



AIR CIRCUIT BREAKER

ACB CHG, CSG SERIES

400A to 6,300 amps • Short circuit ranges up to 100 kA



Maximized customer's range of selection and level of satisfaction with compact size





Westinghouse

Leading The Future of Electrification

- A Global Heritage Brand with 130 Years of Product Innovation
- Perfect Products, Creative Services, and Competitive Price

Since 1886, Westinghouse Has Brought The Best To Life.

Westinghouse remains a trusted name globally in consumer and industrial products. Built on a heritage of innovation and entrepreneurial spirit, Westinghouse products were the first to supply the United States with AC electric power, transmit a commercial radio broadcast and capture man's first step on the moon. Today, Westinghouse continues to grow its diverse portfolio with a wide range of product categories that include home appliances, consumer electronics, lighting and power generation.

Characteristics

Multi

Bus bar terminal can be changed to horizontal/vertical

Vertical Type Horizontal Type

Certifications

Rated Impulse Withstand Voltage (U_{imp}) : 12 kV

Type per Rating

2 Frames, CSG 1,600/3,200 A
4 Frames, CHG 2,000/4,000/5,000/6,300 A

100 % N Phase Current Flow Capacity for all Types



A Frame [85 kA]

630 ~ 1,600 A (CSG) / 630 ~ 2,000 A (CHG)

B Frame [100 kA]

2,000 ~ 3,200 A (CSG) / 630 ~ 4,000 A (CHG)

C Frame [100 kA]

3,200 ~ 5,000 A (CHG)

D Frame [150 kA]

4,000 ~ 6,300 A (CHG)

Overview and Characteristics

Air Circuit Breaker (ACB)

Capable of Meeting to Various Customer Applications

CHG Series air circuit breaker is equipped with high breaking capacity and highly functional OCR, making various customer applications on industrial building, computer center, device industries and others possible. With all models designed with 100% n phase current flow capacity, the equipment is safely protected against abnormal phenomenon such as harmonics and others.

Equipped with Various Accessories and Highly Functional Protection Trip Relay (OCR)

Over Current Relay (Trip Relay)

Apart from the basic protection functions, OCR has reinforced power monitoring functions such as temperature monitoring, fault recording and storage etc., enabling stable power supply.

N Type

- Overcurrent Protection (L/S/I/G)
- World's First NFC Function Applied
- Fault Recording (10) and Waveform (4 Cycles, Check Via Communication) can be Transmitted to Mobile Phone App

A Type

- Overcurrent Protection (L/S/I/G)
- Self Power
- Individual Continuous Power Contact
- Fault Recording (256) and Waveform (4 Cycles, Check Via Communication)
- Communication (MODBUS), External Grounding CT/Earth Leakage ZCT can be used

P Type

- Overcurrent Protection (L/S/I/G)
- External Power
- Individual Continuous Power Contact
- Fault Recording (256) and Waveform (4 Cycles, Check Via Communication)
- Over-Voltage/Under-Voltage, Power, Power Factor, Energy Display

H Type

- L/S/I/G Functions
- External Power
- Individual Continuous Power Contact
- Fault Recording (256) and Waveform (4 Cycles, Check Via Communication)
- L/S/I/G Minute Current Adjustment
- Voltage/Current Harmonics (1 st ~ 63 th) Analysis
- View 3 Phase Waveform

Bus Bar Terminal can be Changed to Horizontal/Vertical

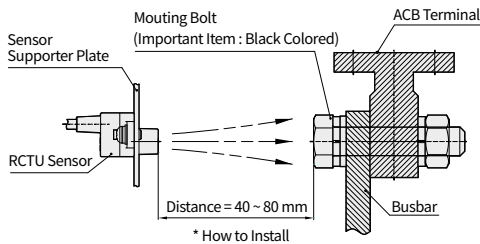
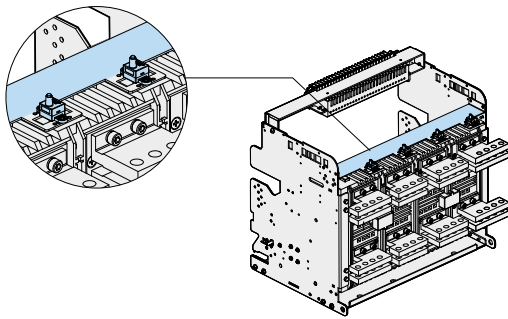
Connection method can be changed flexibly according to the customer's panel structure

- CSG/CHG A frame 630 ~ 1,600 A
- CSG/CHG B frame 630 ~ 3,200 A
- CHG C frame 5,000 A
- CHG D frame 5,000 A, 6,000 A

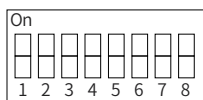
Equipped with Temperature Sensor (Optional)

Reliable high temperature measurement with sensor measurement of the heat source (Range of measurement : -5 to 250 degrees)

Example of IR Sensor Application

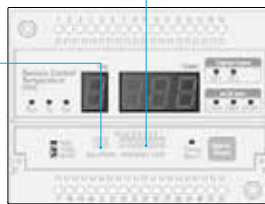


Address Setting : 1 ~ 240

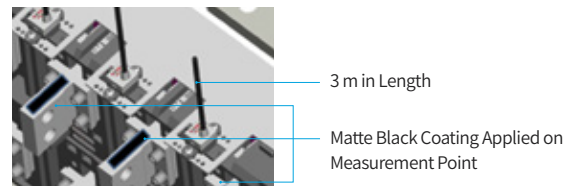
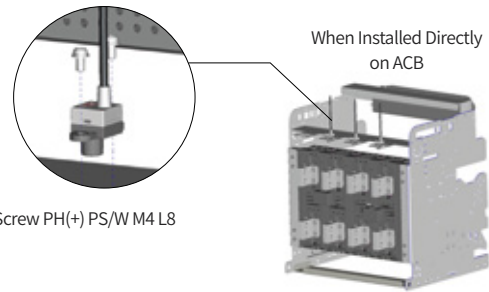


Baud Rate Setting

On	Set	Description
Off	Off	9,600
Off	On	19,200
On	Off	38,400



Installation of IR Sensor



- IR temperature sensor has to be installed with sufficient insulation distance from the point to be measured
- The recommended distance between the measurement point and temperature sensor is 50 ~ 80 mm.
- The measurement point has to be a surface without reflection due to the characteristics of the IR sensor and matte black painting is recommended for the measurement point.

⚠ Caution

1. The measurement value of the IR sensor differs depending on the reflection rate of the metal surface. Surfaces coated with matte black or surface with varnish excluding metallic varnish must be measured.
2. The size of measurement point differs depending on the D:S Ratio for the surface to be measured and the IR distance. This sensor has a ratio of 8:1.

Applicable Standards and Certifications

Air Circuit Breaker has acquired testing/certifications from IEC 60947-1, 2 certified testing institute and can be installed and applied according to the usage environment and conditions permitted by the standards.



Available Standards and Certifications

- KS Certification : KS C 4620
- CB Certification (DEKRA, KERI) : IEC 60947-1, 2
- CE Mark

Technical Data

External Structure

3

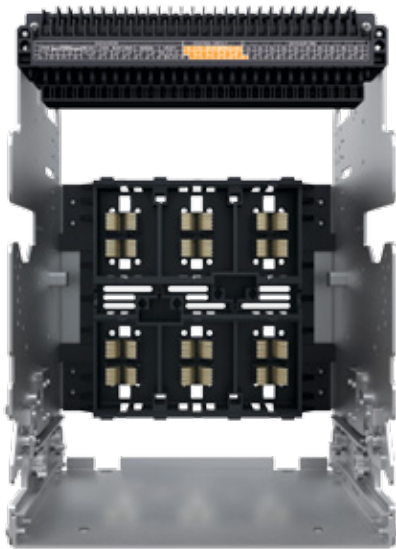
Air Circuit Breakers



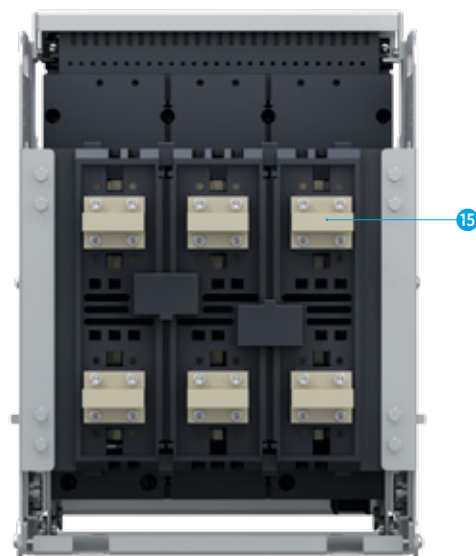
Fixed Type



Draw-In/Out Type (Including Cradle)



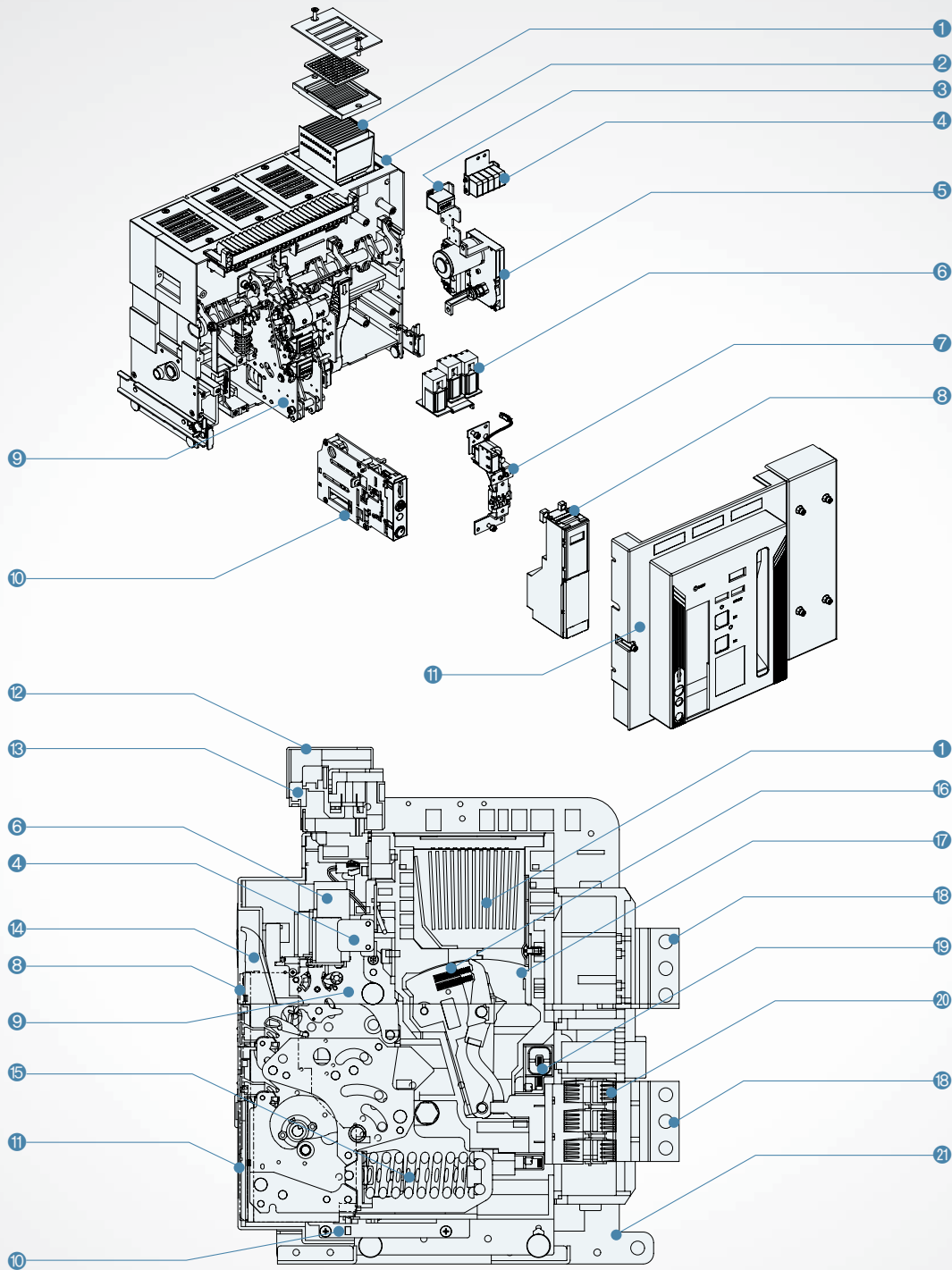
Cradle Front



Cradle Rear

- | | | |
|----------------------------|-------------------------------------|---------------------------------|
| 1 Control Circuit Terminal | 7 Position Padlock | 13 Manual Charging Handle |
| 2 Front Cover | 8 Position Lock Release Button | 14 Rating Nameplate |
| 3 Close/Open Indicator | 9 Draw-In/Out Handle Insertion Hole | 15 Terminal Busbar |
| 4 Close Button | 10 Position Indicator | 16 OCR & Alarm S/W Reset Button |
| 5 Overcurrent Relay Device | 11 Counter | 17 Draw-In/Out Guide Rail |
| 6 Open Button | 12 Charged/Discharged Indicator | |

Internals Structure



- | | | | |
|-------------------------|--------------------------------------|---------------------------|------------------------|
| 1 Arc chamber | 7 MHT device | 13 Control terminal | 19 Current transformer |
| 2 Frame | 8 Protection trip relay (OCR) | 14 Manual charging handle | 20 Terminal clip |
| 3 Counter | 9 Mechanism | 15 Closing spring | 21 Cradle |
| 4 Auxiliary switch | 10 Draw-in/out device | 16 Moving contact | |
| 5 Motor | 11 Front cover | 17 Fixed contact | |
| 6 Closing/Trip/UVT coil | 12 Control terminal protection cover | 18 Terminal busbar | |

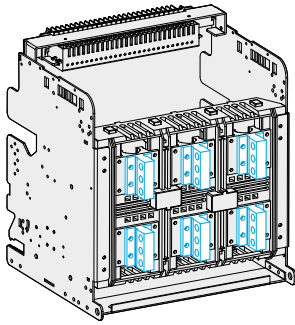
Technical Data

Connection Method

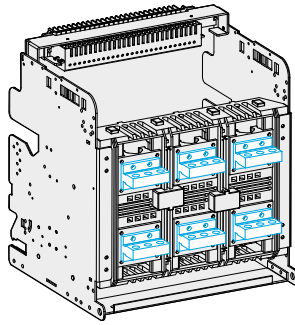
User convenience has been reinforced by allowing each terminal to be rotated 90 degrees directly on site depending on the busbar type of low voltage switchgear.

Standard Type

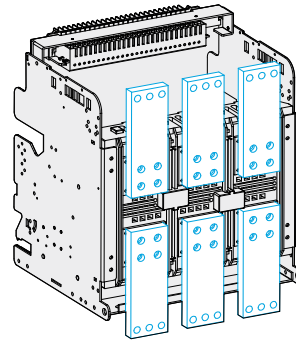
Vertical Type



Horizontal Type

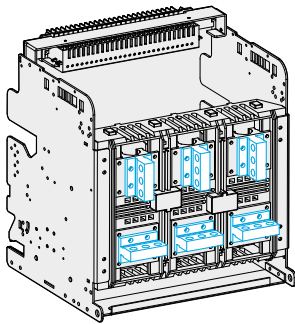


Front Type

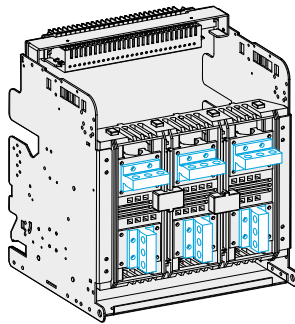


Combined Type

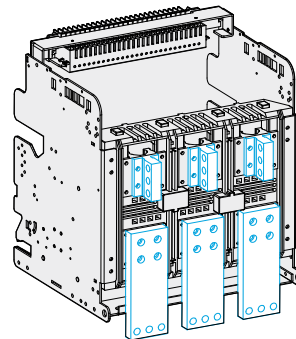
(Upper) Vertical Type +
(Lower) Horizontal Type



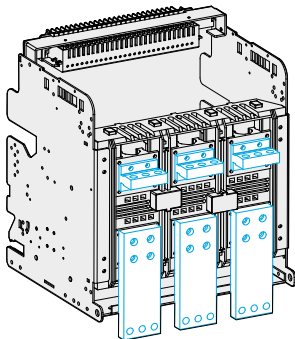
(Upper) Horizontal Type +
(Lower) Vertical Type



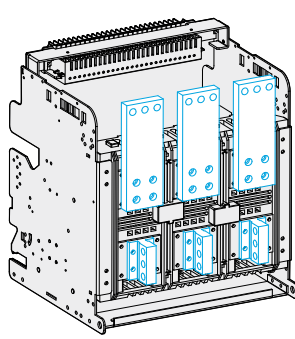
(Upper) Vertical Type +
(Lower) Front Type



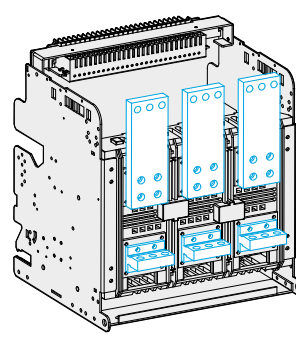
(Upper) Horizontal Type +
(Lower) Front Type



(Upper) Front Type +
(Lower) Vertical Type



(Upper) Front Type +
(Lower) Horizontal Type



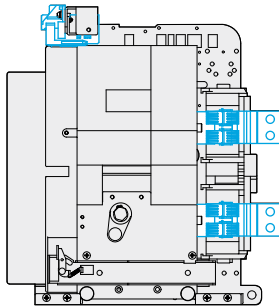
※ Terminal change is only possible for CSG/CHG A frame 630 ~ 1,600 A, B frame 2,000 ~ 3,200 A.
Front type is a terminal form that is suitable for switchgear with spatial restrictions.
Horizontal/vertical change above 4,000 A requires separate parts so please contact our company.
In case of B frame, 3,200 A terminal is provided as for the front type provided separately for 2,000/2,500 A.
Front type terminal has to be purchased separately.

Convenient Connection Method

As for CSG,CHG Series air circuit breaker, 4 types of mounting (Connected, test, isolated, removed) are possible and offer easy maintenance.

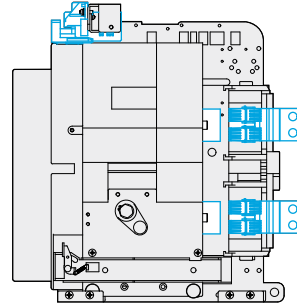
Connected Position

As a commonly used status, the main circuit and control circuit are both connected.



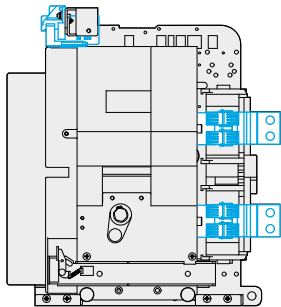
Test Position

As a status in which the main circuit is isolated and the control circuit is connected, the circuit breaker can be turned On/Off with the switchgear door closed.



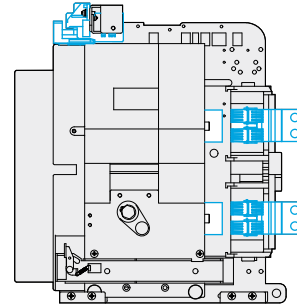
Isolated Position

With the main circuit and control circuit both isolated, the air circuit cannot be turned On/Off Remotely.



Removed Position

The air circuit Breakers has completely been removed from the cradle.

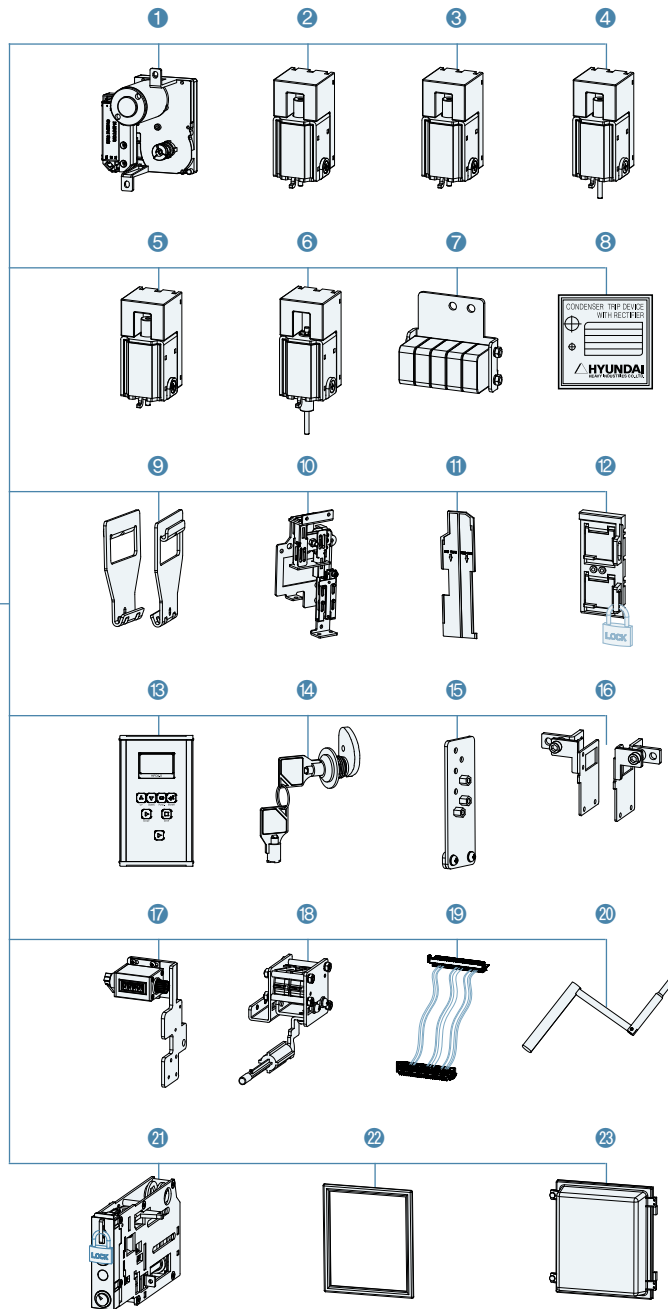


Technical Data

Various Accessories (Main Unit)

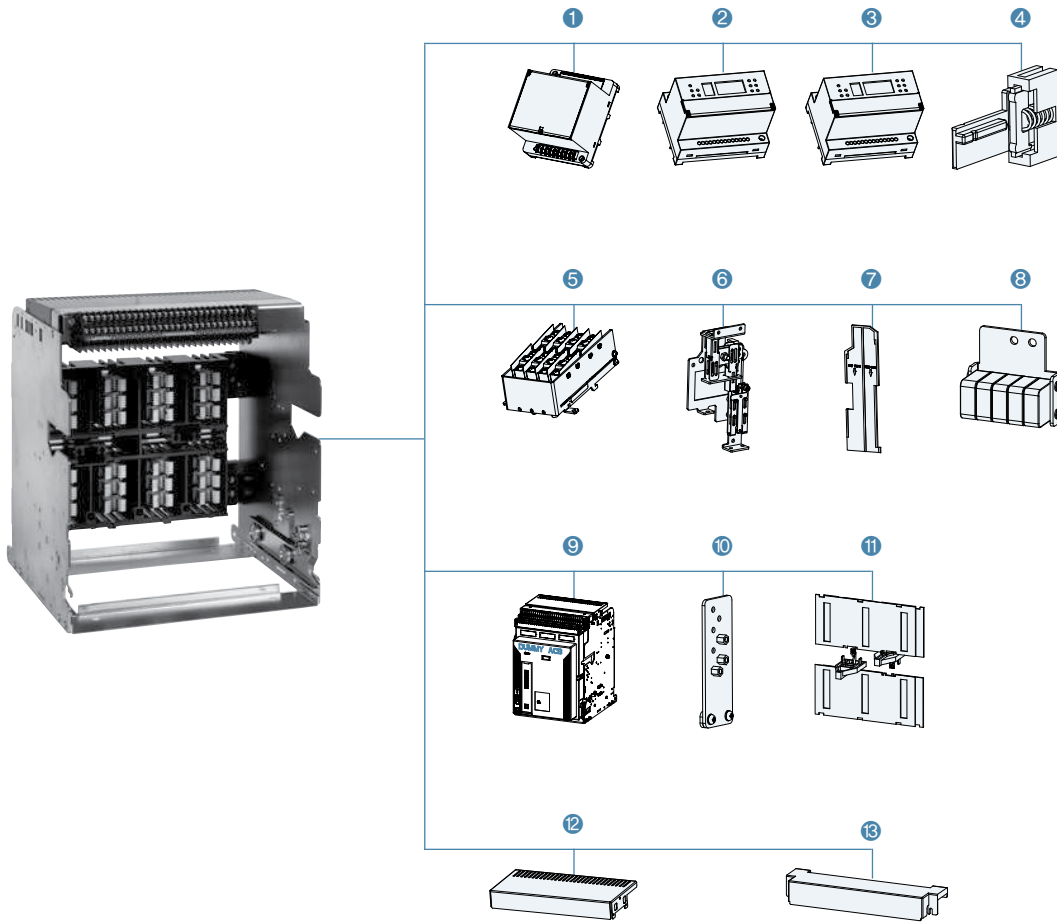
3 Air Circuit Breakers

[Body]



- | | | | |
|---------------------------|----------------------------|-----------------------------------|--|
| ① Motor | ⑦ Auxiliary switch | ⑬ OCR portable checker | ⑲ Test jumper |
| ② Closing coil | ⑧ Condenser trip device | ⑭ Key lock device | ⑳ Draw-in/out handle |
| ③ Trip coil | ⑨ Lifting lug | ⑮ Miss-insertion preventer | ㉑ Draw-in/out and position lock device |
| ④ Double trip coil | ⑩ Mechanical interlock kit | ⑯ Fixing block | ㉒ Door flange |
| ⑤ Trip supervision coil | ⑪ Phase insulation barrier | ⑰ Counter | ㉓ Dust cover |
| ⑥ Under voltage trip coil | ⑫ ON/OFF button cover | ⑱ OCR & Alarm switch reset device | |

[Cradle]



- | | | |
|--------------------------------|---|-------------------------------------|
| ① UVT time delay controller | ⑥ Mechanical interlock kit | ⑪ Safety shutter |
| ② Remote operation module | ⑦ Phase insulation barrier | ⑫ Arc shield |
| ③ Temperature detection module | ⑧ Mechanical operated cell (MOC) switch | ⑬ Control terminal protection cover |
| ④ Short "b" contact | ⑨ Dummy ACB | |
| ⑤ Position switch | ⑩ Miss-insertion preventer | |

Model Selection Table

Rating and Specification

Model Name			CSG		CHG			
Item			A Frame	B Frame	A Frame	B Frame	C Frame	D Frame
Rated Current [In max]	Based on 50 °C	A	06 : 630	20 : 2,000	06 : 630	06 : 630	32 : 3,200	40 : 4,000
			08 : 800	25 : 2,500	08 : 800	08 : 800	40 : 4,000	50 : 5,000
			10 : 1,000	32 : 3,200	10 : 1,000	10 : 1,000	50 : 5,000	63 : 6,300
			12 : 1,250		12 : 1,250	12 : 1,250		
			16 : 1,600		16 : 1,600	16 : 1,600		
					20 : 2,000	20 : 2,000		
						25 : 2,500		
					32 : 3,200			
					40 : 4,000			
Rated Operational Voltage [Ue]	V		690		690			
Rated Insulation Voltage [Ui]	V		1,000		1,000			
Frequency	Hz		50/60		50/60			
No. of Poles	P		3, 4		3, 4			
Current Setting Range (... × In max)	A		0.4 ~ 1.0		0.4 ~ 1.0			
Rated Current of Neutral Pole (N) (... % × In)	A		100 %	100 %	100 %	100 %	100 %	100 %
Rated Breaking Capacity [Icu] [Sym]								
IEC 60947-2 Category "B" KS C 4620	AC	690/600/550 V	50	70 ¹⁾ (KS : 65)	65	85	85	100
		500/480/460 V	65	85	85	100	100	150
		415/380/230/220 V	65	85	85	100	100	150
Rated Service Short-Circuit Breaking Capacity [Ics] (... % × Icu)	kA		100 %	100 %	100 %	100 %	100 %	100 %
Rated Closing Current [Icm] [Peak]								
IEC 60947-2 Category "B" KS C 4620	AC	690/600/550 V	105	154	143	187	187	220
		500/480/460 V	143	187	187	220	220	330
		415/380/230/220 V	143	187	187	220	220	330
Rated Short-Time withstand Voltage [Icw] (Without Inst)								
1 Second	kA		50	70	65	85	85	100
2 Seconds	kA		35	65	42	75	75	85
3 Seconds	kA		28	50	35	65	65	75
Rated Impulse withstand Voltage [Uimp]	kV		12		12			
Total Breaking-Time	ms		40 ³⁾		40 ³⁾			
Closing Operational Time								
Motor Charging Time (sec) max.			10		10			
Rated Trip Time (ms) max.			80		80			
Lifecycle (Cycles)								
Mechanical	Without Maintenance		20,000	20,000	20,000	20,000	10,000	5,000
	With Maintenance		30,000	30,000	30,000	30,000	15,000	10,000
Electrical	Without Maintenance		5,000	5,000	5,000	20 : 5,000 25 ~ 40 : 3,000	2,000	2,000
	With Maintenance		10,000	10,000	10,000	20 : 10,000 25 ~ 40 : 8,000	5,000	5,000
Weight								
3 Pole	Draw-Out Type		63	87	63	87 (107) ²⁾	145	169
	Fixed Type		34	44	34	44 (61) ²⁾	76	108
4 Pole	Draw-Out Type		74	103	74	103 (140) ²⁾	173	214
	Fixed Type		44	55	44	55 (80) ²⁾	81	137
(W×H×D)								
3 Pole	Draw-Out Type		328×460×368.4	399×460×368.4	328×460×368.4	399×460×368.4	624×460×368.4	766×460×368.4
	Fixed Type		337.4×404.4×295.8	408.4×404.4×295.8	337.4×404.4×295.8	408.4×404.4×295.8	633.4×404.4×295.8	775.4×404.4×295.8
4 Pole	Draw-Out Type		413×460×368.4	514×460×368.4	413×460×368.4	514×460×368.4	794×460×368.4	996×460×368.4
	Fixed Type		422.4×404.4×295.8	523.4×404.4×295.8	422.4×404.4×295.8	523.4×404.4×295.8	803.4×404.4×295.8	1,005×404.4×295.8

※ 1) 70 kA is DEKRA certified
 2) 4,000 AF
 3) In case of MCR and override setting, INST is 50 ms.

Life time is the limit lifespan and is not the guaranteed lifespan. In case of maintenance, it is charged. In the event of abnormalities in accessories during use, it can be replaced.
 Quality Assurance : Based on IEC 60947-2's number of opening/closing within the warranty period.

Over Current Relay (OCR)

Function	General Feeder					Generator (Marine Type)			
	N Type	A Type			P Type	H Type	N Type	A Type	P Type
Model Name	WPRO-LN	WPRO-LA	WPRO-LAG	WPRO-LAZ	WPRO-LP	WPRO-LH	WPRO-SN	WPRO-SA	WPRO-SP
Frequency									
50 Hz	50	51	52	53	54	55	57	58	59
60 Hz	60	61	62	63	64	65	67	68	69
Control Power									
External Power	—	●	●	●	●	●	—	●	●
Self-Power	●	●	●	●	●	●	●	●	●
Protection Function									
LTD (Long Time)	●	●	●	●	●	●	●	●	●
STD (Short Time)	●	●	●	●	●	●	●	●	●
INST (Instantaneous)	●	●	●	●	●	●	●	●	●
Pre-Trip Alarm	—	●	●	●	●	●	—	●	●
Ground Fault Trip	●	●	—	—	●	●	—	—	—
ELT Function	—	—	● Outer CT Ground ²⁾ (Ground fault at more than 30 A)	● ZCT Earth Leakage ³⁾ (Below 30 A)	—	—	—	—	—
Thermal Function	●	●	●	●	●	●	●	●	●
Field Test	—	●	●	●	●	●	—	●	●
Fail Safe	●	●	●	●	●	●	●	●	●
Indication									
True RMS Detection Method	●	●	●	●	●	●	●	●	●
LED Indication per Trip Type	—	●	●	●	●	●	—	●	●
Fault LED	L ¹⁾	PTA, L, S/I, G	PTA, L, S/I, leakage	PTA, L, S/I, leakage	PTA, L, S/I, G	PTA, L, S/I, G	L ¹⁾	PTA, L, S/I	PTA, L, S/I
Real-Time LCD Indication of Load Rate per Phase	—	●	●	●	●	●	—	●	●
Measurement LCD	—	●	●	●	●	●	—	●	●
Output Contact									
Integrated Instantaneous Contact (1a)	●	—	—	—	—	—	—	—	—
Individual Continuous Contact (4a)	—	●	●	●	●	●	—	● ⁴⁾	● ⁴⁾
Operation									
MCR	—	○	○	○	○	○	—	○	○
Communication	NFC	Modbus-RTU	Modbus-RTU	Modbus-RTU	Modbus-RTU	Modbus-RTU	NFC	Modbus-RTU	Modbus-RTU
Event/Fault Recording	●	●	●	●	●	●	●	●	●

※ ● : Standard, ○ : Option

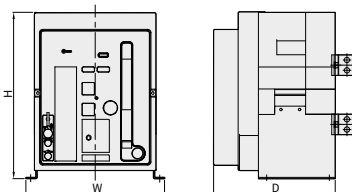
¹⁾ Indicates reserve before operation during long time delay.

²⁾ ZCT designated by the customer is used.

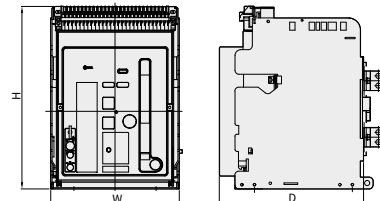
³⁾ ZCT designated by our company is used.

⁴⁾ As for marine type, individual continuous contact is 3a.

Fixed Type



Draw-Out Type



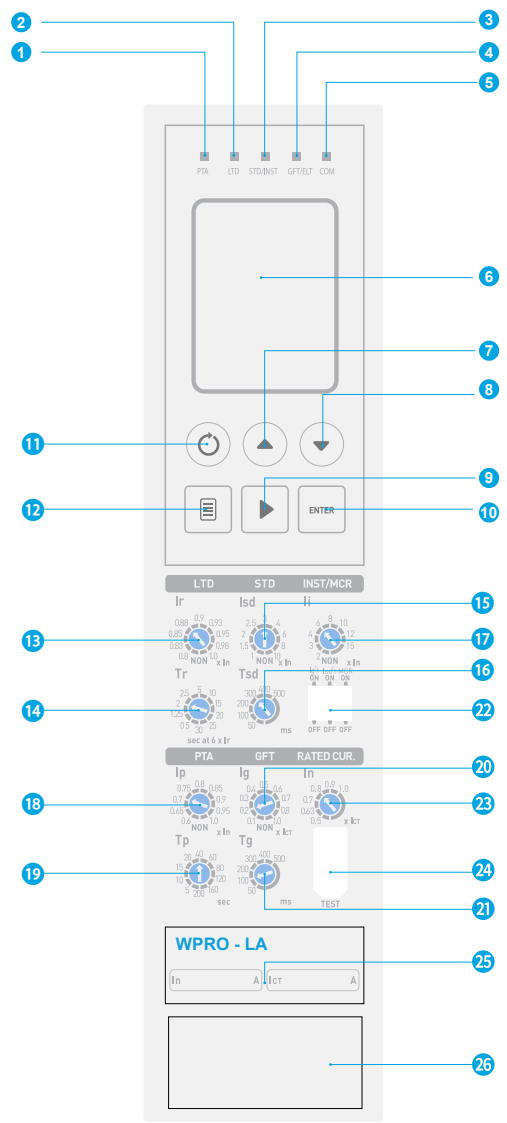
Accessories

Over Current Relay (OCR)

External

3

Air Circuit Breakers



- | | | | |
|----------------------------|---------------------------------|-------------------------------------|--|
| 1 PTA Signal LED | 8 LTD Test Button | 15 STD Pick Up Setting | 22 GFT/STD (Inverse Time Setting), MCR On/Off Setting Switch |
| 2 LTD Signal LED | 9 Movement Button | 16 STD Operational Time Setting | 23 In (Rated Current) Setting |
| 3 STD/INST Signal LED | 10 Enter Button | 17 INST Pick Up Setting | 24 Temporary Test Connection Jack |
| 4 GFT/ELT Signal LED | 11 Reset Button | 18 PTA Pick Up Setting | 25 Model Name |
| 5 Com. Signal LED | 12 Menu Button | 19 PTA Operational Time Setting | 26 Battery |
| 6 LCD/NFC Antenna (LN, SN) | 13 LTD Pick Up Setting | 20 GFT/ELT Pick Up Setting | |
| 7 STD/INST Test Button | 14 LTD Operational Time Setting | 21 GFT/ELT Operational Time Setting | |

● Self-power functions normally in the case of 10 % for 3 phases and 30 % for a single phase. However, when 200 A ~ 320 A CT is used, it functions normally in case of 50 % for 3 phase and more than 100 % for single phase.

When using MCR function, mark B8 in the name of order type. Auxiliary contact point is 4a5b.

The lifespan of the battery is usually 10 years so in case it is time for replacement, contact our customer support division and services can be received at a cost.

High/low test function is automatically disabled when a load current is applied.

Accessories

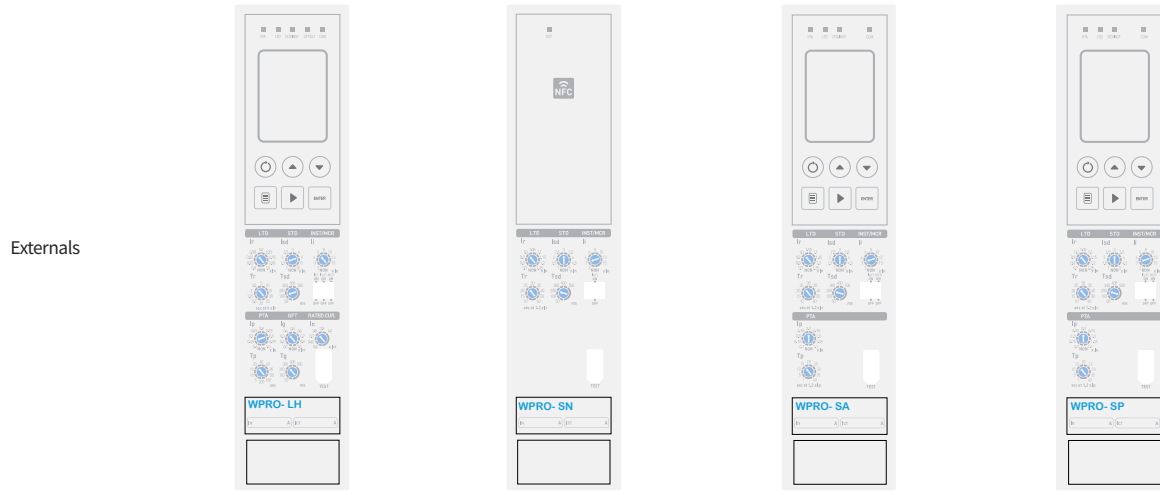
Over Current Relay (OCR)

Enhancement of Over Current Relay (OCR) Functions

Over current relay (OCR) built in the CHG Series air circuit breaker has reinforced power monitoring functions such as temperature monitoring, fault recording other than the basic protection function, ultimately enabling stable power supply.

Item	General Feeder					
	N Type	A Type		P Type		
Model Name	WPRO-LN	WPRO-LA	WPRO-LAG (Outer CT Ground)	WPRO-LAZ (Outer CT Earth Leakage)	WPRO-LP	
Externals						
Frequency	50 Hz 60 Hz	50 60	51 61	52 62	53 63	54 64
Main Functions	<ul style="list-style-type: none"> L/S/I/G Thermal Self-Power Fail Safe Integrated Instantaneous Contact 10 ea Fault Recording (Check Via Communication) Last Fault's Waveform Recording (4 Cycles, Check Via Communication) 	<ul style="list-style-type: none"> L/S/I/G Thermal Self-Power Fail Safe Communication (Modbus) External Power ZSI Remote Reset Function Individual Continuous Contact : LTD, STD/INST, GFT, PTA 256 ea Fault Recording Last Fault's Waveform Recording (4 Cycles, Check Via Communication) 200 ea Event Recording (Check Via Communication) 	<ul style="list-style-type: none"> L/S/I Uses Dedicated Outer CT Ground if Outer CT Ground (More than 30 A) > 5 A at Secondary Thermal Self-Power Fail Safe Communication (Modbus) External Power ZSI Remote Reset Function Individual Continuous Contact : LTD, STD/INST, GFT, PTA 256 ea Fault Recording Last Fault's Waveform Recording (4 Cycles, Check Via Communication) 200 ea Event Recording (Check Via Communication) 	<ul style="list-style-type: none"> L/S/I Uses Dedicated Outer CT if ZCT Earth Leakage (Below 30 A) > 1,000 : 1 A Thermal Self-Power Fail Safe Communication (Modbus) External Power ZSI Remote Reset Function Individual Continuous Contact : LTD, STD/INST, GFT, PTA 256 ea Fault Recording Last Fault's Waveform Recording (4 Cycles, Check Via Communication) 200 ea Event Recording (Check Via Communication) 	<ul style="list-style-type: none"> L/S/I/G Thermal Self-Power Fail Safe Communication (Modbus) External Power ZSI Remote Reset Function Individual Continuous Contact : LTD, STD/INST, GFT, PTA 256 ea Fault Recording Last Fault's Waveform Recording (4 Cycles, Check Via Communication) 200 ea Event Recording (Check Via Communication) Over-Voltage/Under-Voltage Imbalance Type (Voltage/Current) Reverse Power 3 Phase Voltage/Current RMS/Vector Power (P, Q, S), Power Factor (3 Phase) Energy (Normal/Reverse Direction) Demand 	

Item	General Feeder	Generator (Marine Type)		
	H Type	N Type	A Type	P Type
Model Name	WPRO-LH	WPRO-SN	WPRO-SA	WPRO-SP



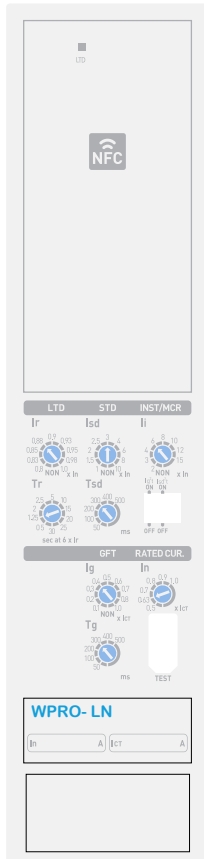
Frequency	50 Hz	55	57	58	59
	60 Hz	65	67	68	69
Main Functions	<ul style="list-style-type: none"> • L/S/I/G • Thermal • IDMTL • Self-Power • Fail Safe • Communication (Modbus) • External Power • ZSI • Remote Reset Function • Individual Continuous Contact : LTD, STD/INST, GFT, PTA • 256 ea Fault Recording • Last Fault's Waveform Recording (4 Cycles, Check Via Communication) • 200 ea Event Recording • Over-Voltage/Under-Voltage • Imbalance Type (Voltage/Current) • Reverse Power • 3 Phase Voltage/Current RMS/ Vector • Power (P, Q, S), Power Factor (3 Phase) • Energy (Normal/Reverse Direction) • Frequency, Demand • Minute Current Adjustment at Long Time, Short Time, Instantaneous, Ground Setting • Voltage/Current Harmonics (1 st ~ 63 th) • View 3 Phase Waveform • THD, TDD 	<ul style="list-style-type: none"> • L/S/I • Minute Current Adjustment • Thermal • Self-Power • Fail Safe • Integrated Instantaneous Contact • 10 ea Fault Recording (Check Via Communication) • Last Fault's Waveform Recording (4 Cycles, Check Via Communication) 	<ul style="list-style-type: none"> • L/S/I • Minute Current Adjustment • Thermal • Self-Power • Fail Safe • Communication (Modbus) • External Power • ZSI • Remote Reset Function • Individual Continuous Contact : LTD, STD/INST, PTA • 256 ea Fault Recording • Last Fault's Waveform Recording (4 Cycles, Check Via Communication) • 200 ea Event Recording (Check Via Communication) 	<ul style="list-style-type: none"> • L/S/I • Thermal • Self-Power • Fail Safe • Communication (Modbus) • External Power • ZSI • Remote Reset Function • Individual Continuous Contact : LTD, STD/INST, PTA • 256 ea Fault Recording • Last Fault's Waveform Recording (4 Cycles, Check Via Communication) • 200 ea Event Recording (Check Via Communication) • Over-Voltage/Under-Voltage • Imbalance Type (Voltage/Current) • Reverse Power/Over-Power • 3 Phase Voltage/Current RMS/ Vector • Power (P, Q, S), Power Factor (3 Phase) • Energy (Normal/Reverse Direction) • Demand • Minute Current Adjustment at Long Time, Short time, Instantaneous, Ground Setting 	

Accessories

Over Current Relay (OCR)

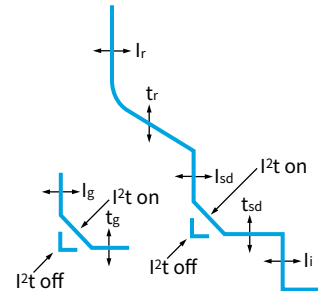
Appearance and Setting Value

WPRO-LN (50, 60)



- **Overload Protection**
 - Long time delay
- **Short Circuit Protection**
 - Short time delay, instantaneous trip
 - I²t On/Off optional (for STD)
- **Ground Fault Protection**
 - I²t On/Off optional
- **Neutral Wire Protection**
 - 3P : No protection for neutral wire
 - 4P : 100 % × In
 - LTD, STD, INST protection
- **Self-Power**
- **Equipped with NFC Functions**
 - Incident information can be received to the mobile phone
 - Introduction of function and app installation method : Refer to Page 34
- **1a DO (Digital Output)**
 - Contact specification

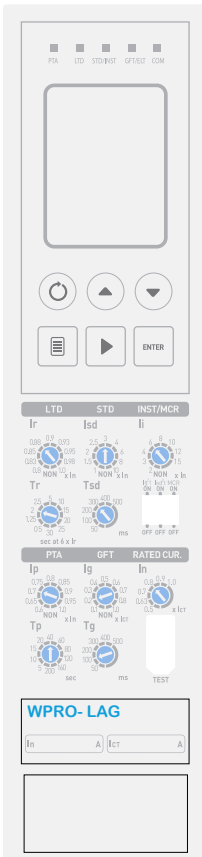
• Protection Features



Rating	Nominal Switching Capacity (Resistive Load)	5 A 277 VAC
	Max. Switching Power (Resistive Load)	1,385 VA
	Max. Switching Voltage	277 VAC
	Max. Switching Current	5 A
	Max. Switching Capacity (Reference Value)	100 mA 5 VDC

Protection Functions

Function	Setting	Equation	0.5	0.63	0.7	0.8	0.9	1	0.95	0.98	1	Non
LTD Protection	Current Setting (A)	$I_n = I_{ct} \times \dots$	0.5	0.63	0.7	0.8	0.9	1				
	Time Delay (sec)	$I_r = I_n \times \dots$	0.8	0.83	0.85	0.88	0.9	0.93	0.95	0.98	1	Non
		$t_r @ (1.5 \times I_r)$	10.4	26.1	41.7	52	104	208	312	417	521	626
		Accuracy : ± 15 % or Below 100 ms	$t_r @ (6.0 \times I_r)$	0.5	1.25	2	2.5	5	10	15	20	25
		$t_r @ (7.2 \times I_r)$	0.35	0.86	1.38	1.73	3.45	6.9	10.4	13.8	17.3	20.7
STD Protection	Current Setting (A)	$I_{sd} = I_n \times \dots$	1	1.5	2	2.5	3	4	6	8	10	Non
	Time Delay (sec) @ 10 × In	I^2t Off	0.05	0.1	0.2	0.3	0.4	0.5				
		I^2t On	0.05	0.1	0.2	0.3	0.4	0.5				
		(I^2t Off)	Min. Trip Time (ms)	20	80	160	260	360	460			
		Max. Trip Time (ms)	80	140	240	340	440	540				
Instantaneous Protection	Current Setting (A)	$I_i = I_n \times \dots$	2	3	4	6	8	10	12	15	Non	
	Tripping Time		Below 50 ms									
Grounding Protection	Grounding Pick-Up Setting (A)	$I_g = I_{ct} \times \dots$	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	1	Non
	Time Delay (sec) @ 1 × Ict	I^2t Off	0.05	0.1	0.2	0.3	0.4	0.5				
		I^2t On	0.05	0.1	0.2	0.3	0.4	0.5				
		(I^2t Off)	Min. Trip Time (ms)	20	80	160	260	360	460			
		Max. Trip Time (ms)	80	140	240	340	440	540				

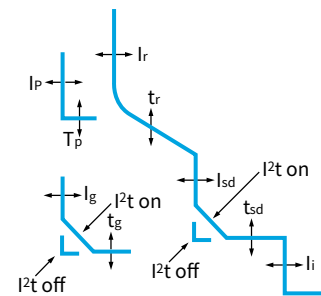
WPRO-LAG (51, 61)


- **Overload Protection**
 - Long time delay
- **Short Circuit Protection**
 - Short time delay, instantaneous trip
 - I^2t On/Off optional (for STD)
- **Ground Fault Protection**
 - I^2t On/Off optional
- **Neutral Wire Protection**
 - 3 Pole : No protection
 - 4 Pole : Non, 50%, 100% ($\times I_r, I_{sd}, I_i$)
- **Measurement and Display**
 - 3 Phase current
- **Realization of Protective Coordination by ZSI (Zone Selective Interlocking)**
- **Fault Recording**
 - Records up to 256 fault information on fault type, fault phase, fault value, occurrence time of fault
- **Event Recording**
 - Records up to 200 events of devices, records changes in protection trip relay information
- **Pre-Trip Alarm**
 - Prevent unnecessary overload trip by setting according to rated current (I_n)
- **Field Test**
 - Simulation of long time, short time, instantaneous

- RS-485 Communication/Modbus-RTU
- 4a DO (Digital Output)
 - Contact specification

Rating	Parameter	Value
	Nominal Switching Capacity (Resistive Load)	5 A 277 VAC
	Max. Switching Power (Resistive Load)	1,385 VA
	Max. Switching Voltage	277 VAC
	Max. Switching Current	5 A
	Max. Switching Capacity (Reference Value)	100 mA 5 VDC

- **Protection Features**


Protection Functions

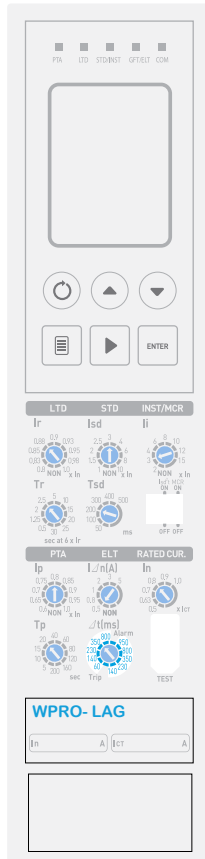
Function	Setting	Equation	0.5	0.63	0.7	0.8	0.9	1	1.05	1.1	1.25	1.5
LTD Protection	Current Setting (A)	$I_n = I_{ct} \times \dots$	0.5	0.63	0.7	0.8	0.9	1				
		$I_r = I_n \times \dots$	0.8	0.83	0.85	0.88	0.9	0.93	0.95	0.98	1	Non
	Time Delay (sec)	$t_r @ (1.5 \times I_r)$	10.4	26.1	41.7	52	104	208	312	417	521	626
	Accuracy : $\pm 15\%$ or Below 100 ms	$t_r @ (6.0 \times I_r)$ $t_r @ (7.2 \times I_r)$	0.5	1.25	2	2.5	5	10	15	20	25	30
STD Protection	Current Setting (A)	$I_{sd} = I_n \times \dots$	1	1.5	2	2.5	3	4	6	8	10	Non
	Time Delay (sec) @ $10 \times I_n$	I^2t Off	0.05	0.1	0.2	0.3	0.4	0.5				
		I^2t On	0.05	0.1	0.2	0.3	0.4	0.5				
		(I^2t Off) Min. Trip Time (ms)	20	80	160	260	360	460				
		(I^2t Off) Max. Trip Time (ms)	80	140	240	340	440	540				
Instantaneous Protection	Current Setting (A)	$I_i = I_n \times \dots$	2	3	4	6	8	10	12	15	Non	
Grounding Protection	Grounding Pick-Up Setting (A)	$I_g = I_{ct} \times \dots$	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	1	Non
	Time Delay (sec) @ $1 \times I_{ct}$	I^2t Off	0.05	0.1	0.2	0.3	0.4	0.5				
		I^2t On	0.05	0.1	0.2	0.3	0.4	0.5				
		(I^2t Off) Min. Trip Time (ms)	20	80	160	260	360	460				
		(I^2t Off) Max. Trip Time (ms)	80	140	240	340	440	540				
Pre-Alarm	Current Setting (A)	$I_p = I_n \times \dots$	0.6	0.65	0.7	0.75	0.8	0.85	0.9	0.95	1	Non
	Time Delay (sec)	t_p	5	10	15	20	40	60	80	120	160	

Accessories

Over Current Relay (OCR)

Appearance and Setting Value

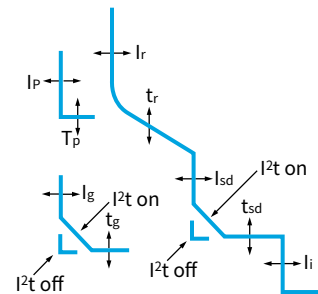
WPRO-LAG(52, 62)



- **Overload Protection**
 - Long time delay
 - Thermal operation
- **Short Circuit Protection**
 - Short time delay, instantaneous trip
 - I^2t On/Off optional (for STD)
- **Earth Leakage Protection**
 - Uses ZCT for 5 A output at secondary (used within 3%)
 - WPRO setting is calculated based on 5 A at secondary
Ex) When using 100 : 5 A, in order for primary to function at 30 A, $30 \times 5 / 100 = 1.5$ A, WPRO is set to 2 A
- **Neutral Wire Protection**
 - 3 Pole : No protection
 - 4 Pole : Non, 50 %, 100 % ($\times I_r, I_{sd}, I_i$)
- **Measurement and Display**
 - 3 Phase current
- **Realization of Protective Coordination by ZSI (Zone Selective Interlocking)**
- **Fault Recording**
 - Records up to 256 fault information on fault type, fault phase, fault value, occurrence time of fault
- **Event Recording**
 - Records up to 200 events of devices, records changes in protection trip relay information
- **Pre-Trip Alarm**
 - Prevent unnecessary overload trip by setting according to rated current (I_n)
- **Field Test**
 - Simulation of long time, short time, instantaneous
- **RS-485 Communication/Modbus-RTU**
- **4a DO (Digital Output)**
 - Contact specification

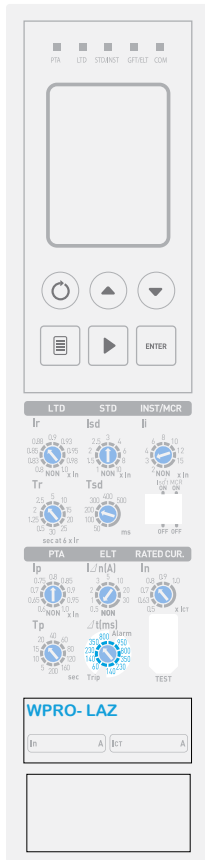
Rating	Parameter	Value
Rating	Nominal Switching Capacity (Resistive Load)	5 A 277 VAC
	Max. Switching Power (Resistive Load)	1,385 VA
	Max. Switching Voltage	277 VAC
	Max. Switching Current	5 A
	Max. Switching Capacity (Reference Value)	100 mA 5 VDC

• Protection Features



Protection Functions

Function	Setting	Formula	0.5	0.63	0.7	0.8	0.9	1	0.95	0.98	1	Non
LTD Protection	Current Setting (A)	$I_n = I_{ct} \times \dots$ $I_r = I_n \times \dots$	0.5	0.63	0.7	0.8	0.9	1	0.95	0.98	1	Non
	Time Delay (sec)	$t_r @ (1.5 \times I_r)$ $t_r @ (6.0 \times I_r)$ $t_r @ (7.2 \times I_r)$	10.4	26.1	41.7	52	104	208	312	417	521	626
	Accuracy : $\pm 15\%$ or Below 100 ms		0.5	1.25	2	2.5	5	10	15	20	25	30
STD Protection	Current Setting (A)	$I_{sd} = I_n \times \dots$	1	1.5	2	2.5	3	4	6	8	10	Non
	Time Delay (sec) @ $10 \times I_n$	I^2t Off	0.05	0.1	0.2	0.3	0.4	0.5				
		I^2t On	0.05	0.1	0.2	0.3	0.4	0.5				
		(I^2t Off)	Min. Trip Time (ms) Max. Trip Time (ms)	20 80	80 140	160 240	260 340	360 440	460 540			
Instantaneous Protection	Current Setting (A)	$I_i = I_n \times \dots$	2	3	4	6	8	10	12	15	Non	
Pre-Alarm	Current Setting (A)	$I_p = I_n \times \dots$	0.6	0.65	0.7	0.75	0.8	0.85	0.9	0.95	1	Non
	Time Delay (sec)	t_p	5	10	15	20	40	60	80	120	160	200
Leakage Protection	Current Setting (A)	$I_{\Delta n}$	0.5	0.8	1	2	3	5	Non			
	Time Delay (ms)	Alarm Time (ms)	140	230	350	800	950					
		Trip Time (ms)	60	140	230	350	800					

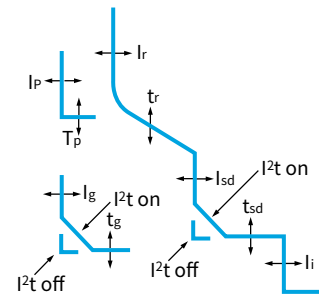
WPRO-LAZ(53, 63)


- **Overload Protection**
 - Long time delay
 - Thermal operation
- **Short Circuit Protection**
 - Short time delay, instantaneous trip
 - I²t On/Off optional (for STD)
- **Earth Leakage Protection**
 - Uses our company's supply of 1,000 : 1 ZCT
 - WPRO's operation setting is set based on the primary
- **Neutral Wire Protection**
 - 3 Pole : No protection
 - 4 Pole : Non, 50 %, 100 % (× Ir, Isd, Ii)
- **Measurement and Display**
 - 3 Phase current
- **Realization of Protective Coordination by ZSI (Zone Selective Interlocking)**
- **Fault Recording**
 - Records up to 256 fault information on fault type, fault phase, fault value, occurrence time of fault
- **Event Recording**
 - Records up to 200 events of devices, records changes in protection trip relay information
- **Pre-Trip Alarm**
 - Prevent unnecessary overload trip by setting according to rated current (In)
- **RS-485 Communication/Modbus-RTU**

- **Field Test**
 - Simulation of long time, short time, instantaneous
- **4a DO (Digital Output)**
 - Contact specification

Rating	
Nominal Switching Capacity (Resistive Load)	5 A 277 VAC
Max. Switching Power (Resistive Load)	1,385 VA
Max. Switching Voltage	277 VAC
Max. Switching Current	5 A
Max. Switching Capacity (Reference Value)	100 mA 5 VDC

- **Protection Features**


Protection Functions

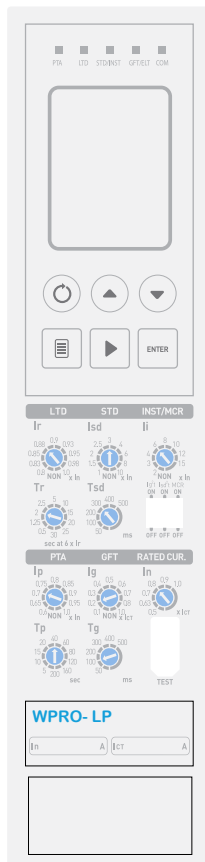
Protection Function	Setting	Equation	0.5	0.63	0.7	0.8	0.9	1	0.95	0.98	1	Non
LTD Protection	Current Setting (A)	$I_n = I_{ct} \times \dots$ $I_r = I_n \times \dots$	0.5	0.63	0.7	0.8	0.9	1				
	Time Delay (sec)	$t_r @ (1.5 \times I_r)$ $t_r @ (6.0 \times I_r)$	10.4	26.1	41.7	52	104	208	312	417	521	626
	Accuracy : ± 15 % or Below 100 ms	$t_r @ (7.2 \times I_r)$	0.5	1.25	2	2.5	5	10	15	20	25	30
			0.35	0.86	1.38	1.73	3.45	6.9	10.4	13.8	17.3	20.7
STD Protection	Current Setting (A)	$I_{sd} = I_n \times \dots$	1	1.5	2	2.5	3	4	6	8	10	Non
	Time Delay (sec) @ $10 \times I_n$	t_{sd}	0.05	0.1	0.2	0.3	0.4	0.5				
		I^2t Off	0.05	0.1	0.2	0.3	0.4	0.5				
		I^2t On	20	80	160	260	360	460				
Instantaneous Protection	Current Setting (A)	$I_i = I_n \times \dots$	2	3	4	6	8	10	12	15	Non	
	Tripping Time		Below 50 ms									
Pre-Alarm	Current Setting (A)	$I_p = I_n \times \dots$	0.6	0.65	0.7	0.75	0.8	0.85	0.9	0.95	1	Non
	Time Delay (sec)	t_p	5	10	15	20	40	60	80	120	160	200
	Current Setting (A)	$I_{\Delta n}$	0.5	1	2	3	5	10	20	30	Non	
Leakage Protection	Time Delay (ms)	Alarm Time (ms)	140	230	350	800	950					
	Accuracy : ± 15 % or Above 40 ms	Δt Trip Time (ms)	60	140	230	350	800					

Accessories

Over Current Relay (OCR)

Appearance and Setting Value

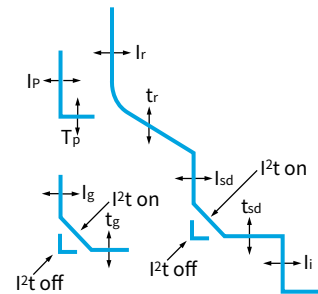
WPRO-LP(54, 64) / WPRO-LH (55, 65)



- **Overload Protection**
 - Long time delay
 - Thermal operation
- **Short Circuit Protection**
 - Short time delay, instantaneous trip
 - I²t On/Off optional (for STD)
- **Ground Fault Protection**
 - I²t On/Off optional
- **Neutral Wire Protection**
 - 3 Pole : No protection
 - 4 Pole : Non, 50 %, 100 % (× I_r, I_{sd}, I_i)
- **Over-Voltage/Under-Voltage/Imbalance Protection**
- **Measurement and Display**
 - 3 Phase current/voltage/power/power factor/power quantity/phase/demand
- **Realization of Protective Coordination by ZSI (Zone Selective Interlocking)**
- **Fault Recording**
 - Records up to 256 fault information on fault type, fault phase, fault value, occurrence time of fault
- **Event Recording**
 - Records up to 256 events of devices, records changes in protection trip relay information
- **Pre-Trip Alarm**
 - Prevent unnecessary overload trip by setting according to rated current (I_n)
- **Field Test**
 - Simulation of long time, short time, instantaneous
- **RS-485 Communication/Modbus-RTU**
- **Need to Connect Voltage Module for Voltage Measurement**
- **Additional Function in LH Type**
- **Voltage/Current Harmonics (1 st ~ 63 th)**
 - 3 phase waveform
 - TDH, TDD
- **4a DO (Digital Output)**
 - Contact specification

Rating	Nominal Switching Capacity (Resistive Load)	5 A 277 VAC
	Max. Switching Power (Resistive Load)	1,385 VA
	Max. Switching Voltage	277 VAC
	Max. Switching Current	5 A
	Max. Switching Capacity (Reference Value)	100 mA 5 VDC

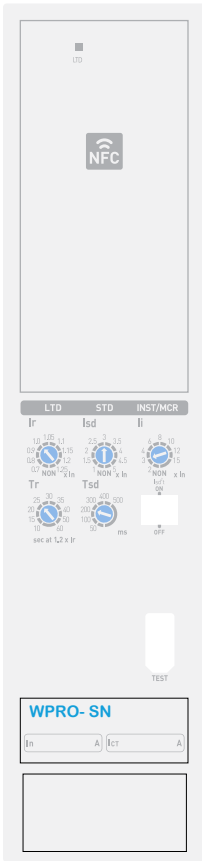
• **Protection Features**



Protection Functions

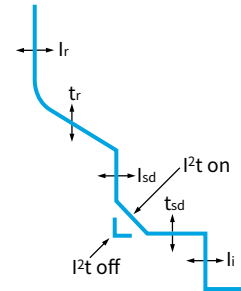
Function	Setting	Equation	0.5	0.63	0.7	0.8	0.9	1	1.05	1.1	1.2	1.5	2.0
LTD Protection	Current Setting (A)	$I_n = I_{ct} \times \dots$	0.5	0.63	0.7	0.8	0.9	1	1.05	1.1	1.2	1.5	2.0
		$I_r = I_n \times \dots$	0.8	0.83	0.85	0.88	0.9	0.93	0.95	0.98	1	Non	
	Time Delay (sec)	$t_r @ (1.5 \times I_r)$	10.4	26.1	41.7	52	104	208	312	417	521	626	
	Accuracy : ± 15 % or Below 100 ms	$t_r @ (6.0 \times I_r)$	0.5	1.25	2	2.5	5	10	15	20	25	30	
		$t_r @ (7.2 \times I_r)$	0.35	0.86	1.38	1.73	3.45	6.9	10.4	13.8	17.3	20.7	
STD Protection	Current Setting (A)	$I_{sd} = I_n \times \dots$	1	1.5	2	2.5	3	4	6	8	10	Non	
	Time Delay (sec) @ $10 \times I_n$	I ² t Off	tsd	0.05	0.1	0.2	0.3	0.4	0.5				
		I ² t On		0.05	0.1	0.2	0.3	0.4	0.5				
		(I ² t Off)	Min. Trip Time (ms)	20	80	160	260	360	460				
		Max. Trip Time (ms)	80	140	240	340	440	540					
Instantaneous Protection	Current Setting (A)	$I_i = I_n \times \dots$	2	3	4	6	8	10	12	15	Non		
	Tripping Time		Below 50 ms										
Grounding Protection	Ground Pick-Up Setting (A)	$I_g = I_{ct} \times \dots$	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	1	Non	
	Time Delay (sec) @ $1 \times I_{ct}$	I ² t Off	t _g	0.05	0.1	0.2	0.3	0.4	0.5				
		I ² t On		0.05	0.1	0.2	0.3	0.4	0.5				
		(I ² t Off)	Min. Trip Time (ms)	20	80	160	260	360	460				
		Max. Trip Time (ms)	80	140	240	340	440	540					
Pre-Alarm	Current Setting (A)	$I_p = I_n \times \dots$	0.6	0.65	0.7	0.75	0.8	0.85	0.9	0.95	1	Non	
	Time Delay (sec)	t _p	5	10	15	20	40	60	80	120	160	200	

WPRO-SN (57, 67)



- **Overload Protection**
 - Long time delay
- **Short Circuit Protection**
 - Short time delay, instantaneous trip
 - I²t On/Off optional (for STD)
- **Self-Power**
- **Equipped with NFC Functions**
 - Incident information can be received to the mobile phone
 - Introduction of function and app
- **1a DO (Digital Output)**
 - Contact specification

• **Protection Features**



Rating	Nominal Switching Capacity (Resistive Load)	5 A 277 VAC
	Max. Switching Power (Resistive Load)	1,385 VA
	Max. Switching Voltage	277 VAC
	Max. Switching Current	5 A
	Max. Switching Capacity (Reference Value)	100 mA 5 VDC

Protection Functions

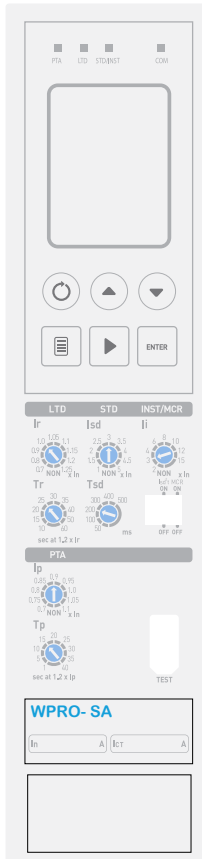
Protection Function	Setting / Parameter	Formula	(0.5 ~ 1.0) * 1% Unit or 1 A Unit											
			0.7	0.8	0.9	1	1.05	1.1	1.15	1.2	1.25	Non		
LTD Protection	Current Setting (A)	$I_n = I_{ct} \times \dots$ $I_r = I_n \times \dots$												
	Time Delay (sec)	$t_r @ (1.05 \times I_r)$	20	30	40	50	60	70	80	100	120			
	Accuracy : ± 15 % or Below 100 ms	$t_r @ (1.2 \times I_r)$ $t_r @ (3 \times I_r)$	10 0.99	15 1.49	20 1.99	25 2.48	30 2.98	35 3.48	40 3.97	50 4.97	60 5.96			
STD Protection	Current Setting (A)	$I_{sd} = I_n \times \dots$												
	Time Delay (sec) @ 5 × I _n	t _{sd} I ² t Off	0.05	0.1	0.2	0.3	0.4	0.5						
		t _{sd} I ² t On	0.05	0.1	0.2	0.3	0.4	0.5						
		(I ² t Off) Min. Trip Time (ms)	20	80	160	260	360	460						
Instantaneous Protection	Current Setting (A)	$I_i = I_n \times \dots$												
	Tripping Time		2	3	4	6	8	10	12	15	Non			

Accessories

Over Current Relay (OCR)

Appearance and Setting Value

WPRO-SA(58, 68)

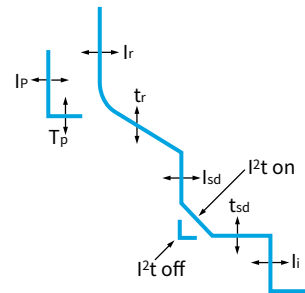


- **Overload Protection**
- Long time delay
- **Short Circuit Protection**
- Short time delay, instantaneous trip
- I²t On/Off optional (for STD)
- **In Setting with Minute Adjustment**
- Adjusts in 1 A unit within the range of 0.5 ~ 1 Ict
- Adjusted using button in the LCD setting screen
- **Realization of Protective Coordination by ZSI (Zone Selective Interlocking)**
- **Fault Recording**
- Records up to 256 fault information on fault type, fault phase, fault value, occurrence time of fault
- **Event Recording**
- Records up to 200 events of devices, records changes in protection trip relay information
- **Pre-Trip Alarm**
- Prevent unnecessary overload trip by setting according to rated current (In)
- **Field Test**
- Simulation of long time, short time, instantaneous
- **RS-485 Communication/Modbus-RTU**

- **3a DO (Digital Output)**
- Contact specification

Rating	Value
Nominal Switching Capacity (Resistive Load)	5 A 277 VAC
Max. Switching Power (Resistive Load)	1,385 VA
Max. Switching Voltage	277 VAC
Max. Switching Current	5 A
Max. Switching Capacity (Reference Value)	100 mA 5 VDC

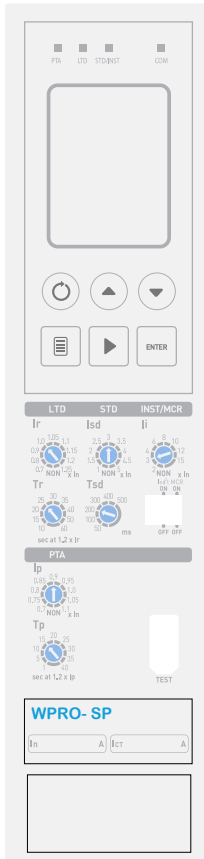
- **Protection Features**



Protection Functions

Function	Setting	Formula	(0.5 ~ 1.0) * 1% Unit or 1 Unit											
			0.7	0.8	0.9	1	1.05	1.1	1.15	1.2	1.25	Non		
LTD Protection	Current Setting (A)	$I_n = I_{ct} \times \dots$ $I_r = I_n \times \dots$												
	Time Delay (sec)	$t_r @ (1.05 \times I_r)$	20	30	40	50	60	70	80	100	120			
	Accuracy: ± 15% or Below 100 ms	$t_r @ (1.2 \times I_r)$	10	15	20	25	30	35	40	50	60			
		$t_r @ (3 \times I_r)$	0.99	1.49	1.99	2.48	2.98	3.48	3.97	4.97	5.96			
STD Protection	Current Setting (A)	$I_{sd} = I_n \times \dots$	1	1.5	2	2.5	3	3.5	4	4.5	5	Non		
	Accuracy: ± 15%													
	Time Delay (sec)	t_{sd}	0.05	0.1	0.2	0.3	0.4	0.5						
	@ 5 × I _n	I^2t Off	0.05	0.1	0.2	0.3	0.4	0.5						
Instantaneous Protection	Current Setting (A)	$I_i = I_n \times \dots$	2	3	4	6	8	10	12	15	Non			
	Tripping Time		Below 50 ms											
Pre-Alarm	Current Setting (A)	$I_p = I_n \times \dots$	0.7	0.75	0.8	0.85	0.9	0.95	1	1.05	1.1	Non		
	Accuracy: ± 15%													
	Time Delay (sec)	$t_p @ (I_p \times 1.2)$	1	5	10	15	20	25	30	35	40			

WPRO-SP (59, 69)

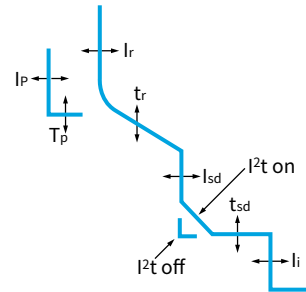


- **Overload Protection**
 - Long time delay
- **Short Circuit Protection**
 - Short time delay, instantaneous trip
 - I²t On/Off optional (for STD)
- **Neutral Wire Protection**
 - 3 Pole : No protection
 - 4 Pole : Non, 50 %, 100 % (× I_r, I_{sd}, I_i)
- **Over-Voltage/Under-Voltage/Imbalance Protection**
- **Measurement and Display**
 - 3 Phase current/voltage/power/power factor/power quantity/phase/demand
- **Realization of Protective Coordination by ZSI (Zone Selective Interlocking)**
- **Fault Recording**
 - Records up to 256 fault information on fault type, fault phase, fault value, occurrence time of fault
- **Event Recording**
 - Records up to 200 events of devices, records changes in protection trip relay information
- **Pre-Trip Alarm**
 - Prevent unnecessary overload trip by setting according to rated current (I_n)
- **Field Test**
 - Simulation of long time, short time, instantaneous

- RS-485 Communication/Modbus-RTU
- Need to Connect Voltage Module for Voltage Measurement
- 3a DO (Digital Output)
 - Contact specification

Rating	Nominal Switching Capacity (Resistive Load)	5 A 277 VAC
	Max. Switching Power (Resistive Load)	1,385 VA
	Max. Switching Voltage	277 VAC
	Max. Switching Current	5 A
	Max. Switching Capacity (Reference Value)	100 mA 5 VDC

Protection Features



Protection Functions

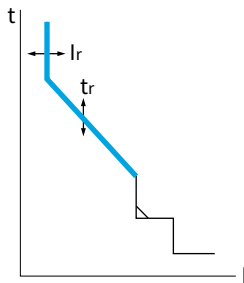
		I _n = I _{ct} × ...	0.5	0.63	0.7	0.8	0.9	1					
STD Protection	Current Setting (A)	I _r = I _n × ...	0.8	0.83	0.85	0.88	0.9	0.93	0.95	0.98	1	Non	
	Time Delay (sec) Accuracy : ± 15 % or Below 100 ms	tr @ (1.05 × I _r)	10.4	26.1	41.7	52	104	208	312	417	521	626	
		tr @ (1.2 × I _r)	0.5	1.25	2	2.5	5	10	15	20	25	30	
		tr @ (3 × I _r)	0.35	0.86	1.38	1.73	3.45	6.9	10.4	13.8	17.3	20.7	
STD Protection	Current Setting (A) Accuracy : ± 15 %	I _{sd} = I _n × ...	1	1.5	2	2.5	3	4	6	8	10	Non	
	Time Delay (sec) @ 5 × I _n	tsd	I ² t Off	0.05	0.1	0.2	0.3	0.4	0.5				
			I ² t On	0.05	0.1	0.2	0.3	0.4	0.5				
		(I ² t Off)	Min. Trip Time (ms)	20	80	160	260	360	460				
			Max. Trip Time (ms)	80	140	240	340	440	540				
Instantaneous Protection	Current Setting (A) Tripping Time	I _i = I _n × ...	Below 50 ms										
Pre-Alarm	Current Setting (A) Accuracy : ± 15 %	I _p = I _n × ...	0.6	0.65	0.7	0.75	0.8	0.85	0.9	0.95	1	Non	
	Time Delay (sec)	t _p @ (I _p × 1.2)	5	10	15	20	40	60	80	120	160		

Accessories

Over Current Relay (OCR)

Operation Characteristics

Long Time Delay (LTD)



Standard Current Setting

• L Type

- The scale marks the magnification of $[I_n]$.
- The setting range of current is a 10-step method of Non, 0.8, 0.83, 0.85, 0.88, 0.9, 0.93, 0.95, 0.98 and $1.0 \times [I_n]$.
- No protection in case the $[I_r]$ is set as [Non].
- The breaker does not trip below 105 % of $[I_r]$ and trips at 120 % of $[I_r]$ and above.

• S Type

- The setting range of current is a 10-step method of Non, 0.7, 0.8, 0.9, 1.0, 1.05, 1.1, 1.15, 1.2, $1.25 \times [I_n]$.
- The breaker trips at 100 % of $[I_r]$ setting value and above.

Time Delay Setting

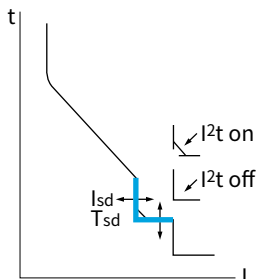
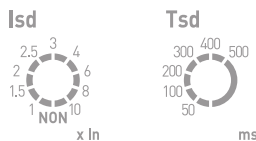
• L Type

- The scale is the second of operating time based on $600 \% \times [I_r]$ with inverse time operation.
- The setting range of current is a 10-step method of 0.5, 1.25, 2, 2.5, 5, 10, 15, 20, 25, 30 sec.
- The breaker trips at $\pm 15 \%$ of setting time.

• S Type

- The setting range is a 9-step method of 10, 15, 20, 25, 30, 35, 40, 50, 60 sec.
- The scale is the second of operating time based on $120 \% \times [I_r]$ with inverse time operation.

Short Time Delay (STD)



Standard Current Setting

• L Type

- The scale marks the magnification of $[I_n]$.
- The setting range of current is a 10-step method of Non, 1, 1.5, 2, 2.5, 3, 4, 6, 8, $10 \times [I_n]$.

• S Type

- The scale marks the magnification of $[I_n]$.
- The setting range of current is a 10-step method of Non, 1, 1.5, 2, 2.5, 3, 3.5, 4, 4.5, $5 \times [I_n]$.

Time delay setting

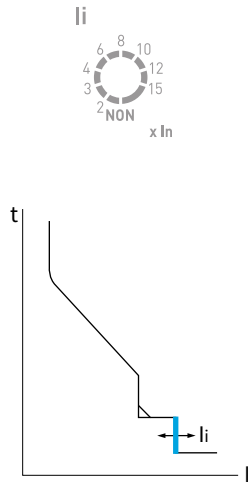
• L Type

- The marking indicates the relay operation based on the time of 110 % of $[I_{sd}]$ in msec with definite time operation.
- The setting range is a 6-step method of 50, 100, 200, 300, 400, 500 msec.
- 1,000 % of inverse time curve is applied in case of I^2t on setting.

• S Type

- The marking indicates the relay operation based on the time of 110 % of $[I_{sd}]$ in msec with definite time operation.
- The setting range is a 6-step method of 50, 100, 200, 300, 400, 500 msec.
- 500 % of inverse time curve is applied in case of I^2t on setting.

Instantaneous (INST)



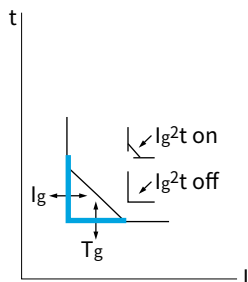
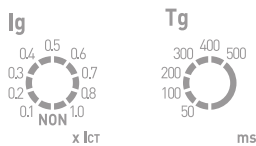
Standard Current Setting

- The scale marks the magnification of $[I_n]$.
- The setting range of current is a 9-step method of Non, 2, 3, 4, 6, 8, 10, 12, $15 \times [I_n]$.
- No protection in case $[I_i]$ is set as $[Non]$, the protection does not function.

Time Delay Setting

- Total breaking time is below 50 ms.

Ground Fault Trip (GFT)



Standard Current Setting

• L Type

- The numbers indicate scale for the 1st current of OCR $[I_{ct}]$.
- The setting range of current is a 10-step method of Non, 0.1, 0.2, 0.3, 0.4, 0.5, 0.6, 0.7, 0.8, $1.0 \times [I_{ct}]$.

Time Delay Setting

• L Type

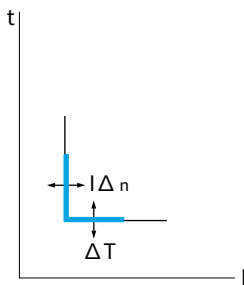
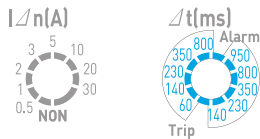
- The marking indicates the relay operation based on the time of 120 % of $[I_g]$ in msec with definite time operation.
- The setting range is a 6-step method of 50, 100, 200, 300, 400, 500 msec.
- It functions in case of 100 % I_{ct} of inverse time in case of $I_g^2 t$ on setting.

Accessories

Over Current Relay (OCR)

Operation Characteristics

Earth Leakage Trip (ELT)



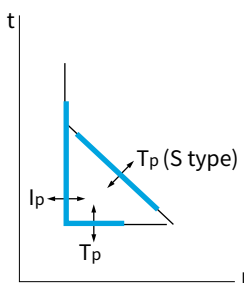
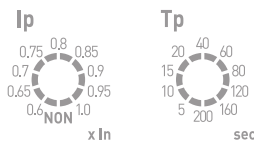
Standard Current Setting

- **WPROLAZ**
 - The scale marks the magnification of UPR rated primary current [ZCT].
 - The setting range of current is a 9-step method of Non, 0.5, 1, 2, 3, 5, 10, 20, 30×[A].
- **WPROLAG**
 - The scale is based on 5 A ZCT at secondary.
 - The setting range of current is a 7-step method of Non, 0.5, 0.8, 1, 2, 3, 5.

Time Delay Setting

- **L Type**
 - Once the primary value that has been set flows as much as the delayed time, it is set as both alarm and trip mode.
 - The setting range of alarm is a 5-step method of 140, 230, 350, 800, 950 msec.
 - The setting range of trip is a 5-step method of 60, 140, 230, 350, 800 msec.

Pre-Trip Alarm (PTA)



Standard Current Setting

- **L Type**
 - The scale marks the magnification of [In] with inverse time operation.
 - The setting range of current is a 10-step method of Non, 0.6, 0.65, 0.7, 0.75, 0.8, 0.85, 0.9, 0.95, 1.0 of [In].
- **S Type**
 - The scale marks the magnification with regards to [Io] with inverse time operation.
 - The setting range of current is a 10-step method of Non, 0.7, 0.75, 0.8, 0.85, 0.9, 0.95, 1.0, 1.05, 1.1×[Io].

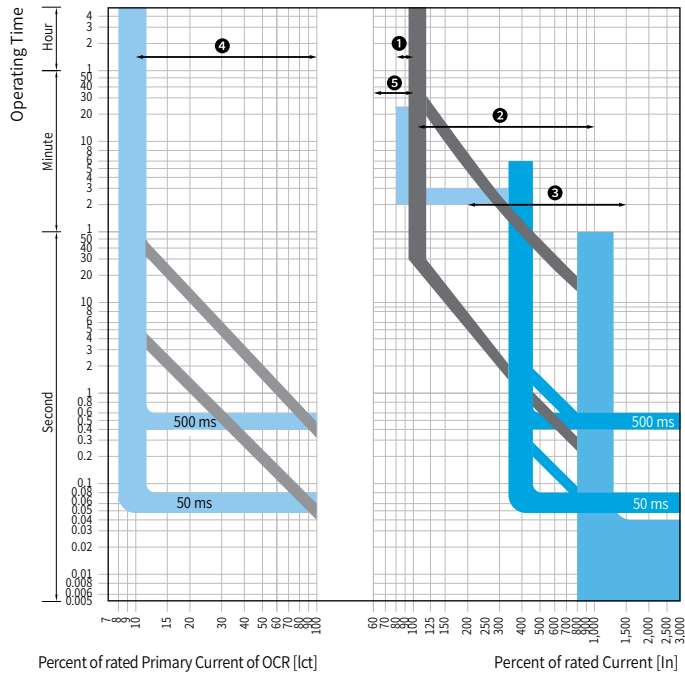
Time Delay Setting

- **L Type**
 - The marking indicates the relay operation based on the time of 100 % of [Ip] in sec.
 - The setting range of current is a 10-step method of 5, 10, 15, 20, 40, 60, 80, 120, 160, 200 sec.
- **S Type**
 - 9-step of 1, 5, 10, 15, 20, 25, 30, 35, 40 sec can be selected in 120 % of [Ip] and has operation characteristics at inverse time operation.

Characteristic Curve

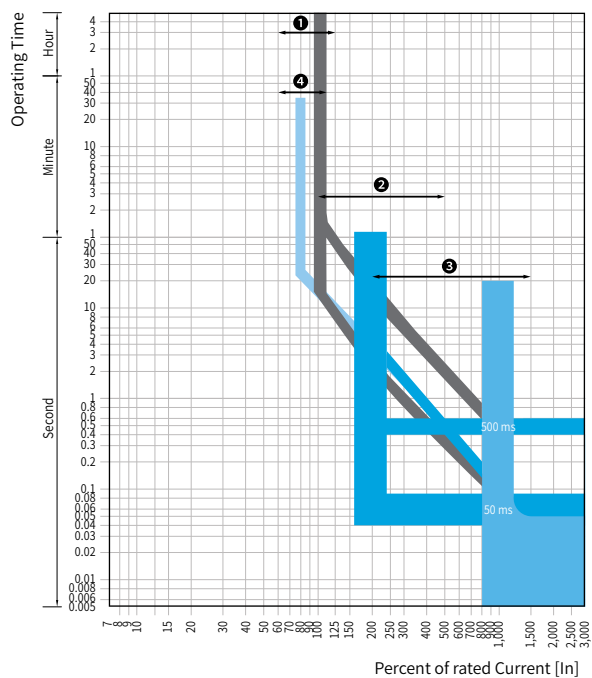
General Feeder

- 1 Long Time Delay Current Setting Range
- 2 Short Time Delay Current Setting Range
- 3 Instantaneous Tripping Current Setting Range
- 4 Ground Fault Trip Current Setting Range
- 5 Pre-Trip Alarm Current Setting Range



Generator

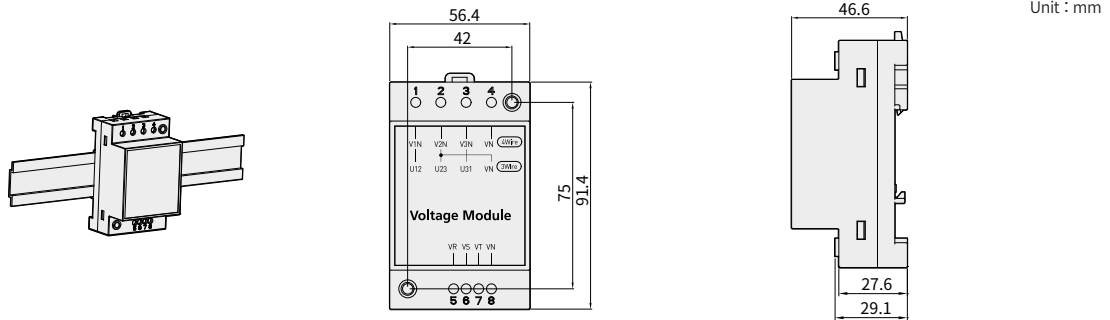
- 1 Long Time Delay Current Setting Range
- 2 Short Time Delay Current Setting Range
- 3 Instantaneous Tripping Current Setting Range
- 4 Pre-Trip Alarm Current Setting Range



Accessories

Measurement

Dimension



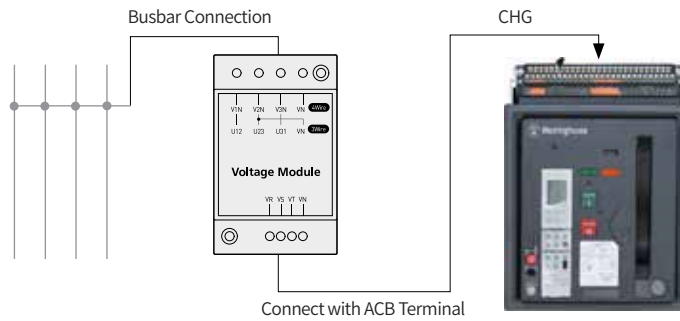
Voltage Module

WPRO-LP/LH/SP Trip Relay has to be installed with a voltage module to measure the voltage.
Voltage Input Range : AC 69 ~ 690 V

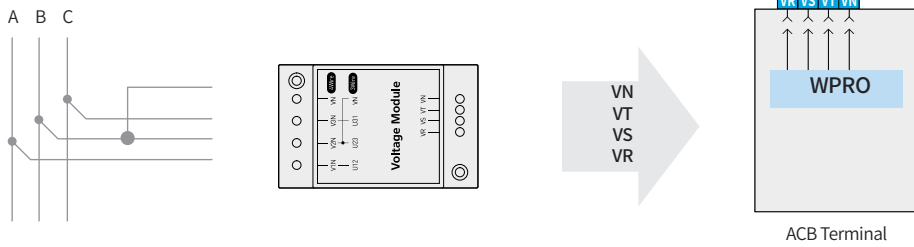
Voltage Connection

Voltage Input Range : 69 ~ 690 V

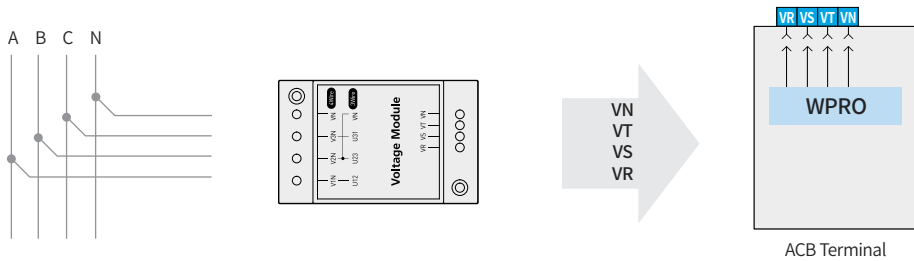
※ The length of connecting cable of the voltage module and ACB's VR, VS, VT shall be installed within 150 mm.



3P 3Wire



4P 4Wire / 3P 4Wire



Zone Selective Interlocking

Zone Selective Interlocking System

Zone selective interlocking function involves the breaker in the fault sector detecting malfunction for selective protection coordination. The circuit breaker in the fault sector sends a lock signal to the back-up protection circuit breaker by force to delay the operation and the circuit breaker in the fault sector operates instantaneously to enable selective protection coordination of the system.

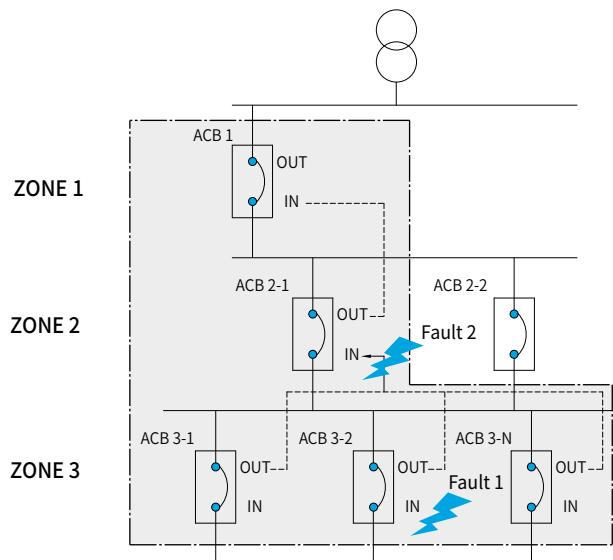
Examples

- First Fault Occurrence

In case fault 1 occurs in selective zone (Zone 3), ACB 3-2 functions immediately and ACB 3-2 relay triggers a ZSI signal in ACB 2-1 relay to maintain a delay so that the circuit breaker does not function, preventing the expansion of fault region.

- Fault 2 Occurrence

In case a fault occurs at the lower end of ACB 2-1, the circuit breaker in zone 3 region is unable to detect. Therefore, the relay of ACB 2-1 is unable to receive any signal from the lower end so, immediately, ACB 2-1 functions, triggering a ZSI signal to ACB 1 to prevent the expansion of fault range.



----- ZSI Connection

※ ZSI connection wire's maximum distance has to be constituted within 3 m.

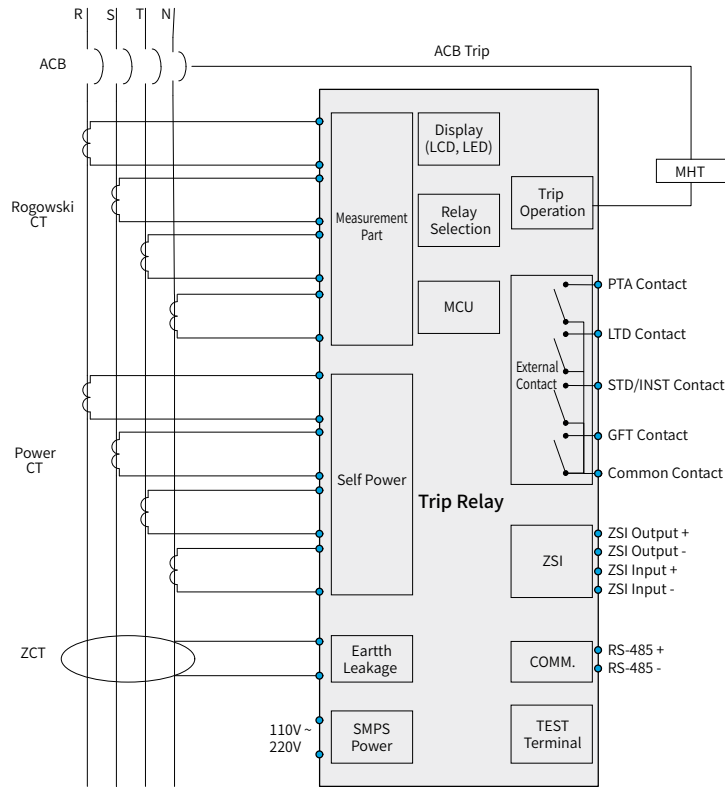
ZSI function cannot be operated during self-power.

Upon the release of the product, ZSI function is not activated and the 2 terminals (31, 32) at the control power input area are short so please cut the wire before connection when using ZSI.

Accessories

Over Current Relay (OCR)

System Diagram

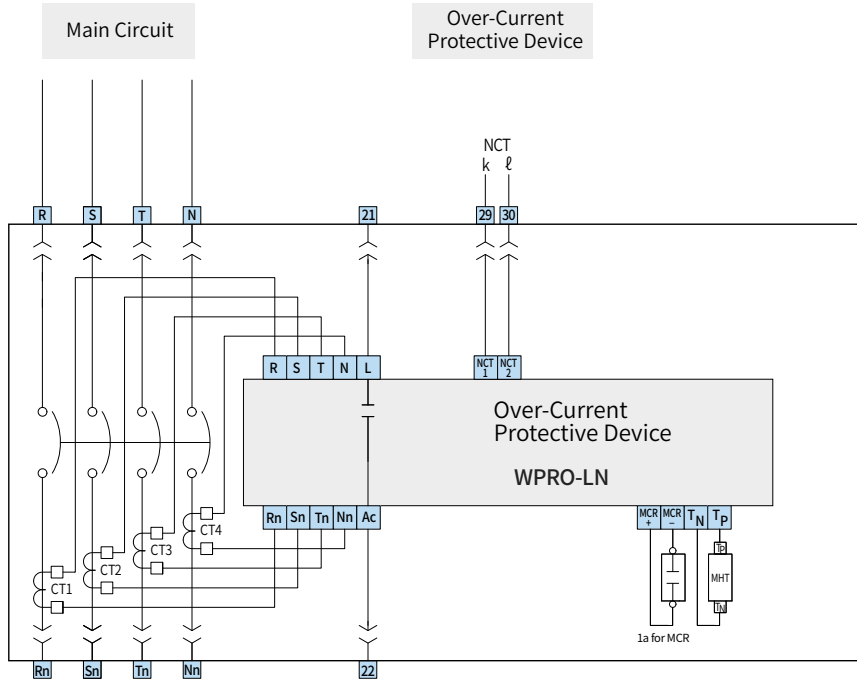


Circuit Diagrams

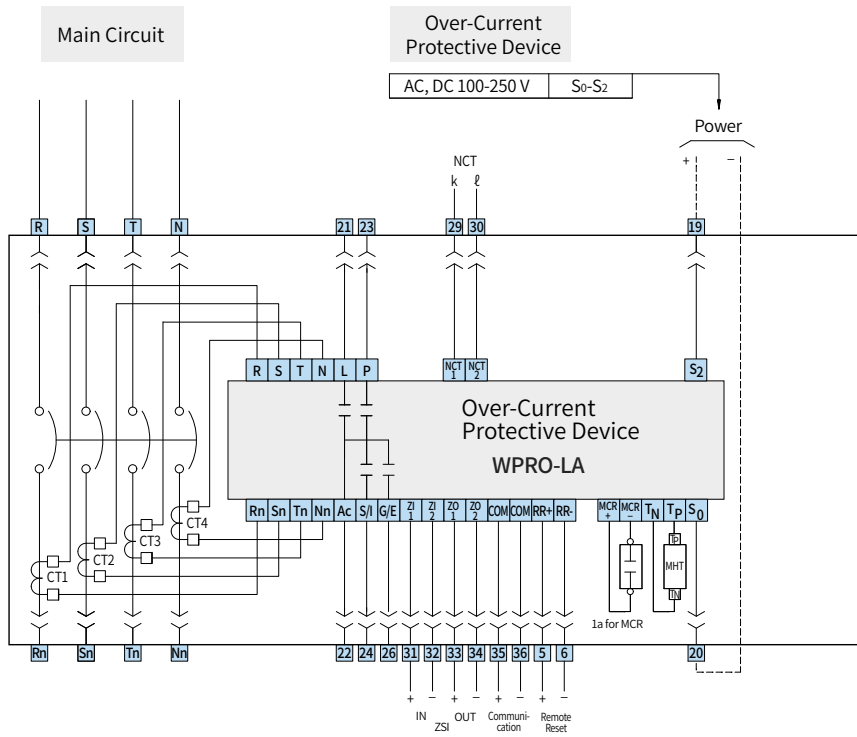
WPRO-LN

3

Air Circuit Breakers



WPRO-LA

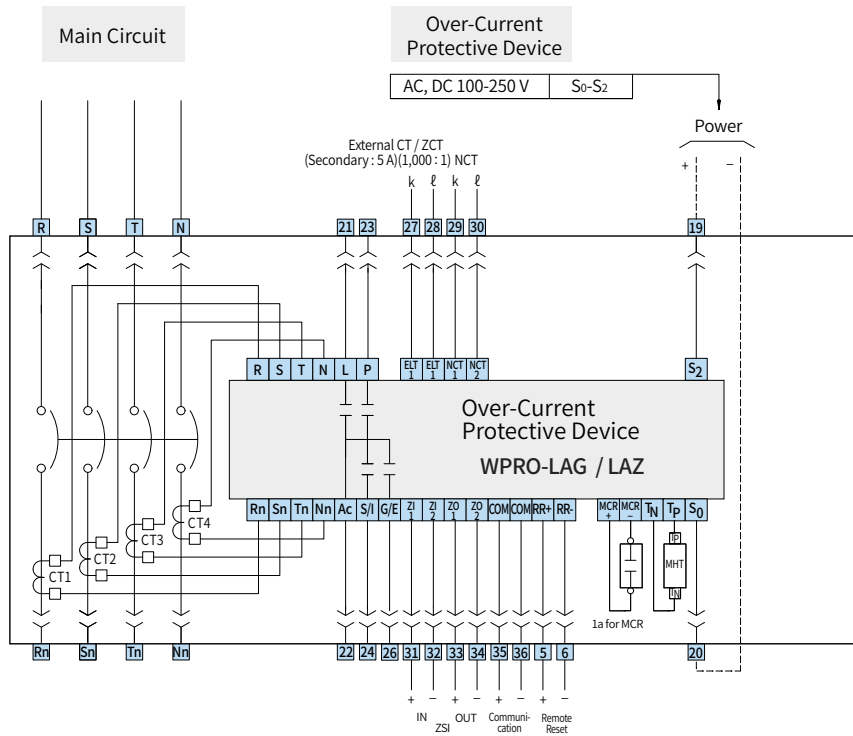


Accessories

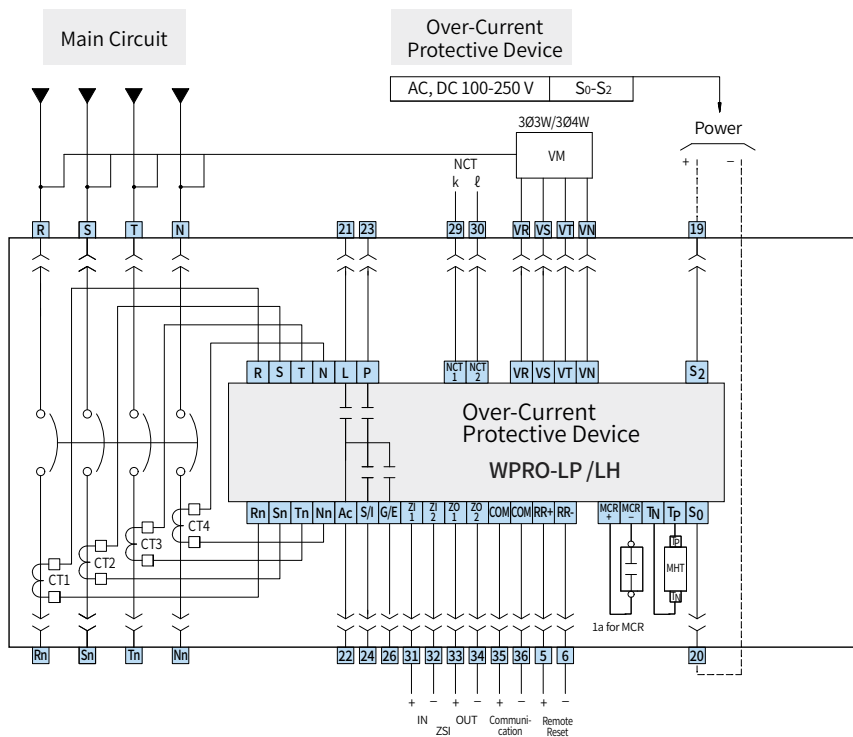
Over Current Relay (OCR)

System Diagrams

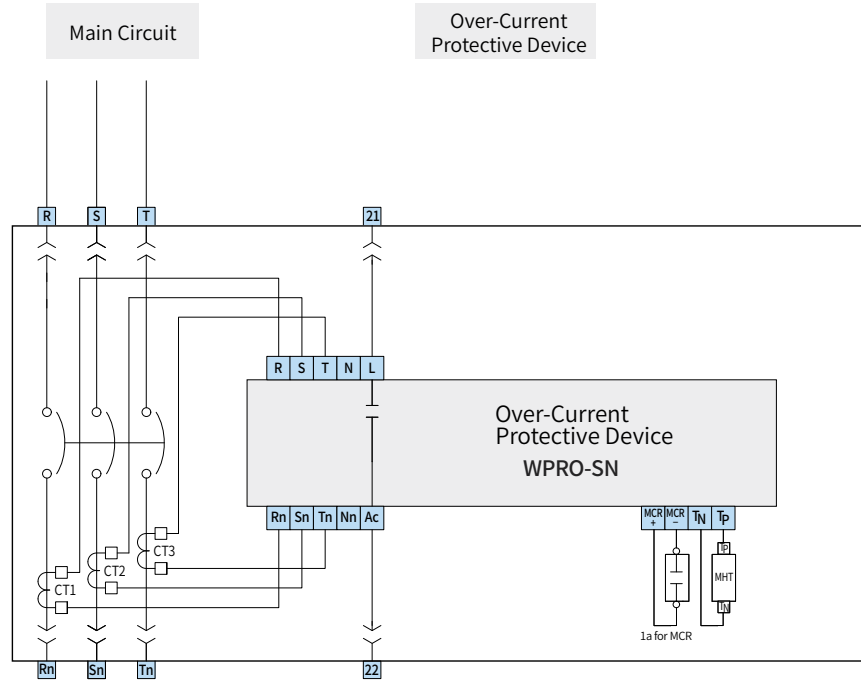
WPRO-LAG/LAZ



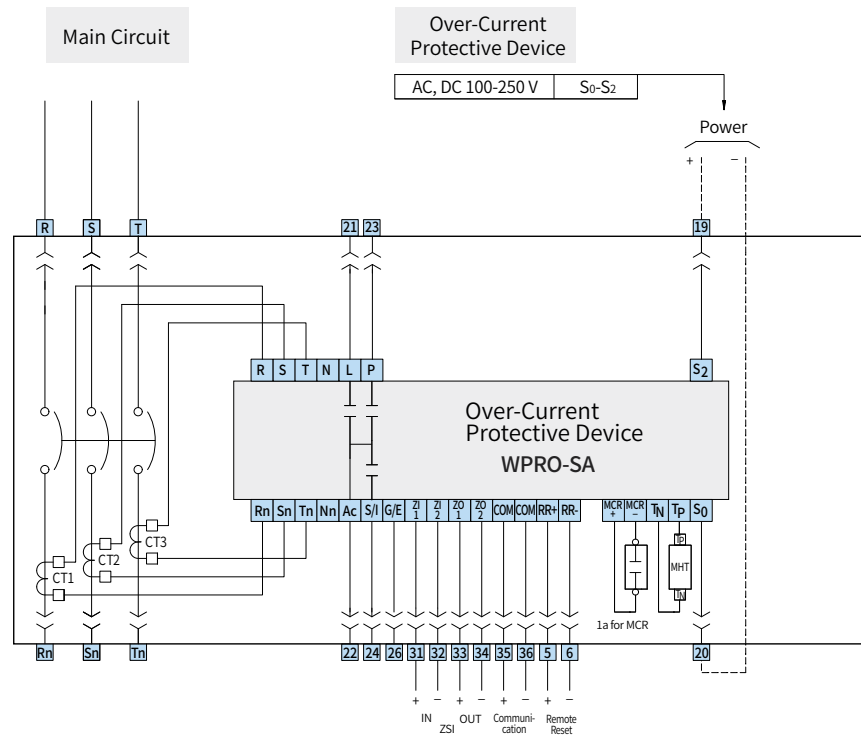
WPRO-LP/LH



WPRO-SN



WPRO-SA

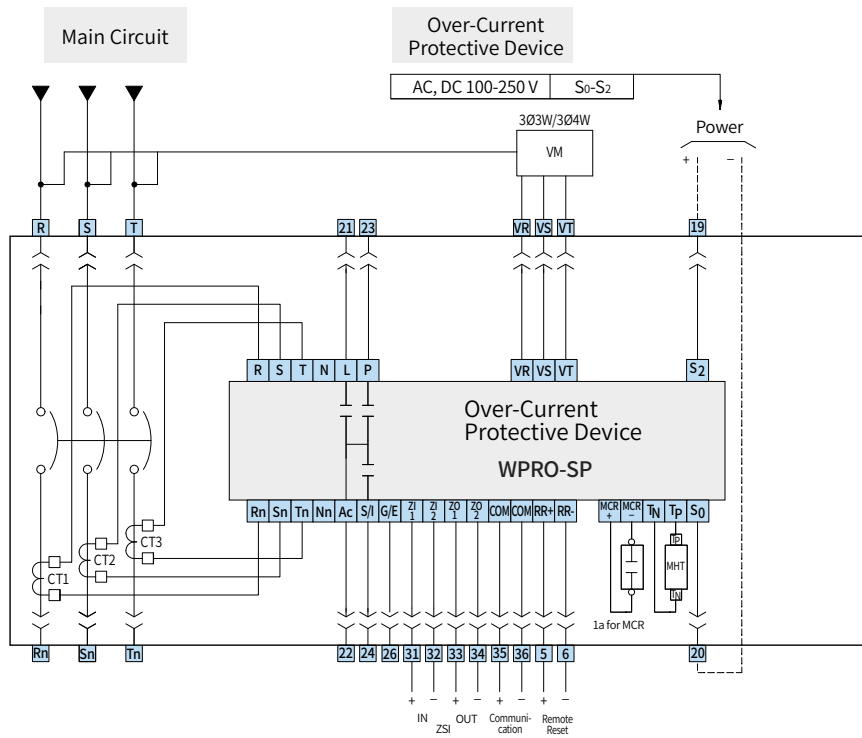


Accessories

Over Current Relay (OCR)

System Diagrams

WPRO-SP



※ In case of No. 52 62 (WPRO-LAG) 53-63 (WPRO-LAZ), CT connecting wire 27, 28 must be within 5 m.
The connecting wire of Remote Reset (RR) No. 5 No. 6 circuit must be within 5 m.

Accessories

Spring Charging Geared Motor

- Manual charging method and geared motor charging method using external power source for charging the spring in the circuit breaker.
- As for the geared motor charging method, if power is applied to the control power terminal number (1), (2), spring charge is possible at 85 ~ 110 % power of the operating voltage range.
- Add M1 ~ M9 in the order form.
- It can be purchased separately.

Ordering Method

Name of Accessory	Order Name Placed upon Outgoing	Detailed Specification
Spring Charging Geared Motor	M1	AC/DC 110 V
	M2	AC/DC 220 V
	M3	AC 380 V (Under Development)
	M4	AC 440 V (Under Development)
	M7	DC 24 V
	M8	DC 48 V
	M9	DC 125 V

Ratings

Item	DC 110	DC 220
Rated Current (A)	1.2	0.5
Starting Pick-Up (A)	5 ~ 6 times the rated current	
Final Rated rpm	16 ± 3	
Charging Time (sec)	Within 5 seconds ¹⁾	
Rated Torque (kgf)	300 kgf×cm	
Rated Watt (W)	100	100
Dielectric Strength (V/min)	2,000	
Insulation Resistance (MΩ)	100	
Workable Temperature (°C)	-15 ~ 60	

※ 1) Charging time is within 10 sec of rated, in case of DC 24/48 V.

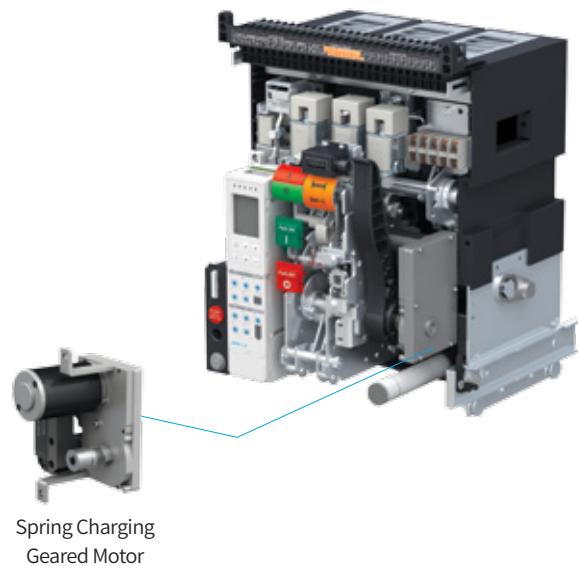
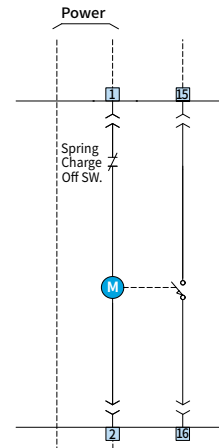
Wire Ratings

Rated Voltage	DC 24, 48		DC 110, 220	
	AWG (mm ²)	Insulation Level (V)	AWG (mm ²)	Insulation Level (V)
Specification	18	600	18	600

Spring Charging Switch or Ready to Close Switch

- Spring charging switch delivers (15, 16) the charged status when mechanism spring charge is complete.
- Read to close switch delivers (15, 16) only when the circuit breaker is open and simultaneously only when the mechanism spring charge is complete.
- Order name of spring charging switch : B6, Order name of ready to close switch : BT
- Two accessories cannot be ordered simultaneously.

Connection Diagram



Accessories

Closing Coil (CC)

- A control device which closes a circuit breaker remotely from outside.
- The circuit breaker is closed by applying power for at least more than 150 ms within the range of 85 ~ 110 % of the rated control voltage to the control power terminal number (3) and (4).
- Add C1 ~ C9 in the order form when ordering the main unit.
- It can be purchased separately.
- Use a separate switch externally to apply power to the closing coil.

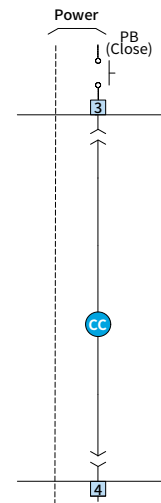
Ordering Method

Name of Accessory	Order Name Placed upon Outgoing	Detailed Specification
Closing Coil	C1	AC/DC 110 V
	C2	AC/DC 220 V
	C3	AC 380 V
	C4	AC 440 V
	C7	DC 24 V
	C8	DC 48 V
	C9	DC 125 V

Ratings

Item	DC (V)	AC (V)
	24	-
Rated Voltage (Vn)	100 ~ 130	100 ~ 130
	200 ~ 250	200 ~ 250
Operating Limits (Vn)	0.85 ~ 1.1	
Power Consumption (VA)	Inrush (300), Steady-State (10)	
Closing Time (ms)	80	

Connection Diagram

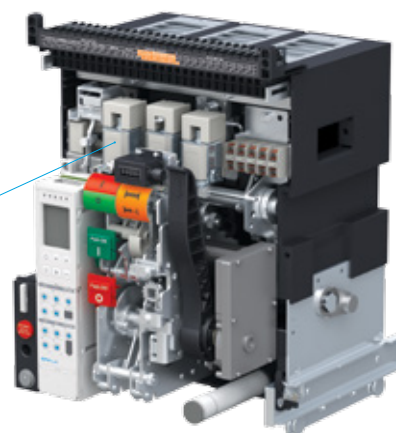


Wire Ratings

Rated Voltage	DC 24		AC/DC 110, 220	
	AWG (mm ²)	Insulation Level (V)	AWG (mm ²)	Insulation Level (V)
Specification	20	600	20	600



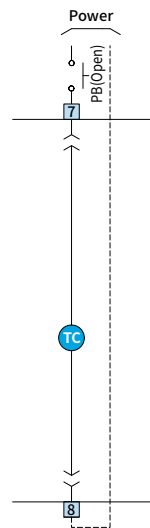
Closing Coil



Trip Coil (TC)

- A control device which trips a circuit breaker remotely.
- The circuit breaker is tripped by applying power of at least more than 150 ms within the range of 70 ~ 110 % of the rated control voltage to the control power terminal number (7) and (8).
- Add S1 ~ S9 in the order form when ordering the main unit.
- It can be purchased separately.
- Use a separate switch externally to apply power to the closing coil.

Connection Diagram



Ordering Method

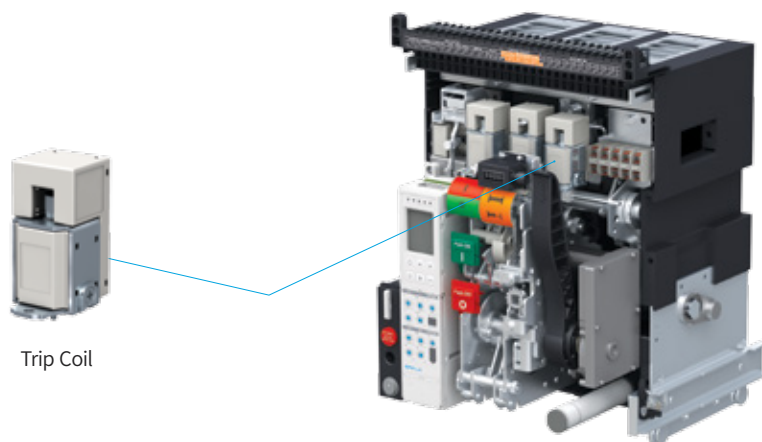
Name of Accessory	Order Name Placed upon Outgoing	Detailed Specification
Trip Coil	S1	AC/DC 110 V
	S2	AC/DC 220 V
	S3	AC 380 V
	S4	AC 440 V
	S7	DC 24 V
	S8	DC 48 V
	S9	DC 125 V

Ratings

Item	DC (V)	AC (V)
Rated Voltage (Vn)	24	-
	100 ~ 130	100 ~ 130
	200 ~ 250	200 ~ 250
Operating Limits (Vn)	0.7 ~ 1.1	
Power Consumption (VA)	Inrush (300), Steady-State (10)	
Trip Time (ms)	40	

Wire Ratings

Rated Voltage	DC 24		AC/DC 110, 220	
	AWG (mm ²)	Insulation Level (V)	AWG (mm ²)	Insulation Level (V)
Specification	20	600	20	600

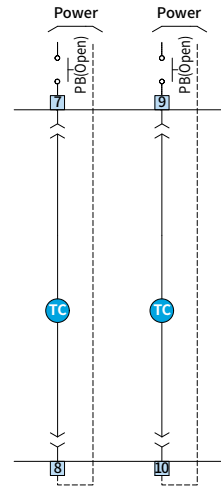


Accessories

Secondary Trip Coil

- It is a control device which trips a circuit breaker remotely from outside and dual remote trip is possible with an additional installation of trip coil.
- The circuit breaker is tripped by applying power for at least more than 150 ms within the range of 70 ~ 110 % of the rated control voltage by applying power to the control power terminal number (9) and (10).
- When dual trip coil is used, it cannot be used together with UVT coil.
- Add S1 ~ S9 in the order form when ordering the main unit and under the option, add S1 ~ S9 once again.
- It can be purchased separately.
- Use a separate switch externally to apply power to the dual trip coil.

Connection Diagram



Ordering Method

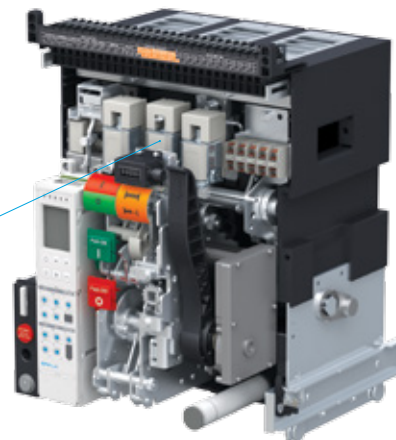
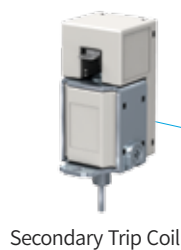
Name of Accessory	Order Name Placed upon Outgoing	Detailed Specification
Secondary Trip Coil	S1	AC/DC 110 V
	S2	AC/DC 220 V
	S3	AC 380 V
	S4	AC 440 V
	S7	DC 24 V
	S8	DC 48 V
	S9	DC 125 V

Ratings

Item	DC (V)		AC (V)	
	Rated Voltage (Vn)	24	-	100 ~ 130
	100 ~ 130		200 ~ 250	200 ~ 250
Operating Limits (Vn)	0.7 ~ 1.1			
Power Consumption (VA)	Inrush (300), Steady-State (10)			
Trip Time (ms)	40			

Wire Ratings

Rated Voltage	DC 24		AC/DC 110, 220	
	AWG (mm ²)	Insulation Level (V)	AWG (mm ²)	Insulation Level (V)
Specification	20	600	20	600



Trip Coil Supervision

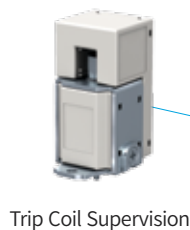
- A control device which trips a circuit breaker remotely from outside.
- The circuit breaker is tripped by applying power of at least more than 150 ms within the range of 70 ~ 110 % of the rated control voltage by applying power to the control power terminal number (7) and (8).
- When using trip coil supervision, auxiliary contact is 4a3b and when 1a1b is added, it becomes 5a4b. (AUX S/W 43/44, 53/54 cannot be used.)
- In order to monitor the permanent normal status when TCS is closed and tripped, the circuit sequence cannot be created by using the additional 1a1b (Order code AA). (Possibility of contact damage) However, if it is compulsory, select 1a contact within 4a3b for use.
- The trip coil's monitoring output contact No. 59.
- Coil supervision checks not only the circuit's mechanical contact but also the condition of the coil.
- Add T1 ~ T9 in the order form when ordering the main unit.
- It can be purchased separately.

Ordering Method

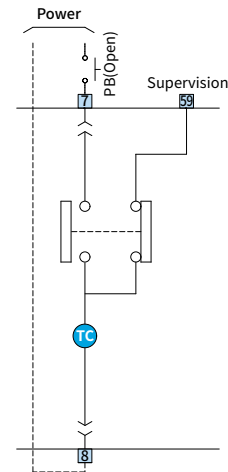
Name of Accessory	Order Name Placed upon Outgoing	Detailed Specification
Trip Coil Supervision	T1	AC/DC 110 V
	T2	AC/DC 220 V
	T3	AC 380 V
	T4	AC 440 V
	T7	DC 24 V
	T8	DC 48 V
	T9	DC 125 V

Wire Ratings

Rated Voltage	DC 24		AC/DC 110, 220	
	AWG (mm ²)	Insulation Level (V)	AWG (mm ²)	Insulation Level (V)
Specification	20	600	20	600

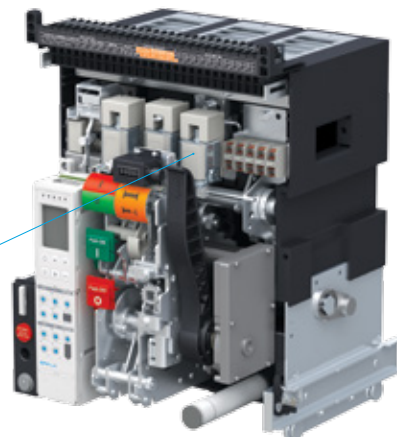


Connection Diagram



Ratings

Item	DC (V)	AC (V)
Rated Voltage (Vn)	24	-
	100 ~ 130	100 ~ 130
	200 ~ 250	200 ~ 250
Operating Limits (Vn)	0.7 ~ 1.1	
Power Consumption (VA)	Inrush (300), Steady-State (10)	
Trip Time (ms)	40	



Accessories

UVT Coil

- Under-voltage trip device is a device that automatically trips the circuit breaker if the load voltage drops to below 70 % of the standard or to prevent accidents at the load part during a black out.
- Under-voltage trip device is classified into instantaneous and time delay type for use. As for instantaneous type, directly connect to control power terminal number (9), (10) for use and as for time delay type, the Time Delay Controller can be used.
- The circuit breaker trips when the load voltage at the UVT coil becomes less than 35 %, becomes an interlocked state that cannot be closed and when load voltage of 85% is applied, normal closing is possible.
- When instantaneous type of UVT is used, dual trip coil cannot be used.
- When instantaneous type of UVT is used, add U1 ~ U9 in the order form when ordering the main unit.
- It can be purchased separately.

Ordering Method

Name of Accessory	Order Name Placed upon Outgoing	Detailed Specification
UVT Coil	U1	AC/DC 110 V
	U2	AC/DC 220 V
	U3	AC 380 V
	U4	AC 440 V
	U7	DC 24 V
	U8	DC 48 V
	U9	DC 125 V

Wire Ratings

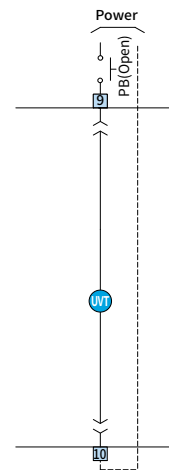
Rated Voltage	DC 24		AC/DC 110, 220		AC 380, 440	
	AWG (mm ²)	Insulation Level (V)	AWG (mm ²)	Insulation Level (V)	AWG (mm ²)	Insulation Level (V)
Specification	20	600	20	600	20	600



UVT Coil



Connection Diagram



Ratings

Item	DC (V)	AC (V)
Rated Voltage (Vn)	24	-
	110 (100 ~ 130)	110 (100 ~ 130)
	220 (200 ~ 250)	220 (200 ~ 250)
	-	380
	-	440
Pickup	Above 0.85 Vn	
Drop	Below 0.35 Vn	
Power Consumption (VA)	Inrush (300), Steady-State (10)	
Trip Time (ms)	50	

UVT Time Delay Controller

- Under-voltage trip device is a device that automatically trips the circuit breaker if the load voltage drops to below operating voltage or to prevent accidents at the load part during a black out.
- This device is capable of delaying (0.5, 1.0, 1.5, 3 sec).
- UVT Time Delay Controller can be mounted at the left side of the cradle and the external rail and it can also be mounted at the position desired by the customer.
- Add V1 ~ V9 in the order form when ordering the main unit. Time Delay Controller will be included in the package.
- When purchasing the UVT time delay controller only, place the order for the separate product, CHGS UT1 ~ UT9.
- DC 24 V and DC 48 V are only available in instantaneous type.
- In the event the UVT Time Delay Controller and RCTU are purchased simultaneously, the front mounting can be installed in the front for 1 option designated by the customer. The remaining 1 shall be installed by designating a position in the DIN RAIL inside the panel.

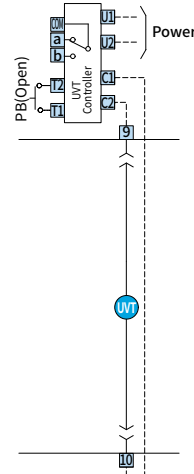
Ordering Method

Name of Accessory	Order Name Placed upon Outgoing	Order Name for Separate Sales (CHGS-)	Detailed Specification
UVT Time Delay Controller	-	CHGS UT1	AC/DC 110 V
	-	CHGS UT2	AC/DC 220 V
	-	CHGS UT3	AC 380 V
	-	CHGS UT4	AC 440 V
	-	CHGS UT9	DC 125 V
UVT Time Delay Controller + UVT Coil	V1	CHGS V1	AC/DC 110 V
	V2	CHGS V2	AC/DC 220 V
	V3	CHGS V3	AC 380 V
	V4	CHGS V4	AC 440 V
	V9	CHGS V9	DC 125 V

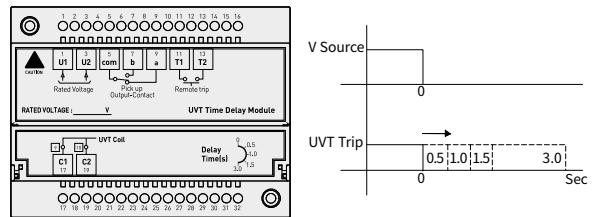
UVT Time Delay Controller



Connection Diagram



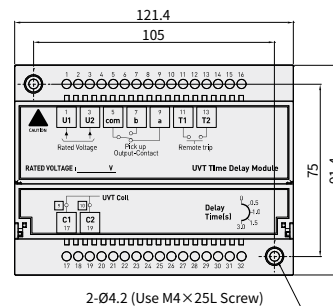
Wiring and Operating Time



Can be selected from 0.5 – 1.0 – 1.5 – 3 (sec)

Dimension

Unit : mm



※ 5, 7, 9 switch status is the status when UVT is functioning.

Accessories

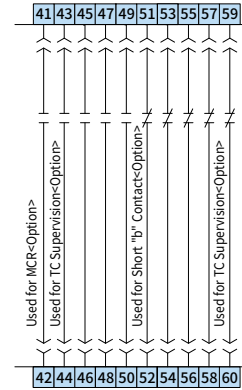
AUX Switch

- It is an output contact to remotely monitor the On/Off state of the ACB.
- As for CSG Type, 3a3b is provided and as for CHG Type, 5a5b is provided as standard without separate indication in the order form.
- AUX switch can be expanded up to 6a6b maximum.
 - How to order CSG 5a5b Add A5 in the order form.
 - How to order CSG/CHG 6a6b Add AA in the order form.
- When using the monitoring contact for trip coil, 3a3b can be used for the AUX switch and when using the MCR function of OCR, it can be used as 4a3b.
- When short "b" is added, it will be attached to 'b' contacts 51, 52 for outgoing and upon additional mounting, the short "b" sealed and released can be mounted additionally depending on the number of b contacts.
- 5a5b can be purchased separately. Place an order separately as CHGS A5.

AUX Switch Ratings

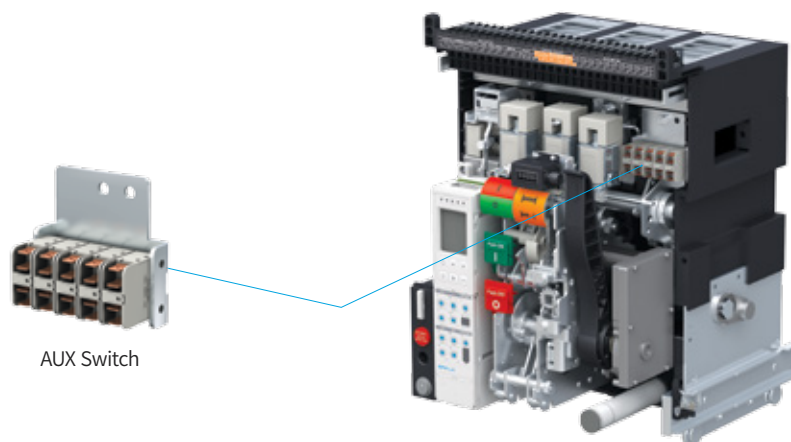
Applicable Load	Resistance	Lamp	Inductor	Motor
AC 125 V	5 A	0.7 A	4 A	1.3 A
AC 250 V	5 A	0.5 A	4 A	0.8 A

Connection



Wire Specification

Wire Specification	AWG	Insulation Level (V)
Specification	20	300



Counter

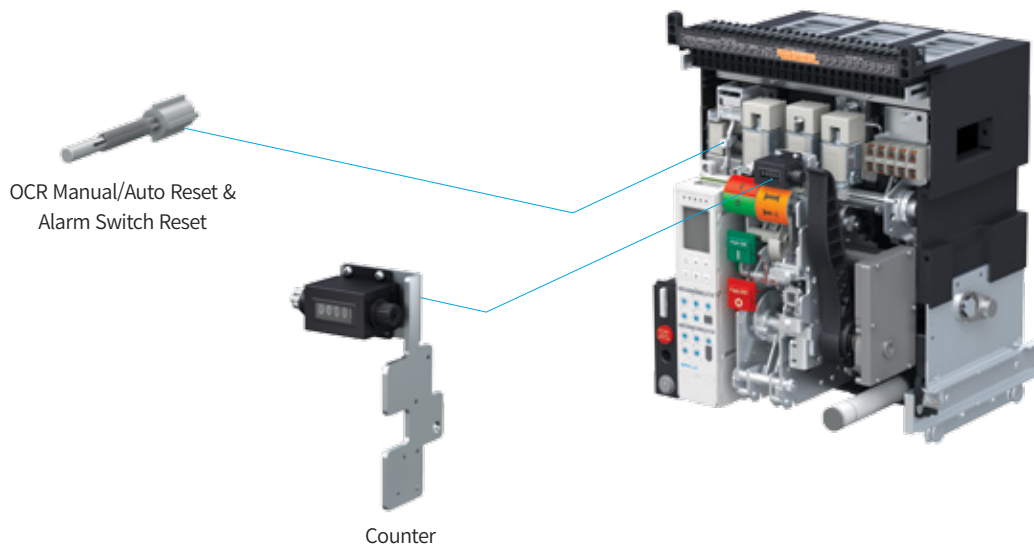
- It is a device that displays the number of operations, indicating On/Off operation of the circuit breaker in 1 cycle.
- It is a primary component so separate order is unnecessary.

OCR Manual/Auto Reset & Alarm Switch Reset

- It is a device that interlocks the closing of the circuit breaker until the electric line is restored after the user has completely removed the fault factor when a circuit breaker tripped by OCR due to overload or fault current in the electric line. (BR)
- BR : When the circuit breaker functions due to OCR, it interlocks to prevent closing of circuit breaker and is reset manually.
- BA : When the circuit breaker functions due to OCR, the circuit breaker's status is indicated as output contact 2a other than the interlock feature and this output contact is reset manually.
- BH : When the circuit breaker functions due to OCR, the circuit breaker's status is indicated as output contact high capacity switch other than the interlock feature and this output contact is reset manually.
- As a product mounted in the main unit, add BR/BA/BH in the order form when ordering the main unit.

Ordering Method

Name of Accessory	Order Name Placed upon Outgoing	Detailed Specification
OCR Manual Reset	BR	Interlock Manual Reset
OCR Manual Reset + Alarm S/W Reset	BA	Interlock Manual Reset + Alarm S/W Reset
OCR Manual Reset + High Capacity Alarm S/W Reset (1C)	BH	Interlock Manual Reset + Alarm S/W Reset (High Capacity DC 3 A)



Accessories

Position Switch

- This switch, mounted at the side of the cradle, displays the position of ACB during draw-out.
- The position of Inserted/Isolated/Test/Connected can be displayed.
- Only one switch is applicable and it can only be mounted at the right side of the cradle.
- It can be purchased separately.

Position Switch



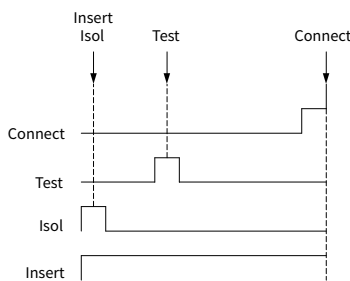
AUX Switch Ratings

Applicable Load	Resistance	Lamp	Inductor	Motor
AC 125 V	10 A	1.5 A	6 A	2 A
DC 30 V	6 A	3 A	6 A	3 A
DC 125 V	0.6 A	0.1 A	0.6 A	0.1 A
DC 250 V	0.3 A	0.05 A	0.3 A	0.05 A

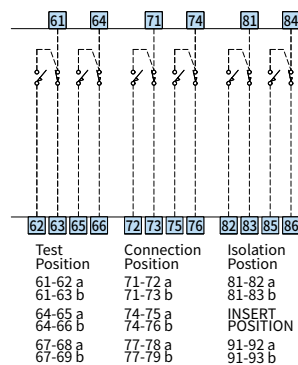
Ordering Method

Order Name	Specification of Switch Output				Mounting Position	
	Composition	Insert	Isol	Test		Connect
AQ CHGS AQ	Test 1C/Connect 1C	×	×	● (1C)	● (1C)	Right Side of Cradle
AR CHGS AR	Connect 2C	×	×	×	● (2C)	
AS CHGS AS	Test 2C	×	×	● (2C)	×	
AT CHGS AT	Isol 1C/Insert 1C	● (1C)	● (1C)	×	×	
AU CHGS AU	Insert 2C	● (2C)	×	×	×	
AV CHGS AV	Isol 2C	×	● (2C)	×	×	
PQ CHGS PQ	Isol 1C/Insert 1C/Test 1C/Connect 1C	● (1C)	● (1C)	● (1C)	● (1C)	
PS CHGS PS	Isol 1C/Test 1C/Connect 2C	×	● (1C)	● (1C)	● (2C)	
P4 CHGS P4	Test 2C/Connect 2C	×	×	● (2C)	● (2C)	
PT CHGS PT	Test 4C	×	×	● (4C)	×	
PR CHGS PR	Insert 1C/Isol 1C/Test 3C/Connect 3C	● (1C)	● (1C)	● (3C)	● (3C)	
P8 CHGS P8	Insert 2C/Isol 2C/Test 2C/Connect 2C	● (2C)	● (2C)	● (2C)	● (2C)	

Operating Sequence of Position Switch Operation Circuit



Connection Diagram



Dimension



Lifting Lug

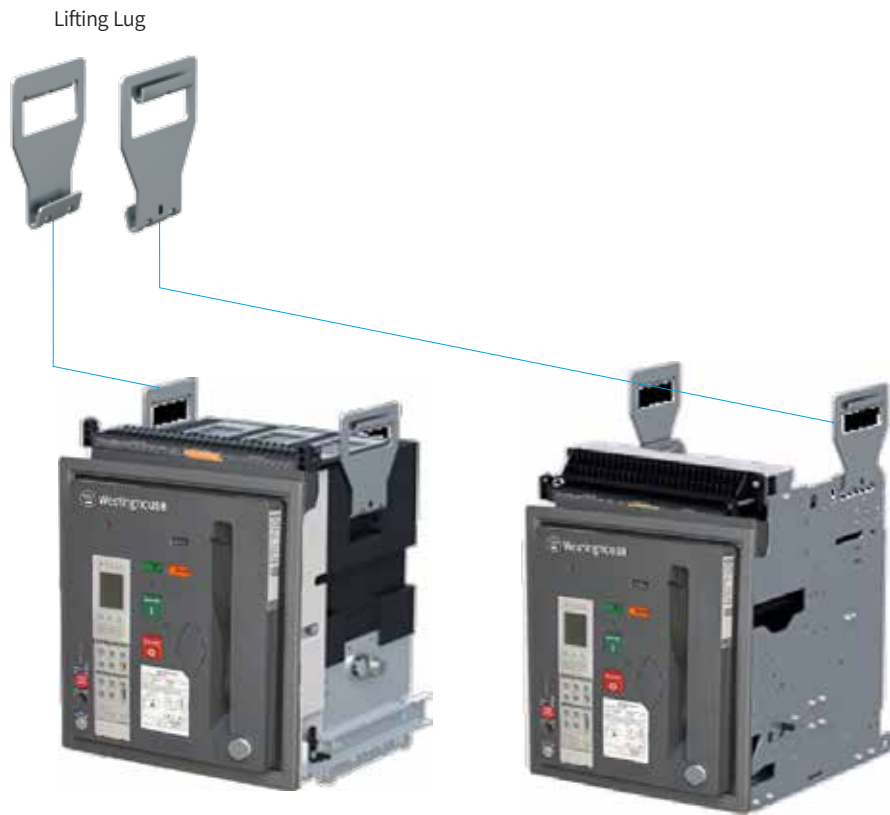
- It is a component that is used for transporting the circuit breaker.
- It can be hung to the handle at the side of the cradle, side of the arc shield and the main unit and the product can be moved by a crane or a person.
- When handling all the products, use the crane and in case of transporting independently using only the crane in case of products below 3,200 A, the products must be transported in accordance with the safety regulations.
- As a product sold separately, place an order for CHGS AL.

Dummy ACB

- The dummy ACB is applied as emergency in case of a long-term black out for repair when a malfunction has occurred in a device when using the ACB. It is a frame used to conduct ACB's function temporarily.
- As the circuit breaker is closed, the primary power must be removed in the electric line when connecting the Dummy ACB.
- Each frame is provided in the maximum rated current.
- It can be ordered separately. Make a separate inquiry when placing the order.

Ordering Method

Name of Accessory	Detailed Specification
Dummy ACB	A Frame, 630 ~ 2,000 A, 3P
	A Frame, 630 ~ 2,000 A, 4P
	B Frame, 2,000 ~ 4,000 A, 3P
	B Frame, 2,000 ~ 4,000 A, 4P
	C Frame, 4,000 ~ 5,000 A, 3P
	C Frame, 4,000 ~ 5,000 A, 4P
	D Frame, 4,000 ~ 6,300 A, 3P
	D Frame, 4,000 ~ 6,300 A, 4P



Accessories

Mechanical Interlock

- MI is a device that mechanically interlocks the closing and tripping of each circuit breaker by connecting 2 or 3 circuit breakers.
- The MI is operated by a combination of the MI unit and the components of the interlock that is installed inside the main unit.
- The MI unit is a separate product and it is a device that is mounted additionally after the ACB has to be installed in the panel.
- When placing the order for the main unit, add B0 in the order from and only the component inside the interlock is mounted inside the main unit for release and as for the external mounting kit, place an additional order as a separate product.
- MI wire should be connected under 2 m between ACBs.
- In order to install, a square hole of 100×200 (mm) is required.



Mechanical Interlock

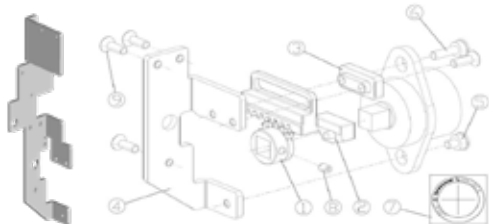
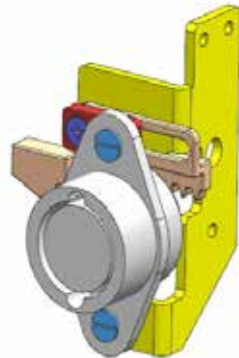
Ordering Method

Name of Accessory	Order Name for Separate Sales (CHGS-)	Accessory Spec.
Mechanical Interlock	CHGS DWB1	A & B & C & D Frame Draw-Out (Fixed) Type 2 Way MI (External Mounting Kit Only)
	CHGS DWB2	A & B & C & D Frame Draw-Out (Fixed) Type 3 Way MI (External Mounting Kit Only)
	CHGS FWB1	A & C Frame Fixed Type 2 Way MI (External Mounting Kit Only)
	CHGS FWB2	A & C Frame Fixed Type 3 Way MI (External Mounting Kit Only)
	CHGS B0DA	A Frame Interlock Part (B0)
	CHGS B0DB	B Frame Interlock Part (B0)
	CHGS B0DC3	C Frame 3P Interlock Part (B0)
	CHGS B0DC4	C Frame 4P Interlock Part (B0)
	CHGS B0DD3	D Frame 3P Interlock Part (B0)
	CHGS B0DD4	D Frame 4P Interlock Part (B0)
	CHGS B0FA	A Frame Interlock Part (B0) + Fixed Type of Installation Bracket
	CHGS B0FB	B Frame Interlock Part (B0) + Fixed Type of Installation Bracket
	CHGS B0FC3	C Frame 3P Interlock Part (B0) + Fixed Type of Installation Bracket
	CHGS B0FC4	C Frame 4P Interlock Part (B0) + Fixed Type of Installation Bracket
	CHGS B0FD3	D Frame 3P Interlock Part (B0) + Fixed Type of Installation Bracket
	CHGS B0FD4	D Frame 4P Interlock Part (B0) + Fixed Type of Installation Bracket
	CHGS DWB1A	A Frame Draw-Out Type 2 Way MI + Interlock Part (B0)
	CHGS DWB2A	A Frame Draw-Out Type 3 Way MI + Interlock Part (B0)
	CHGS DWB1B	B Frame Draw-Out Type 2 Way MI + Interlock Part (B0)
	CHGS DWB2B	B Frame Draw-Out Type 3 Way MI + Interlock Part (B0)
	CHGS DWB1C3	C Frame 3P Draw-Out 2 Way MI + Interlock Part (B0)
	CHGS DWB1C4	C Frame 4P Draw-Out 2 Way MI + Interlock Part (B0)

Name of Accessory	Order Name for Separate Sales (CHGS-)	Accessory Spec.
Mechanical Interlock	CHGS DWB2C3	C Frame 3P Draw-Out 3 Way MI + Interlock Part (B0)
	CHGS DWB2C4	C Frame 4P Draw-Out 3 Way MI + Interlock Part (B0)
	CHGS DWB1D3	D Frame 3P Draw-Out 2 Way MI + Interlock Part (B0)
	CHGS DWB1D4	D Frame 4P Draw-Out 2 Way MI + Interlock Part (B0)
	CHGS DWB2D3	D Frame 3P Draw-Out 3 Way MI + Interlock Part (B0)
	CHGS DWB2D4	D Frame 4P Draw-Out 3 Way MI + Interlock Part (B0)
	CHGS FWB1A	A Frame Fixed Type 2 Way MI + Interlock Part (B0)
	CHGS FWB2A	A Frame Fixed Type 3 Way MI + Interlock Part (B0)
	CHGS FWB1B	B Frame Fixed Type 2 Way MI + Interlock Part (B0)
	CHGS FWB2B	B Frame Fixed Type 3 Way MI + Interlock Part (B0)
	CHGS FWB1C3	C Frame 3P Fixed Type 2 Way MI + Interlock Part (B0)
	CHGS FWB1C4	C Frame 4P Fixed Type 2 Way MI + Interlock Part (B0)
	CHGS FWB2C3	C Frame 3P Fixed Type 3 Way MI + Interlock Part (B0)
	CHGS FWB2C4	C Frame 4P Fixed Type 3 Way MI + Interlock Part (B0)
	CHGS FWB1D3	D Frame 3P Fixed Type 2 Way MI + Interlock Part (B0)
	CHGS FWB1D4	D Frame 4P Fixed Type 2 Way MI + Interlock Part (B0)
	CHGS FWB2D3	D Frame 3P Fixed Type 3 Way MI + Interlock Part (B0)
	CHGS FWB2D4	D Frame 4P Fixed Type 3 Way MI + Interlock Part (B0)

CASTEL & Key Lock

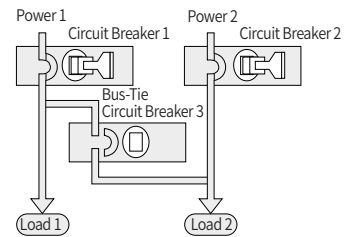
- It is a device that maintains the interlock condition to prevent electric/manual closing when the circuit breaker is open.
- When the key has been used to unlock, the electric/manual On/Off operation is possible. When the key has been removed from the circuit breaker, it becomes interlocked. When the key has been used to lock, the Off button has to be pressed to turn the key to the lock position.
- As a product mounted on the main unit, add AB in the order form when placing an order for the main unit.



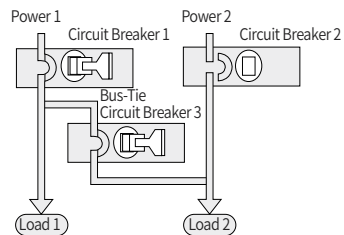
Key Lock & Key Interlock

- 3 circuit breakers mounted with the key lock device for preventing On can be used to make up the system. Only 2 circuit breakers can be allowed to close using 2 keys and the remaining 1 unit can be interlocked to provide stable load.

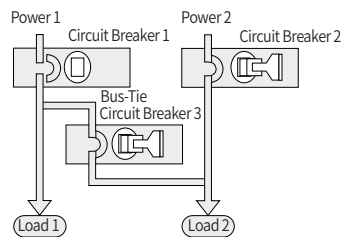
Circuit Breaker 3 cannot be closed



Circuit Breaker 2 cannot be closed



Circuit Breaker 1 cannot be closed



※ Example : Parallel feed at 2 power is prevented in case bus-tie circuit breaker is used

Accessories

On/Off Button Lock

- It is a safety device that prevents manual On/Off operation caused by the user's mistaken. The buttons are covered with a plastic cover to prevent arbitrary operation of manual close/trip button and padlock is used.
- As a product mounted on the main unit, add AM in the order form when placing an order for the main unit.
- Padlock is not provided by our company. (Ø5 ~ Ø8)

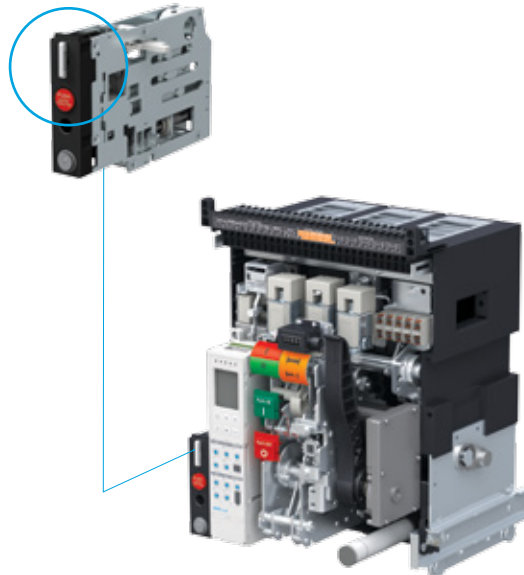
On/Off Button Lock



DR Device Unit & Position Pad Lock

- As for the draw-out type of circuit breaker, DR device is mounted on the main unit.
- DR device is comprised of a groove for inserting draw-out handle, draw-out push button, position indicator and a padlock device.
- As for the padlock device, it is provided as a standard safety device that prevents arbitrary draw-out by using a padlock in the connection/test/isolated position but the padlock is not provided by our company. (Ø5 ~ Ø8)
- It can be purchased separately.

DR Device Unit & Position Pad Lock



Auto Connection Type & Manual Control Plug Type

- As for the method of connecting the control power, auto connection type in which the control power is automatically connected/isolated when the main unit is drawn out and manual connection type in which the user directly inserts the connector with the control power connected to the main unit are available.
- Fixed type is provided with manual control plug type as standard so that type of connection terminal of the main power can be designated without separate indication.
- When completely removing the manual connection type of product from the cradle, the main unit has to be separated after removing the connector.
- As a product mounted on the cradle, select A for automatic connection type and J for manual connection type.



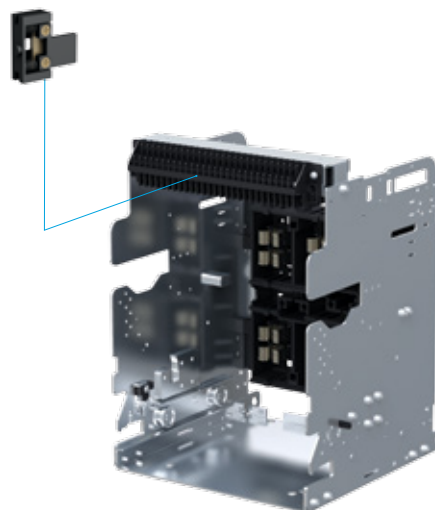
Short “b” Contact

- When the circuit breaker is moved from the Connected position to the Test position, the auxiliary contact AUX “b” is disconnected to maintain the external control circuit in normal, ultimately maintaining an accurate sequence operation. As for the number of shorting “b” contact, it corresponds to the number of AUX “b” (5b).
- Upon outgoing, only 1b (51, 52) is mounted and as for the remaining 4b, it is sealed together with the manual pack so it can be mounted as much as needed for use.
- As a product mounted on the main unit, add AK in the order form when placing an order for the main unit.

Indication of Contact Status (When AUX “b” and Short “b” are Connected)

ACB Operating ACB Position	ACB Close (AUX “b” Off)	ACB Open (AUX “b” On)
Connected Position (Short “b” Off)		
Test Position (Short “b” On)		

Short “b” Contact



Accessories

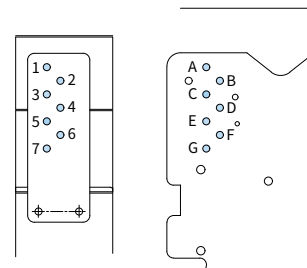
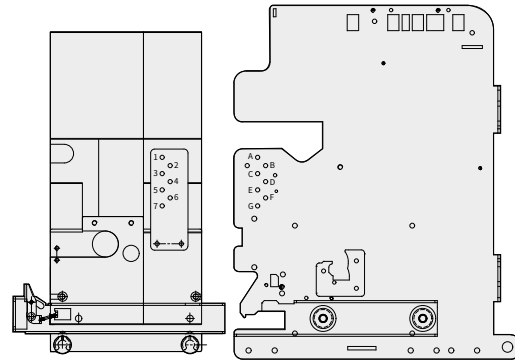
Miss-Insertion Preventor

- Although the external size is equivalent, in case the rating does not conform when the main unit of the circuit breaker (ACB) is inserted in the cradle in the composition of another circuit breaker, this device prevents it from being inserted.
- It is comprised based on the CT rated current.
- Each component is mounted on the main unit and cradle respectively. Add AW in the main unit and cradle's order form respectively when placing the order.

Ordering Method

CT Rating	Cradle	ACB
0 = OCR Non Mounting	ADEG	236
I = 80 A	AIEG	234
B = 160 A	ADFG	235
O = 200 A	ADEF	237
V = 320 A	ABEF	347
E = 400 A	ABDG	356
T = 630 A	ABDF	357
H = 800 A	ABDE	367
J = 1,000 A	ABCG	456
K = 1,250 A	ABCF	457
L = 1,600 A	ABCE	467
M = 2,000 A	ABCD	567
N = 2,500 A	BCDE	167
P = 3,200 A	BCDF	157
Q = 4,000 A	BCDG	156
S = 5,000 A	BCEF	147
X = 6,300 A	ABEG	346

Part's Mounting Position per Rated Current

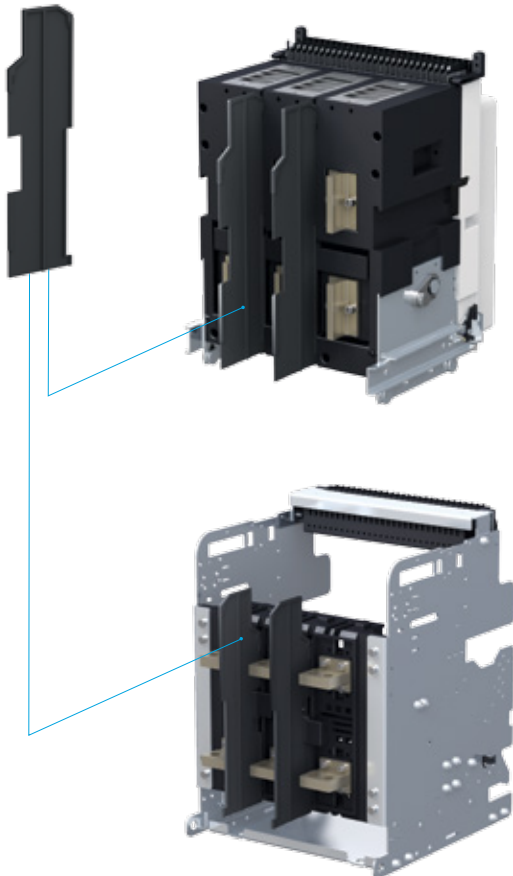


Miss-Insertion Preventor

Phase Insulation Barrier

- Phase insulation barrier is a part installed between phases that prevents short circuit between phases in advance by closing the arc which may occur between phases.
- 2 ea are mounted for 3P Type and 3 ea are mounted for 4P Type and as they are sold individually, select the required quantity when placing the order.
- As a product sold separately, place an order in CHGS P BAR.

Phase Insulation Barrier



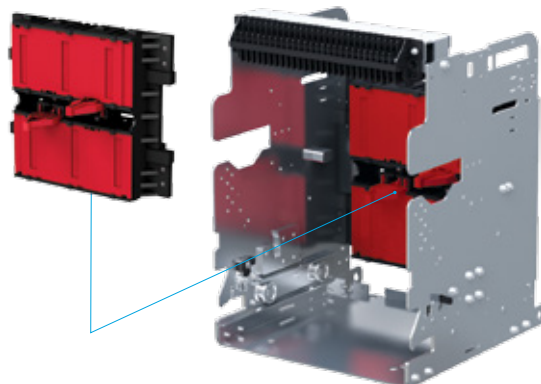
Safety Shutter & Shutter Lock

- It is a safety device that prevents the contact between the conductor part and the front part when the main unit of the circuit breaker mounted on the cradle is drawn out.
- The structure automatically opens and closes when the circuit breaker is drawn out and it comes with a shutter lock device that prevents it from opening when the shutter is closed in the event the main unit is drawn out. The padlock is not provided by our company. (Ø5 ~ Ø8)
- As for the shutter, the power side and load side operates separately, each equipped with an operation device and they can be locked individually.
- As a product mounted on the cradle, add AE in the order form when placing the order for the cradle.

Ordering Method

Name of Accessory	Order Name Placed upon Outgoing	Order Name for Separate Sales (CHGS-)	Detailed Specification
Safety Shutter	AE	CHGS AEA3	A Frame, 630 ~ 2,000 A, 3P
		CHGS AEA4	A Frame, 630 ~ 2,000 A, 4P
		CHGS AEB3	B Frame, 2,000 ~ 4,000 A, 3P
		CHGS AEB4	B Frame, 2,000 ~ 4,000 A, 4P
		CHGS AEC3	C Frame, 4,000 ~ 5,000 A, 3P
		CHGS AEC4	C Frame, 4,000 ~ 5,000 A, 4P
		CHGS AED3	D Frame, 4,000 ~ 6,300 A, 3P
		CHGS AED4	D Frame, 4,000 ~ 6,300 A, 4P

Safety Shutter & Shutter Lock



Accessories

Fixing Block

- It is a safety device for reinforcement in order to prevent abnormal operation caused by vibration.
- It is capable of simultaneously fixing the main unit and the cradle and reinforcing the cradles and panel supporters.
- Each component is mounted on the main unit and the cradle. Add AF in the respective order form of the main unit and cradle when placing the order.

Control Terminal Protection Cover

- It is a safety cover that is placed on the connection terminal to prevent contact with external foreign substances or physical contact after the control power has been connected to the automatic connection type of terminal.
- It cannot be applied to fixed type ACB and draw-out type ACB with manual connection terminal.
- As a product mounted on the cradle, add BC when placing an order for the draw-out type with automatic connection type.

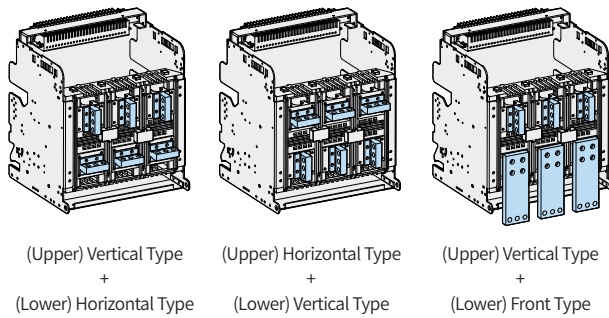
Control Terminal Protection Cover



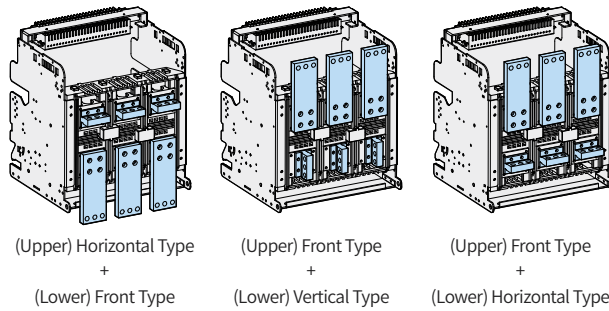
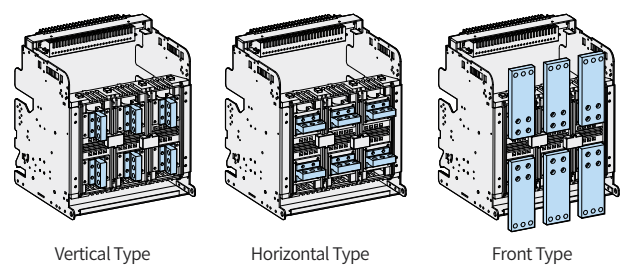
Terminal Bus Bar (Draw-Out Type)

- ACB is compatible with various type of terminal bus bar such as vertical, horizontal, front and others depending on the type of bus bar of the customer's equipment and the terminal can be changed to A frame (630 ~ 1,600 A) and B frame (630 ~ 3,200 A).
- The front type of terminal bus bar is released separately from the main unit and cradle so it needs to be installed at site. In addition, the front type of terminal bus bar requires separate order so refer to the following table when placing the order.
- As for the front type of terminal bus bar that is provided separately for the B frame 2,000/2,500 A, 3,200 A terminal is provided.
- Front type of terminal bus bar is sold separately.

Mixed Type



Standard Type



Ordering Method

Name of Accessory	Order Name for Separate Sales (CHGS-)	Detailed Specification
Connection Terminal (Draw-Out Type)	CHGS HVA3	Up-Down Horizontal Type/Up-Down Vertical Type 6 ea (A Frame, 630 ~ 1,600 A, 3P)
	CHGS HVA4	Up-Down Horizontal Type/Up-Down Vertical Type 8 ea (A Frame, 630 ~ 1,600 A, 4P)
	CHGS HVB3	Up-Down Horizontal Type/Up-Down Vertical Type 6 ea (B Frame, 2,000 ~ 3,200 A, 3P)
	CHGS HVB4	Up-Down Horizontal Type/Up-Down Vertical Type 8 ea (B Frame, 2,000 ~ 3,200 A, 4P)
	CHGS FRA3	Up-Down Front Type 6 ea (A Frame, 630 ~ 1,600 A, 3P)
	CHGS FRA4	Up-Down Front Type 8 ea (A Frame, 630 ~ 1,600 A, 4P)
	CHGS FRB3	Up-Down Front Type 6 ea (B Frame, 2,000 ~ 3,200 A, 3P)
	CHGS FRB4	Up-Down Front Type 8 ea (B Frame, 2,000 ~ 3,200 A, 4P)
	CHGS FHVA3	Up-Down Front Type 3 ea + Horizontal Type/Vertical Type 3 ea (A Frame, 630 ~ 1,600 A, 3P)
	CHGS FHVA4	Up-Down Front Type 4 ea + Horizontal Type/Vertical Type 4 ea (A Frame, 630 ~ 1,600 A, 4P)
	CHGS FHVB3	Up-Down Front Type 3 ea + Horizontal Type/Vertical Type 3 ea (B Frame, 2,000 ~ 3,200 A, 3P)
	CHGS FHVB4	Up-Down Front Type 4 ea + Horizontal Type/Vertical Type 4 ea (B Frame, 2,000 ~ 3,200 A, 4P)

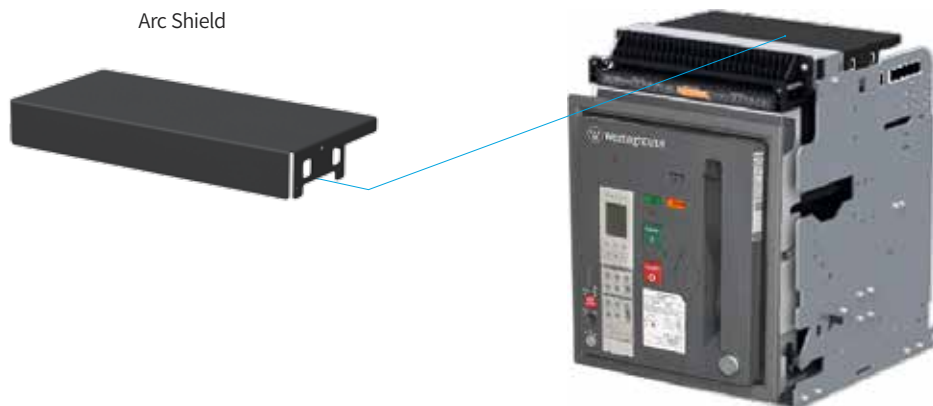
Accessories

Arc Shield

- Arc which occurs while breaking the circuit breaker is extinguished through the arc chamber within the main unit or as the residual arc is discharged to the external upper part, the basic distance required for insulation has to be maintained.
- When mounting the arc shield, the insulation distance can be minimized to “0” due to the residual arc discharged to the upper part.
- When mounting the arc shield, it can be piled in 4 stories.
- As a product mounted on the cradle, add AX in the order form when placing the order for the cradle.

Ordering Method

Name of Accessory	Order Name Placed upon Outgoing	Order Name for Separate Sales (CHGS-)	Detailed Specification
Arc Shield	AX	CHGS AXA3	A Frame, 630 ~ 2,000 A, 3P
		CHGS AXA4	A Frame, 630 ~ 2,000 A, 4P
		CHGS AXB3	B Frame, 2,000 ~ 4,000 A, 3P
		CHGS AXB4	B Frame, 2,000 ~ 4,000 A, 4P
		CHGS AXC3	C Frame, 4,000 ~ 5,000 A, 3P
		CHGS AXC4	C Frame, 4,000 ~ 5,000 A, 4P
		CHGS AXD3	D Frame, 4,000 ~ 6,300 A, 3P
		CHGS AXD4	D Frame, 4,000 ~ 6,300 A, 4P



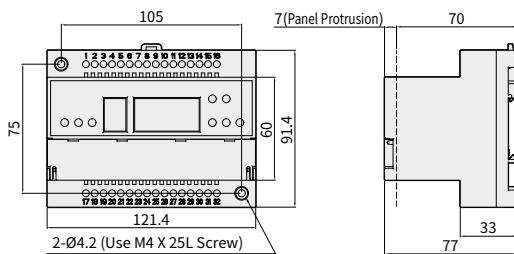
RCTU

- This product is a module that is used for controlling ACB remotely by using a communication network.
- This product uses Modbus/RS-485 communication.
- Close/Open control of ACB assures its reliability through SBO (Select Before Operation) function.
- It can be used together with the temperature monitoring device module and as for the detailed rating, refer to the table in Page 98.

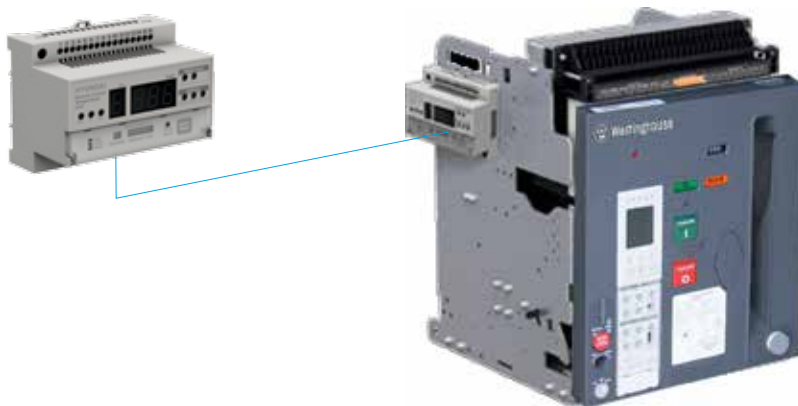
Contact Specification

For ACB Control	Applicable Range
Contact Ratings	10 A 240 VAC, 30 VDC
Max Switching Power	10 A 240 VAC, 30 VDC

Dimension



Remote Control Temperature Unit (RCTU) /
Temperature Monitoring Device Module



Temperature Monitoring Device Module

- This product detects the bus bar temperature of the ACB through the temperature sensor installed on the temporary location of ACB and displays it.
- Up to 3 temperature sensors can be installed and it can trigger the designated temperature alarm through a separate temperature contact.
- It supports Modbus/RS-485 communication and the each channel's temperature value and the maximum temperature value out of the channel are transmitted through communication.
- The alarm for operating temperature value can be set through communication.
- The temperature value of each channel can be checked through the Segment LED mounted at the front and once it reaches the temperature alarm set by the user, the temperature value of the relevant channel is displayed.
- As a product sold separately, it can be installed in the ACB and the internal panel. As a module that can be used together with the remote breaking module, refer to the table on Page 98.
- This product is an optional product of remote breaking module and it is only sold as a combination type with the remote breaking module.

Contact Specification

Temperature Alarm	Applicable Range
Contact Ratings	10 A 120 VAC/5 A 240 VAC, 5 A 30 VDC
Max Switching Power	1,200 VA, 150 W

Accessories

Temperature Sensor Unit

- Detailed specification of Remote Control Temperature Unit (RCTU)
- RCTU is equipped with a contact that enables remote insertion/disconnection of ACB using communication. Through the 4 temperature channels, the temperature of ACB is measured.
- RCTU supports RS-485/Modbus-RTU communication.
- Insertion/disconnection control of ACB assures its reliability through SBO (Select Before Operation) function.
- If the temperature rises over the value set by the user through communication, it can be checked through the alarm contacting point (Additional connection required).
- The temperature of ACB can be checked through the Segment LED at the front.
- RCTU can be installed in the ACB's cradle or panel.
- RCU module is equipped with the same function other than the temperature monitoring function in the RCTU module.

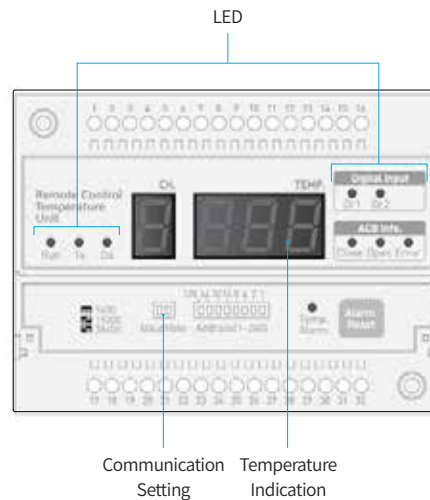
Status Indicating LED		Details	
RCTU Status	Run LED	RCTU Operation Status LED	
	Com LED	Communication LED	
	Temp. Alarm LED	Temperature Alarm LED	
	Alarm DO LED	Temperature Alarm Output Contact LED	
Universal Digital Input	DI1	Dry Contact (5 V)	
	DI2	Dry Contact (5 V)	
Temperature Alarm	CB Close	ACB Close Status LED	
	CB Open	ACB Open Status LED	
	CB Error	ACB Close/Open Terminal Non Contacted and Control Error Status	

Terminal Block

No.	Definition	No.	Definition
1	DI1 +	17	NTC IR Sensor
2	DI1 -	18	NTC IR Sensor
3	DI2 +	19	IR Sensor 3 AOR (Black)
4	DI2 -	20	IR Sensor 3 GND (Green)
5	DI Close +	21	IR Sensor 3 AOT (Yellow)
6	DI Close -	22	IR Sensor 3 Power (Red)
7	DI Open +	23	IR Sensor 2 AOR (Black)
8	DI Open -	25	IR Sensor 2 GND (Green)
9	DO Temp. Alarm	25	IR Sensor 2 AOT (Yellow)
10	DO Temp. Alarm	26	IR Sensor 2 Power (Red)
11	DO Close	27	IR Sensor 1 AOR (Black)
12	DO Close	28	IR Sensor 1 GND (Green)
13	DO Open	29	IR Sensor 1 AOT (Yellow)
14	DO Open	30	IR Sensor 1 Power (Red)
15	AC Power	31	RS485 (-)
16	AC Power	32	RS485 (+)

Contact Specification

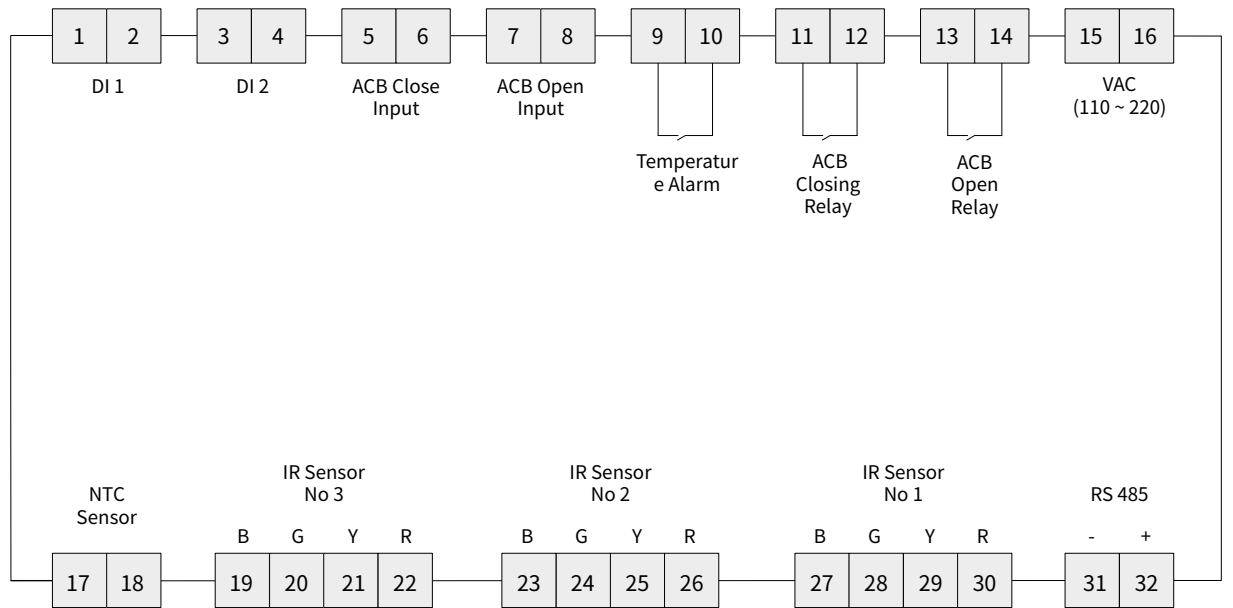
Item	Applicable Range	
ACB Control	Contact Ratings	10 A 240 VAC, 30 VDC
	Max Switching Power	2,400 VA, 300 W
Temperature Alarm	Contact Ratings	10 A 120 VAC/5 A 240 VAC 5 A 30 VDC
	Max Switching Power	1,200 VA, 150 W



⚠ Caution

1. IR sensor differs in value by the reflectivity of metal surface. Measuring point should be varnished or painted with matt black paint depending on material.
2. Measuring point and IR distance differ measuring spot size by D:S ratio. This sensor has 8:1 scale.
3. IR sensor should be indicated at the point where there is no gloss surface.
4. IR sensor distance : The ratio of measurement locations is 8:1. The diameter measured by the IR sensor is 1 cm when it is 8 cm away from the measurement position.

Block Diagram



Accessories

Temperature Sensor

- The temperature sensor is mounted on the designated position as standard but another location can be designated by the user.
- It is sold separately.

Ordering Method

Name of Accessory	Order Name for Separate Sales (CHGS-)	Detailed Specification
Temp Sensor	CHGTSN	Temperature Sensor
	CHGRCU	Remote Control Trip Module
Remote Control Trip Module	CHGRCTU	Remote Control Trip Module + Temperature Monitoring Device Module
	CHGRCTUN	Remote Control Trip Module + Temperature Monitoring Device Module + Temperature Sensor

Physical Medium

- Shielded Twister Pair cable used

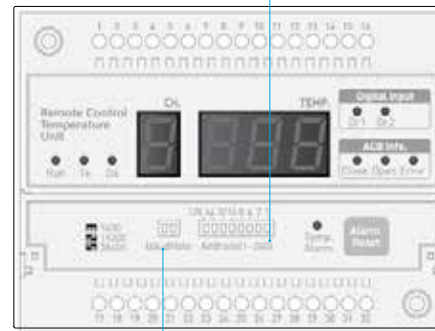
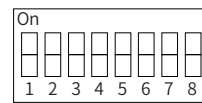
⚠ Caution

1. The use of Shielded Twisted Pair cable is recommended.
2. The maximum length for connection can be 1 km but the communication length may become shorter depending on the installation environment and the number of device connected to the communication line.
3. The communication length may differ depending on the communication speed.

Communication Specification

- RS-485 (Modbus-RTU)
- Baud Rate : 9,600, 19,200, 38,400 bps (Default : 9,600)
- Data Bits : 8 bits
- Parity : None
- Stop Bits : 1 bits

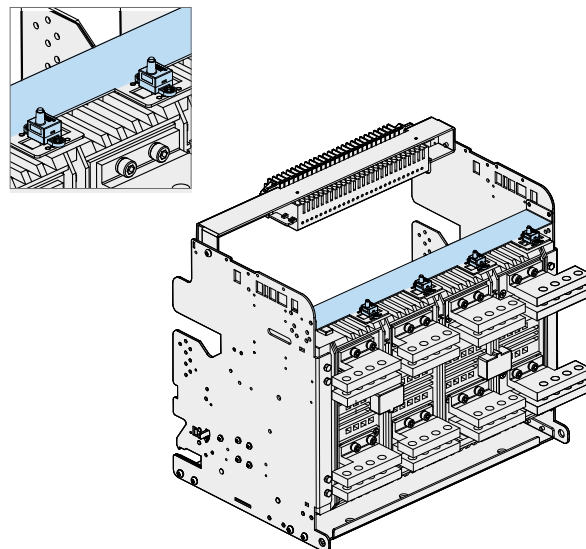
Address Setting : 1 ~ 240



Baud Rate Setting

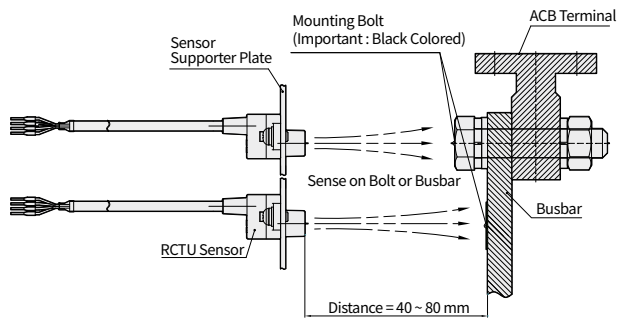


Set	Description
Off Off	9,600
Off On	19,200
On Off	38,400

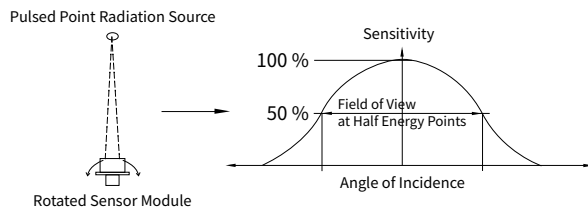
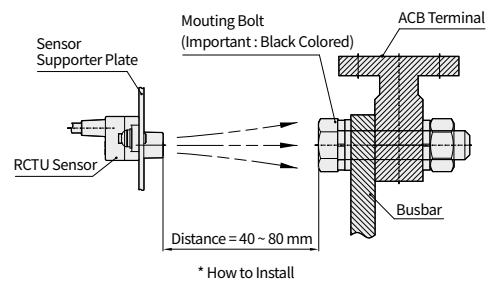


IR (Infrared Sensor) Specification (Option)

IR Sensor



Example of IR Sensor Application



Parameter	Limits			Unit	Conditions
	Min	Typ	Max		
Cable Length		3		m	
Optical Axis	-3.5	0	+3.5	Degree	Sensor View Direction
Field of View		6	11	Degree	50 % Energy Points
D:S Ratio		8:1			Distance (mm) to Spot Size

IR Sensor Measurement

- IR temperature sensor has to be installed with sufficient insulation distance from the measuring point.
- The recommended distance between the measuring point and the temperature sensor is 50 ~ 80 mm.
- The measuring point must be a surface without reflection due to the characteristics of the IR sensor and black matte painting is recommended at the measuring point.

⚠ Caution

1. As for the IR sensor, the measurement value differs depending on the reflection rate of the metal surface. Measuring point with surfaced painted with matte black or varnish other than metallic varnishing must be measured.
2. As for the surface to be measured and the IR distance, the size of measurement area differs depending on the D:S Ratio. This sensor has a ratio of 8:1.

Accessories

Temperature Sensor

Control Contact Connection

ACB Information Pin

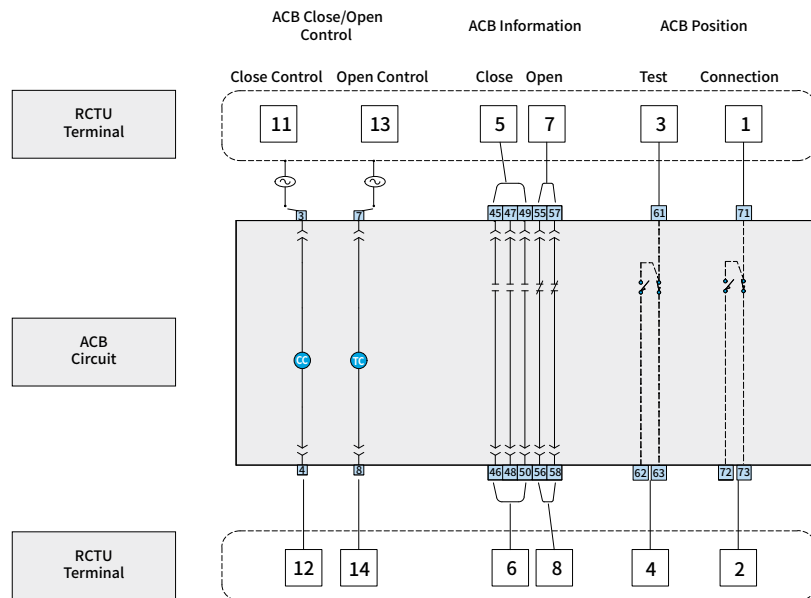
a Contact	b Contact	Test	Connection
45, 47, 49	55, 57	61	71
46, 48, 50	56, 58	62	72

ACB Open/Close Control Pin

CC	TC
3	7
4	8



Example : When DI input is used as ACB position



INTC Thermistor Specification (Option)

- The electrical resistance value changes depending on the ambient temperature and by measuring the change in value, the temperature is displayed.
- The length of the cable is 1,000 mm and it measures the value of ambient temperature where in the RCTU has been installed.
- The range that can be measured is -50 ~ 250 °C.

Parameter	Content	Conditions
Length of Cable	1,000 mm	
Resistance Value	10 kΩ ± 1 %	Ambient Temperature of 25 °C

OCR Portable Checker

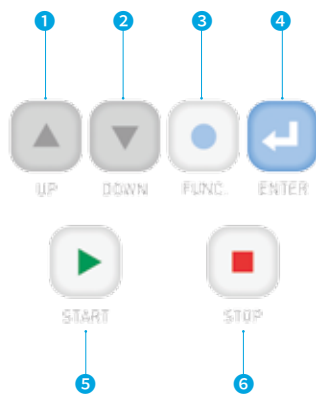
- OCR Portable Checker (Hereinafter referred to as the Checker) executes the relay test operation of the OCR (Hereinafter referred to as the OCR) (Long time/short time delay/ instantaneous/ground fault).
- It is possible to set the current size and phases using button for the OCR test.
- The relay test factors can be set through the front LCD and the operating time can be checked.
- It is equipped with a battery so it can be used without a separate external power.
- As for the cable connector of the checker, connect when the control power of OCR is off when inserting the OCR.
- As a product sold separately, place an order for CHGS OCC.
- CHG OCC is a product with a calibration certificate issued by a specializing institute.



Ratings

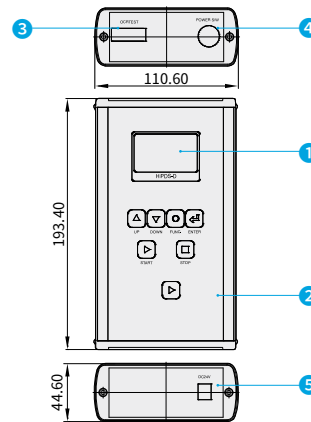
Item	Detailed Specification
External Power (Adaptor)	Input : AC/DC 100 ~ 220 V, 50/60 Hz Output : DC 24 V, 2.5 A
Battery	Alkaline 9 V : 3 ea
Trip Time Measurement	0 ~ 999.999 sec
Test Output	0.3 Ict ~ 17 Ict
Output Precision	± 20 % (1 Ict ~ 17 Ict)
Size (mm)	193.40 (H) × 110.60 (W) × 44.60 (D)

Key Pad



No.	Button	Application
1	UP	Move Menu and Increase Setting Value
2	DOWN	Move Menu and Decrease Setting Value
3	FUNC	Move to the Previous Menu and Return to the Setup Screen
4	ENTER	Save the Setting and Move the Number of Digits of Setting Current
5	START	Generate Waveform
6	STOP	Stop Waveform

Externals



No.	Content	Function
1	LCD	Indicates Menu, Setting Current, Trip Time
2	Key Pad	Move Menu and Setting
3	Signal Output Terminal	OCR Connection Terminal
4	Power Switch	Power On/Off
5	Adapter Terminal	Control Terminal of Checker

Accessories

OCR Checker

Multi-functional OCR checker is test equipment that can inspect the OCR operation in unloaded status and the OCR status can be inspected through communication.

- Control Power : AC/DC 85 ~ 270 V (50/60 Hz)
- Specification
 - Dimension : 411 (L) × 321 (W) × 165 (H)
 - Weight : 8 kg
- Key Functions
 - Inspection of LTD, STD, INST, GFT operation and operating time
 - Inspection of PTA operation (Pre Trip Alarm)
 - Touch LCD

Rating	Specification
Control Power	AC/DC 85 ~ 270 V (50/60 Hz)
Output	Output Channel : 4 (R, S, T, N) Test Output : 0.4 ~ 17 Ict Precision : ± 3 %
Input	Communication : RS 485 Touch-Screen of HMI
Size	411 × 321 × 165 mm, 8 kg



NCT (Neutral CT)

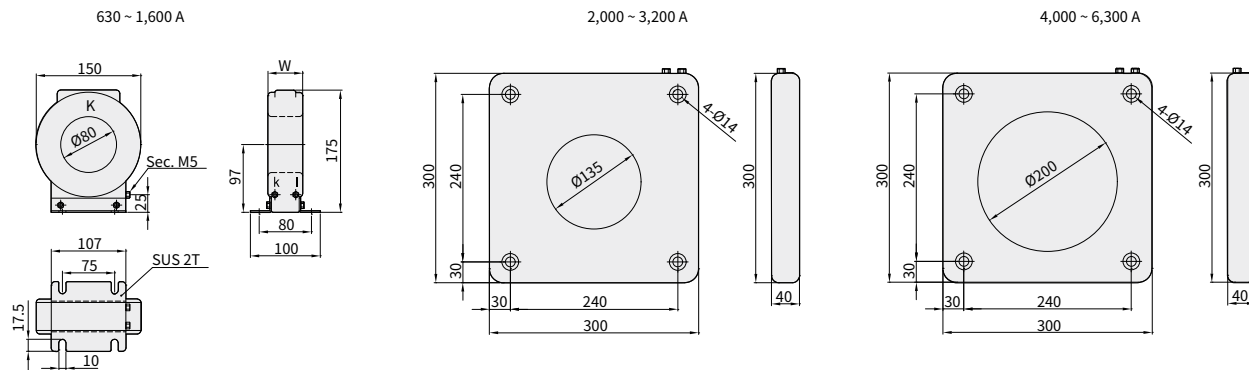
- It is a separate mounting type of current transform installed in the N phase in case of protecting the earth fault by using 3-pole air circuit breaker with earth fault protection features in a 3 phase 4 line circuit. It clarifies the GFT operation caused by earth fault by detecting currents flowing in the N phase.
- The phase is important for inserting the relay so connect properly to the designated terminal.
- As a product sold separately, place the order using the following form name per rated current.
- Switch the OCR's switch from 3P to 4P after connecting the NCT power (k), 30 (ℓ) to the 3-pole circuit breaker.

Ordering Method

Name of Accessory	Order Name for Separate Sales (CHGS-)	Detailed Specification
	CHGNCT_T	NCT T = 630 A/Inner Diameter 80
	CHGNCT_H	NCT H = 800 A/Inner Diameter 80
	CHGNCT_J	NCT J = 1,000 A/Inner Diameter 80
	CHGNCT_K	NCT K = 1,250 A/Inner Diameter 80
	CHGNCT_L	NCT L = 1,600 A/Inner Diameter 80
Neutral CT	CHGNCT_M	NCT M = 2,000 A/Inner Diameter 135
	CHGNCT_N	NCT N = 2,500 A/Inner Diameter 135
	CHGNCT_P	NCT P = 3,200 A/Inner Diameter 135
	CHGNCT_Q	NCT Q = 4,000 A/Inner Diameter 200
	CHGNCT_S	NCT S = 5,000 A/Inner Diameter 200
	CHGNCT_X	NCT X = 6,300 A/Inner Diameter 200

Externals

Unit : mm



Accessories

CTD-Condenser Trip Device

- In case of using AC/DC power for trip control of the circuit breaker, it is a device that can electrically trip the circuit breaker once by using the power charged in the CTD when the supply of control voltage has been stopped due to black-out and others.
- It is a product sold separately.



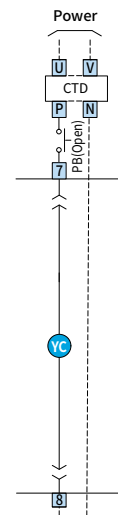
Ordering Method

Name of Accessory	Order Name for Separate Sales (CHGS-)	Detailed Specification
CTD	CHGCTD1	AC/DC 110 V
	CHGCTD2	AC/DC 220 V

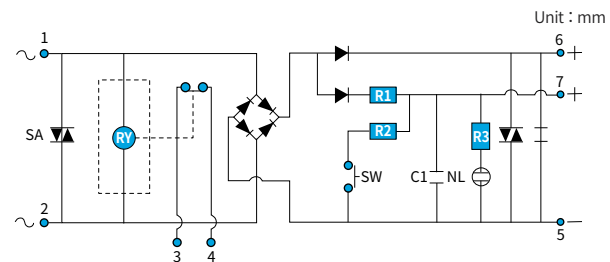
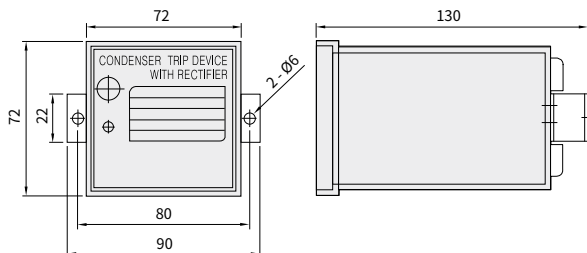
Ratings

Item	Details	
Rated Input Voltage	AC 110 V	AC 220 V
Normal Charging Voltage	DC 145 V	DC 290 V
Normal Current Capacity	DC 2 A	
Rated Frequency	50/60 Hz	
Delay Circuit Time	Within 1.5 sec	
Applicable Standard	IEC 60694/KSC 4611	

Connection Diagram



Operating Sequence of CTD External Operation Circuit



- AC Input Power NO. 1, 2
- CTD Trip Power NO. 7 (+), 5 (-)
- DC Normal Power NO. 6 (+), 5 (-)
- Delay Contact NO. 3, 4

Test Jumper

- It is a device that enables the main unit to be operated independently by separating the automatic connection type of main unit from the cradle.
- As a product sold separately, place an order for CHGS AJ when ordering.



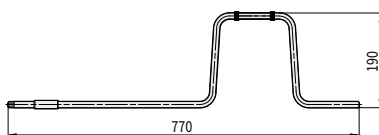
Draw-In/Out Handle

- The draw-in/out handle for drawing the draw-in type of circuit breaker is provided basically.
- In case the standard handle is uncomfortable when drawing the circuit breaker in and out, Long Type Handle and Universal Joint Handle which are sold separately can be used.
- As a product sold separately, place an order of CHG LHANDLE or CHG UHANDLE.

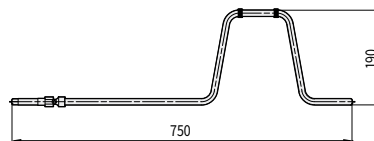


Type

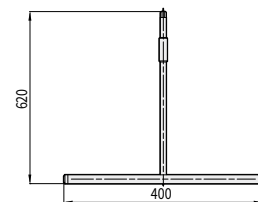
Long Type Handle



Universal Joint Handle



T-Type Handle



Ordering Method

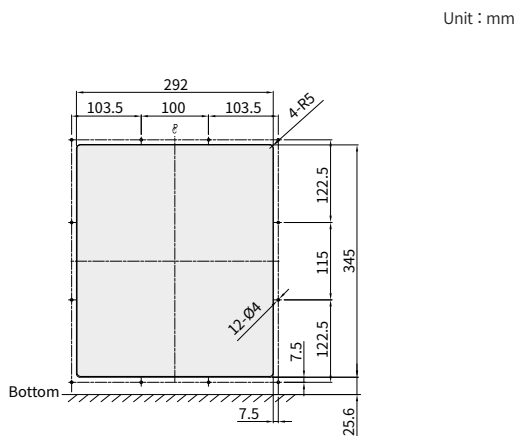
Name of Accessory	Order Name Placed upon Outgoing	Order Name for Separate Sales (CHGS-)	Detailed Specification
Draw-In/Out Handle		CHGLHANDLE	Standard Handle (Provided as Standard)
		CHGLHANDLE	Long Type of Draw-In/Out Handle (For ACB)
		CHGUHANDLE	Universal Joint Type of Draw-In/Out Handle
		CHGTHANDLE	T-Type, Long Type Handle

Accessories

Door Flange

- It is an auxiliary device mounted on the cutting part of the panel door at the front protrusion mounting type of ACB.
- The door flange of our company is IP30.
- As for the cutting dimension of the panel, refer to the external drawing.
- As for the panel cutting dimension, it is equivalent for both the draw-out and fixed type and it is the same even if the dust cover is installed.
- As a product sold separately, place an order for CHG AG.

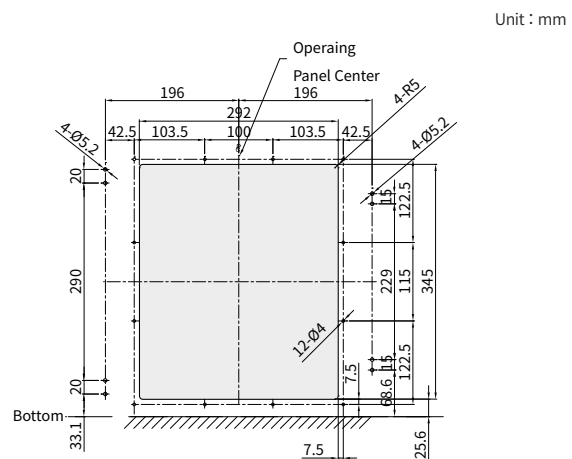
Panel Door Cutting Dimension



Dust Cover

- It is a device installed to protect against dust and moisture mounted on the cutting part of the panel door at the front protrusion mounting type of ACB.
- The dust cover of our company is IP52.
- The cover can be locked in the test and connected position.
- The cutting dimension of the panel must be referred to.
- As a product sold separately, place an order for CHG DC.

Panel Door Cutting Dimension



Dust Cover



Door Flange

ATS & Controller

Features

- **Stable Transfer System**

By applying air circuit breaker equipped with the highest rated breaking capacity, it has outstanding protective features with regards to electric power system, making it optimal for places in which stable power supply is compulsory (Communication base station, computer center, hospital, plant equipment and other important facilities).

- **Unmanned Working System**

Unmanned power transfer is possible by applying automatic power control device in the ACB equipped with mechanical interlock device.

- **Various Modes**

Various modes is possible as it is equipped with 4 selection models for user convenience.

- **Multi Protection Device**

The multi protection device installed in ACB has self-monitoring, simple set up and various protecting functions. Unlike the existing ATS, short circuit and overload protection are possible for stable use.

- **Compact Size, Lightweight**

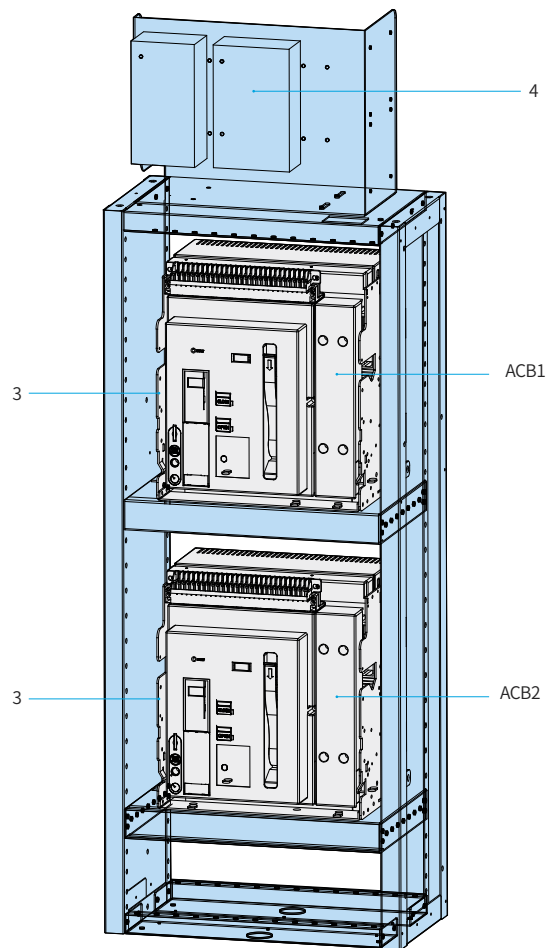
ACB is more compact and lightweight so it can easily be installed in the ATS switchgear and occupies less space.

- **ATS Configuration and Interlock**

- ACB1 : "Normal" power (Power company side)
- ACB2 : "Stand-by" power (Power generator side)
- 3 : Mechanical interlock device unit
- 4 : ATS unit

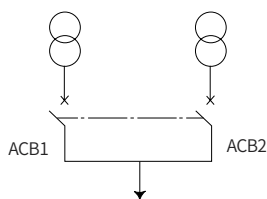
Each ACB should meet the following specifications.

- Geared charge type of mechanism (Control power of AC 220 V)
- TC (Control power of AC 220 V)
- CC (Control power of AC 220 V)
- Trip device for overload or short protection (2a contact)



Transfer System's Interlock Conditions

ACB1	ACB2
Open	Open
Close	Open
Open	Close



※ As a product sold separately, place an order for CHG ATS when placing an order. However, M1 has to be ordered separately and B0, BA must be added when placing an order for the product.

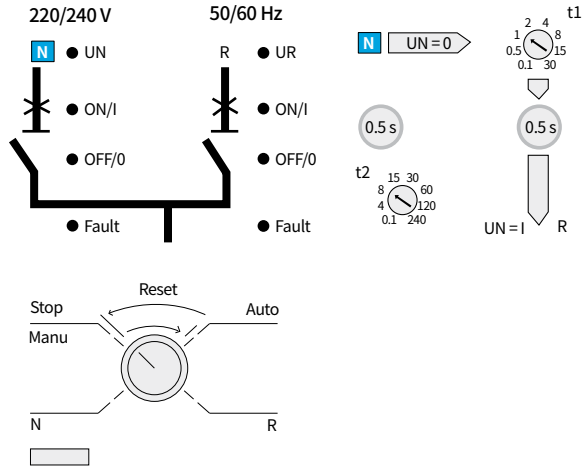
Accessories

ATS & Controller

Characteristics per Mode

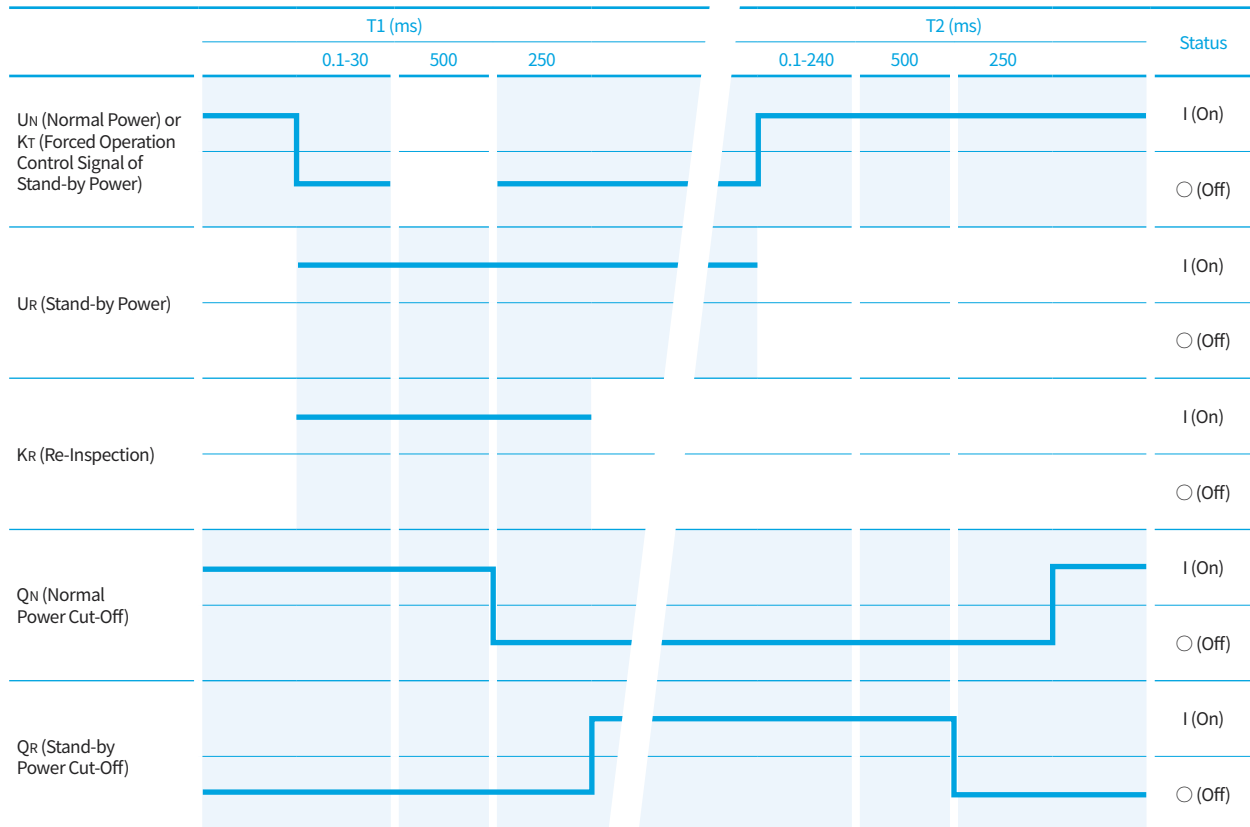
There are 4 selection modes.

- Stop/Manu Mode**
 This mode offers On/Off functions using ACB Manual from the power company side and generator side.
- Auto Mode**
 This mode is for automatically controlling the ACB depending on the sequence of system operation flow chart in the controller.
- N Mode (Forced Operation of Power Company Power)**
 This mode turns off the ACB at the generator side and turns on the ACB at the power company side by force.
- R Mode (Forced Operation of Generator Power)**
 This mode turns off the ACB at the power company side and turns on the ACB at the generator side by force.



Time Delay Adjustment	Indication of the Controller's Status
t1 : 0.1 ~ 30 sec	On, Off, Fault Indication
t2 : 0.1 ~ 240 sec	(Power Company Side, Generator Side)

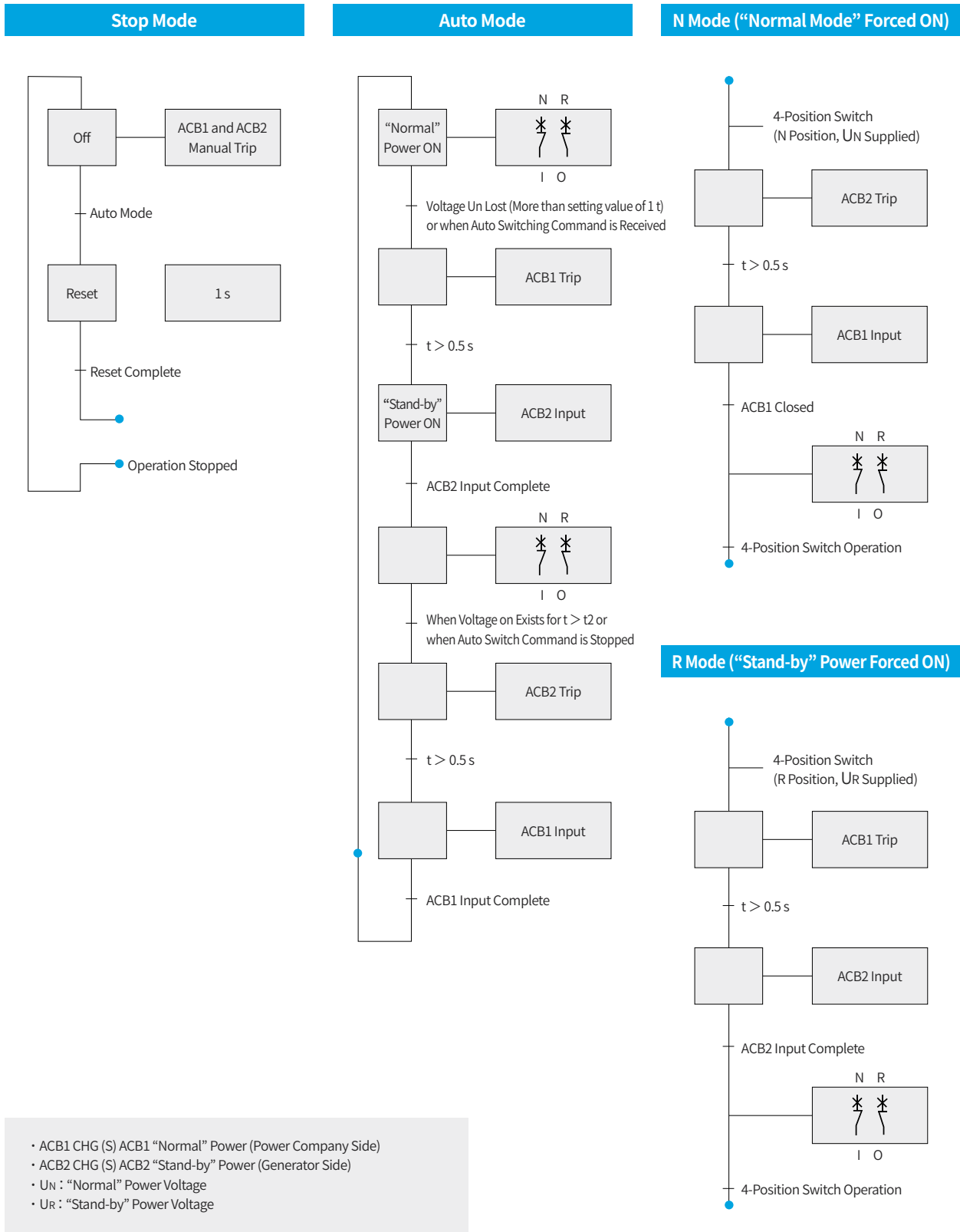
Operation Characteristics



System Operation

3

Air Circuit Breakers



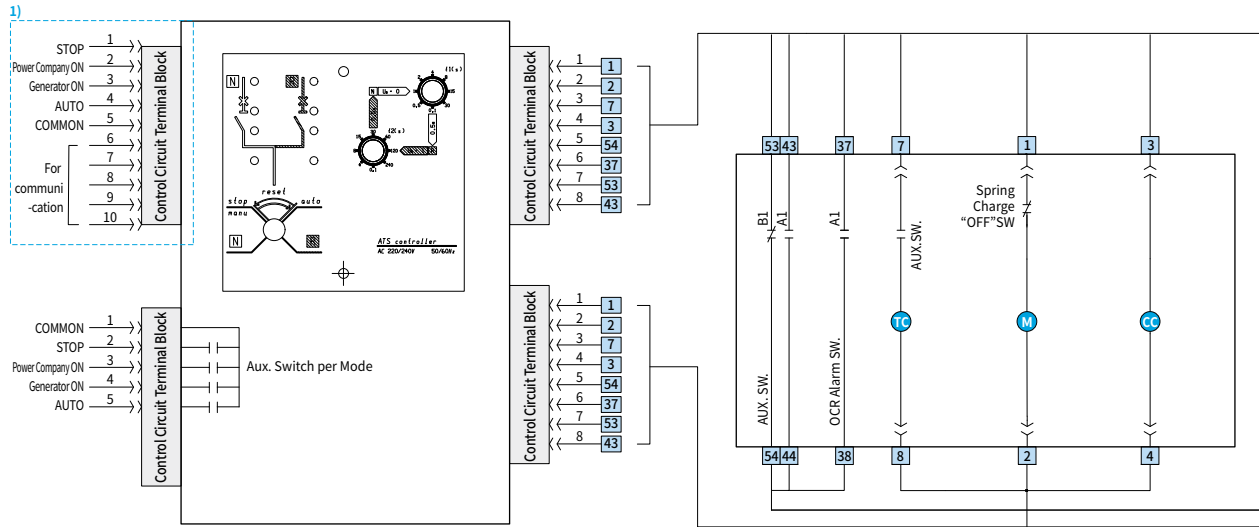
Accessories

ATS & Controller

Circuit Diagram of the System [CSG/CHG Type]

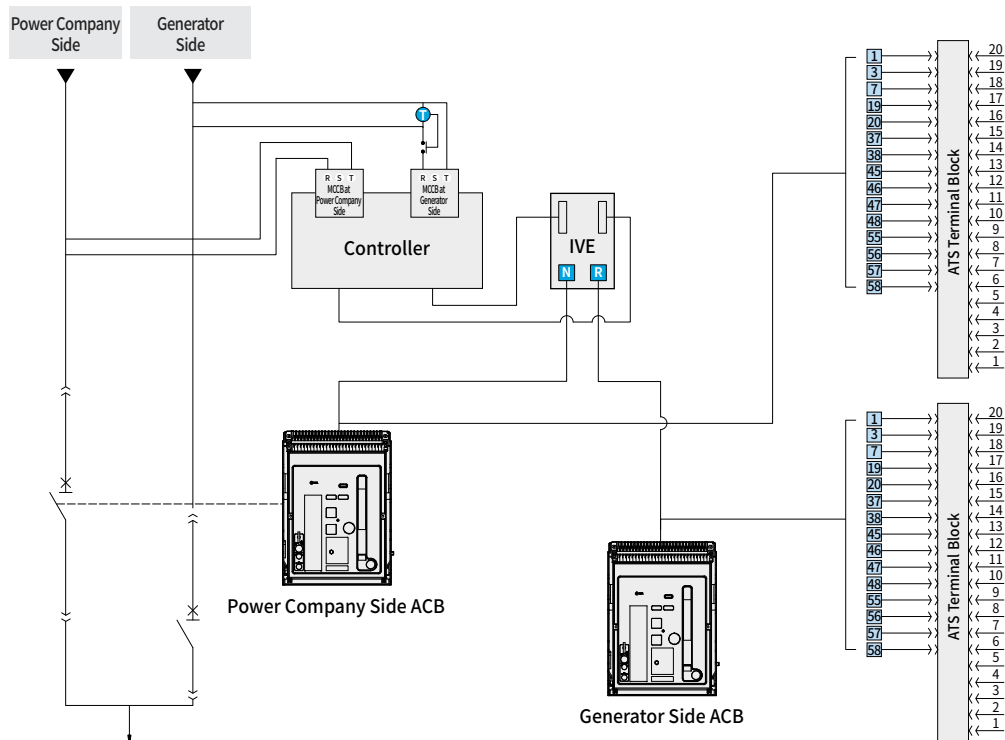
Auto Switch System's Auxiliary Device Circuit Diagram

“Normal” Circuit Breaker's Auxiliary Device

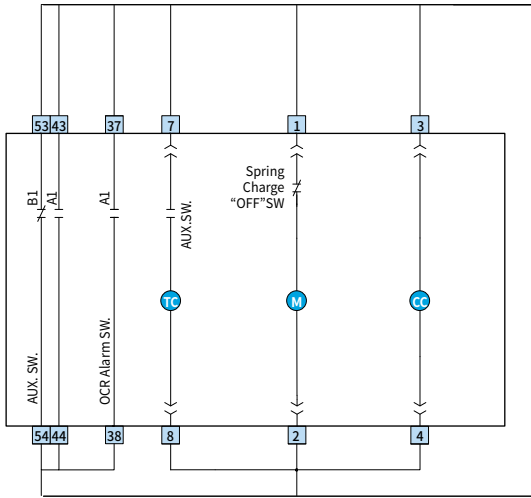


※ 1) The standard model is a SW mounting type on controller. (Control terminal type is not a standard model)

Auto Power Switch System's Auxiliary Device Circuit Diagram applied with 2 ACBs

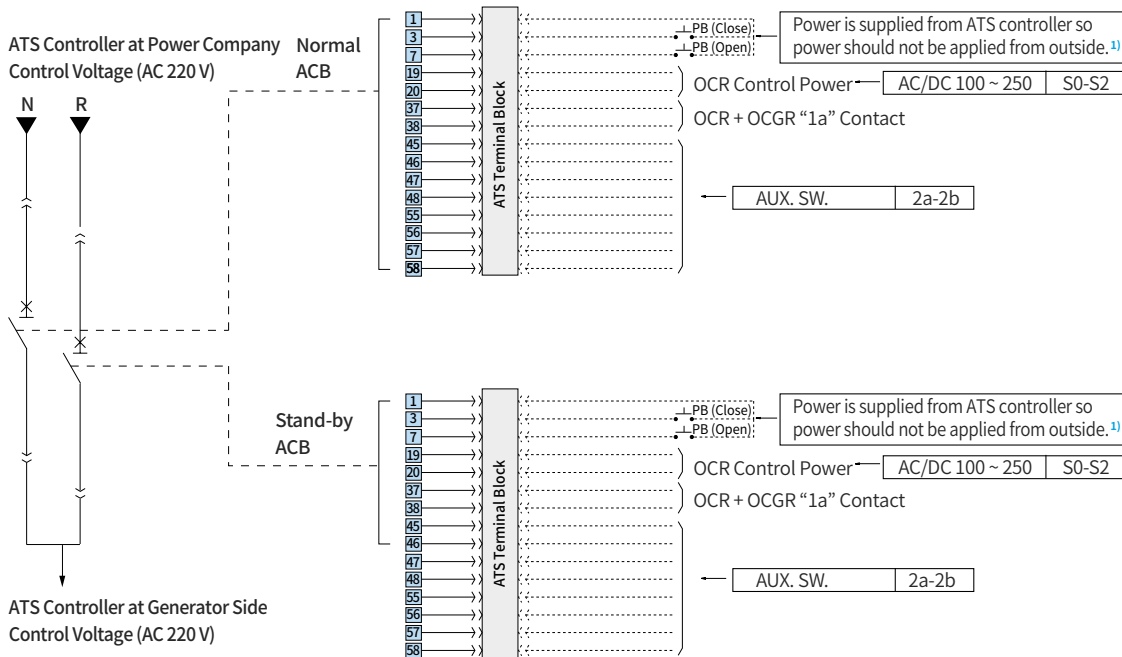


"Stand-by" Circuit Breaker's Auxiliary Device



- 37 38 OCR DO
- 43 44 Auxiliary a Switch Terminal
- 53 54 Auxiliary b Switch Terminal
- TC Voltage Trip
- 7 8 Voltage Trip Power Terminal
- 1 2 Geared Charge Power Terminal
- 3 4 Power Terminal for Close
- M Charging Motor
- CC Latch Release (Close)

ATS Panel Remote Circuit Diagram



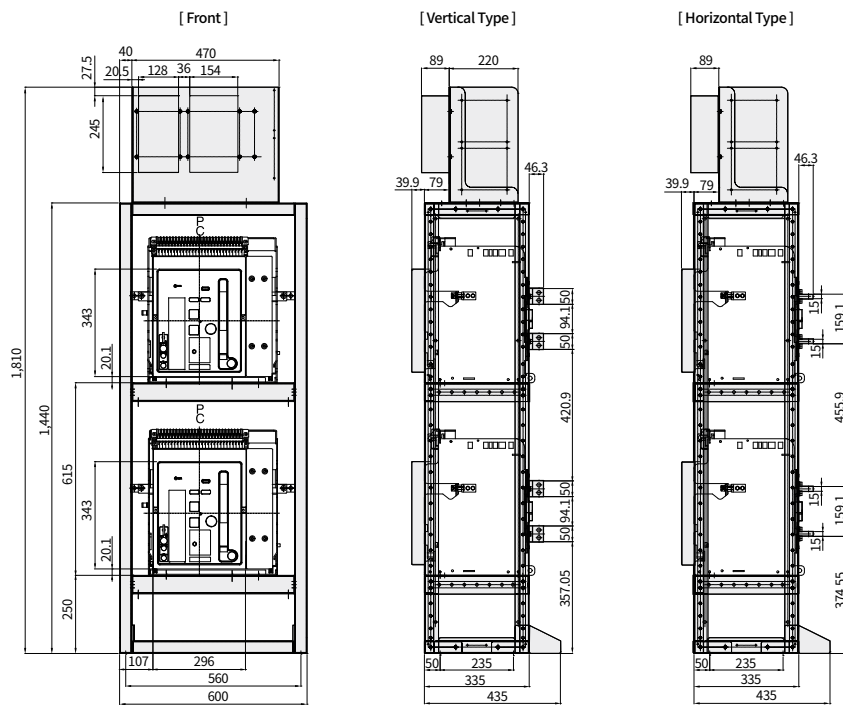
※ 1) Upon remote operation, as for the Open/Close power, the power is supplied from the ATS control device so do not input a separate control power supply. (Terminal number "1", "7", "16")

Accessories

ATS & Controller

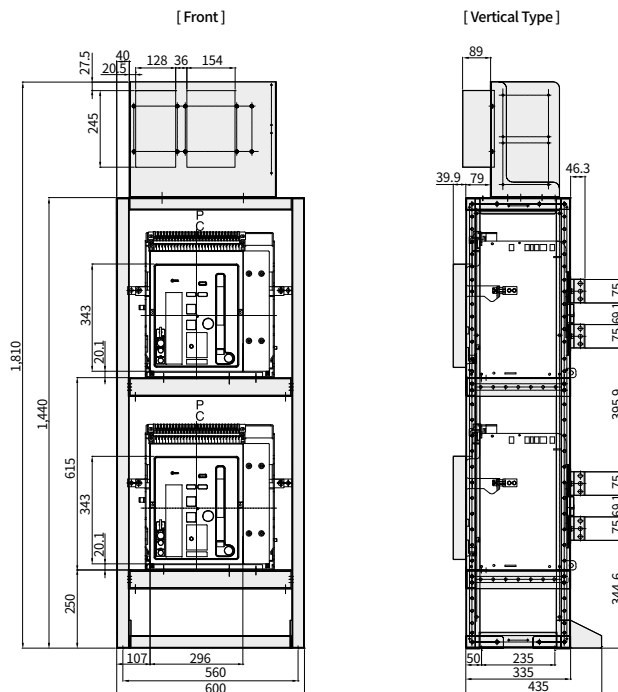
Dimensions [ATS CHG A Frame]

CHG06 ~ 16 A



Unit : mm

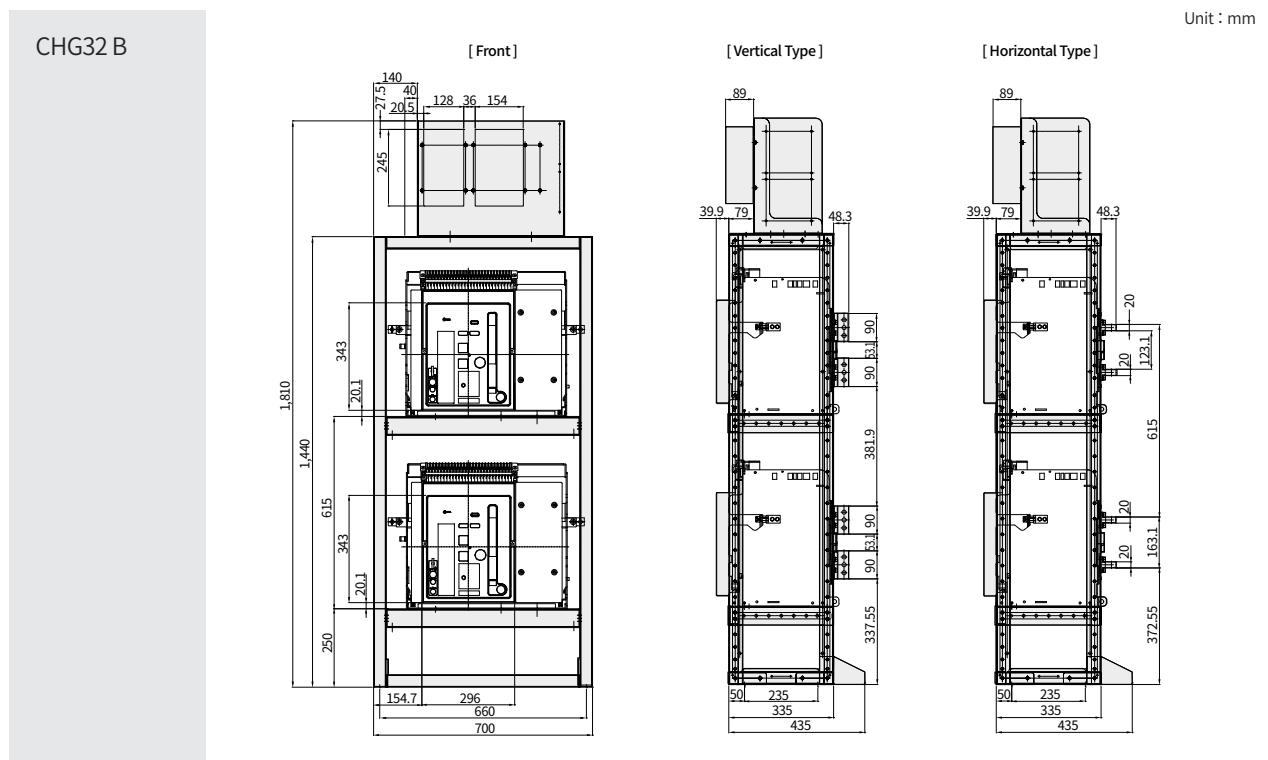
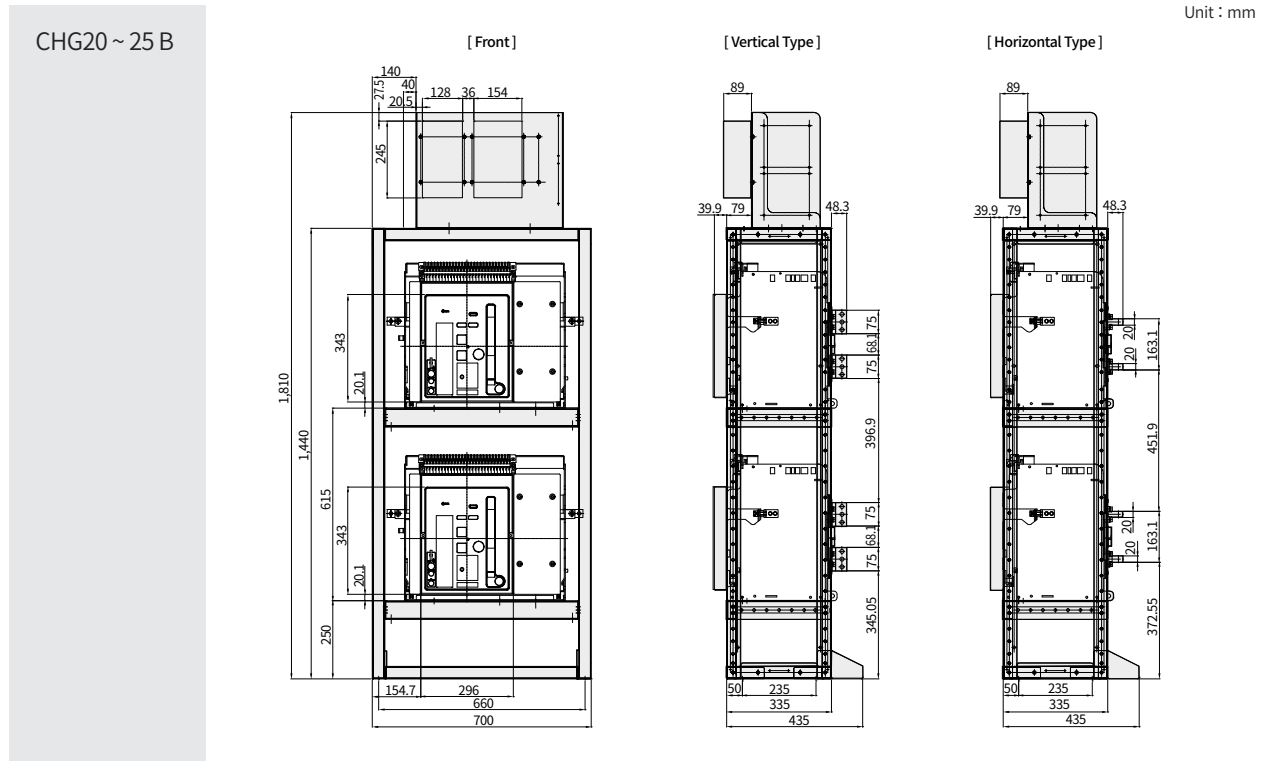
CHG20 A



Unit : mm

※ The drawing dimension of this page may be subject to change without prior notice.

Dimensions [ATS CHG B Frame]

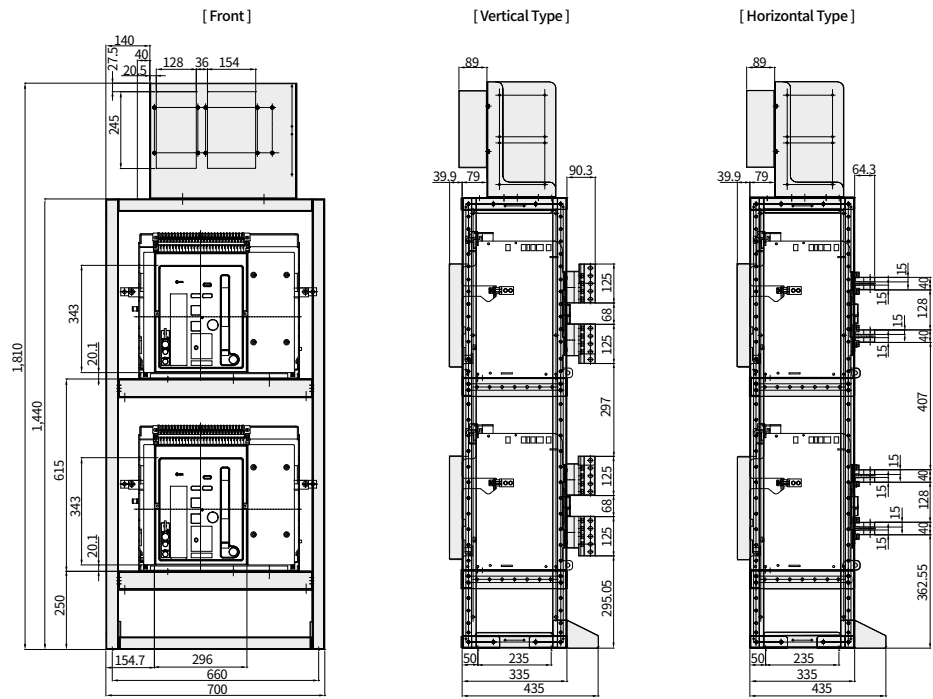


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ATS & Controller

Dimensions [ATS CHG B Frame]

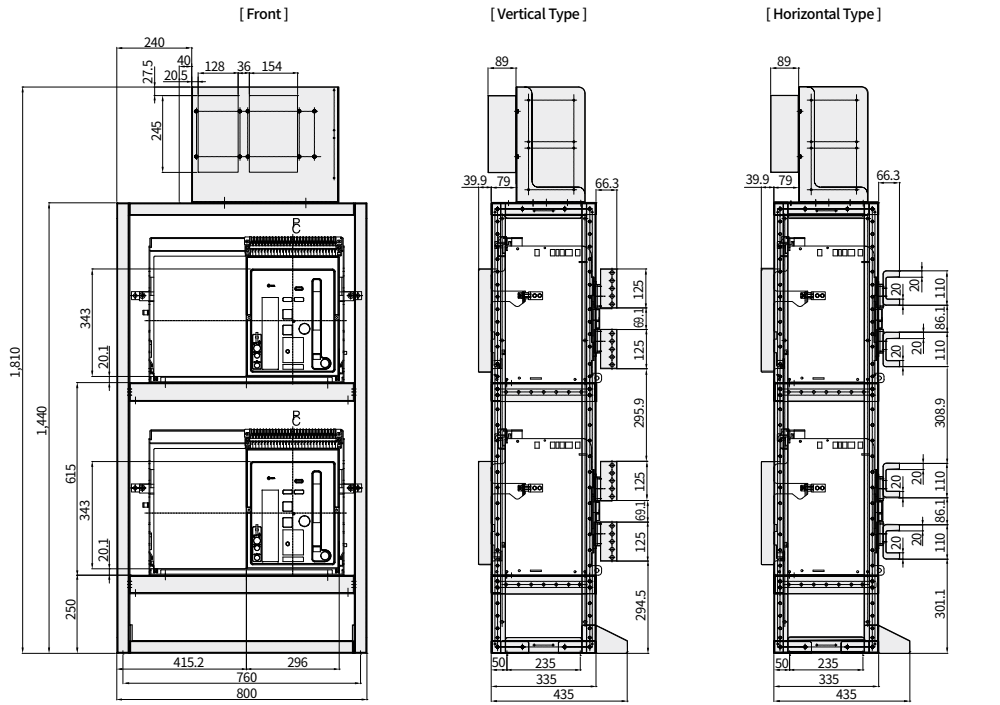
CHG40 B



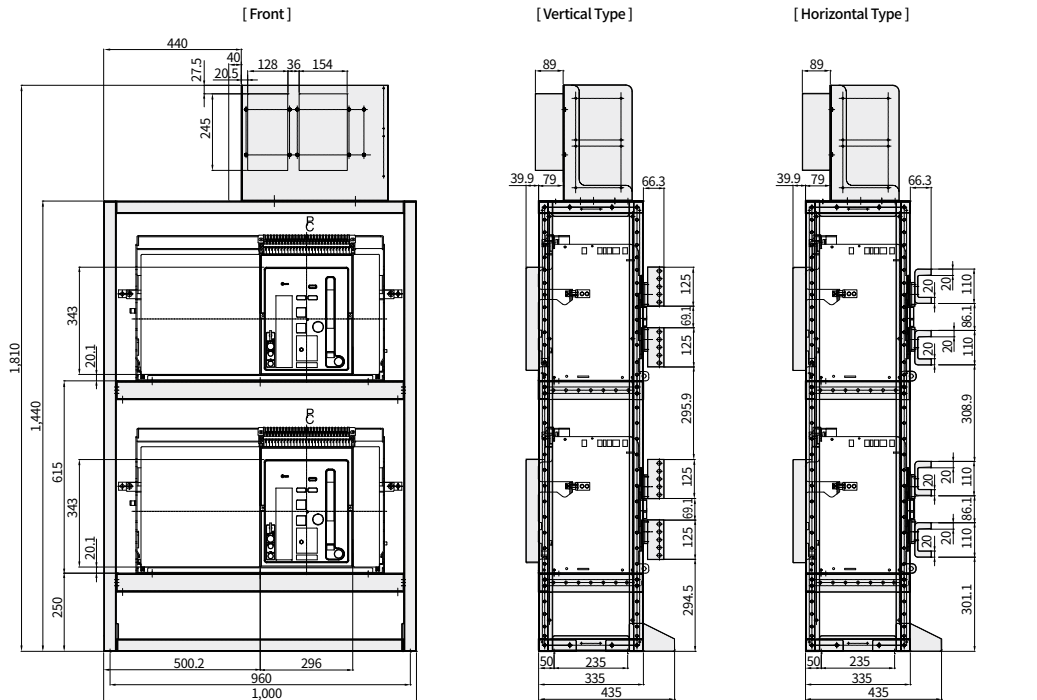
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Dimensions [ATS CHG C Frame]

CHG40 ~ 50 C,
3P



CHG40 ~ 50 C,
4P



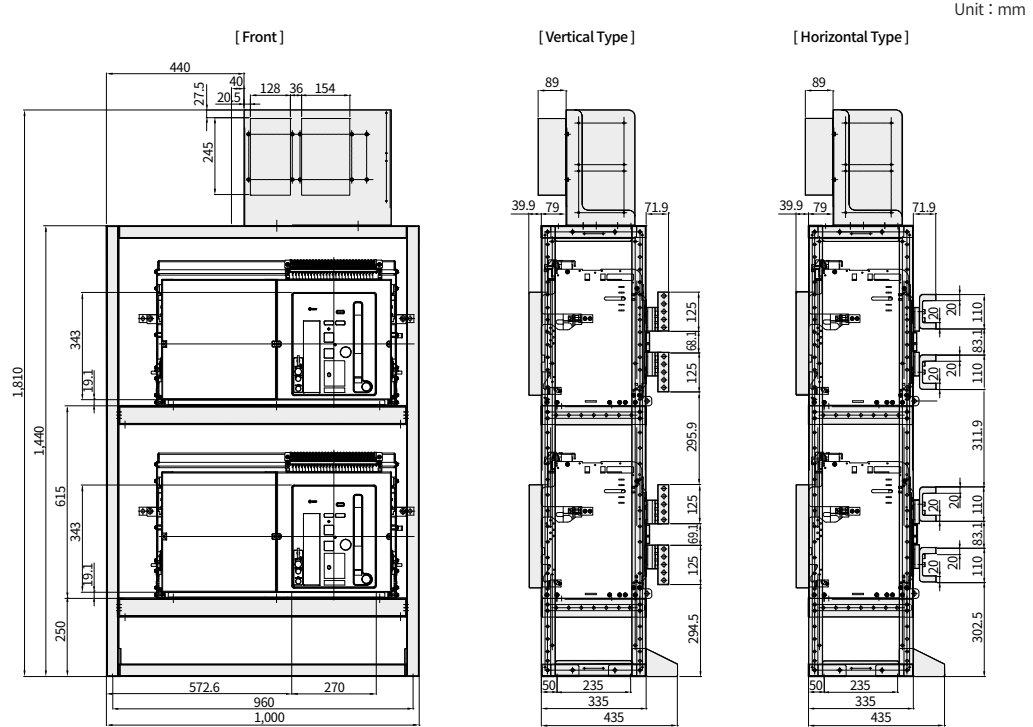
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Accessories

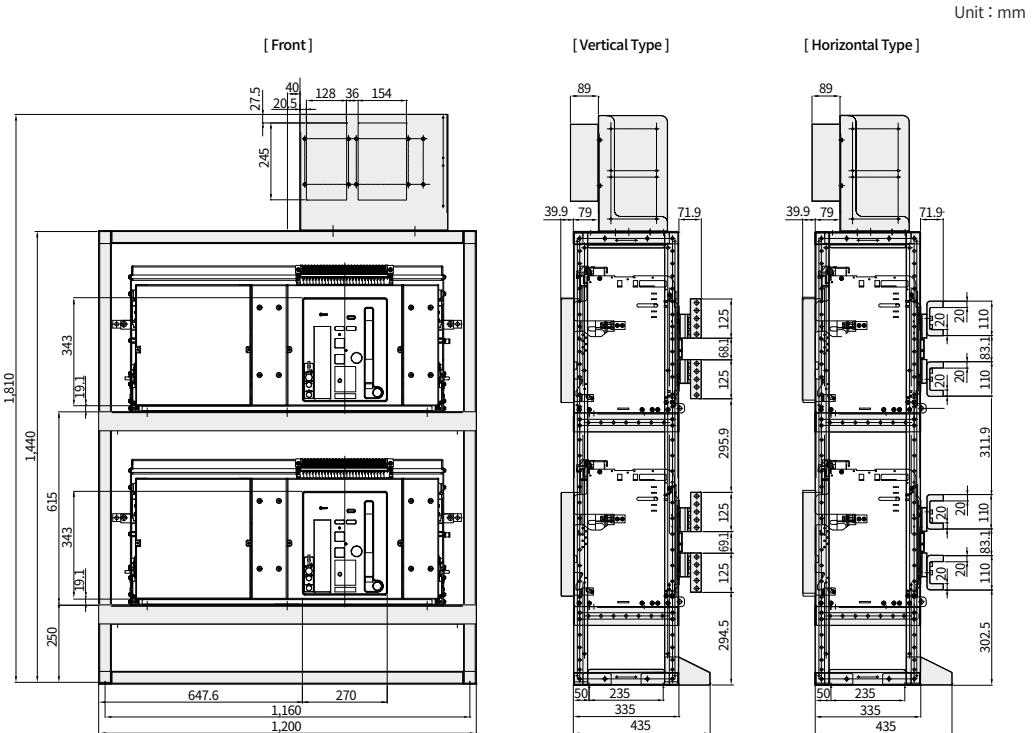
ATS & Controller

Dimensions [ATS CHG D Frame]

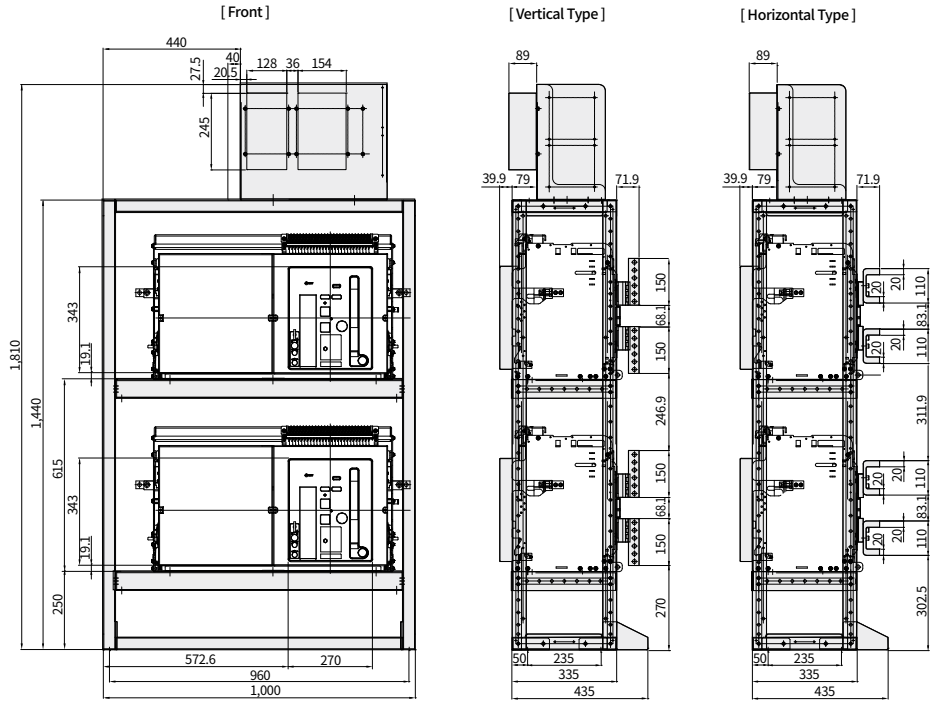
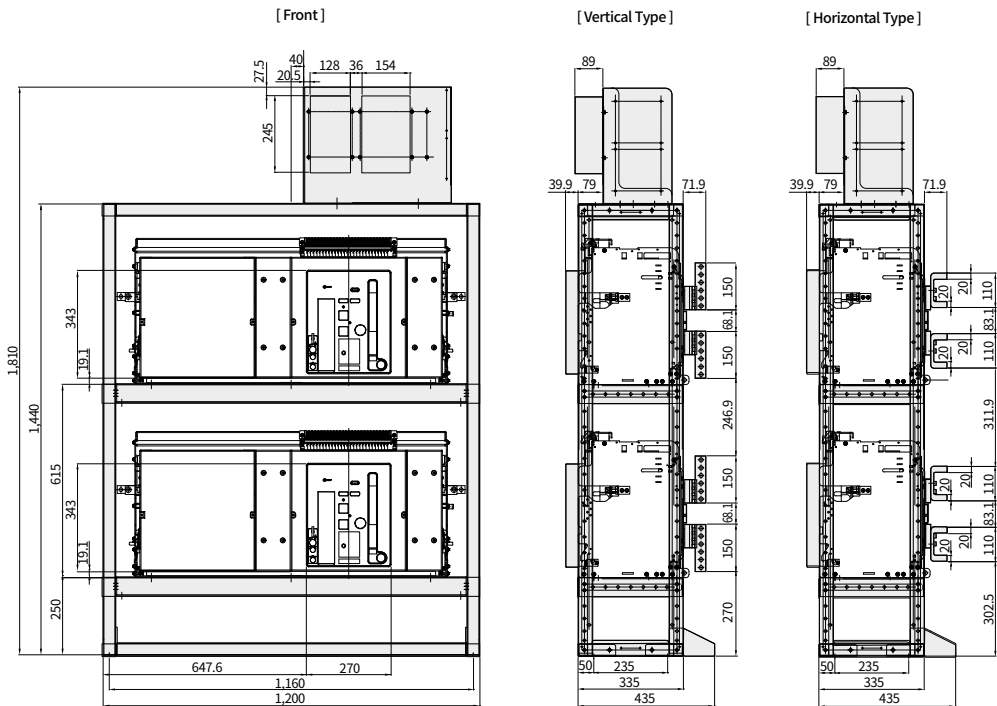
CHG40 D, 3P



CHG40 D, 4P



※ The drawing dimension of this page may be subject to change without prior notice.

CHG50 ~ 63 D,
3P

 CHG50 ~ 63 D,
4P


※ The drawing dimension of this page may be subject to change without prior notice.

Accessories

Order Code

Name of Accessory	Order Form		Detailed Specification	Release Form	Page
	Mounted	Sold Separately			
Terminal Bus Bar ¹⁾ (Draw-Out Type)	-	CHG HVA3	Up-Down Horizontal/Up-Down Vertical (A Frame, 06 ~ 16A 3P)	Sold Separately	-
	-	CHG HVA4	Up-Down Horizontal/Up-Down Vertical (A Frame, 06 ~ 16A 4P)		
	-	CHG HVB3	Up-Down Horizontal/Up-Down Vertical (B Frame, 06 ~ 32B 3P)		
	-	CHG HVB4	Up-Down Horizontal/Up-Down Vertical (B Frame, 06 ~ 32B 4P)		
	-	CHG FRA3	Up-Down Front 6 ea (A Frame, 06 ~ 16A 3P)		
	-	CHG FRA4	Up-Down Front 8 ea (A Frame, 06 ~ 16A 4P)		
	-	CHG FRB3	Up-Down Front 6 ea (B Frame, 06 ~ 32B 3P)		
	-	CHG FRB4	Up-Down Front 8 ea (B Frame, 06 ~ 32B 4P)		
	-	CHG FHVA3	Up-Down Front 3 ea + Horizontal/Vertical 3 ea 06 ~ 16A 3P		
	-	CHG FHVA4	Up-Down Front 4 ea + Horizontal/Vertical 4 ea 06 ~ 16A 4P		
	-	CHG FHVB3	Up-Down Front 3 ea + Horizontal/Vertical 3 ea 06 ~ 32B 3P		
	-	CHG FHVB4	Up-Down Front 4 ea + Horizontal/Vertical 4 ea 06 ~ 32B 4P		
	Terminal Bus Bar ²⁾ (Fixed Type)	-	CHG FRA3F		
-		CHG FRA4F	Up-Down Front 8 ea (A Frame, 06 ~ 16A 4P) + Additional Spacer 8		
-		CHG FRB3F	Up-Down Front 6 ea (B Frame, 06 ~ 32B 3P) + Additional Spacer 6		
-		CHG FRB4F	Up-Down Front 8 ea (B Frame, 06 ~ 32B 4P) + Additional Spacer 8		
-		CHG FHVA3F	Up-Down Front 3 ea + Horizontal/Vertical 3 ea 06 ~ 16A 3P + Additional Spacer 3		
-		CHG FHVA4F	Up-Down Front 4 ea + Horizontal/Vertical 4 ea 06 ~ 16A 4P + Additional Spacer 4		
-		CHG FHVB3F	Up-Down Front 3 ea + Horizontal/Vertical 3 ea 06 ~ 32B 3P + Additional Spacer 3		
Auxiliary Switch ³⁾	MC	CHG MOC	External Auxiliary Contact 10a10b (Mechanical Operating Cell Switch)	Mounted upon Release and Sold Separately	-
Automatic Connection Control Terminal Protection Cover	BC	CHG BC	Automatic Connection Control Terminal Cover (Cannot be Mounted on Fixed Type, Manual Connection Type)	Mounted upon Release and Sold Separately	-
Manual Connector	J	CHG MCJ	Manual Control Plug	Sold Separately	-
Manual Connector Lead Wire	J	CHG MWIRE	Manual Connector Lead Wire	Mounted upon Release and Sold Separately	-
Condenser Trip Device	-	CHG CTD1	AC/DC 110 V	Sold Separately	-
	-	CHG CTD2	AC/DC 220 V		
UVT Time Delay Module ⁴⁾	-	CHG UT1	AC/DC 110 V & DC 125 V	Sold Separately	-
	-	CHG UT2	AC/DC 220 V		
	-	CHG UT3	AC 380 V		
	-	CHG UT4	AC 440 V		
	-	CHG UT9	AC/DC 110 V & DC 125 V		
	-	CHG V1	AC/DC 110 V		
UVT Time Delay Module + UVT Coil	V2	CHG V2	AC/DC 220 V	Mounted upon Release and Sold Separately	-
	V3	CHG V3	AC 380 V		
	V4	CHG V4	AC 440 V		
	V9	CHG V9	DC 125 V		
	-	CHG OC	OCR Portable Checker		
-	CHG VM	Voltage Module			

※ 1) Only the terminal bus bar (Draw-out type) A frame 630 ~ 1,600A/B frame 2,000 ~ 3,200 A-draw-out type can be ordered.

2) Only the terminal bus bar (Fixed type) A frame 630 ~ 1,600A/B frame 2,000 ~ 3,200 A-fixed type can be ordered.

3) Contact us when placing an order for set order required for installation.

4) UVT time delay type of controller is mounted outside the main unit or the cradle.

Name of Accessory	Order Form		Detailed Specification	Release Form	Page
	Mounted	Sold Separately			
Key Lock	AB	CHG AB	Key Lock	Mounted upon Release and Sold Separately	-
Safety Shutter	AE	CHG AEA3	06A3 ~ 20A3	Mounted upon Release and Sold Separately	-
		CHG AEA4	06A4 ~ 20A4		
		CHG AEB3	20B3 ~ 40B3		
		CHG AEB4	20B4 ~ 40B4		
		CHG AEC3	32C3 ~ 50C3		
		CHG AEC4	32C4 ~ 50C4		
		CHG AED3	40D3 ~ 63D3		
		CHG AED4	40D4 ~ 63D4		
Fixing Block	AF	CHG AF	For Main Unit + Cradle	Mounted upon Release and Sold Separately	-
		CHG AFB	For Main Unit + Cradle	Sold Separately	-
		CHG AFC	For Cradle		
Position Switch ⁵⁾	AQ	CHG AQ	Test 1C, Connected 1C	Mounted upon Release and Sold Separately	-
	AR	CHG AR	Connected 2C		
	AS	CHG AS	Test 2C		
	AT	CHG AT	Isolated 1C, Inserted 1C		
	AU	CHG AU	Inserted 2C		
	AV	CHG AV	Isolated 2C		
	P4	CHG P4	Test 2C, Connected 2C		
	PS	CHG PS	Isolated 1C, Test 1C, Connected 2C		
	PT	CHG PT	Test 4C		
	PQ	CHG PQ	Inserted 1C, Isolated 1C, Test 1C, Connected 1C		
	P8	CHG P8	Inserted 2C, Isolated 2C, Test 2C, Connected 2C		
	PR	CHG PR	Inserted 1C, Isolated 1C, Test 3C, Connected 3C		
Miss Insertion Preventor	AW	CHG AW	Add Order Form in the Main Unit + Cradle, Main Unit/Cradle Respectively	Mounted upon Release and Sold Separately	-
Arc Shield	AX	CHG AXA3	06A3 ~ 20A3	Mounted upon Release and Sold Separately	-
		CHG AXA4	06A4 ~ 20A4		
		CHG AXB3	20B3 ~ 40B3		
		CHG AXB4	20B4 ~ 40B4		
		CHG AXC3	32C3 ~ 50C3		
		CHG AXC4	32C4 ~ 50C4		
		CHG AXD3	40D3 ~ 63D3		
		CHG AXD4	40D4 ~ 63D4		
Mech Interlock ⁶⁾	-	CHG DWB1	Drawout (Fixed)/Wire Type 2 Way MI	Sold Separately	-
	-	CHG DWB2	Drawout (Fixed)/Wire Type 3 Way MI		
	-	CHG FWB1	Fixed/Wire Type 2 Way MI		
	-	CHG FWB2	Fixed/Wire Type 3 Way MI		
	-	CHG DWB1A	A Frame, Draw-Out Type, Wire Type 2 Way MI + Interlock Parts (B0)		
	-	CHG DWB2A	A Frame, Draw-Out Type, Wire Type 3 Way MI + Interlock Parts (B0)		
	-	CHG DWB1B	B Frame, Draw-Out Type, Wire Type 2 Way MI + Interlock Parts (B0)		
	-	CHG DWB2B	B Frame, Draw-Out Type, Wire Type 3 Way MI + Interlock Parts (B0)		

※ ⁵⁾ Position switch cannot be used together and can only be mounted at the right side of the cradle.

⁶⁾ Mechanical interlock is a wire type. The MI unit is mounted outside the main unit or on the cradle and the interlock part is mounted inside the main unit.

Accessories

Order Code

Name of Accessory	Order Form		Detailed Specification	Release Form	Page			
	Mounted	Sold Separately						
Mech Interlock ⁶⁾	-	CHG(DWB1C3	C Frame 3P, Draw-Out Type, Wire Type 2 Way MI + Interlock Parts (B0)	Sold Separately	-			
	-	CHG DWB1C4	C Frame 4P, Draw-Out Type, Wire Type 2 Way MI + Interlock Parts (B0)					
	-	CHG DWB2C3	C Frame 3P, Draw-Out Type, Wire Type 3 Way MI + Interlock Parts (B0)					
	-	CHG DWB2C4	C Frame 4P, Draw-Out Type, Wire Type 3 Way MI + Interlock Parts (B0)					
	-	CHG FWB1A	A Frame, Fixed Type, Wire Type 2 Way MI + Interlock Parts (B0)					
	-	CHG FWB2A	A Frame, Fixed Type, Wire Type 3 Way MI + Interlock Parts (B0)					
	-	CHG FWB1B	B Frame, Fixed Type, Wire Type 2 Way MI + Interlock Parts (B0)					
	-	CHG FWB2B	B Frame, Fixed Type, Wire Type 3 Way MI + Interlock Parts (B0)					
	-	CHG FWB1C3	C Frame, 3P, Fixed Type, Wire Type 2 Way MI + Interlock Parts (B0)					
	-	CHG FWB1C4	C Frame, 4P, Fixed Type, Wire Type 2 Way MI + Interlock Parts (B0)					
	-	CHG FWB2C3	C Frame, 3P, Fixed Type, Wire Type 3 Way MI + Interlock Parts (B0)					
	-	CHG FWB2C4	C Frame, 4P, Fixed Type, Wire Type 3 Way MI + Interlock Parts (B0)					
	BO		CHG B0DA			A Frame, Interlock Parts (B0)	Mounted upon Release and Sold Separately	-
			CHG B0DB			B Frame, Interlock Parts (B0)		
		CHG B0DC3	C Frame, 3P Interlock Parts (B0)					
		CHG B0DC4	C Frame, 4P Interlock Parts (B0)					
		CHG B0FA	A Frame, Interlock Parts (B0) + Fixed Bracket					
		CHG B0FB	B Frame, Interlock Parts (B0) + Fixed Bracket					
		CHG B0FC3	C Frame, 3P Interlock Parts (B0) + Fixed Bracket					
		CHG B0FC4	C Frame, 4P Interlock Parts (B0) + Fixed Bracket					
ATS Controller	B6B7	CHG ATS	ATS Controller UNIT (ATS Controller + 2 Way M/I + Wiring Assemble) for Draw Out	Mounted upon Release and Sold Separately	-			
RCTU	-	CHG RCU	RCTU	Sold Separately	-			
	-	CHG RCTU	RCTU + Temperature Monitoring Device Module					
	-	CHG RCTUN	RCTU + Temperature Monitoring Device Module + Temperature Sensor					
	-	CHG TSN	Temperature Sensor					
Neutral CT	-	CHG NCT_T	T = 630 A/Inner Diameter 80	Sold Separately	-			
	-	CHG NCT_H	NCT H = 800 A/Inner Diameter 80					
	-	CHG NCT_J	NCT J = 1,000 A/Inner Diameter 80					
	-	CHG NCT_K	NCT K = 1,250 A/Inner Diameter 80					
	-	CHG NCT_L	NCT L = 1,600 A/Inner Diameter 80					
	-	CHG NCT_M	NCT M = 2,000 A/Inner Diameter 135					
	-	CHG NCT_N	NCT N = 2,500 A/Inner Diameter 135					
	-	CHG NCT_P	NCT P = 3,200 A/Inner Diameter 135					
	-	CHG NCT_Q	NCT Q = 4,000 A/Inner Diameter 200					
	-	CHG NCT_S	NCT S = 5,000 A/Inner Diameter 200					
-	CHG NCT_X	NCT X = 6,300 A/Inner Diameter 200						
Door Flange	AG	CHG AG	IP30	Mounted upon Release and Sold Separately	-			
Dust Cover	-	CHG DC	IP54	Sold Separately	-			
Test Jumper	-	CHG AJ	For Automatic Connection Type of Test	Sold Separately	-			
Short "B" Contact	AK	CHG AK	Short Circuit "B" Contact	Mounted upon Release and Sold Separately	-			
Lifting LUG	-	CHG AL	2 ea = 1 set, C Frame 5,000 A is Provided as Standard	Sold Separately	-			

※6) Mechanical interlock is a wire type. The MI unit is mounted outside the main unit or on the cradle and the interlock part is mounted inside the main unit.

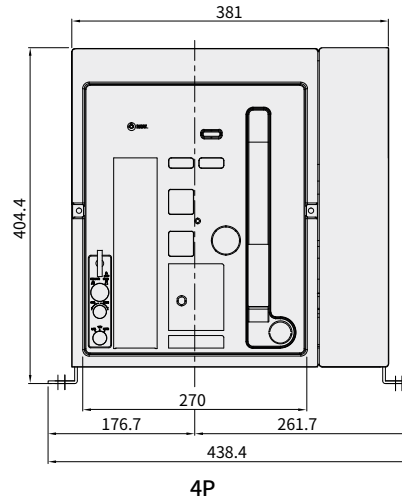
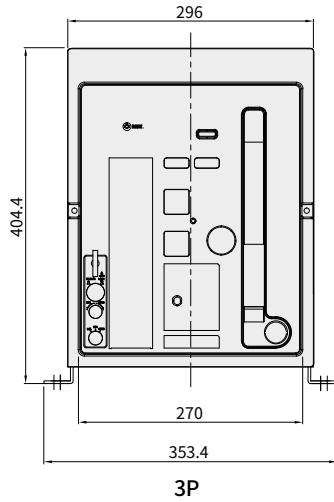
Name of Accessory	Order Form		Detailed Specification	Release Form	Page
	Mounted	Sold Separately			
On/Off Button Lock	AM	CHG AM	On/Off Button Cover Lock	Sold Separately	-
Door Lock (On/Off)	-	CHG DL_CO	Pannel Door Lock for On/Off (In Case of On) In Course of Development	Sold Separately	-
Door Lock (Position)	-	CHG DL_PO	Pannel Door Lock for Position (In Case of Test or Connected) > In Course of Development	Sold Separately	-
Insulation Barrier	-	CHG PBAR	Insulation Barrier	Sold Separately	-
Draw In-Out Handle	-	CHG LHANDLE	Long Head Type Draw In-Out Handle	Sold Separately	-
	-	CHG UHANDLE	Universal Join Head Draw In-Out Handle		
	-	CHG THANDLE	T Grip Long Type Draw In-Out Handle		
	-	CHG HANDLE	Standard Draw In-Out Handle		

Dimensions

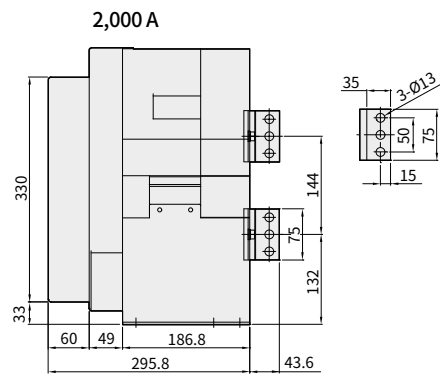
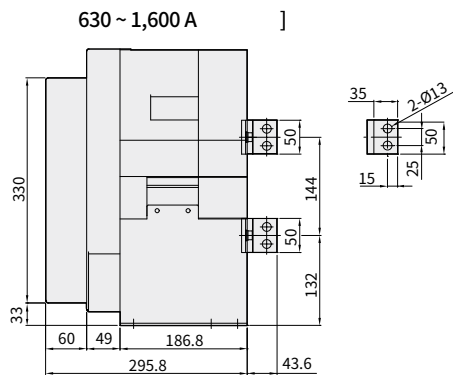
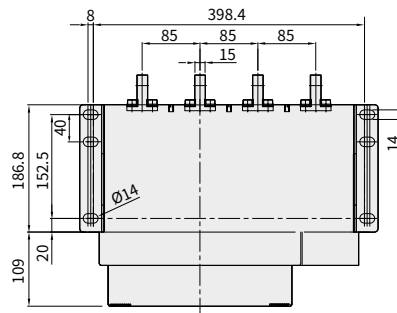
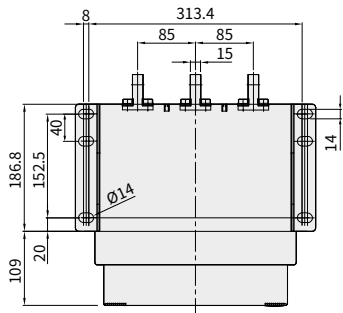
CSG/CHG Fixed Type 630 ~ 2,000 A (CHG06 ~ 16/CHG06 ~ 20 A Frame)

Unit : mm

Front



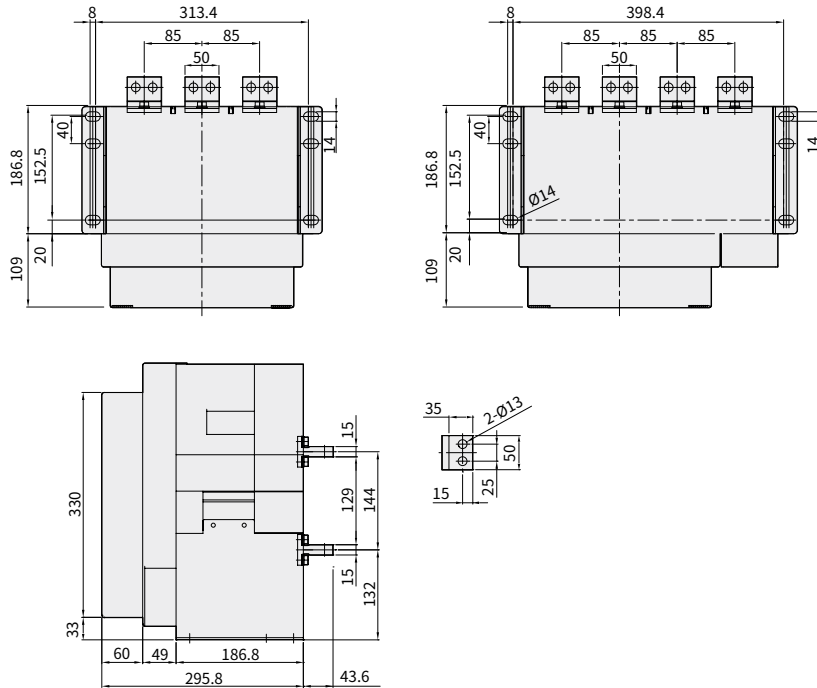
Vertical Type



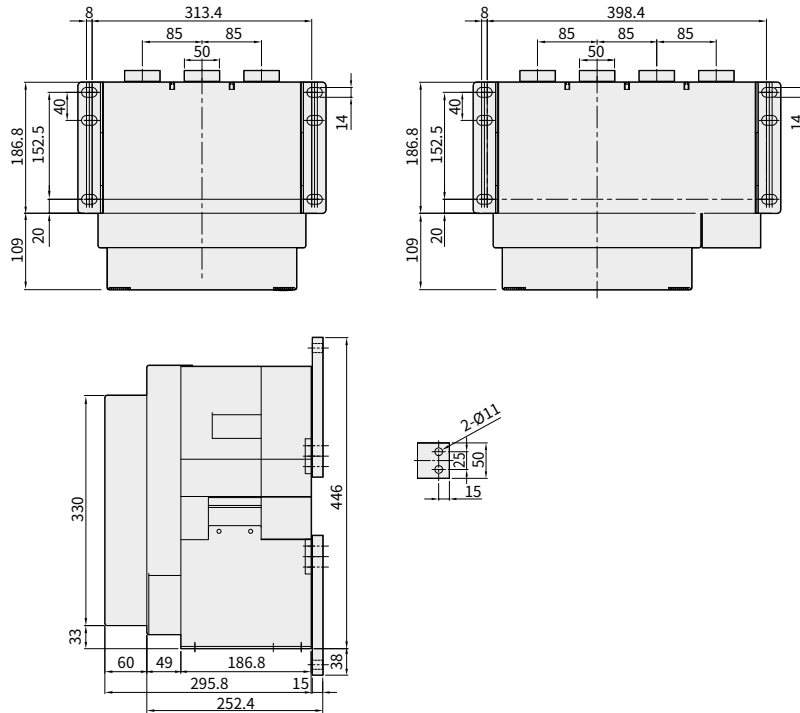
※ The drawing dimension of this page may be subject to change without prior notice.
As for the CHG fixed type A type 2,000 A, only the vertical terminal can be applicable.

Unit : mm

Horizontal Type (630 ~ 1,600 A)



Front Type (630 ~ 1,600 A)



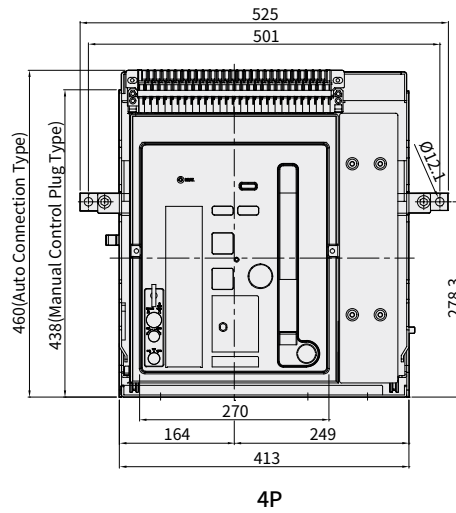
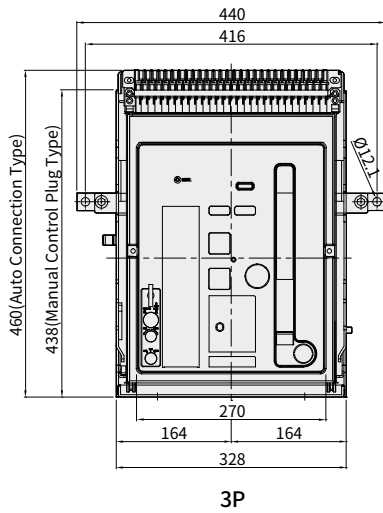
※ The drawing dimension of this page may be subject to change without prior notice.

Dimensions

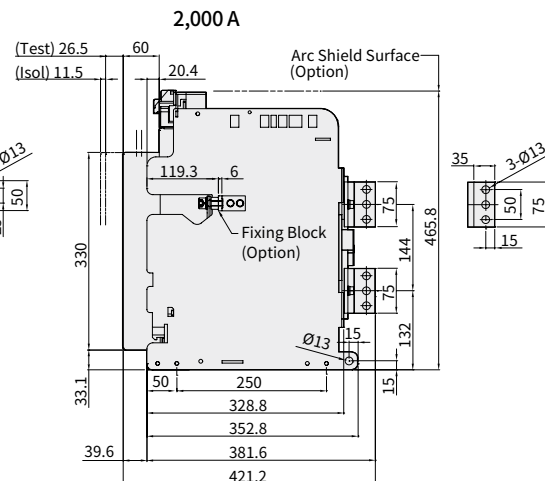
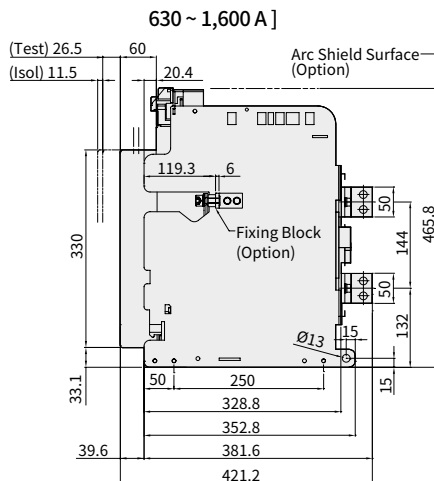
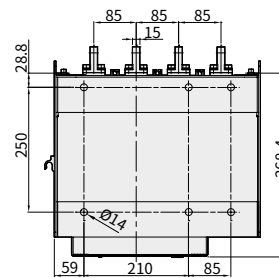
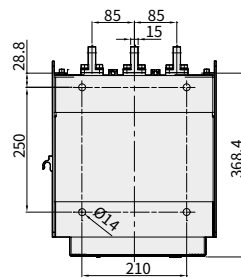
CSG/CHG Draw-Out Type 630 ~ 2,000 A (CSG06 ~ 16/CHG06 ~ 20 A Frame)

Unit : mm

Front



Vertical Type

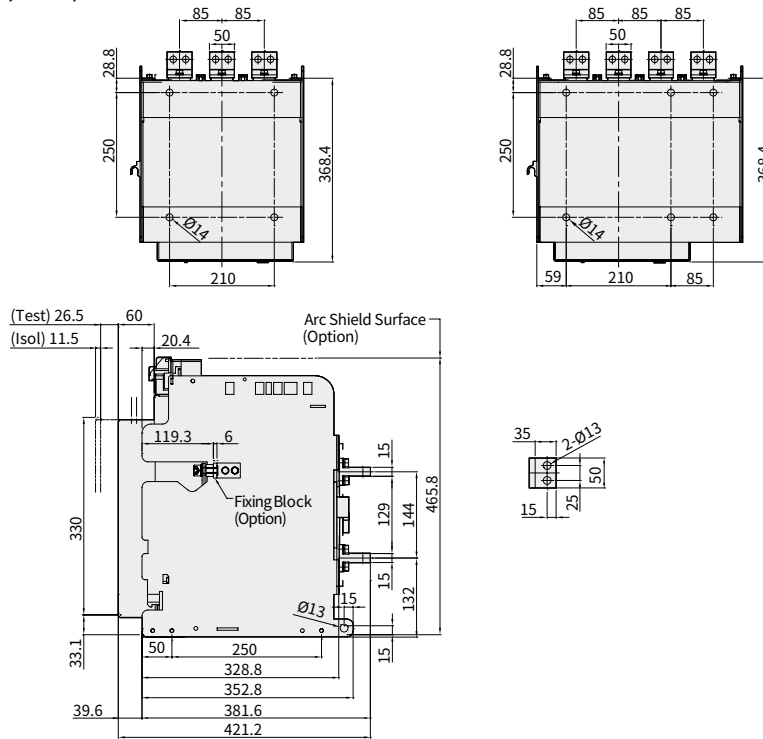


※ The drawing dimension of this page may be subject to change without prior notice.
As for the CHG draw-out type A type 2,000 A, only the vertical terminal can be applicable.

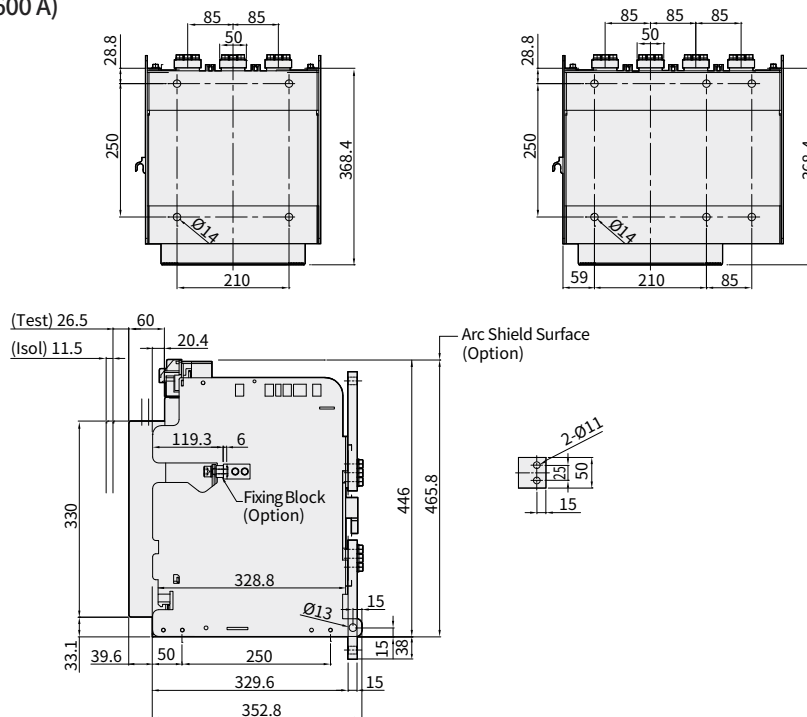
Horizontal Type (630 ~ 1,600 A)

3

Air Circuit Breakers



Front Type (630 ~ 1,600 A)



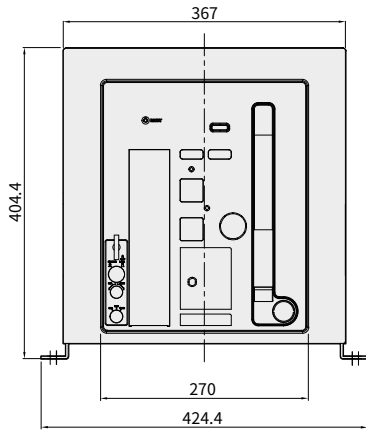
※ The drawing dimension of this page may be subject to change without prior notice.

Dimensions

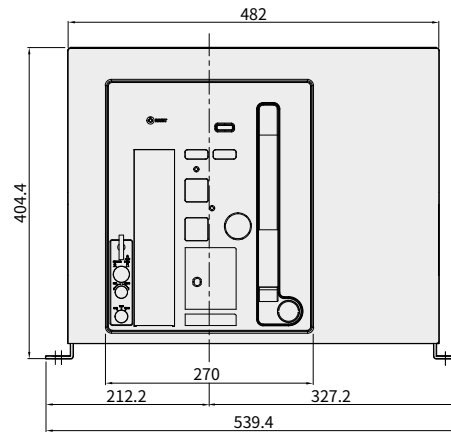
CSG/CHG Fixed Type 2,000 (630) ~ 3,200 A (CSG/CHG20 (06) ~ 32 B Frame)

Unit : mm

Front

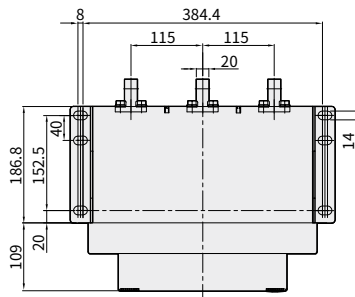


3P

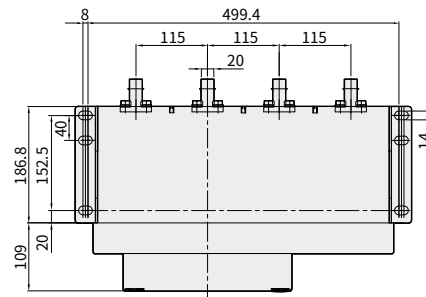
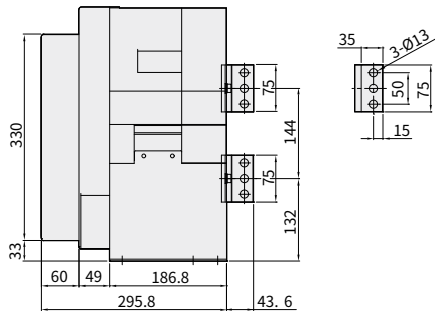


4P

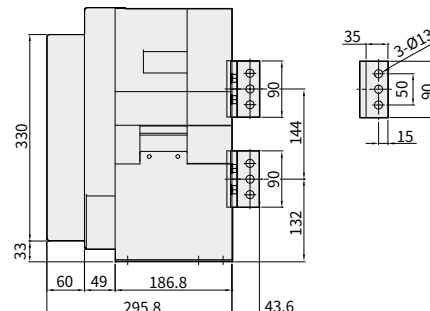
Vertical Type



[630 ~ 2,500 A]



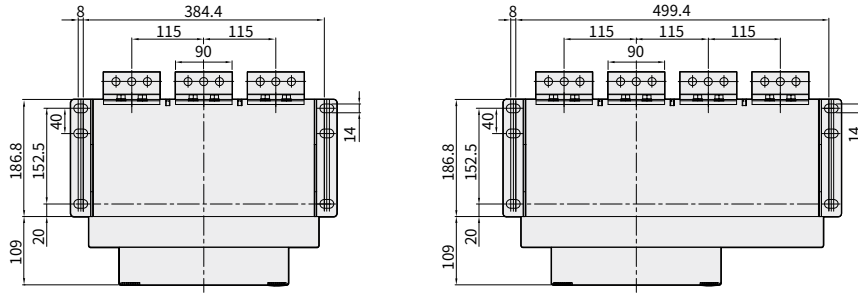
[3,200 A]



※ The drawing dimension of this page may be subject to change without prior notice.

Unit : mm

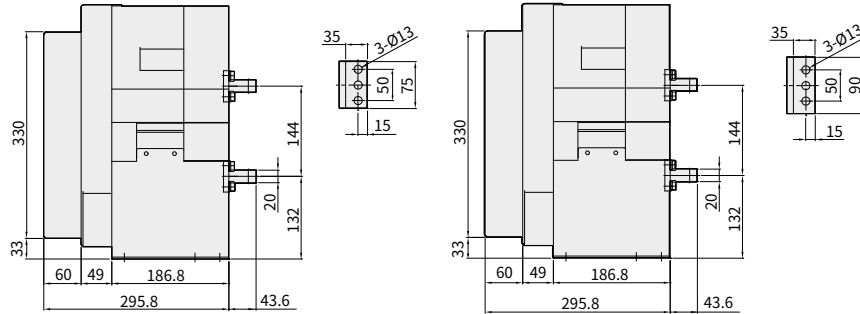
Horizontal Type



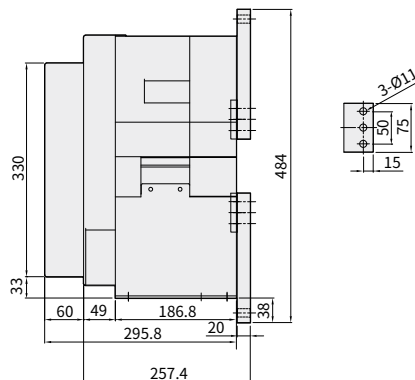
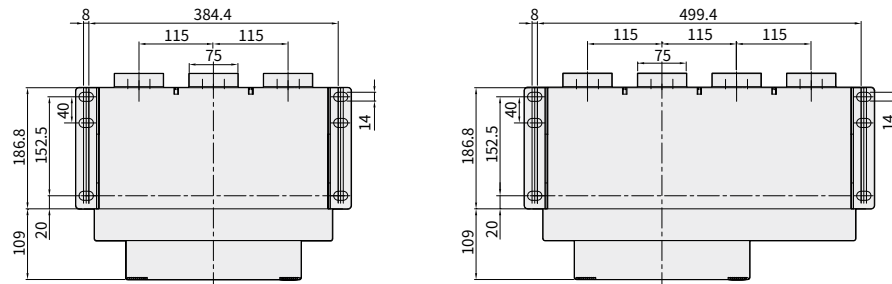
Model Name	Detail "A"
CHG20 (06) ~ 25	75
CHG32	90

[2,000 ~ 2,500 A]

[3,200 A]



Front Type

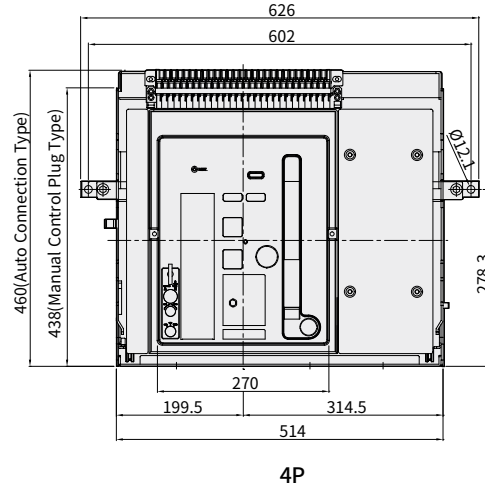
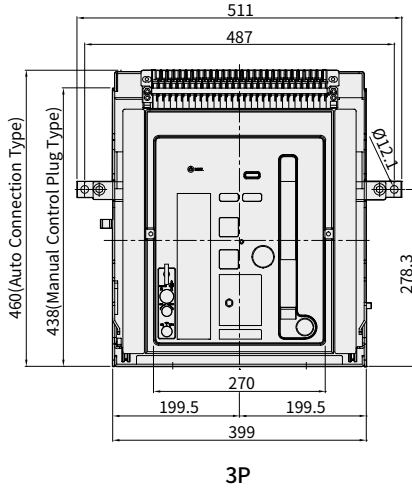


※ The drawing dimension of this page may be subject to change without prior notice.

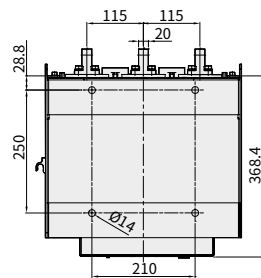
Dimensions

CSG/CHG Draw-Out Type 2,000 (630) ~ 3,200 A (CSG/CHG20 (06) ~ 32 B Frame)

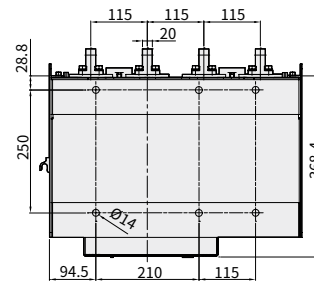
Front



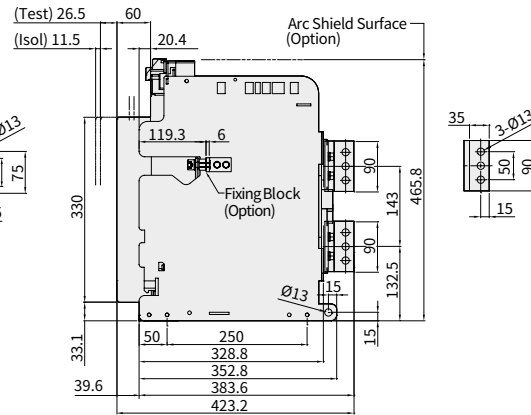
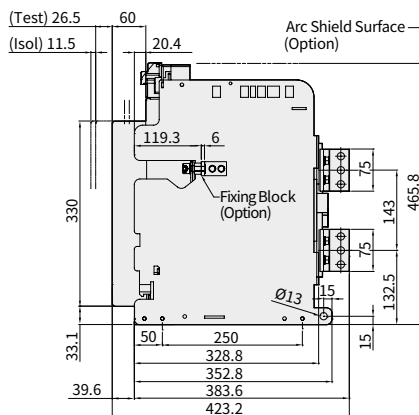
Vertical Type



[630 ~ 2,500 A]



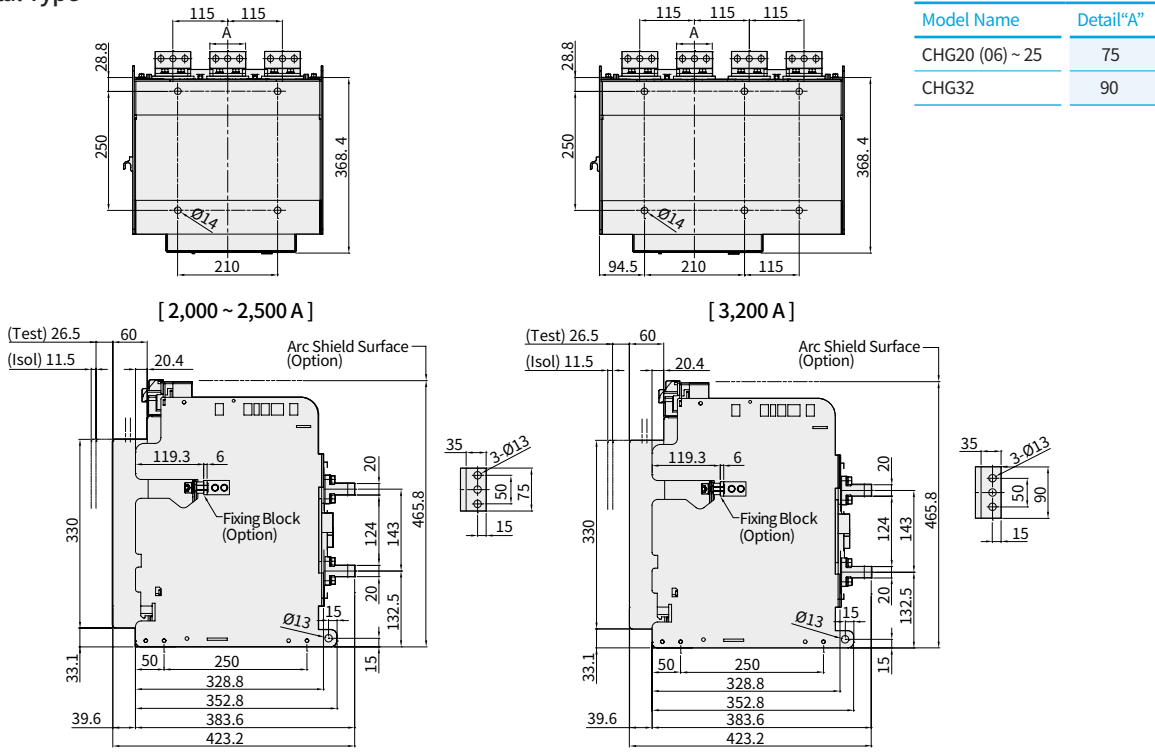
[3,200 A]



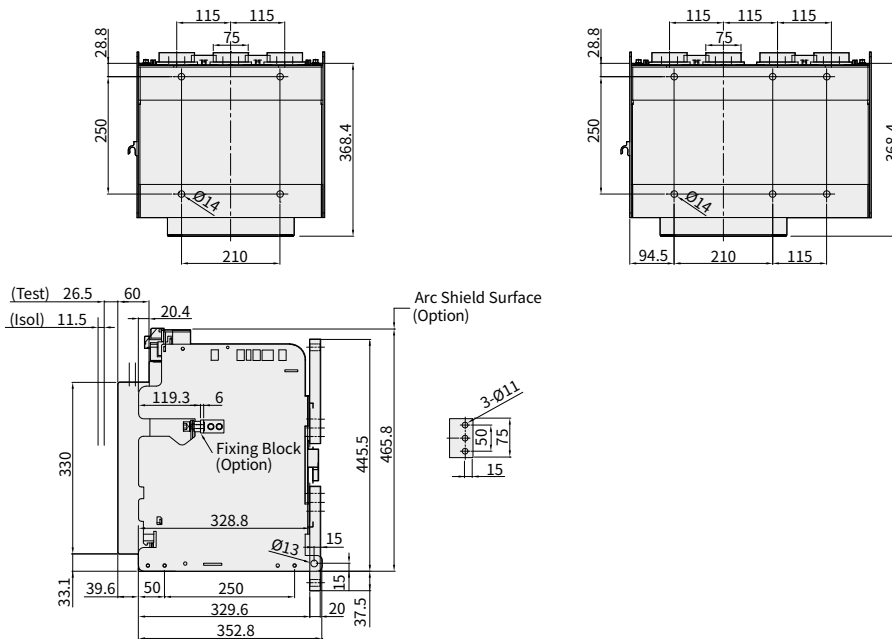
※ The drawing dimension of this page may be subject to change without prior notice.

Unit : mm

Horizontal Type



Front Type



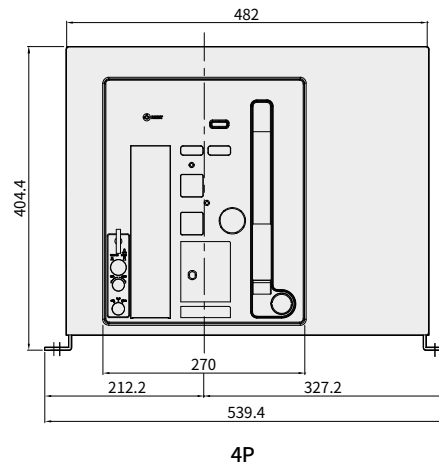
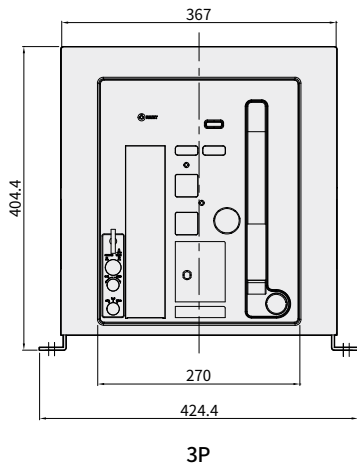
※ The drawing dimension of this page may be subject to change without prior notice.

Dimensions

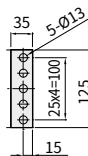
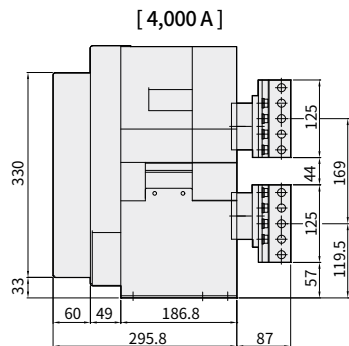
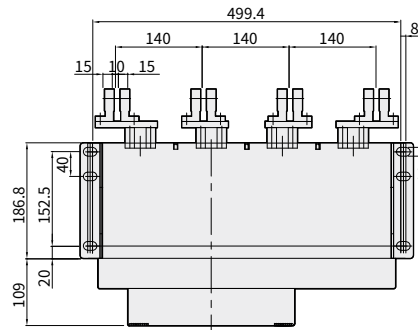
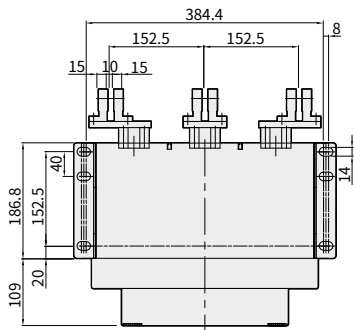
CHG Fixed Type 4,000 A (CHG40 B Frame)

Unit : mm

Front



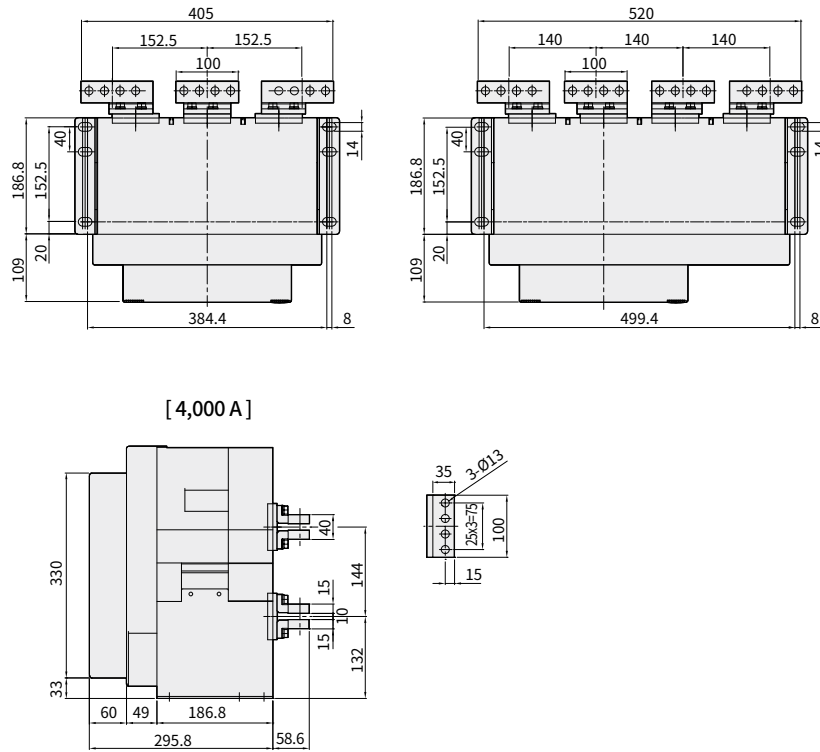
Vertical Type



※ The drawing dimension of this page may be subject to change without prior notice.

Unit : mm

Horizontal Type



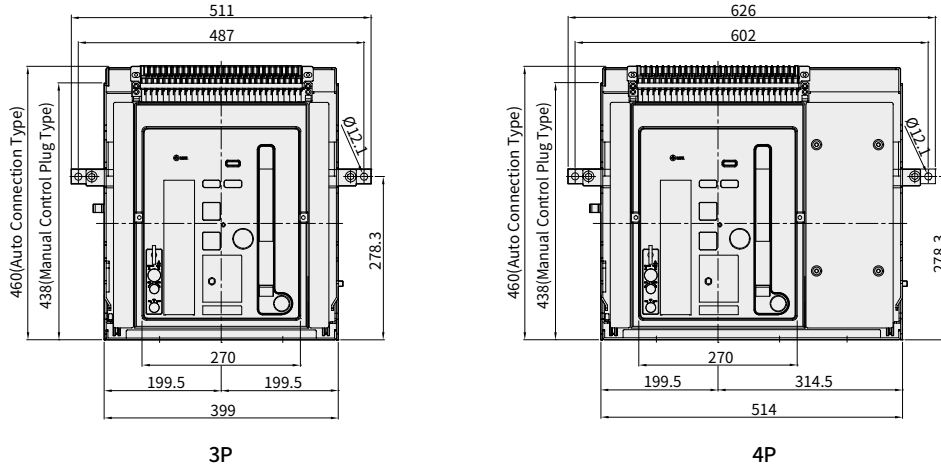
※ The drawing dimension of this page may be subject to change without prior notice.

Dimensions

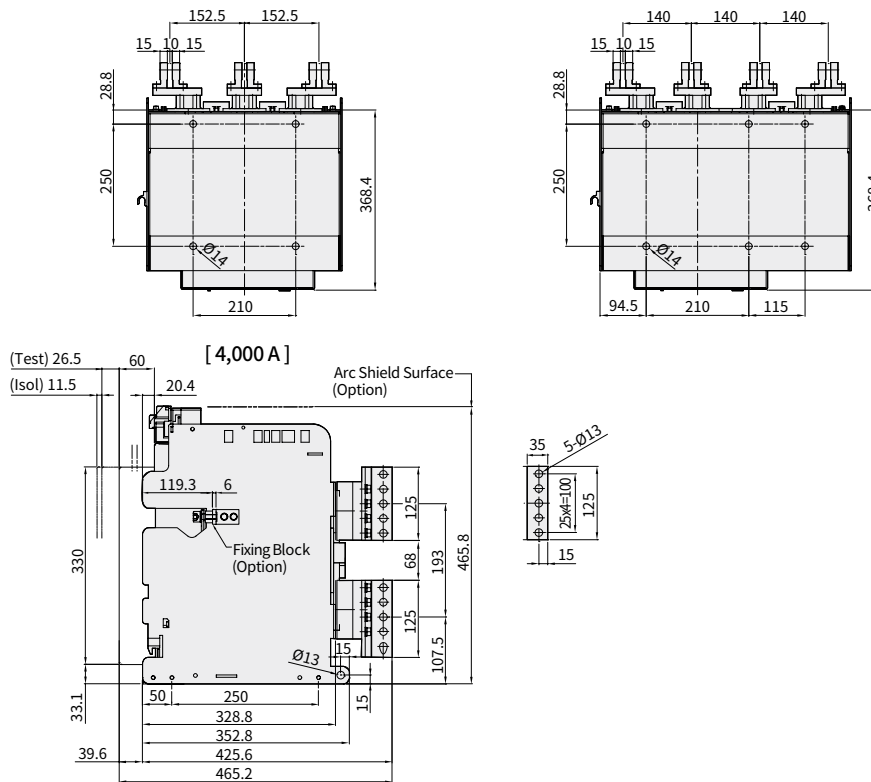
CHG Draw-Out Type 4,000 A (CHG40 B Frame)

Unit : mm

Front

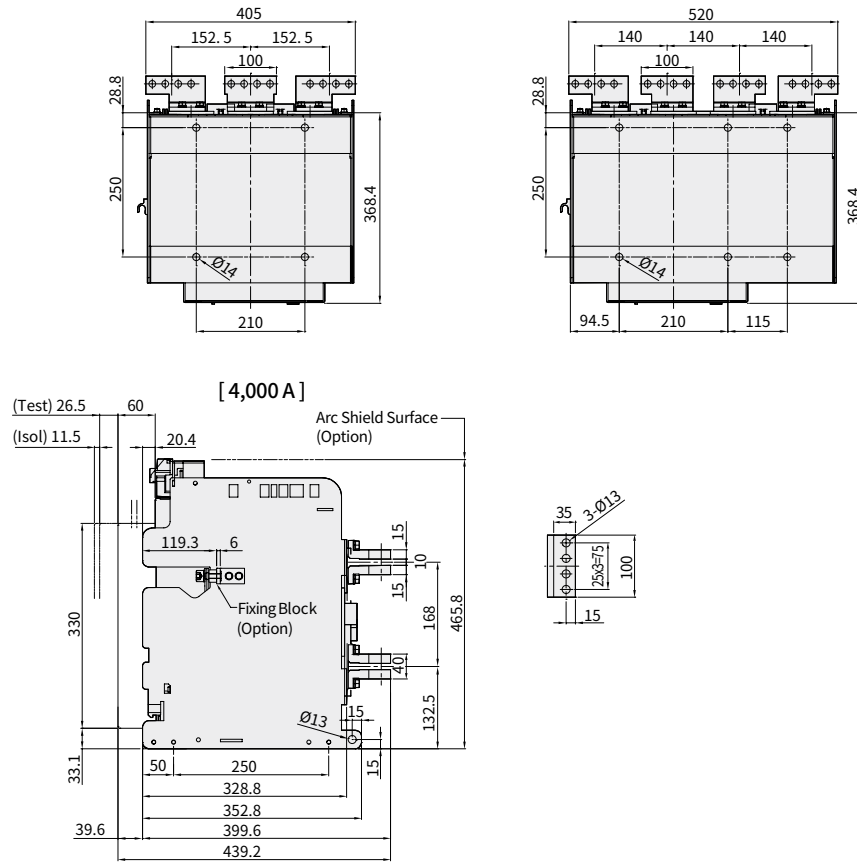


Vertical Type



※ The drawing dimension of this page may be subject to change without prior notice.

Horizontal Type



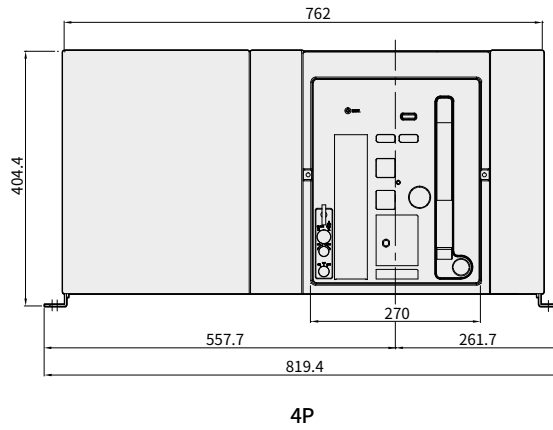
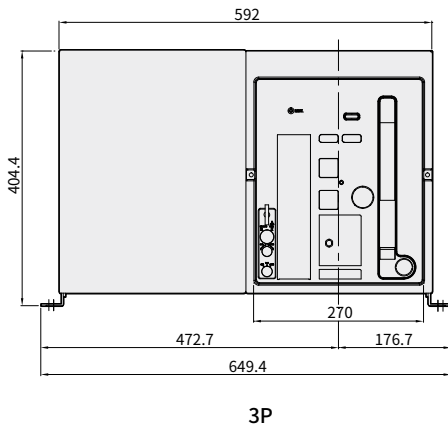
※ The drawing dimension of this page may be subject to change without prior notice.

Dimensions

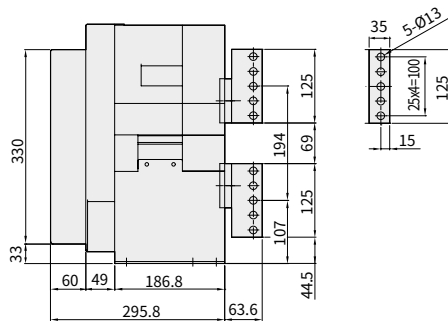
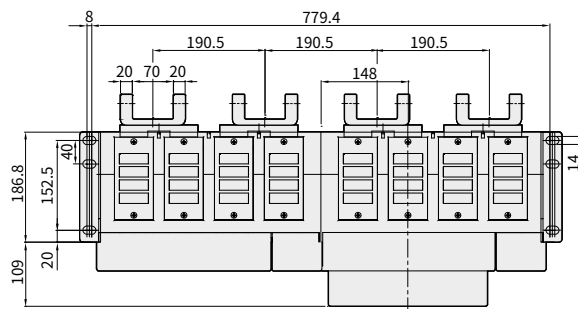
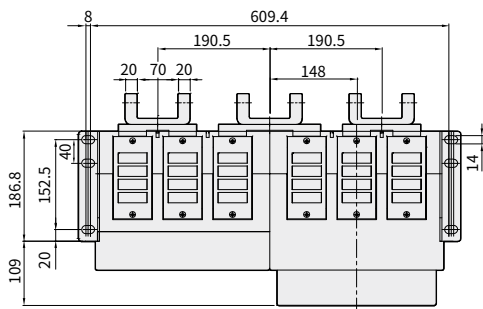
CHG Fixed Type 4,000 (3,200) ~ 5,000 A (CHG40 (30) ~ 50 C Frame)

Unit : mm

Front



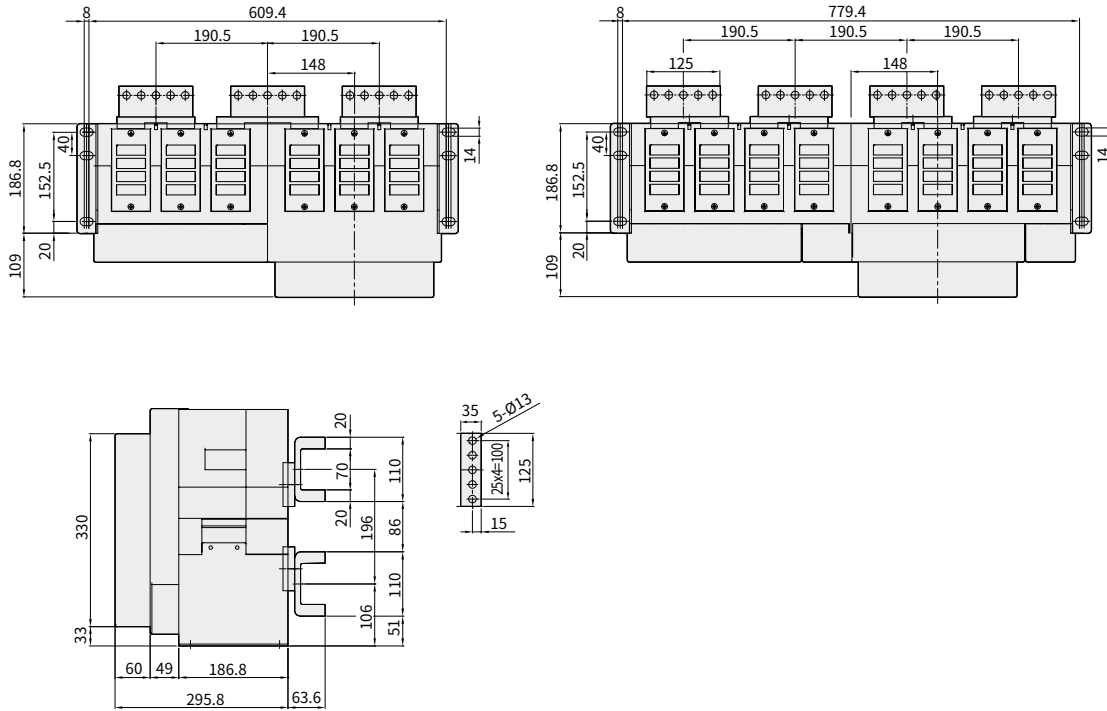
Vertical Type



※ The drawing dimension of this page may be subject to change without prior notice.

Unit : mm

Horizontal Type



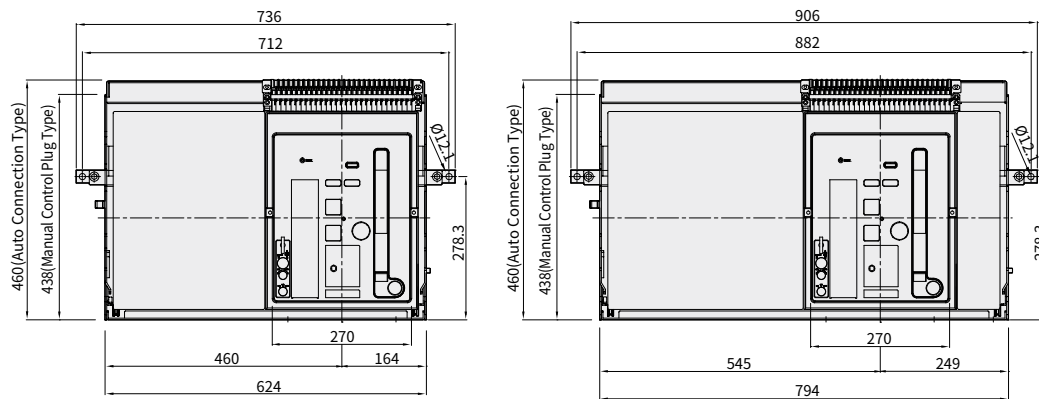
※ The drawing dimension of this page may be subject to change without prior notice.

Dimensions

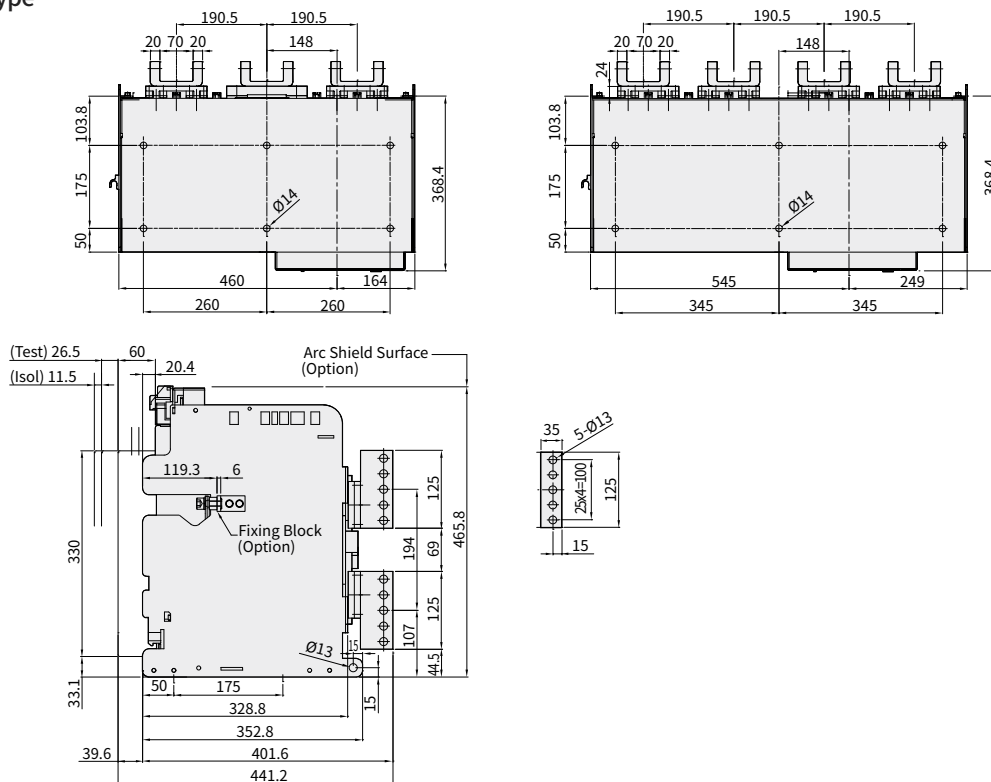
CHG Draw-Out Type 4,000 (3,200) ~ 5,000 A (CHG40 (30) ~ 50 C Frame)

Unit : mm

Front



Vertical Type

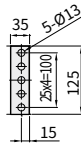
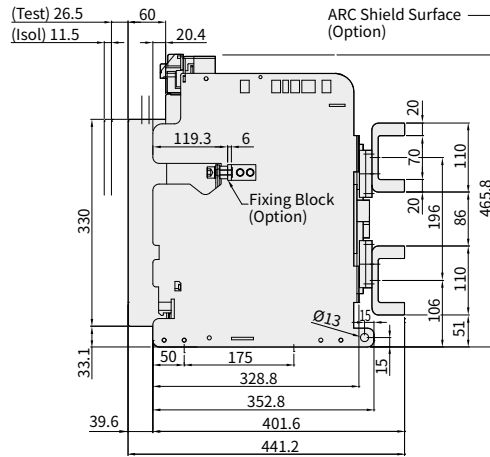
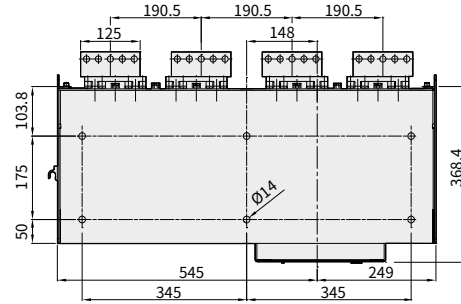
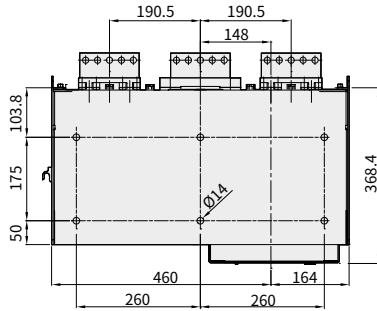


※ The drawing dimension of this page may be subject to change without prior notice.

Horizontal Type

3

Air Circuit Breakers



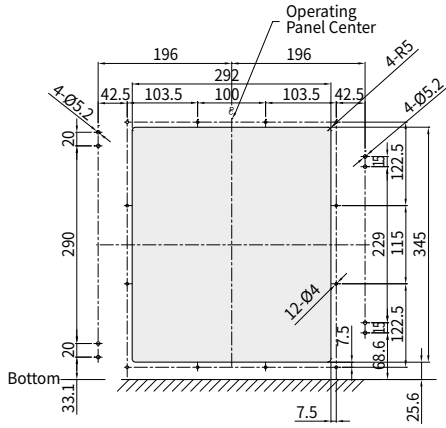
※ The drawing dimension of this page may be subject to change without prior notice.

Dimensions

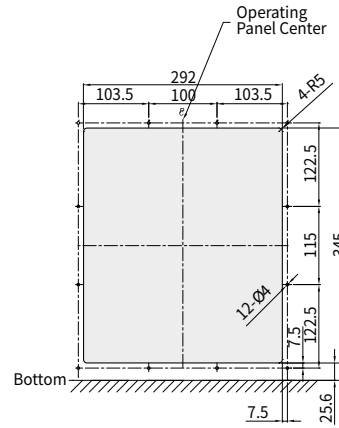
Panel Cutting Dimension of CSG/CHG Fixed Type

Unit : mm

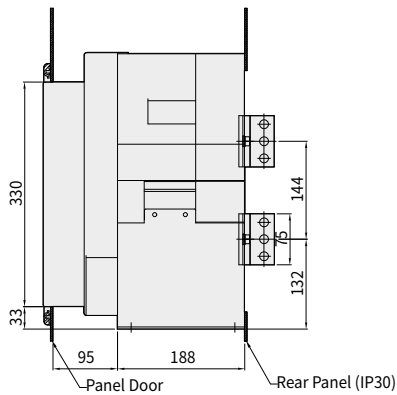
Panel Door Cut-Out (For Dust Cover)



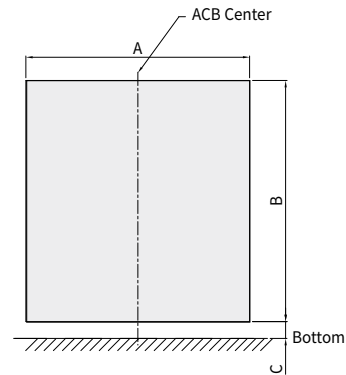
Panel Door Cut-Out (For Door Flange)



Side View



Rear Panel Cutting Size (For IP30)



Detailed Dimensions of Rear Panel Cutting

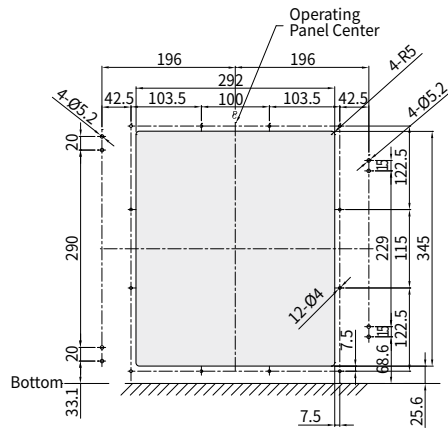
Model Name	A	B	C
CHG 06A3 ~ 20A3, CSG 06A3 ~ 16A3	283	355	25
CHG 06A4 ~ 20A4, CSG 06A4 ~ 16A4	368	355	25
CHG 06B3 ~ 40B3, CSG 20B3 ~ 32B3	354	355	25
CHG 06B4 ~ 40B4, CSG 20B4 ~ 32B4	469	355	25
CHG 32C3 ~ 50C3	579	355	25
CHG 32C4 ~ 50C4	749	355	25

※ The drawing dimension of this page may be subject to change without prior notice.

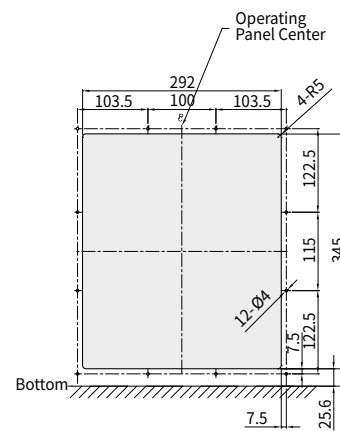
Panel Cutting Dimension of CSG/CHG Draw-Out Type

Unit : mm

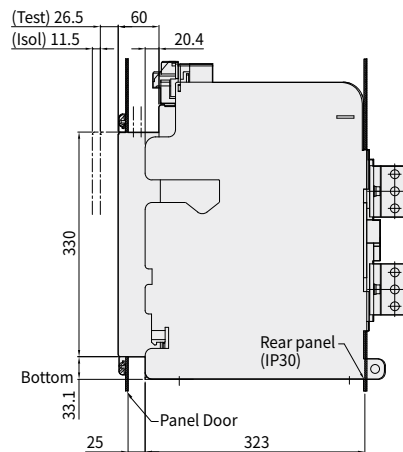
Panel Door Cut-Out (For Dust Cover)



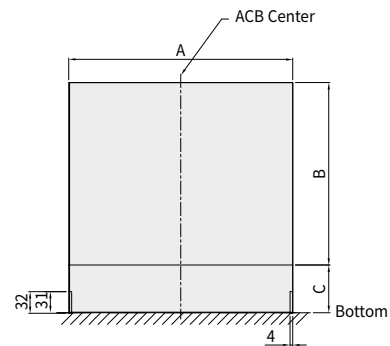
Panel Door Cut-Out (For Door Flange)



Side View



Rear Panel Cutting Size (For IP30)

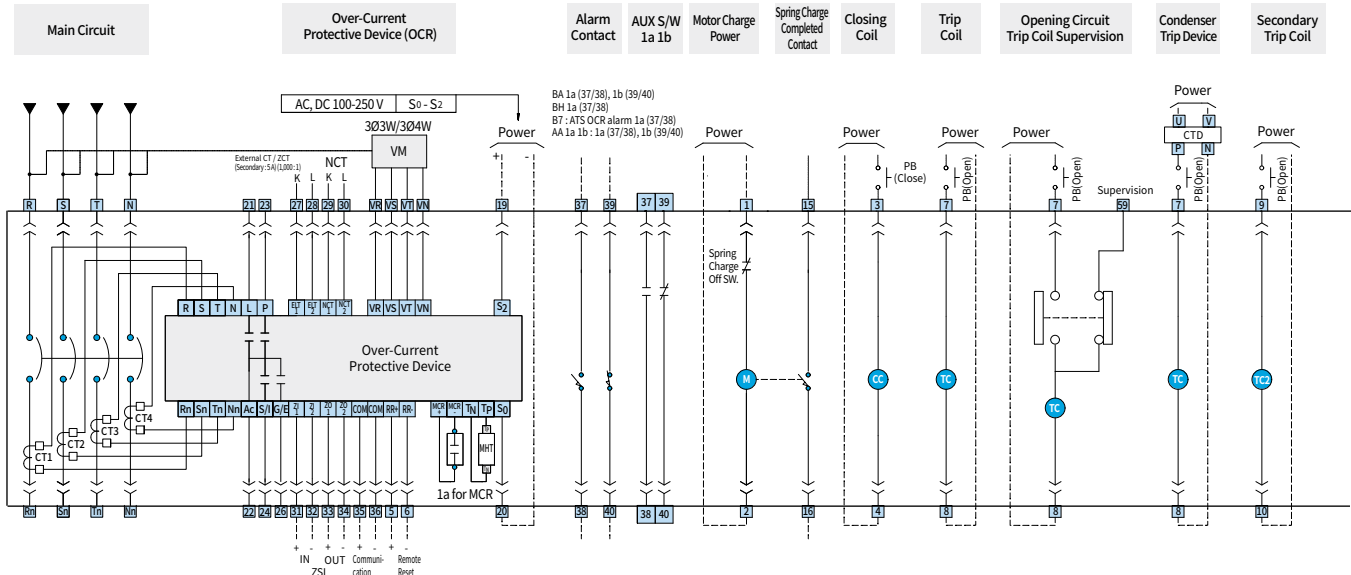


Detailed Dimensions of Real Panel Cutting

Model Name	A	B	C
CHG 06A3 ~ 20A3, CSG 06A3 ~ 16A3	329	268	70
CHG 06A4 ~ 20A4, CSG 06A4 ~ 16A4	414	268	70
CHG 06B3 ~ 40B3, CSG 20B3 ~ 32B3	400	298	55
CHG 06B4 ~ 40B4, CSG 20B4 ~ 32B4	515	298	55
CHG 32C3 ~ 50C3	625	338	35
CHG 32C4 ~ 50C4	795	338	35

※ The drawing dimension of this page may be subject to change without prior notice.

Circuit Diagrams



Symbol Description

CT	Current Transformer
L	LTD Terminal
PT	Pre-Trip Alarm
G	Ground Fault Contact
S/I	STD/INST Contact
Ac	Common Contact
NCT	NCT (Neutral CT) Input
ZI	Zone Selective Interlock Input
ZO	Zone Selective Interlock Output
MCR+/-	MCR Input Terminal
Tp/Tn	MHT Output Terminal
M	Charging Motor
CC	Close Coil
TC	Trip Coil
UVT	Under-Current Voltage Trip Coil
CT	Magnetic Hold Trigger
SO/S2	OCR Power

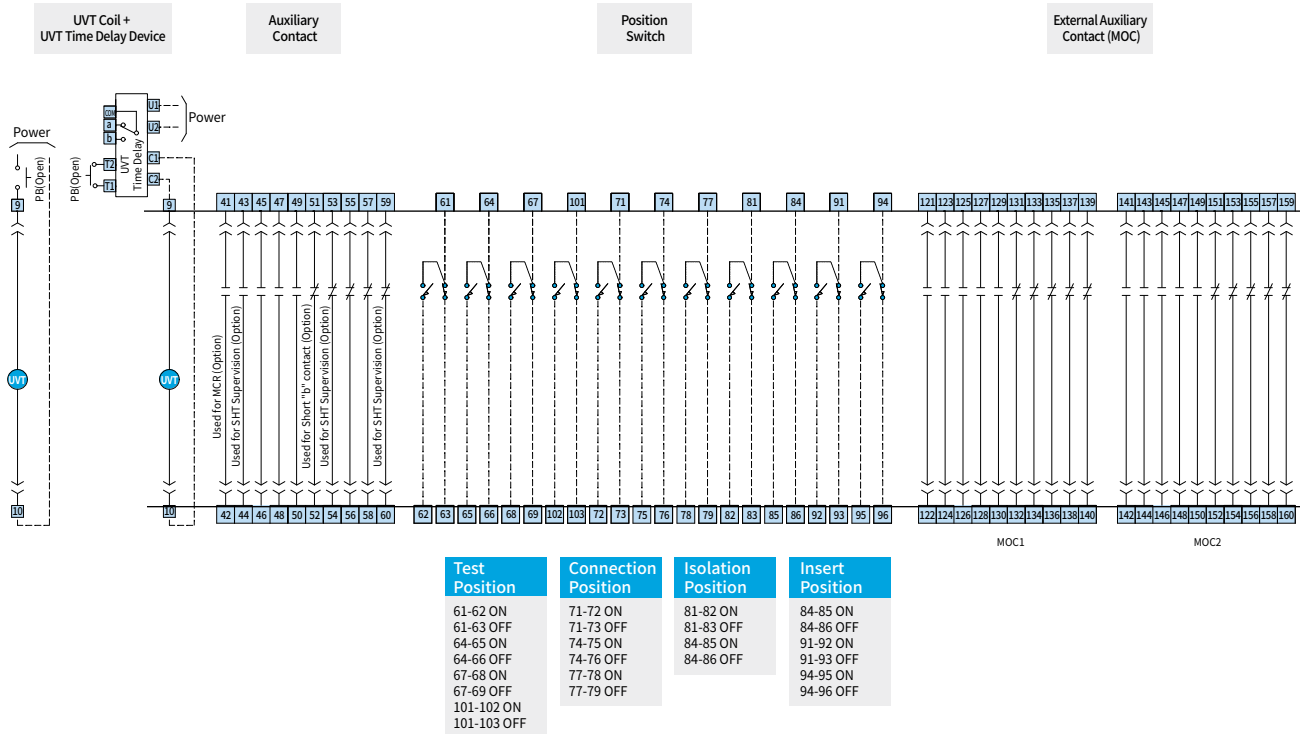
- RR : Remote Reset • VM : Voltage Module • VR ~ VN : Voltage Phase Input
- R ~ N : Current Input • Rn ~ Nn : Current Input

※ This circuit diagram is equipped with the 'WPRO-LA' type of OCR.

Terminal Description

1	2	Charge Motor Power
3	4	Closing Coil Power
7	8	Trip Coil Power
9	10	UVT Coil Power
15	16	Spring Charge Switch
19	20	OCR Control Power
22	21	LTD Contact
22	23	Pre-Trip Alarm/Temperature Alarm Contact
22	24	STD/INST Contact
22	26	GFT/ELT Contact
22	30	NCT (Neutral CT) Input Terminal
31 ~ 34		ZSI (Zone Selective Interlock)
41 ~ 60		Auxiliary Contact
61 ~ 93		Position Switch

- Manufacture's Wiring
- User's Wiring
- ⌞ Disconnecting Device (Draw-Out Type)



Control Jack Lay-Out

OCR														Operating					Auxiliary Switch									
POW	OCR Contact					ELT	N-CT	ZSI	COM	Temp	V Input		M	CC	TC	UVT	CHA	1a	2a	3a	4a	5a	1b	2b	3b	4b	5b	
	COM	L	S/I	P/T	G/E						VR	VT																
19	21	23	27	29	31	33	35	37	39	VR	VT	1	3	7	9	15	41	43	45	47	49	51	53	55	57	59		
20	22	24	26	28	30	32	34	36	38	40	VS	VN	2	4	8	10	16	42	44	46	48	50	52	54	56	58	60	

————— OCR Protection Relay —————
————— Operating Circuit —————
————— Auxiliary Switch —————

OCR													
POW	OCR Contact					ELT	N-CT	ZSI	COM	Temp	V Input		
	COM	L	S/I	P/T	G/E						VR	VT	
19	21	23	27	29	31	33	35	37	39	VR	VT		
20	22	24	26	28	30	32	34	36	38	40	VS	VN	

- WPRO Protection Relay -

Operating				
M	CC	TC	UVT	CHA
1	3	7	9	15
2	4	8	10	16

- Operating Circuit -

Auxiliary Switch									
1a	2a	3a	4a	5a	1b	2b	3b	4b	5b
41	43	45	47	49	51	53	55	57	59
42	44	46	48	50	52	54	56	58	60

- Auxiliary Switch -

Order Code

CHG Type

CHG		12		A		3		J		M2															
Model Name		Rated Frame		Frame Category & Neutral Pole		No. of Poles		Mounting Method		Charging Motor Power															
CHG	Air Circuit Breakers	6	630 A	A	630 ~ 2,000 AF 3/4P Standard RST (N)	3	3 Pole	Independent Release of Draw-Out Type (Control Power) of Main Unit	M0	Manual Type	<table border="1"> <tr><td>M1</td><td>AC/DC 110 V</td></tr> <tr><td>M2</td><td>AC/DC 220 V</td></tr> <tr><td>M3</td><td>AC 380 V³⁾</td></tr> <tr><td>M4</td><td>AC 440 V³⁾</td></tr> <tr><td>M7</td><td>DC 24 V</td></tr> <tr><td>M8</td><td>DC 48 V</td></tr> <tr><td>M9</td><td>DC 125 V</td></tr> </table>	M1	AC/DC 110 V	M2	AC/DC 220 V	M3	AC 380 V ³⁾	M4	AC 440 V ³⁾	M7	DC 24 V	M8	DC 48 V	M9	DC 125 V
		M1	AC/DC 110 V																						
M2	AC/DC 220 V																								
M3	AC 380 V ³⁾																								
M4	AC 440 V ³⁾																								
M7	DC 24 V																								
M8	DC 48 V																								
M9	DC 125 V																								
8	800 A	4	4 Pole	A	Auto Connection																				
10	1,000 A	W	630 ~ 2,000 AF 4P Reverse Phase NRST	J	Manual Connection																				
12	1,250 A			Fixed Type (Terminal Form)																					
16	1,600 A	B	630 ~ 4,000 AF 3/4P Standard RST (N)	H	Horizontal Type																				
20	2,000 A ¹⁾			V	Vertical Type																				
6	630 A			T	Upper Side: Horizontal/ Lower Side: Vertical																				
8	800 A			L	Upper Side: Vertical/ Lower Side: Horizontal																				
10	1,000 A			P ²⁾	Front Type and Mounting Type Selected by Customer																				
12	1,250 A			Draw-Out Type (Combined with Cradle)																					
16	1,600 A	X	630 ~ 4,000 AF 4P Reverse Phase NRST	B	Auto Connection + Horizontal Type																				
20	2,000 A			C	Auto Connection + Vertical Type																				
25	2,500 A			D	Auto Connection + Upper Side: Horizontal / Lower Side: Vertical																				
32	3,200 A			E	Auto Connection + Upper Side: Vertical / Lower Side: Horizontal																				
40	4,000 A			G ²⁾	Auto Connection + Front Type/Mounting Type Selected by Customer																				
32	3,200 A			C	3,200 ~ 5,000 AF 3/4P Standard RST (N)	K	Manual Connection + Horizontal Type																		
40	4,000 A	M	Manual Connection + Vertical Type																						
50	5,000 A	Y	3,200 ~ 5,000 AF 4P Reverse Phase NRST	N	Manual Connection + Upper: Horizontal / Lower: Vertical																				
40	4,000 A			D	4,000 ~ 6,300 AF 3/4P Standard RST (N)	Q	Manual Connection + Upper Side: Vertical / Lower Side: Horizontal																		
50	5,000 A	Z	4,000 ~ 6,300 AF 4P Reverse Phase NRST	R ²⁾	Manual Connection + Front Type/Mounting Type Selected by Customer																				
63	6,300 A																								

※ 1) A frame, 2,000 A is only available for vertical terminal bus bar arrangement.
 2) P, G, R type of fixed terminal bus bar arrangement should be ordered per terminal and mounted personally. (Refer to the additional components). Applicable frames are A06 ~ 16, B06 ~ 32.
 3) Charging motor AC 380 V, AC 440 V are currently under development.
 4) CT for Over-Current
 - A/W Frame : 200 ~ 2,000 A
 - B/X Frame : 400 ~ 4,000 A
 - C/Y Frame : 3,200 ~ 5,000 A
 - D/Z Frame : 4,000 ~ 6,300 A
 5) When applying OCR high-end type P, H type, place an order for voltage module (CHGS VM) additionally for mounting.

Order Code

CSG Type

CSG		12		A		3		J		M2			
Model Name		Rated Frame		Frame Category & Neutral Pole		No. of Poles		Mounting Method		Charging Motor Power			
CSG	Air Circuit Breakers	6	630 A	A	630 ~ 1,600 AF 3/4P Standard RST (N)	3	3 Pole	Independent Release of Draw-Out Type (Control Power) of Main Unit				M0	Manual type
		8	800 A			W	630 ~ 1,600 AF 4P Reverse Phase NRST	4	4 Pole	A	Auto Connection	M1	AC/DC 110 V
		10	1,000 A					J	Manual Connection	M2	AC/DC 220 V		
		12	1,250 A	Fixed Type (Terminal Form)				M3	AC 380 V ²⁾				
		16	1,600 A	H	Horizontal Type			M4	AC 440 V ²⁾				
		20	2,000 A	B	2,000 ~ 3,200 AF 3/4P Standard RST (N)	V	Vertical Type	M5	DC 24 V				
		25	2,500 A			T	Upper Side : Horizontal/ Lower Side : Vertical	M6	DC 48 V				
		32	3,200 A			X	2,000 ~ 3,200 AF 4P Reverse Phase NRST	L	Upper Side : Vertical/ Lower Side : Horizontal	M9	DC 125 V		
		Draw-Out Type (Combined with Cradle)		P ¹⁾	Front Type and Mounting Type Selected by Customer								
				B	Auto Connection + Horizontal Type								
		C	Auto Connection + Vertical Type										
		D	Auto Connection + Upper Side : Horizontal/ Lower Side : Vertical										
		E	Auto Connection + Upper Side : Vertical/ Lower Side : Horizontal										
		G ¹⁾	Auto Connection + Front Type/Mounting Type Selected by Customer										
		K	Manual Connection + Horizontal Type										
		M	Manual Connection + Vertical Type										
		N	Manual Connection + Upper Side : Horizontal/ Lower Side : Vertical										
		Q	Manual Connection + Upper Side : Vertical/ Lower Side : Horizontal										
		R ¹⁾	Manual Connection + Front Type/Mounting Type Selected by Customer										

※ 1) P, G, R type of fixed terminal bus bar arrangement should be ordered per terminal and mounted personally. (Refer to the additional components).

2) Charging motor AC 380 V, AC 440 V are currently under development.

3) O, V can only be applicable to frame A.

- B frame can be applied above 400 A of CT.

4) When applying LP type of OCR, place an order for the voltage module additional for mounting.

Installation and Environment

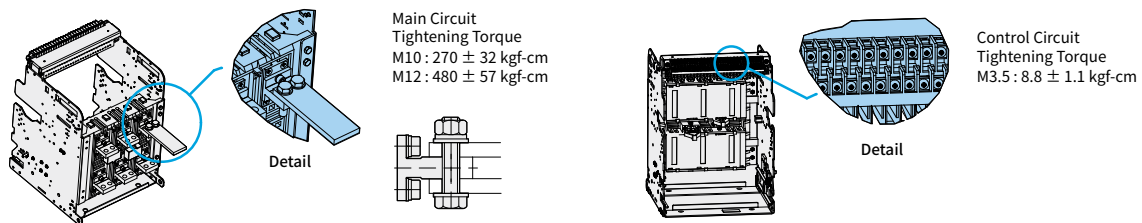
Internal Resistance and Power Consumption

Model Name	Rated Current (A)	Fixed Type		Draw-Out Type	
		Internal Resistance ($\mu\Omega$)	Power Consumption (W/3Phase)	Internal Resistance ($\mu\Omega$)	Power Consumption (W/3Phase)
A Frame CSG/CHG 06 ~ 16	630	20	24	40	48
	800	20	38	40	77
	1,000	20	60	40	120
	1,250	20	94	40	188
	1,600	20	154	40	307
A Frame CHG 20	630	15	18	30	36
	800	15	29	30	58
	1,000	15	45	30	90
	1,250	15	70	30	141
	1,600	15	115	30	230
	2,000	13	156	27	324

Model Name	Rated Current (A)	Fixed Type		Draw-Out Type	
		Internal Resistance ($\mu\Omega$)	Power Consumption (W/3Phase)	Internal Resistance ($\mu\Omega$)	Power Consumption (W/3Phase)
B Frame CSG/CHG 20 ~ 32	2,000	10	120	20	240
	2,500	10	188	20	375
	3,200	10	307	20	614
B Frame CHG 40	2,000	10	120	20	240
	2,500	10	188	20	375
	3,200	10	307	20	614
	4,000	8	384	11	528
C Frame CHG 40 ~ 50	4,000	8	384	11	528
	5,000	8	600	11	825
D Frame CHG 40 ~ 63	4,000	6	288	9	432
	5,000	6	450	9	675
	6,300	5	595	7	833

※ The abovementioned power consumption is the total power consumption of the circuit breaker based on 50/60 Hz, 3/4 pole.
The inner resistance value is the resistance value per pole.
Power Factor = 1.0

Tightening Torque



Insulation Voltage

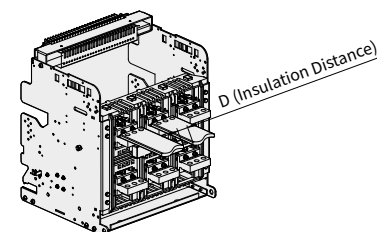
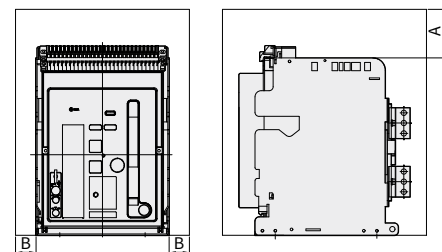
When designing the switchboard, maintain the insulation distance in accordance with the table below.

Insulation Distance from ARC Unit : mm

Item	A	B
Fixed Type	150	50
Draw-Out Type without Arc Shield	150	50
Draw-Out Type with Arc Shield	0	50

Minimum Insulation Distance at Charging Side

Insulating Voltage	Minimum Insulation Distance(mm)
Below 600 V	8
Above 600 V, below 1,000 V	14



Installation and Environment

Calibration of Rating Current

Calibration of Rating Current Following Ambient Temperature and Motion Specification

3 Air Circuit Breakers



Model Name	Rating Current	ACB Terminal	Applicable Motion Standard	Horizontal Type					Vertical Type					
				40 °C	45 °C	50 °C	55 °C	60 °C	40 °C	45 °C	50 °C	55 °C	60 °C	
A Frame CSG/CHG 06 ~ 16	200 A	15 t×50×1 ea	5 t×50×1 ea	200 A	200 A	200 A	200 A	200 A	200 A	200 A	200 A	200 A	200 A	
	400 A			400 A	400 A	400 A	400 A	400 A	400 A	400 A	400 A	400 A	400 A	
	630 A		5 t×50×2 ea	630 A	630 A	630 A	630 A	630 A	630 A	630 A	630 A	630 A	630 A	630 A
			10 t×60×1 ea	630 A	630 A	630 A	630 A	630 A	630 A	630 A	630 A	630 A	630 A	630 A
	800 A		6 t×50×2 ea	800 A	800 A	800 A	800 A	800 A	800 A	800 A	800 A	800 A	800 A	800 A
			10 t×60×1 ea	800 A	800 A	800 A	800 A	800 A	800 A	800 A	800 A	800 A	800 A	800 A
	1,000 A		8 t×50×2 ea	1,000 A	1,000 A	1,000 A	1,000 A	1,000 A	1,000 A	1,000 A	1,000 A	1,000 A	1,000 A	1,000 A
1,250 A	6 t×75×2 ea	-	-	-	-	-	-	-	-	-	-	-		
	8 t×60×2 ea	1,250 A	1,250 A	1,250 A	1,250 A	1,250 A	1,250 A	1,250 A	1,250 A	1,250 A	1,250 A	1,250 A		
	10 t×50×2 ea	1,250 A	1,250 A	1,250 A	1,250 A	1,250 A	1,250 A	1,250 A	1,250 A	1,250 A	1,250 A	1,250 A		
1,600 A	6 t×75×3 ea	-	-	-	-	-	-	-	-	-	-	-		
	10 t×60×2 ea	1,600 A	1,600 A	1,600 A	1,560 A	1,480 A	1,600 A	1,600 A	1,600 A	1,550 A	1,500 A	1,500 A		
	8 t×60×3 ea	1,600 A	1,600 A	1,600 A	1,560 A	1,480 A	1,600 A	1,600 A	1,600 A	1,550 A	1,500 A	1,500 A		
A Frame CHG20	2,000 A	15 t×75×1 ea	8 t×75×3 ea	-	-	-	-	-	2,000 A	2,000 A	1,940 A	1,860 A	1,780 A	
B Frame CSG/CHG 06 ~ 25	630 A	20 t×75×1 ea	5 t×50×2 ea	630 A	630 A	630 A	630 A	630 A	630 A	630 A	630 A	630 A	630 A	
			10 t×60×1 ea	630 A	630 A	630 A	630 A	630 A	630 A	630 A	630 A	630 A	630 A	
	800 A		6 t×50×2 ea	800 A	800 A	800 A	800 A	800 A	800 A	800 A	800 A	800 A	800 A	
			10 t×60×1 ea	800 A	800 A	800 A	800 A	800 A	800 A	800 A	800 A	800 A	800 A	
	1,000 A		8 t×50×2 ea	1,000 A	1,000 A	1,000 A	1,000 A	1,000 A	1,000 A	1,000 A	1,000 A	1,000 A	1,000 A	
	1,250 A		6 t×75×2 ea	-	-	-	-	-	-	-	-	-	-	-
			8 t×60×2 ea	1,250 A	1,250 A	1,250 A	1,250 A	1,250 A	1,250 A	1,250 A	1,250 A	1,250 A	1,250 A	1,250 A
10 t×50×2 ea		1,250 A	1,250 A	1,250 A	1,250 A	1,250 A	1,250 A	1,250 A	1,250 A	1,250 A	1,250 A	1,250 A		
1,600 A	6 t×75×3 ea	-	-	-	-	-	-	-	-	-	-	-		
	10 t×60×2 ea	1,600 A	1,600 A	1,600 A	1,600 A	1,600 A	1,600 A	1,600 A	1,600 A	1,600 A	1,600 A	1,600 A		
	8 t×60×3 ea	1,600 A	1,600 A	1,600 A	1,600 A	1,600 A	1,600 A	1,600 A	1,600 A	1,600 A	1,600 A	1,600 A		
2,000 A	8 t×75×3 ea	2,000 A	2,000 A	2,000 A	2,000 A	2,000 A	2,000 A	2,000 A	2,000 A	2,000 A	2,000 A	2,000 A		
	10 t×100×2 ea	-	-	-	-	-	-	-	-	-	-	-		
	10 t×75×3 ea	2,500 A	2,500 A	2,500 A	2,400 A	2,300 A	2,500 A	2,500 A	2,500 A	2,500 A	2,500 A	2,500 A		
2,500 A	8 t×75×4 ea	2,500 A	2,500 A	2,500 A	2,400 A	2,300 A	2,500 A	2,500 A	2,500 A	2,500 A	2,500 A	2,500 A		
	10 t×100×3 ea	-	-	-	-	-	-	-	-	-	-	-		
B Frame CHG32	3,200 A	20 t×90×1 ea	10 t×100×4 ea	3,200 A	3,200 A	3,100 A	3,000 A	2,900 A	3,200 A	3,200 A	3,120 A	3,050 A	2,950 A	
B Frame CHG40	4,000 A Horizontal	15 t×100×2 ea	10 t×100×4 ea	4,000 A	4,000 A	3,900 A	3,800 A	3,640 A	-	-	-	-	-	
	4,000 A Vertical	15 t×125×2 ea	10 t×100×4 ea	-	-	-	-	-	4,000 A	4,000 A	3,950 A	3,800 A	3,680 A	
C Frame CHG32 ~ 50	3,200 A	20 t×125×2 ea	10 t×100×3 ea	3,200 A	3,200 A	3,100 A	3,000 A	2,900 A	3,200 A	3,200 A	3,100 A	3,000 A	2,900 A	
	4,000 A		10 t×100×4 ea	4,000 A	4,000 A	3,920 A	3,860 A	3,800 A	4,000 A	4,000 A	3,960 A	3,900 A	3,880 A	
	5,000 A		10 t×125×4 ea	5,000 A	5,000 A	4,900 A	4,800 A	4,700 A	5,000 A	5,000 A	4,950 A	4,900 A	4,850 A	
D Frame CHG40 ~ 63	4,000 A	20 t×125×2 ea	10 t×100×4 ea	4,000 A	4,000 A	4,000 A	4,000 A	4,000 A	4,000 A	4,000 A	4,000 A	4,000 A	4,000 A	
	5,000 A		10 t×125×4 ea	5,000 A	5,000 A	4,900 A	4,820 A	4,750 A	5,000 A	5,000 A	4,950 A	4,870 A	4,850 A	
	6,300 A		10 t×150×4 ea	6,300 A	6,300 A	6,170 A	6,040 A	5,900 A	6,300 A	6,300 A	6,220 A	6,160 A	6,100 A	

※ The ambient temperature is based on the external temperature of the circuit breaker and the motion that can be applicable to the circuit breaker is applied.
 The motion is based on copper material with no separate painting.
 The maximum allowable temperature of the motion is below 100 °C.

Calibration of Rating Current Following Altitude

ACB is designed to be used at altitudes below 2,000 m.
 When used at above 2,000 m, change the ratings depending on the surrounding environment condition for use.

Item	Altitude	2,000 m	3,000 m	4,000 m	5,000 m
Withstand Voltage (V)		3,500	3,150	2,500	2,100
Average Insulating Voltage (V)		1,000	900	700	600
Max. Operation Voltage (V)		690	590	520	460
Current Calibration Coefficient		1×In	0.99×In	0.96×In	0.94×In

Standard Operation Conditions

The following regulated value has been set in accordance with IEC 60947-1 & (IEC 60947-2).

- | Ambient Temperature | -5 ~ +50 °C
(Daily average temperature of below 35 °C)
- | Altitude | Below 2,000 m above sea level
- | Relative Humidity | Below 85 % (Below daily average of 85 %)

The surrounding environment may affect the insulation performance and durability of the circuit break so the operation conditions must be checked clearly before application.



In case of operating in high ambient temperature exceeding 40 °C, use according to the derating calibrated depending on the ambient temperature indicated in the catalogue.



In case of operating in places with high humidity and frequent rain, the insulation or electrical performance may drop.



In case of storing and using in places with a lot of dust and humidity, the use of a dust cover or dehumidifier is recommended. Excessive impact and vibration may cause damage in the operation mechanism.



When storing circuit breaker without electric circuit : -25 °C ~ 85 °C
When storing circuit breaker with electric circuit : -15 °C ~ 70 °C
After storing in low temperature, store for more than 8 hours in room temperature then store in an open location for the type with charging motor.



In case there is a lot of corrosive gas, it must be stored in an enclosed protective structure to minimize damage.



In case of highland with high altitude, the insulation performance drops so please apply the highest rating product after checking the insulation performance calibration coefficient.

Special Operating Conditions

The CSG,CHG-Series air circuit breaker has been designed/manufactured to operate in a standard operating environment designated by the IEC standard and in case of operating the circuit breaker in the following special environment, contact our company.

- In case the altitude above sea level and the ambient temperature exceeds the standard operating environment
- In case of a region with a lot of sea wind or salinity
- In case of a region with snow and freezing
- In case of a region of frequent shock and vibration
- In case the relative humidity exceeds the standard operating environment
- In case of a region with a lot of humidity and frequent rainfall
- In case of a region with a lot of dust, vapor, corrosive and combustible gas, wet steam
- In other special environment that exceeds the standard environment

※ Special operating environment and condition may cause damage in the product (Increase in resistance at main circuit, rust, change in coating).

Installation and Environment

Standard Operating Conditions

Load Rate (I/In)

- ACB cannot be used in outdoor panel in principle. In case of inevitable installation, the ambient temperature must be below 40 °C and the load rate must be below 50 % of the rated current. In case it is not complied with, it may cause heating and burning in the ACB.
- As for the total harmonic distortion (THD) rate, it must be managed below 5 % in the distribution system phase. In case it is not complied with, it may cause heating in the product.

Load Rate	Hours of Use	Effect	Installation
I/In ≤ 80 %	24/24 Hours	-	Normal Condition (Recommended)
80 < I/In ≤ 90 %	24/24 Hours	-	Periodic Inspection
I/In = 100 %	24/24 Hours	Change in Plastic Insulation Material Color	Additional Exhaust

Altitude

- Below 2,000 m

Item	Altitude		
	2,000 m (6,600 ft)	2,600 m (8,500 ft)	3,900 m (13,000 ft)
Isolation Voltage (V)	1,000	950	800
Operating Voltage (V)	690	655.5	552
Allowed Current (V)	In	0.99 × In	0.96 × In

Protection Degree Provided by Enclosures (IP Code)

- Standard : IP30 (When the ACB front cover part of the switchboard door is cut out)
- With Dust Cover : IP52

Classification of Protection Degree Provided by Enclosures (IP code) IEC 60529

Indication : IP

- Second Characteristic Numeral : Level of preventing liquid from permeating into the external box (0 ~ 8)
- First Characteristic Numeral : Level of preventing particulate materials from permeating into the external box (0 ~ 6)

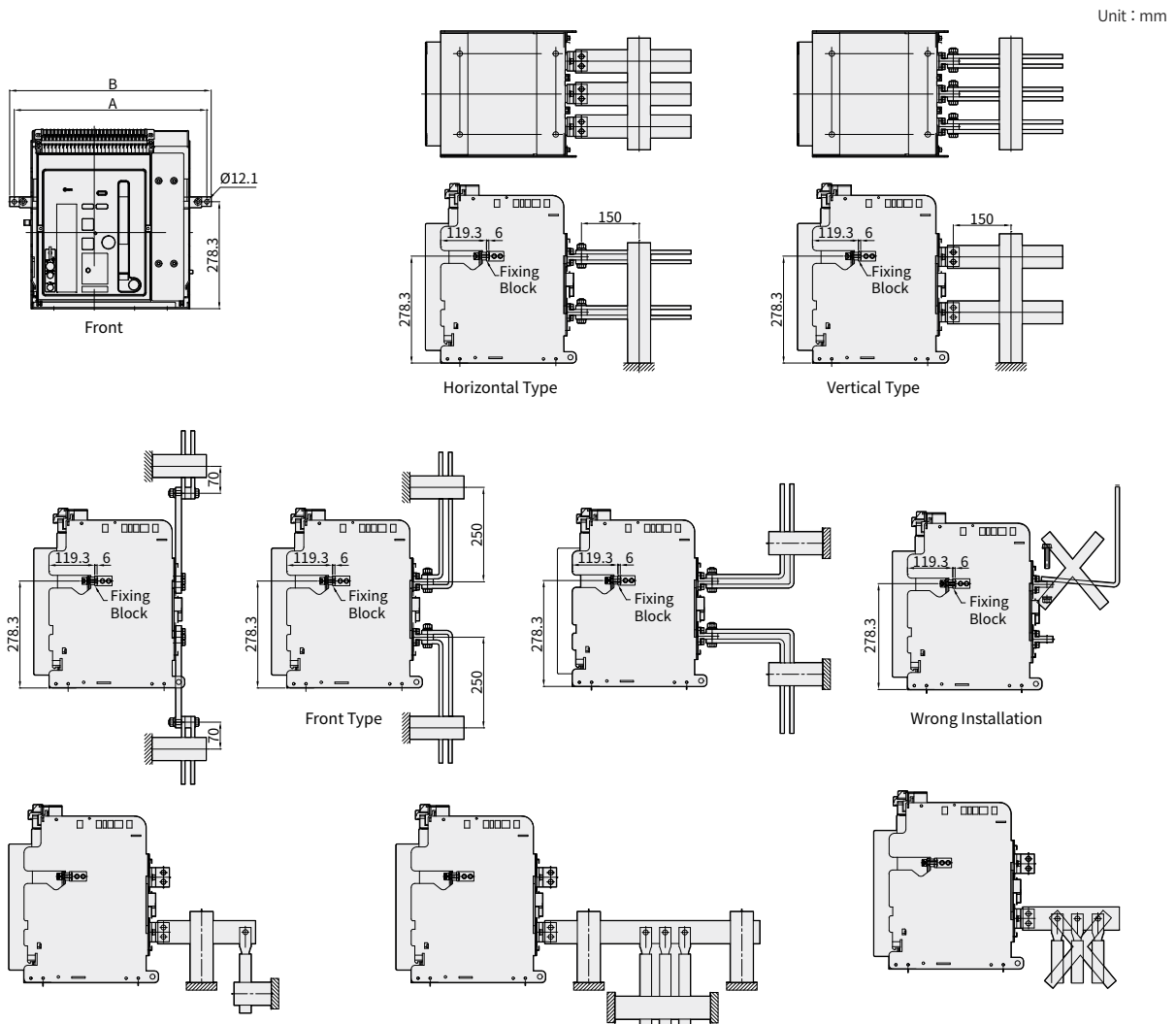
※ In the event indicating the characteristic number is not required, mark the said area with 'X'.

Classification Table Following the Degree

Numeral	Protection Degree	
	First Characteristic Numeral (Particulate)	Second Characteristic Numeral (Liquid)
0	No protection (Open)	No protection (Open)
1	Protected against external objects with a diameter of 50 mm and above	Protected against vertical fall
2	Protected against external objects with a diameter of 12.5 mm and above	Protected against falling with a gradient of 15 °
3	Protected against external objects with a diameter of 2.5 mm and above	Protected against falling with a gradient of 60 °
4	Protected against external objects with a diameter of 1.0 mm and above	Protected against spraying water from up, down, left, right (Splash proof)
5	Protected against deposition risk of dust and others	Protected against spraying water from up, down, left, right (Hose proof)
6	Complete protection without deposition of dust and others	Protected against heavy rainfall and tsunami (Deckwater proof)
7	-	Protected against submersion under certain pressure and certain time (Immersible)
8	-	Protected against complete submersion (Submersible)

Product Installation Condition

- In order to prevent burning of products caused by electrical fault and to enhance structural safety of the panel when installing the product in areas with concerns of vibration, mount the fixing block and install the terminal supporting position like the figure.
- In particular, when executing short-time/short-circuit panel testing, it must be installed for structural safety.
- For the support dimension of the product, refer to the drawing.
- In the event of switchboard (Panel) development test (Short-time, short-circuit), the bus bar inside the panel must be supported firmly according to the following conditions.



Model Name	A	B
CSG 06 ~ 16A 3P, CHG 06 ~ 20A 3P	416	440
CSG 06 ~ 16A 4P, CHG 06 ~ 20A 4P	501	525
CSG 20 ~ 32A 3P, CHG 20 ~ 40A 3P	487	511
CSG 20 ~ 32A 4P, CHG 20 ~ 40A 4P	602	626
CHG 40 ~ 50C 3P	712	736
CHG 40 ~ 50C 4P	906	982
CHG 40 ~ 63D 3P	854	878
CHG 40 ~ 63D 4P	1,084	1,108

Maintenance Inspection List

Regular Inspection and Part Replacement

Regular Inspection

Inspection Form	Inspection Item		Inspection Period	
	Main Review Item	Details and Countermeasures		
General Regular Inspection	Foreign Substance	Visual examination must be executed and there must be no foreign substance inside. Blow away the foreign substance using compressed air.	Every 6 months	
	Gap	Execute visual examination and there must be no cracks or gaps.	Replace, repair	
	Operation	Circuit breaker must be closed manually to inspect the operation area during normal status.	Once a year	
	Greasing	Apply an adequate amount of grease on each pin, axle and bearing. Excessive greasing may cause dust and stain from building up. Electrical grease : HITALWBE 28G Lubricant grease : Kamro Chemical/CHEMAX HHI 5000#1.	Every 6 months	
	Spring Type	The status of the spring must be checked to inspect the damaged area.	Replace, repair	
	Screw/Bolt Type	Tighten loose areas using screw or bolt.	Every 6 months	
	Stain on the Fastening Bolt Area	There must be no dust or stain at the fastening area. Wipe the area well using clean cloth dipped in alcohol.	All the time	
	Mechanical Durability Warranty Lifespan Inspection	Below 2,500 AF	Total operation frequency : 3,000 times	Non-current 2,500 time, current 500 time
Open/closing frequency : 500 times			Open/close within the range of rated current	
Open/closing frequency : 25 times			Open/close in over-load (Around 6 times the rated current) area	
Immediately upon breaking			Prevent short-circuit/earth fault	
Above 3,200 AF		Open/close frequency : 2,000 times	Non-current 1,500 time, current 500 time	
		Open/close cycle : 500 times	Open/close within the range of rated current	
		Open/close cycle : 25 times	Open/close in over-load (Around 6 times the rated current) area	
		Immediately upon breaking	Prevent short-circuit/earth fault	
Arc Chamber (Grid)	Contact with Foreign Substance	In case foreign substance has melted onto the grid's side plate, replace the ionized pieces inside the arc chamber and others.	Replace, contact our company	
Arc Contact	Contact Tip Surface	Remove foreign substance, dust and oil.	Visual inspection, no problem Replace, contact our company	
		Melting stains on the contact tip surface is caused by open/closing arc.		
		In case the extent of melting caused by arc reduces to 1/3, replace the entire operation and fixing moving contact unit. However, in case there is foreign substance on the contact, precision diagnosis is required to determine if replacement is necessary through our company's paid service.		
Main Contact	Damage of Main Contact	In case the main contact has been worn off and is rough, the surface must be managed neatly.	At all times	
		However, in case there is foreign substance on the contact, precision diagnosis is required to determine if replacement is necessary through our company's paid service.		

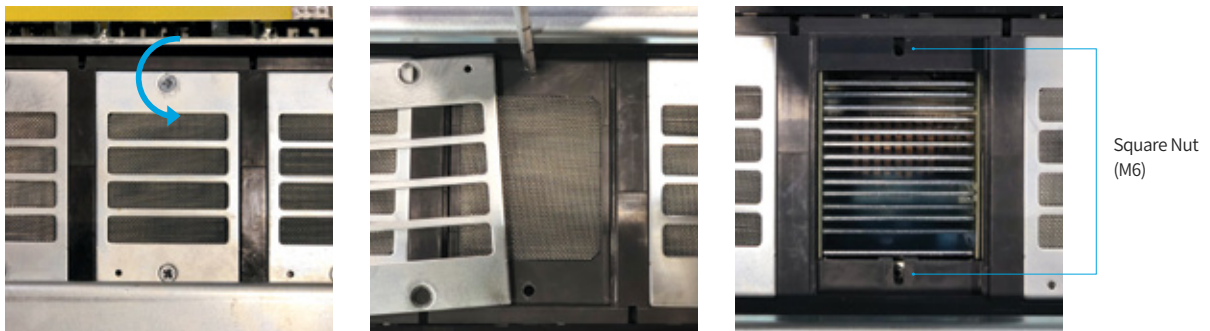
⚠ Caution

1. In the event the contact or part is replaced, turn the circuit breaker off and replace after drawing out the disconnected position to isolated.
2. Execute the inspection work after checking whether the remaining heat in the conduction part has been dissipated. It may cause burns.
3. When rubbing the contact tip, ensure that the sludge does not enter the circuit breaker's mechanical device. After rubbing, wipe the contact tip neatly.

Assembly & Disassembly

Loosen the screw for arc chamber assembly. Then, remove the arc chamber. (Level the circuit breaker).

In order to assemble the arc chamber, check the square nut, place the arc chamber in the original position and tighten the fixing screw (M6).



▲ Caution

When replacing the contact or part, turn the circuit breaker off and exchange after drawing out from isolated position. In addition, execute the inspection work after checking whether the remaining heat in the conduction part has been dissipated. It may cause burns.

When removing the arc chamber, the square nut for bolt fastening must be removed together. In the event of on-off operation without removing the square nut, the nut may flow into the pole due to impact. It may cause malfunction.

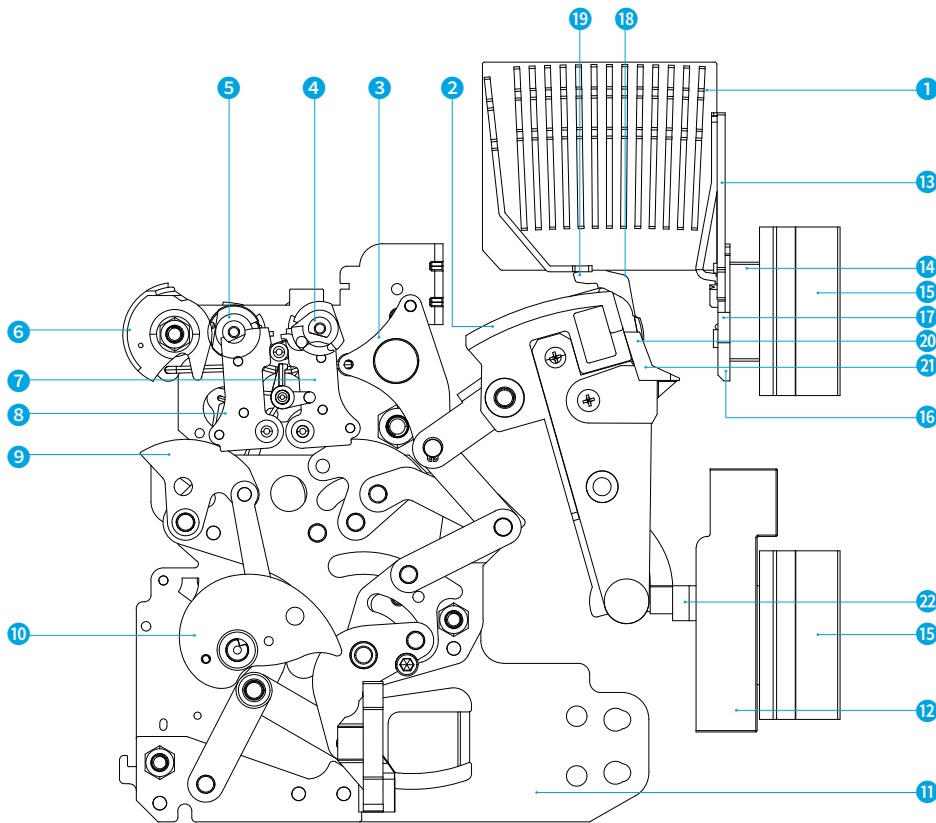
When rubbing the contact tip, ensure that the sludge does not enter the circuit breaker's mechanical device. After rubbing, wipe the contact tip neatly.

Maintenance Inspection List

Regular Inspection and Part Replacement

Operation Tool

3
Air Circuit Breakers



- | | | |
|--------------------------------|-------------------------|--------------------------|
| 1 Arc Chamber | 9 CO Latch | 17 Arc Fix Contact Tip |
| 2 Move Contact Fix Base | 10 Closing Cam | 18 Arc Move Contact Tip |
| 3 Crossbar Unit | 11 Mechanism Frame | 19 Arc Move Contact |
| 4 Open Lever | 12 Current Transformer | 20 Main Move Contact |
| 5 Close Lever | 13 Arc Runner | 21 Main Move Contact Tip |
| 6 Charged/Discharged Indicator | 14 Up Terminal | 22 Low Terminal |
| 7 Open Latch | 15 In/Out Terminal Body | |
| 8 Close Latch | 16 Main Fix Contact Tip | |

Order Reference Table

Item Type	Rating	Description	Item No.
CSG Type(Standard Type), 3P, Fixed Type, 630A-3,200A			
CSG06A3H M0C0S0 51T AGR	50kA	A-Frame, 630A, 3P, Fixed, Horizontal Type Terminal, lchw - 50kA ACB with LSI/LSIG Relay WPRO-LA, Door flange, 3a+3b aux contacts	W603000
CSG08A3H M0C0S0 51H AGR	50kA	A-Frame, 800A, 3P, Fixed, Horizontal Type Terminal, lchw - 50kA ACB with LSI/LSIG Relay WPRO-LA, Door flange, 3a+3b aux contacts	W603001
CSG10A3H M0C0S0 51J AGR	50kA	A-Frame, 1,000A, 3P, Fixed, Horizontal Type Terminal, lchw - 50kA ACB with LSI/LSIG Relay WPRO-LA, Door flange, 3a+3b aux contacts	W603002
CSG12A3H M0C0S0 51K AGR	50kA	A-Frame, 1,250A, 3P, Fixed, Horizontal Type Terminal, lchw - 50kA ACB with LSI/LSIG Relay WPRO-LA, Door flange, 3a+3b aux contacts	W603003
CSG16A3H M0C0S0 51L AGR	50kA	A-Frame, 1,600A, 3P, Fixed, Horizontal Type Terminal, lchw - 50kA ACB with LSI/LSIG Relay WPRO-LA, Door flange, 3a+3b aux contacts	W603004
CSG20B3H M0C0S0 51M AGR	70kA	B-Frame, 2,000A, 3P, Fixed, Horizontal Type Terminal, lchw - 70kA ACB with LSI/LSIG Relay WPRO-LA, Door flange, 3a+3b aux contacts	W603005
CSG25B3H M0C0S0 51N AGR	70kA	B-Frame, 2,500A, 3P, Fixed, Horizontal Type Terminal, lchw - 70kA ACB with LSI/LSIG Relay WPRO-LA, Door flange, 3a+3b aux contacts	W603006
CSG32B3H M0C0S0 51P AGR	70kA	B-Frame, 3,200A, 3P, Fixed, Horizontal Type Terminal, lchw - 70kA ACB with LSI/LSIG Relay WPRO-LA, Door flange, 3a+3b aux contacts	W603007
CHG Type(Premium Type), 3P, Fixed Type, 630A-6300A			
CHG06A3H M0C0S0 51T AGR	65kA	A-Frame, 630A, 3P, Fixed, Horizontal Type Terminal, lchw - 65kA ACB with LSI/LSIG Relay WPRO-LA, Door flange, 5a+5b aux contacts	W603008
CHG08A3H M0C0S0 51H AGR	65kA	A-Frame, 800A, 3P, Fixed, Horizontal Type Terminal, lchw - 65kA ACB with LSI/LSIG Relay WPRO-LA, Door flange, 5a+5b aux contacts	W603009
CHG10A3H M0C0S0 51J AGR	65kA	A-Frame, 1,000A, 3P, Fixed, Horizontal Type Terminal, lchw - 65kA ACB with LSI/LSIG Relay WPRO-LA, Door flange, 5a+5b aux contacts	W603010
CHG12A3H M0C0S0 51K AGR	65kA	A-Frame, 1,250A, 3P, Fixed, Horizontal Type Terminal, lchw - 65kA ACB with LSI/LSIG Relay WPRO-LA, Door flange, 5a+5b aux contacts	W603011
CHG16A3H M0C0S0 51L AGR	65kA	A-Frame, 1,600A, 3P, Fixed, Horizontal Type Terminal, lchw - 65kA ACB with LSI/LSIG Relay WPRO-LA, Door flange, 5a+5b aux contacts	W603012
CHG20A3V M0C0S0 51M AGR	65kA	A-Frame, 2,000A, 3P, Fixed, Vertical Type Terminal, lchw - 65kA ACB with LSI/LSIG Relay WPRO-LA, Door flange, 5a+5b aux contacts	W603013
CHG06B3H M0C0S0 51T AGR	85kA	B-Frame, 630A, 3P, Fixed, Horizontal Type Terminal, lchw - 85kA ACB with LSI/LSIG Relay WPRO-LA, Door flange, 5a+5b aux contacts	W603014
CHG08B3H M0C0S0 51H AGR	85kA	B-Frame, 800A, 3P, Fixed, Horizontal Type Terminal, lchw - 85kA ACB with LSI/LSIG Relay WPRO-LA, Door flange, 5a+5b aux contacts	W603015
CHG10B3H M0C0S0 51J AGR	85kA	B-Frame, 1,000A, 3P, Fixed, Horizontal Type Terminal, lchw - 85kA ACB with LSI/LSIG Relay WPRO-LA, Door flange, 5a+5b aux contacts	W603016
CHG12B3H M0C0S0 51K AGR	85kA	B-Frame, 1,250A, 3P, Fixed, Horizontal Type Terminal, lchw - 85kA ACB with LSI/LSIG Relay WPRO-LA, Door flange, 5a+5b aux contacts	W603017
CHG16B3H M0C0S0 51L AGR	85kA	B-Frame, 1,600A, 3P, Fixed, Horizontal Type Terminal, lchw - 85kA ACB with LSI/LSIG Relay WPRO-LA, Door flange, 5a+5b aux contacts	W603018
CHG20B3H M0C0S0 51M AGR	85kA	B-Frame, 2,000A, 3P, Fixed, Horizontal Type Terminal, lchw - 85kA ACB with LSI/LSIG Relay WPRO-LA, Door flange, 5a+5b aux contacts	W603019
CHG25B3H M0C0S0 51N AGR	85kA	B-Frame, 2,500A, 3P, Fixed, Horizontal Type Terminal, lchw - 85kA ACB with LSI/LSIG Relay WPRO-LA, Door flange, 5a+5b aux contacts	W603020
CHG32B3H M0C0S0 51P AGR	85kA	B-Frame, 3,200A, 3P, Fixed, Horizontal Type Terminal, lchw - 85kA ACB with LSI/LSIG Relay WPRO-LA, Door flange, 5a+5b aux contacts	W603021
CHG40B3H M0C0S0 51Q AGR	85kA	B-Frame, 4,000A, 3P, Fixed, Horizontal Type Terminal, lchw - 85kA ACB with LSI/LSIG Relay WPRO-LA, Door flange, 5a+5b aux contacts	W603022
CHG40C3H M0C0S0 51Q AGR	85kA	C-Frame, 4,000A, 3P, Fixed, Horizontal Type Terminal, lchw - 85kA ACB with LSI/LSIG Relay WPRO-LA, Door flange, 5a+5b aux contacts	W603023
CHG50C3H M0C0S0 51S AGR	85kA	C-Frame, 5,000A, 3P, Fixed, Horizontal Type Terminal, lchw - 85kA ACB with LSI/LSIG Relay WPRO-LA, Door flange, 5a+5b aux contacts	W603024
CHG40D3H M0C0S0 51Q AGR	100kA	D-Frame, 4,000A, 3P, Fixed, Horizontal Type Terminal, lchw - 100kA ACB with LSI/LSIG Relay WPRO-LA, Door flange, 5a+5b aux contacts	W603025

Air Circuit Breakers -ACB

ACB 630-6300A

Item Type	Rating	Description	Item No.
CHG50D3H M0C0S0 51S AGBR	100kA	D-Frame, 5,000A, 3P, Fixed, Horizontal Type Terminal, lchw - 100kA ACB with LSI/LSIG Relay WPRO-LA, Door flange,5a+5b aux contacts	W603026
CHG63D3H M0C0S0 51X AGBR	100kA	D-Frame, 6,300A, 3P, Fixed, Horizontal Type Terminal, lchw - 100kA ACB with LSI/LSIG Relay WPRO-LA, Door flange, 5a+5b aux contacts	W603027
CSG Type(Standard Type), 3P, Draw in/out Type, 630A-3,200A			
CSG06A3B M0C0S0 51T AGBRAE	50kA	A-Frame, 630A, 3P, Draw-in/out, Auto connection+Horizontal Type Terminal, lchw - 50kA ACB with LSI/LSIG Relay WPRO-LA, Safety shutter, Door flange, 3a+3b aux contacts, Draw in/out handle	W603028
CSG08A3B M0C0S0 51H AGBRAE	50kA	A-Frame, 800A, 3P, Draw-in/out, Auto connection+Horizontal Type Terminal,lchw - 50kA ACB with LSI/LSIG Relay WPRO-LA, Safety shutter, Door flange, 3a+3b aux contacts, Draw in/out handle	W603029
CSG10A3B M0C0S0 51J AGBRAE	50kA	A-Frame, 1,000A, 3P, Draw-in/out, Auto connection+Horizontal Type Terminal,lchw - 50kA ACB with LSI/LSIG Relay WPRO-LA, Safety shutter, Door flange, 3a+3b aux contacts, Draw in/out handle	W603030
CSG12A3B M0C0S0 51K AGBRAE	50kA	A-Frame, 1,250A, 3P, Draw-in/out, Auto connection+Horizontal Type Terminal,lchw - 50kA ACB with LSI/LSIG Relay WPRO-LA, Safety shutter, Door flange, 3a+3b aux contacts, Draw in/out handle	W603031
CSG16A3B M0C0S0 51L AGBRAE	50kA	A-Frame, 1,600A, 3P, Draw-in/out, Auto connection+Horizontal Type Terminal,lchw - 50kA ACB with LSI/LSIG Relay WPRO-LA, Safety shutter, Door flange, 3a+3b aux contacts, Draw in/out handle	W603032
CSG20B3B M0C0S0 51M AGBRAE	70kA	B-Frame, 2,000A, 3P, Draw-in/out, Auto connection+Horizontal Type Terminal,lchw - 70kA ACB with LSI/LSIG Relay WPRO-LA, Safety shutter, Door flange,3a+3b aux contacts, Draw in/out handle	W603033
CSG25B3B M0C0S0 51N AGBRAE	70kA	B-Frame, 2,500A, 3P, Draw-in/out, Auto connection+Horizontal Type Terminal,lchw - 70kA ACB with LSI/LSIG Relay WPRO-LA, Safety shutter, Door flange, 3a+3b aux contacts, Draw in/out handle	W603034
CSG32B3B M0C0S0 51P AGBRAE	70kA	B-Frame, 3,200A, 3P, Draw-in/out, Auto connection+Horizontal Type Terminal,lchw - 70kA ACB with LSI/LSIG Relay WPRO-LA, Safety shutter, Door flange, 3a+3b aux contacts, Draw in/out handle	W603035
CHG Type(Premium Type), 3P, Draw in/out Type, 630A-6,300A			
CHG06A3B M0C0S0 51T AGBRAE	65kA	A-Frame, 630A, 3P, Draw-in/out, Auto connection+Horizontal Type Terminal, lchw - 65kA ACB with LSI/LSIG Relay WPRO-LA, Safety shutter, Door flange, 5a+5b aux contacts, Draw in/out handle	W603036
CHG08A3B M0C0S0 51H AGBRAE	65kA	A-Frame, 800A, 3P, Draw-in/out, Auto connection+Horizontal Type Terminal, lchw - 65kA ACB with LSI/LSIG Relay WPRO-LA, Safety shutter, Door flange,5a+5b aux contacts, Draw in/out handle	W603037
CHG10A3B M0C0S0 51J AGBRAE	65kA	A-Frame, 1,000A, 3P, Draw-in/out, Auto connection+Horizontal Type Terminal,lchw - 65kA ACB with LSI/LSIG Relay WPRO-LA, Safety shutter, Door flange, 5a+5b aux contacts, Draw in/out handle	W603038
CHG12A3B M0C0S0 51K AGBRAE	65kA	A-Frame, 1,250A, 3P, Draw-in/out, Auto connection+Horizontal Type Terminal, lchw - 65kA ACB with LSI/LSIG Relay WPRO-LA, Safety shutter, Door flange, 5a+5b aux contacts, Draw in/out handle	W603039
CHG16A3B M0C0S0 51L AGBRAE	65kA	A-Frame, 1,600A, 3P, Draw-in/out, Auto connection+Horizontal Type Terminal, lchw - 65kA ACB with LSI/LSIG Relay WPRO-LA, Safety shutter, Door flange, 5a+5b aux contacts, Draw in/out handle	W603040
CHG20A3C M0C0S0 51M AGBRAE	65kA	A-Frame, 2,000A, 3P, Draw-in/out, Auto connection+Vertical Type Terminal,lchw - 65kA ACB with LSI/LSIG Relay WPRO-LA, Safety shutter, Door flange, 5a+5b aux contacts, Draw in/out handle	W603041
CHG06B3B M0C0S0 51T AGBRAE	85kA	B-Frame, 630A, 3P, Draw-in/out, Auto connection+Horizontal Type Terminal, lchw - 85kA ACB with LSI/LSIG Relay WPRO-LA, Safety shutter, Door flange, 5a+5b aux contacts, Draw in/out handle	W603042
CHG08B3B M0C0S0 51H AGBRAE	85kA	B-Frame, 800A, 3P, Draw-in/out, Auto connection+Horizontal Type Terminal, lchw - 85kA ACB with LSI/LSIG Relay WPRO-LA, Safety shutter, Door flange,5a+5b aux contacts, Draw in/out handle	W603043
CHG10B3B M0C0S0 51J AGBRAE	85kA	B-Frame, 1,000A, 3P, Draw-in/out, Auto connection+Horizontal Type Terminal, lchw - 85kA ACB with LSI/LSIG Relay WPRO-LA, Safety shutter, Door flange, 5a+5b aux contacts, Draw in/out handle	W603044

Air Circuit Breakers -ACB

ACB 630-6300A

Item Type	Rating	Description	Item No.
CHG12B3B M0C0S0 51K AGBRAE	85kA	B-Frame, 1,250A, 3P, Draw-in/out, Auto connection+Horizontal Type Terminal, Icw - 85kA ACB with LSI/LSIG Relay WPRO-LA, Safety shutter, Door flange, 5a+5b aux contacts, Draw in/out handle	W603045
CHG16B3B M0C0S0 51L AGBRAE	85kA	B-Frame, 1,600A, 3P, Draw-in/out, Auto connection+Horizontal Type Terminal, Icw - 85kA ACB with LSI/LSIG Relay WPRO-LA, Safety shutter, Door flange, 5a+5b aux contacts, Draw in/out handle	W603046
CHG20B3B M0C0S0 51M AGBRAE	85kA	B-Frame, 2,000A, 3P, Draw-in/out, Auto connection+Horizontal Type Terminal, Icw - 85kA ACB with LSI/LSIG Relay WPRO-LA, Safety shutter, Door flange, 05a+5b aux contacts, Draw in/out handle	W603047
CHG25B3B M0C0S0 51N AGBRAE	85kA	B-Frame, 2,500A, 3P, Draw-in/out, Auto connection+Horizontal Type Terminal, Icw - 85kA ACB with LSI/LSIG Relay WPRO-LA, Safety shutter, Door flange, 5a+5b aux contacts, Draw in/out handle	W603048
CHG32B3B M0C0S0 51P AGBRAE	85kA	B-Frame, 3,200A, 3P, Draw-in/out, Auto connection+Horizontal Type Terminal, Icw - 85kA ACB with LSI/LSIG Relay WPRO-LA, Safety shutter, Door flange, 5a+5b aux contacts, Draw in/out handle	W603049
CHG40B3B M0C0S0 51Q AGBRAE	85kA	B-Frame, 4,000A, 3P, Draw-in/out, Auto connection+Horizontal Type Terminal, Icw - 85kA ACB with LSI/LSIG Relay WPRO-LA, Safety shutter, Door flange, 5a+5b aux contacts, Draw in/out handle	W603050
CHG40C3B M0C0S0 51Q AGBRAE	85kA	C-Frame, 4,000A, 3P, Draw-in/out, Auto connection+Horizontal Type Terminal, Icw - 85kA ACB with LSI/LSIG Relay WPRO-LA, Safety shutter, Door flange, 5a+5b aux contacts, Draw in/out handle	W603051
CHG50C3B M0C0S0 51S AGBRAE	85kA	C-Frame, 5,000A, 3P, Draw-in/out, Auto connection+Horizontal Type Terminal, Icw - 85kA ACB with LSI/LSIG Relay WPRO-LA, Safety shutter, Door flange, 5a+5b aux contacts, Draw in/out handle	W603052
CHG40D3B M0C0S0 51Q AGBRAE	100kA	D-Frame, 4,000A, 3P, Draw-in/out, Auto connection+Horizontal Type Terminal, Icw - 100kA ACB with LSI/LSIG Relay WPRO-LA, Safety shutter, Door flange, 5a+5b aux contacts, Draw in/out handle	W603053
CHG50D3B M0C0S0 51S AGBRAE	100kA	D-Frame, 5,000A, 3P, Draw-in/out, Auto connection+Horizontal Type Terminal, Icw - 100kA ACB with LSI/LSIG Relay WPRO-LA, Safety shutter, Door flange, 5a+5b aux contacts, Draw in/out handle	W603054
CHG63D3B M0C0S0 51X AGBRAE	100kA	D-Frame, 6,300A, 3P, Draw-in/out, Auto connection+Horizontal Type Terminal, Icw - 100kA ACB with LSI/LSIG Relay WPRO-LA, Safety shutter, Door flange, 5a+5b aux contacts, Draw in/out handle	W603055
CSG Type(Standard Type), 4P, Fixed Type, 630A-3,200A			
CSG06A4H M0C0S0 51T AGBR	50kA	A-Frame, 630A, 4P, Fixed, Horizontal Type Terminal, Icw - 50kA ACB with LSI/LSIG Relay WPRO-LA, Door flange, 3a+3b aux contacts	W603056
CSG08A4H M0C0S0 51H AGBR	50kA	A-Frame, 800A, 4P, Fixed, Horizontal Type Terminal, Icw - 50kA ACB with LSI/LSIG Relay WPRO-LA, Door flange, 3a+3b aux contacts	W603057
CSG10A4H M0C0S0 51J AGBR	50kA	A-Frame, 1,000A, 4P, Fixed, Horizontal Type Terminal, Icw - 50kA ACB with LSI/LSIG Relay WPRO-LA, Door flange, 3a+3b aux contacts	W603058
CSG12A4H M0C0S0 51K AGBR	50kA	A-Frame, 1,250A, 4P, Fixed, Horizontal Type Terminal, Icw - 50kA ACB with LSI/LSIG Relay WPRO-LA, Door flange, 3a+3b aux contacts	W603059
CSG16A4H M0C0S0 51L AGBR	50kA	A-Frame, 1,600A, 4P, Fixed, Horizontal Type Terminal, Icw - 50kA ACB with LSI/LSIG Relay WPRO-LA, Door flange, 3a+3b aux contacts	W603060
CSG20B4H M0C0S0 51M AGBR	70kA	B-Frame, 2,000A, 4P, Fixed, Horizontal Type Terminal, Icw - 70kA ACB with LSI/LSIG Relay WPRO-LA, Door flange, 3a+3b aux contacts	W603061
CSG25B4H M0C0S0 51N AGBR	70kA	B-Frame, 2,500A, 4P, Fixed, Horizontal Type Terminal, Icw - 70kA ACB with LSI/LSIG Relay WPRO-LA, , Door flange, 3a+3b aux contacts	W603062
CSG32B4H M0C0S0 51P AGBR	70kA	B-Frame, 3,200A, 4P, Fixed, Horizontal Type Terminal, Icw - 70kA ACB with LSI/LSIG Relay WPRO-LA, , Door flange, 3a+3b aux contacts	W603063

Air Circuit Breakers -ACB

ACB 630-6300A

Item Type	Rating	Description	Item No.
CHG Type(Premium Type), 4P, Fixed Type, 630A-6,300A			
CHG06A4H M0C0S0 51T AGBR	65kA	A-Frame, 630A, 4P, Fixed, Horizontal Type Terminal, lchw - 65kA ACB with LSI/LSIG Relay WPRO-LA, Door flange, 5a+5b aux contacts	W603064
CHG08A4H M0C0S0 51H AGBR	65kA	A-Frame, 800A, 4P, Fixed, Horizontal Type Terminal, lchw - 65kA ACB with LSI/LSIG Relay WPRO-LA, Door flange, 5a+5b aux contacts	W603065
CHG10A4H M0C0S0 51J AGBR	65kA	A-Frame, 1,000A, 4P, Fixed, Horizontal Type Terminal, lchw - 65kA ACB with LSI/LSIG Relay WPRO-LA, Door flange, 5a+5b aux contacts	W603066
CHG12A4H M0C0S0 51K AGBR	65kA	A-Frame, 1,250A, 4P, Fixed, Horizontal Type Terminal, lchw - 65kA ACB with LSI/LSIG Relay WPRO-LA, Door flange, 5a+5b aux contacts	W603067
CHG16A4H M0C0S0 51L AGBR	65kA	A-Frame, 1,600A, 4P, Fixed, Horizontal Type Terminal, lchw - 65kA ACB with LSI/LSIG Relay WPRO-LA, Door flange, 5a+5b aux contacts	W603068
CHG20A4V M0C0S0 51M AGBR	65kA	A-Frame, 2,000A, 4P, Fixed, Vertical Type Terminal, lchw - 65kA ACB with LSI/LSIG Relay WPRO-LA, Door flange, 5a+5b aux contacts	W603069
CHG06B4H M0C0S0 51T AGBR	85kA	B-Frame, 630A, 4P, Fixed, Horizontal Type Terminal, lchw - 85kA ACB with LSI/LSIG Relay WPRO-LA, Door flange, 5a+5b aux contacts	W603070
CHG08B4H M0C0S0 51H AGBR	85kA	B-Frame, 800A, 4P, Fixed, Horizontal Type Terminal, lchw - 85kA ACB with LSI/LSIG Relay WPRO-LA, Door flange, 5a+5b aux contacts	W603071
CHG10B4H M0C0S0 51J AGBR	85kA	B-Frame, 1,000A, 4P, Fixed, Horizontal Type Terminal, lchw - 85kA ACB with LSI/LSIG Relay WPRO-LA, Door flange, 5a+5b aux contacts	W603072
CHG12B4H M0C0S0 51K AGBR	85kA	B-Frame, 1,250A, 4P, Fixed, Horizontal Type Terminal, lchw - 85kA ACB with LSI/LSIG Relay WPRO-LA, Door flange, OCR Manual, 5a+5b aux contacts	W603073
CHG16B4H M0C0S0 51L AGBR	85kA	B-Frame, 1,600A, 4P, Fixed, Horizontal Type Terminal, lchw - 85kA ACB with LSI/LSIG Relay WPRO-LA, Door flange, 5a+5b aux contacts	W603074
CHG20B4H M0C0S0 51M AGBR	85kA	B-Frame, 2,000A, 4P, Fixed, Horizontal Type Terminal, lchw - 85kA ACB with LSI/LSIG Relay WPRO-LA, Door flange, 5a+5b aux contacts	W603075
CHG25B4H M0C0S0 51N AGBR	85kA	B-Frame, 2,500A, 4P, Fixed, Horizontal Type Terminal, lchw - 85kA ACB with LSI/LSIG Relay WPRO-LA, Door flange, 5a+5b aux contacts	W603076
CHG32B4H M0C0S0 51P AGBR	85kA	B-Frame, 3,200A, 4P, Fixed, Horizontal Type Terminal, lchw - 85kA ACB with LSI/LSIG Relay WPRO-LA, Door flange, 5a+5b aux contacts	W603077
CHG40B4H M0C0S0 51Q AGBR	85kA	B-Frame, 4,000A, 4P, Fixed, Horizontal Type Terminal, lchw - 85kA ACB with LSI/LSIG Relay WPRO-LA, Door flange, 5a+5b aux contacts	W603078
CHG40C4H M0C0S0 51Q AGBR	85kA	C-Frame, 4,000A, 4P, Fixed, Horizontal Type Terminal, lchw - 85kA ACB with LSI/LSIG Relay WPRO-LA, Door flange, 5a+5b aux contacts	W603079
CHG50C4H M0C0S0 51S AGBR	85kA	C-Frame, 5,000A, 4P, Fixed, Horizontal Type Terminal, lchw - 85kA ACB with LSI/LSIG Relay WPRO-LA, Door flange, 5a+5b aux contacts	W603080
CHG40D4H M0C0S0 51Q AGBR	100kA	D-Frame, 4,000A, 4P, Fixed, Horizontal Type Terminal, lchw - 100kA ACB with LSI/LSIG Relay WPRO-LA, Door flange, 5a+5b aux contacts	W603081
CHG50D4H M0C0S0 51S AGBR	100kA	D-Frame, 5,000A, 4P, Fixed, Horizontal Type Terminal, lchw - 100kA ACB with LSI/LSIG Relay WPRO-LA, Door flange, 5a+5b aux contacts	W603082
CHG63D4H M0C0S0 51X AGBR	100kA	D-Frame, 6,300A, 4P, Fixed, Horizontal Type Terminal, lchw - 100kA ACB with LSI/LSIG Relay WPRO-LA, Door flange, 5a+5b aux contacts	W603083
CSG Type(Standard Type), 4P, Draw in/out Type, 630A-3,200A			
CSG06A4B M0C0S0 51T AGBRAE	50kA	A-Frame, 630A, 4P, Draw-in/out, Auto connection+Horizontal Type Terminal, lchw - 50kA ACB with LSIG Relay WPRO-LA, Safety shutter, Door flange, 3a+3b aux contacts, Draw in/out handle	W603084
CSG08A4B M0C0S0 51H AGBRAE	50kA	A-Frame, 800A, 4P, Draw-in/out, Auto connection+Horizontal Type Terminal, lchw - 50kA ACB with LSIG Relay WPRO-LA, Safety shutter, Door flange, 3a+3b aux contacts, Draw in/out handle	W603085
CSG10A4B M0C0S0 51J AGBRAE	50kA	A-Frame, 1,000A, 4P, Draw-in/out, Auto connection+Horizontal Type Terminal, lchw - 50kA ACB with LSIG Relay WPRO-LA, Safety shutter, Door flange, 3a+3b aux contacts, Draw in/out handle	W603086
CSG12A4B M0C0S0 51K AGBRAE	50kA	A-Frame, 1,250A, 4P, Draw-in/out, Auto connection+Horizontal Type Terminal, lchw - 50kA ACB with LSIG Relay WPRO-LA, Safety shutter, Door flange, 3a+3b aux contacts, Draw in/out handle	W603087

Air Circuit Breakers -ACB

ACB 630-6300A

Item Type	Rating	Description	Item No.
CSG16A4B M0C0S0 51L AGBRAE	50kA	A-Frame, 1,600A, 4P, Draw-in/out, Auto connection+Horizontal Type Terminal, Icw - 50kA ACB with LSI/LSIG Relay WPRO-LA, Safety shutter, Door flange, 3a+3b aux contacts, Draw in/out handle	W603088
CSG20B4B M0C0S0 51M AGBRAE	70kA	B-Frame, 2,000A, 4P, Draw-in/out, Auto connection+Horizontal Type Terminal, Icw - 70kA ACB with LSI/LSIG Relay WPRO-LA, Safety shutter, Door flange, 3a+3b aux contacts, Draw in/out handle	W603089
CSG25B4B M0C0S0 51N AGBRAE	70kA	B-Frame, 2,500A, 4P, Draw-in/out, Auto connection+Horizontal Type Terminal, Icw - 70kA ACB with LSI/LSIG Relay WPRO-LA, Safety shutter, Door flange, 3a+3b aux contacts, Draw in/out handle	W603090
CSG32B4B M0C0S0 51P AGBRAE	70kA	B-Frame, 3,200A, 4P, Draw-in/out, Auto connection+Horizontal Type Terminal, Icw - 70kA ACB with LSI/LSIG Relay WPRO-LA, Safety shutter, Door flange, 3a+3b aux contacts, Draw in/out handle	W603091
CHG Type(Premium Type), 4P, Draw in/out Type, 630A-6,300A			
CHG06A4B M0C0S0 51T AGBRAE	65kA	A-Frame, 630A, 4P, Draw-in/out, Auto connection+Horizontal Type Terminal, Icw - 65kA ACB with LSI/LSIG Relay WPRO-LA, Safety shutter, Door flange, 5a+5b aux contacts, Draw in/out handle	W603092
CHG08A4B M0C0S0 51H AGBRAE	65kA	A-Frame, 800A, 4P, Draw-in/out, Auto connection+Horizontal Type Terminal, Icw - 65kA ACB with LSI/LSIG Relay WPRO-LA, Safety shutter, Door flange, 5a+5b aux contacts, Draw in/out handle	W603093
CHG10A4B M0C0S0 51J AGBRAE	65kA	A-Frame, 1,000A, 4P, Draw-in/out, Auto connection+Horizontal Type Terminal, Icw - 65kA ACB with LSI/LSIG Relay WPRO-LA, Safety shutter, Door flange, 5a+5b aux contacts, Draw in/out handle	W603094
CHG12A4B M0C0S0 51K AGBRAE	65kA	A-Frame, 1,250A, 4P, Draw-in/out, Auto connection+Horizontal Type Terminal, Icw - 65kA ACB with LSI/LSIG Relay WPRO-LA, Safety shutter, Door flange, 5a+5b aux contacts, Draw in/out handle	W603095
CHG16A4B M0C0S0 51L AGBRAE	65kA	A-Frame, 1,600A, 4P, Draw-in/out, Auto connection+Horizontal Type Terminal, Icw - 65kA ACB with LSI/LSIG Relay WPRO-LA, Safety shutter, Door flange, 5a+5b aux contacts, Draw in/out handle	W603096
CHG20A4C M0C0S0 51M AGBRAE	65kA	A-Frame, 2,000A, 4P, Draw-in/out, Auto connection+Vertical Type Terminal, Icw - 65kA ACB with LSI/LSIG Relay WPRO-LA, Safety shutter, Door flange, 5a+5b aux contacts, Draw in/out handle	W603097
CHG06B4B M0C0S0 51T AGBRAE	85kA	B-Frame, 630A, 4P, Draw-in/out, Auto connection+Horizontal Type Terminal, Icw - 85kA ACB with LSI/LSIG Relay WPRO-LA, Safety shutter, Door flange, 5a+5b aux contacts, Draw in/out handle	W603098
CHG08B4B M0C0S0 51H AGBRAE	85kA	B-Frame, 800A, 4P, Draw-in/out, Auto connection+Horizontal Type Terminal, Icw - 85kA ACB with LSI/LSIG Relay WPRO-LA, Safety shutter, Door flange, 5a+5b aux contacts, Draw in/out handle	W603099
CHG10B4B M0C0S0 51J AGBRAE	85kA	B-Frame, 1,000A, 4P, Draw-in/out, Auto connection+Horizontal Type Terminal, Icw - 85kA ACB with LSI/LSIG Relay WPRO-LA, Safety shutter, Door flange, 5a+5b aux contacts, Draw in/out handle	W603100
CHG12B4B M0C0S0 51K AGBRAE	85kA	B-Frame, 1,250A, 4P, Draw-in/out, Auto connection+Horizontal Type Terminal, Icw - 85kA ACB with LSI/LSIG Relay WPRO-LA, Safety shutter, Door flange, 5a+5b aux contacts, Draw in/out handle	W603101
CHG16B4B M0C0S0 51L AGBRAE	85kA	B-Frame, 1,600A, 4P, Draw-in/out, Auto connection+Horizontal Type Terminal, Icw - 85kA ACB with LSI/LSIG Relay WPRO-LA, Safety shutter, Door flange, 5a+5b aux contacts, Draw in/out handle	W603102
CHG20B4B M0C0S0 51M AGBRAE	85kA	B-Frame, 2,500A, 4P, Draw-in/out, Auto connection+Horizontal Type Terminal, Icw - 85kA ACB with LSI/LSIG Relay WPRO-LA, Safety shutter, Door flange, 5a+5b aux contacts, Draw in/out handle	W603103
CHG25B4B M0C0S0 51N AGBRAE	85kA	B-Frame, 2,500A, 4P, Draw-in/out, Auto connection+Horizontal Type Terminal, Icw - 85kA ACB with LSI/LSIG Relay WPRO-LA, Safety shutter, Door flange, 5a+5b aux contacts, Draw in/out handle	W603104
CHG32B4B M0C0S0 51P AGBRAE	85kA	B-Frame, 3,200A, 4P, Draw-in/out, Auto connection+Horizontal Type Terminal, Icw - 85kA ACB with LSI/LSIG Relay WPRO-LA, 5a+5b aux contacts, Draw in/out handle	W603105

Air Circuit Breakers -ACB

ACB 630-6300A

Item Type	Rating	Description	Item No.
CHG40B4B M0C0S0 51Q AGBRAE	85kA	B-Frame, 4,000A, 4P, Draw-in/out, Auto connection+Horizontal Type Terminal, lcv - 85kA ACB with LSI/LSIG Relay WPRO-LA, 5a+5b aux contacts, Draw in/out handle	W603106
CHG40C4B M0C0S0 51Q AGBRAE	85kA	C-Frame, 4,000A, 4P, Draw-in/out, Auto connection+Horizontal Type Terminal, lcv - 85kA ACB with LSI/LSIG Relay WPRO-LA, 5a+5b aux contacts, Draw in/out handle	W603107
CHG50C4B M0C0S0 51S AGBRAE	85kA	C-Frame, 5,000A, 4P, Draw-in/out, Auto connection+Horizontal Type Terminal, lcv - 85kA ACB with LSI/LSIG Relay WPRO-LA, Safety shutter, Door flange, 5a+5b aux contacts, Draw in/out handle	W603108
CHG40D4B M0C0S0 51Q AGBRAE	100kA	D-Frame, 4,000A, 4P, Draw-in/out, Auto connection+Horizontal Type Terminal, lcv - 100kA ACB with LSI/LSIG Relay WPRO-LA, Safety shutter, Door flange, 5a+5b aux contacts, Draw in/out handle	W603109
CHG50D4B M0C0S0 51S AGBRAE	100kA	D-Frame, 5,000A, 4P, Draw-in/out, Auto connection+Horizontal Type Terminal, lcv - 100kA ACB with LSI/LSIG Relay WPRO-LA, Safety shutter, Door flange, 5a+5b aux contacts, Draw in/out handle	W603110
CHG63D4B M0C0S0 51X AGBRAE	100kA	D-Frame, 6,300A, 4P, Draw-in/out, Auto connection+Horizontal Type Terminal, lcv - 100kA ACB with LSI/LSIG Relay WPRO-LA, Safety shutter, Door flange, 5a+5b aux contacts, Draw in/out handle	W603111

Air Circuit Breakers

Air Circuit Breakers -ACB

ACB 630-6300A

No.	Code	Specification		Part No.	Picture
1	CHG M1U	Spring charging geared motor	AC/DC110V	-	W603112
2	CHG M2U	Spring charging geared motor	AC/DC220V	-	W603113
3	CHG M3U	Spring charging geared motor	AC380V(Under Devleop)	-	W603114
4	CHG M4U	Spring charging geared motor	AC440V(Under Devleop)	-	W603115
5	CHG M7U	Spring charging geared motor	DC24V	-	W603116
6	CHG M8U	Spring charging geared motor	DC48V	-	W603117
7	CHG M9U	Spring charging geared motor	DC125V	-	W603118
10	CHG C1	Closing Coil,CC	AC/DC110V	C1	W603121
11	CHG C2	Closing Coil,CC	AC/DC220V	C2	W603122
12	CHG C3	Closing Coil,CC	AC380V	C3	W603123
13	CHG C4	Closing Coil,CC	AC440V	C4	W603124
14	CHG C7	Closing Coil,CC	DC24V	C7	W603125
15	CHG C8	Closing Coil,CC	DC48V	C8	W603126
16	CHG C9	Closing Coil,CC	DC125	C9	W603127
17	CHG S1	TRIPCOIL,TC	AC/DC110V	S1	W603128
18	CHG S2	TRIPCOIL,TC	AC/DC220V	S2	W603129
19	CHG S3	TRIPCOIL,TC	AC380V	S3	W603130
20	CHG S4	TRIPCOIL,TC	AC440V	S4	W603131
21	CHG S7	TRIPCOIL,TC	DC24V	S7	W603132
22	CHG S8	TRIPCOIL,TC	DC48V	S8	W603133
23	CHG S9	TRIPCOIL,TC	DC125	S9	W603134
24	CHG S1	Secondary Trip Coil	AC/DC110V	S1	W603135
25	CHG S2	Secondary Trip Coil	AC/DC220V	S2	W603136
26	CHG S3	Secondary Trip Coil	AC380V	S3	W603137
27	CHG S4	Secondary Trip Coil	AC440V	S4	W603138
28	CHG S7	Secondary Trip Coil	DC24V	S7	W603139
29	CHG S8	Secondary Trip Coil	DC48V	S8	W603140
30	CHG S9	Secondary Trip Coil	DC125	S9	W603141
31	CHG T1	Trip Coil Supervision	AC/DC110V	T1	W603142
32	CHG T2	Trip Coil Supervision	AC/DC220V	T2	W603143
33	CHG T3	Trip Coil Supervision	AC380V	T3	W603144
34	CHG T4	Trip Coil Supervision	AC440V	T4	W603145
35	CHG T7	Trip Coil Supervision	DC24V	T7	W603146
36	CHG T8	Trip Coil Supervision	DC48V	T8	W603147
37	CHG T9	Trip Coil Supervision	DC125	T9	W603148
38	CHG U1	Under Voltage Trip Coil	AC/DC110V	U1	W603149
39	CHG U2	Under Voltage Trip Coil	AC/DC220V	U2	W603150
40	CHG U3	Under Voltage Trip Coil	AC380V	U3	W603151
41	CHG U4	Under Voltage Trip Coil	AC440V	U4	W603152
42	CHG U7	Under Voltage Trip Coil	DC24V	U7	W603153
43	CHG U8	Under Voltage Trip Coil	DC48V	U8	W603154
44	CHG U9	Under Voltage Trip Coil	DC125	U9	W603155



Air Circuit Breakers -ACB



ACB 630-6300A

No.	Code	Specification		Part No.	Picture	
45	CHG UT1	UVT Time Delay Controller	AC/DC110V	-	W603156	
46	CHG UT2	UVT Time Delay Controller	AC/DC220V	-	W603157	
47	CHG UT3	UVT Time Delay Controller	AC380V	-	W603158	
48	CHG UT4	UVT Time Delay Controller	AC440V	-	W603159	
51	CHG UT9	UVT Time Delay Controller	DC125	-	W603162	
52	CHG V1	"UVT Time Delay Controller +UVT Coil"	AC/DC110V	V1	W603163	
53	CHG V2	"UVT Time Delay Controller +UVT Coil"	AC/DC220V	V2	W603164	
54	CHG V3	"UVT Time Delay Controller +UVT Coil"	AC380V	V3	W603165	
55	CHG V4	"UVT Time Delay Controller +UVT Coil"	AC440V	V4	W603166	
56	CHG V9	"UVT Time Delay Controller +UVT Coil"	DC125	V9	W603167	
57	CHG BR	OCR Reset & Alarm Switch Reset	Interlock + Reset(Manual)	BR	W603168	
58	CHG BA	OCR Reset & Alarm Switch Reset	Interlock + Reset(Manual) + Alaram S/W Reset	BA	W603169	
60		COUNTER	"On/Off COUNTER On/Off is 1 Cycle"	-	W603171	
61	CHG AQ	Position Switch	TEST:1C, CONN:1C	AQ	W603172	
62	CHG AR	Position Switch	CONN:2C	AR	W603173	
63	CHG AS	Position Switch	TEST:2C	AS	W603174	
64	CHG AT	Position Switch	ISOLATED:1C, INSERTED:1C	AT	W603175	
65	CHG AU	Position Switch	INSERTED:2C	AU	W603176	
66	CHG AV	Position Switch	ISOLATED:2C	AV	W603177	
67	CHG PS	Position Switch	TEST:1C, ISOLATED:1C, CONN:2C	P5	W603178	
68	CHG P4	Position Switch	TEST:2C,CONN:2C	PQ	W603179	
69	CHG PQ	Position Switch	INSERTED:1C, ISOLATED:1C, TEST:1C, CONN:1C	P4	W603180	
70	CHG P8	Position Switch	INSERTED:2C, ISOLATED:2C, TEST:2C, CONN:2C	P8	W603181	
71	CHG PR	Position Switch	INSERTED:1C, ISOLATED:1C, TEST:3C, CONN:3C	PR	W603182	

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Air Circuit Breakers -ACB

ACB 630-6300A

No.	Code	Specification		Part No.	Picture
72	CHG AL	Lifting Lug		- W603183	
79	CHG DWB1	Mechanical Interlock	A&B&C&D Frame Drawable(Fixed) 2way Mechanical Interlock(Exterial Kit Only)	- W603190	
80	CHG DWB2	Mechanical Interlock	A&B&C&D Frame Drawable(Fixed) 3way Mechanical Interlock(Exterial Kit Only)	- W603191	
81	CHG FWB1	Mechanical Interlock	A&C Frame Fixed Type, 2way Mechanical Interlock(Exterial Kit Only)	- W603192	
82	CHG FWB2	Mechanical Interlock	A&C Frame Fixed Type, 3way Mechanical Interlock(Exterial Kit Only)	- W603193	
83	CHG B0DA	Mechanical Interlock	A Frame Interlock spare part(B0)	W603194	
84	CHG B0DB	Mechanical Interlock	B Frame Interlock spare part(B0)	W603195	
85	CHG B0DC3	Mechanical Interlock spare part	C Frame 3P Interlock spare part(B0)	W603196	
86	CHG B0DC4	Mechanical Interlock spare part	C Frame 4P Interlock spare part(B0)	W603197	
87	CHG B0DD3	Mechanical Interlock spare part	D Frame 3P Interlock spare part(B0)	W603198	
88	CHG B0DD4	Mechanical Interlock spare part	D Frame 4P Interlock spare part(B0)	W603199	
89	CHG B0FA	-	A Frame Interlock spare part(B0) + Fixed Bracket	W603200	
90	CHG B0FB	-	B Frame Interlock spare part(B0) + Fixed Bracket	W603201	

Air Circuit Breakers -ACB

ACB 630-6300A

No.	Code	Specification		Part No.	Picture	
91	CHG B0FC3	-	C Frame 3P Interlock spare part(B0) + Fixed Bracket	W603202		
92	CHG B0FC4	-	C Frame 4P Interlock spare part(B0) + Fixed Bracket	W603203		
95	CHG DWB1A	-	A Frame Drawable type 2way MI + Interlock spare part(B0)	W603206		
96	CHG DWB2A	-	A Frame Drawable type 3way MI + Interlock spare part(B0)	W603207		
97	CHG DWB1B	-	B Frame Drawable type 2way MI + Interlock spare part(B0)	-	W603208	
98	CHG DWB2B	-	B Frame Drawable type 3way MI + Interlock spare part(B0)	-	W603209	
99	CHG DWB1C3	-	C Frame 3P Drawable type 2way MI + Interlock spare part(B0)	W603210		
100	CHG DWB1C4	-	C Frame 4P Drawable type 2way MI + Interlock spare part(B0)	W603211		
101	CHG DWB2C3	-	C Frame 3P Drawable type 3way MI + Interlock spare part(B0)	W603212		
102	CHG DWB2C4	-	C Frame 4P Drawable type 3way MI + Interlock spare part(B0)	W603213		
107	CHG FWB1A	Mechanical Interlock	A Frame Fixed Type 2way MI + Interlock spare part(B0)	-	W603218	
108	CHG FWB2A	Mechanical Interlock	A Frame Fixed Type 3way MI + Interlock spare part(B0)	-	W603219	
109	CHG FWB1B	Mechanical Interlock	B Frame Fixed Type 2way MI + Interlock spare part(B0)	-	W603220	
110	CHG FWB2B	Mechanical Interlock	B Frame Fixed Type 3way MI + Interlock spare part(B0)	-	W603221	
111	CHG FWB1C3	Mechanical Interlock	C Frame 3P Fixed Type 2way MI + Interlock spare part(B0)	-	W603222	
112	CHG FWB1C4	Mechanical Interlock	C Frame 4P Fixed Type 2way MI + Interlock spare part(B0)	-	W603223	
113	CHG FWB2C3	Mechanical Interlock	C Frame 3P Fixed Type 3way MI + Interlock spare part(B0)	-	W603224	
114	CHG FWB2C4	Mechanical Interlock	C Frame 4P Fixed Type 3way MI + Interlock spare part(B0)	-	W603225	
119	CHG AB	Key Lock		AB	W603230	

Air Circuit Breakers -ACB

ACB 630-6300A

No.	Code	Specification			Part No.	Picture	
120	CHG AM	On/Off Button Lock		AM	W603231		
121	CHG DR	DR Device Uni & Position Pad Lock	You should purchase lock separately	-	W603232		
123	CHG MJ	MANUAL CONTROL PLUG TYPE		J	W603234		
124	CHG AK	SHORT"b"CONTACT	SHORT"B"CONTACT	AK	W603235		
125	CHG AW	Miss Insertion Preventor (Point by Screw)	BODY+CRADLE	AW	W603236		
128	CHG AEA3	Safety Shutter	SAFETYSHUTTER06A3~20A3	AE	W603239		
129	CHG AEA4	Safety Shutter	SAFETYSHUTTER06A4~20A4	AE	W603240		
130	CHG AEB3	Safety Shutter	SAFETYSHUTTER20B3~40B3	AE	W603241		
131	CHG AEB4	Safety Shutter	SAFETYSHUTTER20B4~40B4	AE	W603242		
132	CHG AEC3	Safety Shutter	SAFETYSHUTTER32C3~50C3	AE	W603243		
133	CHG AEC4	Safety Shutter	SAFETYSHUTTER32C4~50C4	AE	W603244		
134	CHG AED3	Safety Shutter	SAFETYSHUTTER40D3~63D3	AE	W603245		
135	CHG AED4	Safety Shutter	SAFETYSHUTTER40D4~63D4	AE	W603246		
136	CHG AF	Fixing Block	BODY+CRADLE	AF	W603247		
137	CHG AFB	Fixing Block	BODY	AF	W603248		
138	CHG AFC	Fixing Block	CRADLE	AF	W603249		
139	CHG BC	Control Terminal Protection Cover		BC	W603250		
140	CHG HVA3	"Terminalcombination (Draw-outtype)"	"Upper&lower horizontal type or upper&lower vertical type terminal 6 (Aframe, 630-1600A, 3P)"	-	W603251		
141	CHG HVA4	"Terminalcombination (Draw-outtype)"	"Upper & lower horizontal type or upper & lower vertical type terminal 8 (Aframe, 630-1600A, 4P)"	-	W603252		
142	CHG HVB3	"Terminalcombination (Draw-outtype)"	"Upper & lower horizontal type or upper & lower vertical type terminal 6 (Bframe, 2000-3200A, 3P)"	-	W603253		
143	CHG HVB4	"Terminalcombination (Draw-outtype)"	"Upper & lower horizontal type or upper & lower vertical type terminal 8 (Bframe, 2000-3200A, 4P)"	-	W603254		







Air Circuit Breakers -ACB

ACB 630-6300A

No.	Code	Specification		Part No.	Picture	
144	CHG FRA3	"Terminalcombination (Draw-outtype)"	Upper & lower front type terminal 6 (Aframe,630-1600A,3P)	-	W603255	
145	CHG FRA4	"Terminalcombination (Draw-outtype)"	Upper & lower front type terminal 8 (Aframe,630-1600A,4P)	-	W603256	
146	CHG FRB3	"Terminalcombination (Draw-outtype)"	Upper & lower front type terminal 6 (Bframe, 2000-3200A, 3P)	-	W603257	
147	CHG FRB4	"Terminalcombination (Draw-outtype)"	Upper & lower front type terminal 8 (Bframe, 2000-3200A, 4P)	-	W603258	
148	CHGF HVA3	"Terminalcombination (Draw-outtype)"	"Upper & lower front type + Horizontal/Vertical terminal (Aframe,630-1600A,3P)"	-	W603259	
149	CHGF HVA4	"Terminalcombination (Draw-outtype)"	"Upper & lower front type + Horizontal/Vertical terminal (Aframe, 630-1600A, 4P)"	-	W603260	
150	CHGF HVB3	"Terminalcombination (Draw-outtype)"	"Upper & lower front type + Horizontal/Verticalterminal (Bframe, 2000-3200A, 3P)"	-	W603261	
151	CHGF HVB4	"Terminalcombination (Draw-outtype)"	"Upper & lower front type + Horizontal/Vertical terminal (Bframe, 2000-3200A, 4P)"	-	W603262	
152	CHG AXA3	Arc Shield	06A3~20A3	AX	W603263	
153	CHG AXA4	Arc Shield	06A4~20A4	AX	W603264	
154	CHG AXB3	Arc Shield	20B3~40B3	AX	W603265	
155	CHG AXB4	Arc Shield	20B4~40B4	AX	W603266	
156	CHG AXC3	Arc Shield	32C3~50C3	AX	W603267	
157	CHG AXC4	Arc Shield	32C4~50C4	AX	W603268	
158	CHG AXD3	Arc Shield	40D3~63C3	AX	W603269	
159	CHG AXD4	Arc Shield	40D4~63C4	AX	W603270	
160		Temperature Sensor		-	W603271	
161	CHG RCU	Remote On/Trip Module	Closing Trip Module	-	W603272	
162	CHG RCTU	Remote On/Trip Module	Closing Trip Module + Temperature monitoring module	-	W603273	
163	CHG RCTUN	Remote On/Trip Module	Closing Trip Module + Temperature monitoring module + Temperature Sensor	-	W603274	
164	CHG OC	OCR Portable Checker	"Input : AC/DC 100~220V, 50/60Hz Output : DC 24V, 2.5A"	-	W603275	
165		OCR Checker	Monitoring LTD, STD, INST, GFT, PTA, Touch LCD		W603276	

Air Circuit Breakers -ACB

ACB 630-6300A

No.	Code	Specification		Part No.	Picture		
166	CHG NCT_T	NEUTRAL CT	630A/Inner Diameter 80	-	W603277		
167	CHG NCT_H	NEUTRAL CT	800A/Inner Diameter 80	-	W603278		
168	CHG NCT_J	NEUTRAL CT	1000A/Inner Diameter 80	-	W603279		
169	CHG NCT_K	NEUTRAL CT	1250A/Inner Diameter 80	-	W603280		
170	CHG NCT_L	NEUTRAL CT	1600A/Inner Diameter 80	-	W603281		
171	CHG NCT_M	NEUTRAL CT	2000A/Inner Diameter 135	-	W603282		
172	CHG NCT_N	NEUTRAL CT	2500A/Inner Diameter 135	-	W603283		
173	CHG NCT_P	NEUTRAL CT	3200A/Inner Diameter 135	-	W603284		
174	CHG NCT_Q	NEUTRAL CT	4000A/Inner Diameter 200	-	W603285		
175	CHG NCT_S	NEUTRAL CT	5000A/Inner Diameter 200	-	W603286		
176	CHG NCT_X	NEUTRAL CT	6300A/Inner Diameter 200	-	W603287		
177	CHG CTD1	Condensor Trip Device	AC/DC 110V	-	W603288		
178	CHG CTD2	Condensor Trip Device	AC/DC 220V	-	W603289		
179	CHG AJ	Test Jumper	-	-	W603290		
181	CHG LHANDLE	Long Type Draw in/out Handle	For Flush Mounting Type (770 x 190)	-	W603292		
182	CHG UHANDLE	Universal Draw in/out Handle	750 X 190	-	W603293		
184	CHG AG	Door Frange	IP30	-	W603295		
185	CHG DC	Dust Cover	IP52	-	W603296		
186	CHG ATS	ATS & CONTROLLER	ATS Controller UNIT(ATS Controller + 2way M/I + Wiring Assemble) for Draw out	B7	W603297		
187	CHG MOC	MOC	External Aux Contact(10a+10b)_ Mechnacial Operating Cell Switch	MC	W603298		
188	CHG MWIRE	Manual Connector Lead Wire			W603299		
189	CHGCAS	CASTELL KIT	CASTELL KIT		W608807		
190	CHGVM	VOLTAGE MODULE	VOLTAGE MODULE		W608765		

Air Circuit Breakers -ACB

ACB 630-6300A

No.	Code	Specification	Part No.
1. CHGOOCR-LA = OCR(UPR-2L-GM) / OCR(UPR-2L-GS)			
1	CHGOOCR-LA(51/61)	OCRUPR-LA(51/61)Only	W603300
2	CHGOOCR-LA(51/61)A	OCRUPR-LA(51/61)UnitAutoconnection	W603301
3	CHGOOCR-LA(51/61)AU	OCRUPR-LA(51/61)UnitAutoconnection+MHT	W603302
4	CHGOOCR-LA(51/61)J	OCRUPR-LA(51/61)UnitManualJack(FixedType)	W603303
5	CHGOOCR-LA(51/61)JU	OCRUPR-LA(51/61)UnitManualJack(FixedType)+MHT	W603304
2. CHGOOCR-LAG = OCR(UPR-1D-GT)			
1	CHGOOCR-LAG(52/62)	OCRUPR-LAG(52/62)Only	W603305
2	CHGOOCR-LAG(52/62)A	OCRUPR-LAG(52/62)UnitAutoconnection	W603306
3	CHGOOCR-LAG(52/62)AU	OCRUPR-LAG(52/62)UnitAutoconnection+MHT	W603307
4	CHGOOCR-LAG(52/62)J	OCRUPR-LAG(52/62)UnitManualJack(FixedType)	W603308
3. CHGOOCR-LH			
1	CHGOOCR-LH(55/65)	OCRUPR-LH(55/65)Only	W603309
2	CHGOOCR-LH(55/65)A	OCRUPR-LH(55/65)UnitAutoconnection	W603310
3	CHGOOCR-LH(55/65)J	OCRUPR-LH(55/65)UnitAutoconnection+MHT	W603311
4. CHGOOCR-LN = OCR(UPR-1L-GL)			
1	CHGOOCR-LN(50/60)	OCRUPR-LN(50/60)Only	W603312
2	CHGOOCR-LN(50/60)A	OCRUPR-LN(50/60)UnitAutoconnection	W603313
3	CHGOOCR-LN(50/60)AU	OCRUPR-LN(50/60)UnitAutoconnection+MHT	W603314
4	CHGOOCR-LN(50/60)J	OCRUPR-LN(50/60)UnitManualJack(FixedType)	W603315
5	CHGOOCR-LN(50/60)JU	OCRUPR-LN(50/60)UnitManualJack(FixedType)+MHT	W603316
5. CHGOOCR-LP			
1	CHGOOCR-LP(54/64)	OCRUPR-LP(54/64)Only	W603317
2	CHGOOCR-LP(54/64)A	OCRUPR-LP(54/64)UnitAutoconnection	W603318
3	CHGOOCR-LP(54/64)AU	OCRUPR-LP(54/64)UnitAutoconnection+MHT	W603319
4	CHGOOCR-LP(54/64)J	OCRUPR-LP(54/64)UnitManualJack(FixedType)	W603320
5	CHGOOCR-LP(54/64)JU	OCRUPR-LP(54/64)UnitManualJack(FixedType)+MHT	W603321
6. CHGOOCR-SA = OCR(UPR-2S-AS)			
1	CHGOOCR-SA(58/68)	OCRUPR-SA(58/68)Only	W603322
2	CHGOOCR-SA(58/68)A	OCRUPR-SA(58/68)UnitAutoconnection	W603323
3	CHGOOCR-SA(58/68)AU	OCRUPR-SA(58/68)UnitAutoconnection+MHT	W603324
4	CHGOOCR-SA(58/68)J	OCRUPR-SA(58/68)UnitManualJack(FixedType)	W603325
7. CHGOOCR-SN = OCR(UPR-1S-AL)			
1	CHGOOCR-SN(57/67)	OCRUPR-SN(57/67)Only	W603326
2	CHGOOCR-SN(57/67)A	OCRUPR-SN(57/67)UnitAutoconnection	W603327
3	CHGOOCR-SN(57/67)J	OCRUPR-SN(57/67)UnitAutoconnection+MHT	W603328
8. CHGOOCR-SP			
1	CHGOOCR-SP(59/69)	OCRUPR-SP(59/69)Only	W603329
2	CHGOOCR-SP(59/69)A	OCRUPR-SP(59/69)UnitAutoconnection	W603330
3	CHGOOCR-SP(59/69)J	OCRUPR-SP(59/69)UnitAutoconnection+MHT	W603331



Worldwide



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