



TGW1N Series Air Circuit Breaker

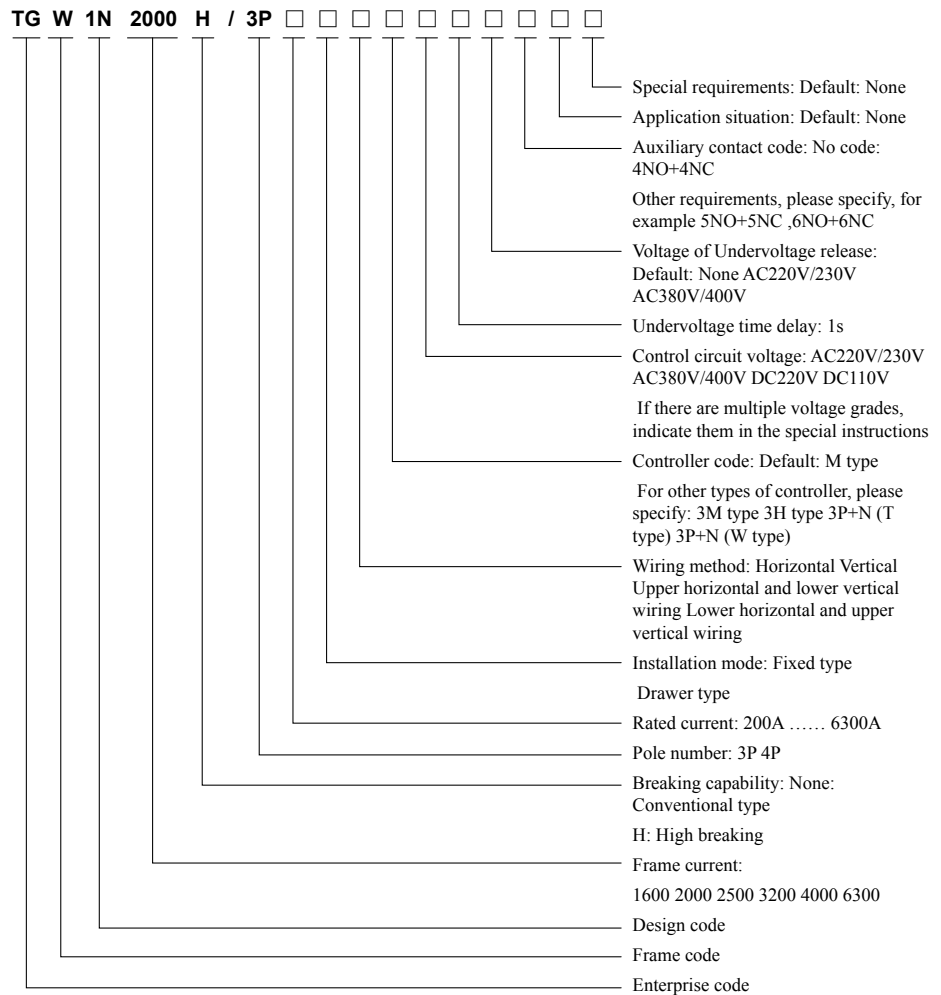
1 Product overview

TGW1N series Air Circuit Breaker (hereinafter referred to as the circuit breaker) is suitable for distribution network with AC 50Hz, rated voltage of AC380V-AC690V, rated current of 200A-6,300A. It is used for distributing electric energy and protecting circuits and power units from overload, short circuit, undervoltage, one-phase ground or residual current. The circuit breaker has the functions of communication and intelligent protection, which can improve the reliability of power supply and avoid unnecessary power failure. It can fully replace TGW45 products in the market with its excellent breaking performance and high quality.

International Standards and Certification: CE CB

Comply with the standards: IEC/EN60947-2

2 Product naming rules



TGW1N Series Air Circuit Breaker

3 Product parameter

Basic parameters												
Frame current		1600	2000	2500	3200	4000	6300					
Rated working voltage Ue(V)		AC415/690		AC400/690								
Rated insulation voltage Ui(V)		1000										
Rated impulse withstand voltage Uimp(kV)		12										
Frequency (HZ)		50										
Use category		B										
Pole number		3P/4P					3P		3P/4P			
Maximum continuous current of N pole (A)		100%In					/		50%In			
Full-breaking delay time without addition (ms)		≤30										
Closing time (ms)		≤70										
Flashover distance (mm)		0										
Rated current In(A)		200/400/630 800/1000 1250/1600	200/250/400 500/630/800 1000/1250 1600/1900 2000	630/800 1000/1250 1600/2000 2500	2000/2500 2900/3150 3200	4000	4000/4900 5000/5900 6300					
Breaking capacity												
Breaking capacity		Conventional	H	Conventional	H	Conventional	H	Conventional	H	Conventional	H	—
Rated ultimate short-circuit breaking capacity Icu(kA)	AC400V	50	55	80	90	100	100	100	100	100	100	120
	AC690V	25	30	50	65	65	65	65	65	65	65	75
Rated operating short-circuit breaking capacity Ies(kA)	AC400V	42	50	80	90	80	100	80	100	80	100	100
	AC690V	20	25	40	65	50	65	50	65	50	65	65
Rated short-time withstand current Icw(kA)1s	AC400V	42	50	55	65	80	80	80	80	80	80	100
	AC690V	20	25	40	50	50	50	50	50	50	50	65
Rated short-time withstand current Ics(kA)0.5s	AC400V	/	/	/	75	/	100	/	100	/	100	/
	AC690V	/	/	/	65	/	65	/	65	/	65	/
Lifetime of product												
Electrical life (times)	AC400V	8000		8000		6000		6000		6000		1500
	AC690V	3000		3000		2000		2000		2000		1000
Mechanical life (times)	Maintenance-free	15000		15000		10000		10000		10000		5000
	Maintenance needed	30000		30000		20000		20000		20000		10000
Standard configuration												
		Fixed	Drawer-type	Fixed	Drawer-type	Fixed	Drawer-type	Fixed	Drawer-type	Fixed	Drawer-type	Drawer-type
The body of the circuit breaker		■	■	■	■	■	■	■	■	■	■	■
Drawer base		-	■	-	■	-	■	-	■	-	■	■
Intelligent controller		■	■	■	■	■	■	■	■	■	■	■
Upper and lower horizontal connecting wires		■	■	■	■	■	■	■	■	■	■	■
Indicating contact of opening/closing		■	■	■	■	■	■	■	■	■	■	■
Indicating contact of fault tripping		■	■	■	■	■	■	■	■	■	■	■
Auxiliary contact 4NO+4NC		■	■	■	■	■	■	■	■	■	■	■
Electric motor operating mechanism		■	■	■	■	■	■	■	■	■	■	■
Closing electromagnet		■	■	■	■	■	■	■	■	■	■	■
Shunt release		■	■	■	■	■	■	■	■	■	■	■
Optional accessories												
Phase partition		□	□	□	□	□	□	□	□	□	□	□
Instantaneous undervoltage release		□	□	□	□	□	□	□	□	□	□	□
Time-delay undervoltage release		□	□	□	□	□	□	□	□	□	□	□
Opening and closing button lock		□	□	□	□	□	□	□	□	□	□	□
Lock for the drawer base		□	□	□	□	□	□	□	□	□	□	□
Lock for the separation position of the drawer seat		□	□	□	□	□	□	□	□	□	□	□
Key lock		□	□	□	□	□	□	□	□	□	□	□
Door interlock		□	□	□	□	□	□	□	□	□	□	□
Auxiliary contact 6NO+6NC		□	□	□	□	□	□	□	□	□	□	□
Electric indications of three positions on the drawer base		□	□	□	□	□	□	□	□	□	□	□
Steel cable interlock		□	□	□	□	□	□	□	□	□	□	□
Locking interlock		□	□	□	□	□	□	□	□	□	□	□
Dual power controller		□	□	□	□	□	□	□	□	□	□	□
External neutral line transformer		□	□	□	□	□	□	□	□	□	□	□
Zero-sequence transformer		□	□	□	□	□	□	□	□	□	□	□
Ground current transformer and its accessories		□	□	□	□	□	□	□	□	□	□	□

■ Standard configuration □ Optional

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4 Normal working conditions and installation conditions

4.1 Ambient temperature

4.2 Installation category

Class IV for main circuits of the circuit breaker and voltage tripper coil and primary coil of power transformer; Class III for auxiliary circuit and control circuits. The inclination with the vertical plane does not exceed 5° when installation.

4.3 Pollution class: 3

4.4 Altitude ≤2,000m, derating when above 2,000 m.

4.5 Atmospheric conditions

The relative humidity does not exceed 50% at the ambient temperature of +40°C, and a higher relative humidity at the lower temperature may be allowed;

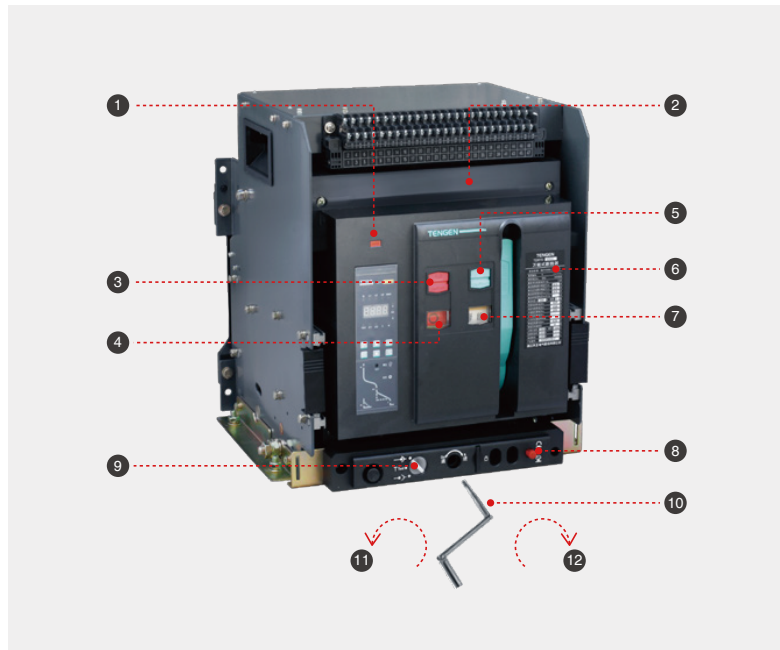
The relative humidity at the low temperature +25°C can be up to 90%. The necessary measures can be taken for condensation on the product surface due to temperature changes.

4.6 Protection level IP20 for the front and IP00 for the remaining

4.7 Electromagnetic interference Suitable for electromagnetic environment A

5 Product structure

5.1 External structure



1 Reset button for fault trip indication

2 Shell

3 Switching-OFF button

4 Indicator of circuit breaker closed and open

5 Switching-ON button

6 Data label

7 Energy storage/release indicator light

8 Drawer three-position button

9 Indication of connection, test and separation positions

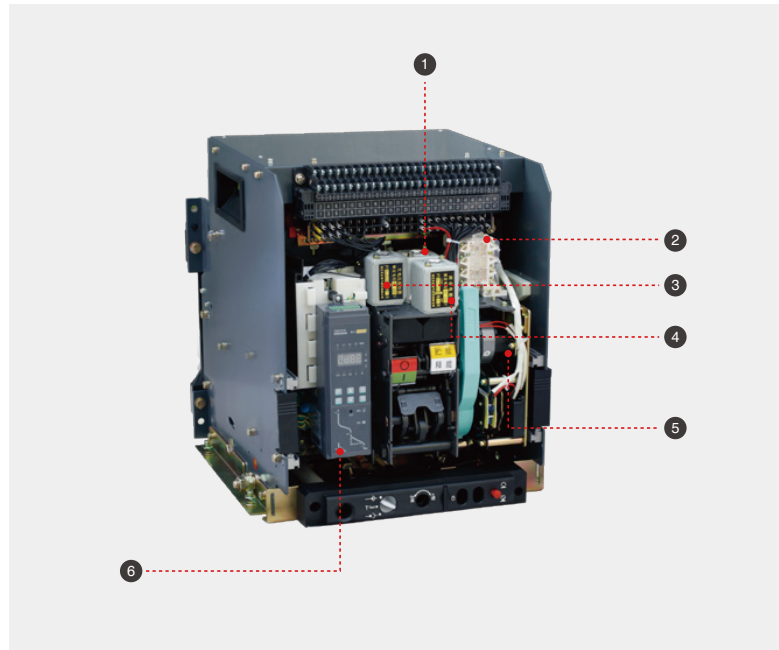
10 Jiggle bar

11 Screw out

12 Rotate in

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5.2 Internal structure



1 Reset button for fault trip indication

2 Shell

3 Switching-OFF button

4 Opening and closing indication

5 Switching-ON button

6 Nameplate

7 Energy storage/release indicator light

8 Drawer three-position button

9 Indication of connection, test and separation positions

10 Jiggle bar

11 Screw out

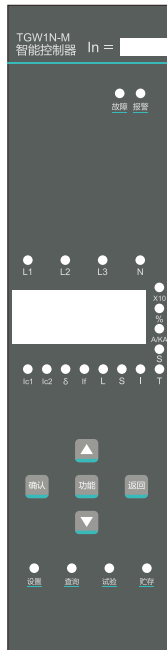
12 Rotate in

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6 Intelligent controller

6.1 TGW1N-1600 controller

6.1.1 TGW1N-M type



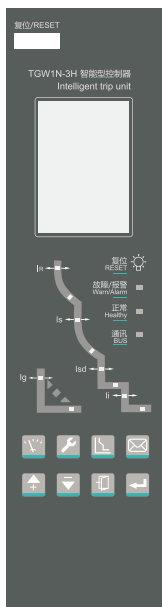
Instructions of key:

- “Enter” key, for entering the next level menu pointed by the current project or select the current parameter, or store the parameter.
- “Function” key, for entering the measurement and protection setting function.
- “Return” key, for returning to the previous menu or cancelling the current parameter, or returning to the main interface.
- “Up” key, for moving the cursor upward or increasing the parameter.
- “Down” key: for moving the cursor downward or decreasing the parameter.

Instructions of indicator lights:

- “Fault”: Tripping fault
- “Alarm”: Failure alarm
- “L1 L2 L3 N”: Current indicator lights, representing: Phase A, Phase B, Phase C and Phase N respectively
- “X10”: Indicator light of the action times of the switch
- “A/KA”: Current unit indicator light:
- “Setting, query, test, storage”: Indicator light for controller operation
- “IC1”: Load monitoring 1 indicator light
- “δ”: Current unbalance indicator light
- “L”: Long-time delay indicator light
- “T”: Instantaneous indicator light
- “%”: Contact wear indicator light
- “S”: Time unit indicator light
- “IC2”: Load monitoring 2 indicator light
- “IF”: Grounding indicator light
- “T”: Self-diagnosis indicator light

6.1.2 TGW1N-3M/3H type



Instructions of key:

- “Measure” key, for switching to “measure” interface (it is “left” key in the password input interface).
- default translation
- “Set” key, for switching to “system parameter setting” interface (it is “right” key in the password input interface).
- “Protection” key, for switching to the “protection parameter setting” interface.
- “Information” key, for switching to the “information record” interfaces.
- “Up” key, for moving the cursor upward or increasing the parameter.
- “Down” key, for moving the cursor downward or decreasing the parameter.
- “Return” key, for returning to the previous menu or cancelling the current parameter, or returning to the main interface.
- “Enter” key, for entering the next level menu pointed by the current project or select the current parameter, or store the parameter.

- “IR” is the indicator light of overload long-time delay fault, which will be on after parameter setting and fault tripping.
- “Isd” is the indicator light of short circuit short-time delay fault, which will be on after parameter setting and fault tripping.
- “Ii” is the indicator light of short circuit instantaneous fault, which will be on after parameter setting and fault tripping.
- “Ig” is the indicator light of ground fault, which will be on after parameter setting and fault tripping.

- “Fault / Alarm”: Fault or alarm indicator light
- “Normal”: Controller normal operation indicator light
- “Communication”: Communication indicator light

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6.2 TGW1N-2000-6300 controller

6.2.1 TGW1N-M type



Instructions of key:

- “Setting” key, for entering the measurement and protection setting function.
- “Up” key, for moving the cursor upward or increasing the parameter.
- “Return” key, for returning to the previous menu or cancelling the current parameter, or returning to the main interface.
- “Query” key, enter the setting and information.
- “Down” key, for moving the cursor downward or decreasing the parameter.
- “Enter” key, for entering the next level menu pointed by the current project or select the current parameter, or store the parameter.
- “TEST” key, for instantaneous trip test.
- “Reset” key, for exiting the fault display status.

Instructions of indicator lights:

- “In”: Indicate the rated current of the controller
 - “G”: Grounding or electric leakage current indicator light
 - “L1 L2 L3”: Current indicator lights, representing: Phase A, Phase B and Phase C
 - “A/KA”: Current unit indicator light:
 - “TEST”: Function test indicator light
 - “IC1”: Load monitoring 1 protection indicator light
 - “δ”: Current unbalance indicator light
 - “IR”: Long-time delay protection indicator light
 - “Status”: Controller operation status indicator light;
 - Green: Represent normal operation;
 - Blue: Represent protection alarm;
 - Red: Represent protection action and controller tripping.
- “Ii”: Instantaneous indicator light
 - “MAX”: Maximum current indicator light for Phase A, Phase B and Phase C
 - “S”: Time unit indicator light
 - “IC2”: Load monitoring 2 protection indicator light
 - “N”: Phase N indicator light
 - “Isd”: Short-time delay protection indicator light
 - “Ig”: Ground protection indicator light

6.2.2 TGW1N-3M/3H type



Instructions of key:

- “Setting” key, for entering the measurement and protection setting function.
- “Up” key for moving the cursor upward or increasing the parameter.
- “Return” key, for returning to the previous menu or cancelling the current parameter, or returning to the main interface.
- “Query” key, enter the setting and information.
- “Down” key, for moving the cursor downward or decreasing the parameter.
- “Ok” key, for entering the next level menu pointed by the current project or select the current parameter, or store the parameter.
- “TEST” key, for instantaneous trip test.
- “Reset” key, for exiting the fault display status.

Instructions of indicator lights:

- “IR” is the indicator light of overload long-time delay fault, which will be on after parameter setting and fault tripping.
 - “Isd” is the indicator light of short circuit short-time delay fault, which will be on after parameter setting and fault tripping.
 - “Ii” is the indicator light of short circuit instantaneous fault, which will be on after parameter setting and fault tripping.
 - “Ig” is the indicator light of ground fault, which will be on after parameter setting and fault tripping.
 - “AP”: Advanced protection failure indication (such as: phase loss, overvoltage, voltage unbalance, under-frequency, over-frequency, phase sequence, reverse power and other fault tripping. If it only alarms and doesn't trip, the "alarm" lamp will be on.)
- “Operation” lamp flicker represents that the controller works normally.
 - “Alarm” lamp flicker represents fault tripping. If it keeps on, it represents alarm.
 - “Communication” lamp flicker represents that it is communicating.

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6.3 Differences of intelligent controllers

Function configuration	Model and specification of the intelligent controller			Remarks
	M	3M	3H	
Current display function	√	√	√	①
Overload long-time delay protection (inverse time-delay)	√	√	√	
Short circuit short-time delay (definite time-delay + inverse time-delay)	√	√	√	
Instantaneous short circuit protection	√	√	√	
Single-phase grounding protection	√	√	√	
Current unbalance protection	√	√	√	
Parameter setting function	√	√	√	
Simulation test function	√	√	√	
Query function	√	√	√	
Self-diagnostic function	○	√	√	
Programming interface function	△	△	△	
Communicating and networking function	△	△	√	
Record of contact equivalent	△	√	√	
Record of operation times	△	√	√	
Clock record	△	√	√	
Alarm records	△	√	√	
Displacement record	△	√	√	
Historical peak current record	△	√	√	
MCR and HSISC functions	○	○	○	
Electric leakage protection (inverse time-delay and definite time-delay)	○	○	○	
Neutral phase (N-phase) protection	○	○	√	
Load monitoring function (Method I or Method II)	○	√	√	
Voltage measurement display function	△	○	√	
Frequency measurement display function	△	○	√	
Display of unbalanced voltage measurement	△	○	√	
Power measurement display function	△	○	√	
Electric energy measurement and display function	△	○	√	
Fault clock function	△	√	√	
Historical data recording function	√	√	√	
Phase sequence test	△	○	√	
Harmonic measurement function	△	○	√	
Harmonic impact factor function	△	○	√	
Overvoltage and undervoltage protection	△	○	√	
Voltage unbalance protection	△	○	√	
Over-frequency and under-frequency protection	△	○	√	
Phase sequence protection	△	○	√	
Inverse power protection	△	○	√	
Demand value protection	△	○	○	
Location lock function	△	△	△	
Thermal memory function	√	√	√	
Relay output function	△	○	√	

1. Note: “√” represents default configuration function; “○” represents optional function; “△” represents unsupported functions.

2. Remarks: ① Conventional product of TGW1N series is M controller

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7 Protective characteristics of the intelligent controller

7.1 Protective characteristics of the intelligent controller

Protective characteristics of the intelligent controller include inverse time-delay and definite time-delay. When the fault current exceeds the inverse time-delay setting value, the controller provides the time-delay protection function according to the definite time-delay.

7.1.1 Overload long-time delay protection features

Overload long-time delay protection		<1.05I _R ; >2h Inaction; >1.3I _R ; <1h Action						
Range of I _R current setting value		(0.4 ~ 1.0) In+OFF						
Inverse time-delay action features		$t=(1.5/N)^2*t_r$						
Setting scope of the time t _r		15s	30s	60s	120s	240s	480s	OFF
Action time s	1.5I _R	15s	30s	60s	120s	240s	480s	报警
	6I _R	0.938s	1.875s	3.75s	7.5s	15s	30s	
	7.2I _R	0.651s	1.302s	2.604s	5.208s	10.4s	20.8s	
Thermal memory time		30min(ON)/OFF						

Note: N Fault current divide the multiple of setting current I/IR
t Fault action delay time
t_R Long-time delay action setting value
Allowable error of action time ±10%

7.1.2 Short circuit short-time delay protection features

Short circuit short-time delay protection		<0.9I _{sd} ; Inaction; >1.1I _{sd} ; Action						
Range of I _{sd} current setting value		(0.4 ~ 15) In+OFF						
Setting scope of the time t _{sd}		0.1s 0.2s 0.3s 0.4s OFF						
Action time s	I _{sd} < I ≤ 8I _R	Inverse time-delay	Action feature	$t^2=(8I_R)^2*t_{sd}$				Alarm
			Setting time s (t _{sd})	0.1	0.2	0.3	0.4	
	I > 8I _{sd}	Definite time-delay	Time-delay (ms)	60	160	255	340	
			Maximum disconnection time (ms)	140	240	345	460	

Note: I_{sd} Short-time delay current setting value
I Fault current value
I_R Long-time delay setting value
t_{sd} Short-time delay inverse time-delay setting value
Allowable error of action time ±15%

7.1.3 Instantaneous short circuit protection features

Threshold value of short circuit instantaneous protection action	≤0.85I _i : Inaction; >1.15I _i : Action;
1600AF, 2000AF: 1.0I _n ~ 50kA+OFF (Setting step length of 1A)	
2500AF, 3200AF,4000AF: 1.0I _n ~ 75kA+OFF (Setting step length of 2A)	
6300AF: 1.0I _n ~ 100kA+OFF (Setting step length of 2A)	
Accuracy: Less than 100ms (including the inherent breaking time of the circuit breaker)	

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7.1.4 Ground fault protection features

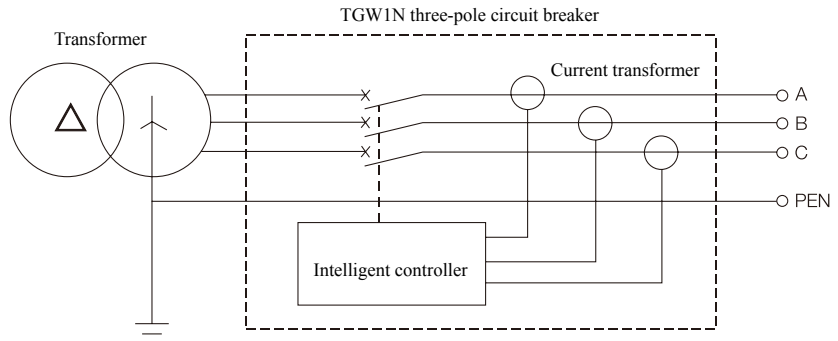
Ground fault protection action threshold value	< 0.9I _g ; Inaction > 1.1I _g ; Action						
Current setting value	(0.2 ~ 1.0) I _n +OFF 100A min						
Setting scope of the time t _g	0.1s 0.2s 0.3s 0.4s OFF						
t _g (s)	Action feature						
	t _g	0.1s	0.2s	0.3s	0.4s	0.4s	OFF
	Time-delay	60	160	255	340	340	Alarm
Maximum disconnection time (ms)	140	240	345	460	460		
Allowable error of action time ±15%							

7.1.5 Intelligent controller factory setting value

Tripping curve I ² t	Long-time delay	Short-time delay	Instantaneous	Instantaneous fault	Thermal memory
	I _R t _R	I _{sd} t _{sd}	I _i	I _g t _g	
	1.0I _n 60s	8I _n 0.2s	12I _n	0.8I _n 0.4s	OFF

7.2 Grounding current protection

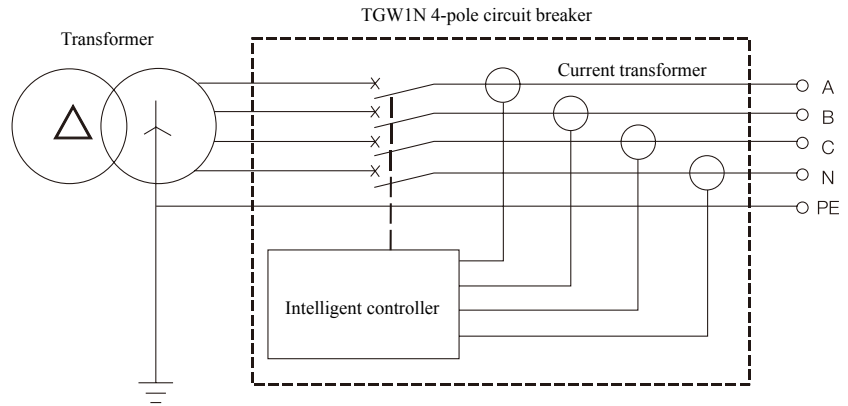
7.2.1 3PT type (Conventional standard)



Differential ground fault protection, with the signal from the vector sum of three-phase current (Three-phase unbalance)

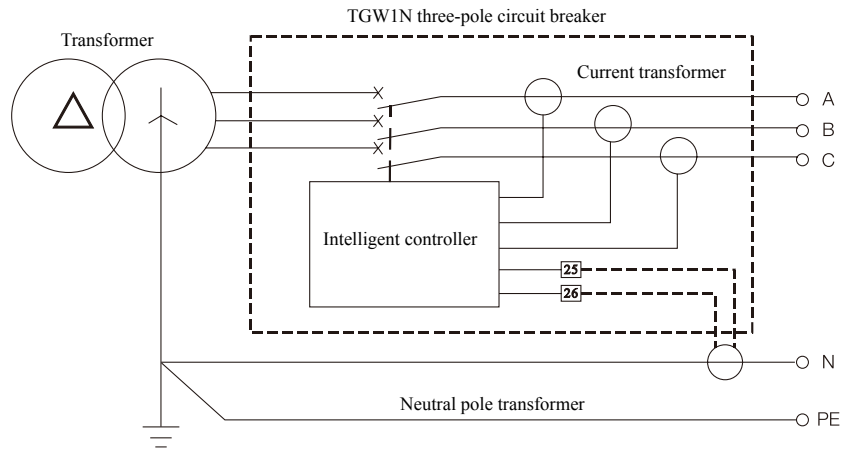
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7.2.2 4PT type



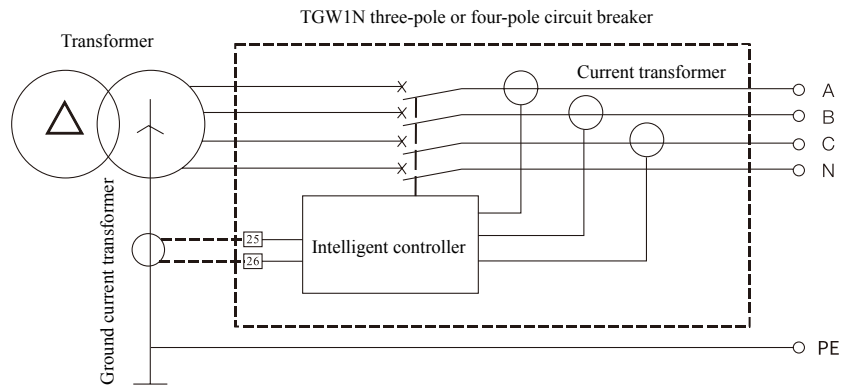
Differential ground fault protection, with the signal from of the vector sum of three-phase current and N pole current

7.2.3 (3P+N)T type



Differential ground fault protection for external neutral pole transformer, with the signal from the vector sum of three-phase current and N pole current only

7.2.4 (3P+N) W type



Ground current type ground fault protection of the external grounding current transformer, with the signal between the neutral point of the main power supply and ground.

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8 Measurement accuracy of the controller

Current measurement	
Measurement range	Ia, Ib, Ic and IN less than 15In (rated current of circuit breaker)
Measurement accuracy	Below 0.1In; it is inaccurate during measurement
	0.1In-0.4In; the accuracy will change from 5% to 2% linearly
	0.4In - 1.5In; the accuracy is 2%
	Above 1.5In; the accuracy will change from 2% to 15% linearly
Voltage measurement	
Measurement range	Line voltage: (0~1200)V
Measurement accuracy	Phase voltage: (0~690)V
	Error: ±1%
Frequency	
Measurement range	40Hz~70Hz
Error	±0.1Hz
Power	
Measurement mode	Effective value
Measurement contents	3P type: Total active power, total reactive power and total apparent power
	4P type: Split-phase active power, split-phase reactive power, split-phase apparent power, total active power, total reactive power, total apparent power
Measurement range	Active power: -32768KW~+32767KW
	Reactive power: -32768Kvar~+32767Kvar
	Apparent power: 0KVA~65535Kvar
	Error: ±2.5%
Power factor	
Measurement contents	3P type: Total power factor
	4P type: Split-phase power factor of each
Measurement range	-1.00~+1.00
Electric energy	
Measurement contents	Input reactive electric energy (EQin), output reactive electric energy (EQout)
	Input active electric energy (EQin), output reactive electric energy (EQout)
	Total active energy (EPtotal), total reactive energy (EQtotal) and total apparent energy (ESTotal)
Measurement range	Active: 0~4294967295kWh
	Reactive: 0~4294967295kvarh
	Apparent: 0~4294967295kVAh
Measurement accuracy	±2.5%
Harmonics measurement	
Fundamental wave measurement	Current: Ia, Ib, Ic
	Voltage: Uab, Ubc, Uca
Total harmonic distortion	
THD and Thd	THD: The total distortion rate of harmonics relative to fundamental waves
	ThD: The total distortion rate of harmonics relative to effective values
The amplitude spectrum of harmonics	The controller can display the FFT amplitude of 3-31 odd harmonics, in the unit of %.
Measurement accuracy of the control unit	±2%

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9 Product accessories

9.1 Shunt release

After the circuit breaker stores energy, the shunt excitation coil can disconnect the circuit breaker instantaneously under the specified power supply voltage, which can be achieved remotely;

9.1.1 1600 frame



Rated control power supply voltage U_s (V)	AC220/230/240 AC380/400/415	DC220、DC110
Action voltage (V)	(0.7~1.1) U_s	
Power consumption	56VA	250W
Segment time (ms)	(50±10)ms	

9.1.2 2000-6300 frame



Rated control power supply voltage U_s (V)	AC380/400、230/220	DC220	DC110
Action voltage (V)	(0.7~1.1) U_s		
Power consumption	300VA	132W	70W
Segment time (ms)	30~50		

9.2 Closing electromagnet

After the circuit breaker stores energy, the closed electromagnet can close the circuit breaker under the specified power supply voltage, which can be achieved remotely;

9.2.1 1600 frame



Rated control power supply voltage U_s (V)	AC220/230/240 AC380/400/415	DC220、DC110
Action voltage (V)	(0.85~1.1) U_s	
Power consumption	56VA	250W

9.2.2 2000-6300 frame



Rated control power supply voltage U_s (V)	AC380/400、230/220	DC220	DC110
Action voltage (V)	(0.85~1.1) U_s		
Power consumption	300VA	132W	70W
Closing time (ms)	No more than 70ms		

Note: Long-time closing shall be prevented to avoid damage. Especially, in the automatic control system, it must be pulse mode, with the pulse width of 1s; otherwise, the elements may be burned.

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9.3 Undervoltage release

Achieve the undervoltage protection function of the circuit breaker. The Undervoltage time-delay release can disconnect the circuit breaker after 0.5s, 1s, 1.5s, 3s, 5s and 7s.

- When the voltage is 35%-70% of the rated working voltage, the Undervoltage release shall make the circuit breaker trip reliably.
- When the voltage is 85%-110% of the rated working voltage, the Undervoltage release shall ensure to make the circuit breaker closed.
- When the voltage is below 35% of the rated working voltage, the Undervoltage release shall prevent the circuit breaker from closing.

9.3.1 1600 frame



Rated working voltage U _e (V)	AC220/230/240、AC380/400/415
Action voltage (V)	(0.35~0.7)U _e
Reliable closing voltage (V)	(0.85~1.1)U _e
Reliable unclosing voltage (V)	≤0.35U _e
Power consumption	20VA

9.3.2 2000-6300 frame



Rated working voltage U _e (V)	AC380/400、230/220	DC220、DC110
Action voltage (V)	(0.35~0.7) U _e	(0.35~0.7) U _e
Reliable closing voltage (V)	(0.85~1.1) U _e	(0.85~1.1) U _e
Reliable unclosing voltage (V)	≤0.35U _e	≤0.35U _e
Power consumption	48VA	48W

Note: The Undervoltage release must be energized first in order to re-buckle and close the circuit breaker, otherwise it will damage the circuit breaker.

9.4 Electric motor operating mechanism

When the circuit breaker is powered on, it will automatically store energy; The energy can be stored with handle when it is powered off.

9.4.1 1600 frame



Rated control power supply voltage U _s (V)	AC220/230/240 AC380/400/415	DC220、DC110
Action voltage (V)	(0.85~1.1)U _s	
Power consumption	90VA	90W
Stored-energy time	< 4s	
Operation frequency	≤ 3 minutes/time	

9.4.2 2000-6300 frame



Rated control power supply voltage U _s (V)	AC380/400、230/220	DC220	DC110
Action voltage (V)	(0.85~1.1)U _s		
Power consumption	85/110	85	110
Stored-energy time	≤ 5s		

Note: It shall not be powered on for a long time, to avoid damage.

TGW1N Series Air Circuit Breaker

9.5 Auxiliary contact

It can be used for monitoring the status of the circuit breaker, such as connecting with the position signal lamp and disconnecting indicator light of the circuit breaker.

- Standard type, 4NO+4NC by default (4 sets of transfer contacts)
- Special type, 3NO+3NC, 5 sets of transfer contact, 6 sets of transfer contact



1600 frame



2000-6300 frame

Rated voltage (V)	Rated heating current I _{th} (A)	Rated control capacity
AC230	6	300VA
AC415	6	300VA
DC220	6	60W

9.6 Door frame and gasket

It is installed on the door of the distribution cabinet chamber for sealing, with the protection grade of IP40 (it is divided into drawer type and fixed type).



9.7 Dust cover

Fastened to the beam of the drawer seat to prevent any dust or other debris from falling into the secondary circuit terminal, leading to poor contact.



TGW1N Series Air Circuit Breaker

9.8 Phase partition

It is installed between phases of the terminal block, for increasing the interphase insulation capacity of the circuit breaker.



9.9 Grounding current transformer

It is a special external transformer for measuring neutral phase current when the ground mode is ground current return mode. It can protect the upper and lower ground faults of the circuit breaker at the same time.



9.10 External transformer of Phase N

It is an external transformer for measuring the neutral phase current under 3P+N grounding mode. It shall be sleeved on the busbar



1600 frame

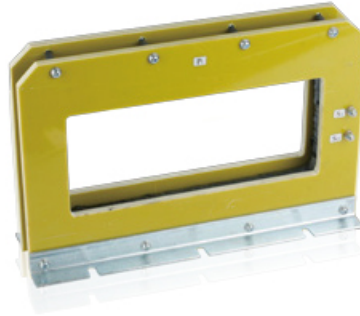


2000-6300 frame

TGW1N Series Air Circuit Breaker

9.11 Electric leakage transformer

It is a special external rectangular transformer under the electric leakage grounding protection.



9.12 Power supply module

It can provide a DC 24V power supply with the power not less than 9.6W. It can output 4 sets of wiring terminals. Both AC and DC inputs are available (AC/DC220V). It can be used as a relay module power supply.



9.13 Power supply module

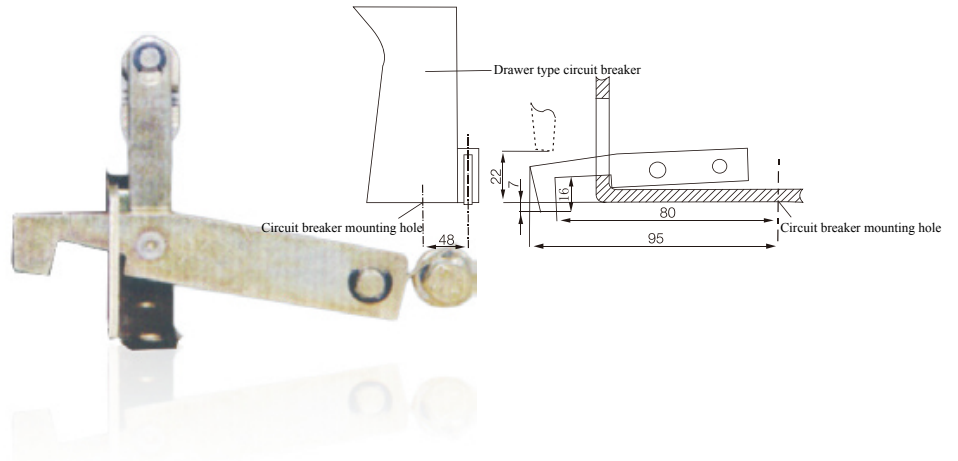
The output signal unit of the controller is generally used for fault alarm or indication. When the load capacity generated when it is used for the closing and opening of the circuit breaker is large, the control should be conducted after it is converted through the relay module. Contact capacity is: AC250V,10A,DC28V,10A



TGW1N Series Air Circuit Breaker

9.14 Door interlock

The gate interlock mechanism is installed on the circuit breaker, which can avoid the opening of the small chamber gate when the drawer type circuit breaker is separated. The door interlock is generally installed on the right side of the circuit breaker.



9.15 Key lock

The opening lock can lock the circuit breaker at the disconnection position. The circuit breaker can be closed only when the lock is opened with a key and the key is not pulled out.



- One key with one lock
- Two locks with one key
- Three locks with two keys
- Five locks with three keys

9.16 Three-position lock

It is in the drawer type circuit breaker and is used for breaking the “connection”, “test” and “separation” positions of the circuit breaker. The three positions of the circuit breaker shall be indicated by the indicator. The handle is locked in the exact position. The locking can be released through the reset button.



TGW1N Series Air Circuit Breaker

10 Mechanical accessories

10.1 Interlock mechanism

The mechanical interlock mechanism is installed on the right-side plate of circuit breaker;

When any circuit breaker is closed, then none of other circuit breakers can be closed;

The interlock mechanism and the interlocking that can be used for both drawer type circuit breakers and the fixed circuit breakers;

The interlock mechanism is installed by the user;

The distance between the circuit breaker using cable interlock and the circuit breaker shall not be more than 2m;

The distance between the circuit breaker using hard lever interlock and the circuit breaker is 0.9m;

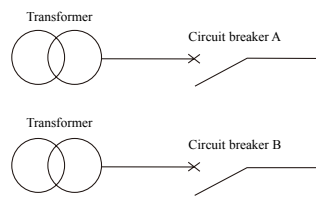
When using the cable interlock, the minimum corner radius of the cable interlock shall not be less than R120mm.

Mechanical interlock type that can be provided

Interlocking pattern	Between two circuit breakers		Among three circuit breakers	
	Horizontal	Vertical	Horizontal	Vertical
Cable interlock	√	√	√	√
Hard lever interlock	×	√	×	×

10.2 Typical application of the interlocking device

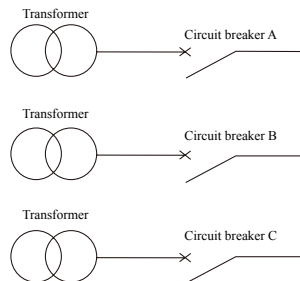
10.2.1 Interlock between two circuit breakers



Emergency power supply (circuit breaker B)	Normal power supply (circuit breaker A)
0	0
0	1
1	0

1 represents circuit breaker closing; 0 represents circuit breaker disconnection

10.2.2 Interlock among three circuit breakers (only one circuit breaker can be closed)

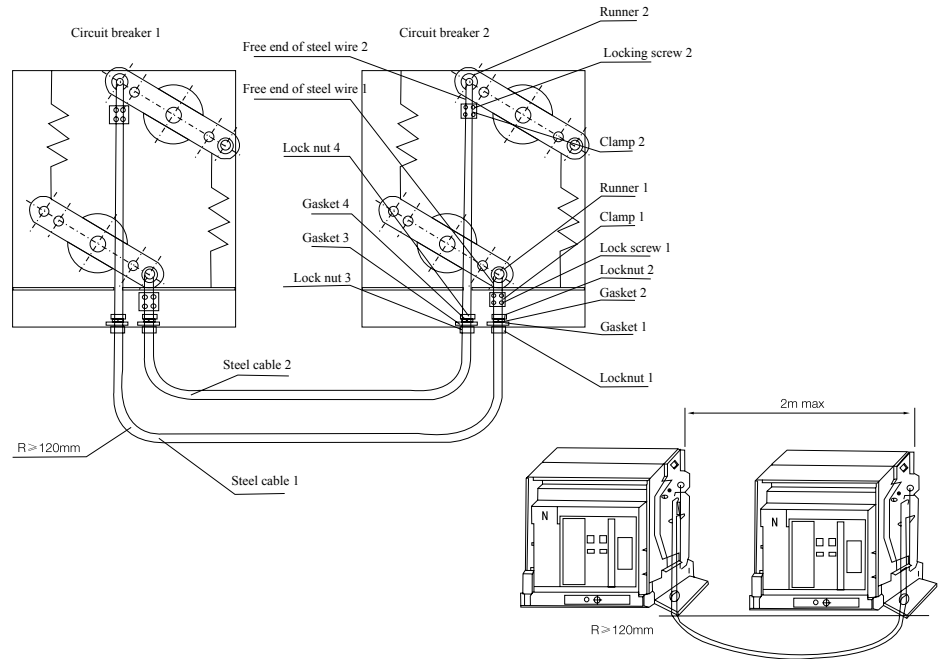


Emergency power supply (circuit breaker)	Emergency power supply (circuit breaker)	Normal power supply (circuit breaker)
0	0	0
0	0	1
0	1	0
1	0	0

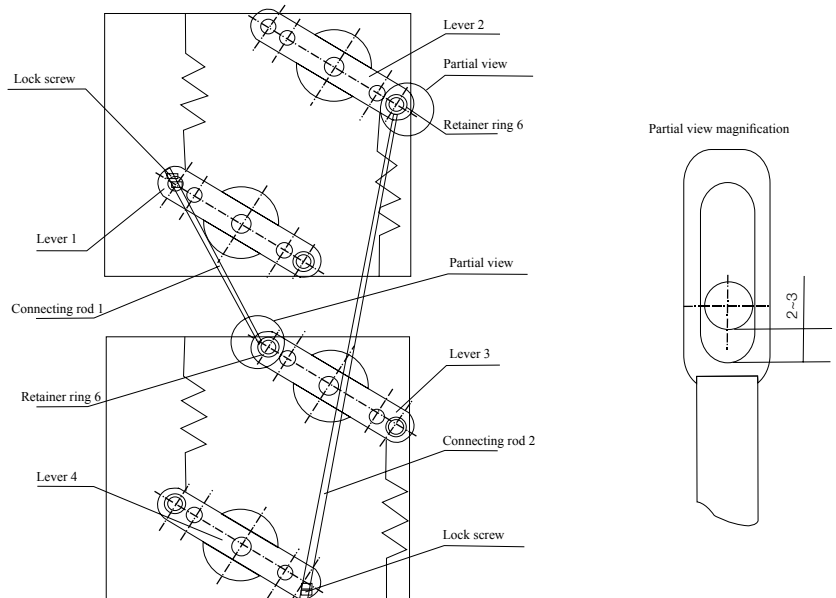
1 represents circuit breaker closing; 0 represents circuit breaker disconnection

TGW1N Series Air Circuit Breaker

10.3 Schematic diagram of cable connection between two circuit breakers

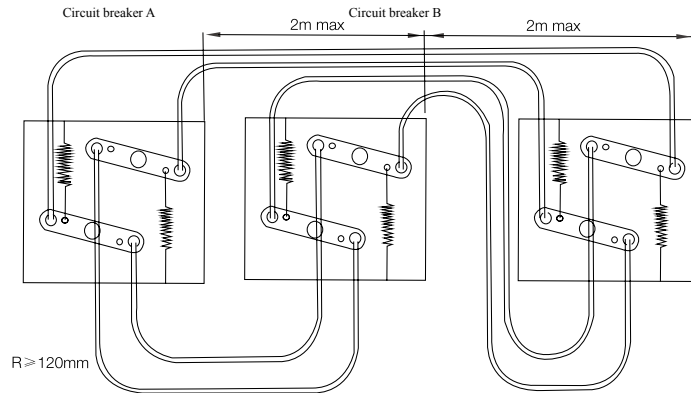


10.4 Connection diagram for hard lever interlock between two circuit breakers



TGW1N Series Air Circuit Breaker

10.5 Cable interlock among three circuit breakers



Key lock

The breaking button of the circuit breaker can be locked at the down position. At the same time, the circuit breaker cannot close.

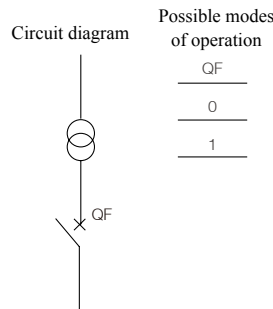
If the user selects it, the manufacturer will provide a lock and key.

If the user buys the key lock separately. During installation, a hole saw is required.

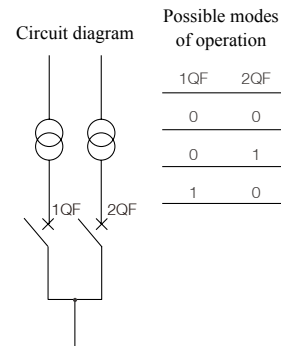
Tap a hole, with the diameter of $\phi 28\text{mm}$. The hole saw shall be prepared by the user.

Note: After the circuit breaker is locked with a key lock, it cannot be closed manually or electrically.

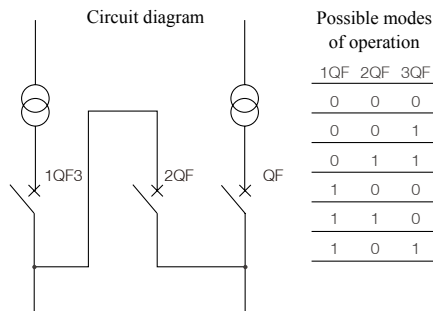
a. One key with one lock: A circuit breaker is equipped with an independent lock and a key.



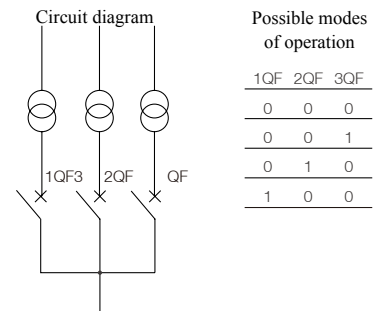
b. Two locks with one key: Two circuit breakers are equipped with 2 same locks and 1 key.



c. Three locks with two keys: Three circuit breakers are equipped with 3 same locks and 2 same keys.



d. Three locks with one key: Two circuit breakers are equipped with 3 same locks and 1 key.

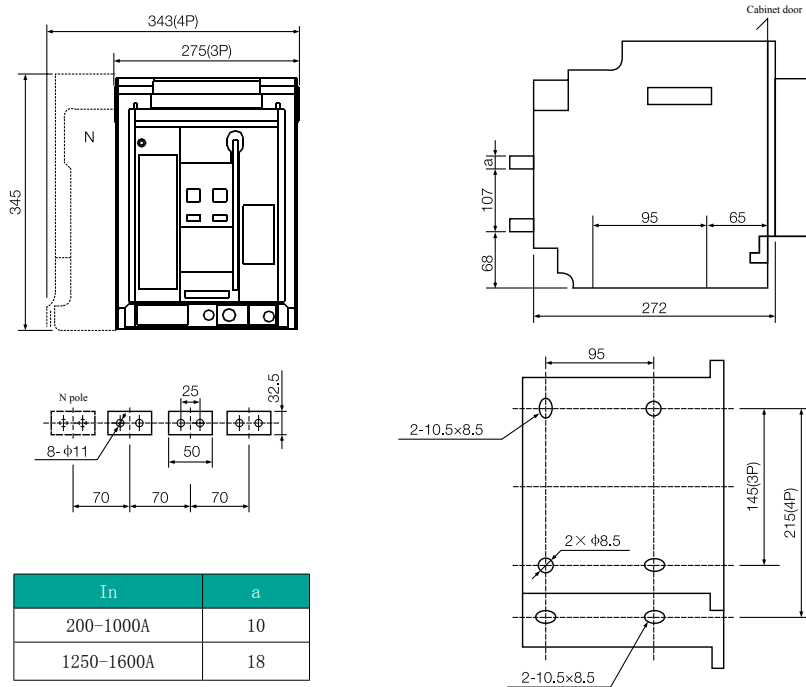


Attention: For a Air Circuit Breaker with a key interlock, when the key needs to be pulled out, press the opening button firstly, turn the key counterclockwise and pull it out.

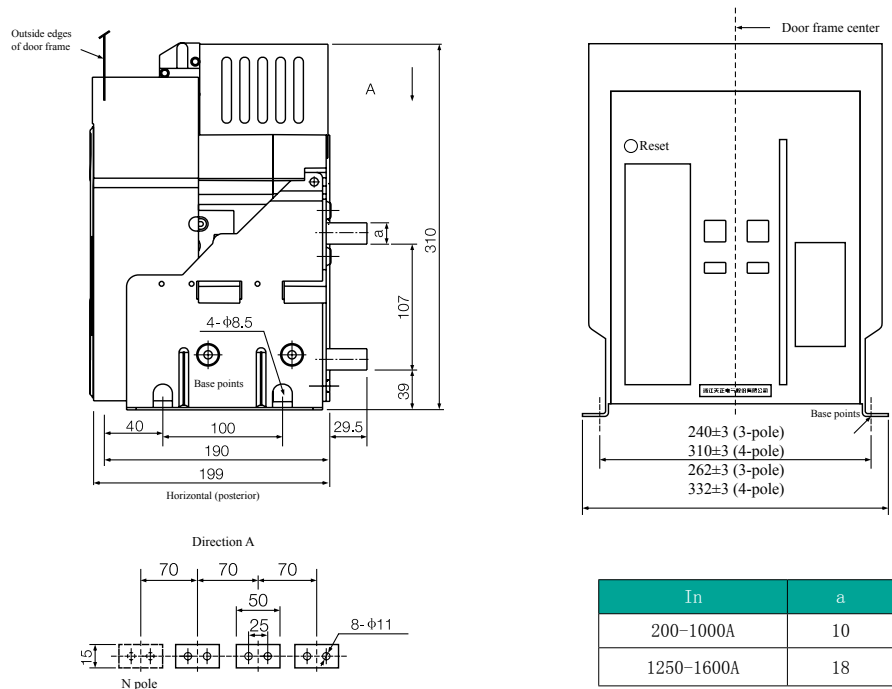
TGW1N Series Air Circuit Breaker

11 Outline and Installation dimension of products

11.1 TGW1N-1600 intelligent Air Circuit Breaker (drawer type)



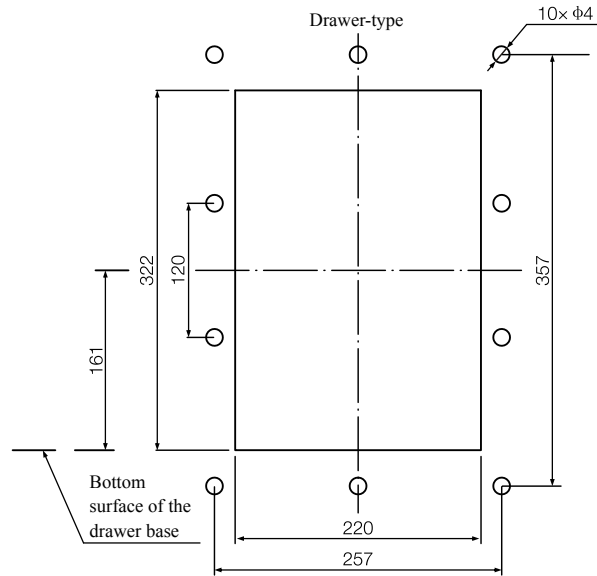
11.2 TGW1N-1600 intelligent Air Circuit Breaker (fixed)



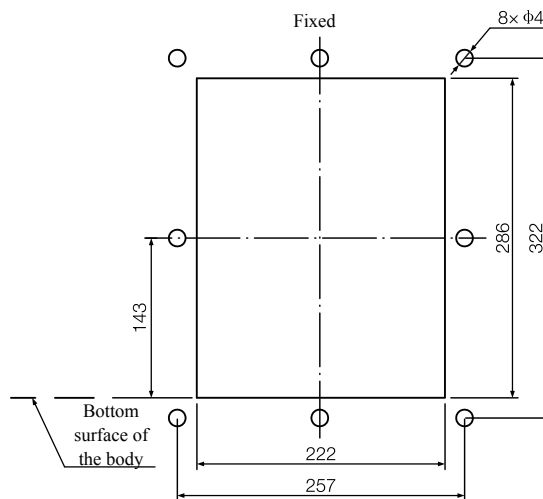
TGW1N Series Air Circuit Breaker

11.3 Hole sizes of TGW1N-1600 panel

Hole size of door frame

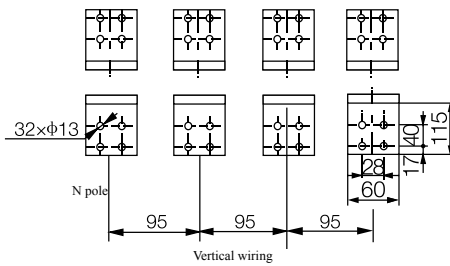
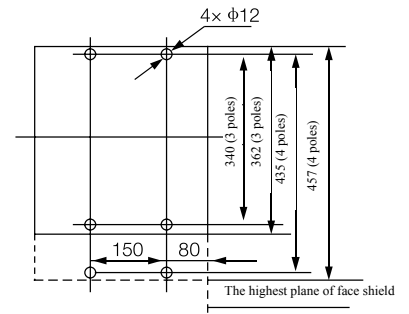
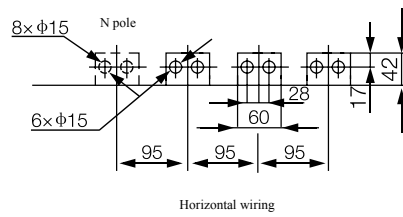
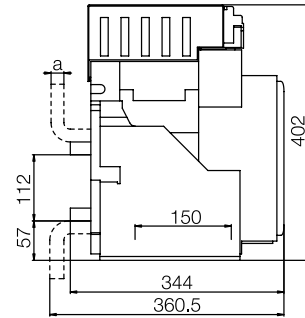
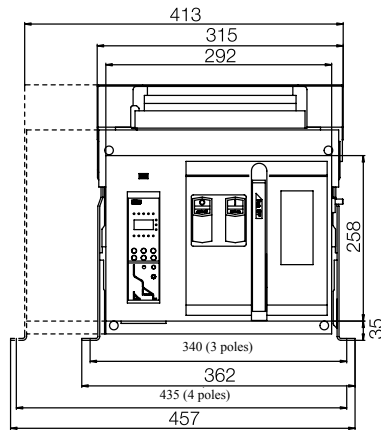


Hole size of door frame



TGW1N Series Air Circuit Breaker

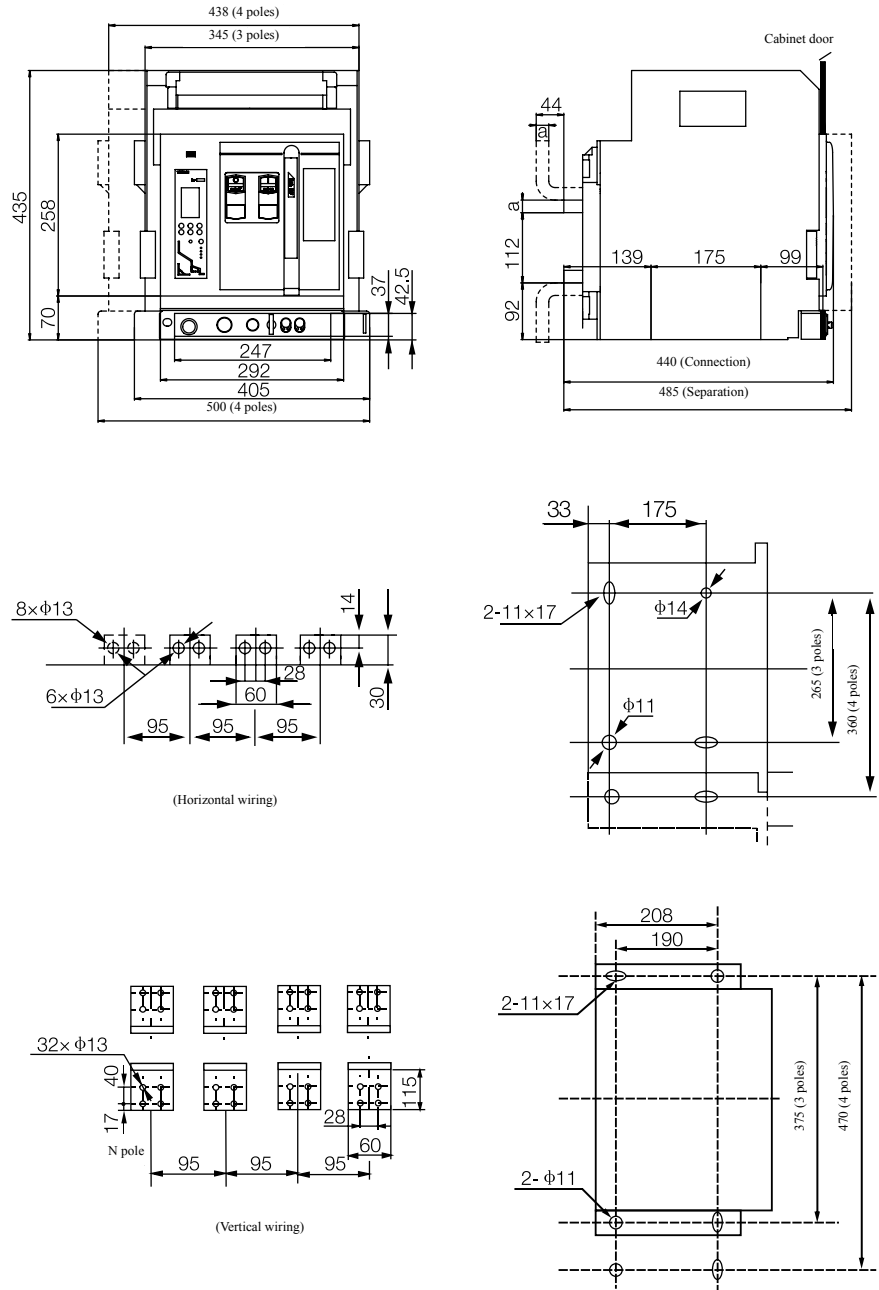
11.4 TGW1N-2000/TGW1N-2000H fixed type circuit breaker



In	200-630A	800-1600A	1900-2000A
a	10	15	20

TGW1N Series Air Circuit Breaker

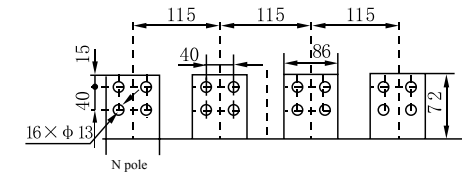
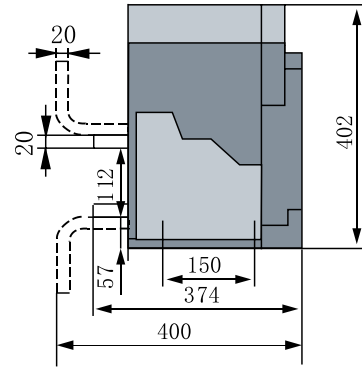
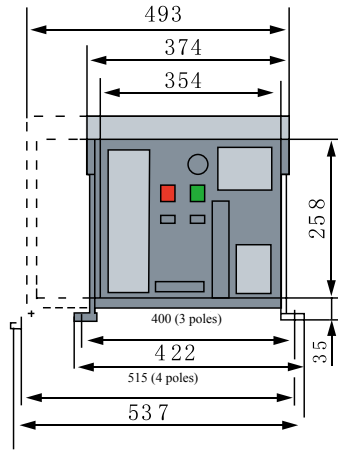
11.5 TGW1N-2000/TGW1N-2000H drawer type circuit breaker



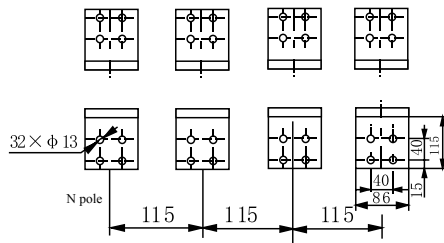
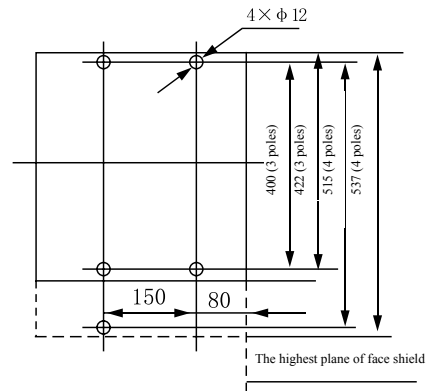
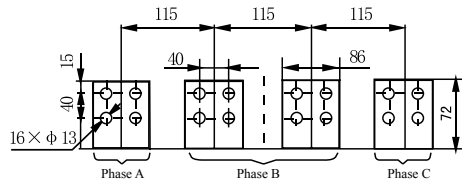
In	200-630A	800-1600A	1900-2000A
a	10	15	20

TGW1N Series Air Circuit Breaker

11.6 TGW1N-2500/TGW1N-2500H fixed type circuit breaker



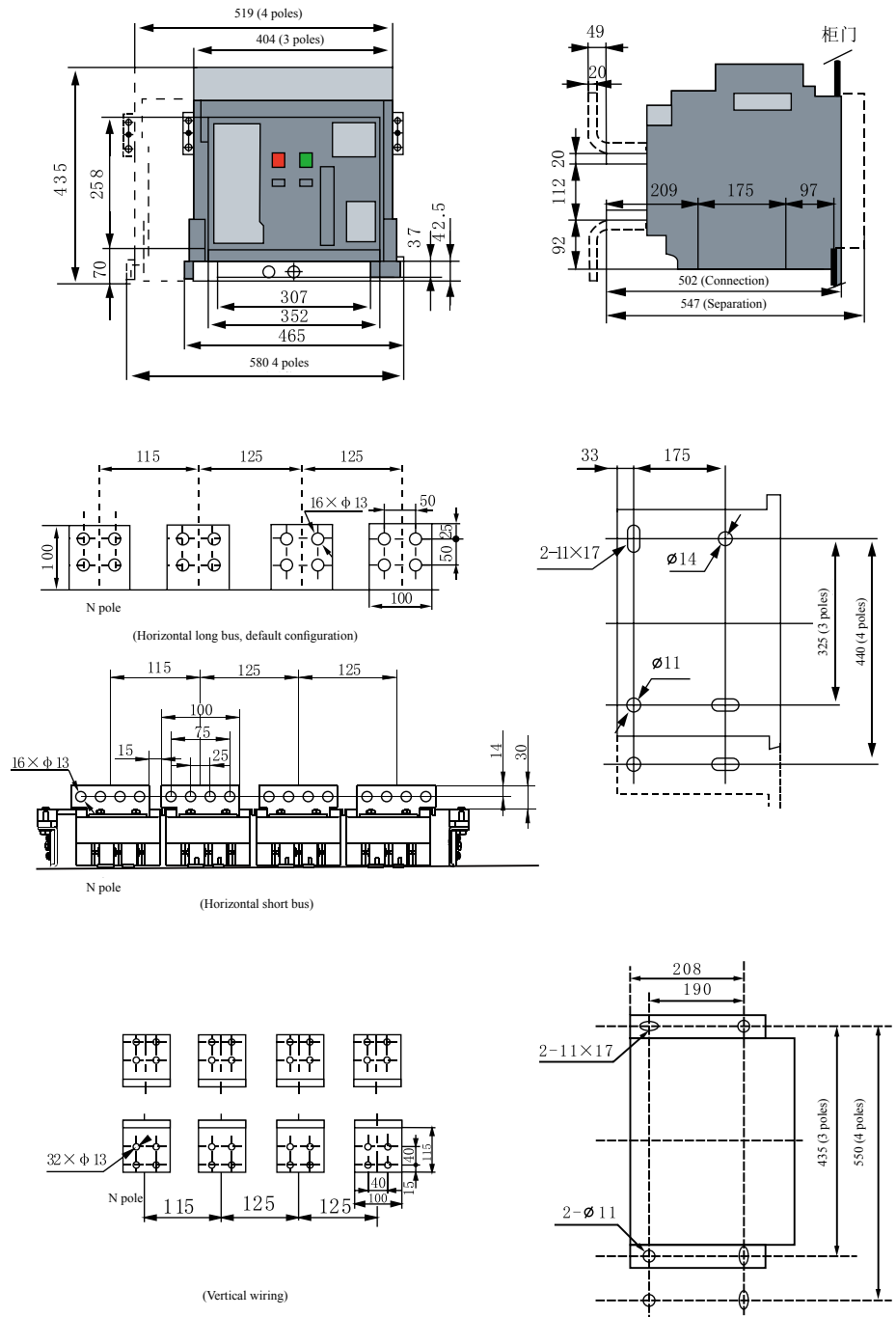
(Horizontal wiring)



(Vertical wiring)

TGW1N Series Air Circuit Breaker

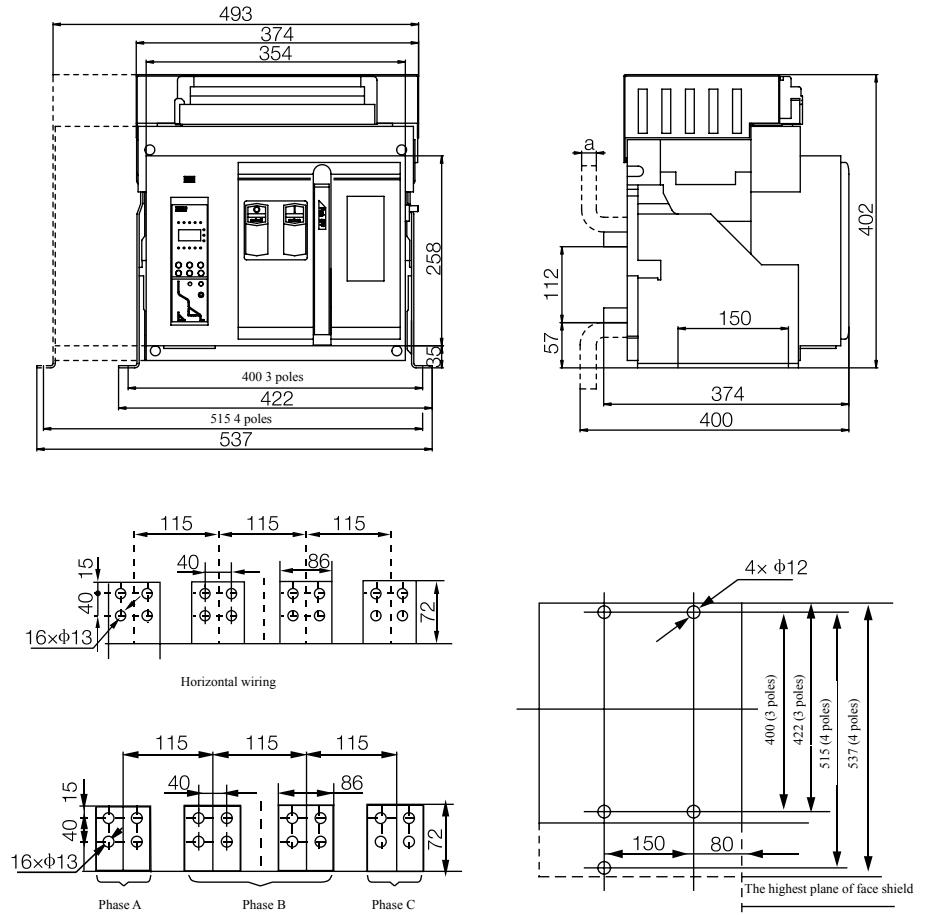
11.7 TGW1N-2500/TGW1N-2500H drawer type circuit breaker



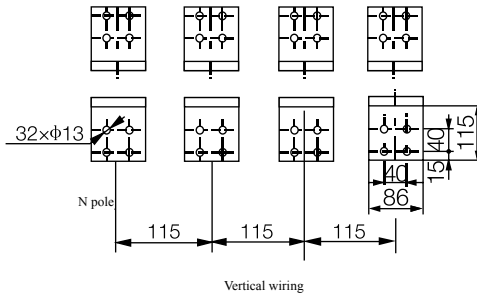
TGW1N Series Air Circuit Breaker

11.8 TGW1N-3200/TGW1N-3200H fixed type circuit breaker

(Outline and Installation dimensions of TGW1N-4000 fixed type 3P circuit breaker are same with that of TGW1N-3200 fixed type 4P circuit breaker)



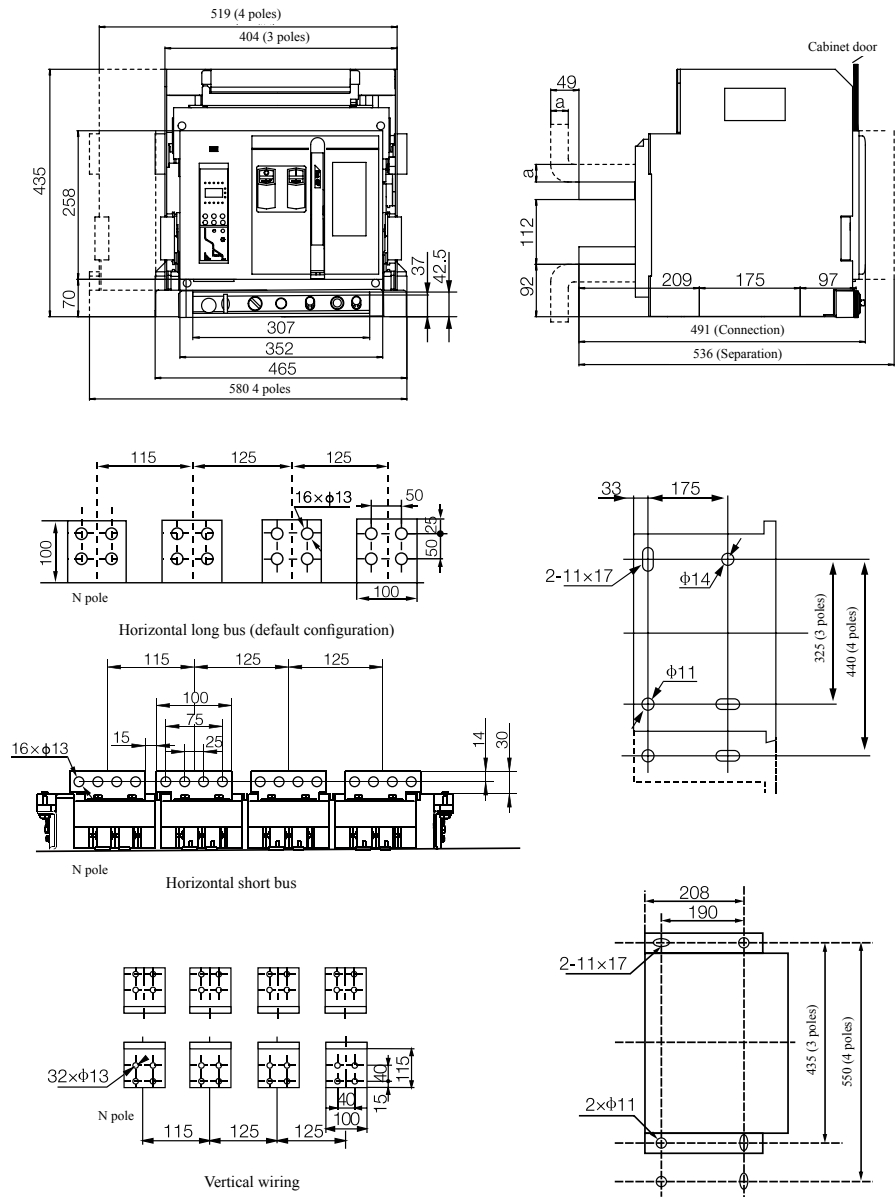
(TGW1N-4000,3P, horizontal wiring)



In	2000A、2500A	2900A、3200A
a	20	30

TGW1N Series Air Circuit Breaker

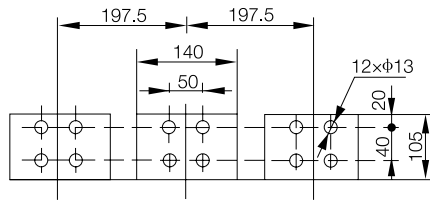
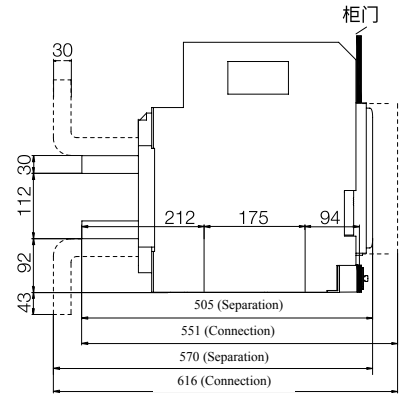
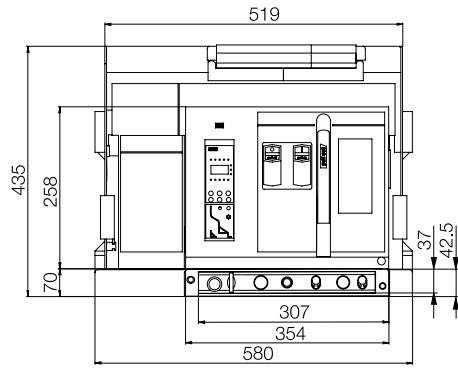
11.9 TGW1N-3200/TGW1N-3200H drawer type circuit breaker



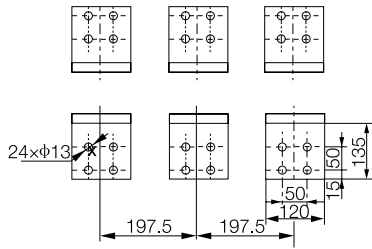
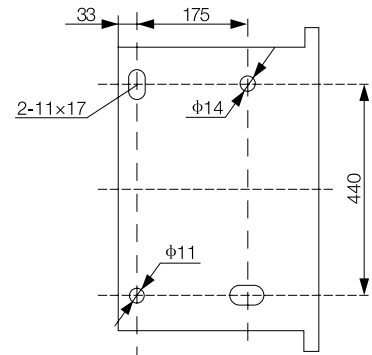
In	2000A、2500A	2900A、3150A、3200A
a	20	30

TGW1N Series Air Circuit Breaker

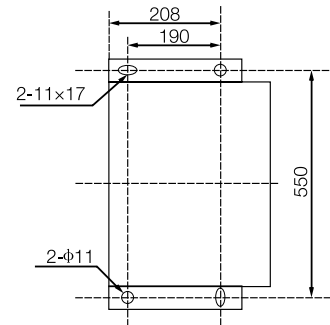
11.10 TGW1N-4000/3-pole drawer type circuit breaker



Horizontal wiring

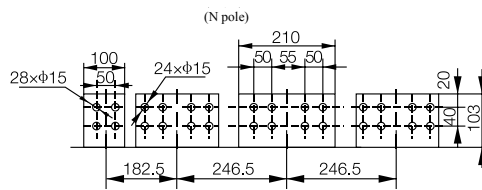
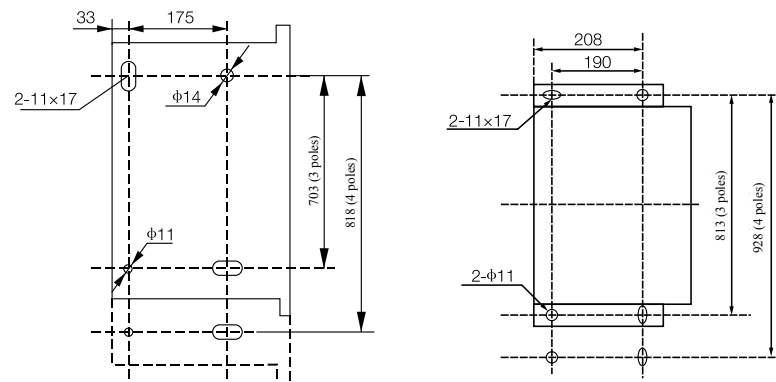
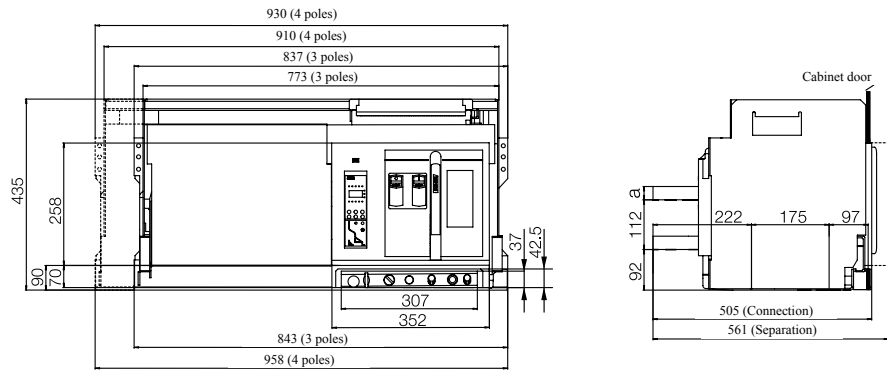


Vertical wiring



TGW1N Series Air Circuit Breaker

11.11 TGW1N-6300(IN=4000-5000A) drawer type circuit breaker

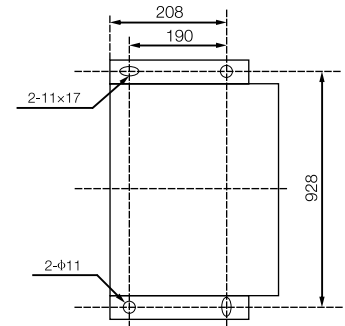
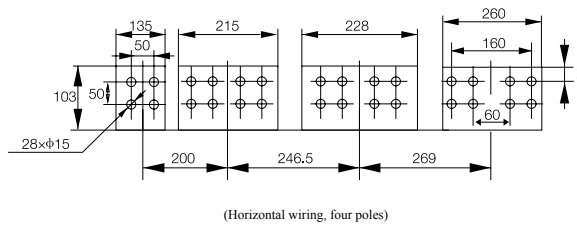
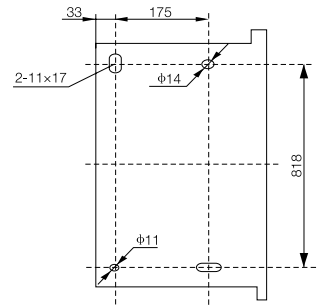
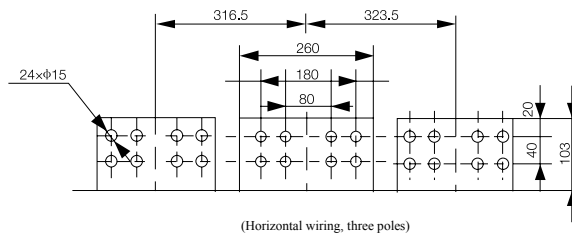
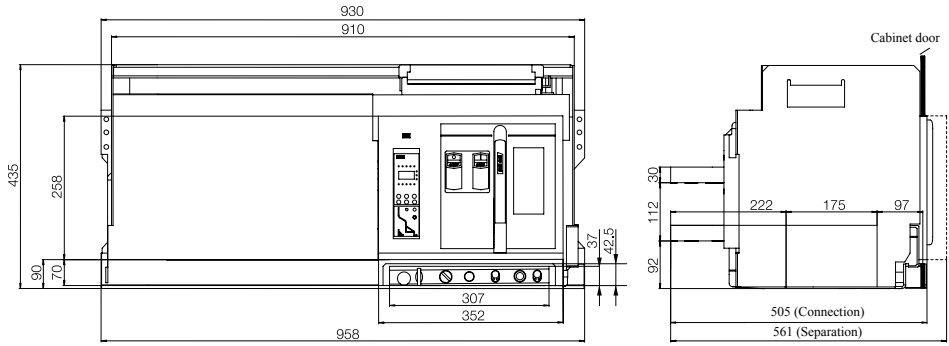


(Horizontal wiring)

In	4000A	5000A
a	20	30

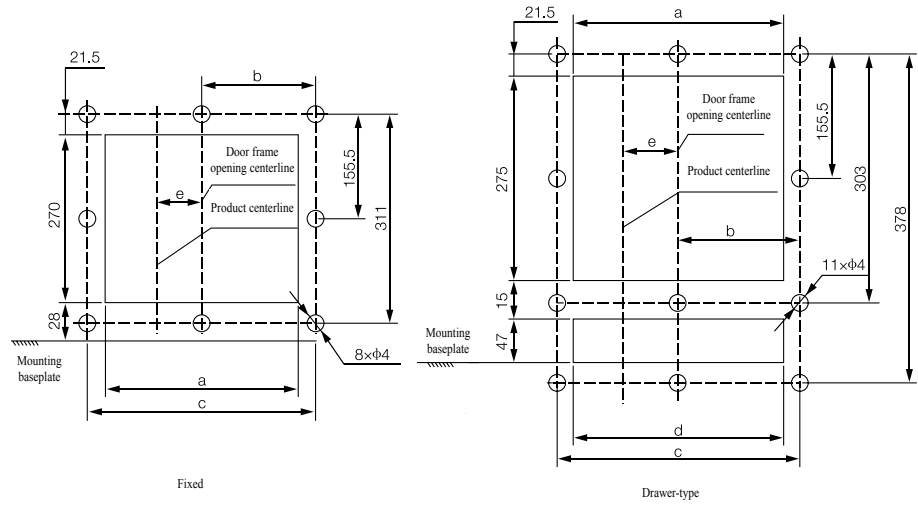
TGW1N Series Air Circuit Breaker

11.12 TGW1N-6300(IN=6300A) drawer type circuit breaker



TGW1N Series Air Circuit Breaker

11.13 Hole sizes of TGW1N-2000-6300 panel



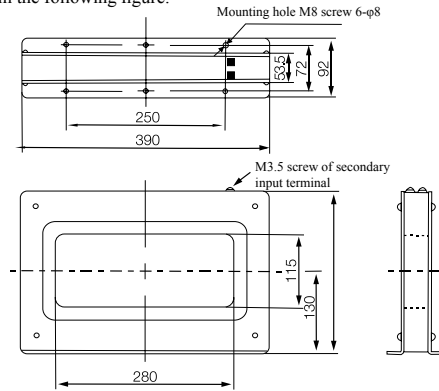
In	a	b	c	d	e (3 poles)	e (4 poles)
2000	306	172.5	345	263	0	47.5
3200	366	202.5	405	323	0	57.5
4000	366	202.5	405	323	57.5	
6300	366	202.5	405	323	189(4000, 5000 3 poles)	
					426.5(4000, 5000 4 poles and 6300)	

TGW1N Series Air Circuit Breaker

12 Installation dimensions of external transformer

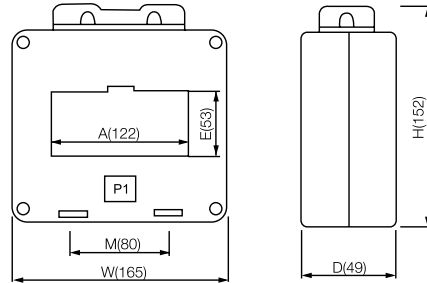
12.1 ZCT1 electric leakage transformer

It is a special external rectangular transformer under the electric leakage (E) grounding protection. The installation dimensions are shown in the following figure.



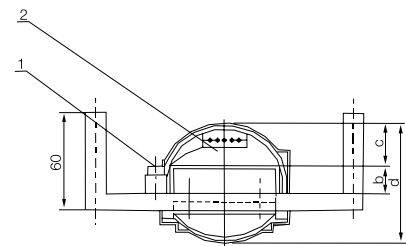
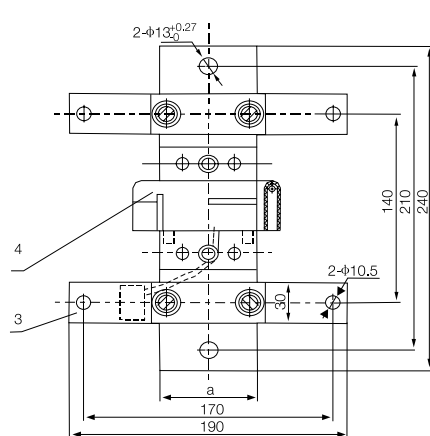
12.2 ZT100 grounding transformer

It is a special external transformer when the ground mode is ground current return mode (W). The installation dimensions are shown in the following figure.



12.3 External transformer of Phase N

When 3P+N grounding is adopted, the installation and outline dimension of the neutral pole transformer or ground current transformer is as follows.



- 1- Earth plate
- 2- Busbar
- 3- Retaining plate
- 4- Transformer

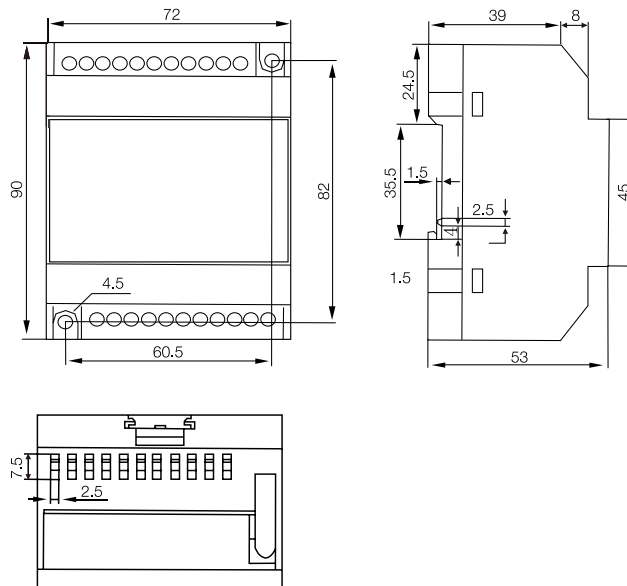
In (A)	a	b	c	d
2000	60	12.5	34	Φ 89
3200、4000	80	20	35	Φ 109.5

TGW1N Series Air Circuit Breaker

13 Installation dimensions of the power supply module and panel



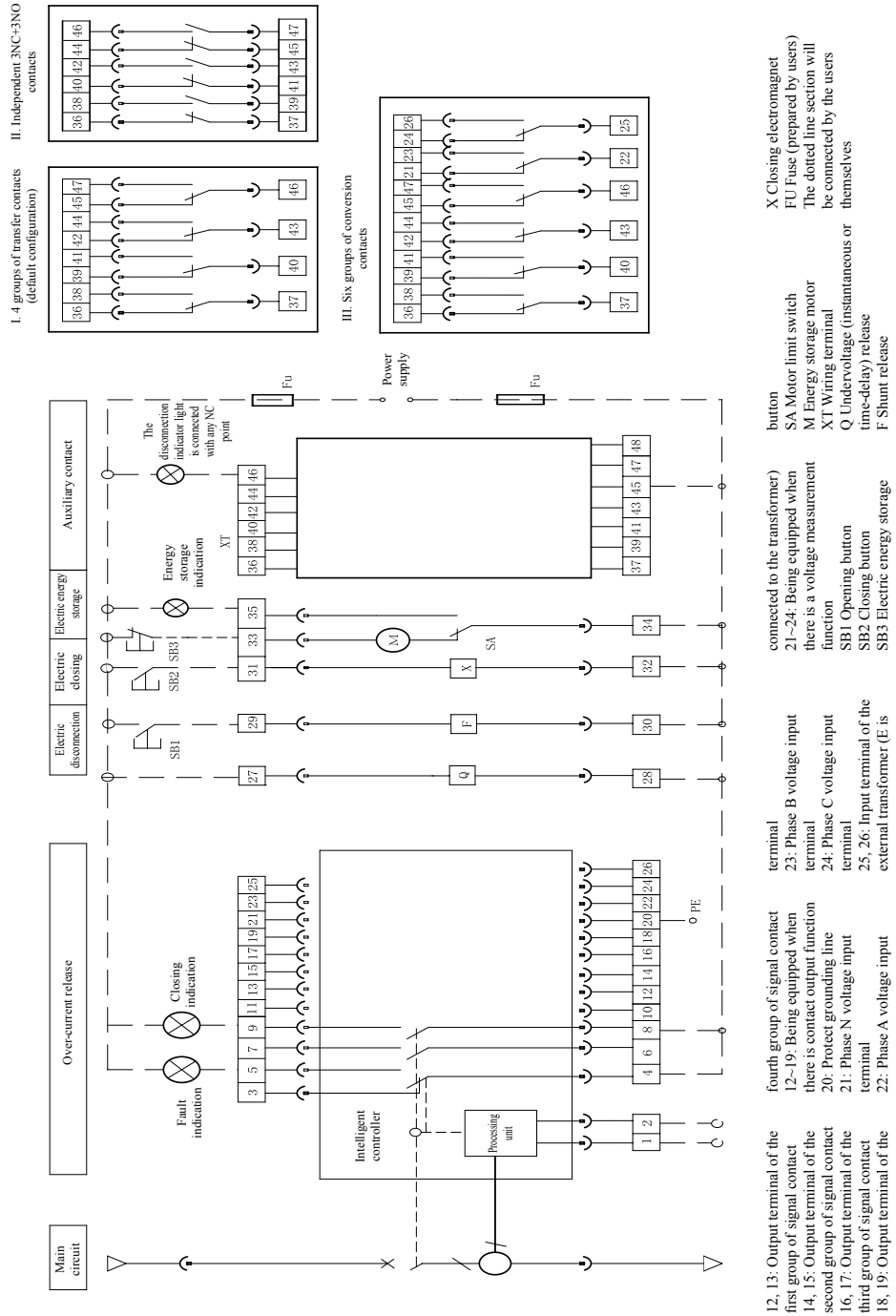
The module is installed with 25mm standard guide rail or fixed directly. The outline and installation dimensions are as follows:



TGW1N Series Air Circuit Breaker

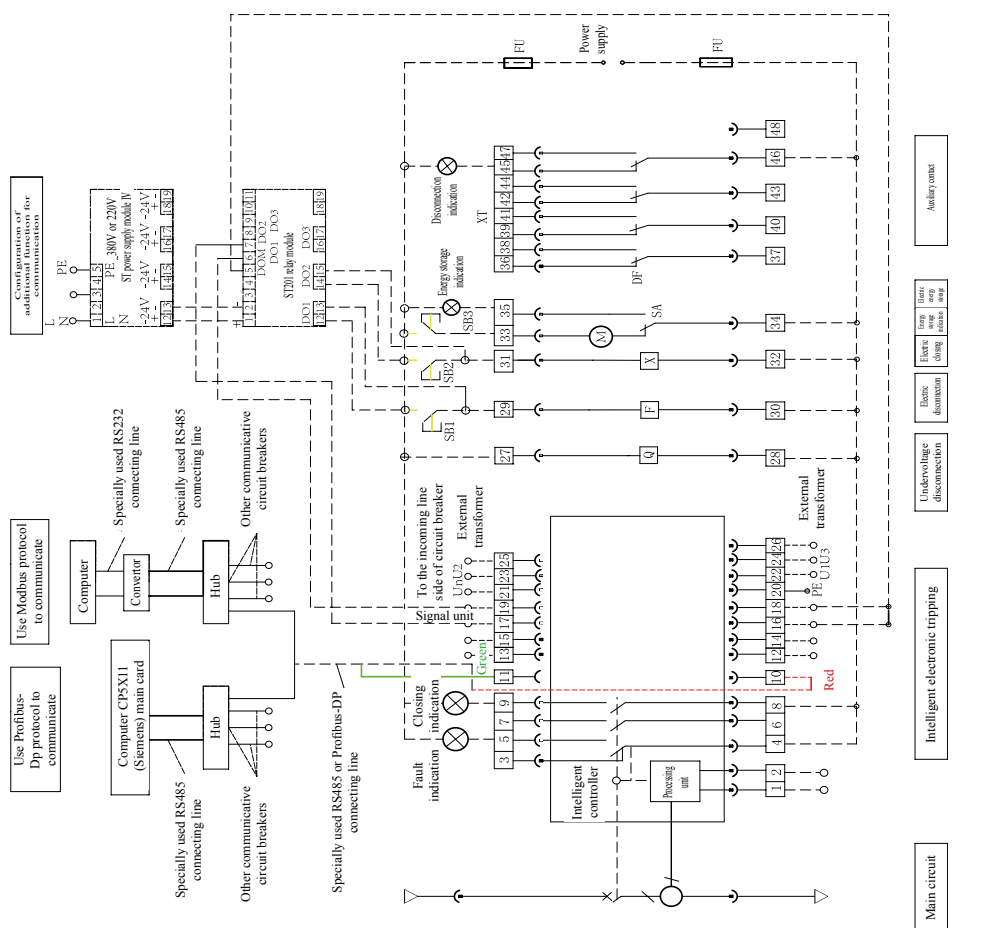
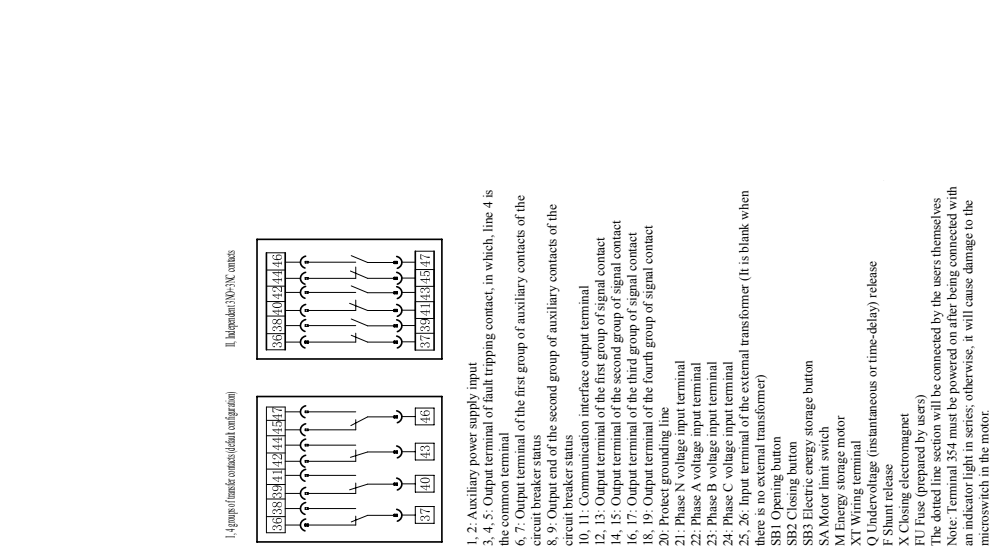
14 Electrical Schematic Diagram

14.1 48 circuit wiring diagram of TGW1N-1600 circuit breaker with (M, 3M) controller



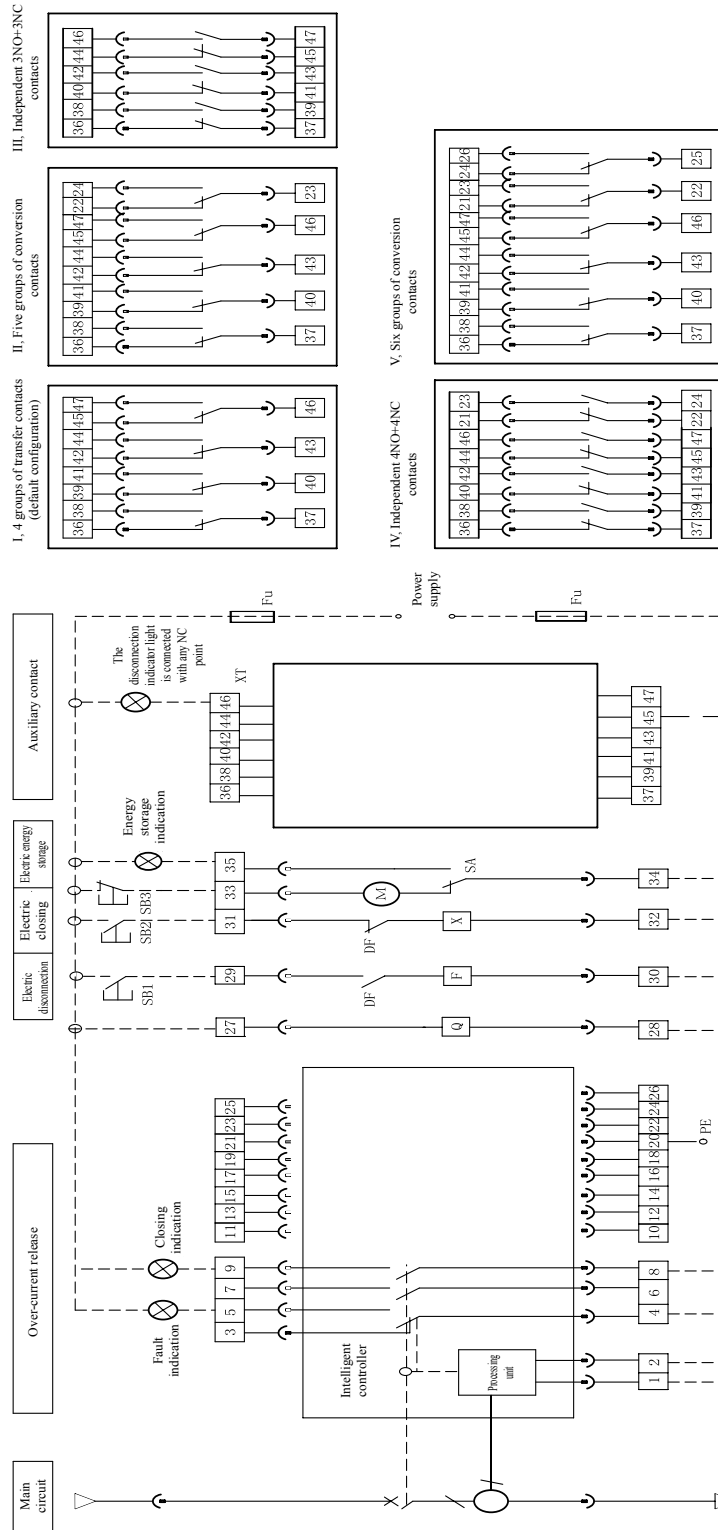
TGW1N Series Air Circuit Breaker

14.2 48 circuit wiring diagram of TGW1N-1600 circuit breaker with 3H controller



TGW1N Series Air Circuit Breaker

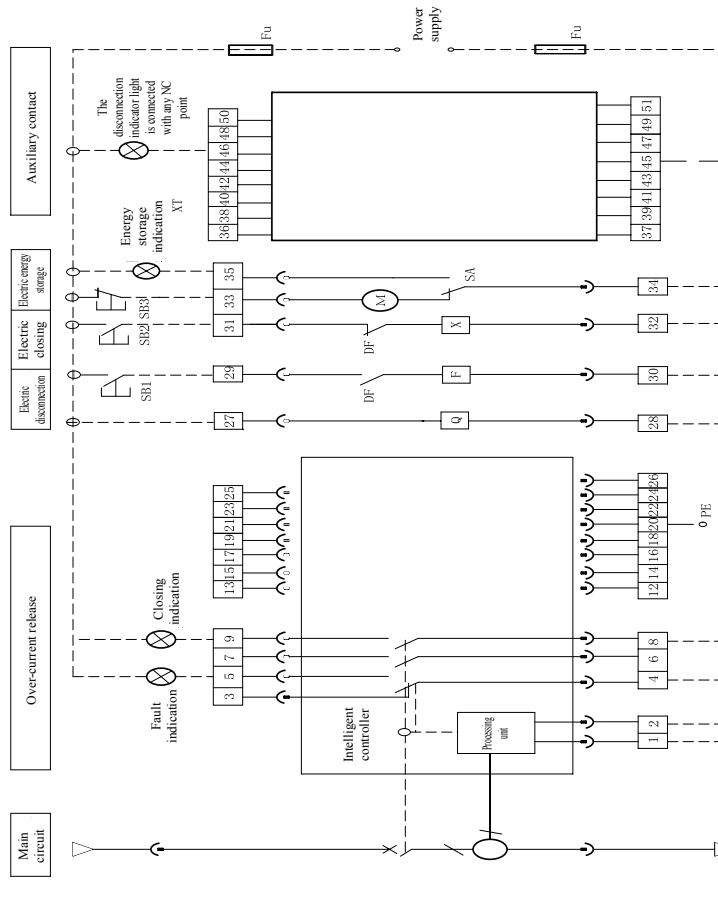
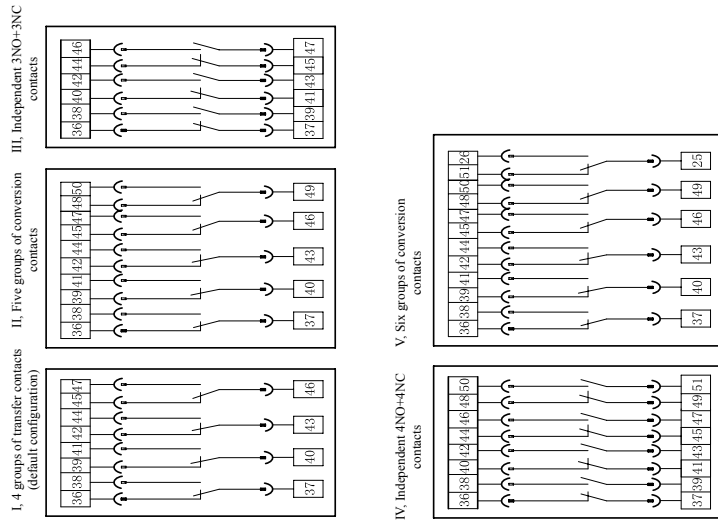
14.3 47 circuit wiring diagram of TGW1N-2000-6300 circuit breaker with (M, 3M) controller (48 circuit for the drawer type, 48# is empty)



- 1, 2: Auxiliary power supply input
 - 3, 4, 5: Output terminal of fault tripping contact, in which, line 4 is the common end
 - 6, 7: Output terminal of the first group of auxiliary contacts of the circuit breaker status
 - 8, 9: Output terminal of the second group of auxiliary contacts of the circuit breaker status
 - 10, 11: Null
 - 12, 13: Output terminal of the first group of signal contact
 - 14, 15: Output terminal of the second group of signal contact
 - 16, 17: Output terminal of the third group of signal contact
 - 18, 19: Output terminal of the fourth group of signal contact
 - 20: Being equipped when there is no external transformer
 - 21: Phase A voltage input terminal
 - 22: Phase B voltage input terminal
 - 23: Phase C voltage input terminal
 - 24: Phase C voltage input terminal
 - 25, 26: Input terminal of the external transformer (It is blank when there is no external transformer)
 - 27: Being equipped when there is a voltage measurement function
 - 28: Switching-OFF button
 - 29: Electric disconnection
 - 30: F
 - 31: SB1
 - 32: X
 - 33: SA
 - 34: M
 - 35: Electric closing
 - 36: SB2
 - 37: SB3
 - 38: Electric energy storage
 - 39: Energy storage motor
 - 40: XT
 - 41: Undervoltage (instantaneous or time-delay) release
 - 42: Being equipped when there is a voltage measurement function
 - 43: SBI
 - 44: Switching-OFF button
 - 45: SB2
 - 46: SB1
 - 47: SB2
 - 48: SB2
- Note: Terminal 35# must be powered on after being connected with an indicator light in series; otherwise, it will cause damage to the microswitch in the motor.

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14.4 51 circuit wiring diagram of TGW1N-2000-6300 circuit breaker with (M, 3M) controller (52 circuit for the drawer type, 52# is empty)



- 1, 2: Auxiliary power supply input
- 3, 4, 5: Output terminal of fault tripping contact, in which, line 4 is the common end
- 6, 7: Output terminal of the first group of auxiliary contacts of the circuit breaker status
- 8, 9: Output terminal of the second group of auxiliary contacts
- 10, 11: Communication interface output terminal
- 12, 13: Output terminal of the first group of auxiliary contacts of the second breaker status
- 14, 15: Output terminal of the second group of auxiliary contacts
- 16, 17: Output terminal of the third group of signal contact
- 18, 19: Output terminal of the fourth group of signal contact
- 20: Protect grounding line
- 21: Phase N voltage input terminal
- 22: Phase A voltage input terminal
- 23: Phase B voltage input terminal
- 24: Phase C voltage input terminal
- 25, 26: Input terminal of the external transformer (It is blank when there is no external transformer)
- 27: Being equipped when there is
- 28: Being equipped when there is
- 29: Being equipped when there is
- 30: Being equipped when there is
- 31: Being equipped when there is
- 32: Being equipped when there is
- 33: Being equipped when there is
- 34: Being equipped when there is
- 35: Being equipped when there is
- 36: Being equipped when there is
- 37: Being equipped when there is
- 38: Being equipped when there is
- 39: Being equipped when there is
- 40: Being equipped when there is
- 41: Being equipped when there is
- 42: Being equipped when there is
- 43: Being equipped when there is
- 44: Being equipped when there is
- 45: Being equipped when there is
- 46: Being equipped when there is
- 47: Being equipped when there is
- 48: Being equipped when there is
- 49: Being equipped when there is
- 50: Being equipped when there is
- 51: Being equipped when there is
- 52: Being equipped when there is

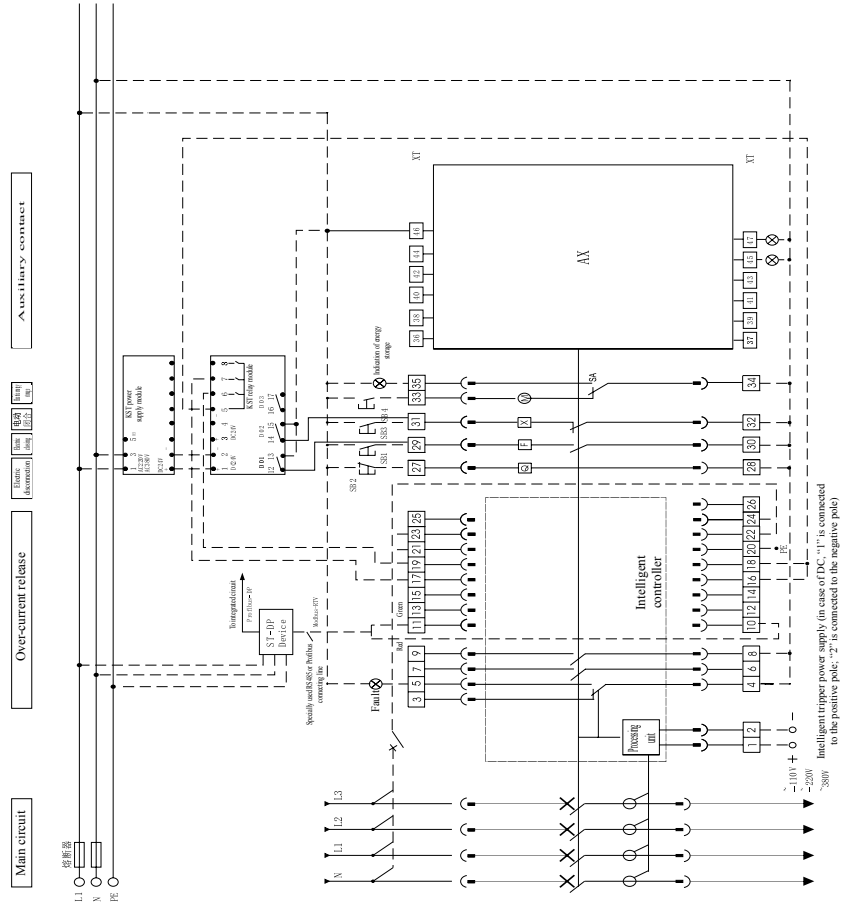
Note: Terminal 35# must be powered on after being connected with an indicator light in series; otherwise, it will cause damage to the microswitch in the motor.

- delay) release
- F Shunt release
- X Closing electromagnet
- FU Fuse (prepared by users)
- The dotted line section will be connected by the users themselves

- SB1 Switching-OFF button
- SB2 Switching-ON button
- SB3 Electric energy storage button
- SA Motor limit switch
- M Energy storage motor
- XT Wiring terminal
- Q Undervoltage (instantaneous or time-

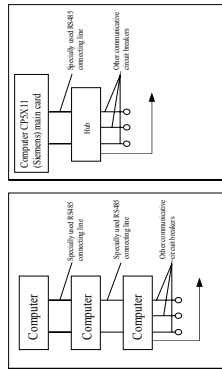
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14.5 47 secondary circuit wiring diagram of the circuit breaker with a (3H type) intelligent controller



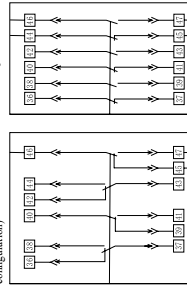
Wiring methods for users' communication protocol

I. Use Modbus protocol to communicate II. Use Profibus-DP protocol to communicate



Type of AX Auxiliary contact for users:

I., 4 groups of transfer contacts (default II., independent 3NO-3NC contact configuration)



- 1#: 2# Power supply of intelligent controller.
- 2#: 3# Phase A voltage input terminal.
- 3#: 4# Phase B voltage input terminal.
- 4#: 5# Phase C voltage input terminal.
- 5#: 6# Phase N voltage input terminal.
- 6#: 7# Protective grounding line.
- 7#: 8# Intelligent tripper power supply (in case of DC, "1" is connected to the positive pole, "2" is connected to the negative pole).
- 8#: 9# Output terminal of the first group of auxiliary contacts of the circuit breaker status.
- 9#: 10# Output terminal of the second group of auxiliary contacts of the circuit breaker status.
- 10#: 11# Communication interface output terminal.
- 11#: 12# Output terminal of the first group of signal contact.
- 12#: 13# Output terminal of the second group of signal contact.
- 13#: 14# Output terminal of the third group of signal contact.
- 14#: 15# Output terminal of the fourth group of signal contact.
- 15#: 16# Protective grounding line.
- 16#: 17# Phase N voltage input terminal.
- 17#: 18# Phase C voltage input terminal.
- 18#: 19# Phase B voltage input terminal.
- 19#: 20# Phase A voltage input terminal.
- 20#: 21# Protective grounding line.
- 21#: 22# Intelligent tripper power supply (in case of DC, "1" is connected to the positive pole, "2" is connected to the negative pole).
- 22#: 23# Output terminal of the first group of auxiliary contacts of the circuit breaker status.
- 23#: 24# Output terminal of the second group of auxiliary contacts of the circuit breaker status.
- 24#: 25# Communication interface output terminal.
- 25#: 26# Output terminal of the first group of signal contact.
- 26#: 27# Output terminal of the second group of signal contact.
- 27#: 28# Output terminal of the third group of signal contact.
- 28#: 29# Output terminal of the fourth group of signal contact.
- 29#: 30# Protective grounding line.
- 30#: 31# Phase N voltage input terminal.
- 31#: 32# Phase C voltage input terminal.
- 32#: 33# Phase B voltage input terminal.
- 33#: 34# Phase A voltage input terminal.
- 34#: 35# Protective grounding line.
- 35#: 36# Intelligent tripper power supply (in case of DC, "1" is connected to the positive pole, "2" is connected to the negative pole).
- 36#: 37# Output terminal of the first group of auxiliary contacts of the circuit breaker status.
- 37#: 38# Output terminal of the second group of auxiliary contacts of the circuit breaker status.
- 38#: 39# Communication interface output terminal.
- 39#: 40# Output terminal of the first group of signal contact.
- 40#: 41# Output terminal of the second group of signal contact.
- 41#: 42# Output terminal of the third group of signal contact.
- 42#: 43# Output terminal of the fourth group of signal contact.
- 43#: 44# Protective grounding line.
- 44#: 45# Phase N voltage input terminal.
- 45#: 46# Phase C voltage input terminal.
- 46#: 47# Phase B voltage input terminal.
- 47#: 48# Phase A voltage input terminal.
- 48#: 49# Protective grounding line.
- 49#: 50# Intelligent tripper power supply (in case of DC, "1" is connected to the positive pole, "2" is connected to the negative pole).
- 50#: 51# Output terminal of the first group of auxiliary contacts of the circuit breaker status.
- 51#: 52# Output terminal of the second group of auxiliary contacts of the circuit breaker status.
- 52#: 53# Communication interface output terminal.
- 53#: 54# Output terminal of the first group of signal contact.
- 54#: 55# Output terminal of the second group of signal contact.
- 55#: 56# Output terminal of the third group of signal contact.
- 56#: 57# Output terminal of the fourth group of signal contact.
- 57#: 58# Protective grounding line.
- 58#: 59# Phase N voltage input terminal.
- 59#: 60# Phase C voltage input terminal.
- 60#: 61# Phase B voltage input terminal.
- 61#: 62# Phase A voltage input terminal.
- 62#: 63# Protective grounding line.
- 63#: 64# Intelligent tripper power supply (in case of DC, "1" is connected to the positive pole, "2" is connected to the negative pole).
- 64#: 65# Output terminal of the first group of auxiliary contacts of the circuit breaker status.
- 65#: 66# Output terminal of the second group of auxiliary contacts of the circuit breaker status.
- 66#: 67# Communication interface output terminal.
- 67#: 68# Output terminal of the first group of signal contact.
- 68#: 69# Output terminal of the second group of signal contact.
- 69#: 70# Output terminal of the third group of signal contact.
- 70#: 71# Output terminal of the fourth group of signal contact.
- 71#: 72# Protective grounding line.
- 72#: 73# Phase N voltage input terminal.
- 73#: 74# Phase C voltage input terminal.
- 74#: 75# Phase B voltage input terminal.
- 75#: 76# Phase A voltage input terminal.
- 76#: 77# Protective grounding line.
- 77#: 78# Intelligent tripper power supply (in case of DC, "1" is connected to the positive pole, "2" is connected to the negative pole).
- 78#: 79# Output terminal of the first group of auxiliary contacts of the circuit breaker status.
- 79#: 80# Output terminal of the second group of auxiliary contacts of the circuit breaker status.
- 80#: 81# Communication interface output terminal.
- 81#: 82# Output terminal of the first group of signal contact.
- 82#: 83# Output terminal of the second group of signal contact.
- 83#: 84# Output terminal of the third group of signal contact.
- 84#: 85# Output terminal of the fourth group of signal contact.
- 85#: 86# Protective grounding line.
- 86#: 87# Phase N voltage input terminal.
- 87#: 88# Phase C voltage input terminal.
- 88#: 89# Phase B voltage input terminal.
- 89#: 90# Phase A voltage input terminal.
- 90#: 91# Protective grounding line.
- 91#: 92# Intelligent tripper power supply (in case of DC, "1" is connected to the positive pole, "2" is connected to the negative pole).
- 92#: 93# Output terminal of the first group of auxiliary contacts of the circuit breaker status.
- 93#: 94# Output terminal of the second group of auxiliary contacts of the circuit breaker status.
- 94#: 95# Communication interface output terminal.
- 95#: 96# Output terminal of the first group of signal contact.
- 96#: 97# Output terminal of the second group of signal contact.
- 97#: 98# Output terminal of the third group of signal contact.
- 98#: 99# Output terminal of the fourth group of signal contact.
- 99#: 100# Protective grounding line.

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15 Special environments

15.1 Derating under different temperatures

Ambient temperature		+40°C	+45°C	+50 °C	+55°C	+60 °C
Allowable continuous working current	TGW1N-2000/2000H	1In	0.95In	0.9In	0.85In	0.80In
	TGW1N-2500 (H) /3200 (H) /4000(H)	1In	0.92In	0.86In	0.81In	0.74In
	TGW1N-6300	1In	0.93In	0.87In	0.81In	0.75In

15.2 Derating requirements under different altitudes

When the altitude exceeds 2,000m, insulation performance, cooling performance and pressure in the atmosphere will change. Its performance shall be modified in accordance with the following table.

15.2.1 Voltage

Altitude (m)	Power frequency withstand voltage (V)	Insulation voltage (V)	Rated working voltage (V)
2000	2200	1000	1000
3000	1955	800	800
4000	1760	700	700
5000	1600	600	600

15.2.2 Current

Altitude (m)	Power frequency withstand voltage (V)
2000	Ie
2500	0.93
3000	0.88
3500	0.83
4000	0.78
4500	0.73
5000	Must contact the manufacturer

If the ambient temperature is +40°C~5°C, Ie=In; if the ambient temperature exceeds 40°C, derate in strict accordance with the requirements in the instructions, while Ie ≠ In. Ie shall be inquired in accordance with the current and temperature.

TGW1N Series Air Circuit Breaker

16 Dual power control system:

16.1 Dual power automatic transfer switch

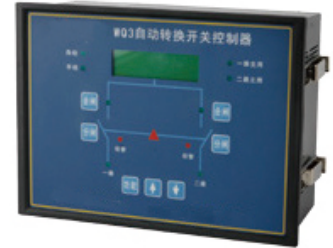
Dual power automatic transfer switch is CB grade. It mainly consists of two sets of TGW1N series intelligent Air Circuit Breaker and power transfer switch controller. It is suitable for three-phase four-wire power grid with the frequency of 50/60Hz, and rated working voltage of 415V. Dual power automatic transfer switch is divided into two types: automatic transfer and restoration, power grid- generation. When ordering the dual power automatic transfer switch, please note that:

- a. In order to prevent wrong wiring by the users, the dual power controller must be ordered together with the circuit breaker.
- b. Cable interlocking and 4 sets of transfer auxiliary contacts must be ordered simultaneously (3 sets of transfer contacts are used actually by users).
- c. The length of the special cable for dual power automatic controller is 2m. The length of the cable between two circuit breakers is 2m.
- d. Key lock is prevented for the circuit breaker with dual power automatic controller.
- e. The voltage of the control power supply of the dual power automatic controller is: AC220V.
- f. The circuit breaker with the dual power automatic controller shall not be equipped with the opening and closing status gate interlock.
- g. When the circuit breaker with the dual power automatic controller is equipped with a H type intelligent controller, the closing and opening functions of the remote-controlled circuit breaker shall not be used.
- h. The circuit breaker must be equipped with the undervoltage release.
- i. The circuit breaker and dual power supply automatic controller must be grounded reliably.
- J. Type of dual power automatic controller:

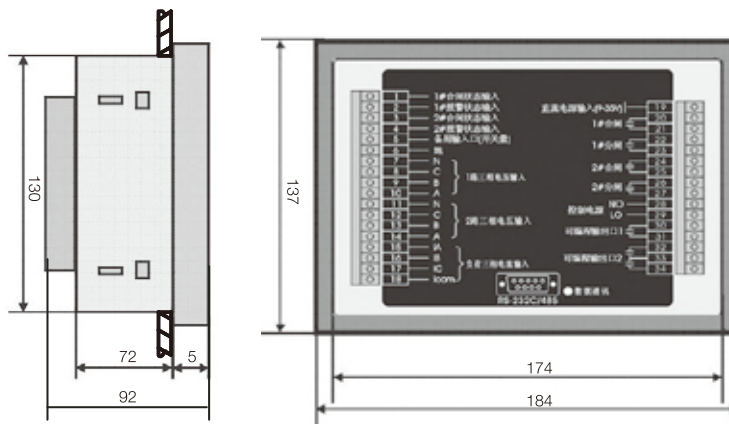
Power grid – power grid, automatic transfer and restoration type:

Power grid – power generation, automatic transfer and restoration type.

Note: After wiring, the user shall press “” and “”. If all lamps are on, it means that the product is qualified.



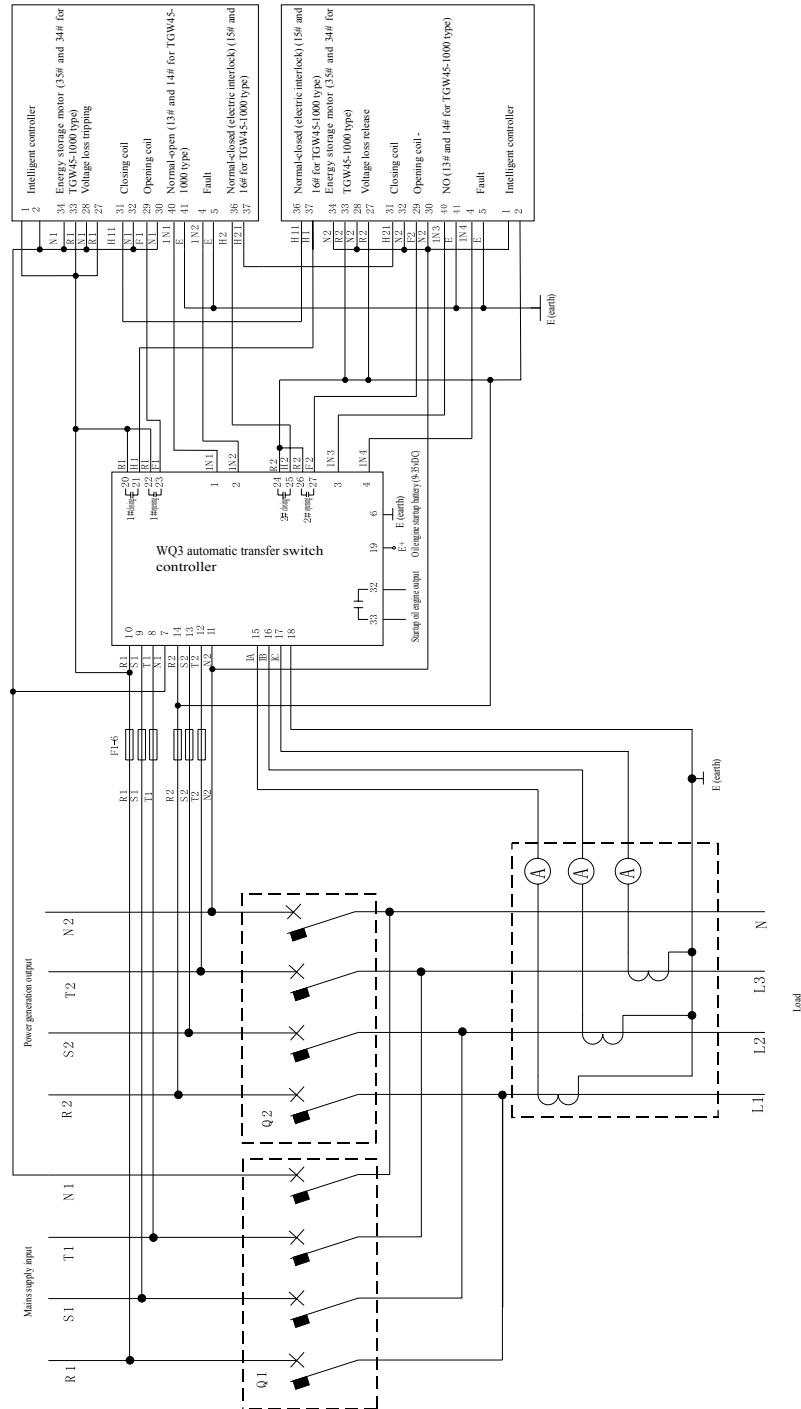
16.2 Outline and installation dimension of the dual power controller



Note: Panel hole size (localizable) is (175×131) mm.

TGW1N Series Air Circuit Breaker

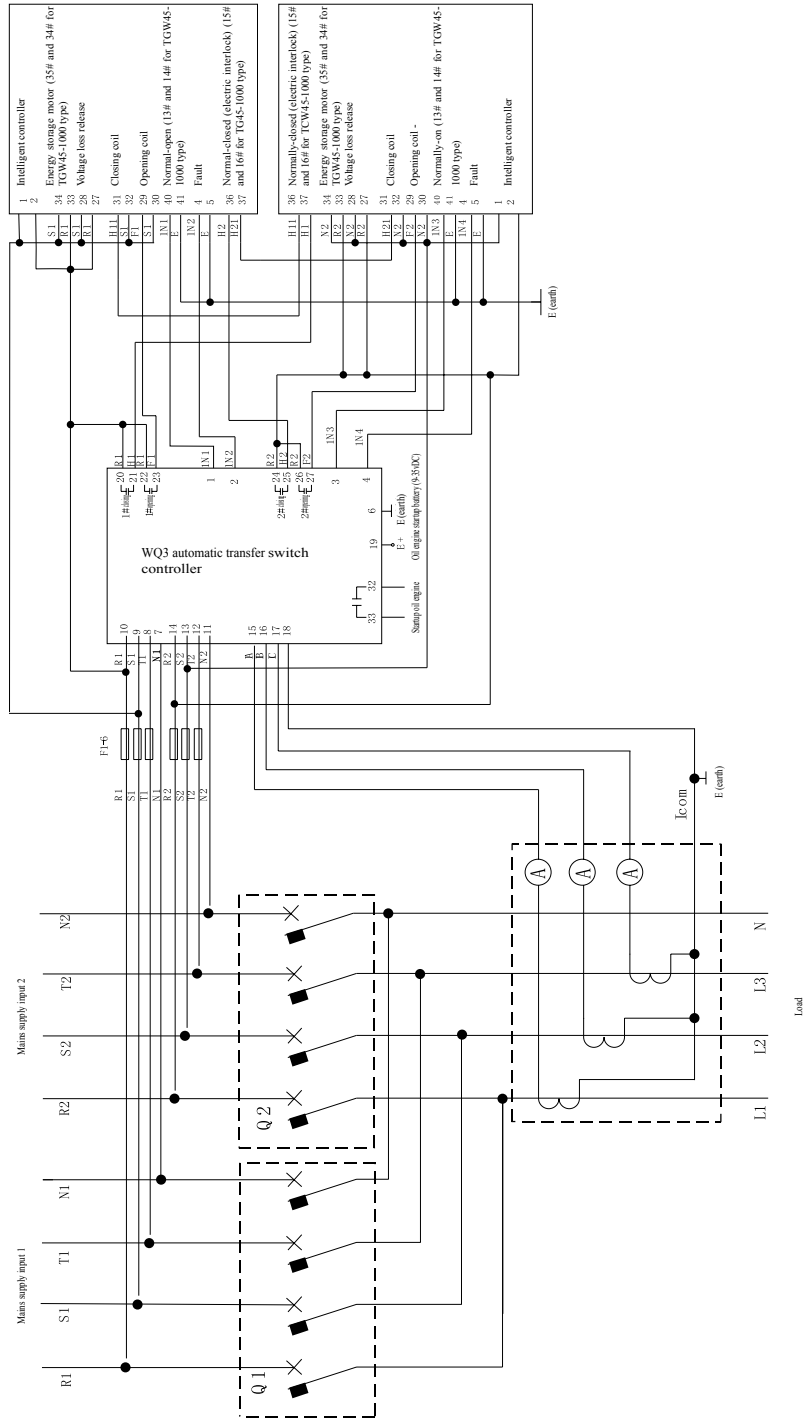
16.3 Dual power wiring diagram of TGW1N 4P circuit breaker.



- Note: 1. The working voltage of WQ3 dual power controller is AC220V
- 2. The AC transformer and ampere meter in the dotted box can be connected by users as needed, and can be reliably connected between ground and ground.
- 3. The voltage of the energy storage motor, undervoltage, shunt, closing and intelligent controller of TGW1N circuit breaker is AC220V.
- 4. If other wiring diagrams are required, they will be provided separately.
- 5. The codes of normally-on and normally-off points of auxiliary contacts of the circuit breaker are different depending on product configurations. See the wiring diagram of the product for details.

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Dual power wiring diagram of TGW1N four-pole circuit breaker.



- Note:
1. Voltage of the working power supply of the dual power controller is AC220V.
 2. The AC transformer and ampere meter in the dotted box can be connected by users as needed, and can be reliably connected between ground and ground.
 3. The voltage of the energy storage motor, undervoltage, shunt, closing and intelligent controller of TGW1N circuit breaker is AC380V.
 4. If other wiring diagrams are required, they will be provided separately.
 5. The codes of normally-on and normally-off points of auxiliary contacts of the circuit breaker are different depending on product configurations. See the wiring diagram of the product for details.

TGW1N Series Air Circuit Breaker

17 Ordering instructions

When ordering, please fill in the following table.

Buyer		Ordering quantity		Ordering time	
Model and specification	TGW1N-_____ (frame current class)	Pole number	<input type="checkbox"/> 3P <input type="checkbox"/> 4P	Installation mode	<input type="checkbox"/> Fixed type <input type="checkbox"/> Drawer-type
Rated current In= A					
Intelligent controller	Type	<input type="checkbox"/> M type (conventional) <input type="checkbox"/> 3M type <input type="checkbox"/> 3H type			
	Basic function	<input type="checkbox"/> Overload long-time delay protection <input type="checkbox"/> Short circuit short-time delay protection <input type="checkbox"/> Instantaneous short circuit protection <input type="checkbox"/> Single-phase grounding protection <input type="checkbox"/> Current display function <input type="checkbox"/> Fault memory function <input type="checkbox"/> Test function			
	Additional function	<input type="checkbox"/> Voltmeter function <input type="checkbox"/> Communications function <input type="checkbox"/> Electric leakage protection <input type="checkbox"/> MCR and HSISC <input type="checkbox"/> DO/DI function			
	Grounding mode	<input type="checkbox"/> 3PT <input type="checkbox"/> 4PT <input type="checkbox"/> (3P+N)T type shall be connected to an external transformer <input type="checkbox"/> (3P+N) W type shall be connected to an external transformer			
	Controller power supply	<input type="checkbox"/> AC220V/AC230V/AC240V <input type="checkbox"/> AC380V/AC400V/AC415V <input type="checkbox"/> DC220V <input type="checkbox"/> DC110V			
Standard accessories	<input type="checkbox"/> Shunt release	<input type="checkbox"/> AC220V/AC230V/AC240V <input type="checkbox"/> AC380V/AC400V/AC415V <input type="checkbox"/> DC220V <input type="checkbox"/> DC110V			
	<input type="checkbox"/> Closing electromagnet	<input type="checkbox"/> AC220V/AC230V/AC240V <input type="checkbox"/> AC380V/AC400V/AC415V <input type="checkbox"/> DC220V <input type="checkbox"/> DC110V			
	<input type="checkbox"/> Electric Motor operating mechanism	<input type="checkbox"/> AC220V/AC230V/AC240V <input type="checkbox"/> AC380V/AC400V/AC415V <input type="checkbox"/> DC220V <input type="checkbox"/> DC110V			
	<input type="checkbox"/> Auxiliary contact	<input type="checkbox"/> 4 groups of transfer contact (conventional) <input type="checkbox"/> 5 groups of transfer contact <input type="checkbox"/> Independent 3NO+3NC contacts			
Optional accessories	<input type="checkbox"/> Mechanical interlock	<input type="checkbox"/> Cable interlock <input type="checkbox"/> Hard lever interlock <input type="checkbox"/> Three locks with two keys <input type="checkbox"/> Two locks with one key <input type="checkbox"/> One key with one lock			
	<input type="checkbox"/> Undervoltage release	<input type="checkbox"/> AC220V/AC230V <input type="checkbox"/> AC240V <input type="checkbox"/> AC380V/AC400V <input type="checkbox"/> AC415V <input type="checkbox"/> Undervoltage instantaneous release <input type="checkbox"/> Undervoltage time-delay release (zero voltage) <input type="checkbox"/> 1s <input type="checkbox"/> 2s <input type="checkbox"/> 3s <input type="checkbox"/> 4s <input type="checkbox"/> 5s <input type="checkbox"/> 6s <input type="checkbox"/> 7s			
	<input type="checkbox"/> Phase partition				
	Connecting way	<input type="checkbox"/> Horizontal connection (conventional) <input type="checkbox"/> Vertical connection (the drawings shall be provided by the user)			
Remarks	For other special requirements, please fill them in the remark column.				
Note: 1, If there is no special requirement, the all current values and time values for protection of the controller shall be set according to the factory default value. 2, Only one type of external transformer can be selected. 3, For special requirements, please fill them in the remark column. 4, Voltages of the control circuit of TGW1N-2000-6300 type product don't include AC240V and AC415V.					