

VW3

Air Circuit Breaker





- Tailored for solar energy, wind power and energy storage systems
- High-voltage air circuit breaker, optional 800V AC, 1140V AC, 1250V AC, 1500V AC
- With ultra-high breaking capacity, max meet 85kA at 800V AC
- With excellent anti damp heat and dew solidification capabilities
- Strong ability to adapt to alternating changes in high and low temperatures
- Strong resistance to salt spray and humid environments
- High altitude adaptability, still safe working at an altitude of 5000 meters
- Can be used in complex mixed gas environments (Cl₂, SO₂, NO₂, H₂S)
- Low energy consumption and temperature rise of the product itself
- Integrated communication network, capable of remote control, telemetry, remote signaling, and remote adjustment

Ambient conditions

Operating ambient temperature/storage temperature

- Operating environment temperature:-40°C- +70°C

Altitude conditions

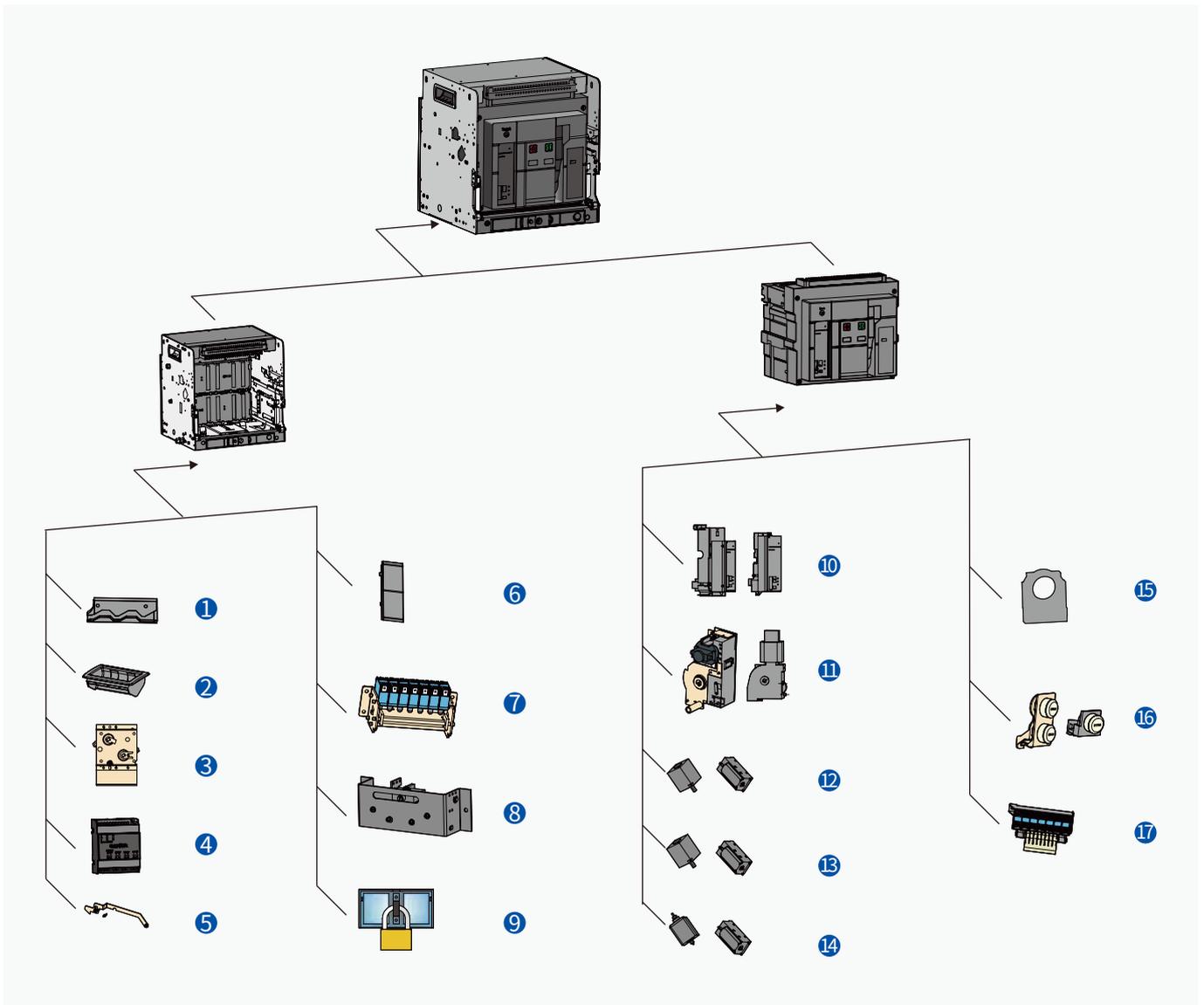
- Altitude of installation site ≤ 5000m (Over 2000 meters need capacity reduction for using)

Shockproof level

- Passed the impact test with a peak acceleration of 30g and three axes and six directions
- Passed the vibration test with an acceleration of 10g and a frequency of 10-200Hz
- Excessive vibration may cause component damage and affect the reliable operation of the circuit breaker

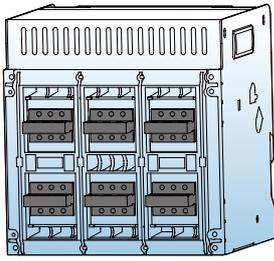
Corrosion prevention

- Passed the C4-H level anti-corrosion test specified in ISO12944-6 and GB/T 30790.6-2014 standards

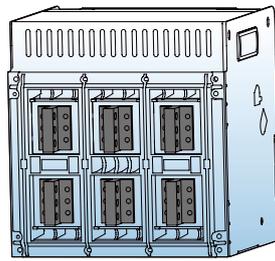


VW3 Accessories

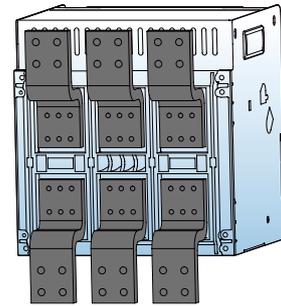
- | | | | |
|---------------------------|------------------------------|---|------------------------|
| ① Positioning component | ⑥ Phase partition | ⑪ Motor operating mechanism | ⑯ Prevent closing lock |
| ② Sheath | ⑦ External auxiliary contact | ⑫ Shunt release | ⑰ Auxiliary contact |
| ③ Mechanical interlocking | ⑧ Position indication | ⑬ Undervoltage(loss of voltage) release | |
| ④ Power supply module | ⑨ Button lock | ⑭ Closed electromagnet | |
| ⑤ Door interlocking | ⑩ Controller | ⑮ External transformer | |



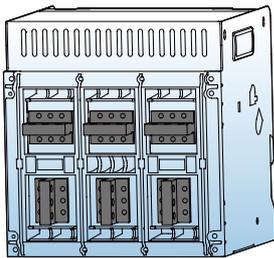
Horizontal Wiring C1



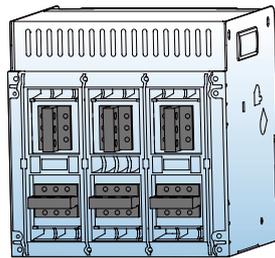
Vertical Wiring C2



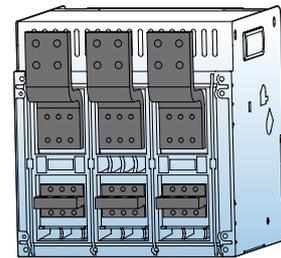
Forward Wiring C3



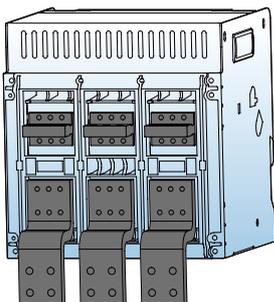
Mixed Wiring C4
(Upper Horizontal, Lower Vertical)



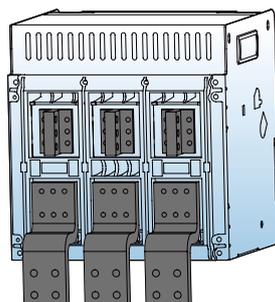
Mixed Wiring C5
(Upper Vertical, Lower Horizontal)



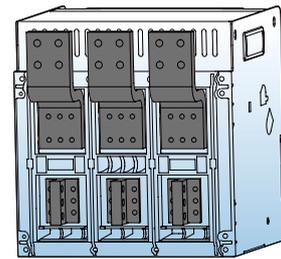
Mixed Wiring C6
(Upper Forward, Lower Horizontal)



Mixed Wiring C7
(Upper Horizontal, Lower Forward)



Mixed Wiring C8
(Upper Vertical, Lower Forward)



Mixed Wiring C9
(Upper Forward, Lower Vertical)

Wiring mode	VW3-20	VW3-25	VW3-40		VW3-63
			1000~3200A	3600~4000A	
Horizontal Wiring	●	●	●	●	●
Vertical Wiring	○	—	○	○	—
Forward Wiring	—	—	○	—	—
Mixed Wiring (Upper Horizontal, Lower Vertical)	○	—	○	○	—
Mixed Wiring (Upper Vertical, Lower Horizontal)	○	—	○	○	—
Mixed Wiring (Upper Forward, Lower Horizontal)	—	—	○	—	—
Mixed Wiring (Upper Horizontal, Lower Forward)	—	—	○	—	—
Mixed Wiring (Upper Vertical, Lower Forward)	—	—	○	—	—
Mixed Wiring (Upper Forward, Lower Vertical)	—	—	○	—	—

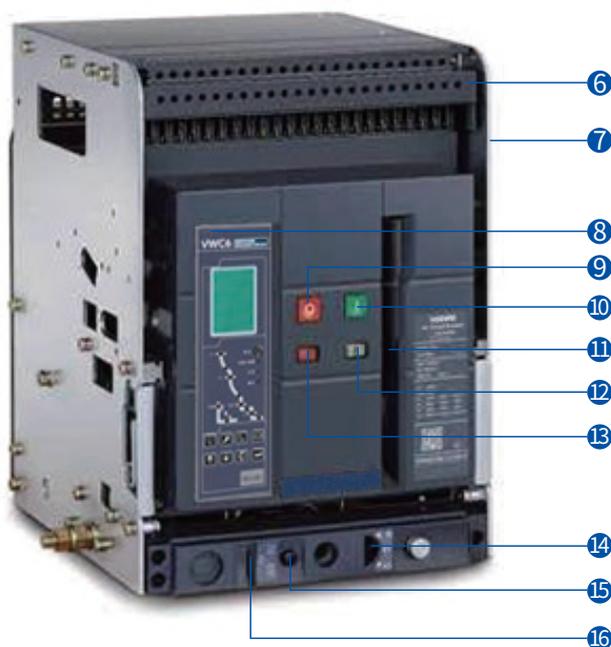
Note: ● standard wiring, ○ optional wiring, — without wiring

Fixed type



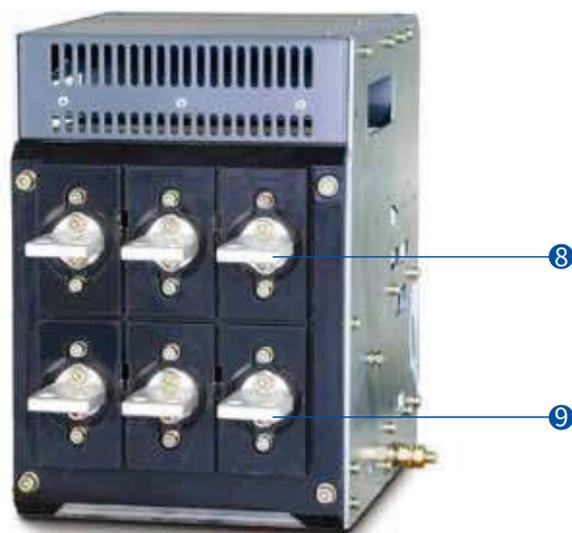
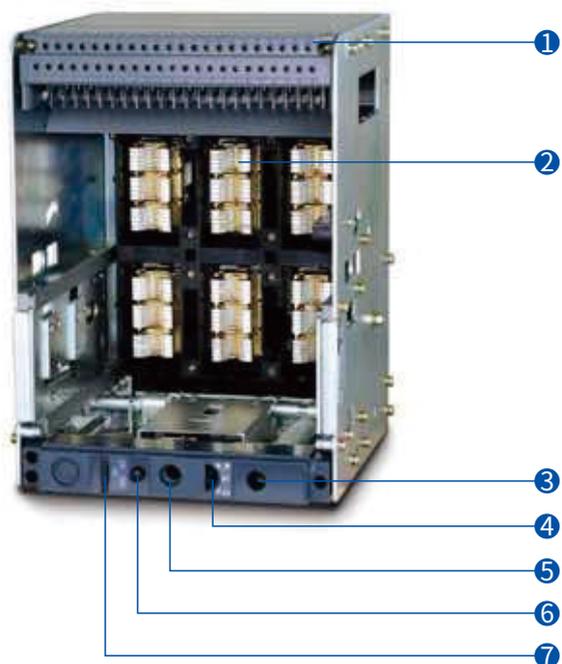
- ① Secondary wiring chart
- ② Controller
- ③ Nameplate
- ④ Fixed bracket
- ⑤ Grounding bolt
- ⑥ Secondary wiring terminal
- ⑦ Drawer seat
- ⑧ Reset button
- ⑨ Disconnection button
- ⑩ Closing button
- ⑪ Manual energy storage handle
- ⑫ Energy releasing and storing indication
- ⑬ Disconnection and closing indication
- ⑭ Three position indication
- ⑮ Unlocking button
- ⑯ Separation position locking device

Drawout type



- ⑥ Secondary wiring terminal
- ⑦ Drawer seat
- ⑧ Reset button
- ⑨ Disconnection button
- ⑩ Closing button
- ⑪ Manual energy storage handle
- ⑫ Energy releasing and storing indication
- ⑬ Disconnection and closing indication
- ⑭ Three position indication
- ⑮ Unlocking button
- ⑯ Separation position locking device

Drawer seat



- ① Secondary wiring terminal
- ② Bridge contact
- ③ Rocker and storage position
- ④ Three position indication
- ⑤ Rocker operating position
- ⑥ Unlocking button
- ⑦ Separation position locking device
- ⑧ Upper wiring terminal
- ⑨ Lower wiring terminal

Model Explanation and Encoding Rules

SN	Name	Specification, type code	Description
1	Design code	VW3: Design code	/
2	Frame rating	20: 2000A; 25:2500A; 40: 4000A; 63: 6300A	/
3	Breaking type	S: Standard breaking level; H: High breaking level; HU: High voltage level; HV: Ultra high voltage level	S only for VW3-20
4	Rated current	02: 200A; 04: 400A; 06: 630A; 08: 800A; 10: 1000A; 12: 1250A; 16: 1600A; 20: 2000A; 25: 2500A; 29: 2900A; 32: 3200A; 36: 3600A; 40: 4000A; 50: 5000A; 63: 6300A	/
5	Installation mode	F: Fixed type; D: Drawout type	
6	Number of poles	3: 3P; 4: 4P; 5: 3P+N	3P+N: 3P products are added with N-phase external transformers
7	Controller	VWC2(DIP switch); VWC4 (digital screen); VWC6 (LCD)	VWC2 is only used for VW3-20;
8	Controller optional function	Protection type	Empty: Conventional type; V: Voltage measurement; P: Harmonic measurement and protection
		Communication function	H: Modbus protocol; MP: Profibus-DP protocol; MD: Devicenet protocol
		Signal unit	S1: 4DO; S2: 3DO+1DI; S3:2DO+2DI
		Remote reset function	Z2: AC230V
		Grounding mode	T: Differential type W: Ground current type Note: 3P+N needs to be added with an external transformer
		External N-phase transformer	N1; N2; N3; N4
		Protection form of current leakage: E-type (including the external current leakage transformer)	
		Contact wear equivalent: J	
9	Electric energy storage mechanism	D1: AC400V; D2: AC230V/DC220V; D4: AC/DC110V; D5: DC24V	/
10	Shunt release	F1: AC400V; F2: AC230V/DC220V; F4: AC/DC110V; F5: DC24V	/
11	Closed electromagnet	B1: AC400V; B2: AC230V/DC220V; B4: AC/DC110V; B5: DC24V	/
12	Under-voltage release / Loss of voltage release / Voltage-check release	Under-voltage release	Q1: AC400V; Q2: AC230V; Q5: DC24V
		Loss of voltage release	S1: AC400V; S2: AC230V
		Voltage-check release	J1: AC400V; J2: AC230V
13	Under-voltage release / loss of voltage release Delay time	0: Instantaneous; 1: 1s delay; 3: 3s delay; 5: 5s delay	/
14	Auxiliary contact	A33: 3NO3NC; A44: 4NO4NC; ... ; A1414: 14NO14C	
		A3: Three-group switching; A4: Four-group switching; ...; A14: Fourteen-group switching	

Model Explanation and Encoding Rules

VW3 - <input type="text"/> <input type="text"/> / <input type="text"/> <input type="text"/>			
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19			
SN	Name	Specification, type code	Description
15	Internal Accessories	BX: Closing ready signal output unit	/
		JS: Counter functional unit	/
		CM1: Drawout type (with the right side of the door interlock);	/
		CX: Drawer seat three-position signal output	/
16	External accessories	M: Doorframe Note: standard	/
		R: Relay module	/
		Power supply module AC65~500V, DC80~700V Note: standard	/
		S: Button lock	/
		P2: Voltage conversion module	/
17	Wiring mode	C1: Horizontal wiring, C2: Vertical wiring, C3: Forward wiring; C4: Mixed wiring (upper horizontal, lower vertical); C5: Mixed wiring (upper vertical, lower horizontal); C6: Mixed wiring (upper forward, lower horizontal); C7: Mixed wiring (upper horizontal, lower forward); C8: Mixed wiring (upper vertical, lower forward); C9: Mixed wiring (upper forward, lower vertical)	/
		1: Standard wiring, 2: Extended wiring	/
18	Rated working voltage	KV1: AC400/415V; KV2: AC500/550V; KV3: AC660/690V; KV4: AC800V; KV6: AC1140V; KV7: AC1250V; KV8: AC1500V	/
19	Language type	Empty: Chinese; Y: English	/

Interlocking Piece Model Explanation and Encoding Rules

Key lock	SF11: Key lock device (one lock and one key); SF21: Key lock device (two locks and one key); SF31: Key lock device (three locks and one key); SF32: Key lock device (three locks and two keys); SF53: Key lock device (five locks and three keys)	1. Select one from five key locks;
Mechanical interlocking	SR11: Mechanical interlocking device (two sets of steel cables, one for closing and one for opening); SR12: Mechanical interlocking device (three sets of steel cables, one for closing and two for opening); SR21: Mechanical interlocking device (three sets of steel cables, two for closing and one for opening); SY11: Mechanical interlocking device (two sets of hard rods, one for closing and one for opening);	1. Select one from five mechanical interlocks;

Series

VW3-20

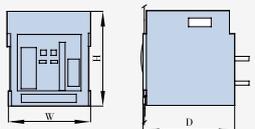


Rated current I_n (A)	200,400,630,800,1000,1250,1600,2000					
Rated working voltage U_e (V) 50Hz/60Hz	AC400/AC415		AC500/AC550		AC660/AC690	
Rated insulation voltage U_i (V)	1150					
Rated impulse withstand voltage U_{imp} (kV)	12					
Power frequency withstand voltage $U(V)$ 1min	AC5000V 50Hz/60Hz					
Number of poles	3P/4P					
N-pole rated current	100% I_n					
Breaking capacity code	S	H	S	H	S	H
Rated limit short-circuit breaking capacity (effective value) I_{cu} (kA)	50	66	50	50	25	50
Rated operating short-circuit breaking capacity (effective value) I_{cs} (kA)	50	66	50	50	25	50
Rated short circuit making capacity (peak value) I_{cm} (kA)	105	145	105	105	52.5	105
Rated short-time withstand current (effective value) I_{cw} (kA) 1s	42	55	42	50	25	50
Rated conditional short-circuit current I_{cc} (kA)	42	55	42	50	25	50
Full break time (no additional delay) (ms)	12~18					
Closing time (ms)	≤60					
Operating performance	Electrical life (times)		15000(200~630A) 10000(800~1250A) 10000(1600~2000A)		15000(200~630A) 10000(800~1250A) 10000(1600~2000A)	
	Mechanical life (times)	Without maintenance	15000			
		Maintenance	30000			
Operational condition	Utilization category		B			
	Pollution degree		3			
	Protection grade		IP40			
	Ambient temperature		≥-40°C			
	Altitude		≤5000m			
Outline dimension (mm) (H × W × D)			Drawout type 3P		357×254×300	
			Drawout type 4P		357×324×300	
			Fixed type 3P		335×266×199	
			Fixed type 4P		335×336×199	

Series

VW3-25



Rated current I_n (A)		630, 800, 1000, 1250, 1600, 2000, 2500				
Rated working voltage U_e (V) 50Hz/60Hz		AC400	AC500	AC690	AC800/AC1140	AC1500
Rated insulation voltage U_i (V)		1800				
Rated impulse withstand voltage U_{imp} (kV)		18				
Power frequency withstand voltage $U(V)$ 1min		AC5000V 50Hz/60Hz				
Number of poles		3P/4P		3P	3P	
N-pole rated current		100% I_n				
Breaking capacity code		H		HU	HV	
Rated limit short-circuit breaking capacity (effective value) I_{cu} (kA)		85	75	65	75	50
Rated operating short-circuit breaking capacity (effective value) I_{cs} (kA)		85	75	65	75	50
Rated short circuit making capacity (peak value) I_{cm} (kA)		187	165	143	165	105
Rated short-time withstand current (effective value) I_{cw} (kA) 1s		85	75	65	70	50
Rated conditional short-circuit current I_{cc} (kA)		85	75	65	70	50
Full break time (no additional delay) (ms)		12~18				
Closing time (ms)		≤60				
Operating performance	Electrical life (times)		15000 (630~1250A) 11500 (1600~2000A) 11000 (2500A)	12500 (630~1250A) 10000 (1600~2000A) 8000 (2500A)	5000 (630~1250A) 5000 (1600~2000A) 5000 (2500A)	500 (630~1250A) 500 (1600~2000A) 500 (2500A)
	Mechanical life (times)	Without maintenance	15000			
		Maintenance	30000			
Operational condition	Utilization category		B			
	Pollution degree		3			
	Protection grade		IP40			
	Ambient temperature		≥-40°C			
	Altitude		≤5000m			
Outline dimension (mm) (H × W × D) 		Drawout type 3P		430 × 407 × 395		
		Drawout type 4P		430 × 522 × 395		
		Fixed type 3P		390 × 422 × 297.5		
		Fixed type 4P		390 × 537 × 297.5		

VW3-40



VW3-63



1000, 1250, 1600, 2000, 2500, 2900, 3200, 3600, 4000					
AC400	AC690	AC800	AC1140	AC1250	AC1500
1800					
18					
AC5000V 50Hz/60Hz					
3P/4P		3P		3P	
100%In					
H		HU		HV	
100	85	80	75	66	50
100	85	80	75	66	50
220	187	176	165	145	105
100	85	80	75	66	50
100	85	80	75	66	50
12~18					
≤60					
10000 (1000~2500A) 8000 (2900~3200A) 8000 (3600~4000A)		5000 (1000~2500A) 5000 (2900~3200A) 5000 (3600~4000A)		500 (1000~2500A) 500 (2900~3200A) 500 (3600~4000A)	
10000					
20000					
B					
3					
IP40					
≥-40°C					
≤5000m					
430 × 407 × 395					
430 × 522 × 395					
390 × 422 × 297.5					
390 × 537 × 297.5					

4000, 5000, 6300			
AC400	AC690	AC800/AC1140	AC1500
1800			
18			
AC5000V 50Hz/60Hz			
3P/4P		3P	3P
50%In			
H		HU	HV
135	120	85	50
135	120	85	50
297	264	187	105
135	120	85	50
135	120	85	50
12~18			
≤60			
6000 (4000A) 4000 (5000A) 2000 (6300A)	3500 (4000A) 2500 (5000A) 1500 (6300A)	2500 (4000A) 1500 (5000A) 1000 (6300A)	500 (4000A) 400 (5000A) 500 (6300A)
6500			
13000			
B			
3			
IP40			
≥-40°C			
≤5000m			
480 × 853 × 395			
480 × 900 × 395			
390 × 800 × 297.5			
390 × 915 × 297.5			

Model	VWC2	VWC4	VWC4(V)	VWC6	VWC6(V)	VWC6(P)
						
Display interface						
DIP switch	✓	—	—	—	—	—
Digital tube numbers and symbols display	—	✓	✓	—	—	—
LCD panel symbols and graphics display	—	—	—	✓	✓	✓
Protection function						
Overload long-time delay protection	✓	✓	✓	✓	✓	✓
Overload thermal memory	✓	✓	✓	✓	✓	✓
Overload pre-alarm/alarm output	—	✓/■	✓/■	✓/■	✓/■	✓/■
Short circuit short-time delay protection	✓	✓	✓	✓	✓	✓
Short-time delay thermal memory	✓	✓	✓	✓	✓	✓
Short circuit instantaneous protection	✓	✓	✓	✓	✓	✓
Ground protection (differential type/W ground current type)	✓	✓	✓	✓	✓	✓
Grounding alarm/alarm output	—	✓/■	✓/■	✓/■	✓/■	✓/■
Current leakage protection/alarm/alarm output	—	—	—	■/■/■	■/■/■	■/■/■
Neutral wire protection	✓	✓	✓	✓	✓	✓
Current unbalance protection/alarm/alarm output	—	✓/—/—	✓/—/—	✓/✓/■	✓/✓/■	✓/✓/■
MCR&HSISC	✓	✓	✓	✓	✓	✓
Load monitoring/alarm/alarm output	—	■/■/■	■/■/■	■/■/■	■/■/■	■/■/■
Undervoltage protection /alarm/alarm output	—	—	—	—	✓/✓/■	✓/✓/■
Overvoltage protection /alarm/alarm output	—	—	—	—	✓/✓/■	✓/✓/■
Voltage unbalance protection/alarm/alarm output	—	—	—	—	✓/✓/■	✓/✓/■
Phase sequence protection/alarm/alarm output	—	—	—	—	✓/✓/■	✓/✓/■
Underfrequency protection/alarm/alarm output	—	—	—	—	✓/✓/■	✓/✓/■
Overfrequency protection/alarm/alarm output	—	—	—	—	✓/✓/■	✓/✓/■
Current required value protection/alarm/alarm output	—	—	—	—	✓/✓/■	✓/✓/■
Reverse power protection/alarm/alarm output	—	—	—	—	—	✓/✓/■

Measuring function						
Current measurement (phase pole, N-pole, grounding)	✓	✓	✓	✓	✓	✓
Voltage (phase voltage, circuit voltage, voltage unbalance rate)	—	—	✓	—	✓	✓
Phase sequence detection	—	—	—	—	✓	✓
Frequency measurement	—	—	✓	—	✓	✓
Required value measurement (current)	—	—	—	—	✓	✓
Required value measurement (power)	—	—	—	—	—	✓
Power measurement (active power, reactive power, apparent power) ^①	—	—	✓	—	—	✓
Power factor measurement	—	—	✓	—	—	✓
Electric energy measurement (active electric energy, reactive electric energy, apparent electric energy)	—	—	—	—	—	✓
Harmonics measurement	—	—	—	—	—	✓
Maintenance function						
LED fault status indication	✓	✓	✓	✓	✓	✓
Fault record (8 times) and query ^②	✓	✓	✓	✓	✓	✓
Displacement record (8 times) ^③	—	—	—	✓	✓	✓
Alarm history query (8 times) ^④	—	—	—	✓	✓	✓
Fault tripping signal output ^⑤	✓	✓	✓	✓	✓	✓
Self-diagnostic function	✓	✓	✓	✓	✓	✓
Simulating tripping test function	✓	✓	✓	✓	✓	✓
Contact wear equivalent (alarm) query	—	■	■	✓	✓	✓
Query of number of operations	—	✓	✓	✓	✓	✓
Clock function	—	✓	✓	✓	✓	✓
Other						
Remote reset of controller	■	■	■	■	■	■
Signal unit	—	■	■	■	■	■
Selective area interlock	—	—	—	■	■	■
Communication	—	—	—	■	■	■
Protection curve	I ² T(Default), standard inverse time limit	I ² T (Default), Standard inverse time limit, Fast inverse time limit, Express inverse time limit (G), Express inverse time limit(M), High-voltage fuse compatible				

- Note:**
- ①. VWC4 (V) power measurement only have active power;
 - ②. VMC2 only have fault type,VWC4/VWC4(V) only have the record of last one fault type and data value;
 - ③. Record the displacement include: displacement type (closing, opening, or tripping), displacement reason (local/remote operation, fault/test tripping), displacement time (year, month, day, hour, minute, second);
 - ④. Record the alarm history: Alarm type, alarm domain value, alarm time (year, month, day, hour, minute, second);
 - ⑤. Trip parameters: trip type, trip domain value, delay time, current or voltage value, time (year, month, day, hour, minute, second), MCR trip, undervoltage trip, except for HSISC trip;
 - ⑥. "✓"represents with this function, "—"represents without this function, "■"represents optional function;
 - ⑦. V and P function type are optional;
 - ⑧. If selected the unit function, that will be achieved alarm and switch output functions or area selective interlocking functions.

VWC2 Controller

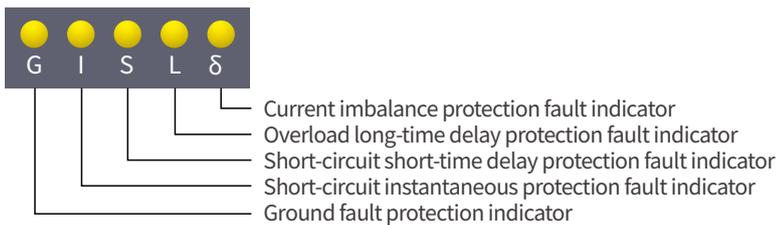
Standard function

- Overload long-time delay protection, Short circuit short-time delay protection, Short circuit instantaneous protection
- Function test
- Fault record
- Overload thermal memory
- Self-diagnostic function
- Current bar display
- Fault status indication & Fault value indication

Optional function

- Ground Fault Protection
- Current unbalance protection
- Signal unit
- MCR & HCISC

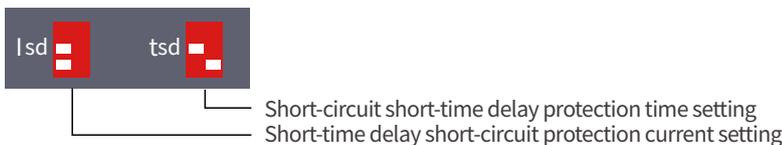
- 1 Reset button
- 2 Rated current
- 3 Current bar indicator light
- 4 Fault indicators



- 5 Overload long-time delay protection setting DIP switch



- 6 Short-circuit short-time delay protection setting DIP switch

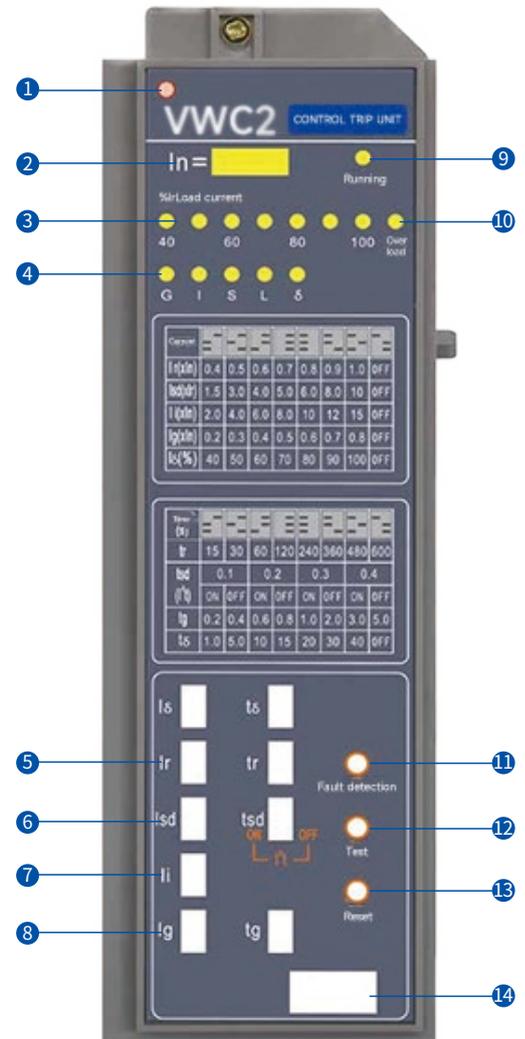


- 7 Short-circuit instantaneous protection current setting DIP switch

- 8 Ground fault protection setting DIP switch



- 9 Operation indicator
- 10 Overload indicator
- 11 Fault check button
- 12 Test trip button
- 13 Clear indicator button
- 14 Test port

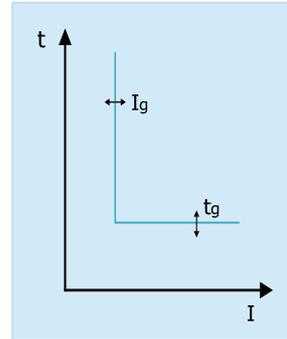
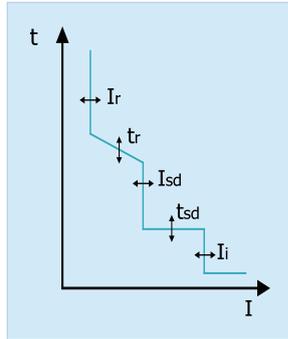


Note:

1. Move the dial switch by using a special tool (screwdriver for small clocks and watches), so as to make it point to the scale value or position corresponding to protection parameter. When dialing, it should not point to the middle position between two scale values.

2. The protection parameters shall not be cross-set (with the requirement of $I_r < I_{sd} < I_i$).

VWC2 Controller protection characteristics



Overload long-time delay										
Current setting value I_r , Current tolerance error $\pm 10\%$		$(0.4, 0.5, 0.6, 0.7, 0.8, 0.9, 1.0) \times I_n + \text{OFF}$								
Tripping time t_r tolerance error $\pm 15\%$	Current	Tripping time								
	$\leq 1.05I_r$	Inaction within 2h								
	$> 1.20I_r$	Action within 1h								
	$1.5I_r$	Setting time t_r (s)	15	30	60	120	240	360	480	600
	$2.0I_r$	Tripping time t_r (s)	8.4	16.9	33.8	67.5	135	202.5	270	337.5
	$7.2I_r$	Tripping time t_r (s)	0.65	1.3	2.6	5.2	10	15.6	20	26
Thermal memory protection	30min+OFF (clear the thermal memory when the power off)									
Short-circuit short time-delay										
Current setting value I_{sd} , Current tolerance error $\pm 10\%$		$(1.5, 3, 4, 5, 6, 8, 10) \times I_r + \text{OFF}$								
Tripping time t_{sd} tolerance error $\pm 15\%$	ON: The short-time delay inverse time limit is on	I_{sd}	0.1	0.2	0.3	0.4				
	OFF: The short-time delay inverse time limit is off	(I^2t)	ON	OFF	ON	OFF	ON	OFF	ON	OFF
Thermal memory protection	30min+OFF (clear the thermal memory when the power off)									
Short-circuit instantaneous protection										
Current setting value I_i , Current tolerance error $\pm 10\%$		$(2, 4, 6, 8, 10, 12, 15) \times I_n + \text{OFF}$								
Tripping time t_3		Within 30ms								
Ground fault protection										
Current setting value I_g , Current tolerance error $\pm 10\%$		$(0.2, 0.3, 0.4, 0.5, 0.6, 0.7, 0.8) \times I_n + \text{OFF}$								
Tripping time t_g tolerance error $\pm 15\%$	Fixed time-limit	Setting time t_g (s)	0.2	0.4	0.6	0.8	1	2	3	5

VWC2 Controller time setting value reference table

DIP switch setting								
tr	15	30	60	120	240	360	480	600
tsd	0.1		0.2		0.3		0.4	
(I ² t)	ON	OFF	ON	OFF	ON	OFF	ON	OFF
tg	0.2	0.4	0.6	0.8	1.0	2.0	3.0	5.0
tδ	0.1	5	10	15	20	30	40	OFF

VWC2 Controller current setting value reference table

DIP switch setting								
I _r (xI _n)	0.4	0.5	0.6	0.7	0.8	0.9	1.0	OFF
I _{sd} (xI _r)	1.5	3	4	5	6	8	10	OFF
I _i (xI _n)	2	4	6	8	10	12	15	OFF
I _g (xI _n)	0.2	0.3	0.4	0.5	0.6	0.7	0.8	OFF
I _δ (%)	40	50	60	70	80	90	100	OFF

Note: OFF indicates protection function is deactivated.

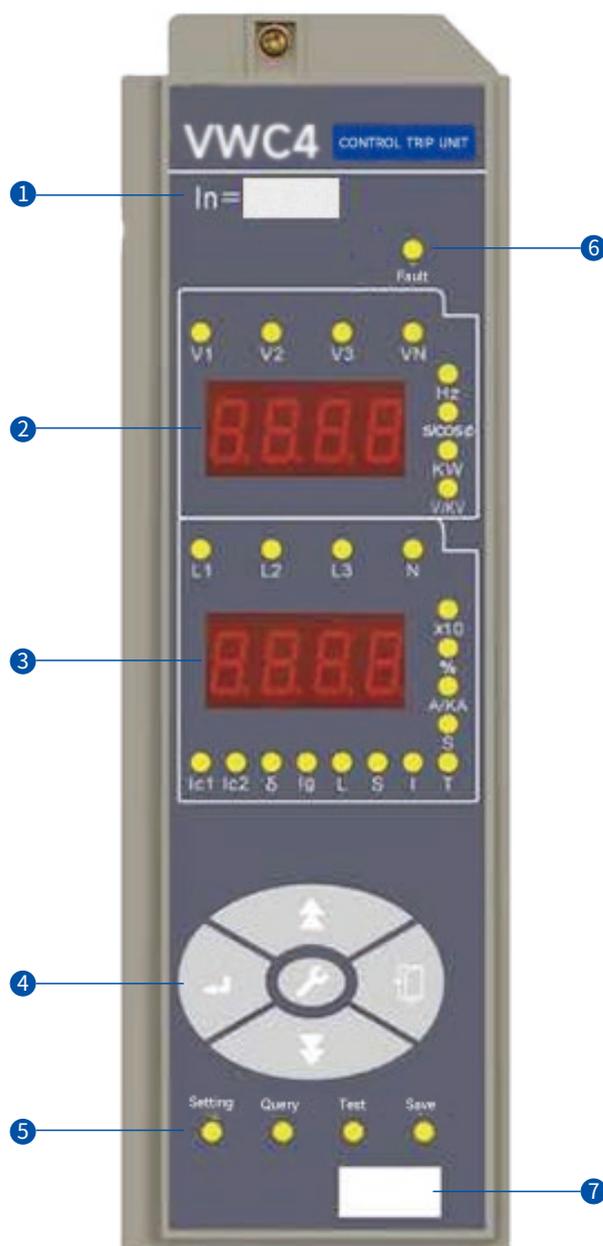
VWC4 Controller

Standard function

- Overload long-time delay protection, Short circuit short-time delay protection, Short circuit instantaneous protection
- Ground Fault Protection
- Function test
- Fault record
- Overload thermal memory
- Self-diagnostic function
- Current measurement
- Fault status indication & Fault value indication

Optional function

- Current unbalance protection
- Signal unit
- MCR & HCISC
- Load monitoring
- Voltage measurement
- Contact wear equivalent indication
- Voltage protection
- Current leakage protection
- Power factor measurement
- frequency measurement
- Power measurement
- Electric energy measurement
- Voltage measurement



- ① Rated current
- ② Voltage and Power
- ③ Current
- ④ Setting button
- ⑤ Setup, query indicators
- ⑥ Fault and alarm indicators
- ⑦ Test port

Note: Protection parameters must not be cross set,
 $I_r < I_{sd} < I_{io}$

Panel Display Description

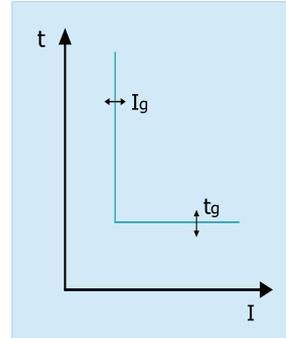
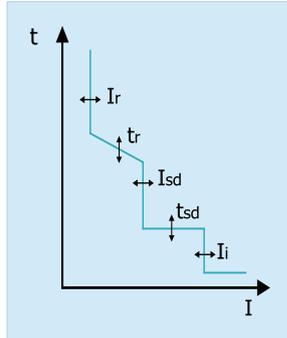
- “HZ” Lighting on, is frequency
- “S/COSΦ” Lighting on, is time; flashing is power factor
- “kW” Lighting on, is active power; flashing is active electric energy
- “%” Lighting on, is contact wear equivalent indication
- “×10” Lighting on, is number of opening and closing operations
- “δ” “%” and “L1/L2/L3” Lighting on, is the imbalance ratio
- “I_g” and “A/kA” Lighting on, is grounding current
- “L1/L2/L3” and “A/kA” Lighting on, is current
- “N” and “A/kA” Lighting on, is N-phase current
- “A/kA” Flashing is kA, lighting on is A
- One of “V1”, “V2”, “V3” and V lighting on, is three phase line voltage
- One of “V1”, “V2”, “V3” and “N” and “V” lighting on, is corresponding phase voltage
- When the “T” lighting on, have the self-diagnostic fault, press Enter show the fault code
- If the fault is resolved, press the return button to clear self-diagnostic fault, “T” no lighting
- If there are multiple diagnostic faults, press the ▲ and ▼ keys to view the fault codes
- Fault code:

ER01	ER02	ER03	ER12	ER13
E ² PROM error	A/D error	overtemperature	Circuit breaker refused to operate	contact maintained indication

Controller running status:

- ① **Setting status:** Set lighting on, view or modify the protection setting value
- ② **Query status:** Query lighting on, view the fault history
- ③ **Test status:** Test lighting on, can do the tripping test
- ④ **Fault status:** Fault lighting on, indication the fault type and cycle display of fault current and time
- ⑤ **Communication status:** Communication lighting on, the controller is communicating
- ⑥ **Storage status:** Storage lighting on, change data once
- ⑦ **Self-diagnostic status:** “T” lighting on, have the self-diagnostic fault

VWC4 Controller protection characteristics



Overload long-time delay protection

Current setting value I_r , Current tolerance error $\pm 10\%$ (0.4~1.0) $\times I_n + \text{OFF}$ (step 1A)

Current	Tripping time								
	$\leq 1.05I_r$	Inaction within 2h							
$> 1.20I_r$	Action within 1h								
Protection curve (default is I^2T)	Tripping time t_r (factor K in bracket)								
Tripping time t_r tolerance error $\pm 15\%$	Standard inverse time limit $t = K/(N^{0.02}-1)$	0.61(0.005)	0.98(1.0)	1.47(0.012)	2.46(0.02)	3.68(0.03)	4.91(0.04)	6.14(0.05)	8.29(0.075)
	Fast inverse time limit $t = K/(N-1)$	2(1)	3.2(1.6)	4.8(2.4)	8(4)	12(6)	16(8)	20(10)	27(13.5)
	Express inverse time limit $t = K/(N^2-1)$	8(10)	12.8(16)	19.2(24)	32(40)	48(60)	64(80)	80(100)	108(135)
	Express inverse time limit $t = (K/1.15) \times \log_e [N^2 / (N^2 - 1.15)]$	112(180)	174(280)	249(400)	373(600)	498(800)	622(1000)	747(1200)	871(1300)
	High-voltage fuse compatible $t = K/(N^4-1)$	2.46(10)	3.94(16)	5.9(24)	9.85(40)	14.8(60)	19.7(80)	24.6(100)	33.2(135)
	I^2T Table $t = (1.5/N)^2 \times K$	15(15)	30(30)	60(60)	120(120)	240(240)	360(360)	480(480)	600(600)
		720(720)	840(840)	960(960)					

Note: $N = I/I_r$ (I is the actual fault current, I_r is the set value of overload current).
The above set time value is action delay time when $I = 1.5I_r$, with the of current I increase, the delay time will be decreases which can be calculated according to the curve formula.

Thermal memory protection 30min+OFF (clear the thermal memory when the power off)

Short-circuit short time-delay protection

Current setting value I_{sd} , Current tolerance error $\pm 10\%$ (1.5~15) $\times I_r + \text{OFF}$ (step 1A)

Tripping time t_{sd} tolerance error $\pm 15\%$	Fixed time-limit current setting value	0.1~1s (step 0.1s)
	Inverse time-limit current setting value	The curve is the same as the overload long delay curve, and the curve speed is 10 times faster than the overload long delay (dividing the time calculated by the overload delay curve formula by 10 is the inverse delay time of the short delay)

Thermal memory protection 15min+OFF (clear the thermal memory when the power off)

Note: When both the inverse time limit and fixed time limit protection are enabled, the inverse time limit current setting value must be less than the fixed time limit current setting value, otherwise the inverse time limit function will automatically fail. In addition, the actual delay time is not less than the set time of the fixed time limit

Short-circuit instantaneous protection		
Current setting value I_i , Current tolerance error $\pm 10\%$	$(1\sim 20) \times I_n + \text{OFF}$	
Action features	$\leq 0.85 I_i$, inaction	
	$> 1.15 I_i$, action	
Ground protection		
Current setting value I_r , Current tolerance error $\pm 10\%$	$(0.2\sim 1.0) \times I_n + \text{OFF}$ (min100A)	
Action features	$\leq 0.8 I_g$, inaction	
	$\geq 1.0 I_g$, delay action	
Tripping time t_g tolerance error $\pm 10\%$	Fixed time-limit	0.1~100s+OFF (0.1~1s, step0.1s, 1s~100s, step1s, OFF: alarm does not trip)
	Inverse time shear coefficient C_r	1.5~6+OFF (step 0.5, OFF: inverse time-limit OFF)
	Inverse time-limit formula	Formula $t = t_g \times C_r \times I_g / I$ t - Delay time; T_g - Set delay time; C_r - Shear coefficient; I_g - Set action current; I - Ground current; When the multiple of fault current (I/I_g) is less than C_r , the action characteristic is inverse time characteristic; When the fault current multiple is greater than or equal to C_r , the action characteristic is a fixed time limit
Neutral line protection		
Current setting value I_n , Current tolerance error $\pm 10\%$	$(0.5, 1.0) \times I_n + \text{OFF}$	
Action time	same as long time-delay time	
Current unbalance protection		
Protection setting value	40%~100%+OFF	
Action or alarm features	$\leq 0.9 \delta$, inaction	
	$> 1.1 \delta$, action delay or alarm	
Delay time (s)	0.1~100s+OFF (OFF: Alarm only, inaction, step0.1s)	
Load monitoring function		
Mode 1	Current setting I_{c1} , I_{c2} Adjustment(A)	$(0.2\sim 1.0) \times I_n + \text{OFF}$ (min100A)
	Inverse time-limit t_{c1} , t_{c2} (s)	Same overload long delay curve
Mode 2	Current setting I_{c1} , I_{c2} Adjustment(A)	$(0.2\sim 1.0) \times I_n + \text{OFF}$ (min100A)
	Inverse time-limit t_{c1}	Same overload long delay curve
	Fixed time-limit t_{c2}	60s

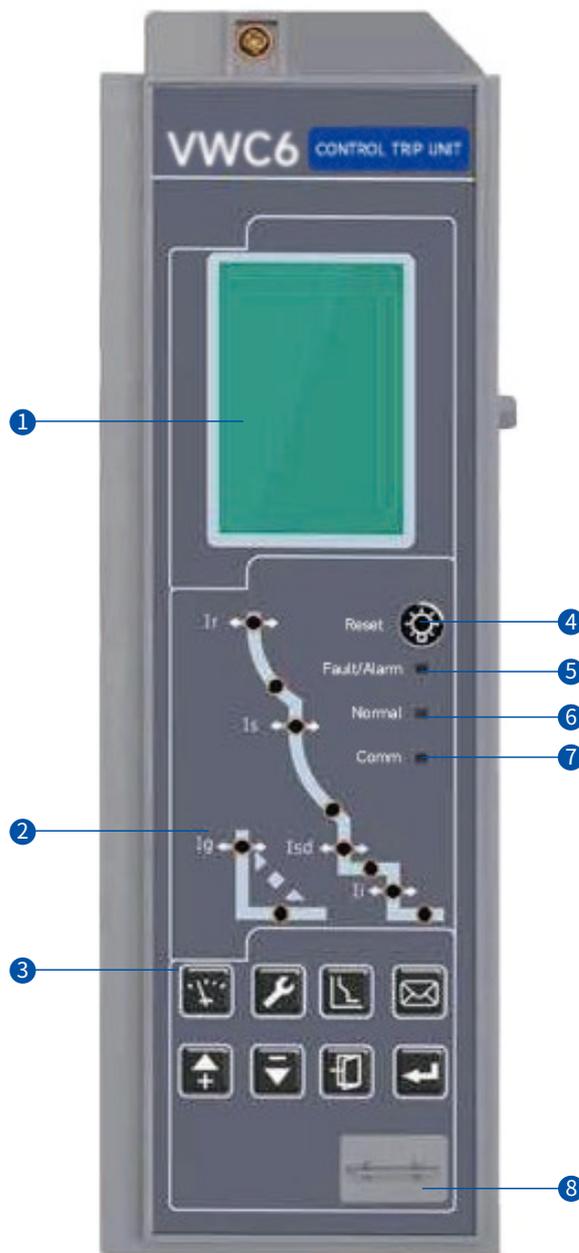
VWC6 Controller

Standard function

- Overload long-time delay protection, Short circuit short-time delay protection, Short circuit instantaneous protection
- Ground Fault Protection
- Function test
- Fault record
- Overload thermal memory
- Self-diagnostic function
- Current measurement
- Fault status indication & Fault value indication
- Contact wear equivalent indication
- Record of operations

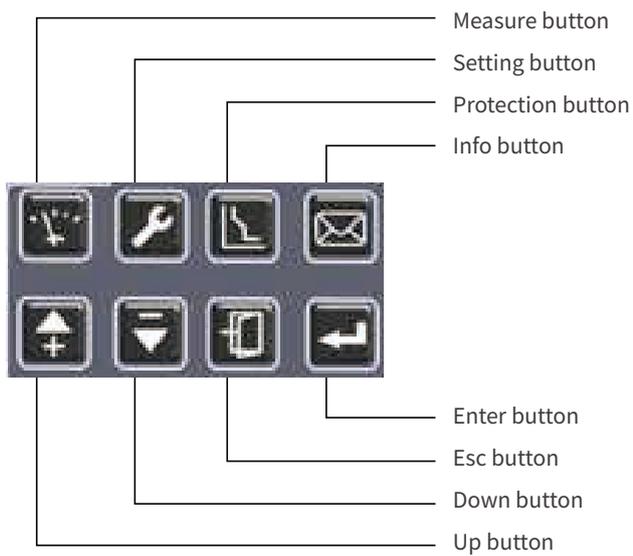
Optional function

- Current unbalance protection
- Signal input
- Signal unit
- MCR & HCISC
- Load monitoring
- Power measurement
- Voltage measurement
- Voltage protection
- Current leakage protection
- Required value protection
- Power factor measurement
- Electric energy measurement
- Selective area interlock
- Harmonics measurement
- Frequency measurement
- Reverse power measurement
- Electric energy measurement
- Communication

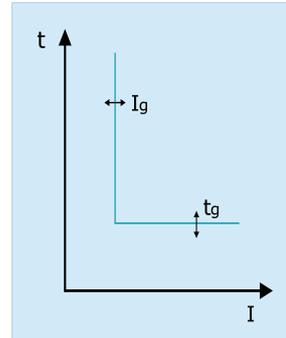
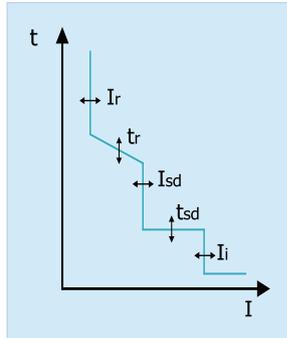


Note: Protection parameters must not be cross set,
 $I_r < I_{sd} < I_{i0}$

- ① LCD interface display
- ② Protection curve
- ③ Function buttons
- ④ Fault and alarm reset button
- ⑤ Fault alarm indicators
- ⑥ Normal indicators
- ⑦ Communication indicators
- ⑧ Test port



VWC6 Controller protection characteristics



Overload long-time delay protection

Current setting value I_r , Current tolerance error $\pm 10\%$ (0.4~1.0) $\times I_n + \text{OFF}$ (step 1A)

Current	Tripping time							
	$\leq 1.05I_r$	Inaction within 2h						
$> 1.20I_r$	Action within 1h							
Protection curve (default is I^2T)	Tripping time t_r (factor K in bracket)							
Standard inverse time limit $t = K / (N^{0.02} - 1)$	0.61(0.005)	0.98(1.0)	1.47(0.012)	2.46(0.02)	3.68(0.03)	4.91(0.04)	6.14(0.05)	8.29(0.075)
	11.1(0.09)	17.2(0.14)	24.6(0.2)	36.8(0.3)	49.1(0.4)	61.4(0.5)	73.7(0.6)	86(0.6)
Fast inverse time limit $t = K / (N - 1)$	2(1)	3.2(1.6)	4.8(2.4)	8(4)	12(6)	16(8)	20(10)	27(13.5)
	36(18)	56(28)	80(40)	120(60)	160(80)	200(100)	240(120)	280(140)
Express inverse time limit $t = K / (N^2 - 1)$	8(10)	12.8(16)	19.2(24)	32(40)	48(60)	64(80)	80(100)	108(135)
	144(180)	224(280)	320(400)	480(600)	640(800)	800(1000)	960(1200)	1120(1300)
Express inverse time limit $t = (K / 1.15) \times \log_e [N^2 / (N^2 - 1.15)]$	6.22(10)	9.96(16)	14.9(24)	24.9(40)	37.3(60)	49.8(80)	62.2(100)	84(135)
	112(180)	174(280)	249(400)	373(600)	498(800)	622(1000)	747(1200)	871(1300)
High-voltage fuse compatible $t = K / (N^4 - 1)$	2.46(10)	3.94(16)	5.9(24)	9.85(40)	14.8(60)	19.7(80)	24.6(100)	33.2(135)
	44.3(180)	68.9(280)	98.5(400)	147(600)	197(800)	246(1000)	295(1200)	344(1300)
I^2T Table $t = (1.5/N)^2 \times K$	15(15)	30(30)	60(60)	120(120)	240(240)	360(360)	480(480)	600(600)
	720(720)	840(840)	960(960)	/	/	/	/	/

Note: $N = I/I_r$ (I is the actual fault current, I_r is the set value of overload current).
The above set time value is action delay time when $I = 1.5I_r$, with the of current I increase, the delay time will be decreases which can be calculated according to the curve formula.

Thermal memory protection 30min+OFF (clear the thermal memory when the power off)

Short-circuit short time-delay protection

Current setting value I_{sd} , Current tolerance error $\pm 10\%$ (1.5~15) $\times I_r + \text{OFF}$ (step 1A)

Tripping time t_{sd} tolerance error $\pm 15\%$	Fixed time-limit current setting value	0.1~0.4s (step 0.1s)
	Inverse time-limit current setting value	The curve is the same as the overload long delay curve, and the curve speed is 10 times faster than the overload long delay (dividing the time calculated by the overload delay curve formula by 10 is the inverse delay time of the short delay)

Thermal memory protection 15min+OFF (clear the thermal memory when the power off)

Note: When both the inverse time limit and fixed time limit protection are enabled, the inverse time limit current setting value must be less than the fixed time limit current setting value, otherwise the inverse time limit function will automatically fail. In addition, the actual delay time is not less than the set time of the fixed time limit

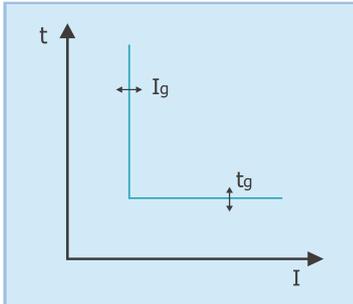
Short-circuit instantaneous protection		
Current setting value I_i , Current tolerance error $\pm 10\%$	$(1\sim 20) \times I_n + \text{OFF}$ (min100A)	
Action features	$\leq 0.85 I_i$, inaction	
	$> 1.15 I_i$, action	
Ground protection		
Current setting value I_r , Current tolerance error $\pm 10\%$	$(0.2\sim 1.0) \times I_n + \text{OFF}$ (min100A)	
Action features	$\leq 0.8 I_g$, inaction	
	$\geq 1.0 I_g$, delay action	
Tripping time t_g tolerance error $\pm 10\%$	Fixed time-limit	$0.1\sim 100\text{s} + \text{OFF}$ (0.1~1s, step 0.1s, 1s~100s, step 1s, OFF: alarm does not trip)
	Inverse time shear coefficient C_r	$1.5\sim 6 + \text{OFF}$ (step 0.5, OFF: inverse time-limit OFF)
	Inverse time-limit formula	Formula $t = t_g \times C_r \times I_g / I$ t - Delay time; T_g - Set delay time; C_r - Shear coefficient; I_g - Set action current; I - Ground current; When the multiple of fault current (I/I_g) is less than C_r , the action characteristic is inverse time characteristic; When the fault current multiple is greater than or equal to C_r , the action characteristic is a fixed time limit
Execution mode: tripping + close		
Ground protection (The ground alarm and ground protection functions are independent of each other and have their own independent parameter settings, which can exist simultaneously)		
Alarm action setting value	current	$(0.2\sim 1.0) \times I_n$ (min100A)
	time	$0.1\sim 100\text{s} + \text{OFF}$
Alarm cleared setting	current	$(0.2\sim 1.0) \times I_n$ (min100A)
	time	$0.1\sim 100\text{s} + \text{OFF}$
Neutral line protection		
Current setting value I_n , Current tolerance error $\pm 10\%$	$(0.5, 1.0, 1.6, 2.0) \times I_n + \text{OFF}$	
Action time	same as long time-delay time	
Current unbalance protection		
Protection setting value	5% ~ 60% (step 1%)	
Delay time	0.1 s ~ 40s (step 0.1s)	
Protection return setting value	5% ~ start value (step 1%)	
Delay time	start value (step 1%)	
Action or alarm features	$\leq 0.9 \delta$, inaction	
	$> 1.1 \delta$, action delay or alarm	
Execution mode: Tripping+alarm+close		
Load monitoring function		
Mode 1	Current setting I_{c1}, I_{c2}	$(0.2\sim 1) \times I_r$ (min100A, step 1A)
	Inverse time-limit t_{c1}, t_{c2}	$(20\%\sim 80\%) \times t_r$
Mode 2	Current setting I_{c1} (unloading)	$(0.2\sim 1) \times I_r$ (min100A)
	Current setting I_{c2} (return)	$0.2 \times I_r \sim I_{c1}$
	Inverse time-limit t_{c1}	$(20\%\sim 80\%) \times t_r$
	Fixed time-limit t_{c2}	10s~600s

VWC4 Controller

Voltage unbalance protection				
Protection start setting value	2%~30% (accuracy 1%)			
Protection action delay time setting (s)	0.2~60 (accuracy 0.1)			
Protection action return setting value	2%~start value (accuracy 1%)	This set value only exists when the "alarm" execution method , and the return value must be less than or equal to the start value.		
Protection return delay time (s)	0.2~60 (accuracy 0.1)			
Action features of voltage unbalance protection/alarm (Accuracy of ±10%)	Actual voltage unbalance rate/setting value ≥1.1	Action or alarm according to the set delay time		
	Actual voltage unbalance rate/setting value <0.9	Inaction (no alarm)		
Voltage unbalance alarm return action features(Accuracy of ±10%)	Actual voltage unbalance rate/setting value ≤0.9	Returns according to the set delay time		
	Actual voltage unbalance rate/setting value >1.1	Non-return		
Voltage unbalance protection alarm DO output	Added the "Voltage Unbalance Alarm" contact output when the alarm execution mode			
Undervoltage protection				
Action setting value(V)	100~return setting value(step 1)			
Protection action delay time setting value(s)	0.2~60(step 0.1)			
Action return setting value (V)	action setting value~1200(step 1)	This set value only exists when the "alarm" execution method , and the return value must be less than or equal to the start value.		
Protection action delay time setting value(s)	0.2~60(step 0.1)			
Action features of voltage unbalance protection/alarm (Accuracy of ±10%)	Umax / action setting value<0.9	Action or alarm according to the set delay time		
	Umax / action setting value≥1.1	Inaction (no alarm)		
Undervoltage alarm return action features (Accuracy of ±10%)	Umin / action setting value>1.1	Returns according to the set delay time		
	Umax / action setting value≤0.9	Non-return		
Undervoltage protection alarm DO output	Added the "Undervoltage Alarm" contact output when the alarm execution mode			
Overvoltage protection				
Action setting value(V)	return setting value~1200 (step 1)			
Protection action delay time setting value(s)	0.2~60 (step 0.1)			
Action return setting value (V)	100~action setting value (step 1)	This set value only exists when the "alarm" execution method , and the return value must be less than or equal to the start value.		
Return action delay time setting value(s)	0.2~60 (step 0.1)			
Action features of overvoltage protection/alarm (Accuracy of ±10%)	Umin / action setting value≥1.1	Action or alarm according to the set delay time		
	Umin / action setting value<0.9	Inaction (no alarm)		
Overvoltage protection alarm return features (Accuracy of ±10%)	Umax / action setting value≤0.9	Returns according to the set delay time		
	Umax / action setting value>1.1	Non-return		
Overvoltage protection alarm DO output	Added the "Overvoltage Alarm" contact output when the alarm execution mode			
Required current value protection				
Protection start setting value	(0.2~1.0) × In (step 2)			
Protection action delay time setting value(s)	15~1500 (step 1)			
action return setting value	0.2In~start value (step 2)	This set value only exists when the "alarm" execution method , and the return value must be less than or equal to the start value.		
Return action delay time setting value(s)	15~3000 (step 1)			
Action features of required current value protection protection/alarm (Accuracy of ±10%)	I /setting value≥1.1	Action or alarm according to the set delay time		
	I /setting value<0.9	Inaction (no alarm)		
Voltage unbalance alarm return action features(Accuracy of ±10%)	I /setting value≤0.9	Returns according to the set delay time		
	I /setting value>1.1	Non-return		
Required current value protection alarm DO output	Added the "Required current value protection" contact output when the alarm execution mode			
Phase sequence protection				
Setting range of action phase sequence	△φ: A, B, C / △φ: A, C, B			
Phase sequence protection alarm DO output	Added the "Phase sequence protection" contact output when the alarm execution mode			
Execution mode	Alarm/tripping/close			
Underfrequency, overfrequency protection				
Start setting value	Action start setting value	underfrequency	45~return value (step 0.5Hz)	This setting value only exists when the "alarm" execution mode
		overfrequency	return value~65 (step 0.5Hz)	
	Action delay time setting value (s)	0.1~5s+OFF (0.1~1s step 0.1, 1~5s step 1s)		
	Alarm action return setting value (Hz)	underfrequency	start value~65Hz (step 0.5Hz)	
overfrequency		45Hz~Start value (step 0.5Hz)		
Alarm return delay time (s)	0.2~36.0s (step 0.1s)			
	Added the "Underfrequency, overfrequency protection alarm" contact output when the alarm execution mode			
Underfrequency, overfrequency protection alarm DO output	Added the "Underfrequency, overfrequency protection alarm" contact output when the alarm execution mode			
Execution mode	Phase sequence protection alarm Alarm/tripping/closeDO output			

Controller protection function description

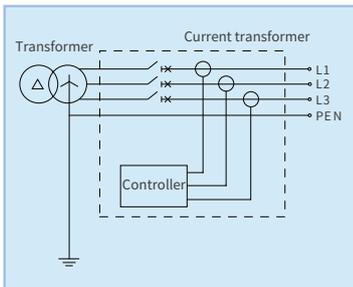
Ground fault protection features



Ground fault protection

- Current setting value I_g adjustable, when fixed or inverse time limit ground fault protection
- Delay time t_g adjustable
- Turning off (OFF), only alarm, no tripping
- Ground protection type
- Type 1
- Type 2
- Type 3
- Type 4

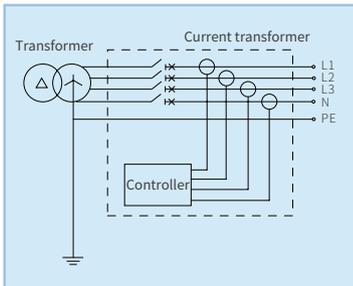
Type 1



Type1: The TN-C and TN-C-S distribution systems use three-pole circuit breakers without neutral current transformers.

- The ground fault protection signal from the vector sum of the three-phase current.
- The protection feature is fixed limit time or inverse limit time protection
- Only applicable when the three-phase unbalanced current and harmonic current flowing through the PEN neutral protection line are very small

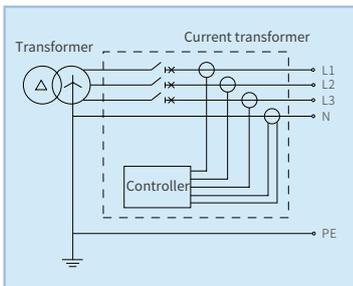
Type 2



Type 2: The TN-S distribution system use four pole circuit breaker with internal neutral current transformer.

- The ground fault protection signal from the vectors sum of the three-phase current and N-phase current .
- The protection feature is fixed limit time or inverse limit time protection

Type 3

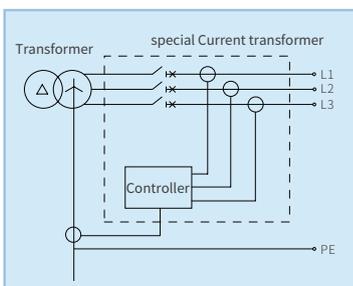


Type 3: The TN-S distribution system use three-pole circuit breaker and external neutral current transformer.

- The ground fault protection signal from the vectors sum of the three-phase current and N-phase current .
- The protection feature is fixed limit time or inverse limit time protection

Note: The transformer wire length shall not exceed 2m

Type 4



Type 4: The T-T distribution system use three-pole circuit breaker and external ground current transformer.

- The ground fault protection signal from the current on the grounding wire at the center point of the low-voltage terminal of the transformer
- The protection feature is fixed limit time or inverse limit time protection

Note: The transformer wire length shall not exceed 2m

Signal unit

DI: input

1-2 programmable optoelectronic coupling switch input (DI)

Function setting	General,alarm, tripping, regional interlocking, grounding interlocking, short circuit interlocking	
DI Input form	Normally open	Normally closed

DO: output

2-4 Switch Output (DO)

Function setting	See the table below, "Parameter Settings of Switch Output (DO)"			
Execution mode	Normally opened level	Normally closed level	Normally opened Impulse	Normally closed Impulse
Impulse time	N/A		1~360s (step 1s)	

Parameter Settings of Switch Output (DO)

General	Alarm	Fault tripping	Self-diagnostic function alarm	Instantaneous fault
Grounding/current leakage fault	Overload pre-alarm	Overload fault	Short-time delay fault	Undervoltage fault
Overvoltage fault	Grounding/leakaging alarm	Current unbalance fault	Neutral line fault	Required value fault
Reverse power fault	Voltage unbalance fault	Underfrequency fault	Overfrequency fault	Phase sequence fault
MCR/HSISC fault	Short circuit interlocking	Remote On	Remote Off	Required value out-of-limit
A-phase required value fault	B-phase required value fault	C-phase required value fault	N-phase required value fault	/

Note: The general table function can be setting on the computer in the communication group,when the DI/DO not be setting in the controller

Communication

Communication type controller connects to the communication products ,achieve the remote communication, remote regulating, remote control and remote sensing functions,for monitor the circuit breaker working on time.As "Communication Networking Diagram" showing, achieved the local monitoring and ultra remote monitoring to monitor the operating status of circuit breakers and control them on time

The specific configuration and communication interface parameters as the below table show:

Applicable controller	VWC4 , VWC6 (Communication)	
Communication mode	RS485(Photoelectric isolation)	
Communication cable	Shielded twisted pair cable	
Communication distance	1200m ⁽¹⁾	
Communication protocol	Standard	Modbus-RTU
	Optional	Profibus-DP or DeviceNet Accessories required: Profibus-DP conversion module or DeviceNet conversion module
Communication instructions	《PTU series intelligent controller Modbus communication protocol V3.0》	
Transmission rate (bit/s)	9.6K , 19.2K , 38.4K (Settable)	
Communication address	0~255 (Settable)	
The 'remote control' function requires additional accessories ⁽²⁾	1) 201 Relay module; 2) power supply module	
When connecting the monitoring system (RS232 interface) with the system, accessories ⁽³⁾ are required	RS485/RS232 conversion module	
When connecting the monitoring system (Ethernet interface) with the system, accessories are required	(ModBUS / TCP / IP) Ethernet conversion module	

Note: (1).When the bus length exceeds 1200 meters, additional a "communication relay module";
 (2).Achieve the remote communication, remote regulating, remote control and remote sensing functions without additional accessories
 (3).When monitor system have the RS485 interface,no need "RS485/RS232 conversion module"

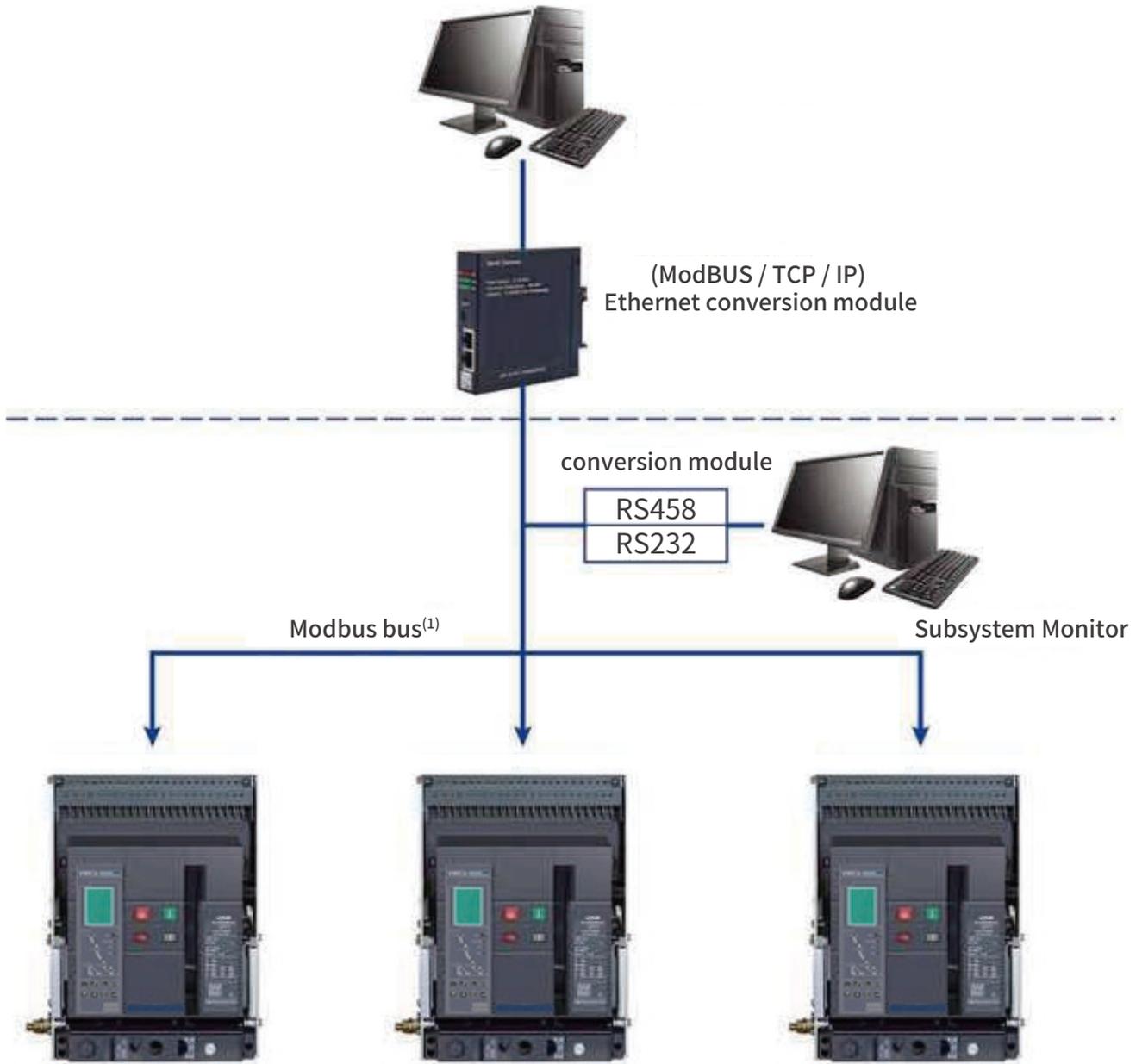
Controller factory setting



Overload long-time delay protection	I _r	I _n
	t _r	60s
Short circuit short-time delay protection	I _{sd}	3I _r
	t _{sd}	0.1s
Short circuit instantaneous protection	I _i	6I _n
Ground Fault Protection	I _g	OFF
Current unbalance protection	OFF	
Neutral line protection	100%I _r	
Current unbalance protection	OFF	
Undervoltage protection	OFF	
Overvoltage protection	OFF	
Required current value protection	OFF	
Phase sequence protection	OFF	
Underfrequency, overfrequency protection	OFF	
MCR	VW3-20(S/H)	20kA
	VW3-25(H/HU/HV)	30kA
	VW3-40(H/HU/HV)	45kA
	VW3-63(H/HU/HV)	75kA
HSISC	VW3-20(S/H)	OFF
	VW3-25(H/HU/HV)	OFF
	VW3-40(H/HU/HV)	OFF
	VW3-63(H/HU/HV)	OFF

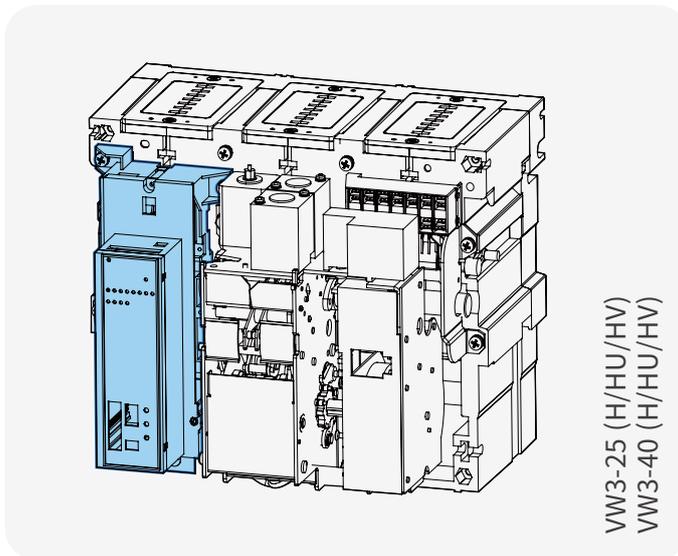
Contact factory setting				
	Contact 1	Contact 2	Contact 3	Contact 4
VWC2/VWC4/VWC6	Overload fault output	Fault tripping output	Self-diagnostic function alarm	Fault tripping
VWC6 (Communication)			Remote Off	

Main network communication



Note: (1) When the bus with Profibus-DP or DeviceNet, need to be converted by Profibus-DP or DeviceNet conversion module

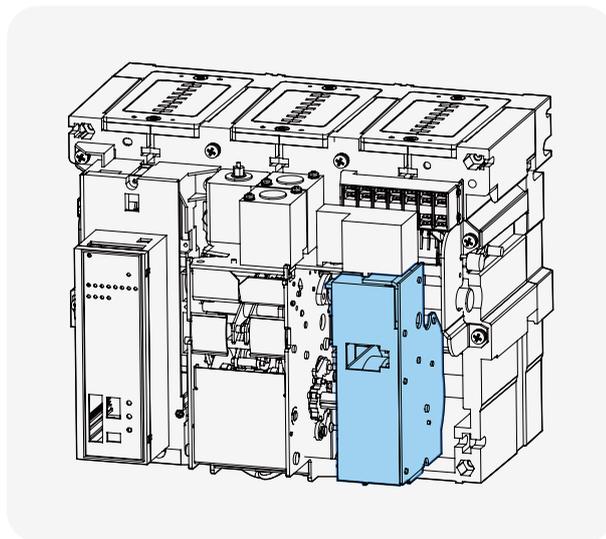
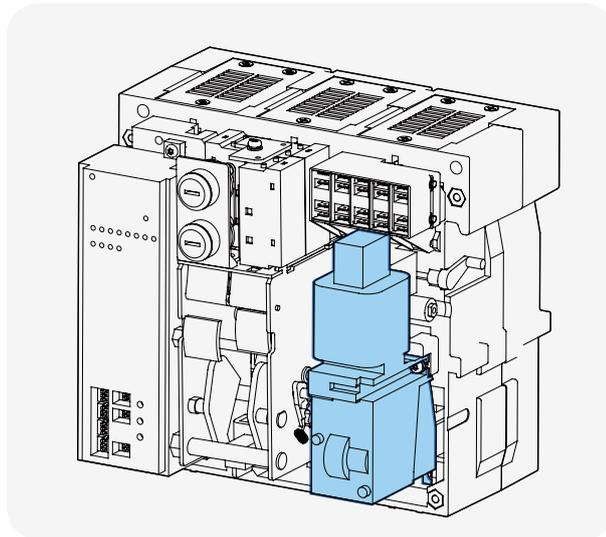
Controller



Controller	Controller mode	Supply voltage Ue (V)
	VWC2	AC65~500V, DC80~700V
	VWC4	
	VWC6	
	VWC6 (Communication)	

Motor operating mechanism (D)

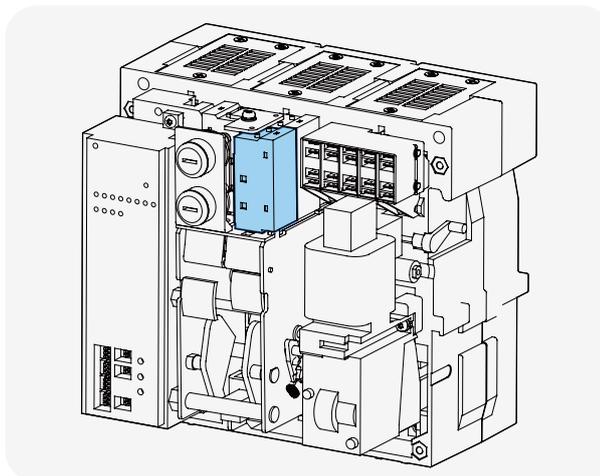
The circuit breaker has motor energy storage and automatic energy re-storage function (also energy storage by manual)



Rated control supply voltage U_s (V)		AC230	AC400	DC110	DC220
Operation voltage		(0.85~1.1) U_s			
Power consumption	VW3-20 (S/H)		100VA		100W
	VW3-25 (H/HU/HV)		150VA		150W
	VW3-40 (H/HU/HV)		150VA		150W
	VW3-63 (H/HU/HV)		190VA		190W
Energy storage time(s)		5s			

Closed electromagnet (B)

After the energy storage is completed, closed electromagnet release the operating mechanism energy, make the circuit breaker quickly closed.

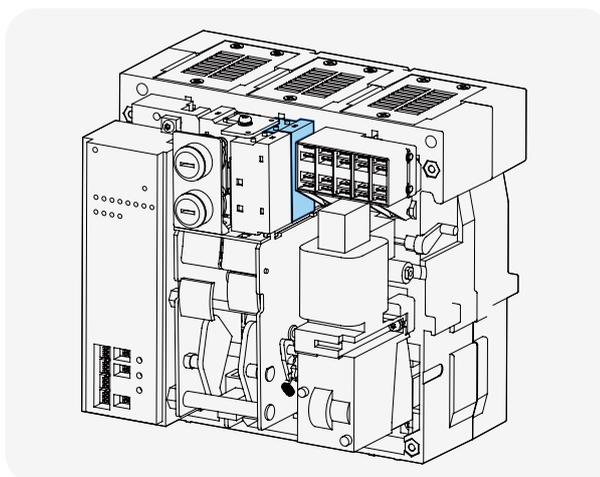


Power Consumption Table of Closed Electromagnet

Rated insulation voltage(Ui)	Rated control supply voltage(Us)	Closed current		Instantaneous power	
		VW3-20 (S/H)	VW3-25 (H/HU/HV) VW3-40 (H/HU/HV) VW3-63 (H/HU/HV)	VW3-20 (S/H)	VW3-25 (H/HU/HV) VW3-40 (H/HU/HV) VW3-63 (H/HU/HV)
400V	AC380V/AC400V	1A	2.1A	360VA	780VA
	AC220V/AC230V	1.3A	2.8A	295VA	575VA
	DC220V	1.4A	2.9A	280W	630W
	DC110V	2.1A	5.2A	250W	550W

Shunt release (F)

Can disconnect the circuit breaker by remote operation.

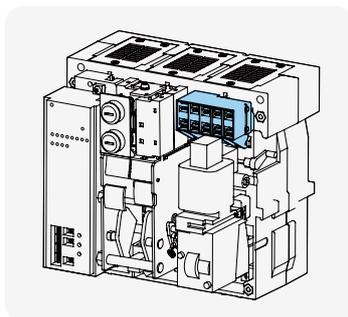
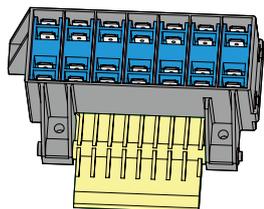


Power Consumption Table of Shunt Release

Rated insulation voltage(Ui)	Rated control supply voltage(Us)	Closed current		Instantaneous power	
		VW3-20 (S/H)	VW3-25 (H/HU/HV) VW3-40 (H/HU/HV) VW3-63 (H/HU/HV)	VW3-20 (S/H)	VW3-25 (H/HU/HV) VW3-40 (H/HU/HV) VW3-63 (H/HU/HV)
400V	AC380V/AC400V	1A	2.1A	360VA	780VA
	AC220V/AC230V	1.3A	2.8A	295VA	575VA
	DC220V	1.4A	2.9A	280W	630W
	DC110V	2.1A	5.2A	250W	550W

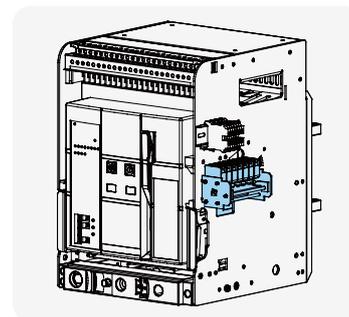
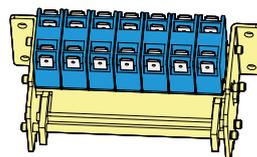
Auxiliary contact

Internal auxiliary contact



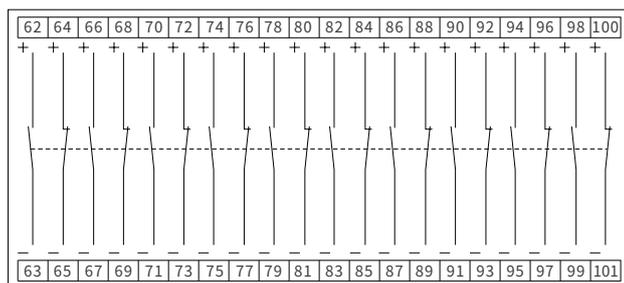
External auxiliary contact

Min 60mm safety distance of circuit breaker after installation

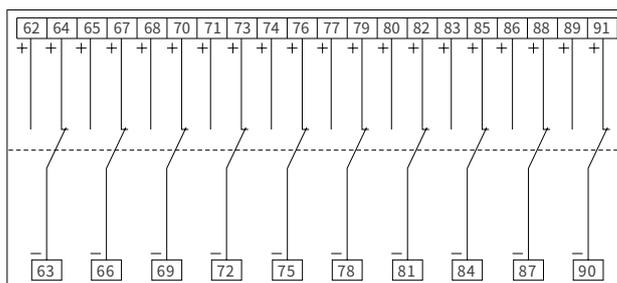


External auxiliary contact terminal number

Without common point



With common point

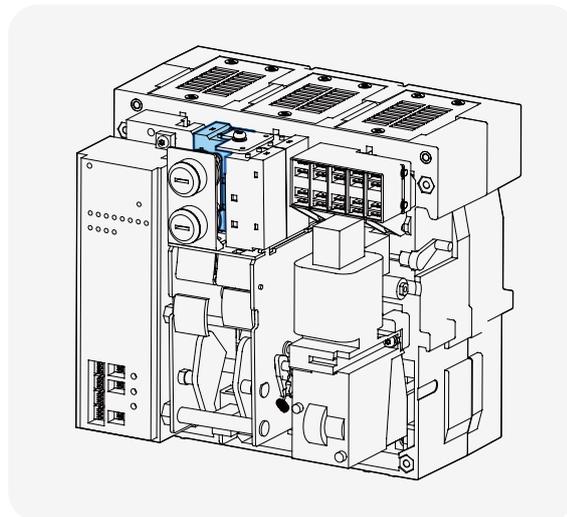


H/HU/HV/Standard have Max 4NO+4NC internal auxiliary contact,if more auxiliary contact ,need the external auxiliary contact

Auxiliary contact	Rated operational voltage Ue(V)		Rated breaking capacity		Agreed thermal current I _{th} (A)	
		AC400		800VA	16	
		AC230				
		DC220		300W		
	DC110					
Type	Code		Type	Code		
3NO3NC	A33		4NO4NC	A44		
5NO5NC	A55		6NO6NC	A66		
7NO7NC	A77		8NO8NC	A88		
9NO9NC	A99		10NO10NC	A1010		
11NO11NC	A1111		12NO12NC	A1212		
13NO13NC	A1313		14NO14NC	A1414		

Note: 1.H/HU/HV series have 3NO 3NC~14NO 14NC
 NO:normally open contact
 NC:normally closed contact

Undervoltage (loss-of-voltage) release (Q)



Rated operational voltage (V)		Undervoltage release		Loss-of-voltage release	
		AC230	AC400	AC230	AC400
Action type	Type	Code			
	Instantaneous time	Q20	Q10	S20	S10
	Delay time 1s	Q21	Q11	S21	S11
	Delay time 3s	Q23	Q13	S23	S13
	Delay time 5s	Q25	Q15	S25	S15
Action voltage (V)		(0.35-0.7) Ue		(0.1-0.35) Ue	
Guarantee the reliable closing voltage (V)		(0.85-1.1) Ue			
Not guarantee the reliable closing voltage		≤ 0.35Ue			
Power consumption		15VA			

Note: In thunderstorm prone areas or power grids with unstable power supply voltage, it is recommended to use undervoltage tripping with delay to prevent circuit breaker tripping due to short-term voltage drop. The delay time is generally 1S, 3S, 5S

Undervoltage release

Rated insulation voltage(Ui)	Rated control supply voltage(Us)	Instantaneous power		Maintained power	
		VW3-20 (S/H)	VW3-25 (H/HU/HV) VW3-40 (H/HU/HV) VW3-63 (H/HU/HV)	VW3-20 (S/H)	VW3-25 (H/HU/HV) VW3-40 (H/HU/HV) VW3-63 (H/HU/HV)
400V	AC380V/AC400V	180W	115W	3.8W	3.6W
	AC220V/AC230V	148W	118W	2.4W	3.4W

Loss-of-voltage release

Rated insulation voltage(Ui)	Rated control supply voltage(Us)	Instantaneous power		Maintained power	
		VW3-20 (S/H)	VW3-25 (H/HU/HV) VW3-40 (H/HU/HV) VW3-63 (H/HU/HV)	VW3-20 (S/H)	VW3-25 (H/HU/HV) VW3-40 (H/HU/HV) VW3-63 (H/HU/HV)
400V	AC380V/AC400V	650W	280W	0.43W	6.36W
	AC220V/AC230V	440W	105W	0.36W	3.24W

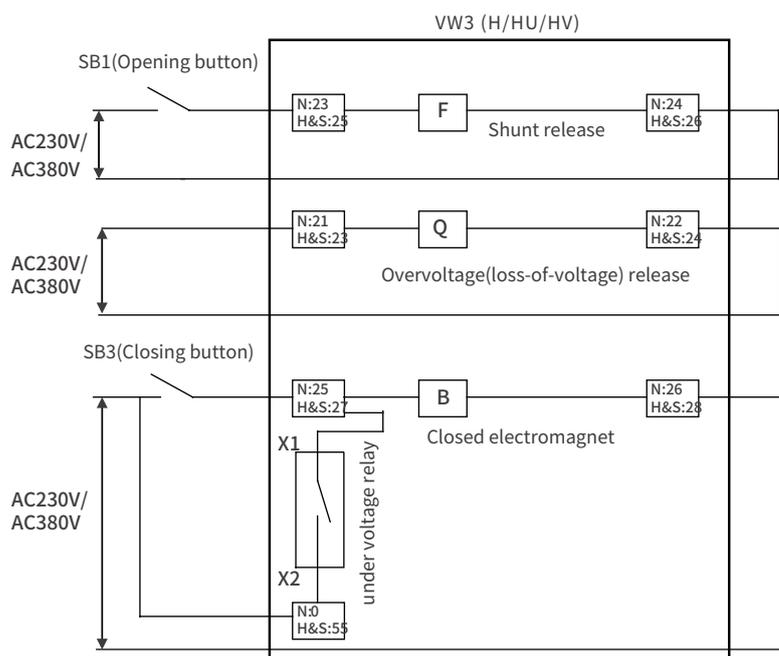
Grid Undervoltage (loss-of voltage) release



Suitable for distributed PV low-voltage grid connection, achieving voltage loss tripping, overvoltage tripping, and automatic closing upon voltage detection.

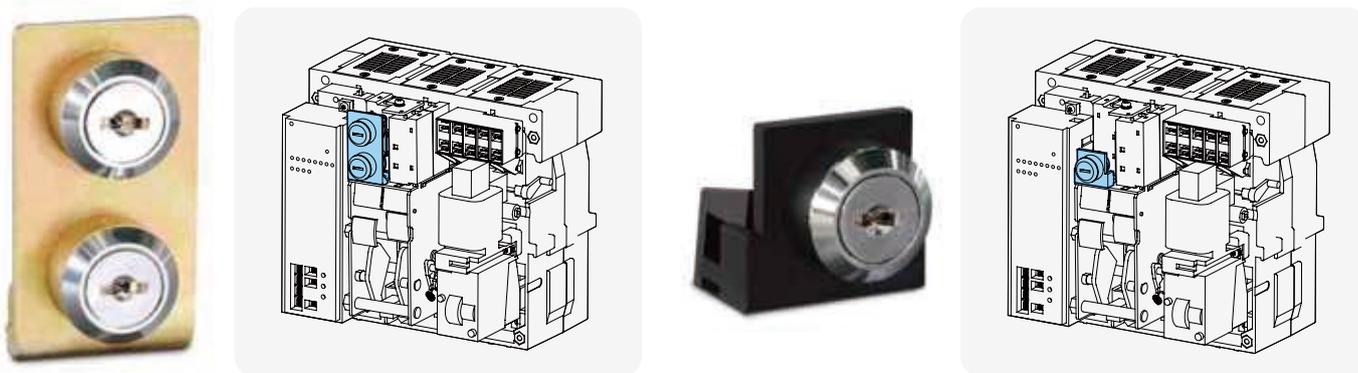
Action value of loss-of voltage: $\leq 20\%U_e$	Action delay time of loss-of voltage: 1-10s
Action value of overvoltage: $\geq 135\%U_n$	Automatic closing voltage: (0.85-1.1)U _e

Note: 1. X1 and X2 only send a short signal (200ms) after overvoltage(loss-of-voltage) release recover for 1 second, then the closed electromagnet act.
2. The number in the box represents the secondary wiring terminal number. N represents the terminal number of VW3-20 (S/H) circuit breaker, and H&S represents the terminal number of VW3-25 (H/HU/HV), VW3-40 (H/HU/HV), VW3-63 (H/HU/HV).



Lock

Off-position key lock (SF11,SF21,SF31,SF32,SF53)



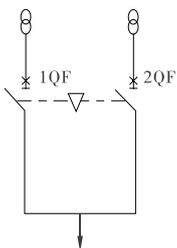
This key lock is locked on the manually disconnected position of the circuit breaker

Key lock :

- One lock one key (SF11): One circuit breaker with one lock and one key, and not allowed to closed when locked
- Two locks one key (SF21): Two circuit breakers with two same lock and one key, and only allowed one circuit breaker closed
- Three locks one key (SF31): Three circuit breakers with three same lock and one key, and only allowed one circuit breaker closed
- Three locks two keys (SF32): Three circuit breakers with three same lock and two keys, and only allowed two circuit breakers closed
- Five locks three keys (SF53): Five circuit breakers with five same lock and three keys, and only allowed three circuit breakers closed

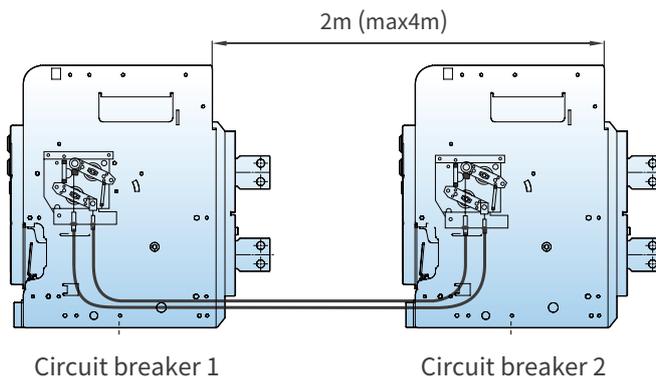
Mechanical interlocking (SR11,SR12,SR21,SY11)

Circuit figure Possible operating modes



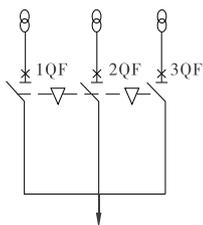
1QF	2QF
0	0
0	1
1	0

Two interlocking cables circuit breakers or two interlocking hard rods circuit breakers



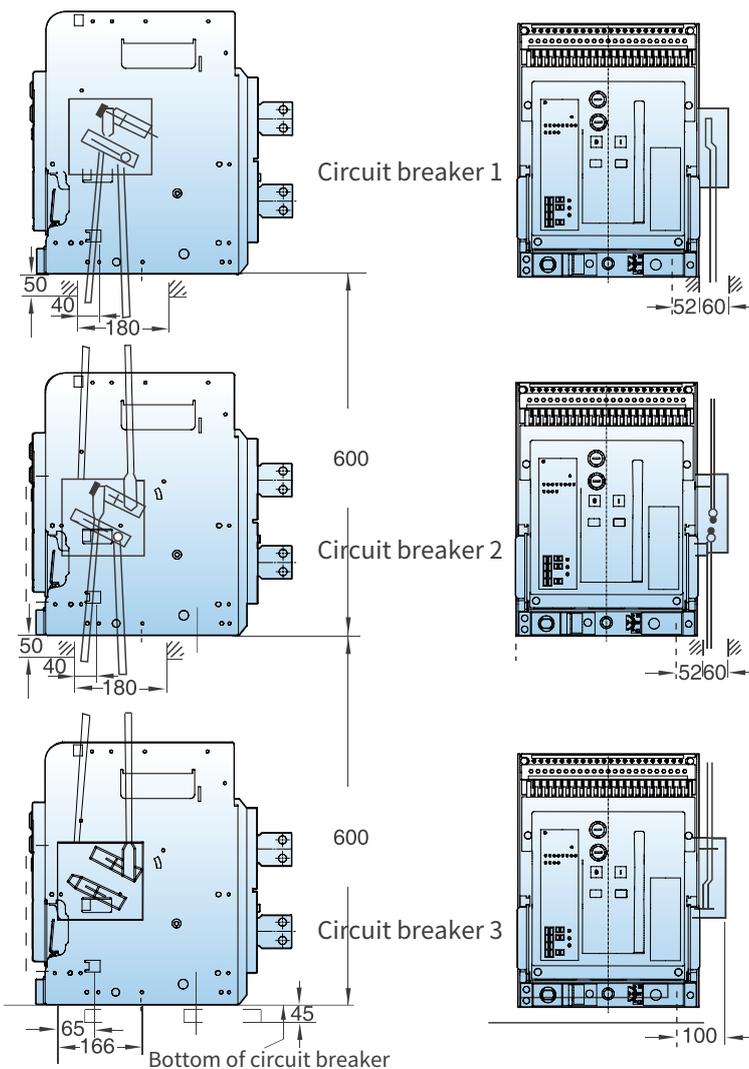
Circuit figure Possible operating modes

Mode 1: Three power supplies can only close one circuit breaker

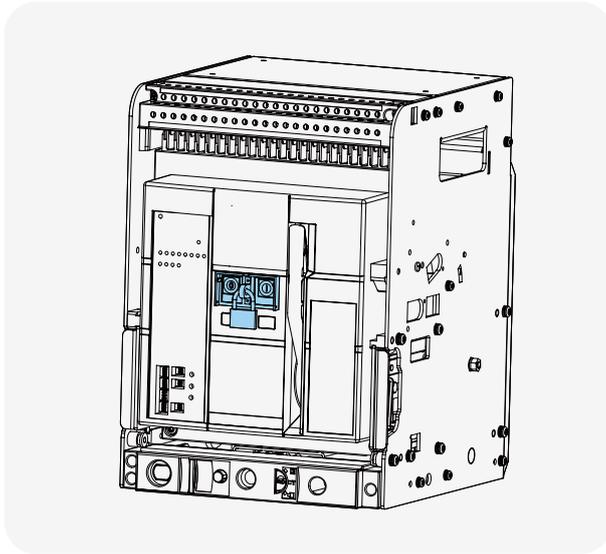
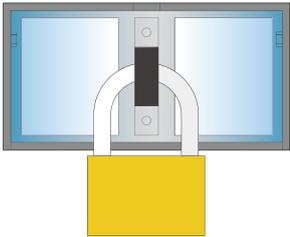


1QF	2QF	3QF
0	0	0
1	0	0
0	1	0
0	0	1

Three circuit breaker interlocking hard rods

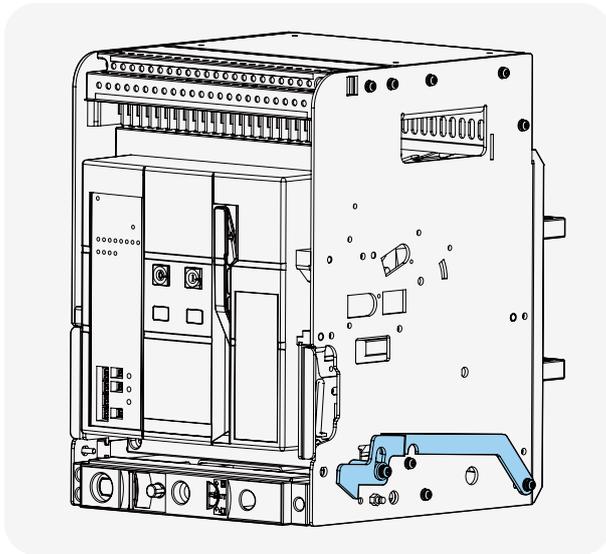
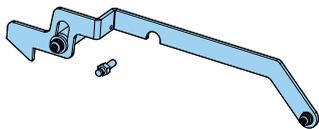


Button lock (S) (The minimum safety distance 35mm between the cases)

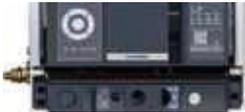


Door interlock (The minimum safety distance 40mm between the circuit breaker)

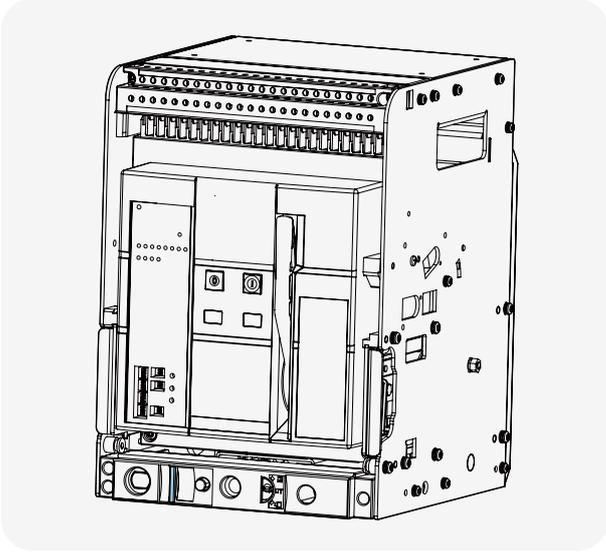
When the circuit breaker at the working or testing position, prohibited to open the cabinet door; The door is opened and the circuit breaker at the connected position, close the door without disconnecting the circuit breaker.



Drawer type circuit breaker locking device at "separation" position

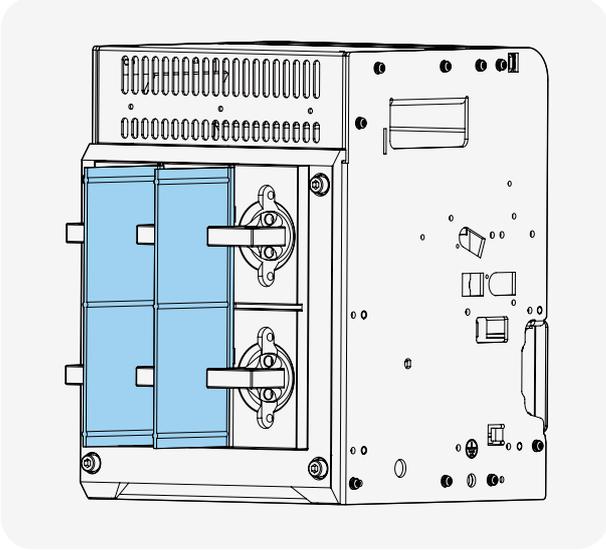
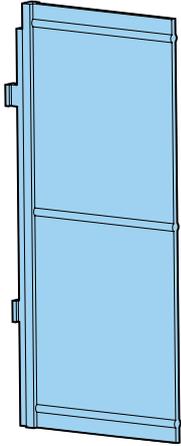


When the drawer type circuit breaker at the separated position, lock the circuit breaker by pull out the rod. After locking, the circuit breaker will not be able to "test" and "connection" positions.

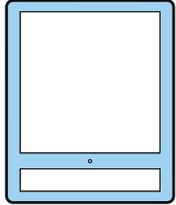


Phase separator (The minimum safety distance 180mm between the circuit breakers)

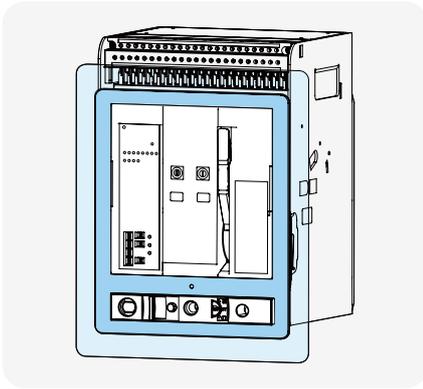
The minimum safety distance 100mm between VW3-20 (S/H), and The minimum safety distance 180mm between VW3-25 (H/HU/HV), VW3-40 (H/HU/HV), VW3-63 (H/HU/HV).



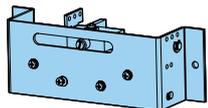
Doorframe(M)



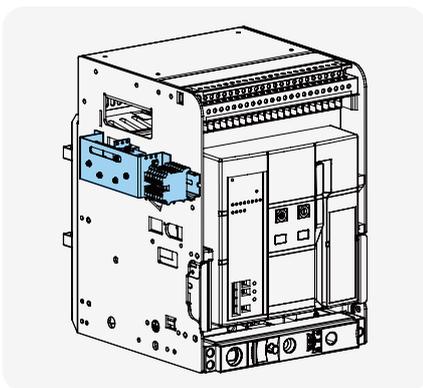
Have the fixed type and drawout type, it is mainly placed on the door of the cubicle for sealing, and can make the protection level of the circuit breaker reaches IP40. It is beautiful and practical.



Position indication(CX) (The minimum safety distance 50mm between the circuit breakers)

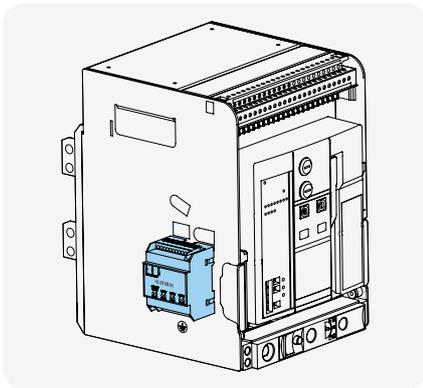
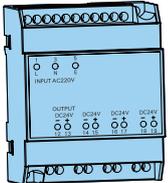


With three contacts to indicate the position status of the circuit breaker (connection, testing, separation). When the circuit breaker is in a certain position, the corresponding contact will be closed.

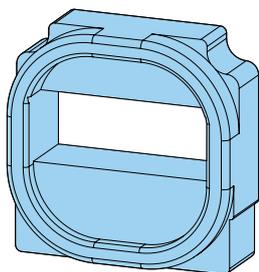


Power supply module (The minimum safety distance 60mm between the circuit breakers)

AC65~500V, DC80~700V

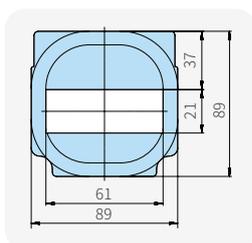
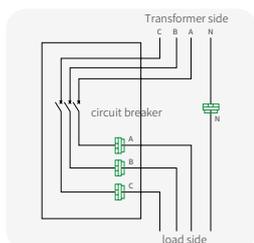


External neutral current transformer (N)

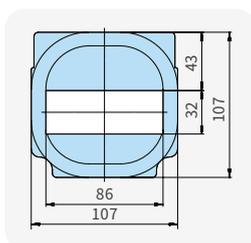


The TN-S distribution system use the three pole circuit breaker and requires an external neutral current transformer.
 The earth current protection type distribution system use the three pole circuit breaker and requires an external neutral current transformer.
 The installation cautions as follows:

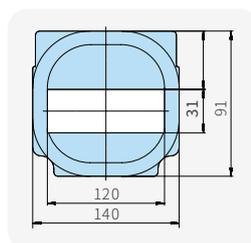
1. The external neutral current transformer has a twisted pair wire with codes 6 and 7 ,connect to same terminal code of the secondary terminal
- 2.The installation direction of the external neutral current transformer depends on the wiring method of the circuit breaker:
 If the line of the circuit breaker upper , the convex surface of the external neutral current transformer should face the neutral grounding point side;
 If the line of the circuit breaker down , the plane surface of the external neutral current transformer should face the neutral grounding point side;
3. Current transformer type based on the width of the N-phase busbar



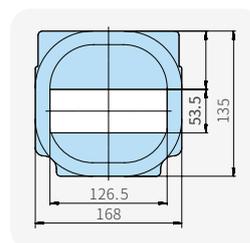
N1



N2



N3



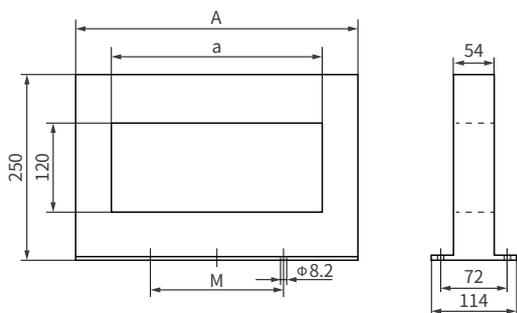
N4

External leakage current transformer

When the residual current protection function, required an external residual current transformer, and the controller does not have the ground protection function.
 The external neutral current transformer has a twisted pair wire with codes 6 and 7 ,connect to same terminal code of the secondary terminal
 The principle of residual current protection is shown in the following figure



Outline Dimension



	A	M	a
Type I	380	250	285
Type II	465	250	370
Type III	595	350	500

Power consumption (ambient air temperature +40°C)

Power consumption is the total Power consumption which measured at the circuit breaker frame rated current I_{nm}

Type	Power consumption (W)	
	Fixed type	Drawout type
VW3-20(S/H)	123.5	331.5
VW3-25(H/HU/HV)	356.8	823.4
VW3-40(H/HU/HV)	486.7	856.8
VW3-63(H/HU/HV)	787	1145

Temperature derated coefficient

If the ambient temperature is higher than +40°C, capacity can be corrected according to the following table

Type	Rated current (A)	+40°C	+45°C	+50°C	+55°C	+60°C	+65°C	+70°C
VW3-20(S/H)	200~1250	1	1	1	1	1	1	1
	1600~2000	1	1	1	1	0.98	0.93	0.87
VW3-25(H/HU/HV)	630~2000	1	1	1	1	1	1	1
	2500	1	1	1	1	0.99	0.94	0.88
VW3-40(H/HU/HV)	1000~2500	1	1	1	1	1	1	1
	2900	1	1	1	1	1	0.96	0.94
	3200	1	1	1	1	0.94	0.92	0.90
	3600	1	1	1	0.94	0.92	0.90	0.85
	4000	1	0.95	0.92	0.89	0.85	0.85	0.80
VW3-63(H/HU/HV)	4000~5000	1	1	1	1	1	1	1
	6300	1	1	0.98	0.93	0.89	0.85	0.82

If the altitude is higher than 2000m, capacity can be corrected according to the following table

Altitude (m)	2000	3000	4000	4500	5000	
Power-frequency withstand voltage(V)	5000	4500	4000	3700	3500	
Rated impulse withstand voltage U_{imp} (kV)	18	15	15	12	12	
Correction coefficient for short-circuit breaking capacity	1	0.98	0.93	0.88	0.85	
Correction coefficient for working current	VW3-20(S/H)	1	0.98	0.93	0.9	0.87
	VW3-25(H/HU/HV)	1	1	1	1	0.97
	VW3-40(H/HU/HV)	1	0.93	0.88	0.85	0.82
	VW3-63(H/HU/HV)	1	0.98	0.93	0.90	0.87

The derating correction factor is only applicable to the maximum current of the shell frame

Copper busbar specification

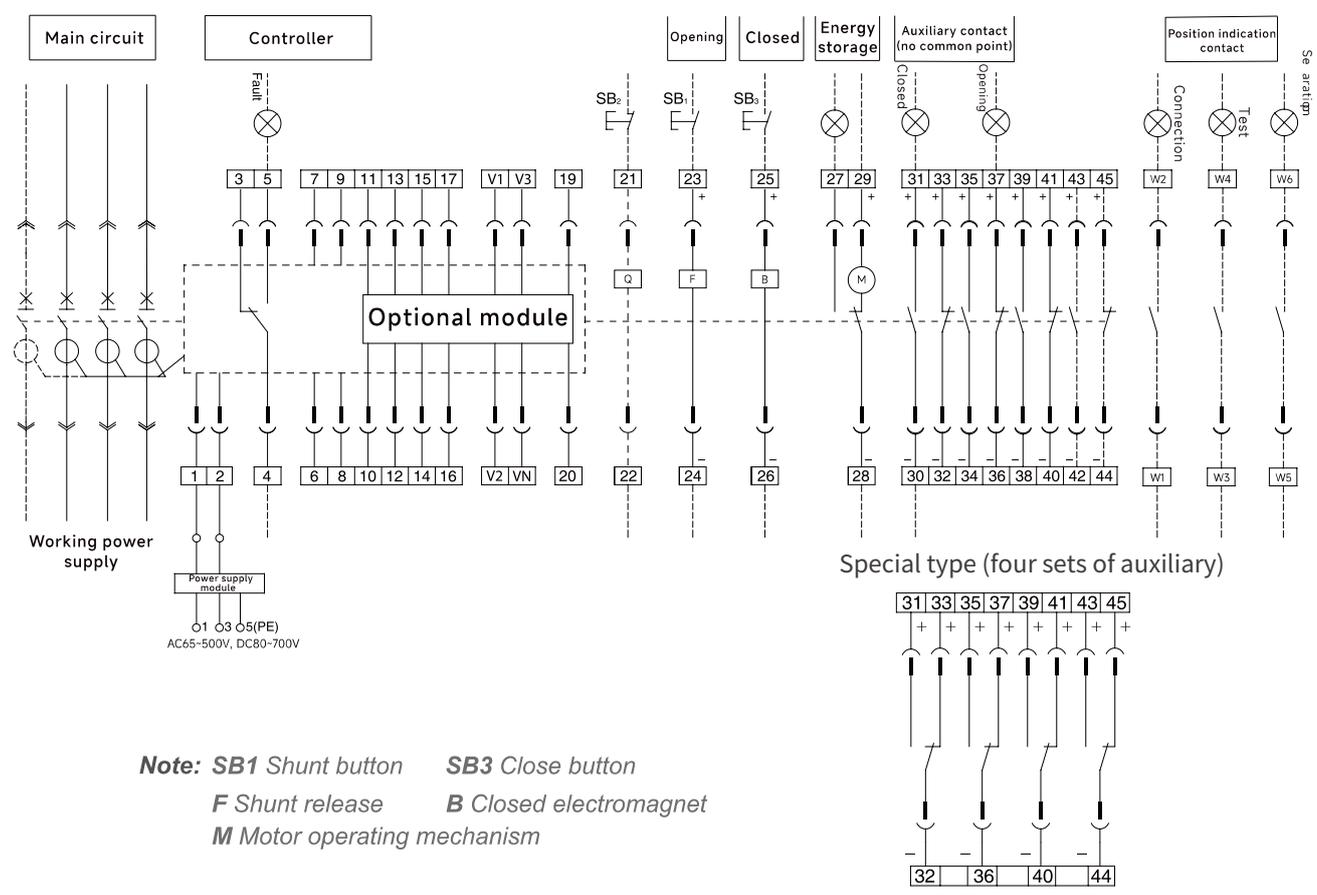
Frame size rated current I_{nm} (A)	Rated current I_n (A)	Copper busbar specification		
		Number of busbar		Dimension
		Horizontal wiring	Vertical wiring	
VW3-20(S/H)	≤630	1		50×5
	800	1		50×10
	1000	1		50×10
	1250	2		50×10
	1600	2		50×10
	2000	3		60×10
VW3-25(H/HU/HV)	630	2	/	80×5
	800	2	/	80×5
	1000	2	/	80×5
	1250	3	/	80×5
	1600	2	/	80×10
	2000	3	/	80×10
	2500	3	/	80×10
VW3-40(H/HU/HV)	1000	2	1	80×5
	1250	3	2	80×5
	1600	2		80×10
	2000	3	2	80×10
	2500	3		80×10
	2900	3		100×10
	3200	4		100×10
	3600	5	4	100×10
VW3-63(H/HU/HV)	4000	5	4	100×10
	5000	7	5	100×10
	6300	10	8	100×10

The table indicates the copper busbar specifications adopted when the circuit breaker is under the ambient temperature of 40°C and the open wide installation under the heating condition meets the stipulation in GB14048.2.

Recommended screw used of outlet busbar diameter

Circuit breaker type	Outlet busbar diameter	Screws grade 8.8 (with washer)	Tightening torque
VW3-20(S/H)	Φ11	M10	50N.m
VW3-25 (H/HU/HV) VW3-40(H/HU/HV) VW3-63 (H/HU/HV)	Φ13	M12	70N.m

VW3-20(S/H) Electrical Wiring Diagram

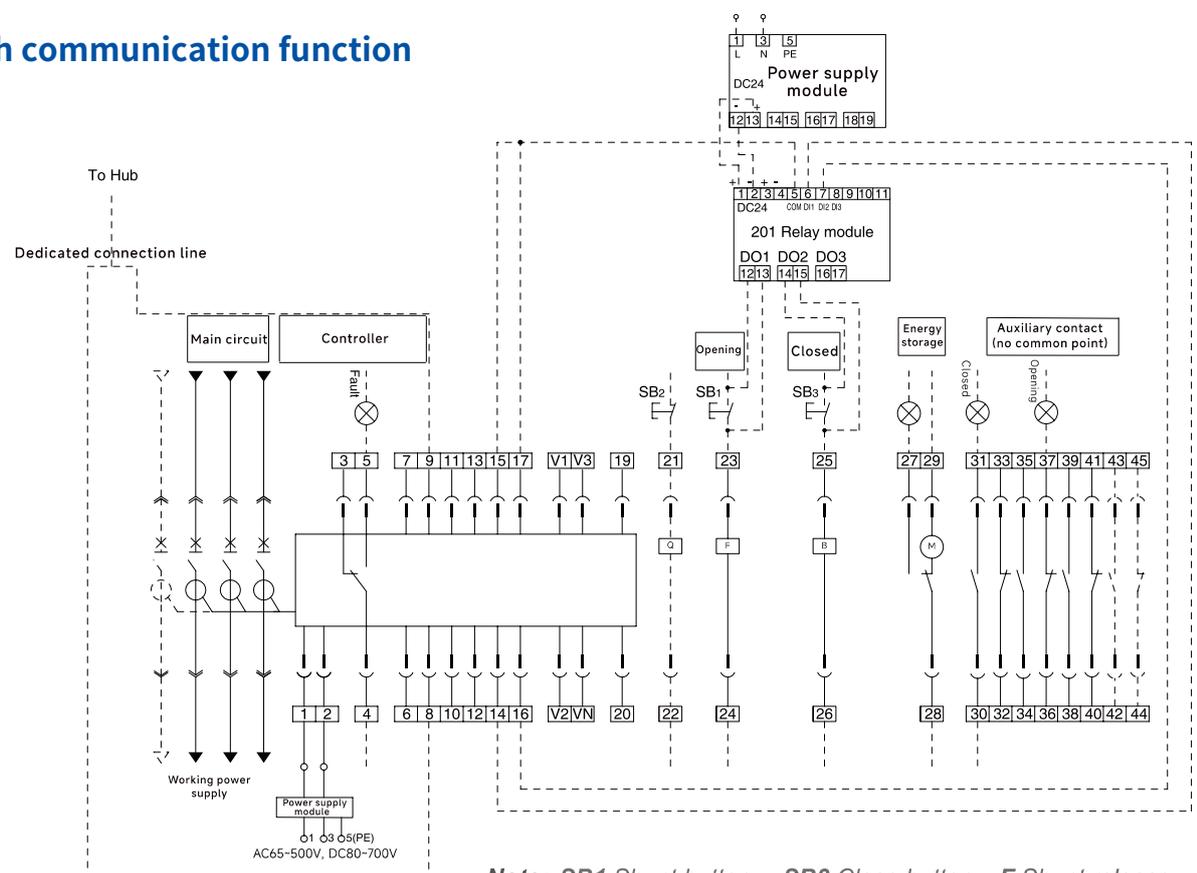


Terminal Number

1#, 2#	Working power supply	21#, 22#	Under-voltage release or loss of voltage release
3#, 4#, 5#	Fault tripping contact output	23#, 24#	Shunt release
6#, 7#	External transformer or external leakage current transformer	25#, 26#	Closed electromagnet
8#, 9#	Communication	27#, 28#, 29#	Motor operating mechanism
10#, 11#	First contact output	30#~45#	Auxiliary contact
12#, 13#	Second contact output	V1	A-phase wiring (input voltage ≤ 230V)
14#, 15#	Third contact output	V2	B-phase wiring (input voltage ≤ 230V)
16#, 17#	Fourth contact output	V3	C-phase wiring (input voltage ≤ 230V)
19#	Communication shielded grounding wire	VN	N-phase wiring
20#	PE-phase wiring	/	/

- Note:** (1) Position contact terminal numbers W1 # -W6 # do not connect the secondary terminal
 (2) If the control power supply voltage of F, B and M is different, connect to different power sources separately
 (3) Terminals 29 # (VW3-20S/VW3-20H) can be directly connect to the power supply (automatic pre energy storage), or can be connect to the power supply after the normally open button (manual pre energy storage)
 (4) Indicator light, button switch are provided by user
 (5) Select the contact output function according to the "DO Function Setting Table" on page 42
 (6) The above circuit diagrams is the circuit breaker in the open position.
 (7) The shunt release coil is of the long-term energized type and defaults to the pulse type. If choose to maintain type coil, please contact the manufacturer.
 (8) When connecting the auxiliary contact to a load, please keep the load in the same position and direction as the auxiliary contact, otherwise it may cause the auxiliary contact to burn out. Do not connect the normally closed contacts of this machine in series with the closed coil, otherwise it will cause anti bounce failure.

With communication function



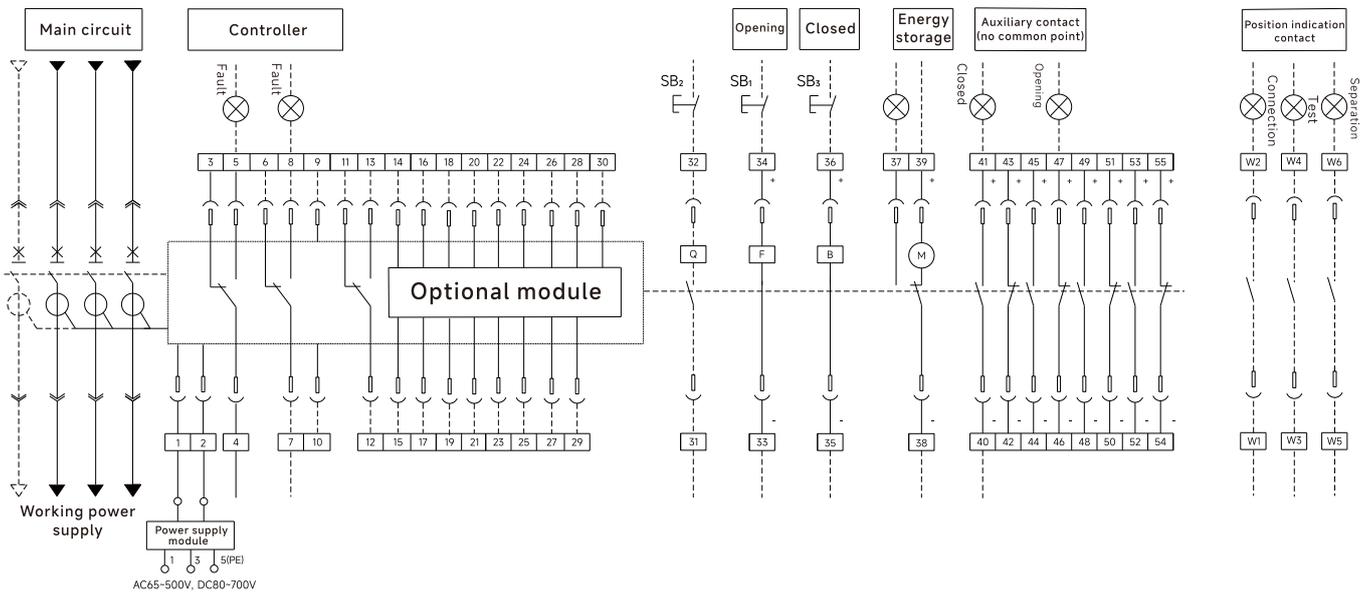
Note: SB1 Shunt button SB3 Close button F Shunt release
 B Closed electromagnet M Motor operating mechanism

Terminal Number			
1#, 2#	Working power supply	21#, 22#	Under-voltage release or loss of voltage release
3#, 4#, 5#	Fault tripping contact output	23#, 24#	Shunt release
6#, 7#	External transformer or external leakage current transformer	25#, 26#	Closed electromagnet
8#, 9#	Communication	27#, 28#, 29#	Motor operating mechanism
10#, 11#	First contact output	30#~45#	Auxiliary contact
12#, 13#	Second contact output	V1	A-phase wiring (input voltage ≤ 230V)
14#, 15#	Third contact output	V2	B-phase wiring (input voltage ≤ 230V)
16#, 17#	Fourth contact output	V3	C-phase wiring (input voltage ≤ 230V)
19#	Communication shielded grounding wire	VN	N-phase wiring
20#	PE-phase wiring	/	/

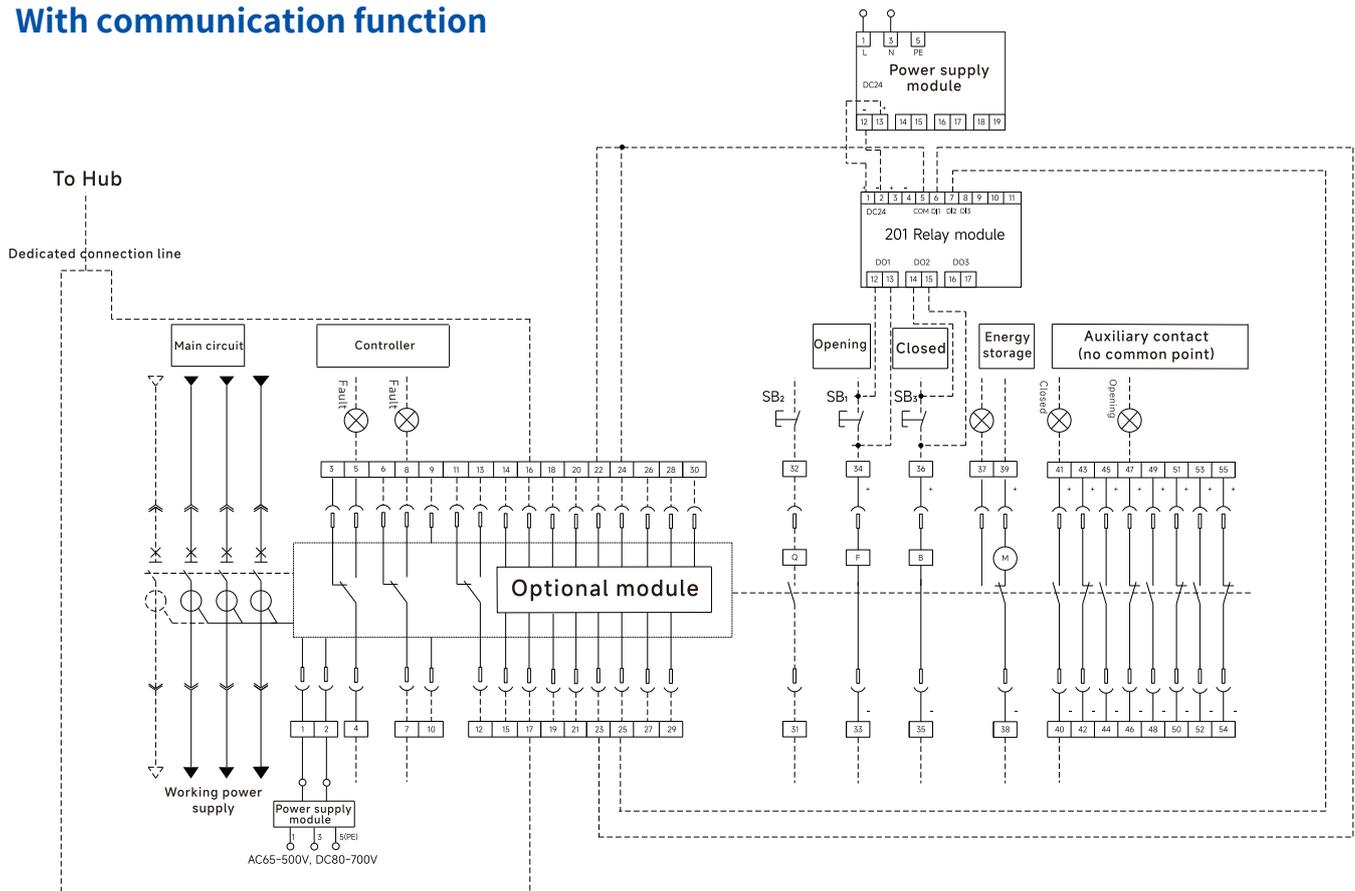
- Note:**
- (1) Position contact terminal numbers W1# - W6# do not connect the secondary terminal
 - (2) If the control power supply voltage of F, B and M is different, connect to different power sources separately
 - (3) Terminals 29# (VV3-20S/VV3-20H) can be directly connect to the power supply (automatic pre energy storage), or can be connect to the power supply after the normally open button (manual pre energy storage)
 - (4) Indicator light, button switch are provided by user
 - (5) Select the contact output function according to the "DO Function Setting Table" on page 42
 - (6) The above circuit diagrams is the circuit breaker in the open position.
 - (7) The shunt release coil is of the long-term energized type and defaults to the pulse type. If choose to maintain type coil, please contact the manufacturer.
 - (8) When connecting the auxiliary contact to a load, please keep the load in the same position and direction as the auxiliary contact, otherwise it may cause the auxiliary contact to burn out. Do not connect the normally closed contacts of this machine in series with the closed coil, otherwise it will cause anti bounce failure.

Size and Connection

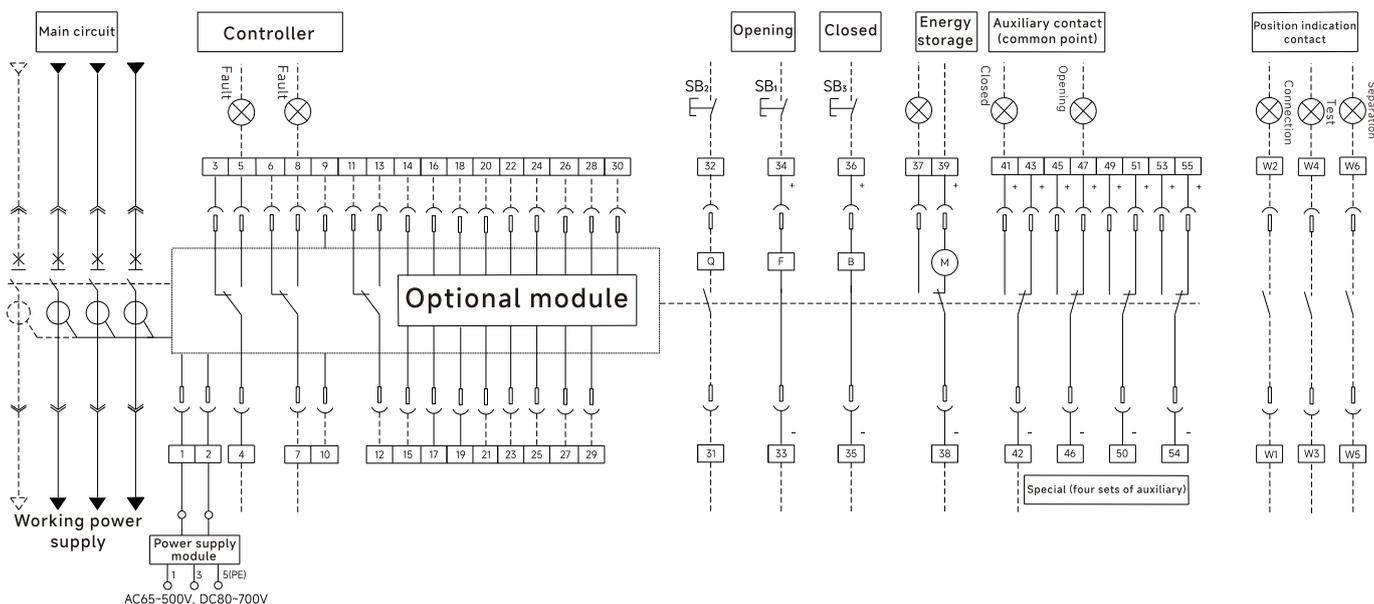
VW3-25(H/HU/HV), VW3-40(H/HU/HV), VW3-63(H/HU/HV) Electrical Wiring Diagram



With communication function



Special (four sets of auxiliary)



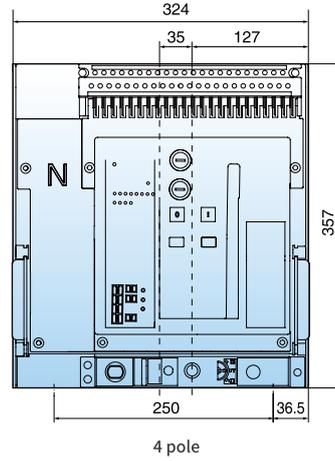
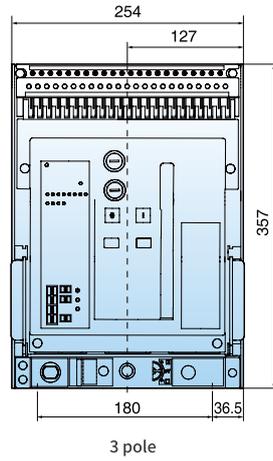
Note: SB1 Shunt button SB3 Close button F Shunt release B Closed electromagnet M Motor operating mechanism

Terminal Number			
1#, 2#	Working power supply	26#	A-phase wiring (input voltage ≤ 230V)
3#, 4#, 5#	Fault tripping contact output 1	27#	B-phase wiring (input voltage ≤ 230V)
6#, 7#, 8#	Fault tripping contact output 2	28#	C-phase wiring (input voltage ≤ 230V)
9#, 10#	Remote reset	29#	N-phase wiring
11#, 12#, 13#	Close ready signal output unit	30#	PE-phase wiring
14#, 15#	External transformer or external leakage current transformer	31#, 32#	Under-voltage release or loss of voltage release
16#, 17#	Communication	33#, 34#	Shunt release
18#, 19#	First contact output	35#, 36#	Closed electromagnet
20#, 21#	Second contact output	37#, 38#, 39#	Motor operating mechanism
22#, 23#	Third contact output	40#-55#	Auxiliary contact
24#, 25#	Fourth contact output	/	/

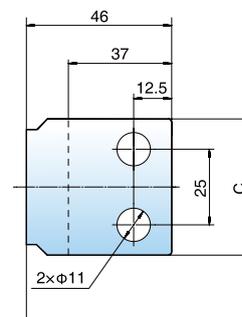
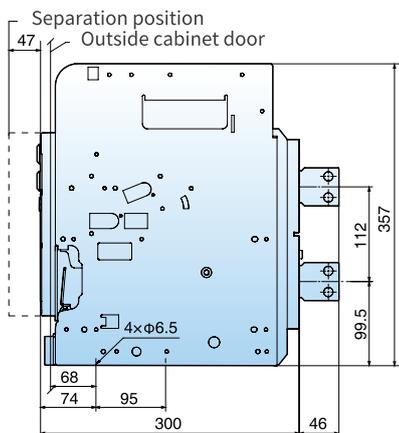
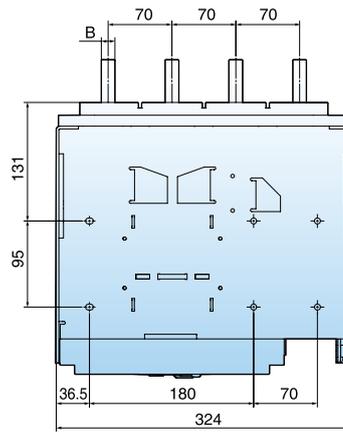
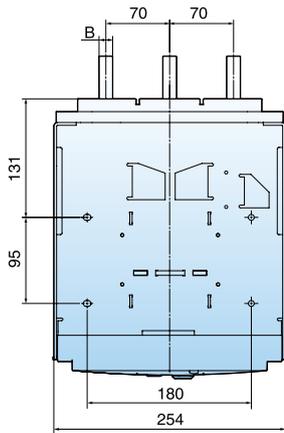
- Note:**
- (1) Position contact terminal numbers W1 # -W6 # do not connect the secondary terminal
 - (2) If the control power supply voltage of F, B and M is different, connect to different power sources separately
 - (3) Terminals 39 # (VW3-25H/VW3-40H/VW3-63H) can be directly connect to the power supply (automatic pre energy storage), or can be connect to the power supply after the normally open button (manual pre energy storage)
 - (4) Indicator light, button switch are provided by user
 - (5) Select the contact output function according to the "DO Function Setting Table" on page 1-23
 - (6) The above circuit diagrams is the circuit breaker in the open position.
 - (7) The shunt release coil is of the long-term energized type and defaults to the pulse type. If choose to maintain type coil, please contact the manufacturer.

Drawout type (VW3-20S/VW3-20H)

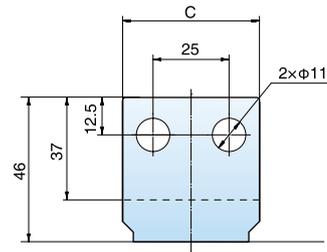
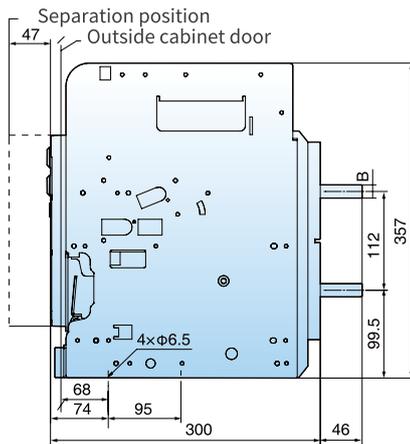
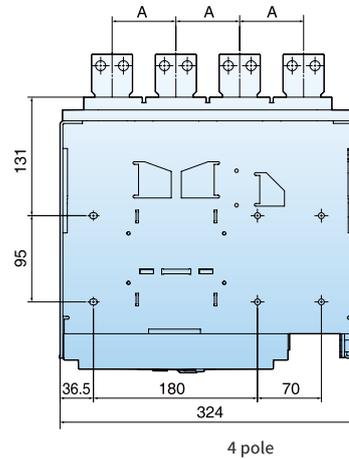
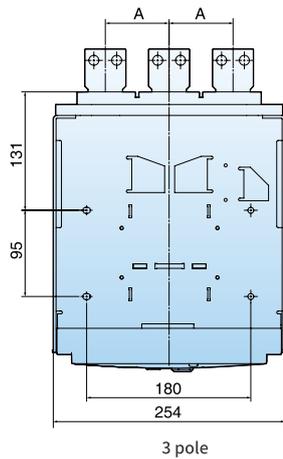
Front view



Vertical Wiring

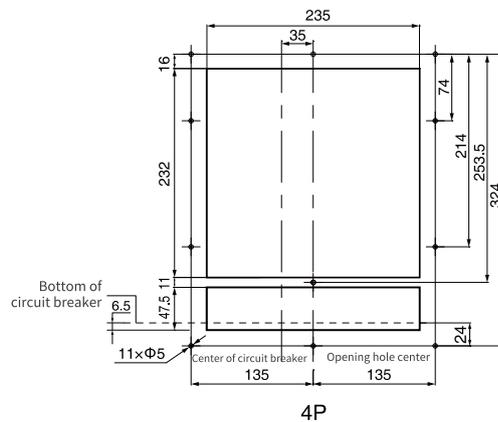
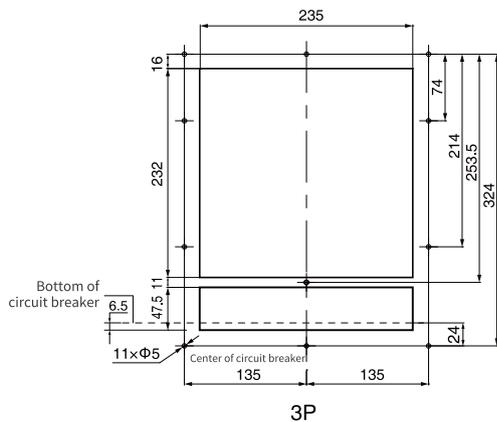


Horizontal Wiring



Current	VW3-20 (200~630A)	VW3-20 (800~1250A)	VW3-20 (1600A)	VW3-20 (2000A)
Dimension A (mm)	70	70	70	3P:85/4P:80
Dimension B (mm)	5	10	15	15
Dimension C (mm)	45	45	45	60

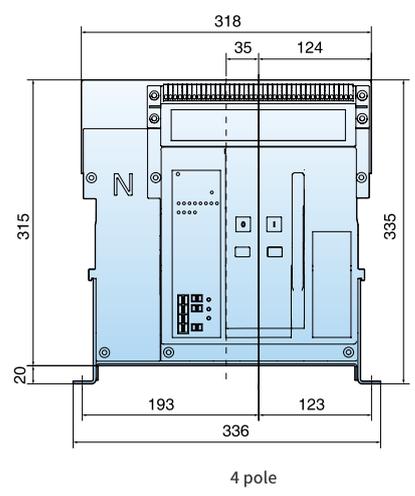
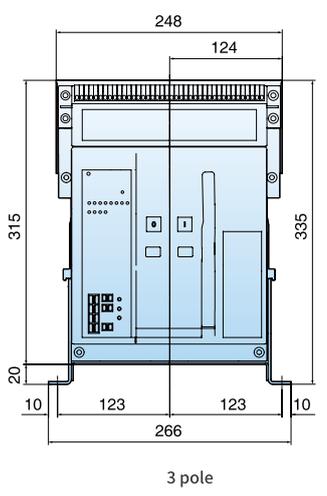
Cabinet door open hole dimension



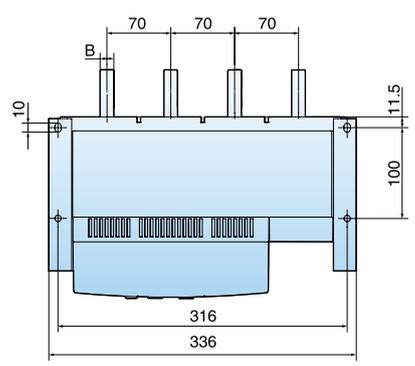
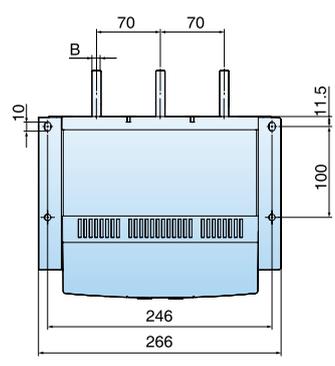
Size and Connection

Fixed type (VW3-20S/VW3-20H)

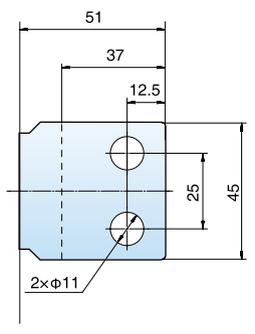
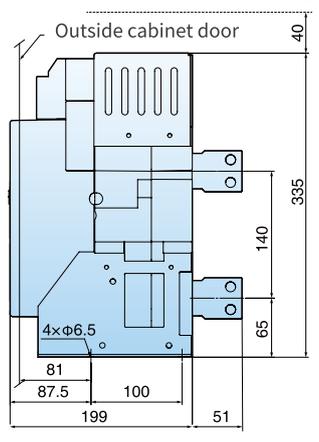
Front view



Vertical Wiring



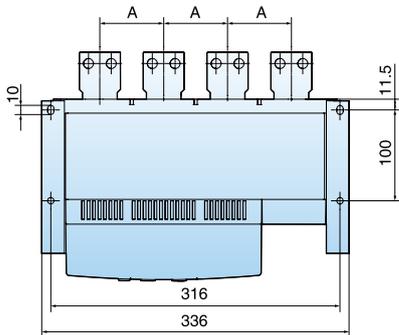
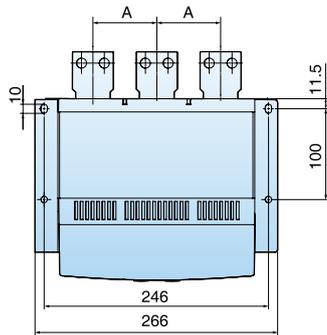
Distance for dismantling the arc extinguishing chamber



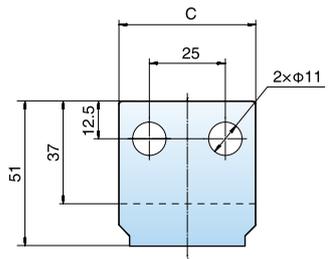
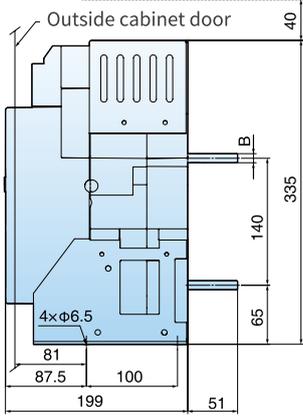
Size and Connection



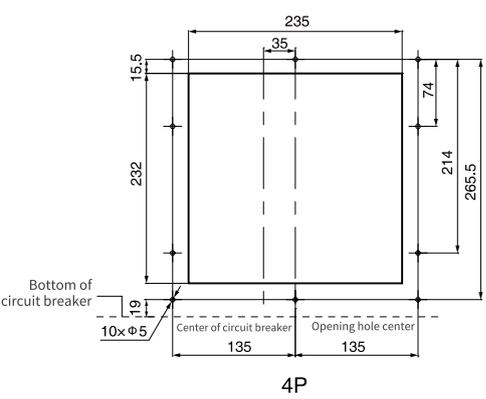
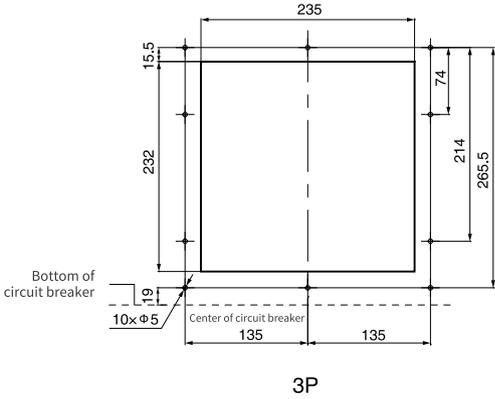
Vertical Wiring



Distance for dismantling the arc extinguishing chamber



Current	VW3-20 (200~630A)	VW3-20 (800~1250A)	VW3-20 (1600A)	VW3-20 (2000A)
Dimension A (mm)	70	70	70	3P:85/4P:80
Dimension B (mm)	5	10	15	15
Dimension C (mm)	45	45	45	60

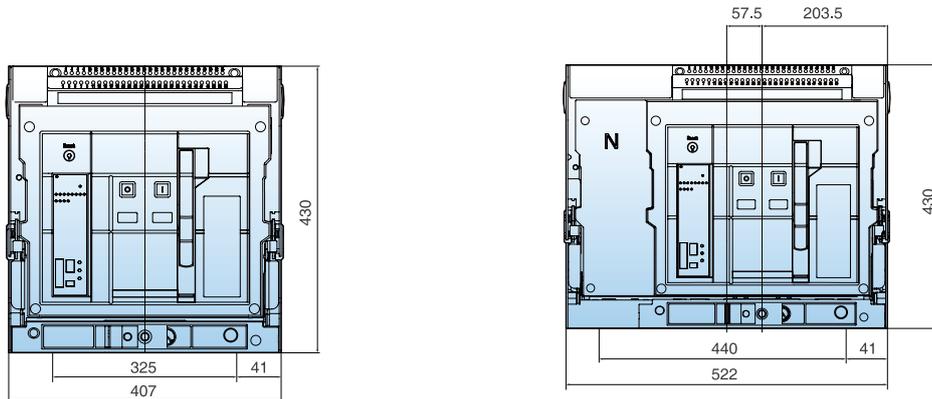


Size and Connection

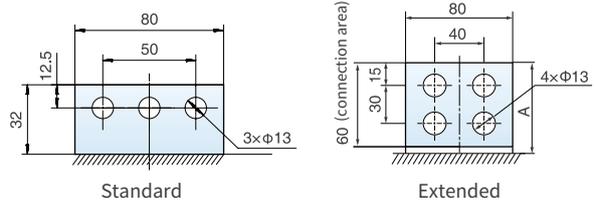
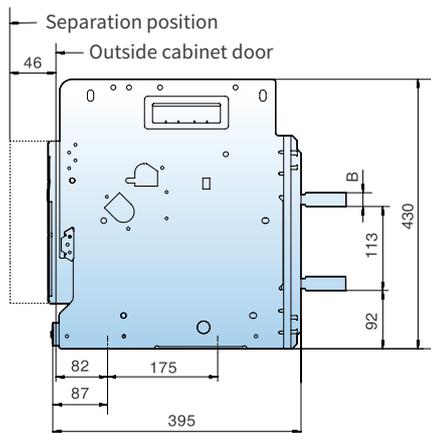
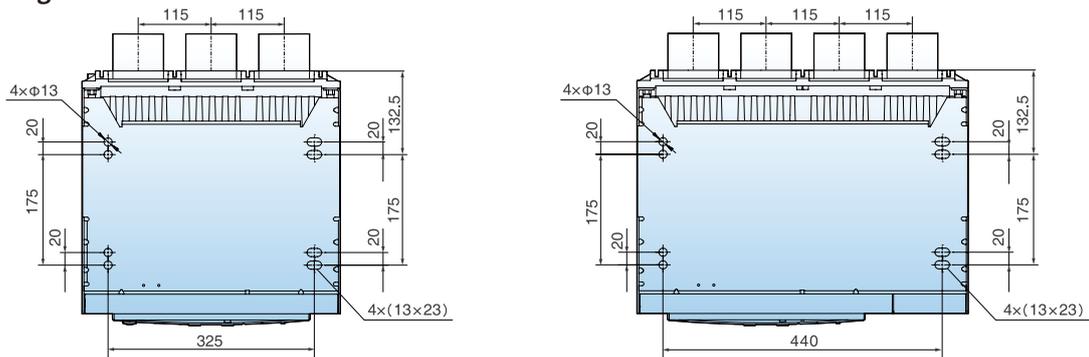


Drawout type (VW3-25H/VW3-25HU/VW3-25HV)

Front view

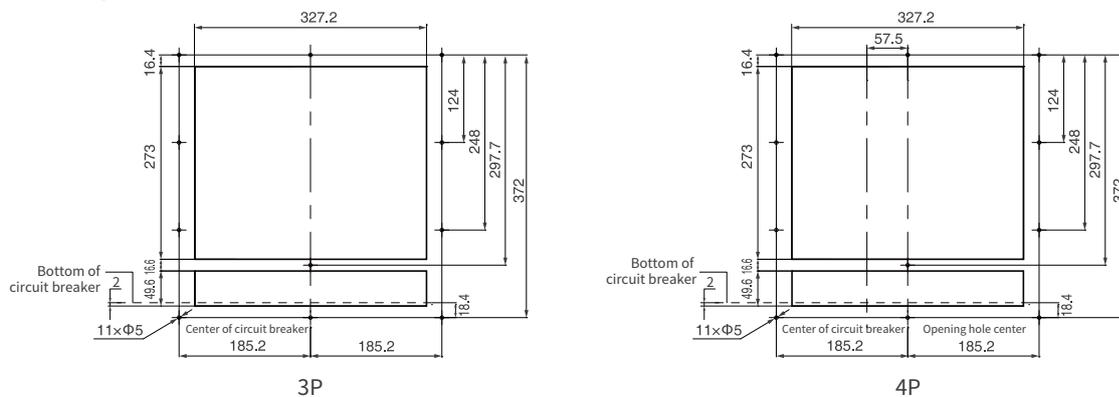


Horizontal Wiring



Current	VW3-25H (630~1600A)	VW3-25H (2000~2500A)
Dimension A(mm)	65	75
Dimension B(mm)	10	20

Cabinet door open hole dimension

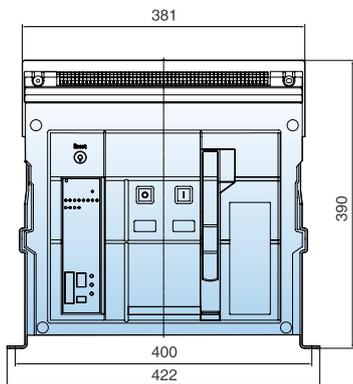


Size and Connection

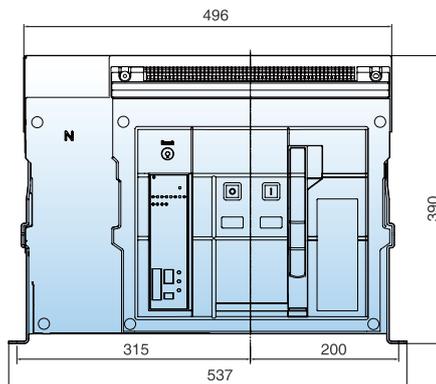


Fixed type (VW3-25H/VW3-25HU/VW3-25HV)

Front view

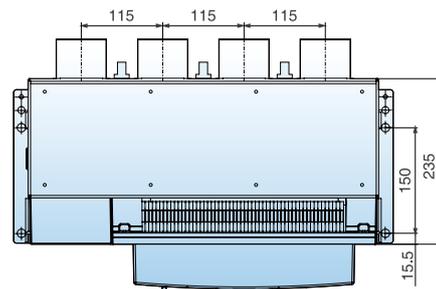
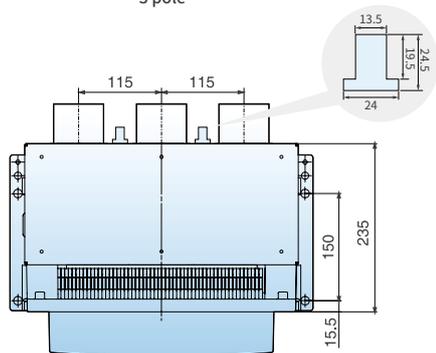


3 pole

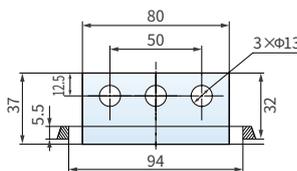
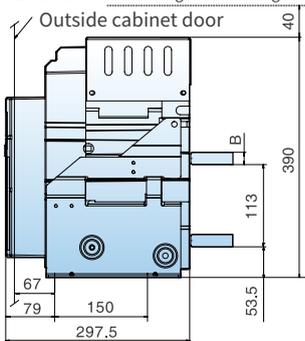


4 pole

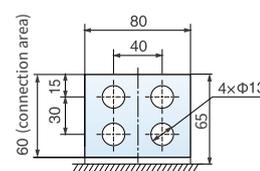
Horizontal Wiring



Distance for dismantling the arc extinguishing chamber



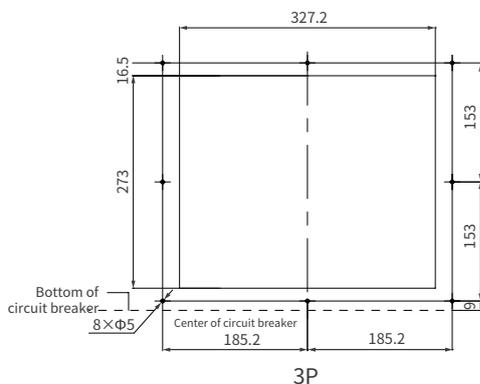
Standard



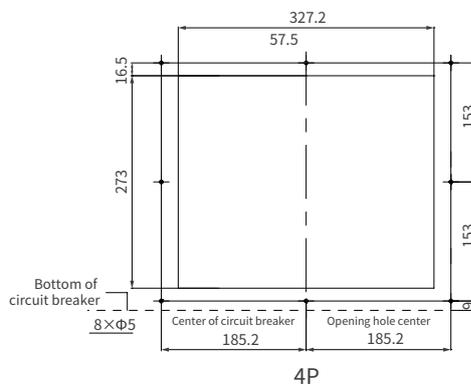
Extended

Current	VW3-25H (630~1600A)	VW3-25H (2000~2500A)
Dimension B(mm)	10	20

Cabinet door open hole dimension



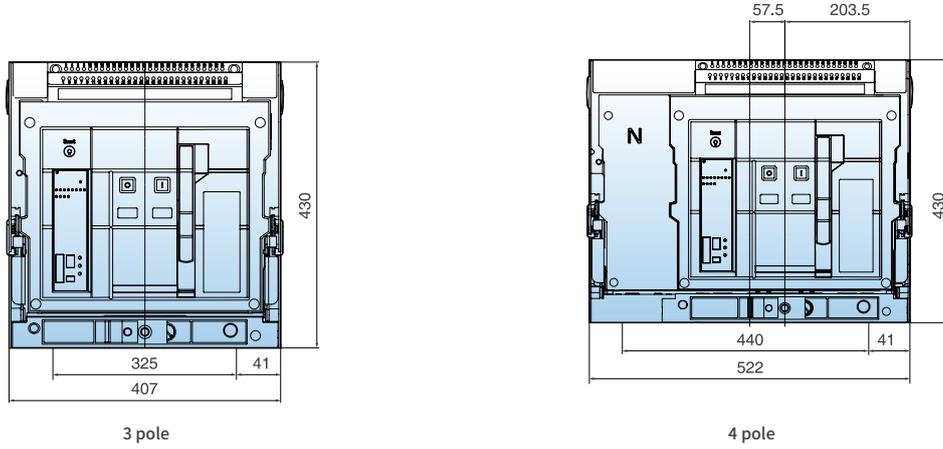
3P



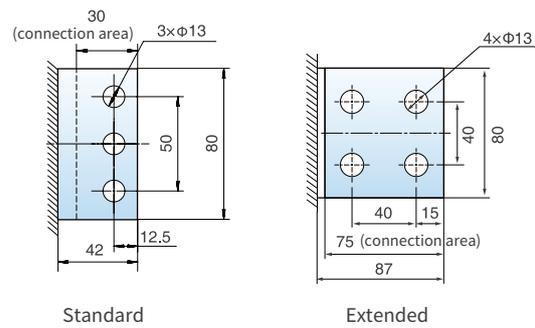
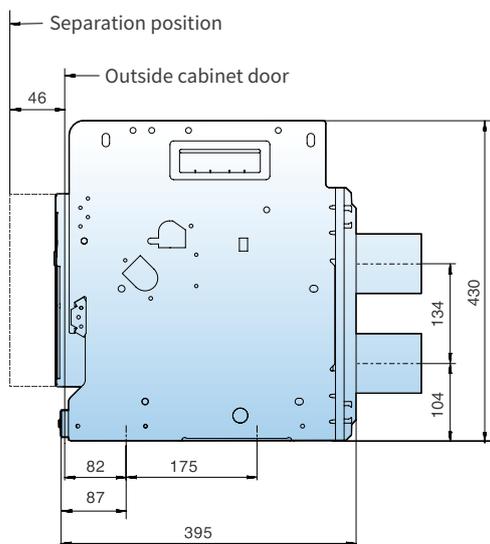
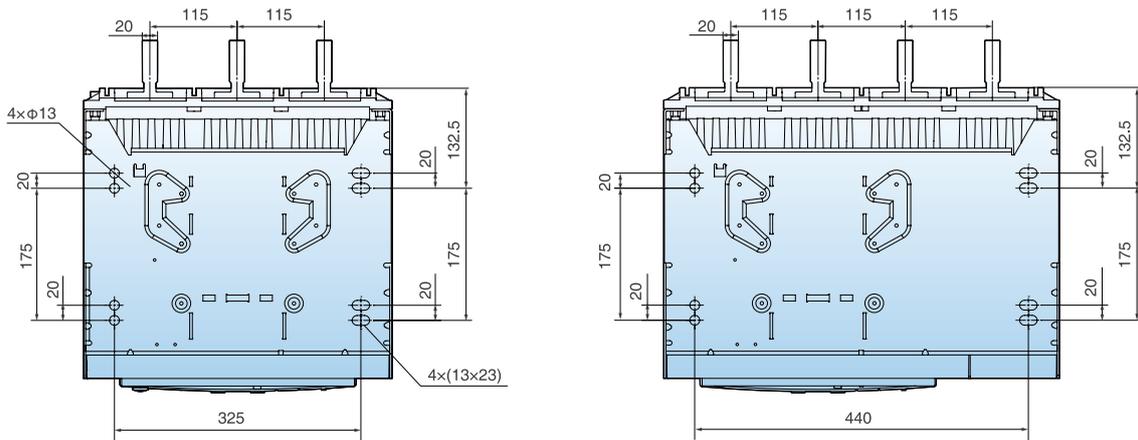
4P

Drawout type (VW3-40H/VW3-40HU/VW3-40HV, 1000~3200A)

Front view



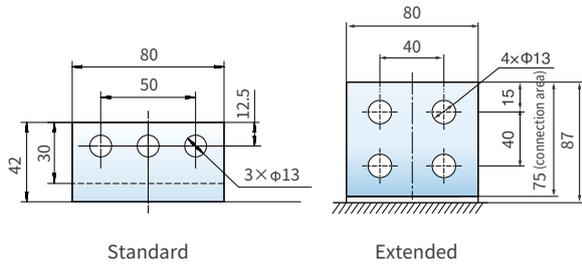
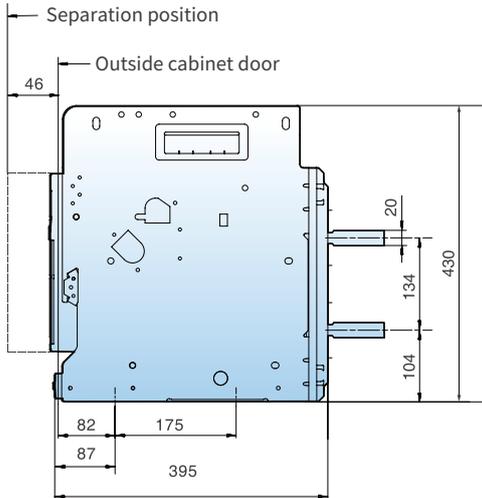
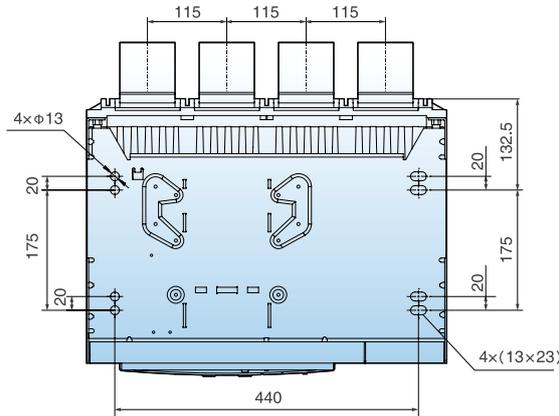
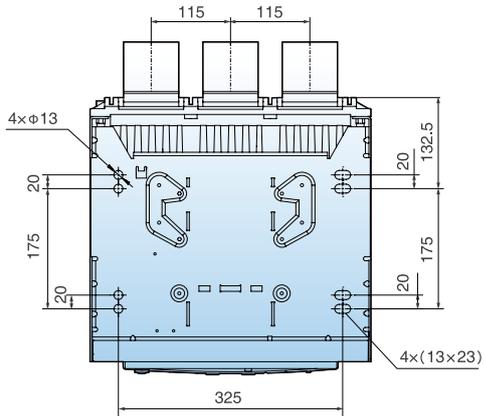
Vertical Wiring



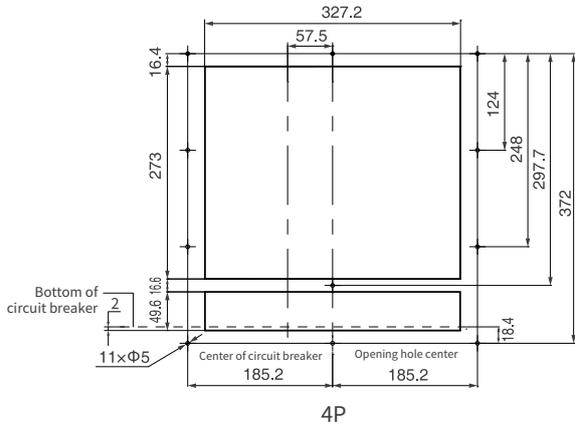
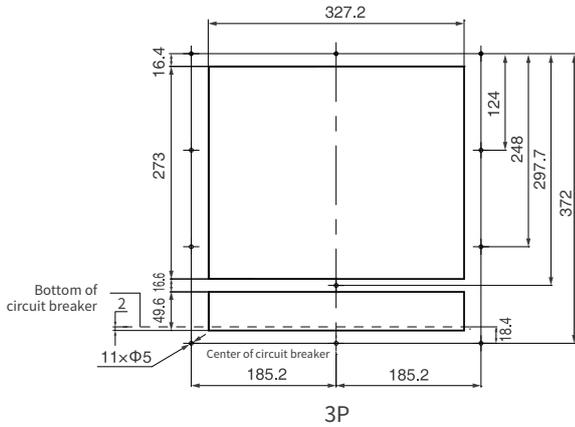
Size and Connection



Horizontal Wiring



Cabinet door open hole dimension

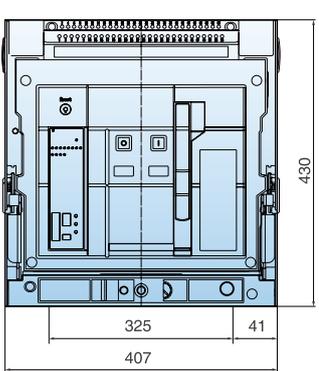


Size and Connection

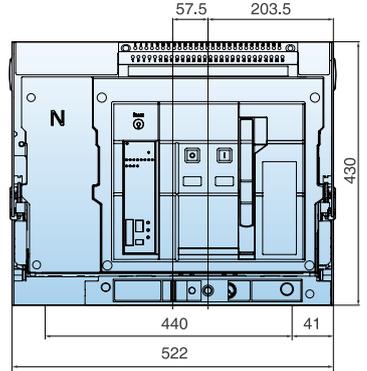


Drawout type (VW3-40H/VW3-40HU/VW3-40HV, 3600~4000A)

Front view

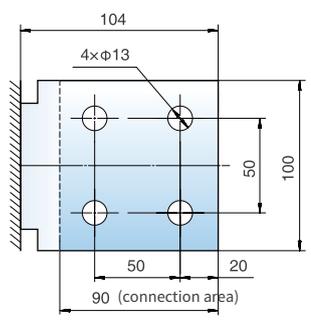
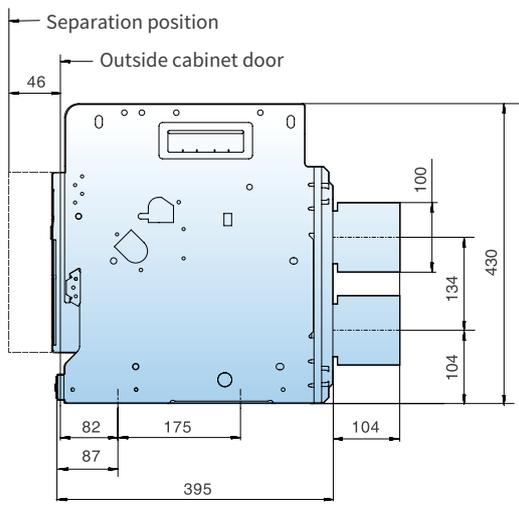
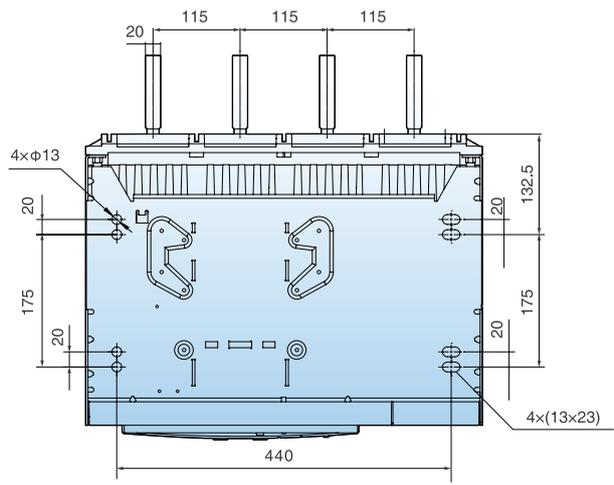
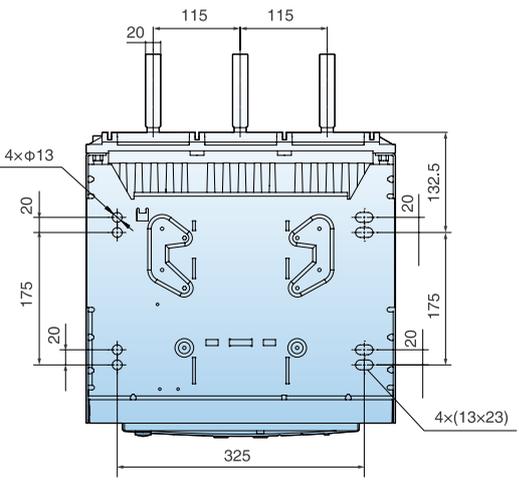


3pole



4pole

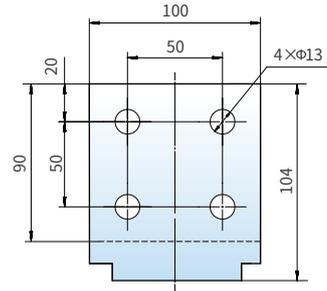
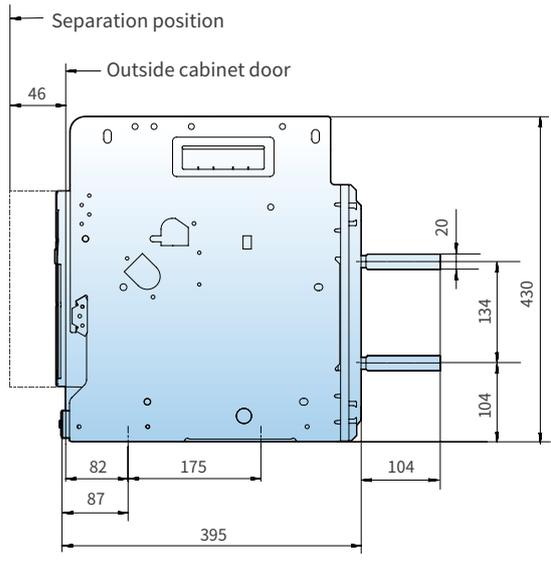
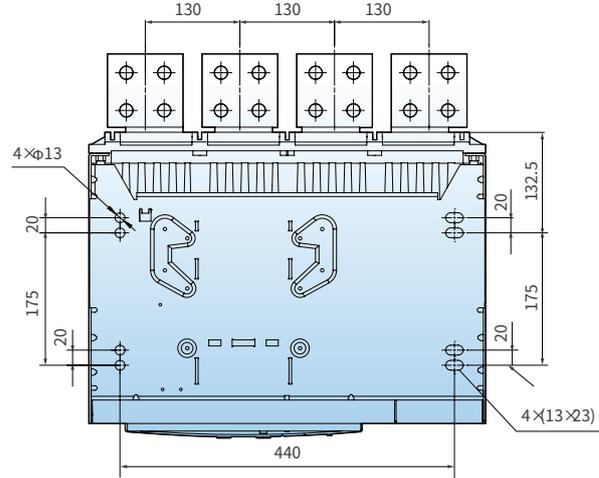
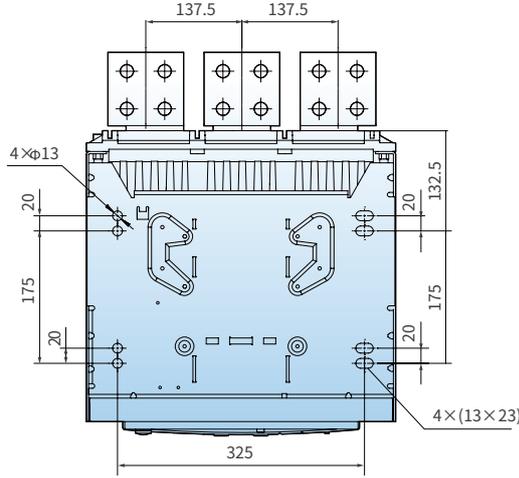
Vertical Wiring



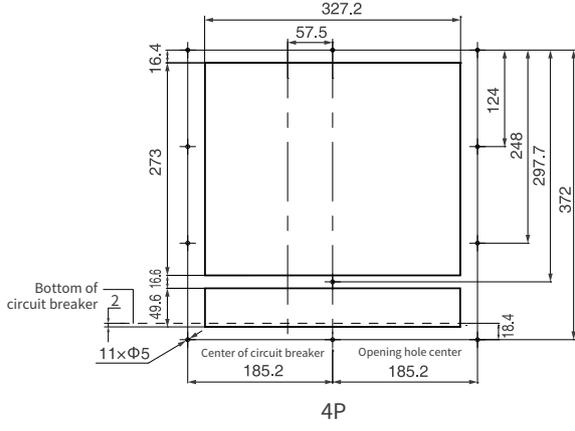
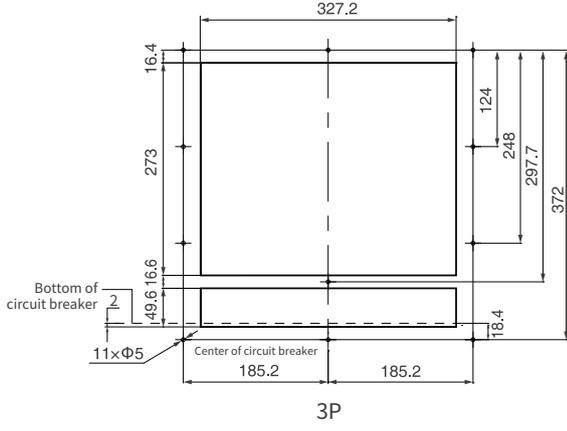
Size and Connection



Horizontal Wiring



Cabinet door open hole dimension

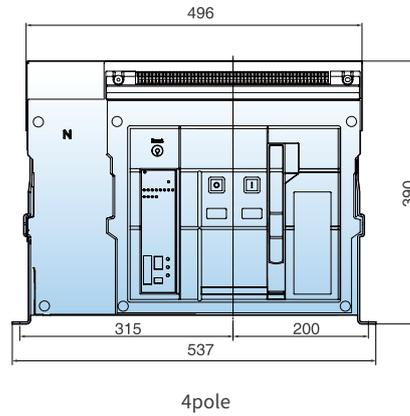
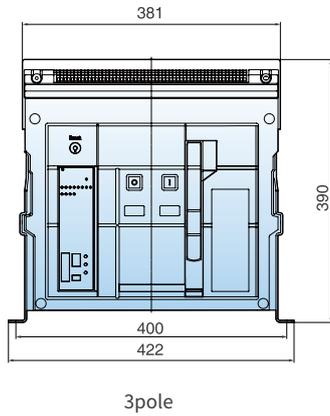


Size and Connection

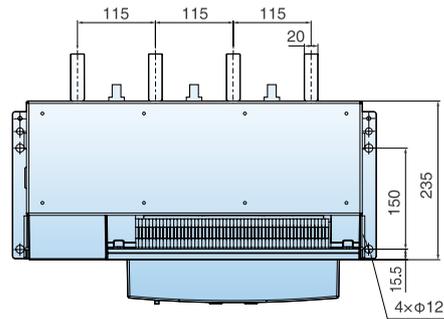
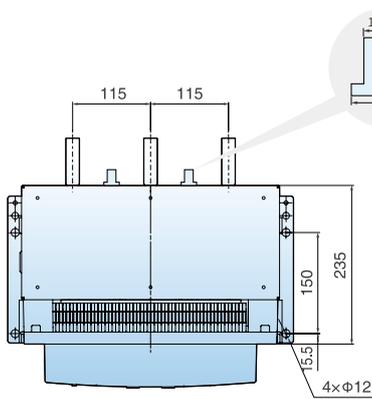


Fixed type (VW3-40H/VW3-40HU/VW3-40HV, 1000~3200A)

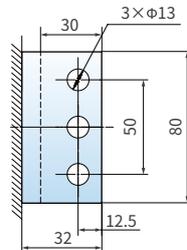
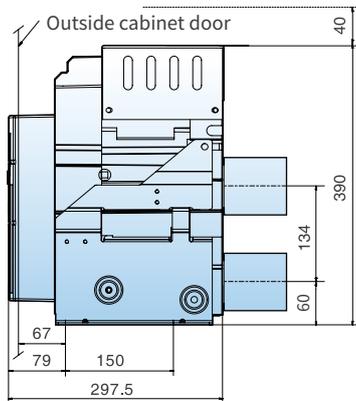
Front view



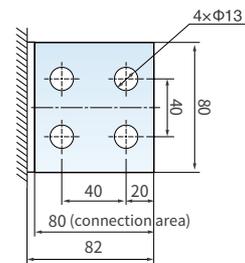
Vertical Wiring



Distance for dismantling the arc extinguishing chamber



Standard

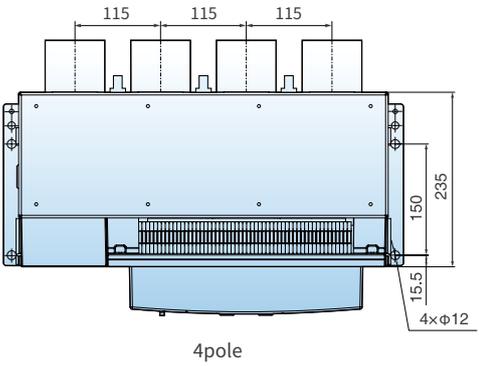
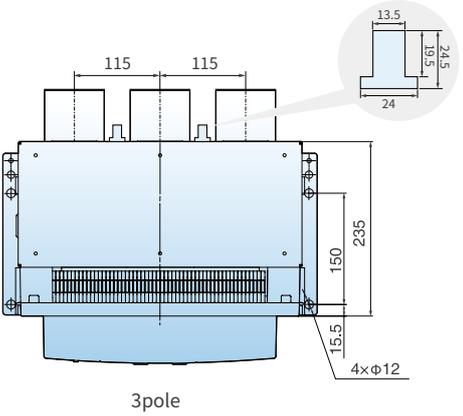


Extended

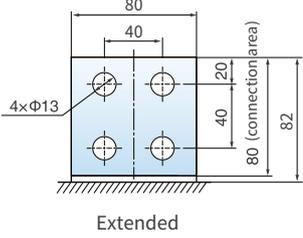
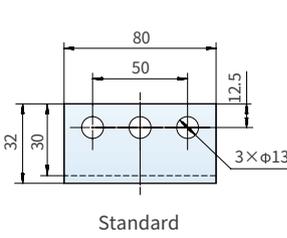
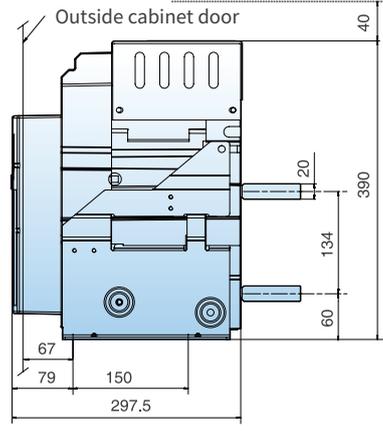
Size and Connection



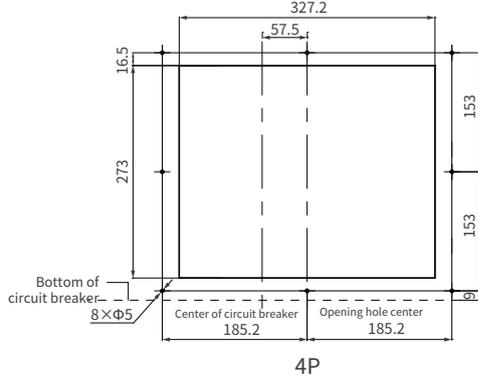
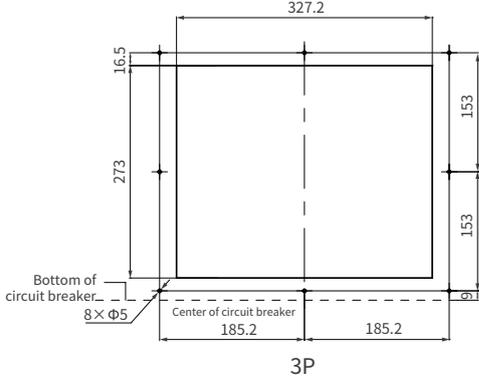
Horizontal Wiring



Distance for dismantling the arc extinguishing chamber



Cabinet door open hole dimension

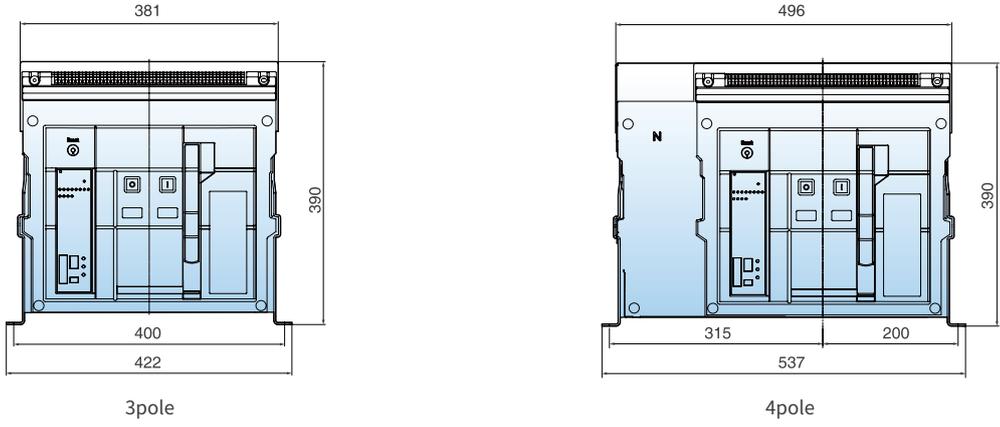


Size and Connection

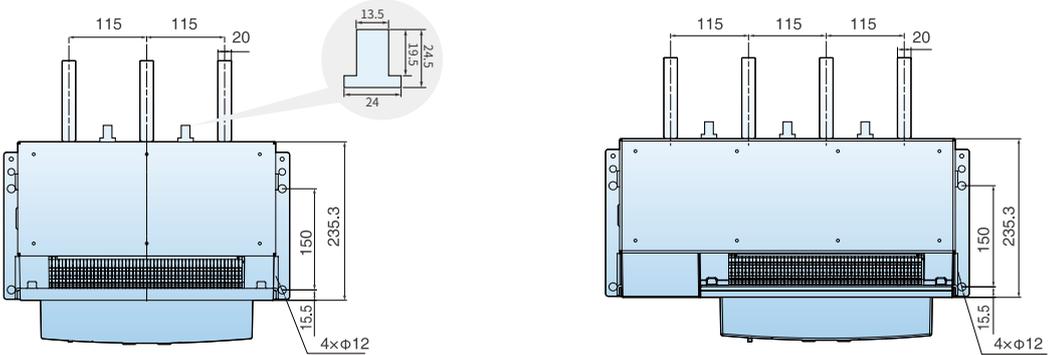


Fixed type (VW3-40H/VW3-40HU/VW3-40HV, 3600~4000A)

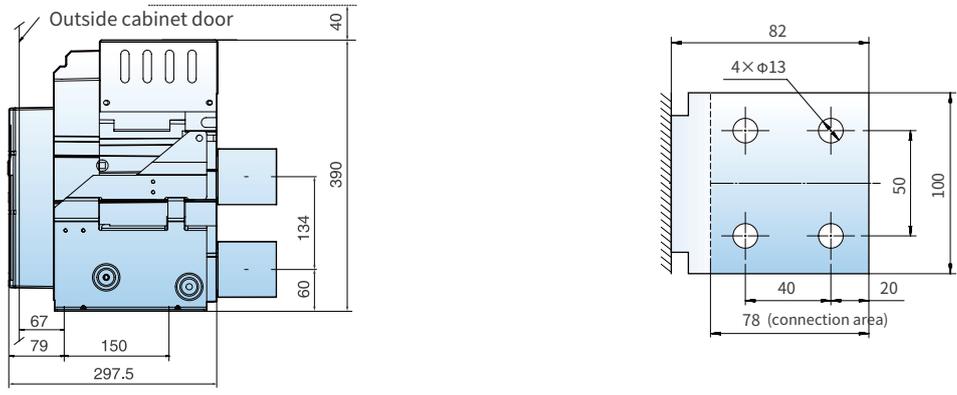
Front view



Vertical Wiring



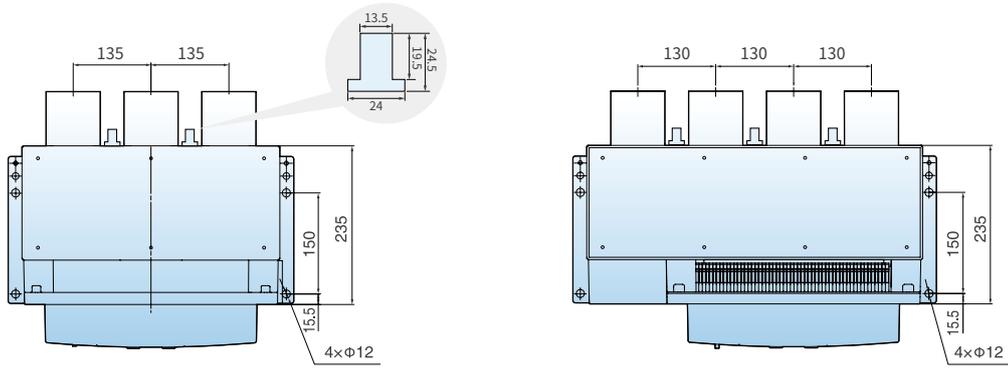
Distance for dismantling the arc extinguishing chamber



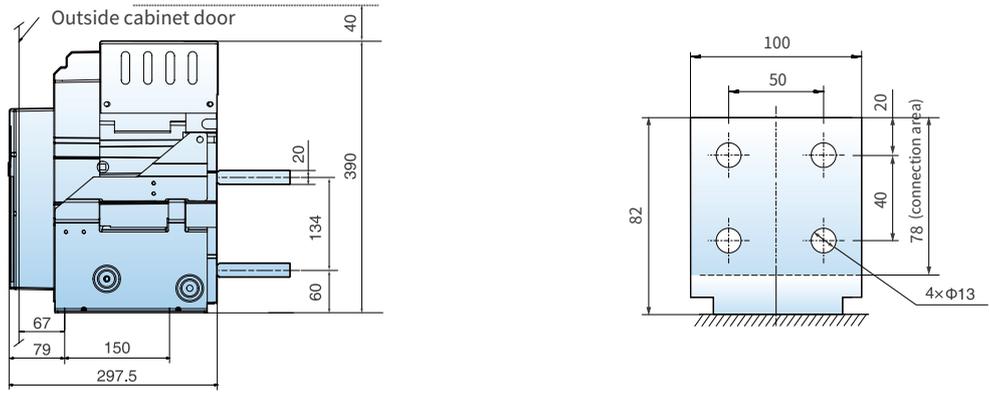
Size and Connection



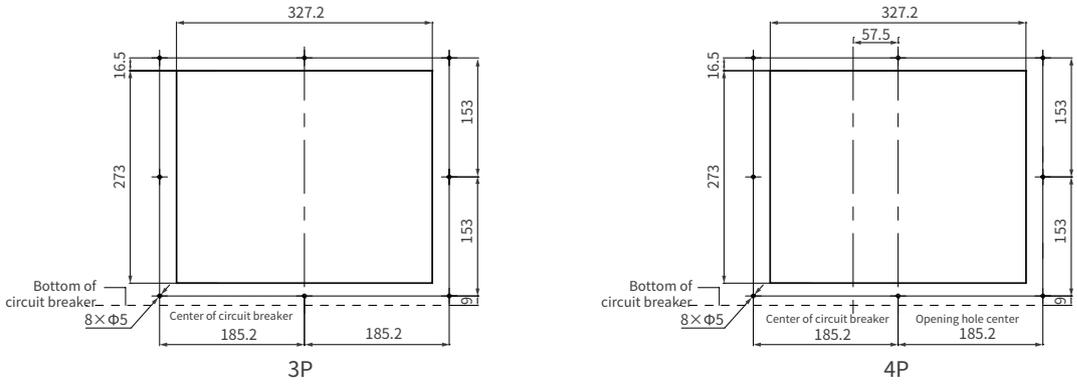
Horizontal Wiring



Distance for dismantling the arc extinguishing chamber



Cabinet door open hole dimension

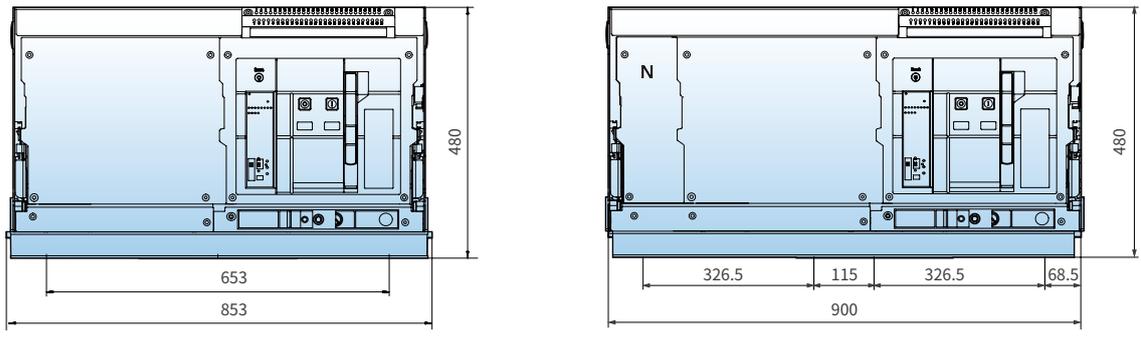


Size and Connection

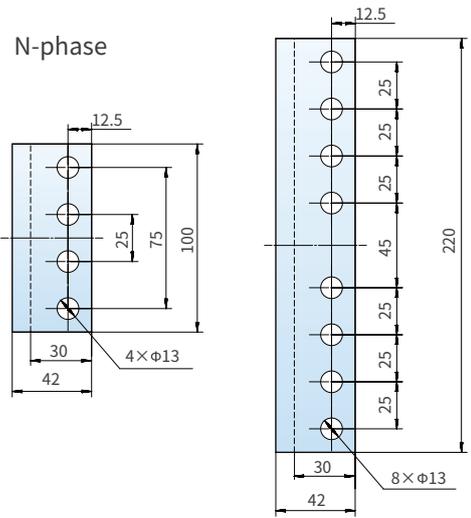
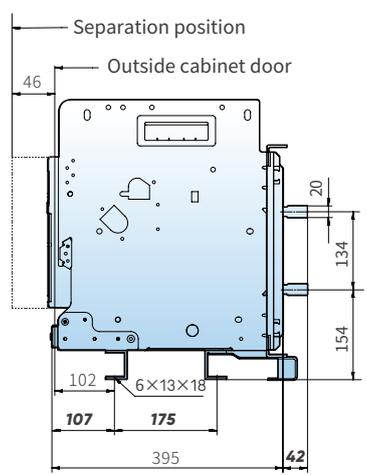
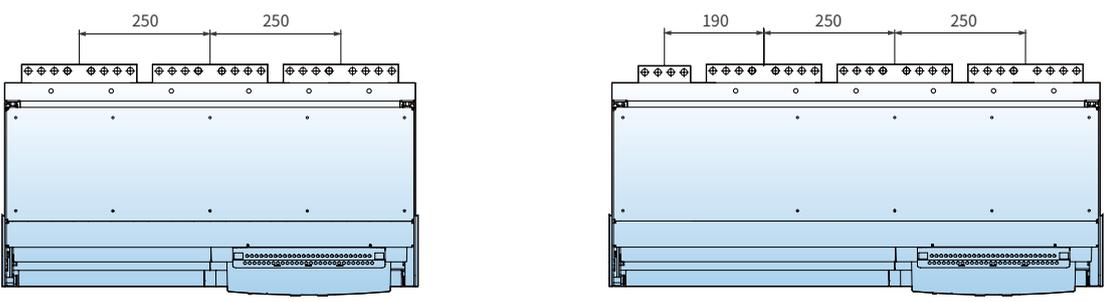


Drawout type (VW3-63H/VW3-63HU/VW3-63HV, 4000~5000A)

Front view



Horizontal Wiring

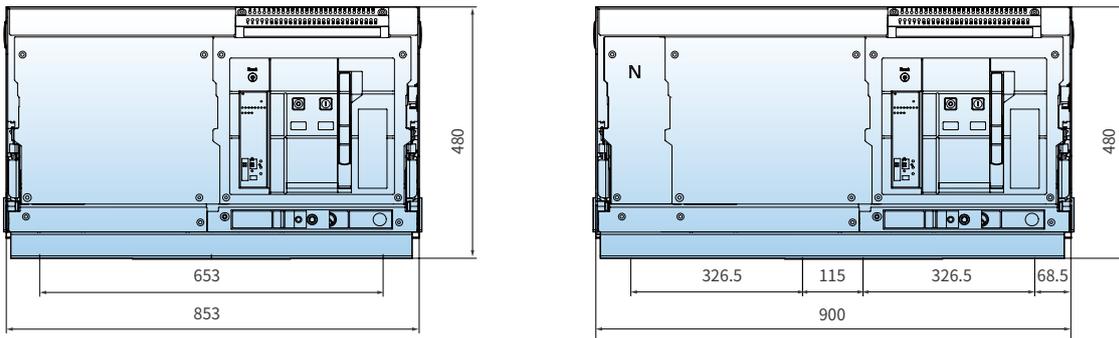


Size and Connection

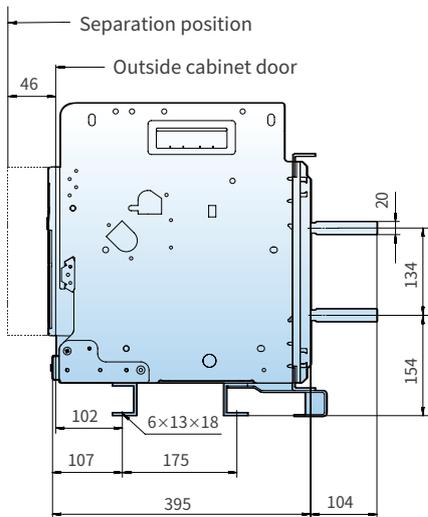
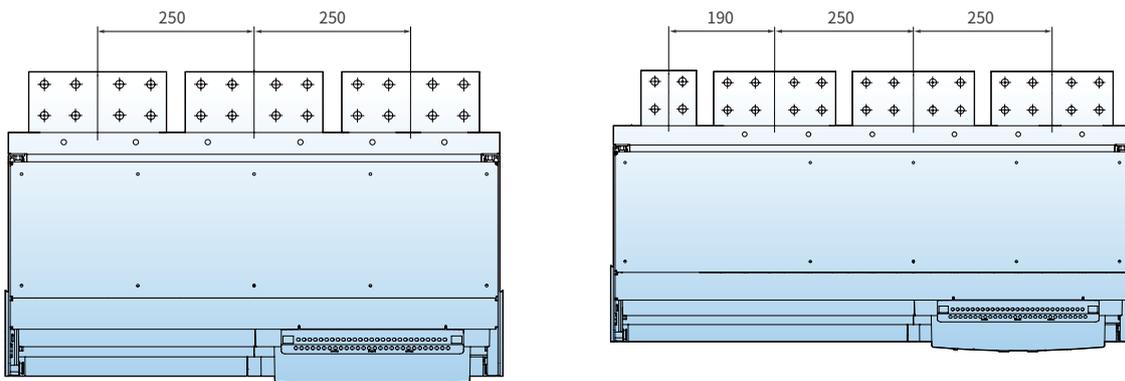


Drawout type (VW3-63H/VW3-63HU/VW3-63HV, 6300A)

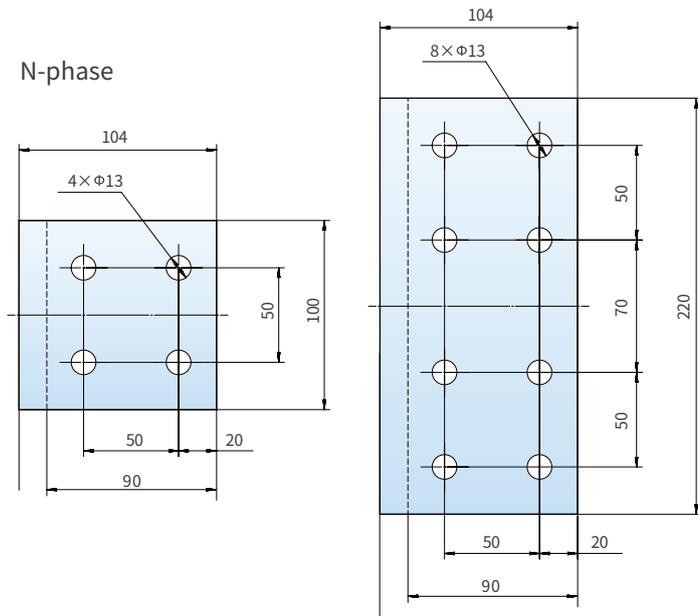
Front view



Horizontal Wiring



N-phase

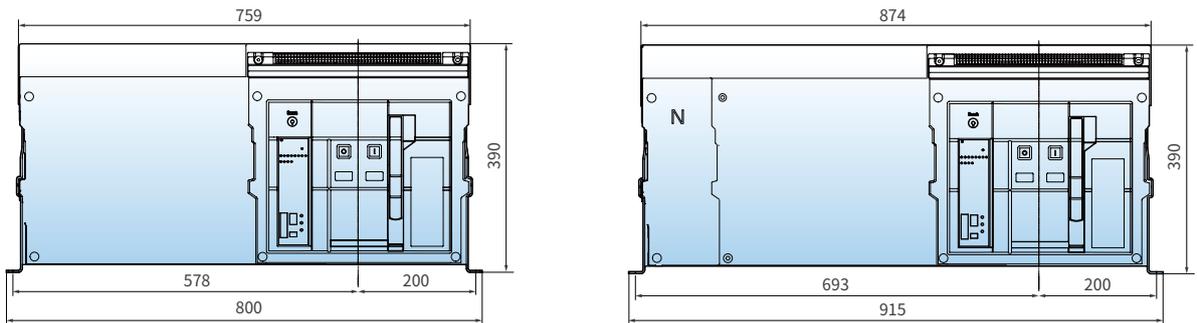


Size and Connection

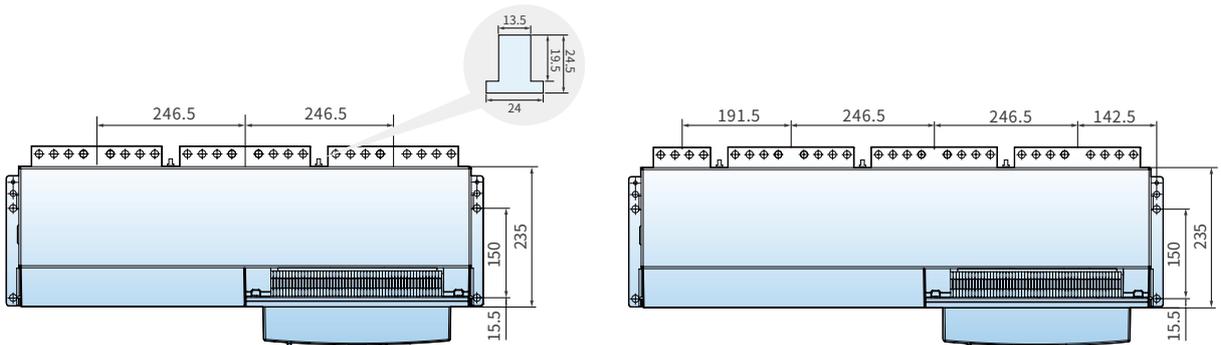


Fixed type (VW3-63H/VW3-63HU/VW3-63HV, 4000~5000A)

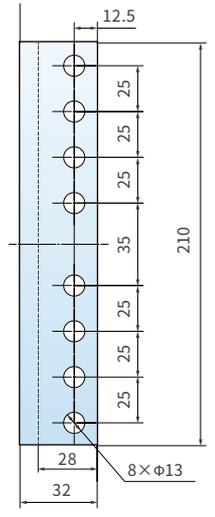
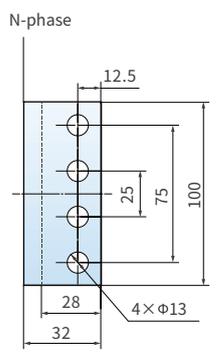
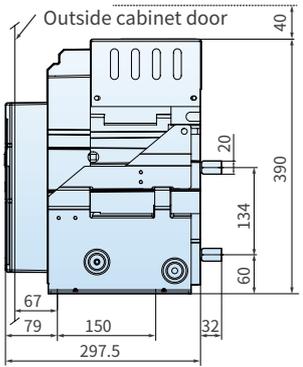
Front view



Horizontal Wiring



Distance for dismantling the arc extinguishing chamber

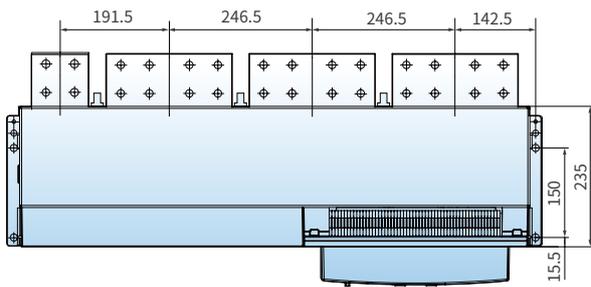
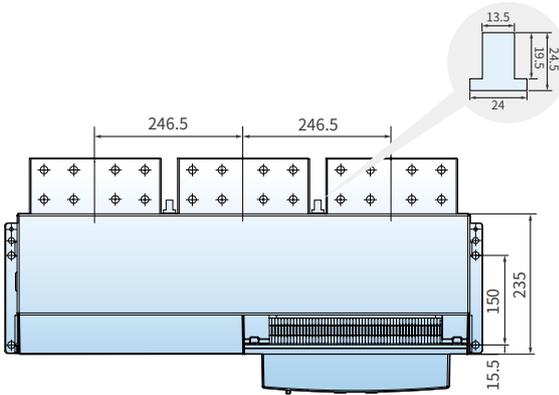
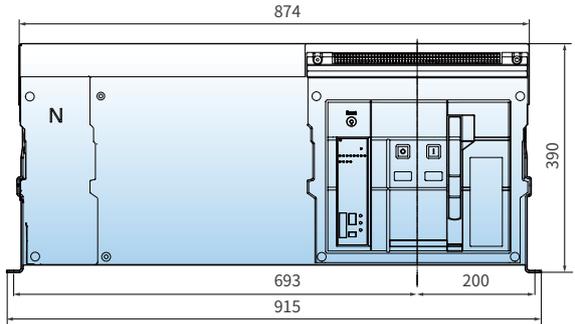
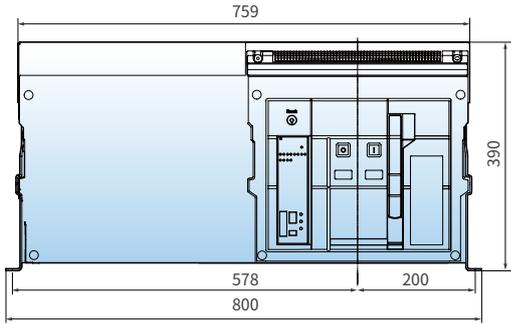


Size and Connection

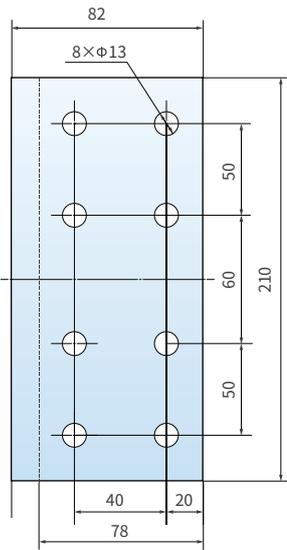
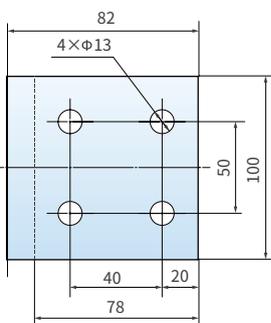
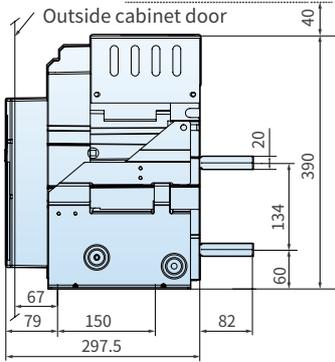


Fixed type (VW3-63H/VW3-63HU/VW3-63HV, 6300A)

Front view

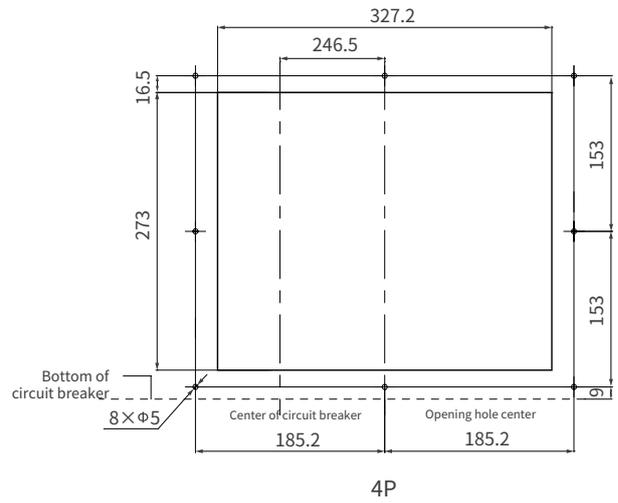
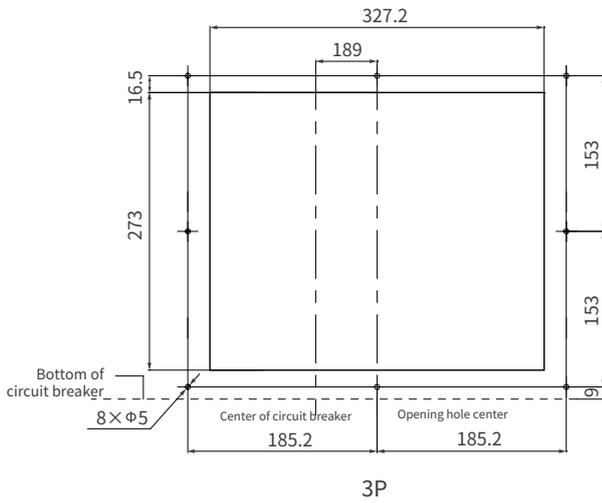


Distance for dismantling the arc extinguishing chamber

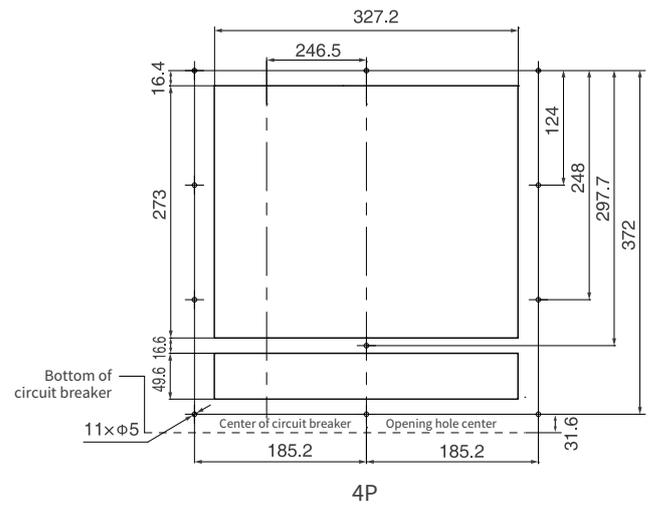
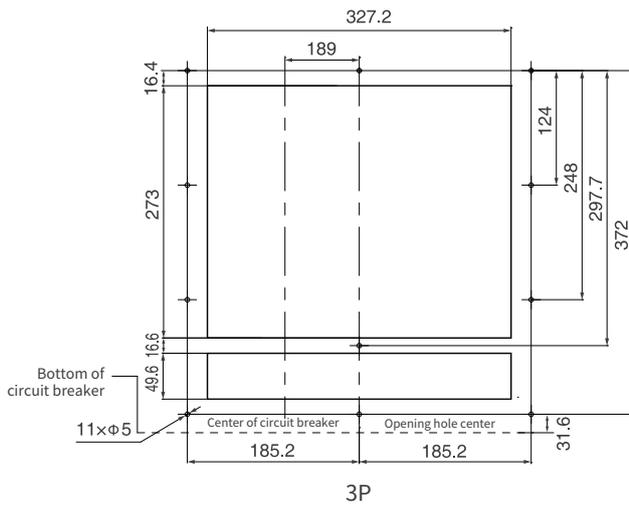


VW3-63H/VW3-63HU/VW3-63HV Cabinet door open hole dimension

Cabinet door open hole dimension Fixed type



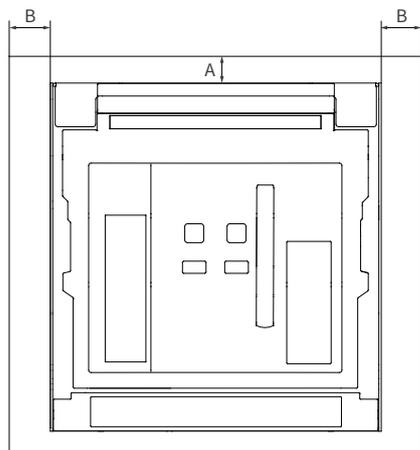
Cabinet door open hole dimension Drawout type



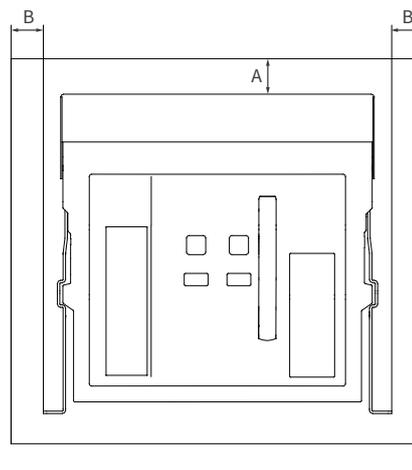
Size and Connection

VOZWEI

When users install the circuit breaker into the cabinet, the safe distance between the circuit breaker and the cabinet is shown in the figure below, and the installation dimensions are shown in the table below.



Drawout type circuit breaker



Fixed type circuit breaker

unit: mm

Installation type of the circuit breaker	To the insulator		To the metallic body grounded safely		To the live part	
	A	B	A	B	A	B
Drawout type	0	0	0	0	60	60
Fixed type	0	0	0	0	60	60

Note: 1. The safety distance of the fixed circuit breaker should consider the space required to remove the arc extinguishing chamber of 150mm;

Please fill in numbers in _____, and check ✓ in

User:			
Number of units ordered:			
Date of ordering:			
Basic parameters	Shell frame level	<input type="checkbox"/> VW3-2000 <input type="checkbox"/> VW3-2500 <input type="checkbox"/> VW3-4000 <input type="checkbox"/> VW3-6300	
	Installation mode	<input type="checkbox"/> F-Fixed type <input type="checkbox"/> D-Drawout type	
	Rated current (A)	VW3-2000	<input type="checkbox"/> 200 <input type="checkbox"/> 400 <input type="checkbox"/> 630 <input type="checkbox"/> 800 <input type="checkbox"/> 1000 <input type="checkbox"/> 1250 <input type="checkbox"/> 1600 <input type="checkbox"/> 2000
		VW3-2500	<input type="checkbox"/> 630 <input type="checkbox"/> 800 <input type="checkbox"/> 1000 <input type="checkbox"/> 1250 <input type="checkbox"/> 1600 <input type="checkbox"/> 2000 <input type="checkbox"/> 2500
		VW3-4000	<input type="checkbox"/> 1000 <input type="checkbox"/> 1250 <input type="checkbox"/> 1600 <input type="checkbox"/> 2000 <input type="checkbox"/> 2500 <input type="checkbox"/> 2900 <input type="checkbox"/> 3200 <input type="checkbox"/> 3600 <input type="checkbox"/> 4000
		VW3-6300	<input type="checkbox"/> 4000 <input type="checkbox"/> 5000 <input type="checkbox"/> 6300
	Breaking type	<input type="checkbox"/> S-standard breaking (AC400/415V) <input type="checkbox"/> S-standard breaking (AC500/550V) <input type="checkbox"/> S-standard breaking (AC660/690V) <input type="checkbox"/> H-high breaking (AC400/415V) <input type="checkbox"/> H-high breaking (AC500/550V) <input type="checkbox"/> H-high breaking (AC660/690V) <input type="checkbox"/> HU-High voltage breaking(AC800V) <input type="checkbox"/> HU-High voltage breaking(AC1140V) <input type="checkbox"/> HV-Ultra high voltage breaking(AC1250V) <input type="checkbox"/> HV-Ultra high voltage breaking(AC1500V) Note: 1. HU-AC1250V only for VW3-4000; 2.S-only for VW3-20	
Number of poles	<input type="checkbox"/> 3-3P <input type="checkbox"/> 4-4P <input type="checkbox"/> 5-3P+N		
Wiring mode	VW3-2000(S/H): <input type="checkbox"/> C11-Standard Horizontal Wiring <input type="checkbox"/> C21-Standard Vertical Wiring C41-Standard Mixed Wiring (Upper Horizontal, Lower Vertical) C51-Standard Mixed Wiring (Upper Vertical, Lower Horizontal) VW3-2500(H/HU/HV): <input type="checkbox"/> C11-Standard Horizontal Wiring <input type="checkbox"/> C12-Extended Horizontal Wiring VW3-4000(H, 1000-3200A): <input type="checkbox"/> C11-Standard Horizontal Wiring <input type="checkbox"/> C12-Extended Horizontal Wiring <input type="checkbox"/> C21-Standard Vertical Wiring <input type="checkbox"/> C22-Extended Vertical Wiring <input type="checkbox"/> C31-Standard Forward Wiring <input type="checkbox"/> C41-Standard Mixed Wiring (Upper Horizontal, Lower Vertical) <input type="checkbox"/> C42-Extended Mixed Wiring (Upper Horizontal, Lower Vertical) <input type="checkbox"/> C51-Standard Mixed Wiring (Upper Vertical, Lower Horizontal) <input type="checkbox"/> C52-Extended Mixed Wiring (Upper Vertical, Lower Horizontal) <input type="checkbox"/> C61-Standard Mixed Wiring (Upper Forward, Lower Horizontal) <input type="checkbox"/> C71-Standard Mixed Wiring (Upper Horizontal, Lower Forward) <input type="checkbox"/> C81-Standard Mixed Wiring (Upper Vertical, Lower Forward) <input type="checkbox"/> C91-Standard Mixed Wiring (Upper Forward, Lower Vertical) VW3-4000(HU/HV, 1000-3200A): <input type="checkbox"/> C11-Standard Horizontal Wiring <input type="checkbox"/> C12-Extended Horizontal Wiring <input type="checkbox"/> C21-Standard Vertical Wiring VW3-4000(H/HU/HV, 3600-4000A): <input type="checkbox"/> C12-Extended Horizontal Wiring <input type="checkbox"/> C22-Extended Vertical Wiring VW3-6300(H/HU/HV, 4000-5000A): <input type="checkbox"/> C11-Standard Horizontal Wiring VW3-6300(H/HU/HV, 6300A): <input type="checkbox"/> C12-Extended Horizontal Wiring		
Controller parameters	Controller model	<input type="checkbox"/> VWC2 (DIP switch) <input type="checkbox"/> VWC4 (digital screen) <input type="checkbox"/> VWC6 (LCD) Note: VWC2 is only used for VW3-20	
	Protection type	<input type="checkbox"/> Conventional type (standard configuration) <input type="checkbox"/> V-Voltage measurement and protection type <input type="checkbox"/> P-Harmonic measurement and protection type	
	Communication function	<input type="checkbox"/> H-Modbus protocol <input type="checkbox"/> MP-Profibus-DP protocol <input type="checkbox"/> MD-Devicenet protocol Note: Only VWC6 have communication function	
	Signal unit	<input type="checkbox"/> S1-4DO <input type="checkbox"/> S2-3DO+1DI <input type="checkbox"/> S3-2DO+2DI Note: VWC4 only S1-4DO	
	Remote reset	<input type="checkbox"/> Z2-AC230V Note: VWC2 does not have remote reset function	
	External transformer	3P+N required: <input type="checkbox"/> N1 <input type="checkbox"/> N2 <input type="checkbox"/> N3 <input type="checkbox"/> N4 <input type="checkbox"/> E	
	Grounding mode	<input type="checkbox"/> T(default) <input type="checkbox"/> W <input type="checkbox"/> E	
Contact wear equivalent	<input type="checkbox"/> J		
Required accessories	Electric operating mechanism	<input type="checkbox"/> D1-AC400V <input type="checkbox"/> D2-AC230V/DC220V <input type="checkbox"/> D4-AC/DC110V <input type="checkbox"/> D5-DC24V	

Order Notes

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Required accessories	Shunt release	<input type="checkbox"/> F1-AC400V <input type="checkbox"/> F2-AC230V/DC220V <input type="checkbox"/> F4-AC/DC110V <input type="checkbox"/> F5-DC24V	
	Closed electromagnet	<input type="checkbox"/> B1-AC400V <input type="checkbox"/> B2-AC230V/DC220V <input type="checkbox"/> B4-AC/DC110V <input type="checkbox"/> B5-DC24V	
Optional accessories	Under-voltage release	Voltage specifications	<input type="checkbox"/> Q1-AC400V <input type="checkbox"/> Q2-AC230V <input type="checkbox"/> Q5-DC24V
		Delay time	<input type="checkbox"/> 0-Instantaneous <input type="checkbox"/> 1-1s delay <input type="checkbox"/> 3-3s delay <input type="checkbox"/> 5-5s delay
	Loss of voltage release	Voltage specifications	<input type="checkbox"/> S1-AC400V <input type="checkbox"/> S2-AC230V
		Delay time	<input type="checkbox"/> 0-Instantaneous <input type="checkbox"/> 1-1s delay <input type="checkbox"/> 3-3s delay <input type="checkbox"/> 5-5s delay
	Voltage-check closing device	<input type="checkbox"/> J1-AC400V <input type="checkbox"/> J2-AC230V	
	Auxiliary contact	<input type="checkbox"/> A33-3NO3NC <input type="checkbox"/> A44-4NO4NC <input type="checkbox"/> A55-5NO5NC <input type="checkbox"/> A66-6NO6NC <input type="checkbox"/> ____NO____NC (Max. 14)	
		<input type="checkbox"/> A3-Three-group switching <input type="checkbox"/> A4-Four-group switching <input type="checkbox"/> A5-Five-group switching <input type="checkbox"/> A6-Six-group switching <input type="checkbox"/> ____-group switching (Max. 14)	
	Closing ready	<input type="checkbox"/> BX-Closing ready signal output unit	
	Counter	<input type="checkbox"/> JS-Counter	
	Drawer seat door interlock	<input type="checkbox"/> CM1-Drawout type (with the right side of the door interlock)	
	Door frame	<input type="checkbox"/> M-Door frame Note: standard	
	Position indicator	<input type="checkbox"/> CX-Drawer seat three-position signal output	
	Relay module	<input type="checkbox"/> R-Relay module	
	Power supply	<input type="checkbox"/> AC65~500V, DC80~700V Note: standard	
Button lock	<input type="checkbox"/> S-Button lock		
Voltage conversion module	<input type="checkbox"/> P2-Voltage conversion module		
Language type		<input type="checkbox"/> Chinese <input type="checkbox"/> Y-English	
Interlocking accessories	Off-position lock	<input type="checkbox"/> SF11-Key lock device (one lock and one key) <input type="checkbox"/> SF21-Key lock device (two locks and one key) <input type="checkbox"/> SF31-Key lock device (three locks and one key) <input type="checkbox"/> SF32-Key lock device (three locks and two keys) <input type="checkbox"/> SF53-Key lock device (five locks and three keys)	
		Mechanical interlocking	Cable type
	Hard rod type		<input type="checkbox"/> SY11-Mechanical interlocking device (two sets of hard rods, one for closing and one for opening)
Special requirements	Overload and long-time delay current I_r =____A		Overload and long-time delay time t_r =____s
	Short-circuit short-time delay current I_{sd} =____A		Short-circuit short-time delay time t_{sd} =____s
	Short circuit instantaneous current I_i =____A		
	Grounding fault current I_g =____A		Grounding fault time t_g =____s
	Current imbalance percentage δ =____%		Current imbalance action time δ =____s
	Current leakage setting value $I_{\Delta n}$ ____A		Current leakage action time $t_{\Delta n}$ ____s
	Load monitoring1 current setting value I_{c1} ____A		Inverse time-limit time t_{c1} ____s
Load monitoring2 current setting value I_{c2} ____A		Fixed time-limit t_{c2} ____s	
Other requirements			