G



Note: the terminal N for three poles products zero phase into bits, four poles products without this bit.

Unit(mm)

Model	L	W	W1	W2	H	H1	H2	a	b	c	Φd	f	g	h	i	j	x	k1	k2	k3	k4
ASQ-320/3(4)-G	400(450)	230	160	200	227	60	153	380(430)	125	50	6.5	136.5	130	125	47	78	34	190	347(397)	150	180
ASQ-400/3(4)-G	400(450)	230	160	200	227	60	153	380(430)	125	50	6.5	136.5	130	125	47	78	34	190	247(397)	150	180
ASQ-500/3(4)-G	480(550)	294	209	254	260	65	175	455(525)	175	70	8.5	145.5	134	125	47	85	40	240	420(490)	150	200
ASQ-630/3(4)-G	480(550)	294	209	254	260	65	175	455(525)	175	70	8.5	145.5	134	125	47	85	40	240	420(490)	150	200
ASQ-800/3(4)-G	480(550)	294	209	254	260	65	175	455(525)	175	70	8.5	145.5	134	125	47	85	40	240	420(490)	150	200

Note: h and i size is manual type (ASQ-G) switch handle assembly dimensions.

CN Aiso

LOAD ISOLATION SWITCH

YUEQING AISO ELECTRIC CO.,LTD.
www.aisoelectric.com

ASGL-II(WG)

Load isolation switch

General

ASGL-II(WG) series load isolation switch is suitable for AC 50Hz, rated voltage 280V and below, rated current to 1600A distribution or motor networks as not frequent making and breaking circuit and circuit isolation.

Products are widely used in construction, power, chemical industry and power transmission and distribution automation system. It is the domestic similar product upgrading products.

Product design novel, beautiful appearance, small volume, complete functions, which is the best choice of similar products.

Products derived are operating outside the cabinet, rear connection, PC class automatic switch (ASQ-G) and other forms of products.

Model and meaning

AS GL - □ / □ □ W B

- B: rear connection; front connection no code
- W: operation outside the cabinet; positive operation without code
- Rated current(A)
- Pole No.: 3 or 4
- Isolation products shell frame model
- Load isolation switch code
- Enterprise code

Note: Conventional thermal current: 100, 160, 250, 400, 630, 800, 1000, 1250, 1600A

Normal working conditions

- The ambient temperature shall not exceed 40℃, and not less than -5℃, daily 24h average not exceeds +35℃.
- Altitude is not more than 2000m.
- Pollution grade: III, which is stipulated in the terms of the GB14048 standard for the industrial environment.
- Max.temperature is 40℃, relative humidity shall not exceed 50%; at lower temperature, higher humidity is allowed, for example at 20℃, relative humidity is 90%.
- The mounting site shall have no explosive risk, or other medium not enough to corrode the metal or damage the insulation, or no conductive dusts.
- The place is no rain erosion.

Conform to standard

- GB/T14048.1-2000《Low-voltage switchgear and control equipment General rules》
- GB14048.3-2008《Low-voltage switchgear and control equipment Part 3: Switch, isolator, isolating switch and fuse electrical appliance》
- IEC60947-1:1999《Low-voltage switchgear and control equipment Part 1: general rules》
- IEC60947-3:2001(2 edition)《Low-voltage switchgear and control equipment Part 3: Switch, isolator, isolating switch and fuse combined electrical appliance》

Main technical parameters

Model		ASGL-100-II	ASGL-160-II	ASGL-250-II	ASGL-400-II
Pole No.		3, 4	3, 4	3, 4	3, 4
Rated working voltage Ue(V) 50Hz		380	380	380	380
Rated insulation voltage Ui(V)		800	800	800	800
Rated impulse withstand voltage Uimp(kV)		6	6	6	12
Rated short-time withstand current Icw(effective value) 1s		10kA	10kA	9kA	20kA
Rated short circuit making capacityIcm(peak value)		17kA	17kA	24kA	40kA
Service life	Mechanical	8500	7000	7000	4000
	Electrical AC50Hz 1.0Ie 1.05Ue cos ⩽0.8 t>0.05s	1500	1000	1000	1000
Operating cycles Times/h		120	120	120	60
Operating torque F (N)		78	86.7	86.7	134

Model		ASGL-630-II	ASGL-800-II	ASGL-1000-II	ASGL-1250-II	ASGL-1600-II
Pole No.		3, 4	3, 4	3, 4	3, 4	3, 4
Rated working voltage Ue(V) 50Hz		380	380	380	380	380
Rated insulation voltage Ui(V)		800	800	800	800	800
Rated impulse withstand voltage Uimp(kV)		12	12	15	15	15
Rated short-time withstand current Icw(effective value) 1s		20kA	20kA	20kA	20kA	20kA
Rated short circuit making capacityIcm(peak value)		40kA	40kA	40kA	40kA	40kA
Service life	Mechanical	2500	2500	2500	2500	2500
	Electrical AC50Hz 1.0Ie 1.05Ue cos ⩽0.8 t>0.05s	500	500	500	500	500
Operating cycles Times/h		20	20	20	20	20
Operating torque F (N)		142	142	480	480	480

Electrical parameters are determined by the IEC 60947-1/IEC 60947-3 and GB14048.1/GB14048.3

Overall and installation dimension

● **Overall and installation dimension of front connection**

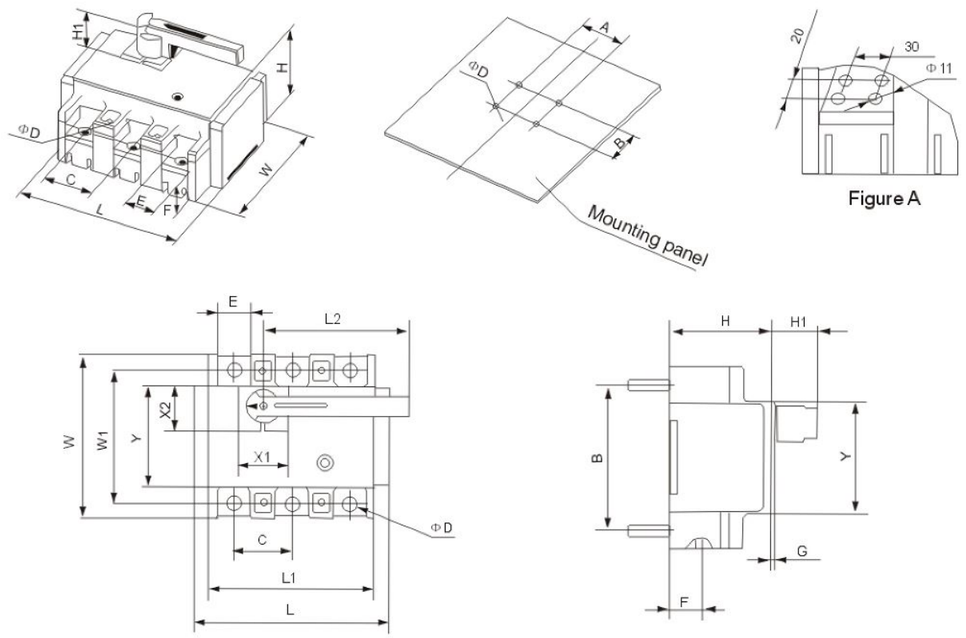
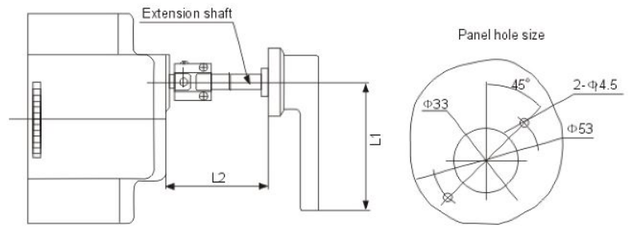


Figure A

Model	Overall dimension												Installation dimension					
	L(3P/4P)	L1(3P/4P)	L2	H	H1	W	W1	C	ΦD	Y	X1	X2	A(3P/4P)	B	Φd	E	F	G
ASGL-100-II	109/139	90/120	70	62	28.5	90	74	30	6.5	56	40	28	30/60	75	4.2	16	23	5
ASGL-160-II	132/167	105/140	105	64	51	110	90	35	8.5	70	56	45	35/70	90	4.2	22	24	5
ASGL-250-II	132/167	105/140	105	64	51	110	90	35	8.5	70	56	45	35/70	90	4.2	22	25	5
ASGL-400-II	180/230	150/200	130	93	51	150	120	50	11	90	56	52.5	50/100	120	5.2	34	40	5
ASGL-630-II	240/310	200/270	150	110	51	200	160	70	17	124	56	52.5	70/140	160	6.5	40	43	5
ASGL-800-II	240/310	200/270	150	110	51	200	160	70	17	124	56	52.5	70/140	160	6.5	40	44	5
ASGL-1000-II	340	270	180	179	64	290	220	90	Fig. A	170	100	75	90	210	10.5	60	75	5
ASGL-1250-II	340	270	180	179	64	290	220	90	Fig. A	170	100	75	90	210	10.5	60	75	5
ASGL-1600-II	340	270	180	179	64	290	220	90	Fig. A	170	100	75	90	210	10.5	60	78	5

● **Overall and installation dimension of operation outside the cabinet**

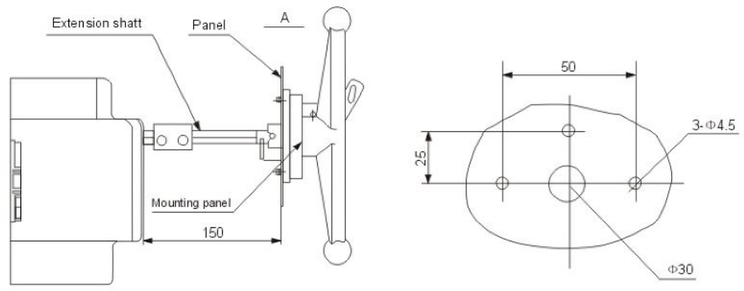


Unit: mm

Model	Size L1	Size L2
ASGL-II-100	65	150
ASGL-II-160~400	95	150
ASGL-II-630~800	125	150

Panel size of ASGL-II-100 ~ 800A/J operation outside the cabinet

Note: L2 size of extension shaft is 150(standard), if special length is required, please indicate it when ordering.



Panel size of SGL-II-1000 ~ 1600A/J operation outside the cabinet

Note: L2 size of extension shaft is 150(standard), if special length is required, please indicate it when ordering.

ASGL, ASGLZ

Load isolation switch

General

ASGL series load isolation switch is suitable for AC 50Hz, rated voltage 660V, DC rated voltage up to 440V, conventional thermal current up to 3200A in the power distribution equipment of industrial enterprise, to non-frequently make and break the circuit and electric isolating. It is widely used in the distribution system and automation system of architecture, electric power, petrochemical and other industries.

ASGLZ changeover load isolation switch is composed of two ASGL load isolation switch on or around and is arranged and stacked. It is suitable for dual power supply to switch or two load equipment to transform and security isolation.

The switch complies with standard of IEC60947-3, GB14048.3.

The switch has a good-looking outline and various functions, being very novel, simple and small dimensioned, which is the best choice among the similar products.

Model and meaning

AS GL □ - □ / □ J K □ B H

- H — Operation behind the cabinet, no letter if not required
- B — Rear wire connection, no letter for front connection
- K — Function code of auxiliary contacts (as show in the table), no letter if not required
- J — Function code of auxiliary contacts (as show in the table), no letter if not required
- □ — Operated outside the panel, no letter for operating inside panel
- □ — Pole No.: 3P, 4P(3P+on and off neutral pole)
- □ — Rated current
- Z — Z-changeover load isolation switch
- GL — Load isolation switch code
- AS — Enterprise code

One NO and One NC	11	1NO+1NC
Two NO and Two NC	22	2NO+2NC

Applicable example: rated current 630A, changeover load isolation switch with neutral line, operated outside panel: ASGLZ-630/4J.

Switch characteristics

The switch adopts modularized design and is suitable for making and breaking of electric circuit or electric isolation. Switches over 1000A are only suitable for electric isolation.

The operation mechanism is an elastic-accumulating acceleration mechanism for instant release, which makes instant on and off of the double breakpoint contact. It increases greatly various electric properties and mechanical properties.

The switch adopts glass fiber reinforced unsaturated polyester molding plastic and manual operating handle, with very high dielectric properties, protection and reliable operation safety.

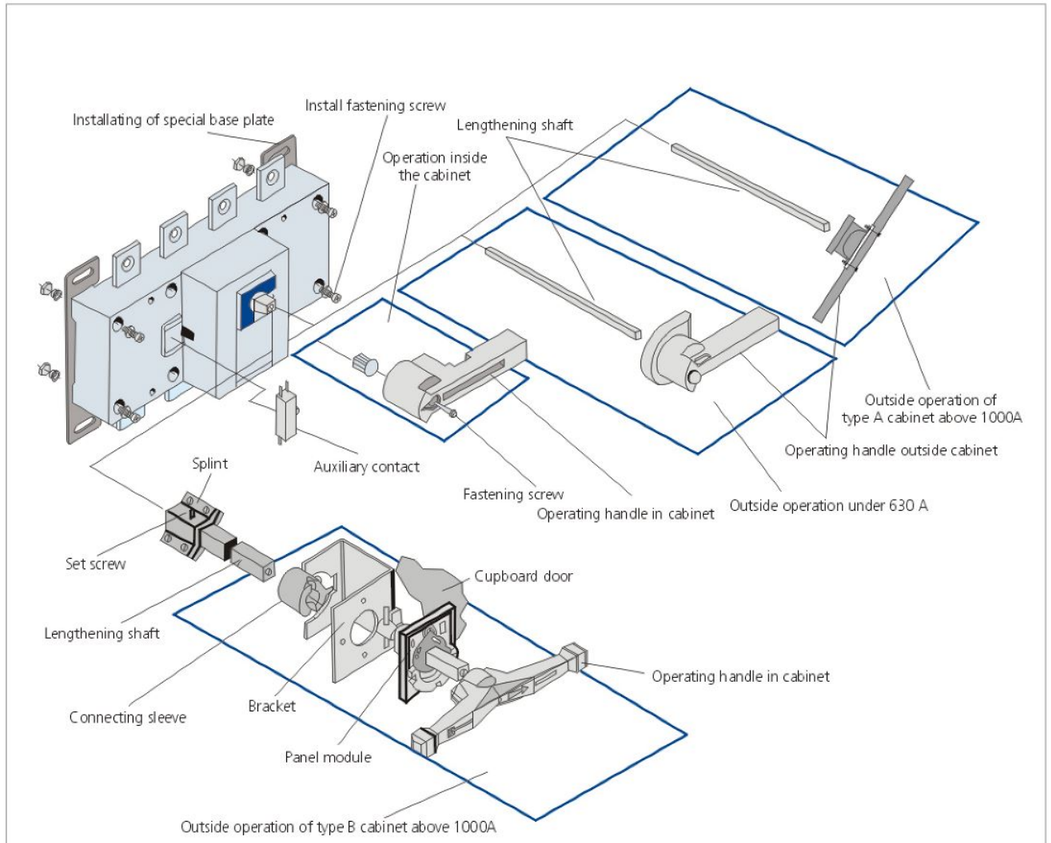
Switch has 3 poles, 4 poles (3P + on and off neutral pole).

Mark window is set in the front side to indicate the on and off state of the contact. Rear observation window can be provided according to the demand to observe directly the on and off state of the contact, to ensure the safety and reliability of switching operation.

The handle can be directly installed in the switch operation (referred to as the cabinet operation), can also be lengthened shaft in the power distribution cabinet door operation (referred to as the operating outside cabinet), provides convenient operation.

It can be normally open normally closed auxiliary contact and the installation of special plate and the plate before the board wiring way according to the needs, to meet the various needs of customers.

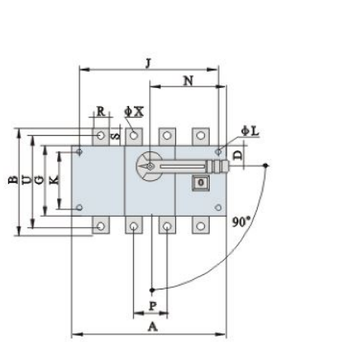
In the breaking position "0", can be used two to three to lock the handle, to prevent misoperation.



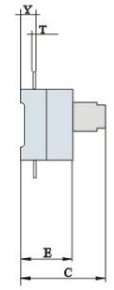
Main technical parameters

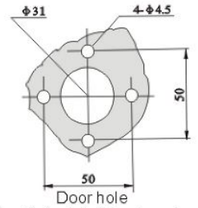
Conventional thermal current Ith(A)	100	160	250	400	630	1000	1600
Rated insulation voltage Ui(V)	800	800	800	800	800	1000	1000
Dielectric strength(V)	5000	5000	5000	8000	8000	8000	10000
Rated impulse withstand voltage Uimp kV (Mounting category IV)	8	8	6	12	12	12	12
Rated working current Ie(A)							
380V AC-21	100	160	250	400	630	1000	1600
AC-22	100	160	250	400	630	1000	1600
AC-23	100	160	250	340	536	800	1280
660V AC-21	100	160	200	400	500	1000	1600
AC-22	100	125	160	200	315	630	800
AC-23	50	63	80	125	125	400	500
220V DC-21	100	160	250	400	630	1000	1600
DC-22	100	160	250	400	500	1000	1250
DC-23	80	125	200	400	500	1000	1250
440V DC-21	80	125	200	400	500	1000	1250
DC-22	80	125	200	400	500	1000	1250
DC-23	80	125	200	400	500	1000	1000
Motor power P(kW)							
380V	45	55	75	110	110	365	500
660V	55	70	110	220	220	560	560
Overloading capacity							
Rated short-time withstand current Icw(kA Rms)0.1S/1.0S	20/10	20/10	25/9	30/20	50/20	90/50	90/50
Making and breaking capacity							
Rated making capacity(A Rms)AC-23 380V	1000	1000	1600	3200	3200	8000	8000
Rated breaking capacity(A Rms)AC-23 380V	1250	1250	2000	4000	4000	10000	10000
Rated short circuit making capacity Icm(kA peak value)	12	17	24	30	40	70	70
Mechanical life(operating cycles)	10000	10000	10000	5500	5500	4000	3000
Electrical life(operating cycles)							
Rated voltage Ue=660V Rated current Ie							
COSΦ=0.95 AC-21	1500	1500	1500	750	750	600	450
COSΦ=0.65 AC-22	1000	1000	1000	500	500	400	300
COSΦ=0.35 AC-23	500	500	500	250	250	200	150
Operation torque(N • m)	6.5	6.5	10	14.5	14.5	27	27
Weight(kg) 3P	1	1	2	3.5	4	10.5	16
4P	1.5	1.5	2.5	4	4.5	13	20

Overall and installation dimension of SGL-100A~630A

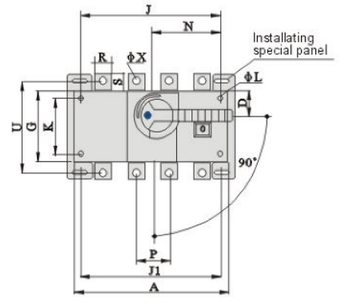


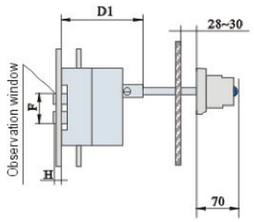
ASGL-100~630A operation inside the cabinet

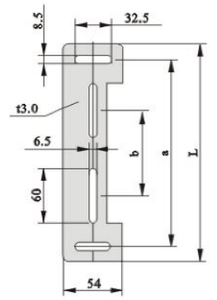




Door hole
630A and below installation dimension of handle outside the cabinet







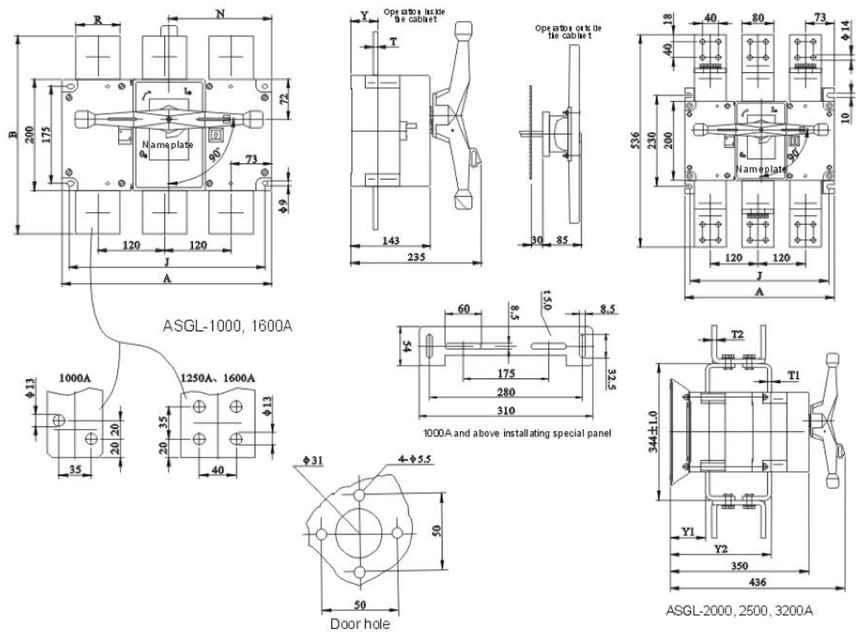
630A and below installating special panel

Spec.	Bottom plate dimension		
	L	a	b
ASGL-100~160	318	190	85
ASGL-250	345	220	110
ASGL-400~630	370	240	135

ASGL-100~630A/JK operation outside the cabinet

Spec.	Overall and Installation dimension																				
	A	B	C	D	D1	E	G	ΦL	J	J1	K	N	P	R	S	T	U	ΦX	Y	F	H
ASGL-100/3	140	135	125	27	92	73	85	5.5	120	120	65	85	36	20	25	3.5	115	9	25	59	10
ASGL-100/4	170	135	125	27	92	73	85	5.5	150	150	65	85	36	20	25	3.5	115	9	25	59	10
ASGL-160/3	140	135	125	27	92	73	85	5.5	120	120	65	85	36	20	25	3.5	115	9	25	59	10
ASGL-160/4	170	135	125	27	92	73	85	5.5	150	150	65	85	36	20	25	3.5	115	9	25	59	10
ASGL-250/3	180	170	136	35	98	84	110	5.5	160	160	90	115	50	25	30	3.5	140	11	25	76	15
ASGL-250/4	230	170	136	35	98	84	110	5.5	210	210	90	115	50	25	30	3.5	140	11	25	76	15
ASGL-400/3	230	240	190	50	135	118	160	7	210	210	140	145	65	32	40	5	206	11	37	94	20
ASGL-400/4	290	240	190	50	135	118	160	7	270	270	140	145	65	32	40	5	206	11	37	94	20
ASGL-630/3	230	260	190	50	135	118	160	7	210	210	140	145	65	40	50	6	220	13	37	94	20
ASGL-630/4	290	260	190	50	135	118	160	7	270	270	140	145	65	40	50	6	220	13	37	94	20

Overall and installation dimension of SGL-1000A~3200A



1000A and above B type installation dimension
of handle outside the cabinet

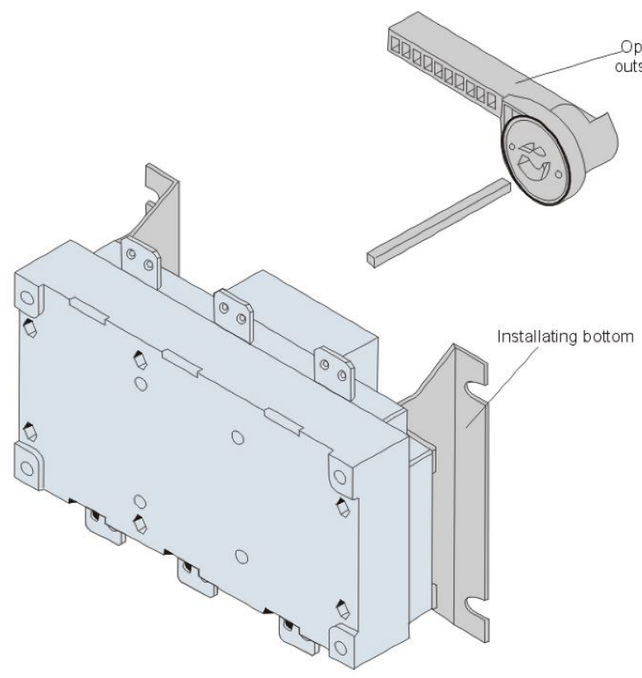
Spec.	A	B	J	N	R	T	Y
ASGL-1000/3	378	312	353	185	60	8	48
ASGL-1000/4	498	312	473	249	60	8	48
ASGL-1600/3	378	356	353	185	80	10	49
ASGL-1600/4	498	356	473	249	80	10	49

Spec.	A	J	T1	T2	Y1	Y2
ASGL-2000/3	378	350	8	12	90	255
ASGL-2000/4	498	470	8	12	90	255
ASGL-2500/3	378	350	8	12	90	255
ASGL-2500/4	498	470	8	12	90	255
ASGL-3200/3	378	350	10	14	89	256
ASGL-3200/4	498	470	10	14	89	256

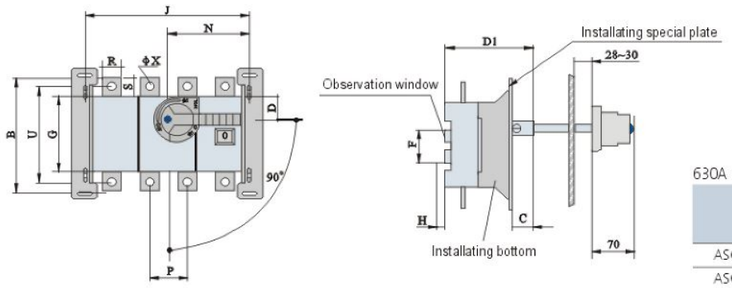
Switch characteristics

- 100A～630A is suitable for the making and breaking of electric circuit or electric isolation. Over in 1000A is only suitable for electric isolation.
- 100A～630A has 3 poles, 4 poles(3P + on and off neutral pole).
- Products below 630A with observation window can be provided according to the demand to directly the on and off state of contact.
- Two sets of auxiliary contacts is assembled according to the demand.
- Mechanical property and electrical property correspond to the mechanical property and electric property of SGL-100A～1600A.

Note: only provides operating outside cabinet products.



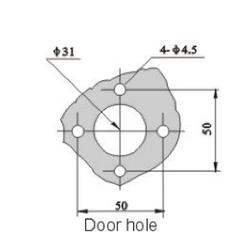
◆ Overall and installation dimension of SGL-100A~630A/H



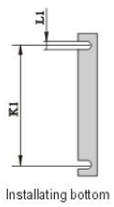
ASGL-100A~630A/JKH operation outside the cabinet

630A and below installating special plate

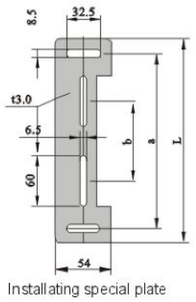
Spec.	Bottom plate dimension		
	L	a	b
ASGL-100~160	218	190	85
ASGL-250	245	220	110
ASGL-400~630	270	240	135



630A and below handle seat installation dimension outside the cabinet



Installating bottom

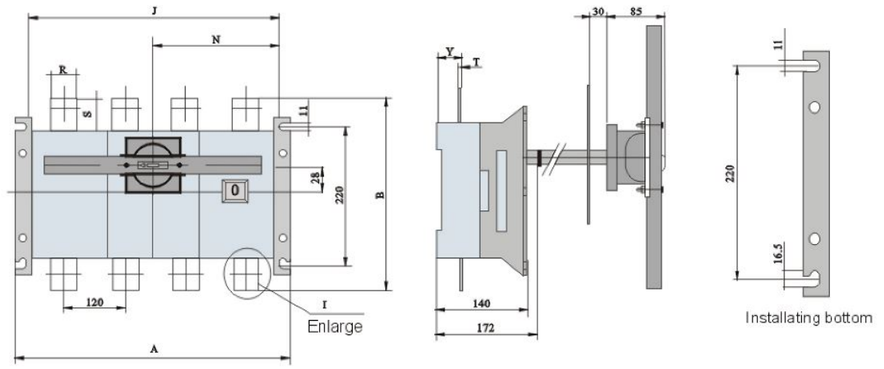


Installating special plate

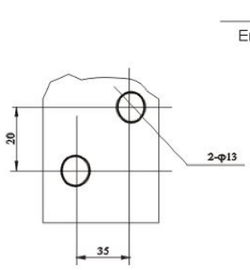
Spec.	Installating bottom	
	K1	L1
ASGL-100~160	95	7
ASGL-250	115	9
ASGL-400~630	180	11

Spec.	Overall and Installation dimension													
	B	C	D	D1	G	J	N	P	R	S	U	ΦX	F	H
ASGL-100/3JH	135	17	27	92	85	120	75	36	20	25	115	9	59	10
ASGL-100/4JH	135	17	27	92	85	150	75	36	20	25	115	9	59	10
ASGL-160/3JH	135	17	27	92	85	120	75	36	20	25	115	9	59	10
ASGL-160/4JH	135	17	27	92	85	150	75	36	20	25	115	9	59	10
ASGL-250/3JH	170	18	35	98	110	160	105	50	25	30	140	11	76	15
ASGL-250/4JH	170	18	35	98	110	210	105	50	25	30	140	11	76	15
ASGL-400/3JH	240	20	50	135	160	210	135	65	32	40	206	11	94	20
ASGL-400/4JH	240	20	50	135	160	270	135	65	32	40	206	11	94	20
ASGL-630/3JH	260	20	50	135	160	210	135	65	40	50	220	13	94	20
ASGL-630/4JH	260	20	50	135	160	270	135	65	40	50	220	13	94	20

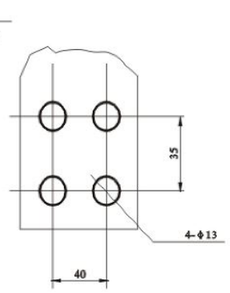
◆ Overall and installation dimension of SGL-1000A~1600A/H



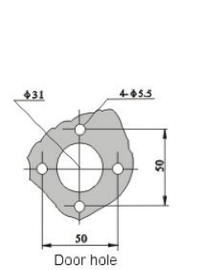
ASGL-1000A~1600A/JH operation outside the cabinet



1000A



1600A

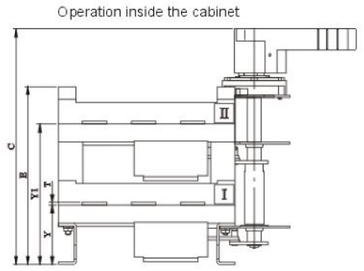


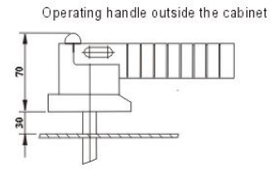
1000A and above Btype handle seat installation dimension outside the cabinet

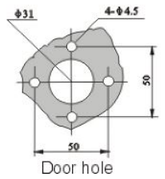
Spec.	Overall and Installation dimension							
	A	B	J	N	R	S	T	Y
ASGL-1000/3JH	378	312	353	174	60	56	8	48
ASGL-1000/4JH	498	312	473	238	60	56	8	48
ASGL-1600/3JH	378	356	353	174	80	78	10	49
ASGL-1600/4JH	498	356	473	238	80	78	10	49

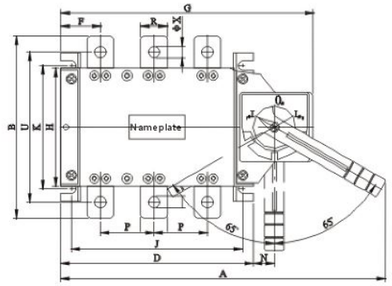
◆ Change-over load isolation switch

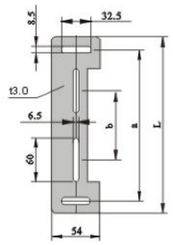
● **Overall and installation dimension of ASGLZ-100A~630A change-over load isolation switch**











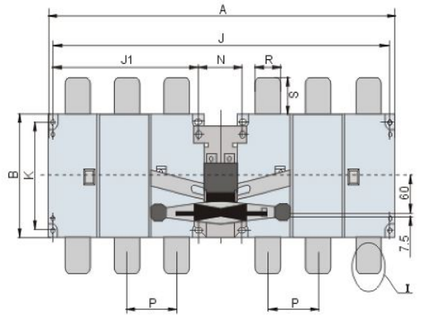
630A and below installating special plate

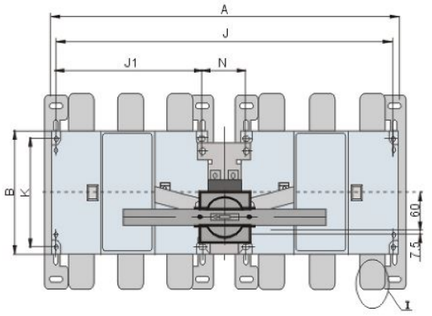
Spec.	Bottom plate dimension		
	L	a	b
ASGLZ-100~160	218	190	85
ASGLZ-250	245	220	110
ASGLZ-400~630	270	240	135

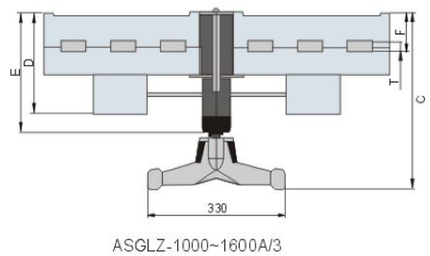
Spec.	Overall and Installation dimension																		
	A	B	C	D	E	F	G	H	J	K	L	N	P	R	T	U	ΦX	Y	Y1
ASGLZ-100/3	267	135	220	140	152	30	195	85	120	95	7	20	36	20	3.5	115	9	52	124
ASGLZ-100/4	297	135	220	170	152	30	225	85	150	95	7	20	36	20	3.5	115	9	52	124
ASGLZ-160/3	267	135	220	140	152	30	195	85	120	95	7	20	36	20	3.5	115	9	52	124
ASGLZ-160/4	297	135	220	170	152	30	225	85	150	95	7	20	36	20	3.5	115	9	52	124
ASGLZ-250/3	308	170	240	180	180	37	300	110	210	115	9	20	50	25	3.5	140	11	60	142
ASGLZ-250/4	358	170	240	230	180	37	360	110	270	115	9	20	50	25	3.5	140	11	60	142
ASGLZ-400/3	420	240	330	230	244	48	300	160	210	180	10	35	65	32	5	206	11	80	194
ASGLZ-400/4	480	240	330	290	244	48	360	160	270	180	10	35	65	32	5	206	11	80	194
ASGLZ-630/3	420	260	330	230	244	48	300	160	210	180	10	35	65	40	6	220	13	80	194
ASGLZ-630/4	480	260	330	290	244	48	360	160	270	180	10	35	65	40	6	220	13	80	194

● **Overall and installation dimension of ASGLZ-1000A~1600A change-over load isolation switch**

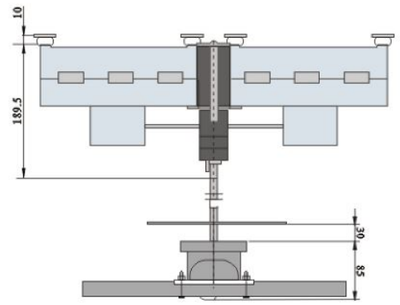
◆ Left and right type change-over load isolation switch



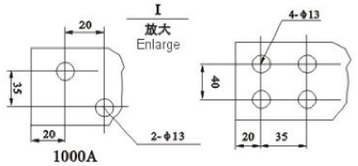




ASGLZ-1000~1600A/3



ASGLZ-1000~1600A/3J

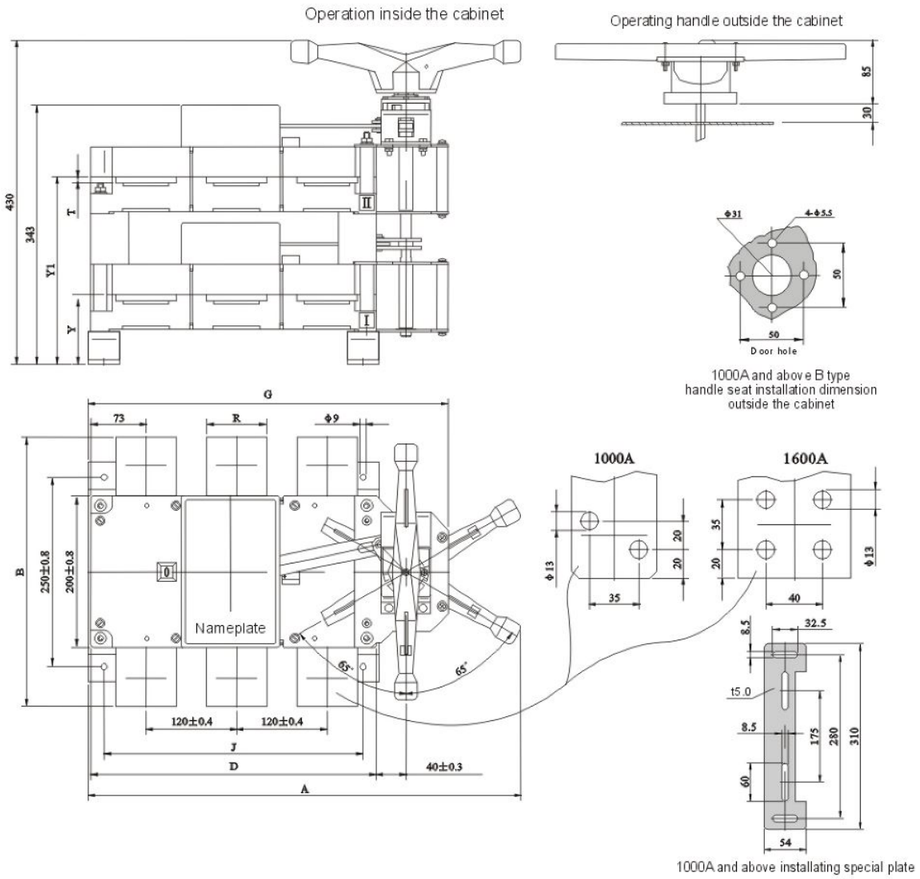


Spec.	Overall and Installation dimension													
	A	B	C	D	E	F	J	J1	K	N	P	R	S	T
ASGLZ-1000/3	836	200	242	140	168	48	811	353	175	105	120	60	56	8
ASGLZ-1000/4	1076	200	242	140	168	48	1051	473	175	105	120	60	56	8
ASGLZ-1600/3	836	200	242	140	168	49	811	353	175	105	120	80	78	10
ASGLZ-1600/4	1076	200	242	140	168	49	1051	473	175	105	120	80	78	10

LOAD
ISOLATION SWITCH

www.aisoelectric.com

- Up and down type change-over load isolation switch



Spec.	Overall and Installation dimension								
	A	B	D	G	J	R	T	Y	Y1
ASGLZ-1000/3	578	312	378	476	343	60	8	92	248
ASGLZ-1000/4	698	312	498	596	463	60	8	92	248
ASGLZ-1600/3	578	356	378	476	343	80	10	93	249
ASGLZ-1600/4	698	356	498	596	463	80	10	93	249

CN Aiso

MOTOR
SOFT STARTER

YUEQING AISO ELECTRIC CO.,LTD.
www.aisoelectric.com

ASR8

Motor soft starter

◆ General

Three-phase squirrel cage asynchronous motor still has a series of problemsin starting or stopping process. For example, the impact torque under full-pressure starting will have an impact on the drag system, the starting current has an impact on power system. In addition, if the voltage at motor terminal exceeds the rated voltage in operation, the iron loss increase; if it is lower than the rated voltage, the copper loss increase. When in shutdown, if the drag system suddenly lost torque, thus it should rely on the friction torque of the system to overcome the inertia coasting, which also brings many problems to the drag system. Such as water hammer phenomenon of the pump.

The traditional start-up method of the motor is to use a Y-△ starter and autoconnected depressurization starter. They can only reduce the impact of starting motor starting current on the power system, which can ensure the reliability of the starting of motor, but it cannot solve the other problems mentioned above. ASR8 series motor soft starter adopts intelligent digital control, SCM is used as the intelligent center, controllable silicon modules are used as actuator to conduct full-automatic control of the motor. It applies to the starting of squirrel cage asynchronous motors with all kinds of load. It ensures that the motor can start smoothly under any conditions, protect drag system, reduce the impact of starting current on power system, thus guarantee the reliable starting of the motor. Smooth deceleration stop eliminates the anti -inertial impact of drag system. Complete system protection function prolongs the service life of the system and reduces the system cost, it also provides system reliability and compatible with various functions of all starting equipment. It is the ideal replacement product for traditional star delta starting, autoconnected depressurization starting, magnetic controlled depressurization starting, etc.

◆ Model and meaning

AS R 8 - □□□ S

- S — Integrated type: it is module type without this number
- □□□ — Rated power value
- 8 — Design No.
- R — Soft starter
- AS — Enterprise code

◆ Structural features

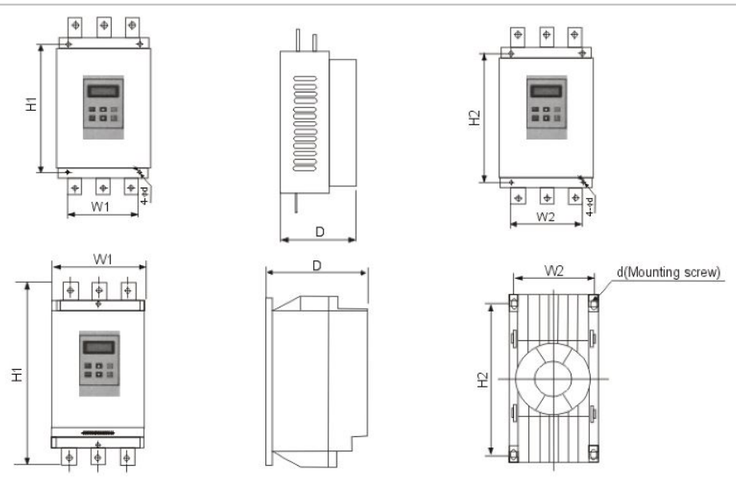
1. Natural air cooling, switch cabinet does not need to add mechanical exhaust, no special requirements for the layout of electrical appliances
2. Wiring mode:

- Module type ASR8-5KW～ASR8-600KW is upper coiling in and lower coiling out;
- Integrated type ASR8-5S～ASR8-55S is hanging box type, upper coiling in and lower coiling out;
- Integrated type ASR8-5B～ASR8-600S is cabinet type.

◆ Performance index

- Meeting the standard
- GB14048.6-1998, China National Compulsory Product 3C Certification, ISO9001:2000 international quality system certification
- Protection level: IP20 (negotiable)
- Seismic capacity: below altitude of 3000 meters, vibration device below 0.5G
- Impact: 15kg/11ms
- Environment temperature: -30～55℃
- Surrounding environment: 95% no condensation or drip

◆ Overall and installation dimension



Model	Rated power(KW)	Rated current(A)	Overall dimension			Installation dimension		
			H1	W1	D	H2	W2	d
ASR8-005	5.5	11	270	145	159	245	130	M6
ASR8-007	7.5	15						
ASR8-011	11	22						
ASR8-015	15	30						
ASR8-018	18.5	37						
ASR8-022	22	44						
ASR8-030	30	60						
ASR8-037	37	74						
ASR8-045	45	90						
ASR8-055	55	110						
ASR8-075	75	150	530	260	202	380	196	M8
ASR8-090	90	180						
ASR8-115	115	230						
ASR8-132	132	264						
ASR8-160	160	320						
ASR8-200	200	400						
ASR8-250	250	500	580	290	245	460	260	M8
ASR8-320	320	640						
ASR8-400	400	800	590	330	250	500	265	M8
ASR8-450	450	800	590	330	250	500	265	M8
ASR8-500	500	1000	660	410	250	550	370	M8
ASR8-600	600	1200	660	410	250	550	370	M8

INTELLIGENT
UNIVERSAL CIRCUIT BREAKER

YUEQING AISO ELECTRIC CO.,LTD.

www.aisoelectric.com

ASW1

Motor soft starter

◆ General

ASW1 series intelligent universal circuit breaker (hereinafter referred to as the circuit breaker), suitable for AC 50Hz, rated voltage up to 660V (690V) and below as well as 400A ~ 6300A rated current distribution network, which is used to distribute electric energy and protect circuit and power supply equipment from being harmed by overload, under-voltage, short circuit, single-phase grounding and other faults. Circuit breaker has intelligent protection function and selective protection accuracy, which can improve the reliability of power supply and avoid unnecessary power outages. At the same time, it carries an open communication interface, thus can conduct "four remote controls" so as to meet the requirements of control center and automation system. The circuit breaker has impulse withstand voltage of 8000V at an altitude of 2000 meters (different altitude can be amended according to the standard, the maximum value should not be more than 12000V). The circuit breaker does not have intelligent controller and sensor which can be used as a separator, marked as ⎯/⎯ .

Circuit breakers comply with GB14048.2-2008 standard.

◆ Type definition and classification

● **Model meaning**

AS W 1 □ - □ / □

- Pole No. (three poles not marked)
- Frame size rated current of circuit breaker
- Isolation switch code G(Do not do the isolation switch not marked)
- Design No.
- Universal circuit breaker
- Enterprise code

● **Classification:**

1. According to the installation mode: a. fixed type; b. drawer type
2. According to the number of poles: three-pole, four-pole
3. According to the operating mode: a. Electric operation; b. manual operation (overhaul, maintenance)

● **Release types:**

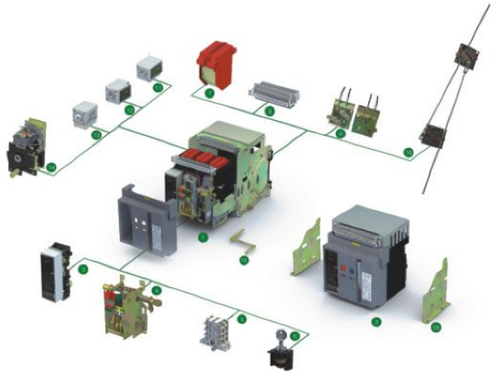
Intelligent release, under-voltage instantaneous (or delayed) release, shunt release.

Normal working conditions

- The ambient temperature shall not exceed 40℃ , and not less than -5℃ , daily 24h average not exceeds +35℃ .
  Note: if lowest is -10℃ or -25℃ , please declare towards our company; if actual working temperature may be more than 40℃ or less than -25℃ , please discuss with manufacturer.
- Altitude not more than 2000m.
- Atmosphere conditions:
  Relative humidity shall not exceed 50% at 40℃ , at lower temperature, higher humidity is allowed, on dampest month the maximum humidity is 90%, meanwhile the lowest average temperature is 25℃ , and in consideration of dew on the product surface due to temperature change.
- Protection grade: IP30.
- Pollution grade: III.
- Usage category: B class.
- Mounting category:
  Main circuit, under-voltage release and primary winding of transformer for power source: IV class, the other auxiliary circuit and control circuits: III class.
- Mounting conditions:
  The circuit breaker shall be mounted according this manual, vertical sloping angle not exceed 5° (not over 15° for mining used breaker).

Structure overview

- The fixed circuit breaker is mainly composed of contact system, intelligent controller, manual operating mechanism, electric operating mechanism and mounting plate.
- The drawer circuit breaker is mainly composed of contact system, intelligent controller, manual operating mechanism, electric operating mechanism and drawer seat.
- The circuit breaker adopts three-dimensional arrangement, with the advantages of compact structure and small size. The contact system is enclosed in the insulating base, its each phase contact is also separated by an insulating plate, forming several small chambers, and the intelligent controller, manual operation mechanism and electric operation mechanism are orderly arranged in the front to form independent units; if one unit is broken, the whole units can be removed and replaced by the new one.
- Drawer type circuit breaker is composed of plug-in circuit breaker and drawer seat. The guide rail inside the drawer seat can pull in and out, the seat of circuit breaker is located in the guide rail to enter and exit drawer. The main circuit gets through by the plug-in connection of the bus on plug-in circuit breaker and the bridge contact on the drawer seat.
- Drawer type circuit breaker has three working positions: "connection" position, "test" position and "separation" position. Position change is achieved by rotating the handle in or out, the indication of three positions are indicated by a pointer on the beam of drawer seat.
- When it is in the "connection" position, the main circuit and the secondary circuit are both connected; when it is in the "test" position, the main circuit is disconnected and is separated by the insulation clapboard, only the secondary circuit is connected, which enables it carry out some necessary action tests; when it is in the "separation" position, the main circuit and the secondary circuit are both disconnected. Furthermore draw-out type circuit breaker has mechanical interlock, only when breaker is in "connection" or "test" position, breaker can be closed, when in the middle between the "connection" and "test" position, breaker can t be closed.
- Interlock mechanism of circuit breaker (suitable for drawer type and fixed type) (the user can select SHIQ1 dual power automatic switching device in our factory, so as to achieve the automatic switching of dual power supply. See the details in product sample).



1. Drawer type circuit breaker
2. Fixed type circuit breaker
3. Intelligent controller
4. Operating mechanism
5. Auxiliary contact
6. Key lock
7. Arc-extinguishing chamber
8. Secondary plug and socket
9. Steel rope
10. Lever interlock
11. Shunt release
12. Closing electromagnet
13. Under-voltage release
14. Motor charging mechanism
15. Swaying handle
16. Mounting plate

Technical parameter and performance

Table 1

Model			ASW1-2000	ASW1-3200	ASW1-4000	ASW1-6300
Frame size rated current Inm A			2000	3200	4000	6300
Rated current In A			(400), 630, 800, 1000, 1250, 1600, 2000	2000, 2500, 2900, 3200	3200, 3600, 4000	4000, 5000, 6300
Rated working voltage Ue V			AC400V/690V 50Hz			
Rated insulation voltage Ui V			1000			
Rated impulse withstand voltage Uimp V			8000			
Power frequency withstand voltage U V			3500V 1min			
Pole No.			3 or 4			
N pole rated current In A			50%In(Default)、100%In			
Rated ultimate short circuit breaking capacity Icu kA		AC 400V	80	100	100	120
		AC 690V	50	65	65	80
Rated operating short circuit breaking capacity Ics kA		AC 400V	50	65	65	80
		AC 690V	40	50	50	70
Rated short-time withstand current Icw kA		AC 400V	50	65	65	85
		AC 690V	40	50	50	65
Operating perform -ance	Electrical life (Times)		1000	500	500	500
	Mechanical life (Times)	Maintenance free	2500	2500	2500	2000
		Have maintenance	10000	10000	10000	8000
Operation cycles per hour			20	20	15	10
Full break time (no additional delay) ms			25~30			
Closing time ms			Maximum 70			
Arcing distance mm			0			

Power loss of circuit breaker inlet and outlet wire Table 2

Inm		ASW1-2000						ASW1-3200				ASW1-4000			ASW1-6300		
In(A)		630	800	1000	1250	1600	2000	2000	2500	2900	3200	3200	3600	4000	4000	5000	6300
Power loss (W)	Drawer type	70	110	172	268	440	530	384	600	737	737	900	900	921	575	898	1426
	Fixed	34.4	50	78	122	200	262	200	312	307	307	-	-	-	-	-	-

Rated continuous current variation of circuit breakers at different ambient temperatures Table 3

Inm		ASW1-2000						ASW1-3200				ASW1-4000			ASW1-6300		
In(A)		630	800	1000	1250	1600	2000	2000	2500	2900	3200	3200	3600	4000	4000	5000	6300
Ambient temperature ℃	40	630	800	1000	1250	1600	2000	2000	2500	2900	3200	3200	3600	4000	4000	5000	6300
	50	630	800	1000	1250	1550	1900	2000	2250	2610	2880	2880	3240	3600	4000	4500	5670
	60	630	800	1000	1250	1500	1800	2000	2025	2349	2592	2592	2916	3240	4000	4050	5103

User installation bus recommendation Table 4

Inm		ASW1-2000						ASW1-3200				ASW1-4000			ASW1-6300		
In (A)		630	800	1000	1250	1600	2000	2000	2500	2900	3200	3200	3600	4000	4000	5000	6300
Busbar	Thickness	4	5	5	8	10	10	5	10	10	10	10	10	10	10	10	10
	Width	60	60	60	60	60	60	100	100	100	100	120	120	120	120	120	120
	Pieces	2	2	2	2	2	3	3	2	3	3	3	4	4	4	5	6

◆ Protective characteristics and functions of intelligent

● Protective characteristics of intelligent over-current controller

1.1 Setting current Ir(I/In) and error of controller as table 5

Table 5

Long delay	Short delay		Instantaneous		Earthing fault	
Ir1	Ir2	Error	Ir3	Error	Ir4	Error
(0.4-1)In	(0.4-15)In	±10%	In~50kA(Inm=2000A Inm=3200A) In~75kA(Inm=4000A) In~100kA(Inm=6300A)	15%	(0.2~0.8)In Inm=6300A Max.1200A Inm=2000A Min.160A	±10%

Note: When three-stage selective protection required, setting values can't be intercrossed.

1.2 Over-current long delay inverse time limit tripping characteristics of the controller as table 6

$I^2TL=(1.5Ir1)^2tL$, the tripping time of (1.05 ~ 2.0) Irl as table 6. TL is setting time of long delay protection against I.5Ir; TL tripping time of long delay

Table 6

Setting current (Ir1)	Error	Current	Tripping time(s)						Time error
(0.4~1)In	±10%	1.05Ir1	Not trip within 2 hours						-
		1.3Ir1	Trip within 2 hours						-
		1.5Ir1	15	30	60	120	240	480	±15%
		2.0Ir1	8.4	16.9	33.7	67.5	135	270	±15%

1.3 Over-current short delay inverse time limit tripping characteristics of the controller as table 7

Protective characteristics of short delay over-current is definite time limit, if it need the inverse time limit tripping for the low times of Ir1, its characteristics according to $I^2Ts=(8Ir1)^2ts$, ts is a general delay time; when over-current > 8Ir1, it will automatically transfer to definite time limit tripping, as table 7.

Table 7

Setting current (Ir1)	Error	Setting delay time ts(s)				Returnable time(s)				Time error
(1~15)In	±10%	0.1	0.2	0.3	0.4	0.06	0.14	0.23	0.35	±15%

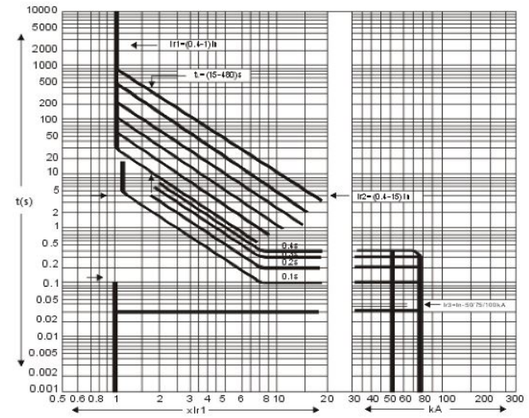


Fig.1

1.5 Protective characteristics of earthing fault as table 8 and figure 2

Table 8

Model	Setting current(Ir4)	Error	Setting delay time t4(s)	Returnable time (s)	Time error
ASW1-2000	(0.2~0.8)In Min.160A	±10%	0.1, 0.2, 0.3, 0.4, OFF	0.06, 0.14, 0.23, 0.35	±15%
ASW1-3200~4000	(0.2~0.8)In				
ASW1-6300	(0.2~0.8)In Max.1200A				

Note: 1. When t4 set as OFF, it only alarm without tripping for the earthing fault.
2. 3-P, 3-W system choose 3P breaker, without outer CT, signal of earthing fault sampled from the vector sum of three phase currents.
3. 3-P, 4-W system choose 4P breaker, without outer CT, signal of earthing fault sampled from the vector sum of three phase currents and neutral line currents.
4. 3-P, 3-W system choose 3P breaker, N line connected with outer CT(connected to 25#, 26#), signal of earthing fault sampled from the vector sum of three phase and neutral line currents.

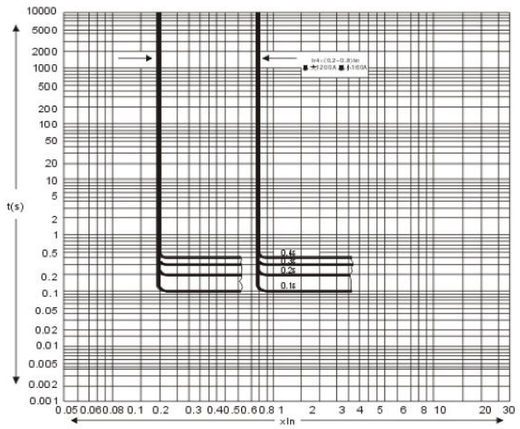


Fig.2

◆ The functions of M type intelligent over-current controller

● Ammeter function

It can display each phase current, earthing fault leakage current, at normal status, it will display the maxi phase current, and it can display the setting currents, test and fault currents and setting time.

● Voltmeter function

Able to display each of line voltage, at normal status it will display the maxi phase voltage

● Remote monitor and self-diagnose

① The controller has self-diagnosed function. When computer happen to fault, it can display " E" (error) or produce alarm, meanwhile it will restart, if required by user, it can break the breaker.

② When partial ambient temperature up to 80℃ , it can produce alarm, and if required by user, it can break the breaker at the smaller current.

③ The intelligent controller has the outputs of overloading, earthing fault, short circuit, load monitoring, pre-alarm, tripping indication (OCR) and etc signals via contacts or optic coupling, this can help user control remotely, contact ratings: DC28V, 1A; AC125V, 1A.

● Setting function

Through the four keys of "SET, +, -, SAVE" it can set all parameters of the controller. Push SET to the parameter you want to set (shown by its related indicator), then push + or - to adjust the parameter to the right value, push SAVE, if its indicator flash one time, that's mean successful saving / value being set. The protective setting values can't be intercrossed. After the controller is out of power and reset, push SET again, it can display all setting parameters in turn for check.

● Test function

Through SET, +, -, TRIP, NOT TRIP, RESET keys, it can check all protective characteristics. Utilize SET, +, -keys to adjust a simulated (test) fault current (caution: don't save). Then push TRIP or NOT TRIP key to test, the controller will enter into fault processing status, push TRIP, the breaker open, push NOT TRIP, breaker not open, but the indication status is normal. After test, it shall push RESET or CLEAR, then allowed for other test.

Note: in order to make test convenient, no matter set as trip or alarm for the earthing leakage current, it will only perform tripping in this test, furthermore, this protection not prior to overloading protection. During test, once fault happen, the controller will automatically stop all test and enter into fault process.

● Load monitoring function

Set two parameters: ILc1 setting range (0.2 ~ 1)In, ILc2 setting range (0.2 ~ 1)In, ILc1 delay as inverse time limit, time setting is 1/2 of long delay setting time; ILc2 delay has two kinds: first is inverse time limit, time setting is 1/4 of long delay; second is definite time limit, delay is 60s. For this two kinds of delay functions, the front one used to break the not important loads, when current closed to overloading setting current, the later is used for when current exceed ILc1 setting value, delay to send a signal to trip the not important load at downstream, the current drop down, keep power supply for main circuit and important loads, when current come down to ILc2, it will delay to send a signal to close the load that cut off before, let the system recover power supply. The user can choose any of two above-mentioned monitoring functions. The characteristics as figure 3 and 4.

● MCR trip and simulated trip protection function

According to user requirement, this function can be closed. When to perform test of short delay tripping, it shall be closed.

① MCR making and breaking protection is mainly used in the case that it close where line fault occur (at the moment of controller being electrified), the controller has the function of breaking low times of rated current. Default set as 10KA, error +20%, also adjustable as required.

② The controller is also set that it is allowed to directly send a signal of tripping without treatment of main machine in the case of large short circuit current occurring.

● Thermal memory function

After controller delay to trip overloading or short circuit fault, before controller is out of power supply, it has memory function of simulated bimetal plate characteristics, overloading energy will be released within 30min, short delay tripping energy will be released within 15min, during this period, if overload, short circuit happen again, the tripping time will become shorter, if controller out of power supply, the energy memory cleared as zero automatically.

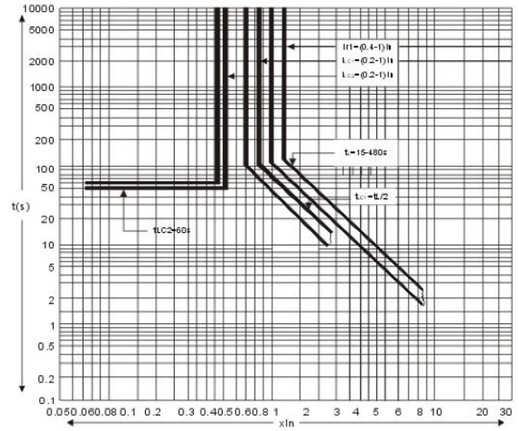


Fig.3

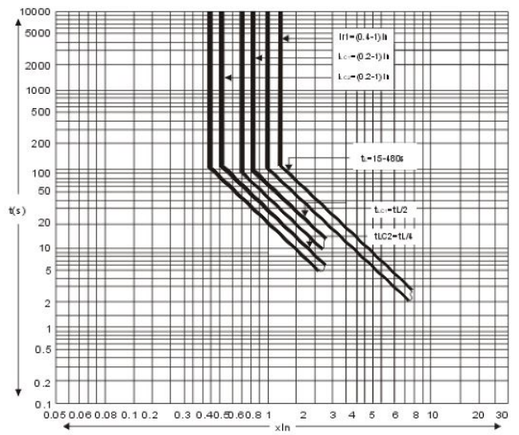


Fig.4

◆ The functions of H type intelligent over-current controller

Beside all the function of M type, moreover it has communication serial interface, if connected with special machine and printer, language or PC, it can output/print each parameters and status such as serial number of breaker, ON/OFF position, settings of the controller, operating current, voltage, fault current, tripping time and fault status and etc, in writing or drawing. Also it can perform remote operations as remote measurement, remote adjustment, remote control and remote signal, suitable for automatic distribution system.

● Hardware support for communication port

◇ CPU 16-bit chipset, time freq: 25MHz
◇ Comm. Baud highest 1MHz
◇ Port in compliance with EIA RS485 protocol.
◇ Dual-stage, half dual-stage mode supported, adopted dual-core 8 pairs of cable, if there has severe radio interference, shielding cable shall be used.

● Data transmission

◇ Serial synchrony and serial asynchrony mode available.
◇ 8-bit, 9-bit data transmission mode supported, parity check supported.
◇ Parallel communication supported if necessary.

● Communication interface protocol

Divided into three parts: application parts, link par, physical part, the protocol for each part are peculiar use.

● Function of communication port

◇ Mainly used to perform four remote operations: remote control, remote adjustment, remote measurement, remote signalling.
◇ L type controller adopt the dial switch of coding switch for setting, with four protective stages including overloading long delay tripping, short circuit short delay tripping, instantaneous tripping, earthing leakage fault, and indications for fault status loading current and etc, no digital LED display, function not full as M and H type. L type is for general use only.

◆ Accessories

● Shunt release (electrified time not more than 1s/every time, electrified frequency not more than 5 times/1min);
Except for the special product that it need directly break breaker by hand, generally it shall choose that it can remotely control to open the breaker.

Table 9

Rated voltage of control source Us(V)	AC400, 30	DC220, 110
Acting voltage(V)	(0.7~1.1)Us	----
Power loss	300VA	40W
Breaking time(ms)	30~50	----

• Operation characteristics of the under-voltage release as table 10

Non circuit breaker with accessories, namely an optional accessory;

When power supply line is under-voltage or voltage failure, it will break the breaker to protect the downstream equipments from being damaged (such as motor), or used to automatically break the voltage failed line of the power supply, improve the reliability and safety of the power supply (such as twin power supply system);

Under-voltage protection has two kinds of action: instantaneous tripping or time delayed tripping.

Table 10

Release type		Under-voltage time delay release	Under-voltage instantaneous release
Tripping time of the release		1, 3, 5s delayed(error: ±10%)	Instantaneous
Rated voltage of control source Ue(V)		AC400, 230	
Tripping voltage of the release	(0.35~0.7)Ue	Able to open the breaker	
	(0.85~1.1)Ue	Able to close the breaker reliably	
	≤0.35Ue	Breaker can't be closed	
Within 1 12 time delay, if power source voltage recover to 85%Ue		Breaker can't be opened	----
Power loss		48VA	

• Operation characteristics of closing electromagnet as table 11

Closing electromagnet (electrified time not more than 1s/every time, electrified frequency not more than 5 times/1min);

After motor charging the energy, closing electromagnet take action to release the energy of spring in the mechanism, for closing the breaker.

Table 11

Rated voltage of control source Us(V)	AC400, 230	DC220, 110
Acting voltage(V)	(0.85~1.1)Us	
Power loss	300 VA	40W
Closing time	≤70ms	

Note: manual products No.

• Operation characteristics of motor charging mechanism as table 12

Motor charging mechanism(electrified time not more than 5s/every time, electrified frequency not more than 3 times/1min);

Automatic recharging, for transferring the twin power supplies possibly.

Table 12

Rated voltage of control source Us(V)		AC400, 230	DC220, 110
Acting voltage(V)		(0.85~1.1)Us	
Power loss(W)	ASW1-2000	85	192
	ASW1-3200~4000	110	
	ASW1-6300	150	
Charging time		≤5s	

• Operation characteristics of auxiliary contact as table 13

Standard type: 4NO+4NC, the rest of 3NO+3NC for user determination.

Peculiar type: 2NO+4NC, 4NO+2NC, 5NO+1NC, 1NO+5NC(5NO+5NC able to provided if required).

Table 13

Rated working voltage Ue(V)	AC400, 230	DC220
Conventional thermal current Ith(A)	6	6
Rated controlling capacity	300VA	60W

• Door frame and cushion

These are mounted on panel door, for sealing function, protective grade up to IP40.

• Key lock for OFF position

The breaker provides the accessory of key lock for OFF position, lock the breaker in OFF position. At this case, no matter closing button or electromagnet to operate, breaker can't closed.

• Mechanical interlock

Mechanical interlock has horizontal and vertical interlock between breakers and door interlocks.

◆ Wiring connection of control circuit

Breaker has 47pcs of terminals in total, simple wiring, easy for user operating

1.1 M type or L type intelligent controller wiring diagram

Other wire connection for the intelligent controller

Terminal #1, #2 for input of AC working source

Terminal #25, #26 connected to neutral line or earthing, CT input.

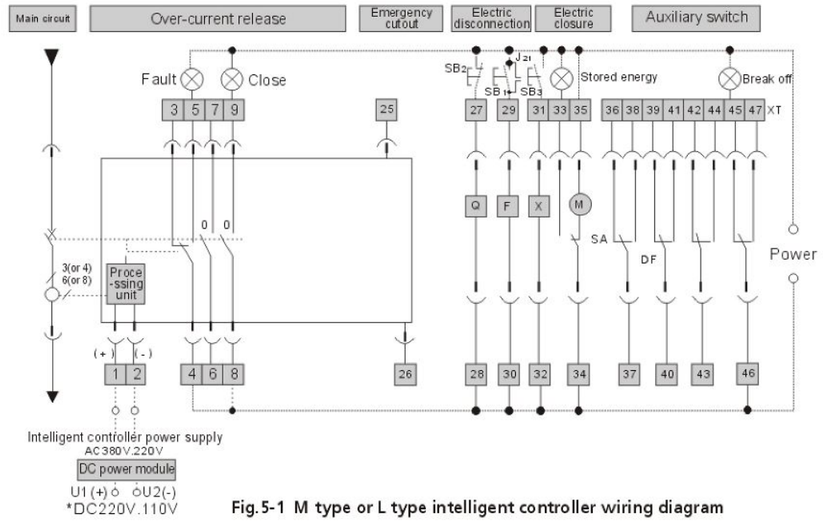


Fig.5-1 M type or L type intelligent controller wiring diagram

SB1 Pushbutton for shunt release
SB2 Pushbutton for under-voltage release
SB3 Closing pushbutton
X Closing electromagnet
M Charging motor
XT Wire terminal
DF Auxiliary contact
F Shunt release
SA Micro switch for motor
Q Under-voltage release or under-voltage time delay release
O NO contact (3A/AC380V)

※ Note:

(1) If the control voltage for Q, F, X, M is different, they shall be connected to different voltage sources.

(2) Terminal #35 can directly connect with power source (automatically pre-charge energy), also able to connect in series with NC then power source (hand operate pre-charging energy).

(3) If user required, terminal #6, #7 can connect with NC contact.

(4) Outer additional accessories shall be provided by user.

(5) When working source for controller is DC, it shall add DC source module (in this case, terminal #1, #2 not allowed to connect with AC input source).

(6) Source module overall and installation dimension as figure 5-1.

(7) Secondary wire connection as drawing (DC source DC 110V or 220V input from U1(+), U2(-), anode of the two output terminals of DC source module connected to 1(+), negative electrode connected to 2(-).

1.2 Wiring diagram of L type controller with additional function

(1) Via the terminals 12, 14 ~ 16, 20, 21, the controller send the signal to outer relay J then the relay output acting signal.

(2) Power source transformer (the user shall indicate the input voltage when to book the product) provided by manufacturer, the transformer and relay can be mounted on the standard rail. User can install it in the proper location of the switchgear.

(3) Relay model: HH62P, AC/DC24, provided by user.

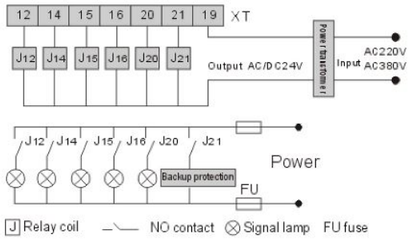
(4) Output condition of self-diagnosis signal:

a. Inner temperature of the controller > 80℃;

b. Chipset work abnormally;

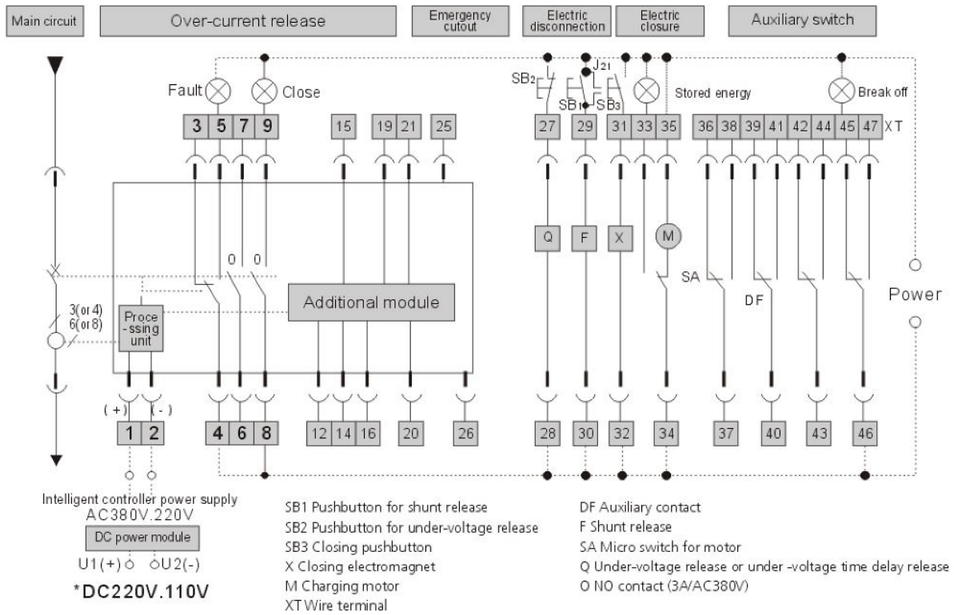
c. Controller is out of power supply

(5) The user can choose terminals J12, J14 ~ J16, J20, J21 to be connected according to actual requirements.



Wiring diagram of relay for additional function of breaker

Other wire connection of intelligent controller
#1, #2 for working source input
#12 signal output of overload alarm
#14 signal output of instantaneous and short delay tripping
#15 signal output of long delay tripping
#16 signal output of earthing (or phase to neutral connected) fault tripping
#19 public output terminal for signals
#20 signal output of self-diagnosis
#21 tripping signal (for shunt or under-voltage executing device)
#25, 26 connected to outer neutral line or earth, CT input.

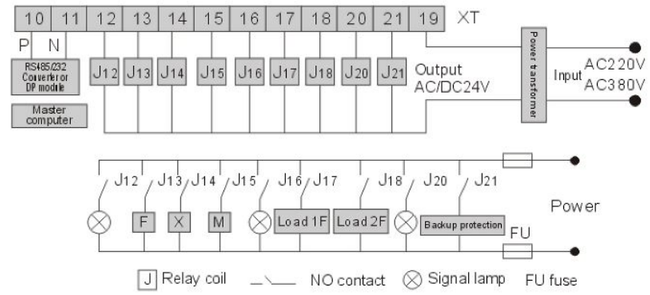


※ Note:
(1) If the control voltage for Q, F, X, M is different, they shall be connected to different voltage sources.
(2) Terminal #35 can directly connect with power source(automatically pre-chargeenergy), also able to connect in series with NC then power source (hand operate pre-charging energy).
(3) If user required, terminal #6, #7 can connect with NC contact.
(4) Outer additional accessories shall be provided by user.
(5) Relay contact J21 of parallel connected with SB1 can be used for remote opening.
(6) When working source for controller is DC, it shall add DC source module (in this case, terminal #1, #2 not allowed to connect with AC input source).
(7) Source module overall and installation dimension as figure 5-2.
(8) Secondary wire connection as drawing (DC source DC110V or 220V input from U1(+), U2(-), anode of the two output terminals of DC source module connected to 1(+), negative electrode connected to 2(-).

Fig.5-2 Wiring diagram of L type controller with additional function

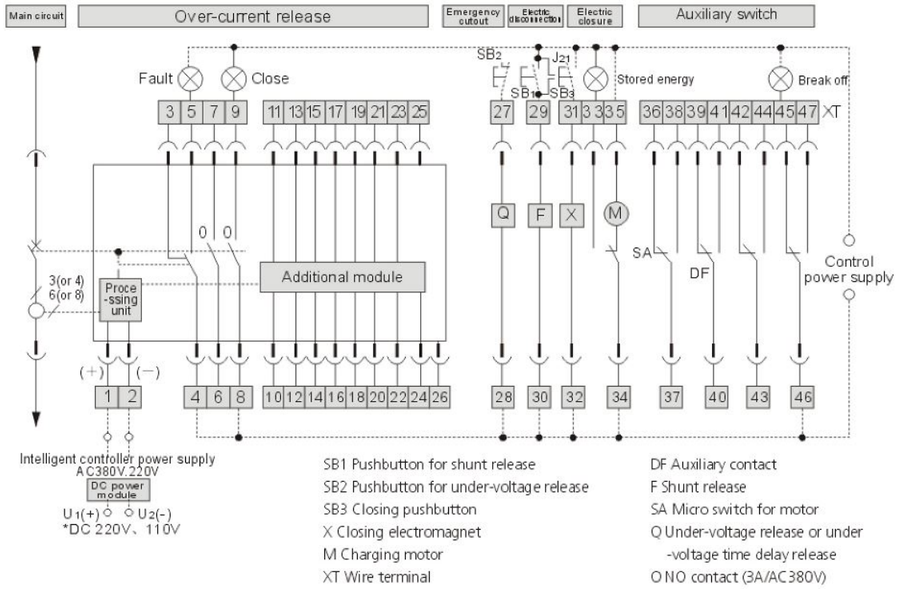
1.3 M type with additional function or H type intelligent controller wiring diagram

(1) Via the terminals 12, 14 ~ 16, 20, 21, the controller send the signal to outer relay J then the relay output acting signal.
(2) RS485/232 adaptor, DP module, power source transformer (the user shall indicate the input voltage when to book the product) provided by manufacturer, the transformer and relay can be mounted on the standard rail. User can install it in the proper location of the switchgear.
(3) Relay model: HH62P, AC/DC24, provided by user.
(4) Master computer provided by user.
(5) Terminal 13 ~ 15 output for signalling remote opening, closing and charging motor, terminal 14,15 before it used as tripping signal output, now not available again, NO contact of relay and the pushbutton of hand operating are shunt connected, to perform remote control, if remote control not required, terminal 14,14 can series connected with two signal lamps via J14, J15 NO contacts of relay, remotely output the signals (user shall indicate if this remote control is required or not) the manufacturer will determine the function of terminal 14,15 accordingly. Terminal 21 output drives J21 of the relay for performing standby protection.
(6) Output condition of self-diagnosis signal:
a. Inner temperature of the controller > 80℃ ;
b. Chipset work abnormally;
c. Controller is out of power supply
(7) The user can choose terminals J12-J21 according to actual requirements.



Wiring diagram of relay for additional function of breaker

Other wire connection of intelligent controller
#1, #2 for AC working source input
#10 RS485 communication P terminal
#11 RS485 communication N terminal
#12 Signal output of overload alarm
#13 Signal output of remote controlling shunt release tripping
#14 Signal output of instantaneous and short delay tripping or remote controlling closing
#15 Signal output of long delay tripping or remote controlling charging motor
#16 Signal output of earthing (or phase to neutral connected) fault tripping
#17 Signal output of switching off load 1
#18 Signal output of switching off load 2
#19 Public output terminal for signals
#20 Signal output of self-diagnosis
#21 Tripping signal (for shunt or under-voltage executing device)
#22 Voltage signal (A phase)
#23 Voltage signal (B phase)
#24 Voltage signal (C phase)
#25, 26 Connected to outer neutral line or earth, CT input.



SB1 Pushbutton for shunt release
SB2 Pushbutton for under-voltage release
SB3 Closing pushbutton
X Closing electromagnet
M Charging motor
XT Wire terminal

DF Auxiliary contact
F Shunt release
SA Micro switch for motor
Q Under-voltage release or under -voltage time delay release
O NO contact (3A/AC380V)

Fig.5-3 M type with additional function or H type intelligent controller wiring diagram

※ Note:

(1) If the control voltage for Q, F, X, M is different, they shall be connected to different voltage sources.
(2) Terminal #35 can directly connect with power source (automatically pre-charge energy), also able to connect in series with NC then power source (hand operate pre-charging energy).
(3) If user required, terminal #6, #7 can connect with NC contact.
(4) Outer additional accessories shall be provided by user.
(5) Relay contact J21 of parallel connected with SB1 can be used for remote opening.
(6) When working source for controller is DC, it shall add DC source module(in this case, terminal #1, #2 not allowed to connect with AC input source.
(7) Source module overall and installation dimension as figure 5-3.
(8) Secondary wire connection as drawing (DC source DC110V or 220V input from U1(+), U2(-), anode of the two output terminals of DC source module connected to 1 (+), negative electrode connected to 2(-).

◆ Overall and installation dimension of power source module

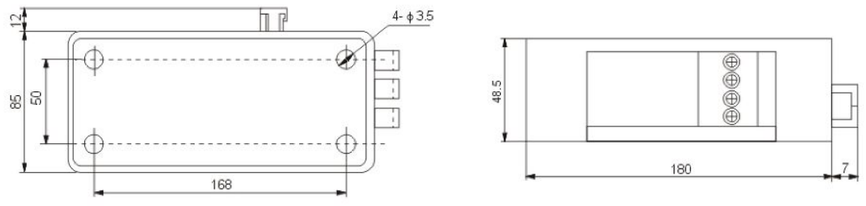
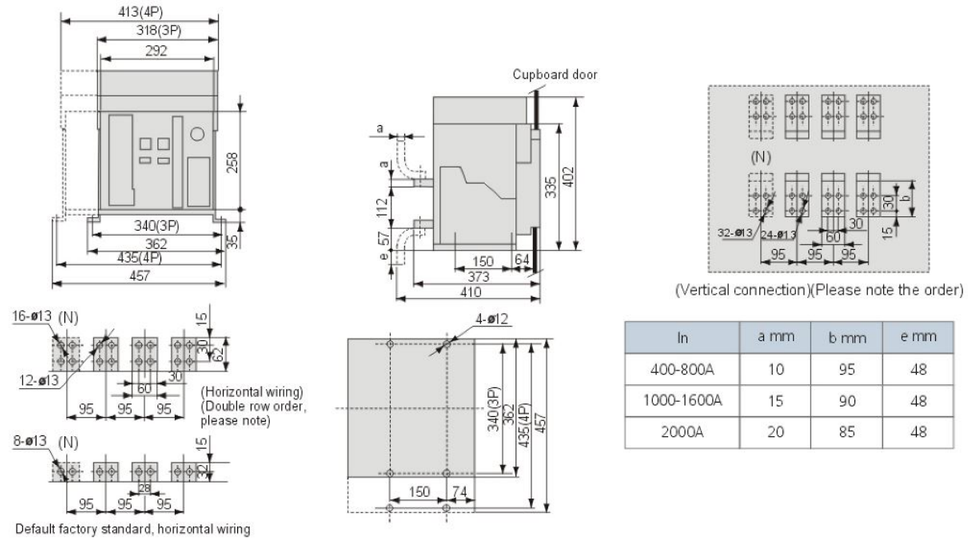


Fig.6 Overall and installation dimension of power source module

◆ Overall and installation dimension

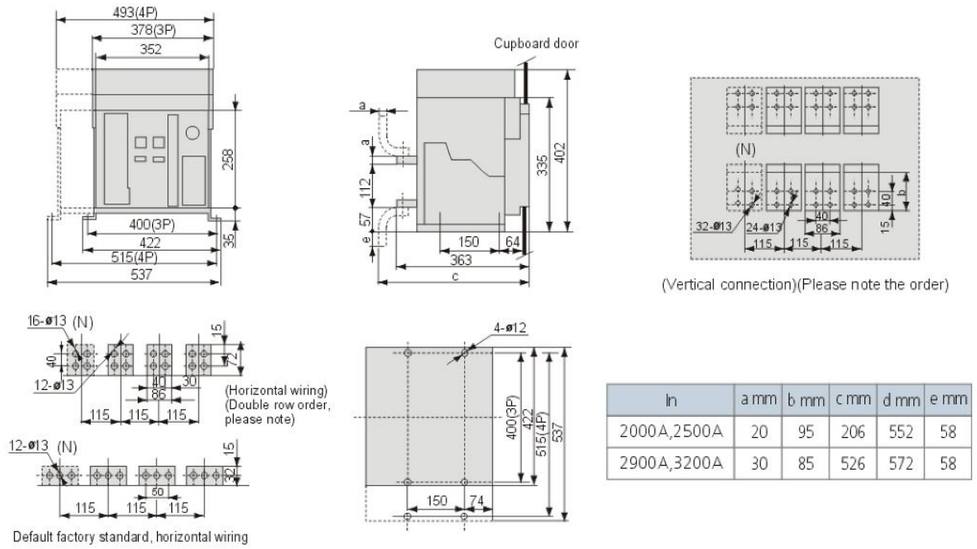
1.1 Overall and installation dimension of fixed circuit breakers are shown in Figure 7, 8



(Vertical connection)(Please note the order)

In	a mm	b mm	e mm
400-800A	10	95	48
1000-1600A	15	90	48
2000A	20	85	48

Figure 7 Overall and installation dimension of (ASW1-2000, 2000/4) fixed circuit breakers

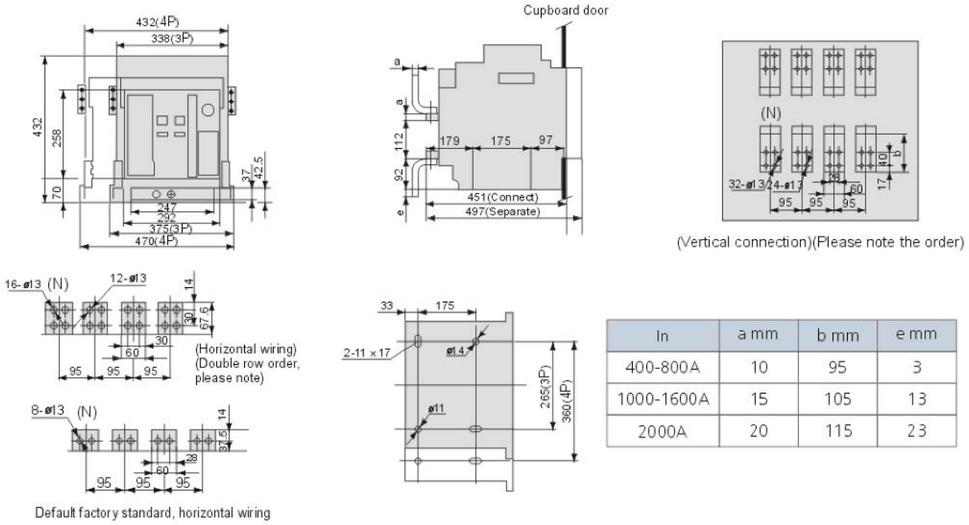


(Vertical connection)(Please note the order)

In	a mm	b mm	c mm	d mm	e mm
2000A,2500A	20	95	206	552	58
2900A,3200A	30	85	526	572	58

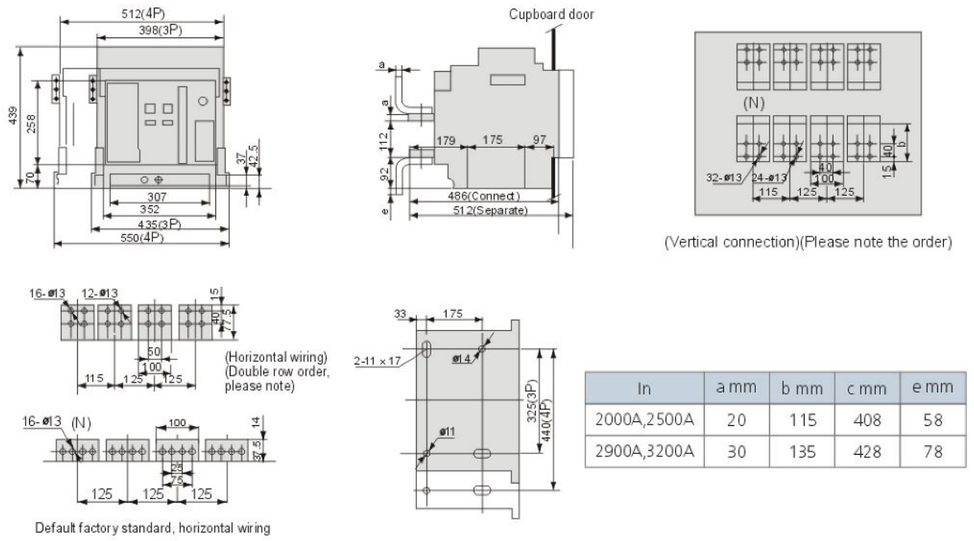
Figure 8 Overall and installation dimension of (ASW1-3200, 3200/4) fixed circuit breakers

1.2 Overall and installation dimension of drawer type circuit breakers are shown in Figure 9, 10, 11, 12, 13, 14, 15



In	a mm	b mm	e mm
400-800A	10	95	3
1000-1600A	15	105	13
2000A	20	115	23

Figure 9 Overall and installation dimension of (ASW1-2000, 2000/4) drawer type circuit breakers



In	a mm	b mm	c mm	e mm
2000A,2500A	20	115	408	58
2900A,3200A	30	135	428	78

Figure 10 Overall and installation dimension of (ASW1-3200, 3200/4) drawer type circuit breakers

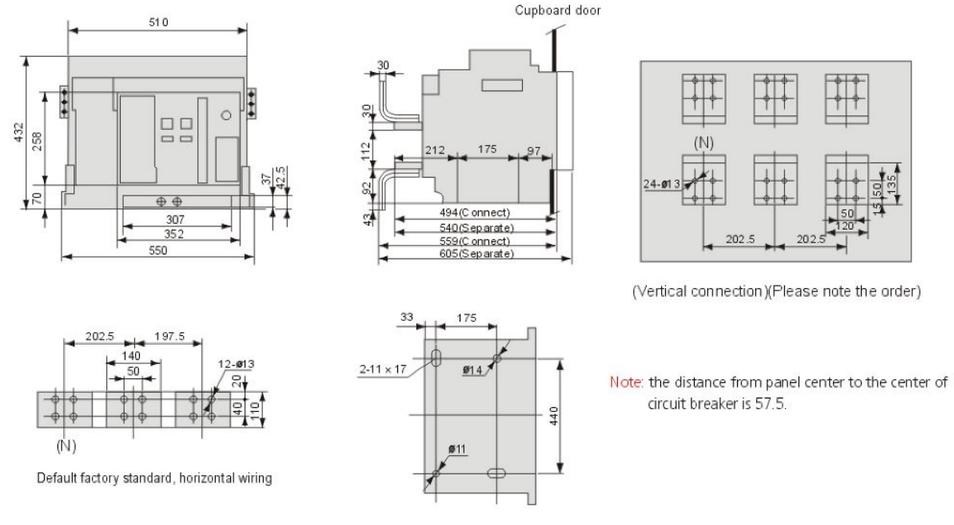


Figure 11 Overall and installation dimension of (ASW1-4000) drawer type circuit breakers

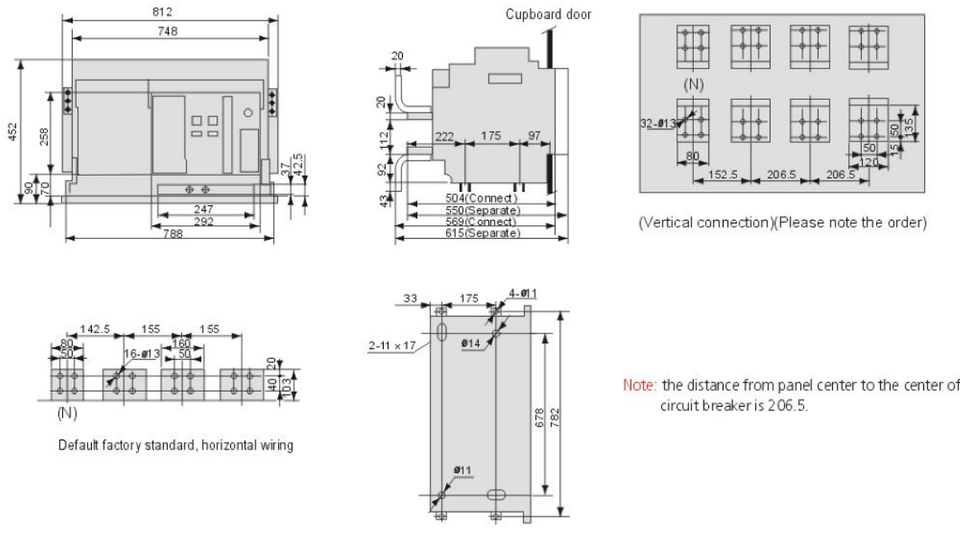


Figure 12 Overall and installation dimension of (ASW1-4000/4) drawer type circuit breakers

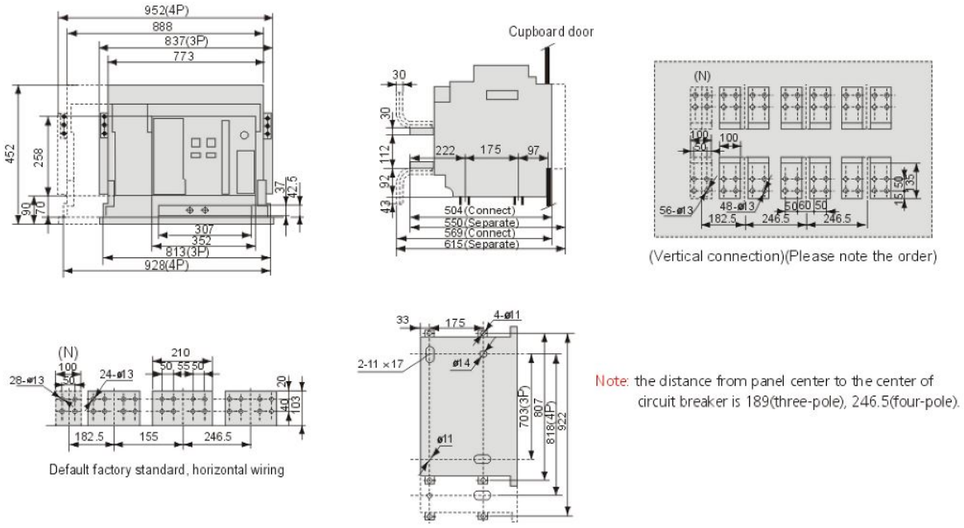


Figure 13 Overall and installation dimension of (ASW1-6300, 6300/4 In=4000A, 5000A) drawer type circuit breakers

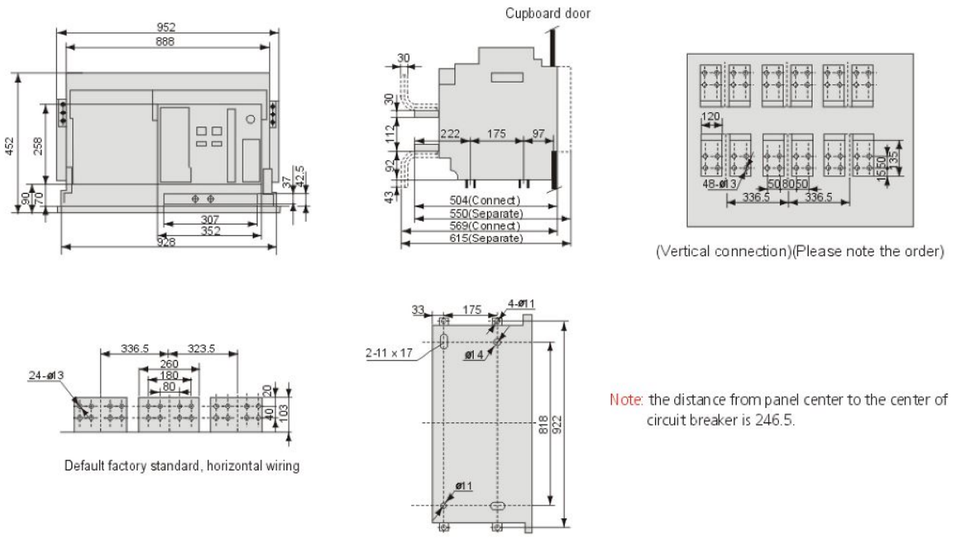


Figure 14 Overall and installation dimension of (ASW1-6300 In=6300A) drawer type circuit breakers

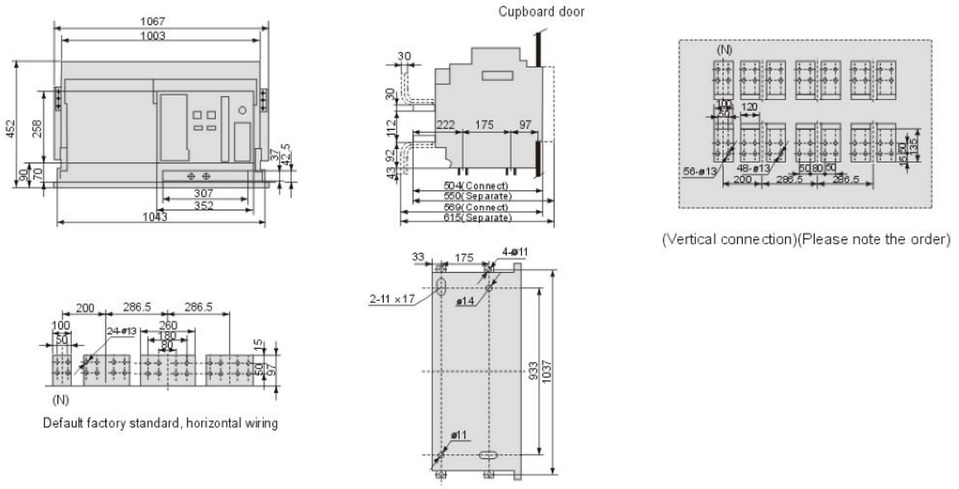


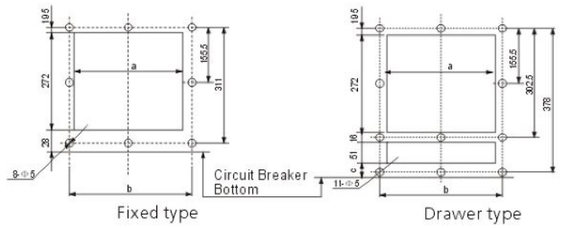
Figure 15 Overall and installation dimension of (ASW1-6300/4 In=6300A) drawer type circuit breakers

The user connected bar specifications and quantity

Table 14

Rated current	External bar specifications	Root number per pole	Rated current	External bar specifications	Root number per pole
630A	40×5	2	2900A	100×10	3
800A	50×5	2	3200A	120×10	3
1000A	60×5	2	3600A	120×10	4
1250A	80×5	2	4000A	120×10	4
1600A	100×5	2	5000A	120×10	5
2000A	100×5	3	6300A	120×10	6
2500A	100×5	4			

1.3 Door size and hole distance of mounting hole



Inm	a mm	b mm	c mm
2000	306	345	0
3200, 4000/3	366	405	0
4000/4	306	345	20
6300	366	405	20

◆ Installation, operation and maintenance

● Installation

1.1 Before to install, check the specification of the breaker is in compliance with the requirement or not.

1.2 Before to install, use 500V megger to measure the insulation resistance, at ambient temperature 20 ± 5℃ and relative humidity 50% ~ 70%, it shall be not less than 10MΩ, or it shall be dried, till the resistance is qualified, then the breaker allowed to be installed.

1.3 During installing, the breaker base shall be vertical to the ground horizon, fixed by M10 screws.

1.4 During installing, please perform the reliable earthing, there has legible mark to show the earthing point.

1.5 The load side and source side for the breaker are interchangeable, it does not influence the performances.

1.6 After the breaker installation and electric connection finished, but before main circuit is electrified (for the drawer type breaker, it shall be in TEST position), it shall perform the following operations:

a.Check the voltage of under-voltage release, shunt release and closing electromagnet, motor operating mechanism is complied with require -ment (before breaker is closed, under-voltage release shall be electrified).

b.Push the handle up and down for 7 times, it will display, "CHARGED", and produce a sound of "kata" , namely energy charging is completed, push "I"or closing electromagnet electrified, the breaker can be closed reliably (at the case of pushing RESET button to reset release reliably), it can push the handle to change energy again.

c.For motor mechanism, motor electrified till it display "CHARGED" and "kata" sounded, energy charging completed, and it will cut off the power supply for motor, push "I" or closing electromagnet electrified, the breaker can be closed reliably.

d.After the breaker is closed, electrifying under-voltage release or shunt release, or pushing "O" button in the intelligent controller can make breaker to be opened during testing.

1.7 High electronic interference source shall be at 1000m away from the breaker.

● Operation

2.1 operation of intelligent controller

2.1.1 Setting of the controller

Long delay tripping current setting: push CLEAR key, then push SET key, till the indicator for long delay tripping current shining, mean -while it display the default setting current, generally, in setting range (0.4 ~ 1.0)In, push +, - key according to requirement, step per push ≤2%, till it is closest value what you need. Then push SAVE, the indicator for saving shall flash one time, that's means adjustment for long delay tripping current is completed.

Time setting for long delay tripping: after its tripping current setting completed, push SET again, the indicator for this time is shining and default value display, push +, a time (step) same as default will be added every a push, if too long, push - to reduce, same step, till it is closest time you need, push SAVE, the saved indicator shall flash, so this setting is completed successfully. The setting operation for load monitoring, short delay trip, instantaneous trip, earthing trip and etc are same as the above-mentioned, only indicators are different. The tripping time for earthing fault set as OFF, it means it will produce alarm without tripping at earthing fault; instantaneous tripping set as OFF, means this protection is cancelled. During setting program, once fault signal coming, the controller will automatically lock this setting operation and enter into fault processing.

The protection parameters can't be intercrossed, the prior rank for protections as follow: Long delay < Short delay < Instantaneous. For the breaker used to reclose, ILc2 setting value smaller than ILc1, after all parameters set, push CLEAR key, or cut off power supply to reset, make the controller in service.

2.1.2 Test of controller

After the parameter setting finished, before the breaker put into service, as required, it can check all the protection functions, there has TRIP/NOT TRIP selection for test of releases, push TRIP to open breaker, push NOT TRIP, it will not send the signal of opening. (Note: only L type has tripping test, push TEST key, the controller send a signal to instantaneously trip the breaker).

In order to make test convenient, for earthing protection setting, no matter trip or alarm, the controller will send a signal of tripping during the test. Furthermore overloading protection is prior to earthing fault.

Test of overloading trip: push SET till it is long delay protection status, check the former setting current, then adjust it to other value >1.3Ir1 by pushing +, - key, then push TEST, it will enter into overload test program, the controller will take action according to inverse time limit character -istics, and indicate the fault type and test status. Other tripping characteristics test are same, after test finished, push CLEAR to enter into normal service, meanwhile it must push RESET, then breaker allowed to be closed.

2.1.3 Other operation instruction for the controller

During the controller is operated for setting or testing, if you don't push any key within 1min, it will automatically return to normal servicing status, meanwhile once fault happen, the controller also lock the above operation and enter into fault processing automatically.

a. Check of setting

After pushing CLEAR, in the status without faults, push SET continuously, it will display the status and values in turns, after check finished, push CLEAR (or it will automatically enter into service status without touching the keys within 1min)

b. Check of system current and voltage

After push CLEAR in the controller, in the status without faults, push SELECT 1 continuously, it will display the each phase current and earthing current in turns, normally it will display the maxi phase current, push SELECT 2 continuously, display each line voltage in turns, normally it will display the maxi line voltage.

After push CLEAR in the controller, push FAULT DETECT, it will display the last fault status and fault current, after tripped by test or fault current, push SELECT 1 to display the test/fault current or time in turns, the status of testing will not be memorized.

c. Reset

Before the breaker is closed, it shall push CLEAR key of the controller, let controller enter into normal service status, then push mechanical RESET button, then the breaker can be closed. When the breaker trip the fault, it shall push the red mechanical RESET button on the controller, if breaker need be closed immediately, the controller shall be power-off firstly, then reset, finally the breaker can be closed.

2.1.4 If user has special requirement for the characteristics, please indicate when to book the products, we will set the default as requirement.

2.1.5 If user has no requirement on controller, we will supply M type, and default settings as follows:

a.Long delay Ir1 set as 1.0In, 1.5Ir1 tripping time set as 15s.

b.Short delay Ir2 set as a little larger than 8Ir1,definite time limit set as 0.4s;

c.Instantaneous tripping current set as 12In.

d.Earthing fault current Ir4 set as 0.4In, tripping time set as OFF, only display this fault but not trip breaker.

2.1.6 If user need adjust the settings, after he master the operation of the product, we allow him to set.

◆ M type or H type controller(as Fig.16,17)

● 1-RESET button. After the breaker tripped, if it need close again, it shall push RESET button, or breaker can't be closed.
● 2-Current (voltage), time display, it can display these values.
● 3-SELECT key. At normal servicing status, it can display each phase of current (voltage) value in turns, when at fault status or checking fault status, it can display fault current and its time in turns.
● 4-LED light indication, display each status and kinds.
● 5-CLEAR key, for controller setting, after test of fault or before to close the breaker, it shall push this key, make the control back to normal service status.
● 6-SET key. Check and set all tripping currents or time, push this key to display each status in turns.
● 7-FAULT CHECK key. After pushing CLEAR key of the controller, push this key to display last fault status and fault current or time. Fault current or time to be displayed in turn by pushing SELECT key.
● 8-TRIP, NOT TRIP keys. Use to test the functions
● 9-SAVE, +, - keys. Used to set tripping currents or time
● Ir4 - Earthing tripping current setting value
● Ir1 - Long delay tripping current setting value
● Ir2 - Short delay tripping current setting value
● Ir3 - Instantaneous tripping current setting value
● tG - Earthing tripping setting time
● tL - Long delay tripping setting time
● ts - Short delay tripping setting time

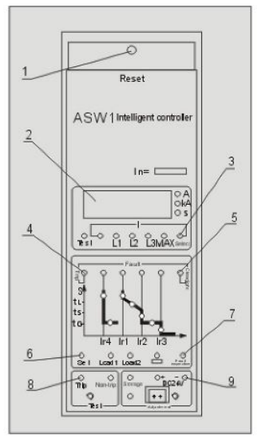


Fig.16 M type controller

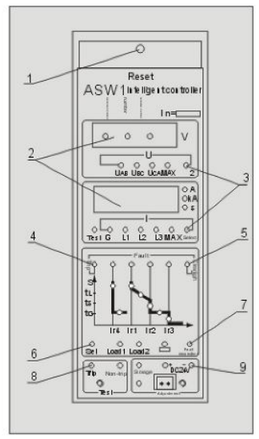


Fig.17 H type controller

◆ L type controller(as Fig.18)

● 1-RESET button.
After the breaker tripped due to fault or testing, only after it push RESET button, then breaker can be closed.
● 2-Load display: display overload long delay tripping current.
● 3-Knob for setting long delay, short delay, delay, and earthing tripping currents, the value read from calibrations on the knob.
● 4-Fault indicator: display the kinds of fault
● 5-Long delay overloading: setting key for tripping time
Adjust the position of toggle switch to set the time.
● 6-Short delay tripping time setting key
Adjust the position of toggle switch to set the time.
● 7-Earthing fault tripping time setting key
Adjust the position of toggle switch to set the time.
● 8-CLEAR key
After test of fault or set the controller, or trip the breaker due to fault, it shall push this key, make the controller back to normal service status.
● 9-FAULT CHECK key
If the breaker trip due to fault, push this key to show the reason of tripping. It has memory function after power off.
● 10-TEST key
This key used to check the cooperation between controller and breaker.

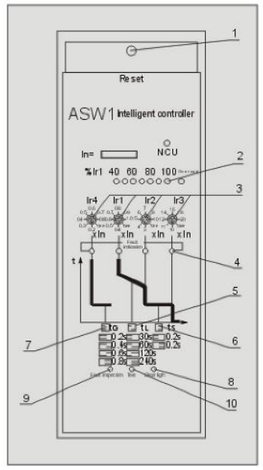


Fig.18 L type controller

◆ Setting methods of L type controller

● **Long delay setting**
a.Rotate Ir1 knob to set the tripping within (0.4 ~ 1)In;
b.Dial tL toggle switch to set its tripping time as 30s, 60s, 120s, 240s;
c.If Ir1 knob turned to OFF position, this function is cancelled.
● **Short delay setting**
a.Rotate Ir2 knob to set the tripping within (3 ~ 10)In;
b.Dial tS toggle switch to set its tripping time as 0.2s, 0.4s;
c.If Ir2 knob turned to OFF position, this function is cancelled.
● **Instantaneous tripping setting**
a.Rotate Ir3 knob to set the tripping within (3 ~ 10)In or (10 ~ 20)In or (7 ~ 14)In;
b.If Ir3 knob turned to OFF position, this function is cancelled.
● Earthing fault tripping setting
a.Rotate Ir4 knob to set the tripping within (0.2 ~ 0.8)In;
b.Dial tG toggle switch to set its tripping time as 0.2s, 0,4s, 0.6s, 0.8s;
c.If Ir4 knob turned to OFF position, this function is cancelled.
● Controller enter into servicing status
After all settings finished, push CLEAR key.
● When draw-out breaker is operated, if user need pull out the breaker, it must rotate the breaker to DISCONNECTED position, and take out handle, then the breaker can be pulled out.

◆ Repair and maintenance

● While in service, all rotating parts shall be injected with lubricating oil in period.
● Periodically clean off dust, ensure the good insulating level.
● Check the contact system periodically, after each tripping due to short circuit, specially the items to be checked:
a) Arc-extinguishing cover is burnt severely or not;
b) The contacts can be contacted well or not;
c) If the fixing screws are loose or not;
d) Soft connection has the broken welding or not.
● If electrical life is over but maintenance not performed all the way, it shall replace the arc-extinguishing cover, if electrical life is over and maintenance was ever done, arc-extinguishing cover and contacts shall be replaced.
● If mechanical life is over but maintenance not performed all the way, it shall replace energy storing mechanism and two springs on the main mechanism.

◆ Normal faults and solutions

Table 15

No.	Fault description	Reason	Solutions
1	The breaker can't be closed	● Under-voltage release is no power source voltage, and it is not switched on. ● The controller takes action for tripping, but it does not push the RESET button. ● The operating mechanism is not charged. ● Draw-out breaker is not in CONNECTED or TEST position. ● OFF position locked.	● Check the circuit and switch on the power source for under-voltage release. ● Push RESET button ● Hand or motor operating to charge the mechanism ● Use handle to rotate the breaker completely in CONNECTED or TEST position. ● Use the special key to open the lock
2	The breaker (mechanism) can't be charged with energy by motor	● Power source for motor operating mechanism is not switched on ● Power capacity not enough	● Check the circuit, and switch on the circuit ● Operating voltage shall not less than 85%Ue
3	It can't close the breaker by use of closing electromagnet	● No power source voltage ● Capacity is not enough	● Check the circuit, and switch on the circuit ● Operating voltage shall not less than 85%Ue
4	It can't open the breaker by use of shunt release	● No power source, no voltage ● Capacity is not enough	● Check the circuit, and switch on the circuit ● Operating voltage shall not less than 70%Ue
5	Fault current exceed long delay, short delay and instantaneous tripping current, only instantaneous protection take action, short delay and long delay no response.	● Long delay, short delay, instantaneous tripping settings are improper, set as same current range.	● Set them according to Ir1<Ir2<Ir3, and in consideration of acting range, adjust them again.
6	The breaker trip frequently	● Overloading result in protective tripping on site, because overload thermal memory not cleared on time then reclose the breaker.	● Cut off power source of the controller one time, or relcose the breaker after 30min.
7	The handle for draw-out breaker can be inserted into breaker	● The rail or breaker body was not pushed in completely	● Push the rail or circuit breaker in completely
8	The draw-out breaker can't be pulled out while the breaker is in disconnected position.	● Handle not taken out ● Draw-out breaker does not locate at completely disconnected position	● Take out handle ● Use handle to rotate the breaker completely in disconnected position.

YUEQING AISO ELECTRIC CO.,LTD.

www.aisoelectric.com

ASM1

Moulded case circuit breaker

◆ General

Comply with GB14048.2-2008 standards;
Rated insulation voltage: 800V;
Frame size rated current: 63A, 100A, 225A, 400A, 630A, 800A;
High breaking capacity: up to 100kA;
Reasonable design, safe and reliable, small size, light weight, beautiful appearance;
Accessories everything, quick installation, easy to use, strong applicability.

◆ Application

ASM1 series moulded case circuit breaker (abbr. breaker), is new style circuit breaker designed by our company, adopting international latest manufacturing technology. Its rated insulation voltage is 690V, (500V for ASM1-63), the breaker is operating in the distribution line of AC50Hz, rated operating voltage 690V and below, rated working current up to 800A, to not frequently transfer the line or start the motor. The breakers have the protection functions of overloading, short circuit, and under-voltage, able to protect the line and equipment from being damaged

According to ultimate short circuit breaking capacity, the breaker can be divided into three kinds: L type (standard type), M type (middle type), H type (high breaking type). It has such advantages as small size, high breaking capacity, short arcing distance (some has zero arc), anti -vibration and etc, is the ideal products for land or vessel.

The product can be mounted vertically or horizontally.

The product not allowed to interchange the incoming and outgoing lines (source line and load line), terminals 1,3,5 can only connected to source line, terminals 2,4,6 connected to load line.

◆ Suitable working environment

- Altitude not more than 2000m;
- Ambient temperature not higher than +40℃ (45℃ for vessel use type) and not lower than -5℃ ;
- Pollution grade: Ⅲ;
- It can withstand the common moisture atmosphere;
- It can withstand the influence of common salty fog, oil fog;
- It can resist the mildew influence;
- Max. mounting sloping angle: ±22.5° ;
- The breaker can work reliably at normal vibration of vessel;
- It can reliably work at the earthquake degree of 4g;
- The mounting site shall have no explosive risk, or other medium not enough to corrode the metal or damage the insulation, or no conductive dusts;
- Where there is no rain or snow.

◆ Type definition and classification

AS M 1 - □ □ □ / □ □ □

- Usage code 1)
- Release mode and accessory code
- Pole No.: 3P, 4P
- Operating mode 2)
- Rated ultimate short circuit breaking capacity level
- Frame size rated current
- Design No.
- Moulded case circuit breaker
- Enterprise code

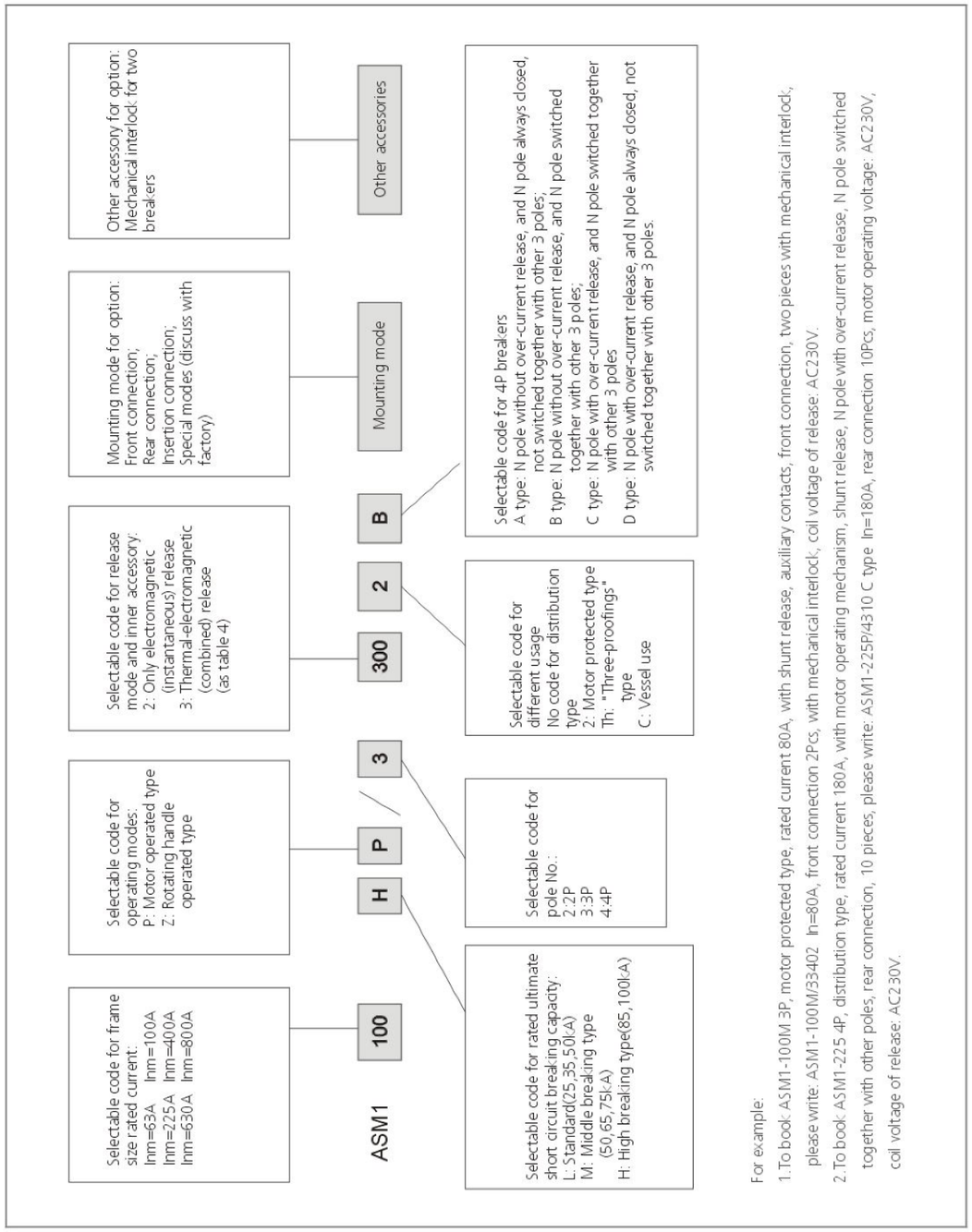
Note: 1) It has no code for distribution type circuit breaker; 2 stand for the motor protected type breaker.
2) No code for direct operated type; motor operated type: P; rotating handle: Z.

- Classified according to pole No.: 2P (100A, 225A), 3P and 4P.
  For 4P breakers, they divided into four kinds furthermore:
  A type: N pole without over-current release, and N pole always closed, not switched together with other 3 poles;
  B type: N pole without over-current release, and N pole switched together with other 3 poles (N pole closed in advance or opened later);
  C type: N pole with over-current release, and N pole switched together with other 3 poles (N pole closed in advance or opened later);
  D type: N pole with over-current release, and N pole always closed, not switched together with other 3 poles.
- Classified according to current ratings:
  ASM1-63: (6) 10, 16, 20, 25, 32, 40, 50, 63A, 9 ratings
  (6A without overloading protection);
  ASM1-100: (10), 16, 20, 25, 32, 40, 50, 63, 80, 100A 10 ratings;
  ASM1-225: 100, 125, 140, 160, 180, 200, 225A 7 ratings;
  ASM1-400: 225, 250, 315, 350, 400A 5 ratings;
  ASM1-630: 400, 500, 630A 3 ratings;
  ASM1-800: 630, 700, 800A 3 ratings [the rating in bracket not recommended]
- Wiring mode classified: front connection type, rear connection type, and insertion type.
- According to over-current release type: thermal-electromagnetic (combined) type, electromagnetic (instantaneous) type.

◆ Main technical parameters

Table 1

Model	Frame size rated current (A)	Rated current (A)	Rated working voltage (V)	Pole No.	Rated ultimate short circuit breaking capacity(kA)400V	Rated operating short circuit breaking capacity(kA)400V	Arcing distance (mm)	Rated impulse withstand voltage Uimp(kV)
ASM1-63L	63	(6), 10, 16, 20, 25, 32, 40, 50, 63	AC400V	3	25	18	≤50	8
ASM1-63M				3, 4	50	35		
ASM1-100L	100	(10), 16, 20, 25, 32, 40, 50, 63, 80, 100	AC400V	3, 4	35	18	≤50	8
ASM1-100M				3, 4	50	35		
ASM1-100H				3, 4	85	50		
ASM1-225L	225	100, 125, 140, 160, 180, 200, 225	AC400V	3, 4	35	18	≤50	8
ASM1-225M				3, 4	50	35		
ASM1-225H				3, 4	85	50		
ASM1-400L	400	225, 250, 315, 350,400	AC400V	3, 4	50	35	≤100	8
ASM1-400M				3, 4	65	45		
ASM1-400H				3, 4	100	65		
ASM1-630L	630	400, 500, 630	AC400V	3, 4	50	35	≤100	8
ASM1-630M				3, 4	65	45		
ASM1-630H				3, 4	100	65		
ASM1-800M	800	630, 700, 800	AC400V	3, 4	75	50	≤100	8
ASM1-800H				3, 4	100	65		



Release mode and accessory code

Release mode and inner accessory code

Table 2

Accessory code	Accessory name \ Model / Pole No.	ASM1-63 ASM1-100		ASM1-225		ASM1-400 ASM1-630		ASM1-800
		3	4	3	4	3	4	3
208, 308	Alarm contact							
210, 310	Shunt release							
220, 320	Auxiliary contact							
230, 330	Under-voltage release							
240, 340	Shunt release, Auxiliary contact							
250, 350	Shunt release, Under-voltage release							
260, 360	Two pairs of auxiliary contact							
270, 370	Auxiliary contact, Under-voltage release							
218, 318	Shunt release. Alarm contact							
228, 328	Auxiliary contact, Alarm contact							
238, 338	Under-voltage release, Alarm contact							
248, 348	Shunt release, Auxiliary contact, Alarm contact							
268, 368	Two pairs of auxiliary contact, Alarm contact							
278, 378	Auxiliary contact, Under-voltage release, Alarm contact							

Note:

1. 200: stand for the breaker only with electromagnetic release; 300: stand for the breaker with thermal-electromagnetic release; 000: the breaker without release.
2. For 2P ASM1-100, 225 breakers, they only have 210,310,220,320,230,330; for 4P ASM1-100, 225 breakers, they have no 218,318,248,348, if N pole is A type and D type, then they have no 240,340,260,360,268,368;
3. For ASM1-400, ASM1-630 and ASM1-800, among the codes of 248,348,278,378, the auxiliary contacts only one pair (1NO, or 1NC), for 268, 368 codes, the auxiliary contacts have three pairs (3NO, or 3NC).

Sectional cross area of connected conductor and the proper rated current

Table 3

Rated current value(A)	10	16,20	25	32	40,50	63	80	100	125	160	180,200,225	250	315,350	400
Sectional cross area of conduct(mm^2)	1.5	2.5	4	6	10	16	25	35	50	70	95	120	185	240

Rated current value(A)	Cable		Copper busbar	
	Sectional cross area of conduct(mm^2)	Quantity	Size(mm × mm)	Quantity
500	150	2	30×5	2
630	185	2	40×5	2
700,800	200	2	40×5	2

Protection characteristics

The breaker with thermal release has inverse time delay tripping characteristics; electromagnetic release is of instantaneous tripping type, as table 4 (distribution type) and table 5(motor protected type).

Table 4(distribution type)

Rated current of release (A)	Thermal acting release (Ambient temperature Land use +40℃ Vessel use +45℃)		Tripping current of electromagnetic release (A)
	1.05In (cold state) not-trip time(h)	1.30In (hot state) tripping time(h)	
10≤In≤63	≥1	<1	10In±20%
63<In≤100	≥2	<2	
100<In≤800	≥2	<2	5In±20% 10In±20%

Table 5(motor protected type)

Rated current of release (A)	Thermal acting release (Ambient temperature Land use +40℃ Vessel use +45℃)				Tripping current of electromagnetic release (A)
	1.05In (cold state) not-trip time(h)	1.30In (hot state) tripping time(h)	1.50In (hot state) tripping time(h)	7.2In (cold state) tripping time(h)	
10<In≤225	≥2	<2	<4min	4s<Tp≤10s	12In±20%
100<In≤800			<8min	6s<Tp≤20s	

Note: 100A, 125A breakers of ASM1-225 have no 5In electromagnetic release.

Power loss

Table 6

Model	Ohmic current(A)	Three-pole total power loss(VA)	
		Front and rear plate connection	Insertion connection
'	25	28	32
'	25	40	45
'	63	20	24
'	100	35	40
ASM1-225(L, M, H)	225	62	70
ASM1-400(L, M, H)	400	115	125
ASM1-630(L, M, H)	630	187	200
ASM1-800(M, H)	800	262	-

Reduction coefficient of environmental temperature

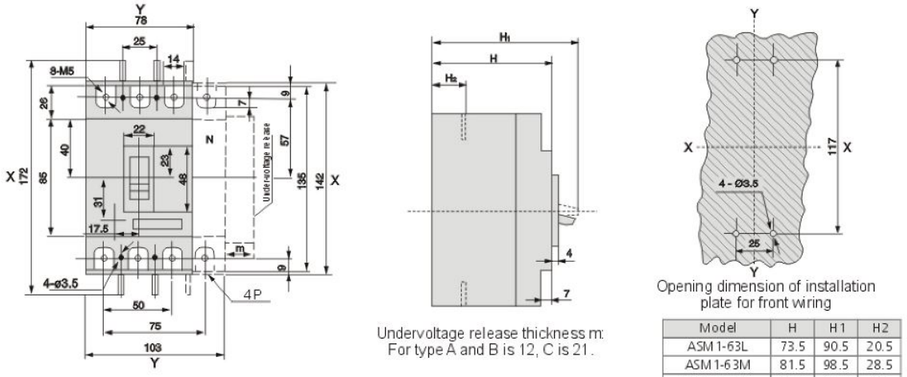
Table 7

Temperature / Coefficient / Model	+40℃ (Vessel use +45℃)	+45℃ (Vessel use +50℃)	+50℃ (Vessel use +55℃)	+55℃ (Vessel use +60℃)	+60℃ (Vessel use +65℃)
	Reduction coefficient	Reduction coefficient	Reduction coefficient	Reduction coefficient	Reduction coefficient
ASM1-63(L, M)	1In	0.94In	0.88In	0.80In	0.72In
ASM1-100(L, M, H)	1In	0.95In	0.89In	0.84In	0.76In
ASM1-225(L, M, H)	1In	0.96In	0.91In	0.87In	0.82In
ASM1-400(L, M, H)	1In	0.94In	0.87In	0.81In	0.73In
ASM1-630(L, M, H)	1In	0.93In	0.88In	0.83In	0.76In
ASM1-800(M, H)	1In	0.88In	0.83In	0.79In	0.76In

Note: the above reduction coefficient is measured in the case of the shell rated current.

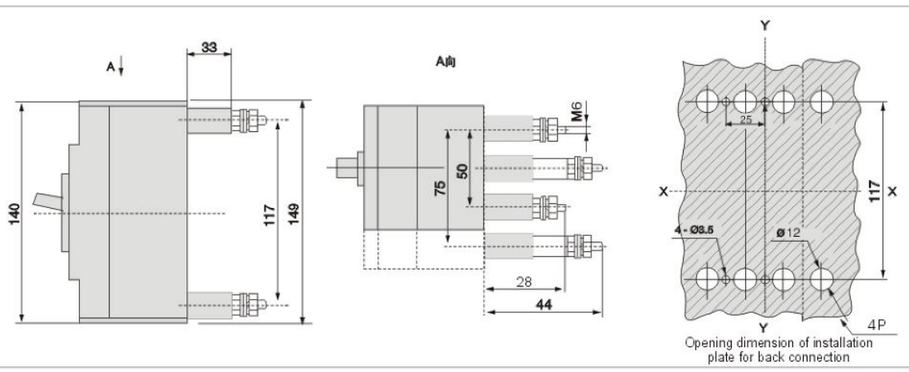
Overall and installation dimension

ASM1-63(L, M) front connection size (three, four poles) X-X, Y-Y three-pole circuit breaker center

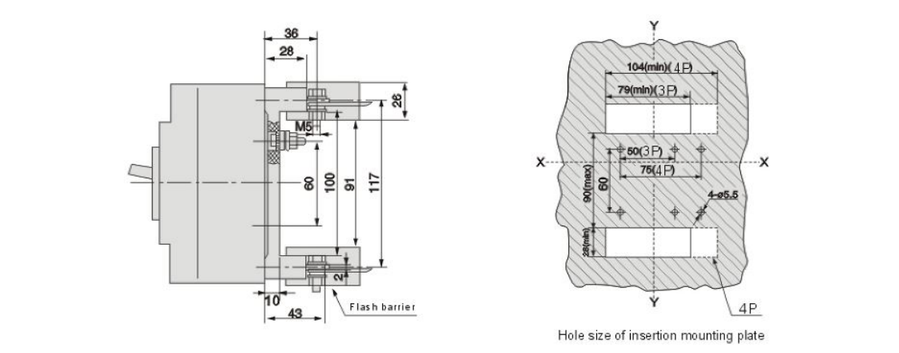


Model	H	H1	H2
ASM1-63L	73.5	90.5	20.5
ASM1-63M	81.5	98.5	28.5
ASM1-63/4P	81.5	98.5	28.5

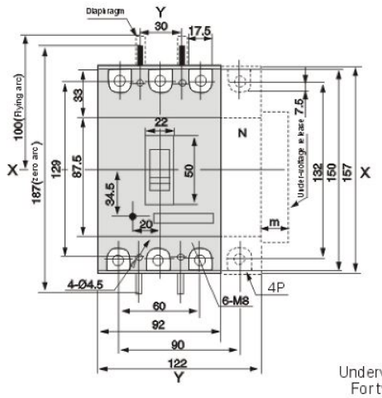
ASM1-63(L, M) rear connection size (three, four poles) X-X, Y-Y three-pole circuit breaker center

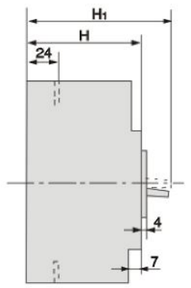


ASM1-63(L, M) insertion connection size (three, four poles) X-X, Y-Y three-pole circuit breaker center

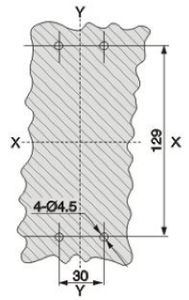


ASM1-100(L, M, H) front connection size (three, four poles) X-X, Y-Y three-pole circuit breaker center





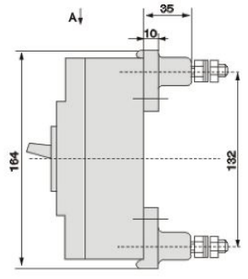
Undervoltage release thickness m:
For type A and B is 12, C is 21.

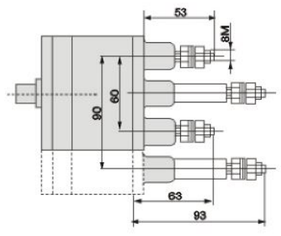


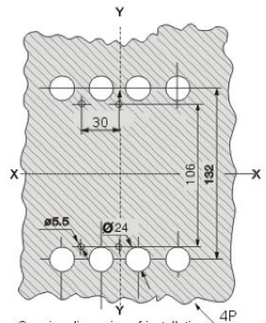
Opening dimension of installation plate for front wiring

Model	H	H1
ASM1-100L	68	86
ASM1-100M, ASM1-100H	86	104

ASM1-100(L, M, H) rear connection size (three, four poles) X-X, Y-Y three-pole circuit breaker center

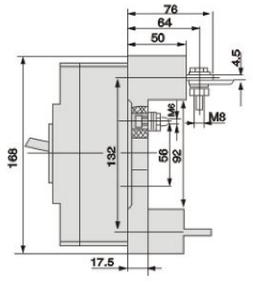


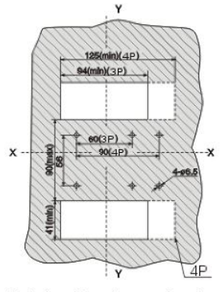




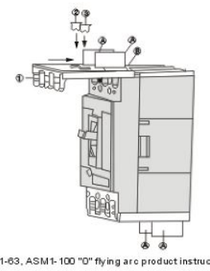
Opening dimension of installation plate for back connection

ASM1-100(L, M, H) insertion connection size (three, four poles) X-X, Y-Y three-pole circuit breaker center



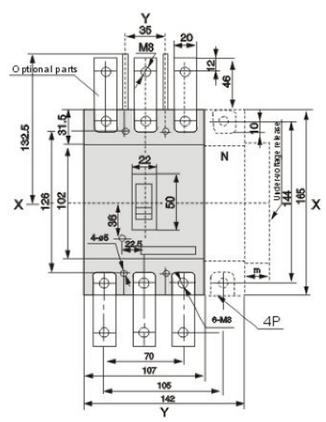


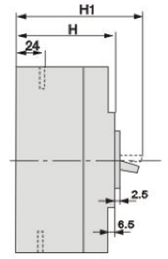
Hole size of insertion mounting plate



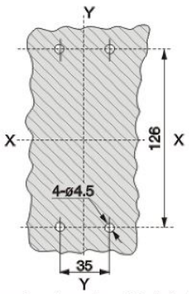
ASM1-63, ASM1-100 "0" flying arc product instructions:
1. Push the "0" flying arc shield (Fig. 1) in the direction of arrow to the end;
2. Insert the restrictors (Figures 2 and 3) into the square holes respectively.
3. There are two kinds of zero-flying arc shield. There are no B and B wiring in the front wiring and back wiring in the front wiring. No figure A.

ASM1-225(L, M, H) front connection size (three, four poles) X-X, Y-Y three-pole circuit breaker center





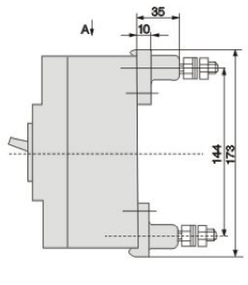
Undervoltage release thickness m:
For type A and B is 12, C is 21.

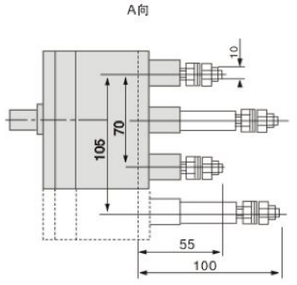


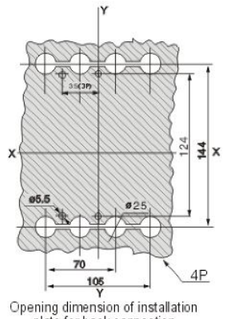
Opening dimension of installation plate for front wiring

Model	H	H1
ASM1-225L	86	110
ASM1-225M, ASM1-225H	103	127

ASM1-225(L, M, H) rear connection size (three, four poles) X-X, Y-Y three-pole circuit breaker center

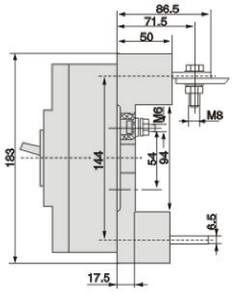


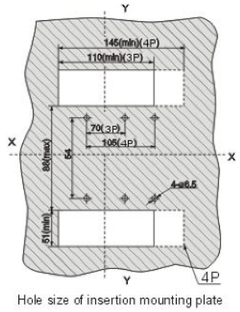




Opening dimension of installation plate for back connection

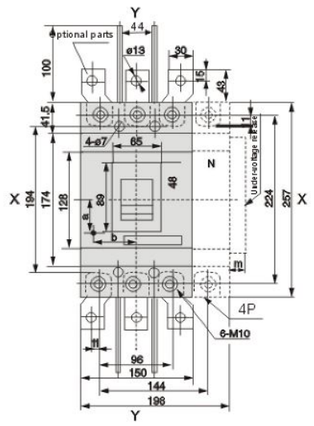
ASM1-225(L, M, H) insertion connection size (three, four poles) X-X, Y-Y three-pole circuit breaker center

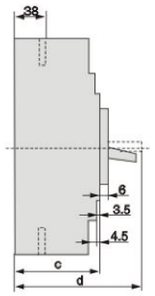




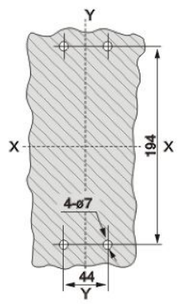
Hole size of insertion mounting plate

ASM1-400(L, M, H) front connection size (three, four poles) X-X, Y-Y three-pole circuit breaker center





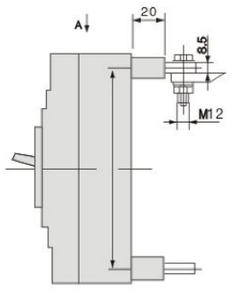
Undervoltage release thickness m:
For type A and B is 12, C is 0.

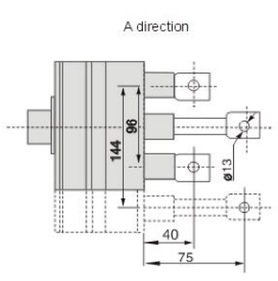


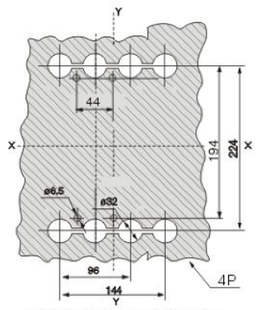
Opening dimension of installation plate for front wiring

Model	a	b	c	d
ASM1-400	43	57	105	155

ASM1-400(L, M, H) rear connection size (three, four poles) X-X, Y-Y three-pole circuit breaker center

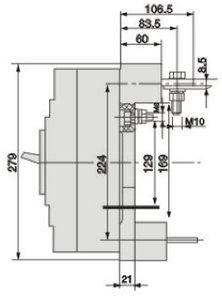


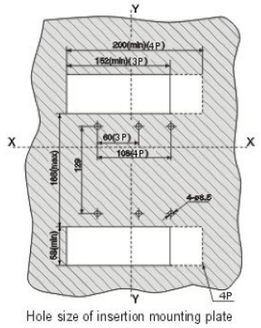




Opening dimension of installation plate for back connection

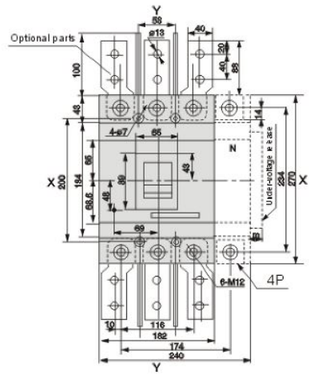
ASM1-400(L, M, H) insertion connection size (three, four poles) X-X, Y-Y three-pole circuit breaker center

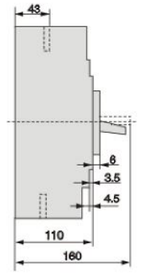




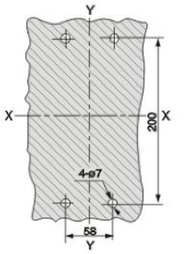
Hole size of insertion mounting plate

ASM1-630(L, M, H) front connection size (three, four poles) X-X, Y-Y three-pole circuit breaker center



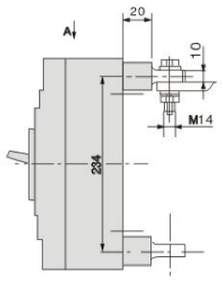


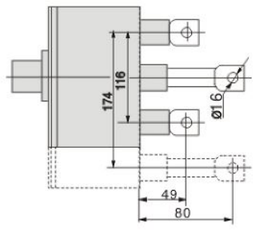
Undervoltage release thickness m:
For type A and B is 12, C is 21.

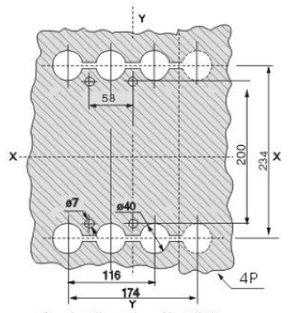


Opening dimension of installation plate for front wiring

ASM1-630(L, M, H) rear connection size (three, four poles) X-X, Y-Y three-pole circuit breaker center

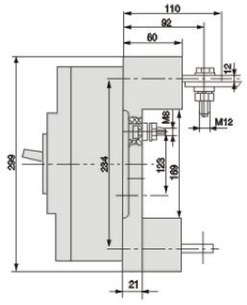


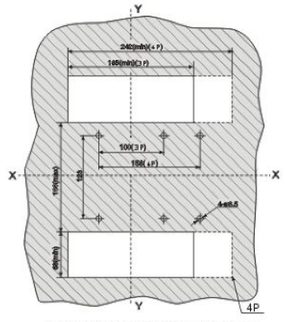




Opening dimension of installation plate for back connection

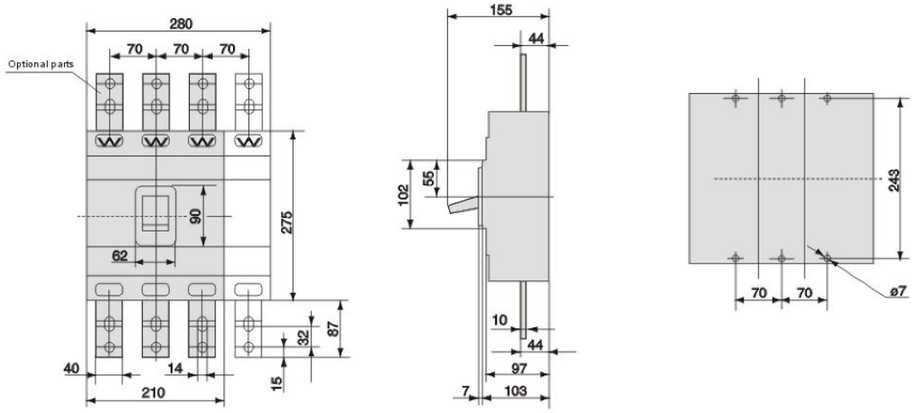
ASM1-630(L, M, H) insertion connection size (three, four poles) X-X, Y-Y three-pole circuit breaker center



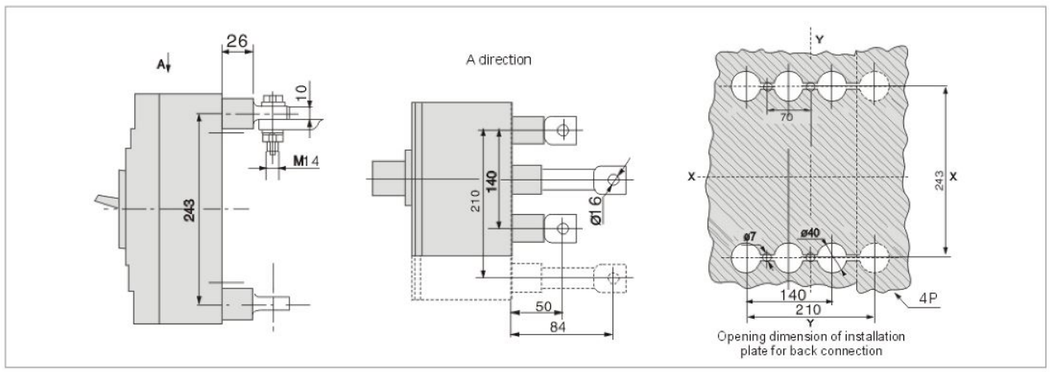


Hole size of insertion mounting plate

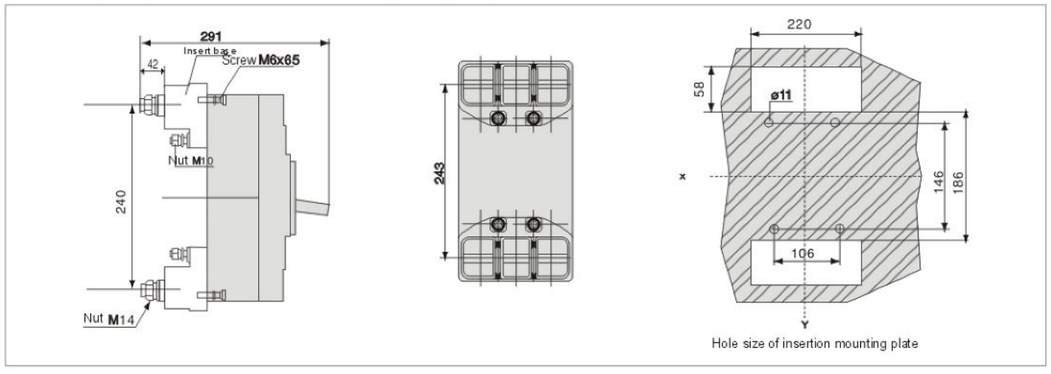
ASM1-800(L, M, H) front connection size (three, four poles) X-X, Y-Y three-pole circuit breaker center



ASM1-800(M, H) rear connection size (three, four poles) X-X, Y-Y three-pole circuit breaker center



ASM1-800(M, H) insertion connection size (three poles)



Inner and outer accessories

1. Inner accessories for breaker(according to user s requirement, the breaker can lead directly out for connecting the wire, or added with terminal block).

1.1 Under-voltage release

1.1.1 Under-voltage release has three kinds:

A type: AC50Hz/110V, 230, 400V; DC110V, 220V
B type: AC50Hz/400V(three-phase protected, namely phase failure protection)
C type: AC50Hz/230V, 400V

Power of under-voltage release

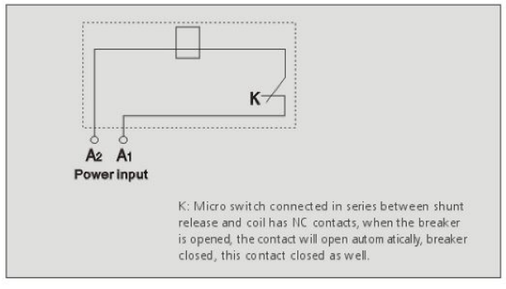
Table 8

Breaker assembled	Power of under-voltage release(VA)	
	AC230V	AC400V
ASM1-63	3.5	3.3
ASM1-100	2.6	3.3
ASM1-225	3.8	3.3
ASM1-400	3.7	2.7
ASM1-630	2.3	2.7
ASM1-800	2.5	2.8

When it is within 35% ~ 70% rated operating voltage, under-voltage release shall trip the circuit breaker reliably;
When it is within 85% ~ 110% rated operating voltage, under-voltage release shall ensure that the circuit breaker can be switched on;
When the rated operating voltage is less than 35%, undervoltage release should prevent the circuit breaker closing.
Warning: Under-voltage release shall be electrified, then the circuit breaker can be opened, or it will damaged the circuit breaker.

1.2 Shunt release

Wiring diagram(the components enclosed by dotted line is inner accessories)



Voltage specification: AC50Hz, 230V or 400V; DC220V or 24V(Note: DC24V not recommended),
within 70% ~ 110% rated voltage for controlling, shunt release shall trip the breaker reliably.

1.3 Alarm contact

Breaker in "OFF" "ON" position	B14, B12, B11
Breaker in "Free trip" (Alarm) position	B14, B12, B11

1.4 Auxiliary contact

Breaker in "OFF" position	F12, F14, F22, F24 — F11, F21	Breaker with rated frame current not less than 400A(one group has four pairs of contacts)
	F12, F14, F12 — F11	Breaker with rated frame current not more than 225A(one group has two pairs of contacts)
Breaker in "ON" position	F14, F22, F24 — F11, F21	Breaker with rated frame current not less than 400A(one group has four pairs of contacts)
	F12, F14 — F11	Breaker with rated frame current not more than 225A(one group has two pairs of contacts)

1.4.1 Rated current of auxiliary contact, alarm contact

Table 9

Uasge category	Frame size rated current Inm(A)	Conventional thermal current Ith(A)	Rated working current Ie(A)	
			AC 400V	DC 220V
Auxiliary contact	≤225	3	0.3	0.15
	≥400	3	0.4	0.2
Alarm contact	≤800	3	0.3	0.15

1.4.2 Electrified operation performance of auxiliary contacts and test conditions

Table 10

Uasge category	On			Off			Cycles of electrified operation	Cycles per 1min	Electrified time
	I/Ie	U/Ue	Cosφ or T0.95	I/Ie	U/Ue	Cosφor T0.95			
AC-15	10	1	0.3	1	1	0.3	6050	6	≥0.05s
DC-13	1	1	6Pe	1	1	6Pe			≥T0.95

1.4.3 Making and breaking capacity of auxiliary contact out of normal conditions

Table 11

Uasge category	On			Off			Cycles of electrified operation	Cycles per 1min	Electrified time
	I/Ie	U/Ue	Cosφ or T0.95	I/Ie	U/Ue	Cosφor T0.95			
AC-15	10	1	0.3	1	1	0.3	6050	6	≥0.05s
DC-13	1	1	6Pe	1	1	6Pe			≥T0.95

Note: 6Pe=T0.95 is empirical formula, Pe unit is "W", T0.95 unit is "ms"

2 Outer accessories for the breakers

2.1 Mechanical interlock for two circuit breakers

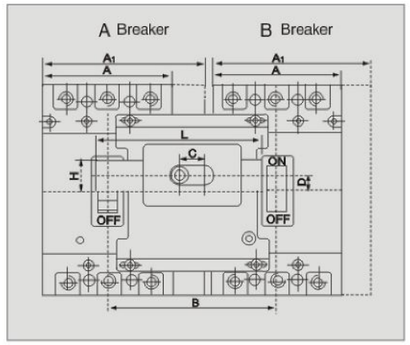


Table12

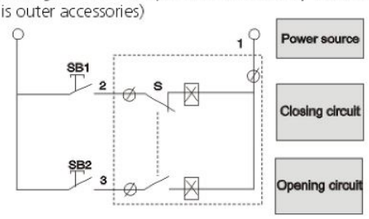
Product name	A	A1	B	C	D	L	H	Note
ASM1-63	78		102	18	13	95	22	Used in ASM1-63L, M
ASM1-100	92		120	18	11.5	118	22	Used in ASM1-100L, M, H
ASM1-225	107		135	18	9	130	22	Used in ASM1-225L, M, H
ASM1-400	150		190	42	16	175	22	Used in ASM1-400L, M, H
ASM1-630	182		220	42	12	198	22	Used in ASM1-630L, M
ASM1-800	210		240	42	29.5	230	20	
ASM1-63/4P		103	132	18	13	125	22	Used in ASM1-63/4P
ASM1-100/4P		122	152	18	11.5	150	22	Used in ASM1-100/4P
ASM1-160/4P		142	173	18	9	168	22	Used in ASM1-160/4P
ASM1-225/4P		142	173	18	9	168	22	Used in ASM1-225/4P
ASM1-400/4P		198	240	42	16	225	22	Used in ASM1-400/4P
ASM1-630/4P		240	280	42	12	258	22	Used in ASM1-630/4P

2.2 Motor operating mechanism

ASM1- 63 / 100 / 225 Moulded case circuit breaker

ASM1- 400 / 630 / 800 Moulded case circuit breaker

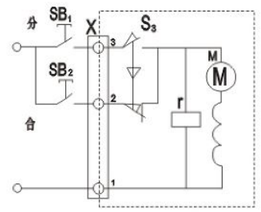
Principle diagram of opening and closing operation by electromagnetic (the components enclosed by dotted line is outer accessories)



S : Bid-directional acting micro limit switch electromagnetic type

Electromagnetic (100A, 225A)

Wiring diagram of opening and closing operation by electromagnetic(the components enclosed by dotted line is outer accessories



Symbol instruction:
SB1, SB2 pushbutton(provided by user)
X Wire terminal
S3 Micro switch
M Special operating motor
r Braking electromagnet

Motor operated type (400A or above)

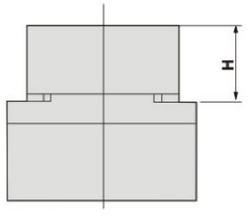
Specification: AC50Hz 230V or 400V

2.2.1 Startup current, power, and service life of motor operating mechanism

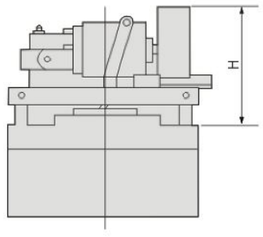
Table13

Breaker assembled	Startup current(A)			Startup power(VA)			Service life(Times)	
	Electromagnetic type	Motor operated type		Electromagnetic type	Motor operated type		Electromagnetic type	Motor operated type
		CD	CD2		CD	CD2		
ASM1-63L, M	≤5		≤0.5	110		14	10000	10000
ASM1-100L, M, H	≤7		≤0.5	154		14	10000	10000
ASM1-225L, M, H	≤8.5		≤0.5	187		14	8000	8000
ASM1-400L, M, H	-	≤5.7	≤2	-	120		-	5000
ASM1-630L, M	-	≤5.7	≤2	-	120		-	5000
ASM1-630H, ASM1-800M, H	-	≤7.5	≤2	-	120		-	3000

2.2.2 Height of motor operating mechanism



Electric operating mechanism



CD Motor operating mechanism

2.2.2 Overall height of breaker after assembled with motor operating mechanism

Table14

Model of breaker to be assembled		ASM1-63 L, M	ASM1-100 L, M, H	ASM1-225 L, M, H	ASM1-400 L, M, H	ASM1-630 L, M, H	ASM1-800 M, H
Height(mm)	Electromagnetic type	91	91	101			
	Motor operated type	88.5	89.5	93	141	141	135

Note: After breaker released and tripped, motor operating mechanism has to make the mechanism of the breaker to be hooked, then it can close the breaker.

2.3 Rotating handle operating mechanism

2.3.1 Features

Peculiar driving structure in mechanism, open or close or hook the breaker via the rotating handle, agile, stable, low operating force, easy installation, adjustment not required, the whole performance and quality better than other similar products, meanwhile in order to meet with different demand, we can provide CS1 series, CS2 series and CZ series operating mechanism for choice (the ones for 3P and 4P are same).

2.3.2 Usage

This device is specially used to operate ASM1 series moulded case circuit breaker, it perform the switch operating through this rotating handle in draw-out panel, distribution cabinet, power distribution box, and it shall ensure that panel door can't be opened when breaker is ON position (namely interlock between panel door and breaker position).

◆ Operation and maintenance

All parameters and accessories are set by our company before delivery, user shall not adjust it at random.

The breaker has three positions: ON, OFF, TRIPPED, when in TRIPPED position, it shall push the handle back for hooking the mechanism, and then close it again.

When the user operate it in compliance with the manual instruction, from the delivery date, and not more than 18 months, we will take responsibility for replacement or repair free of charge if the product has fault of damage or is unable to work due to quality.

◆ Ordering instructions

The following items must be clearly stated in the order:

1. Model of the circuit breaker;
2. Rated current;
3. Short circuit protection current setting value (if not specified, will be supplied by 10In);
4. Release mode and accessory code: If you do not specify the order, according to the non attachment (3300 or 4300) supply; When ordering the circuit breaker with shunt release or under-voltage release, the rated supply voltage value must be specified;
5. Operation mode: Orders are not specified by the manual operation to supply;
6. Mounting mode: Front connection, rear connection, insert type or drawer type(If you do not specify the order by rear connection to supply);
7. Users with special requirements must negotiate with the technical department to confirm before signing the contract;
8. For example: ASM1-225, standard type, three poles, rated current 100A, shunt release AC230V, the number of 218 units.
   Should be written as: ASM1-225L/3310 100A, shunt AC230V, 218.

ASM1L

Moulded case leakage circuit breaker

◆ General

The three-phase residual current protection module makes up for the defects of the existing similar products at home and abroad;
Rated residual operating current and maximum break time can be adjusted according to the actual situation;
The product has the function of residual current relay, and the light alarm does not trip, two is made one for circuit breaker and relay;
Comply with GB14048.2-2008 standards;
The shape of the shell is the same as that of the same shell frame ASM1 series moulded case circuit breaker, installation has good interchangeability.

◆ Application

ASM1L series moulded case circuit breaker with residual current protection (abbr. breaker), operating in the distribution line of AC50Hz, rated operating voltage 400V rated current up to 630A, its rated insulation voltage is 800V, used to not frequently transfer the line or start the motor. The breaker has the protection functions of overloading, short circuit, and under-voltage, able to protect the line and equipment from being damaged. Meanwhile it can provide the protection against the earthing fault that over current protection device can t detect but exist long term and may result in fire risk.

The breaker can be divided into two kinds: M type (middle type), H type (high breaking type). It has such advantages as small size, high breaking capacity, short arcing distance (some has zero arc), anti-vibration and etc, is the ideal products for land or vessel.

The product can be mounted vertically or horizontally.

The product not allowed to interchange the incoming and outgoing lines (source line and load line), terminals 1, 3, 5 can only connected to source line, terminals 2, 4, 6 connected to load line.

◆ Model and meaning

AS M 1 L – □ □ □ / □ □ □ □ □

- Alarm module for electric leakage 1)
- Code of 4P breaker 2)
- Usage code 3)
- Release mode and accessory code
- Pole No.
- Operating mode 4)
- Rated ultimate short circuit breaking capacity level
- Frame size rated current
- With residual current protection
- Design No.
- Moulded case circuit breaker
- Enterprise code

Note: 1) Handle operated type: no code; motor operated type: P; rotating handle: Z.
2) Distribution type breaker: no code; motor protected breaker: 2.
3) 3 poles breaker: no code, 4 poles breaker code: A, B, C, D.
4) No alarm module: no code
When electric leakage occurs, alarm module for leakage produces a signal and the breaker trip, use I stand for;
When electric leakage occurs, alarm module for leakage produces a signal but the breaker not trip, use II stand for.

◆ Circuit breaker classification

- Classified according to pole No.: 3P and 4P. For 4P breakers, they divided into four kinds furthermore:
  A type: N pole without over-current release, and N pole always closed, not switched together with other 3 poles;
  B type: N pole without over-current release, and N pole switched together with other 3 poles(N pole closed in advance or opened later);
  C type: N pole with over-current release, and N pole switched together with other 3 poles(N pole closed in advance or opened later);
  D type: N pole with over-current release, and N pole always closed, not switched together with other 3 poles.
- Wiring mode classified: front connection type, rear connection type, and insertion type.
- According to over-current release type: thermal-electromagnetic(combined) type, electromagnetic (instantaneous) type.
- The breaker can be provided with accessory or without accessory;
- The accessory have inner accessories and outer accessories: inner accessories including: shunt release, under-voltage release, leakage alarm unit module, auxiliary contact, alarm contact, five kinds;
  Outer accessories including rotating handle operating mechanism, motor operating mechanism.

Release mode and inner accessory code	Model / Pole No. / Accessory name	ASM1L-100		ASM1L-225		ASM1L-400		ASM1L-630	
		3	4	3	4	3	4	3	4
208,308	Alarm contact	← □		← □		← □		← □	
210,310	Shunt release	← ●		← ●		← ●		← ●	
220,320	Auxiliary contact	← ■		← ■		← ■		← ■	
230,330	Under-voltage release	← ○		← ○		← ○		← ○	
228,328	Auxiliary contact, Alarm contact	← ■ □		← ■ □		← ■ □		← ■ □	

Note: The release mode and inner accessories code number 2 of the first represents electromagnetic (instantaneous) release, 3 is said the thermal electromagnetic(compound) release, the latter two digits indicate the inner accessories code.

◆ Applicable working environment and installation conditions

- Altitude is not more than 2000m;
- The ambient temperature shall not exceed 40℃ , and not less than -5℃ , daily 24h average not exceeds +35℃ (Except for special order).
- The air relative humidity at the installation site shall be no more than 50% which is +40℃ at the highest temperature, at lower temperature, higher humidity is allowed, on dampest month the maximum humidity is 90%, meanwhile the lowest average temperature is 25℃ , and in consideration of dew on the product surface due to temperature change;
- Pollution grade: Ⅲ;
- The mounting category of main circuit is Ⅲ; The mounting category of auxiliary circuit and control circuit not connected to main circuit is Ⅱ;
- The mounting site shall have no explosive risk, or other medium not enough to corrode the metal or damage the insulation, or no conductive dusts;
- Where there is no rain or snow;
- The circuit breaker shall be installed according to the instruction of the product.

Main features

- Working source of common leakage protection module sampled from two phases, this series breaker sampled from three phases, if any of phase is lost, the leakage protection module can still work normally;
- Maximum break time at rated residual tripping current I△n is adjustable according to the actual conditions;
- When phase voltage drop down to 50V, leakage protection module can still work normally;
- With leakage alarm output function;
- Outline and figure same as SHIM1L series breaker for same specification, installation has good interchangeability.

Power loss and capacity reduction factor of circuit breaker

Model	Ohmic current(A)	Three-pole total power loss(VA)	
		Front and rear plate connection	Insertion connection
ASM1L-100 Direct heating type(10A)	10	12	15
ASM1L-100 Indirect heating type(16 ~ 100A)	100	35	40
ASM1L-225	225	62	70
ASM1L-400	400	115	125
ASM1L-630	630	187	200

Main technical index of circuit breaker

● Residual current protection action time

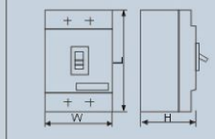
Residual current		I△n	2I△n	5I△n	10I△n
Time non delay	Maximum breaking time(s)	0.2	0.1	0.04	0.04
Time delay	Maximum breaking time(s)	0.5/1.15/2.15	0.35/1/2	0.25/0.9/1.9	0.25/0.9/1.9
	Limited non-drive time at 2I△n △t(s)	—	0.1/0.5/1	—	—

● Reduction coefficient of environmental temperature

Model \ Temperature / Coefficient	+40℃	+45℃	+50℃	+55℃	
	Reduction coefficient	Reduction coefficient	Reduction coefficient	Reduction coefficient	Reduction coefficient
ASM1L-100	1In	0.95In	0.89In	0.84In	0.76In
ASM1L-225	1In	0.96In	0.91In	0.87In	0.82In
ASM1L-400	1In	0.94In	0.87In	0.81In	0.73In
ASM1L-630	1In	0.93In	0.88In	0.83In	0.76In

Note: the above reduction coefficient is measured in the case of the shell rated current.

Technical parameters

Model		ASM1L-100			ASM1L-225			ASM1L-400		ASM1L-630	
Frame current Inm(A)		100			225			400		630	
Pole No.		3/4			3/4			3/4		3/4	
Rated insulation voltage Ui(V)		AC800									
Rated working voltage Ue(V)		AC400			AC400			AC400		AC400	
Rated impulse withstand voltage Uimp(V)		8000			8000			8000		8000	
Arcing distance(mm)		≥50			≥50			≥100		≥100	
Breaking capacity level		M	H		M	H		M		M	
Ultimate short circuit breaking capacity Icu(kA)	AC400V	50	85	50	50	85	50	65		65	
Operating short circuit breaking capacity Ics(kA)	AC400V	35	50	35	35	50	35	42		42	
.	Time non delay	100/300/500								—	
	Time delay	100/300/500								300/500/1000	
.		1/2I△n									
.		1/4Icu									
Operating performance Times	Electricity	1500			1000			1000		1000	
	No electricity	8500			7000			4000		4000	
Overall dimension(mm) 	W	92	122		107	142		150	198	210	280
	L	150	150		165	165		257	257	280	280
	H	92	92		91	90		106.5	106.5	115.5	115.5
Shunt release		○	○		○	○		○	○	○	○
Under-voltage release		●	●		●	●		●	●	●	●
Leakage alarm unit module		○	○		○	○		○	○	○	○
Auxiliary contact		●	●		●	●		●	●	●	●
Alarm contact		○	○		○	○		○	○	○	○
Motor operating mechanism		●	●		●	●		●	●	●	●
Rotating handle operating mechanism		○	○		○	○		○	○	○	○

Note: 1) The ultimate breaking and the arcing distance include horizontal and vertical installation;
2) This series of three pole circuit breaker is connected to the three-phase load, the load can not take the neutral line, or the circuit breaker will be wrong;
3) This series of three pole circuit breaker is connected to single phase load, the phase line is connected with the left pole, the neutral line is connected with the right pole, and the center pole is not connected.

◆ Protection characteristics

● The breaker with thermal release has inverse time delay tripping characteristics; electromagnetic release is of instantaneous tripping type.

● Distribution type

Rated current of release (A)	Thermal acting release (Ambient temperature +40℃)		Tripping current of electromagnetic release (A)
	1.05In (cold state) not-trip time(h)	1.30In (hot state) tripping time(h)	
10≤In≤63	≥1	<1	10In±20%
63<In≤125		<2	
125<In≤630	≥2	<2	5In±20%;10In±20%

Note: For ASM1L-225/4P circuit breaker, there is no 5In specification for neutral pole (N) electromagnetic release (short circuit protection).

● Motor protected type

Rated current of release (A)	Thermal acting release (Ambient temperature +40℃)				Tripping current of electromagnetic release(A)
	1.0In (cold state) not-trip time(h)	1.20In (hot state) tripping time	1.50In (hot state) tripping time	7.2In (cold state) non-trip time(h)	
10≤In≤400	≥2	<2	<8min	6s<Tp≤20s	12In±20%

◆ Inner and outer accessories of circuit breaker

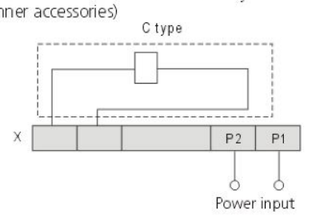
● Inner accessories for circuit breaker

According to the needs of the user, the circuit breaker accessories can lead directly out for connecting the wire, or added with terminal block.

○ **Under-voltage release**

Undervoltage release is C type: AC50Hz 230V or 400V

The plug-in module under voltage wiring diagram (the inner accessories of breaker by dotted line is inner accessories)



Symbol description: X is the terminal block

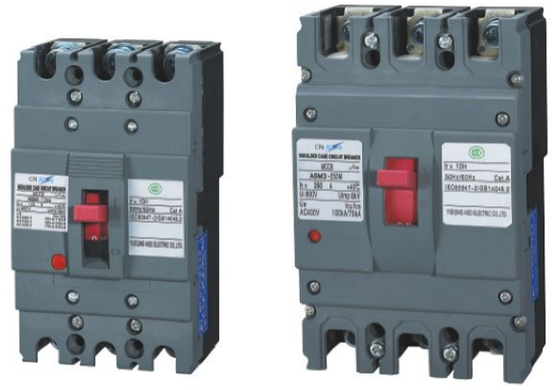
● Power of under-voltage release

Breaker assembled	Power of under-voltage release(VA)	
	AC230V	AC400V
ASM1L-100	2.6	3.3
ASM1L-225	3.8	3.3
ASM1L-400	3.7	2.7
ASM1L-630	2.5	2.8

When it is within 35% ~ 70% rated operating voltage, under-voltage release shall trip the circuit breaker reliably;
When it is within 85% ~ 110% rated operating voltage, under-voltage release shall ensure that the circuit breaker can be switched on;
When the rated operating voltage is less than 35%, under-voltage release should prevent the circuit breaker closing.
Warning: Under-voltage release shall be electriflied, then the circuit breaker can be opened, or it will damaged the circuit breaker.

ASM3

Moulded case circuit breaker



◆ Application

ASM3 series moulded case circuit breaker (abbr. breaker), is new style circuit breaker designed by our company, adopting international latest manufacturing technology. Its rated working voltage to 690V, rated insulation voltage 800V, rated impulse withstand voltage 8kV, rated current 10A~800A. ASM3 series moulded case circuit breaker is suitable for power distribution and motor protection of occasions, but also to the fire occasions. The breakers with overload alarm non- tripping function, when the line is overloaded, the breakers will don't trip, and only output overload signal, which can ensure the power supply continuity and meet the demands of article 4.3.5 GB50054 "when loss of cutting electricity is larger than overload, line of overload protection is alarm but non-tripping " . The breakers have the protection functions of overloading, short circuit, and under-voltage, able to protect the line
and equipment from being damaged.

According to ultimate short circuit breaking capacity, the breakers can be divided into four kinds: C type (basic type), L type (standard type), M type (middle type), H type (high breaking type). It has such advantages as small size, high breaking capacity, short arcing distance (zero arc cover with zero arc).

Product appearance is beautiful, reasonable layout, can be installed vertically (ie, vertical installation), can also be installed horizontally (ie, horizontal), is an ideal electrical products.

The breakers have the function of isolation, its corresponding symbol is .

The breakers complies with GB14048.2-2008 standards.

Main technical parameters

Model		ASM3-125	ASM3-250			
Rated voltage Ue(V)		400/415	400/415/690			
Rated insulation voltage Ui(V)		800	800			
Rated impulse withstand voltage Uimp(kV)		8	8			
Rated current In(A)		10-125	100-250			
Pole(3P, 4P-A/B)		3/ 4	3/ 4			3
		S	S	F	N	H
Rated ultimate short circuit breaking capacity Icu(KA)	50/60Hz AC 400/415V	35	35	50	70	85
	50/60Hz AC 690V	-	8	8	-	-
Rated operating short circuit breaking capacity Ics(KA)	50/60Hz AC 400/415V	21	21	30	42	64
	50/60Hz AC 690V	-	4	8	-	-
Mechanical life	Mechanical maintenance	40000	40000			
	Mechanical maintenance free	20000	20000			
Electrical life	AC 400/415V	8000	8000			
Protection type	Distribution protection	■	■			
	Motor protection	■	■			
Tripping mode	Thermal magnetic trip	■	■			
	Single magnetic trip	■	■			
Installation method	Fixed front connection	■	■			
	Fixed rear connection	■	■			
	Insertion type front connection	■	■			
	Insertion type rear connection	■	■			
	Pull-out type	-	-			
Product accessory	Under-voltage release	■	■			
	Shunt release	■	■			
	Alarm contact	■	■			
	Auxiliary contact(1NO,1NC)	■	■			
	Auxiliary contact(2NO,2NC)	■	■			
	Expansion terminal	■	■			
	AC motor mechanism CD1	-	-			
	AC and DC motor mechanism CD2	■	■			
	Circular direct manual operating	■	■			
	Square direct manual operating	■	■			
	Circular extend manual operating	■	■			
	Squre extend manual operating	■	■			
	Interphase barrier	■	■			
Accessory self installation		■	■			
Isolation function		■	■			
Usage category		A type	A type			
Authentication		CCC, TUV	CCC, KEMA			
Size: W x H x D	3P(mm)	75 x 130 x 68	107 x 165 x 76	107 x 165 x 88		
	4P(mm)	100 x 130 x 68	142 x 165 x 76	142 x 165 x 88		
Weight	Fixed type 3/4P(kg)	0.78/0.98	1.53/2.03	1.53/2.03		

Note: 1. ASM3-63/100/125AF, below 40A, minimum 400A protection action: 40A and above, 10/12In;
2. 100A, F/N, minimum current is 40A and above;
3. 4 pole products N phase is divided into A, B two types: A type: N phase without over-current release, and N phase always closed, not switched together with other 3 poles; B type: N phase without over-current release, and N phase switched together with other 3 poles(N phase closed in advance or opened later);

Model		ASM3-400				ASM3-630				ASM3-800			ASM3-1250
Rated voltage Ue(V)		400/415/690				400/415/690				400/690			400/415
Rated insulation voltage Ui(V)		800				800				800			800
Rated impulse withstand voltage Uimp(kV)		8				8				8			8
Rated current In(A)		200-400				400/500/630				630-800			800-1250
Pole(3P, 4P-A/B)		3/ 4			3	3/ 4			3	3/ 4		3	3
		F	N	H	R	F	N	H	R	F	N	R	H
Rated ultimate short circuit breaking capacity Icu(KA)	50/60Hz AC 400/415V	50	70	85	100	50	70	85	100	50	70	100	85
	50/60Hz AC 690V	8	10	-	-	10	10	-	-	-	30	-	-
Rated operating short circuit breaking capacity Ics(KA)	50/60Hz AC 400/415V	30	42	51	75	30	42	51	75	30	40	70	45
	50/60Hz AC 690V	5	10	-	-	10	10	-	-	-	20	-	-
Mechanical life	Mechanical maintenance	20000				20000				10000			10000
	Mechanical maintenance free	10000				10000				5000			5000
Electrical life	AC 400/415V	7500				7500				2500			2500
Protection type	Distribution protection	■				■				■			■
	Motor protection	■				■				-			-
Tripping mode	Thermal magnetic trip	■				■				■			■
	Single magnetic trip	■				■				■			■
Installation method	Fixed front connection	■				■				■			■
	Fixed rear connection	■				■				■			-
	Insertion type front connection	-				-				-			-
	Insertion type rear connection	■				■				■			-
	Pull-out type	-				-				■			-
Product accessory	Under-voltage release	■				■				■			■
	Shunt release	■				■				■			■
	Alarm contact	■				■				■			-
	Auxiliary contact(1NO,1NC)	■				■				■			■
	Auxiliary contact(2NO,2NC)	■				■				■			■
	Expansion terminal	■				■				■			■
	AC motor mechanism CD1	-				-				-			■
	AC and DC motor mechanism CD2	■				■				■			-
	Circular direct manual operating	■				■				■			-
	Square direct manual operating	■				■				■			-
	Circular extend manual operating	■				■				■			-
	Squre extend manual operating	■				■				■			-
	Interphase barrier	■				■				■			■
Accessory self installation		■				■				-			-
Isolation function		■				■				■			■
Usage category		A type				A type				A type			A type
Authentication		CCC, KEMA				CCC, KEMA				CCC, KEMA			CCC
Size: W x H x D	3P(mm)	150 x 257 x 107.5				150 x 257 x 107.5				210 x 280 x 100			210 x 406 x 190
	4P(mm)	198 x 257 x 107.5				198 x 257 x 107.5				280 x 280 x 100			-
Weight	Fixed type 3/4P(kg)	4.60/5.05				5.10/6.24				7.34/9.68			18.98

Protection characteristics

● Conformity standard

- GB 14048.1 General rules
- GB 14048.2 Circuit breakers
- IEC 60947-1 General rules
- IEC 60947-2 Circuit breakers

● Pollution class

- The ASM3 series operates in an environment (industrial environment) defined as a class of pollution levels of class 3.

● Hygrothermal resistance

- Cold, dry heat, damp heat

● Ambient temperature

- The ASM3 series can work for a long period of time between -5℃ and 40℃ under normal environment and operating temperature conditions.
- The working environment temperature is over 40℃ (motor protection over 60℃), please refer to the temperature drop coefficient table, or contact us.
- The storage temperature is from -20℃ to 70℃.

● Altitude

- The altitude of the normal work and installation site shall not exceed 2000m.
- In case of elevation above 2000m, we must consider changes in dielectric strength and air temperature drop, which may be used in accordance with the altitude derating factor table, or contact us.

● Humidity

Normal work needs satisfaction:

- When the ambient air temperature is +40℃, the relative humidity of the atmosphere can not exceed 50%. If the temperature is lower, the relative humidity can be used at higher humidity.
- The monthly relative humidity in the wettest month is 90%.
- The effect of condensation on the performance of the product should be considered.

● Reliable contact indication with isolation function

- The isolation position corresponds to the O (OFF) position
- Only when the contacts are turned on, the operating handle can indicate the "OFF" position
- The rotating handle or motor operating mechanism will not change the reliability of the contact indicating system

After testing, the isolation function must assure:

- Mechanical reliability of contact indicating system
- No leakage current
- There is a certain overvoltage tolerance between the inlet and outlet terminal

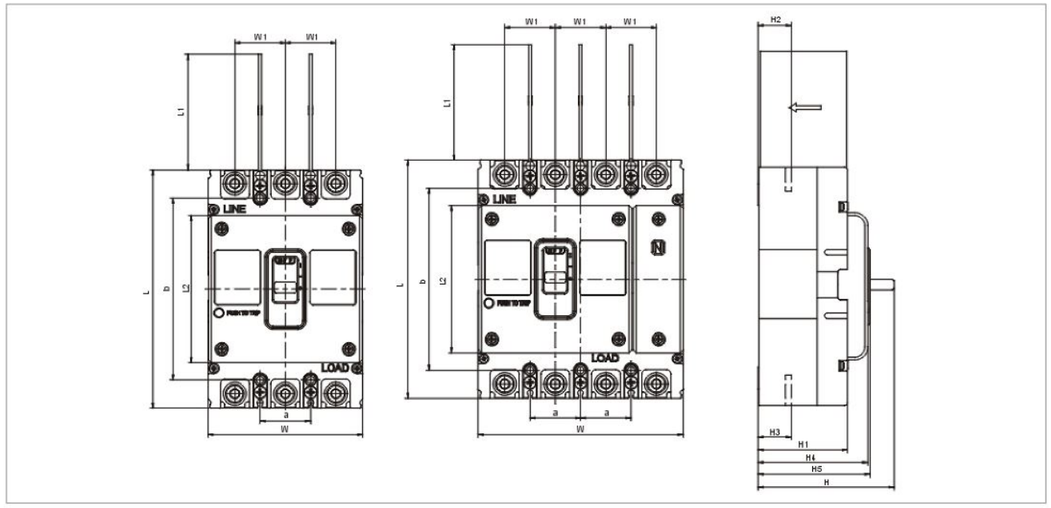
● Protection grade

- Breaker body, IP protection grade is IP20
- Circuit breaker installed in switch cabinet:

Circuit breaker with toggle handle: IP40

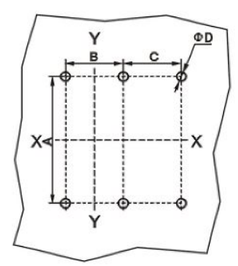
Circuit breaker with motor operated mechanism: IP40

Fixed type front pannel installation dimensions of ASM3



Shell frame	Pole No.	Overall dimensions											Installation dimensions	
		L	L1	L2	W	W1	H	H1	H2	H3	H4	H5	a	b
125S	3P	130	50	83	75	25	81.5	56	24	24	68	70.5	25	111
	4P				100									
125FN	3P	150	50	96	92	30	111.5	81	28.5	28	93.5	95.5	30	129
	4P				122									
250S	3P	165	80	102	107	35	94.5	62	23	23	76	77.5	35	126
	4P				142									
250FNH	3P	165	80	102	107	35	112.5	80	23	23	94	95.5	35	126
	4P				142									
400	3P	257	104.5	150	150	48	145.9	96.2	36	36/36.5	107.5	112.5	44	215
	4P				198									
630	3P	257	104.5	150	150	48	145.9	96.2	38	39	107.5	112.5	44	215
	4P				198									
800	3P	280	102	102	210	70	146.5	97.5	32.5	35.5	100	112.5	70	243
	4P				280									
1250	3P	406	104	97.2	210	70	197.5	134	58	60	140	158.5	70	376

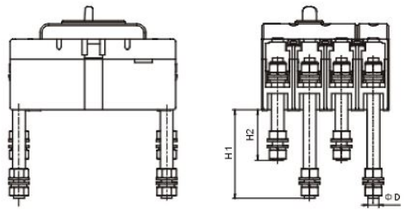
Fixed type front pannel mounting hole dimensions of ASM3



Note: X-X, Y-Y is three-pole circuit breaker center

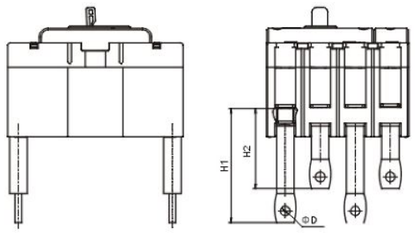
Shell frame	Pole No.	A	B	C	D
125S	3P	111	25	/	4.5
	4P			25	
125FN	3P	129	30	/	5
	4P			30	
250	3P	126	35	/	5.5
	4P			35	
400/630	3P	215	44	/	6.5
	4P			/	
800	3P	243	70	/	7.5
	4P			70	
1250	3P	376	70	/	10.5

◆ Fixed rear plate installation dimensions of ASM3



Installation dimensions diagram of ASM3-125S

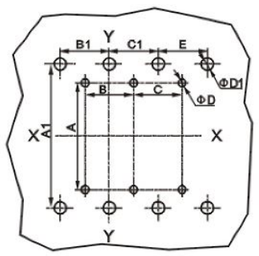
Model	H1	H2	D
ASM3-125S	39.5	69.5	8



Installation dimensions diagram of ASM3 125FN-800A

Model	H1	H2	D
ASM3-125FN	70	98	8
ASM3-250	72	101	11
ASM3-400	70	120	11
ASM3-630	70	120	11
ASM3-800	75	125	13
ASM3-1250	-	-	-

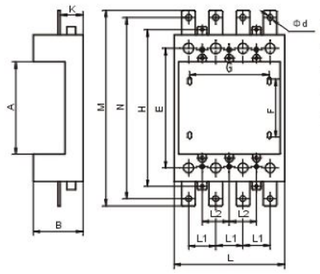
◆ Fixed rear plate mounting hole dimensions of ASM3



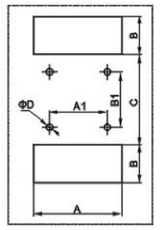
Note: X-X, Y-Y is three-pole circuit breaker center

Shell frame	Pole No.	A	B	C	ΦD	A1	B1	C1	E	ΦD1
125S	3P	111	25	-	4.5	116	25	25	-	12
	4P			25					25	
125FN	3P	129	30	-	5	132	30	30	-	15
	4P			30					30	
250	3P	126	35	-	5.5	145	35	35	-	15
	4P			35					35	
400/630	3P	215	44	-	6.5	225	48	48	-	32
	4P			-					48	
800	3P	243	70	-	7.5	243	70	70	-	40
	4P			70					70	

◆ Insert type front pannel installation dimensions of ASM3



Shell frame	A	B	E	F	G	H	L	L1	L2	M	N	K	Φd
125S	92	51.5	116	60	76	146	100	25	50	190	174	22.5	6.5
125F/N	102	55	132	60	90	173	122	30	60	216	200	25	6.5
250A	108	72	144	64	105	190	140	35	35	243	222	37	8.5

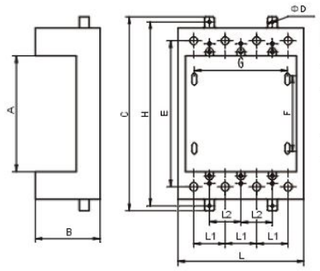


Insert type front pannel hole bitmap

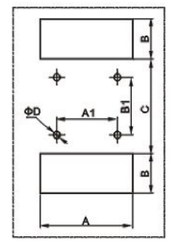
● Insert type front pannel hole bitmap

Model	Pole No.	A	A1	B	B1	C	ΦD
ASM3-125S	3P	/	25	/	96	/	4
	4P						
ASM3-125F/N	3P	/	30	/	110	/	5
	4P						
ASM3-250	3P	/	35	/	150	/	5
	4P						

◆ Insert type rear plate installation dimensions of ASM3



Shell frame	A	B	C	D	E	F	G	H	L	L1	L2
125S	92	51.5	154	2.5	116	60	76	146	100	25	50
125F/N	102	55	180	3.5	132	60	90	173	122	30	60
250A	108	72	200	3	144	64	105	190	140	35	35
400/630	170	60	-	-	225	130	60/108	-	152/200	48	44
800	176	87	-	-	243	143	90/160	-	210/280	70	70



Insert type rear plate hole bitmap

● Insert type rear plate hole bitmap

Model	Pole No.	A	A1	B	B1	C	ΦD
ASM3-125S	3P	75	51	22	60	92	4.5
	4P	100	76				
ASM3-125F/N	3P	92	60	30	60	102	4.5
	4P	122	90				
ASM3-250	3P	109	70	40	74.5	104	6
	4P	144	105				
ASM3-400/630	3P	152	88	54	145	170	8.5
	4P	200	132				
ASM3-800	3P	212	140	62	143	185	11
	4P	282	210				

◆ ASM3 series accessories

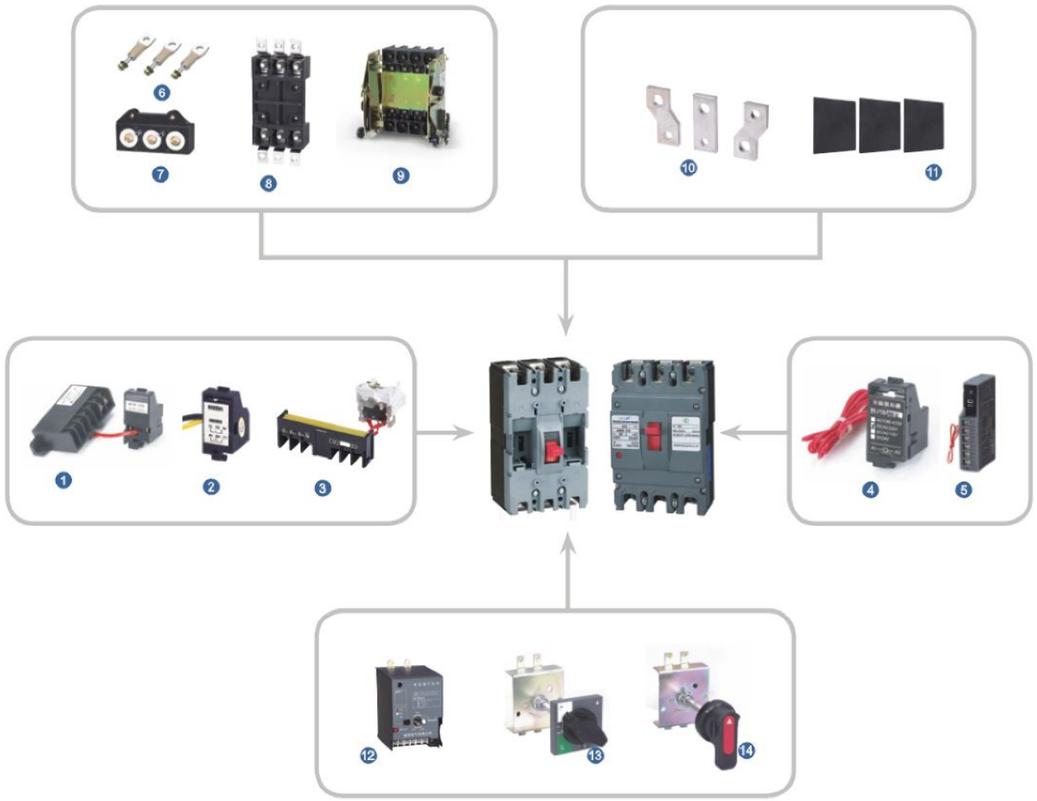
● ASM3 Annex product list

Electrical accessories: shunt release, under-voltage release, auxiliary contact, alarm contact, auxiliary alarm integration, leakage alarm module

Mechanical accessories: interphase partition board, expansion terminal, manual operation mechanism, motor operation mechanism

Installation accessories: fixed rear accessories, insert attachments, pull-out accessories

● Accessory explosion diagram



1	Under-voltage release	6	Fixed rear connection	11	Interphase barrier
2	Auxiliary contact	7	Insertion type rear connection	12	Motor operating mechanism
3	Alarm contact	8	Insertion type front connection	13	Square manual operation
4	Shunt release	9	Pull-out connection	14	Circular manual operation
5	Leakage alarm module	10	Expansion terminal		

◆ Mechanical accessories

● Interphase barrier

The interphase barrier can enhance the insulation performance of the interphase conductor, and can be installed from the front slot even after the switch is installed.

Standard configuration of interphase barrier out of factory.

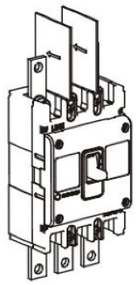
● Expansion terminal

The expansion terminal is connected to the standard terminal of the breaker so as to provide multiple wiring schemes in a smaller space:

· Direct expansion terminal

· Pole spacing extended terminal

Bus terminal, expansion terminal can be connected to the inlet or outlet terminal of circuit breaker.



◆ Handle operating mechanism

The circuit breaker is operated by means of the rotation of the handle, and conforms to the rotation handle of the human engineering design, so that the circuit breaker is operated more flexibly.

● There are 2 forms of rotary handle operating mechanism:

· direct rotating handle (round hand operated, square hand operated)

· extended rotating handle (circular, extended hand operated, square extended hand operated)

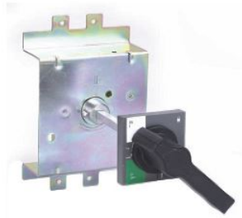
● User visual information / settings:

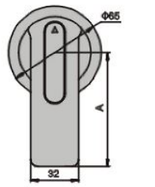
· 3 position indication: switch off (OFF), switch on (ON), trip (TRIP)

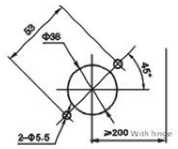
· When the door is open, the circuit breaker is not switched on

· Cannot open the door when it is switched on

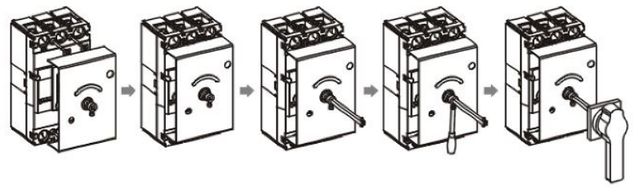
· The shaft length of the extension handle can be adjusted, depending on the distance from the back of the circuit breaker to the door







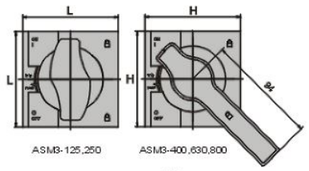
● **Manual installation diagram**



1. Aim at the direction of hand operation installation 2. Tighten the installation screws
3. Install the lengthened screw 4. The fixed screw 5. Install the lengthened handle

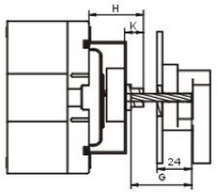
● **Circular manual operation**

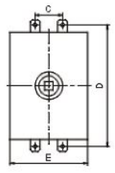
Model	A	Note
ASM3-125S	65	A size 65 or 95 is optional, defaults to 65
ASM3-125F/N	65	
ASM3-250A	65	
ASM3-400/630A	65	
ASM3-800A	95	A size 95 or 125 is optional, defaults to 95
ASM3-1250A	95	



● **Square manual operation**

Model	L	H
ASM3-125S	80	80
ASM3-125F/N	80	80
ASM3-250A	80	80
ASM3-400/630A	94	94
ASM3-800A	94	94





● **Extension turning handle**

Model	C	D	E	H	K
ASM3-125S	25	111	71	51	20
ASM3-125F/N	30	129	82	57	20
ASM3-250A	35	143	100	40	20
ASM3-400/630A	44	215	140	78	20
ASM3-800A	70	243	-	76	20

Note: at G, the shortest distance of the connecting rod is 50mm, and the factory standard is 150mm. If you need to order, please contact the manufacturer.

◆ Electrical accessories

Auxiliary contact, alarm contact

● **Auxiliary contact**

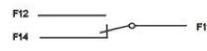
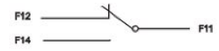
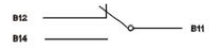
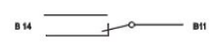
Attached to the auxiliary circuit of switch, an attachment used to indicate that the circuit breaker is energized (ON) or is not energized (OFF or Trip).

● **Alarm contact**

An attachment used to indicate the circuit breaker in the non-tripping (ON or OFF) or tripping (Trip) state, and when the alarm contact indicates that the circuit breaker is in the Trip (tripping) state, there are five possibilities:

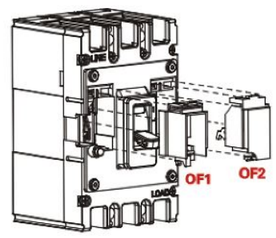
- Overload or short circuit fault
- Residual current fault
- Manual test button tripping
- Shunt release action
- Line fault, undervoltage release action

● **Electrical wiring diagram**

Accessory name	Switch on	Switch off/Trip
Auxiliary		
Accessory name	Switch on/off	Trip
Alarm		

Electrical parameters of auxiliary alarm contact			
Conventional thermal current(A)		3A	
Usage category (GB14048.5-1)		AC15	DC13
Working voltage 50/60Hz	AC400V	0.3A	-
	DC220V	-	0.15A

● **Auxiliary contact installation diagram**



Shunt release

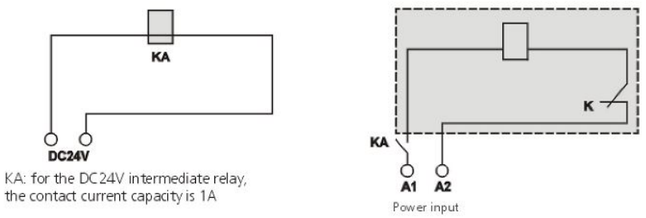
· When it is within 70%-110% rated control supply voltage, shunt release shall trip the circuit breaker reliably;
· The circuit breaker needs to be reset on the spot after tripping through the shunt release.

Model	Shunt coil power dissipation(W)		
	AC400V	AC230V	DC24V
ASM3-125S	91.6	76.1	91.2
ASM3-125F/N	96.8	73	91.2
ASM3-250	112	68.6	85.3
ASM3400	67	62.3	100
ASM3-630	68	58.2	100
ASM3-800	163	153	120
ASM3-1250	183	175	140

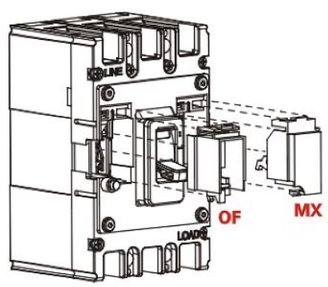
● When the rated control voltage of the shunt release is DC24V, the maximum length of copper conductor shall meet the following requirements:

Rated control supply voltage Uc(DC24V) \ Conductor area	1.5mm²	2.5mm²
100%Uc	150m	250m
85%Uc	100m	160m

● If does not meet the requirements of the above table, it is recommended to use the following diagram to design the control circuit of the shunt release:



● **MX installation sketch map**



Under-voltage release

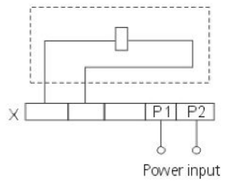
· When it is within 35%-70% rated operating voltage, under-voltage release shall trip the circuit breaker reliably;
· When it is within 85%-110% rated operating voltage, under-voltage release shall ensure that the circuit breaker can be switched on;
· When the rated operating voltage is less than 35%, under-voltage release should prevent the circuit breaker closing.

Model	Undervoltage coil power dissipation(W)	
	AC400V	AC230V
ASM3-125S	4	3.1
ASM3-125F/N	3.9	3.2
ASM3-250	4.3	3.3
ASM3-400	3.6	2.5
ASM3-630	3.4	2.5
ASM3-800	2	1.6
ASM3-1250	2	1.6

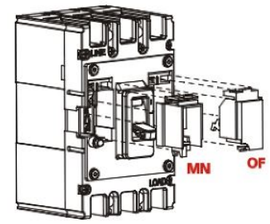
● **Electrical wiring diagram of under-voltage release**

Wiring diagram

Description: X- terminal blocks
Note: the components enclosed by dotted line is inner accessories.



● **Installation schematic diagram of under-voltage release**



Leakage alarm module (leakage moulded case circuit breaker accessories)

· Leakage not tripping function: when the leakage reaches the alarm limit, but at the same time do not want the system to power off, at this time only alarm, not tripping.
· The leakage alarm module is through the light of light emitting diode to indicate an alarm function, when the light emitting diode emits red light to member for which the system leakage is over the setting value, the normally open contacts changes into normally closed, normally closed contacts changes into a normally open state.

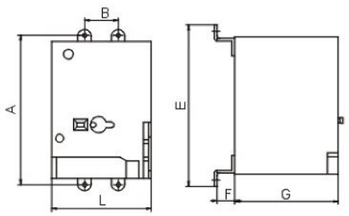
Motor operating mechanism

- It is suitable for circuit breaker remote electric closing, disconnection and re locking as well as automatic control occasion.
- Rated voltage of motor operating mechanism: AC400V, AC230V, 50/60Hz
- Working voltage range of motor operating mechanism: 85%-110% Ue

● There are two types of motor operating mechanism:
- CD1 AC type motor operating mechanism
- CD2 AC and DC general motor operating mechanism

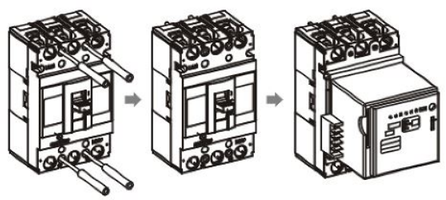
● CD2 motor operating voltage and tolerance range:
- Rated control supply voltage: 230VAC/220VDC, the voltage tolerance range is 184~253VAC, 187~242VDC ;
- Rated control supply voltage: 110VAC/ 110VDC, the voltage tolerance range is 88~121VAC /93.5~121VDC;
- Rated control supply voltage: 400VAC, the voltage tolerance range is 320~440VAC;
- Rated control supply voltage: 23VAC(CD2-1250), the voltage tolerance range is 184~253VAC;
- Rated control supply voltage: 24VDC, the voltage tolerance range is 22.8~25.2VDC;
- According to the size of the operating power of the circuit breaker, the switch is normal when the force is relatively small.

● Table of CD2 AC, DC type motor operating mechanism parameter and installation dimensions

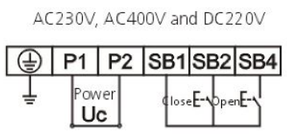


Model	A	B	E	F	G	L
ASM3-125S	111	25	120	13	77	74
ASM3125F/N	129	30	140	14	80	90
ASM3-250A	126	35	140	17	80	90
ASM3-400/630A	215	44	232	27	115	130
ASM3-800A	243	70	-	31	115	-

● CD2 motor operating installation diagram



● CD2 motor operated electrical wiring diagram



⚠ After the circuit breaker with the motor operating mechanism is tripped and tripped, the motor operating mechanism must be switched off before it can be switched on.

◆ Electrical attachment mounting position of ASM3

□ Alarm contact ■ Auxiliary contact ● Shunt release ○ Under-voltage release

Accessory code		Accessory name	Model					
Electro-magnetic type	Compound		ASM3-125S	ASM3-125F/N	ASM3-250	ASM3-400/630	ASM3-800	ASM3-1250
208	308	Alarm contact	□	□	□	□	□	
210	310	Shunt release	●	●	●	●	●	●
220	320	Auxiliary contact	■	■	■	■	■	■
230	330	Under-voltage release	○	○	○	○	○	○
240	340	Shunt + Auxiliary	■ ●	■ ●	■ ●	■ ●	● ■	■ ●
250	350	Shunt + Under-voltage	○ ●	○ ●	○ ●	○ ●	○ ●	○ ●
260	360	Two sets of auxiliary contacts	■ ■	■ ■	■ ■	■ ■	■ ■	■ ■
270	270	Auxiliary + Under-voltage	○ ■	○ ■	○ ■	○ ■	○ ■	○ ■
218	318	Shunt + Alarm	□ ●	□ ●	□ ●	□ ●	□ ●	
228	328	Auxiliary + Alarm	□■	□■	□■	□■	□■	
238	338	Under-voltage + Alarm	○ □	○ □	○ □	○ □	○□	
248	348	Shunt + Auxiliary + Alarm	□■ ●	□■ ●	□■ ●	□■ ●	□■ ●	
268	368	Two sets of auxiliary + Alarm	□■ ■	□■ ■	□■ ■	□■ ■	□■ ■	
278	378	Auxiliary + Under -voltage + Alarm	○ □■	○ □■	○ □■	○ □■		

Note: 200: stand for the breaker only with electromagnetic release; 300: stand for the breaker with thermal-electromagnetic release.

FUSE-SWITCH DISCONNECTOR

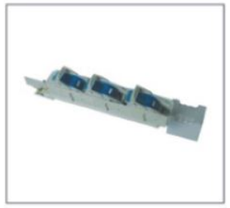
YUEQING AISO ELECTRIC CO.,LTD.

www.aisoelectric.com

SWITCH PROTECTION

LV HRC Industrial Bus-mounting Fuse-switch Disconnector for NH(NT) type fuse link

Rated voltage: 690V AC; Rated breaking capacity: 50kA
Standard specifications: IEC60947-3 EN60947-3



Item	In(A)	Packing
1 handle (1 switching)		
SL00/1×3	160	8
SL1/1×3	250	4
SL2/1×3	400	4
SL3/1×3	630	4
3 handle (3 switching)		
SL00/1×3	160	8
SL1/1×3	250	4
SL2/1×3	400	4
SL3/1×3	630	4
TL Fuse disconnector		
TL00/3	160	18
TL1/3	250	6
TL2/3	400	4
TL3/3	630	4

SF SWITCH FUSE

Fuse-switch Disconnector for D02 type fuse link

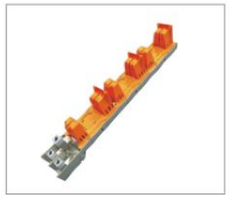
Rated voltage: 240V/415V AC; Rated breaking capacity: 10kA
Standard specifications: IEC60947-3 EN60947-3

Item	In(A)	Packing
SF32 32A FOR D02 Fuse Link:		
SF32	1P&N	6/72
	2P	3/36
	3P	2/24
	3P+N	1/18
SF63 63A FOR D02 Fuse Link:		
SF63	1P	6/72
	1P&N	6/72
	2P	3/36
	3P	2/24
	3P+N	1/18

NH PROTECTION

LV HRC Fuse-Base 3 Pole for NH/NT Fuse Link, Neutral Link & Neutral Base

Rated voltage: 690V AC; Rated breaking capacity: 120kA
Standard specifications: IEC60269-2-1 EN60269-2-1



Bus-Mounting 1x triple-poles		
LB00	3x160A	3x12W
LB1	3x250A	3x32W
LB2	3x400A	3x45W
LB3	3x630A	3x60W

Knife Link(Neutral)

Rated voltage: 690V AC
Standard specifications: IEC60269-2-1 EN60269-2-1 Class: neutral

Item	In(A)
00	160
0	160
1	250
2	400
3	630
4	1250

NH Sectionable Neutral Base

Neutral base for mounting on Din/EN rail or with screw fixing. Connection by screw or clamp.

Item	In(A)	Connection	Packing
NH00	160	Screw/Screw	5
NH0	160	Screw/Screw	3
NH1	250	Screw/Screw	3
NH2	400	Screw/Screw	1
NH3	630	Screw/Screw	1

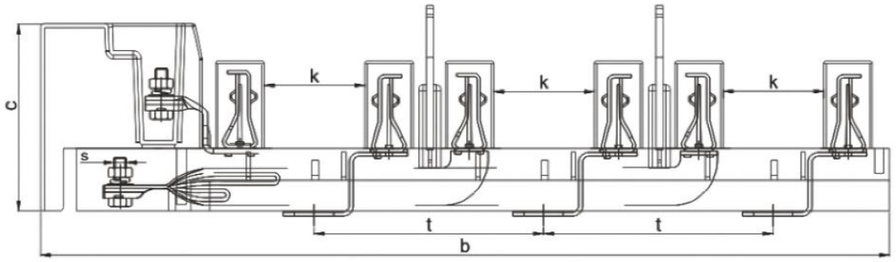
Item	In(A)	Connection	Packing
NH00	160	Clamp/Clamp	5
NH00	160	Clamp/Screw	5
NH0	160	Clamp/Screw	3
NH0	160	Clamp/Clamp	3

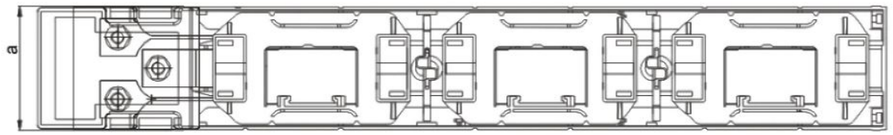
Earth Connector Terminal			
Item	In(A)	Connection	Packing
NA0	160	Clamp/Clamp	3/60

NH PROTECTION

NH Fuse base
Technical data

◆ Dimensions Bus-Mounting 1xtriple-poles





SS-1303

Size	a	b	c	t	k
LB00	63	361	66	90	58
LB1	98	673	153	185	80
LB2	98	673	153	185	80
LB3	98	673	153	185	80