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Catalog No. ATCB

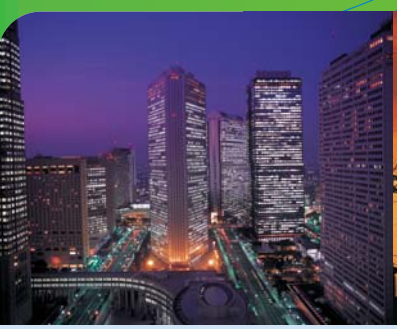
※ 1. Specifications of this product may be changed for the purpose of quality improvement of the product without notice in advance.

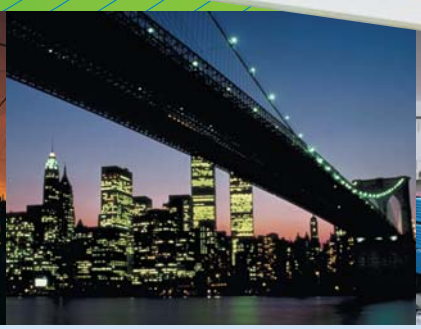
ISO 9001 ISO14001

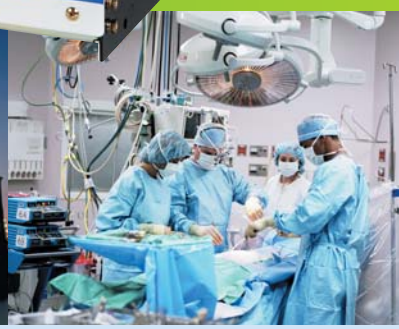
www.osemco.com

OSS-ATCB

Automatic Transfer Circuit Breaker







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O-Sung Electric Machinery CO., LTD.

Forward the Future & the World

with O-SUNG

Automatic Transfer Circuit Breaker

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TEST REPORT

Power Apparatus Testing & Evaluation Division

KERI

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TEST REPORT

Power Apparatus Testing & Evaluation Division

KERI

ATCB load switch test report(3200A)


TEST REPORT

Power Apparatus Testing & Evaluation Division

KERI

ATCB break test report(3200A)


Environmental Management System Certificate

O-Sung Electric Machinery Co., Ltd.

KS A 14001:2004 / ISO 14001:2004

ISO 14001 certificate


Certificate of Registration

O-Sung Electric Machinery Co., Ltd.

QA INTERNATIONAL

ISO 9000 certificate


KAS 공인 V 체크마크 인증서

(V-check Mark Certificate)

SYSTEM TYPE V

csemco

V-Check certificate

Introduction & Feature

Introduction

ATCB is incorporated with the advantage of both ACB and ATS. Comparing to existing Automatic Transfer Switch (ATS), Single mechanism of ATCB is functioned to provide Trip position and withstand Icu (Rated ultimate short-circuit breaking current) and break Icw (Rated short-time withstand current). With an optional Protection Relay of MDTR-Ⅲ, ATCB functions for OCR (LTD, STD & Instantaneous), GR and Pre-Alarm. Operating and overload current can be displayed by digital display of MDTR-Ⅲ.

Features

- Simultaneous closing to both power sources is prevented by interlocking with single mechanism.
- Both power sources can be off by neutral position.
- Fixed or drawout type available
- Compact size enables the space saving of switchgear (50% saving) and cost saving.
- Number of switchgear can be reduced without the tie ACB panel.
- By-pass application is available as option.
- Compact size enables the space saving of switchgear (50% saving) and cost saving.
- OCR, GR and Pre-Alarm can functioned with an optional MDTR-Ⅲ. Operating and overload current can be displayed by MDTR-Ⅲ.

External view and configuration

❶ Manual Trip Button
❷ ON-OFF Indicator
❸ Indicator for Transfer Status
❹ Name Plate
❺ B-side Closing Selective Button
❻ Control Circuit Terminals
❼ Circuit Diagram
❽ Manual Closing Button
❾ Spring Charging Indicator
❿ Manual Charging Handle
⓫ MDTR-Ⅲ

Comparison

Conventional (2ACBs with interlocking)	ATCB (Single Mechanism)
• This application is constructed by independent mechanism. If interlocking will be failed by malfunction, Simultaneous closing can be occurred by both power sources. • Complicated mechanism may cause the malfunction. • Electric type interlocking.	• Interlocking with single mechanism prevents from simultaneous closing by both power sources. • Load can be completely protected by electric and mechanical interlocking. • Compact size saves the installation space. • Busbar connection is simple.

Compactness of Switchgear (50% space saving + Busbar saving)

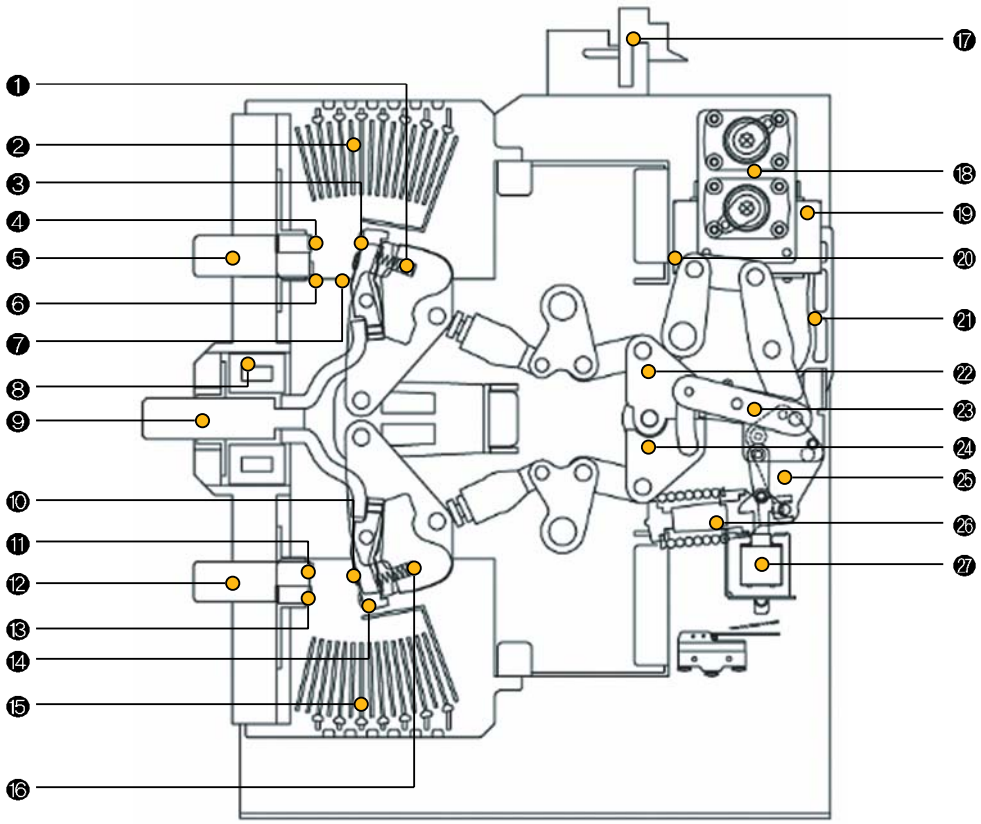
(unit : mm)

2 ACBs with interlocking

ATCB

Introduction

Internal Construction



❶ A-side Contacts Spring
❷ A-side Arc Chamber
❸ A-side Arc Contacts (Moving)
❹ A-side Arc Contacts (fixed)
❺ A-side Line Busbar
❻ A-side Main Contacts (fixed)
❼ A-side Main Contacts (Moving)
❽ Current Transformer
❾ Load side Busbar
❿ B-side Main Contacts (Moving)
⓫ B-side Main Contacts (fixed)
⓬ B-side Line Busbar
⓭ B-side Arc Contacts (fixed)
⓮ B-side Arc Contacts (Moving)
⓯ B-side Arc Chamber
⓰ B-side Contacts Spring
⓱ Control Circuit Terminals
⓲ Auxiliary Switch
⓳ Tripping Coil
⓴ Closing Coil
㉑ Manual Charge Handle
㉒ A-side Closing Mechanism
㉓ B-side Closing Mechanism
㉔ Selective Device
㉕ Charging Mechanism
㉖ Closing Spring
㉗ B-side Selection Coil

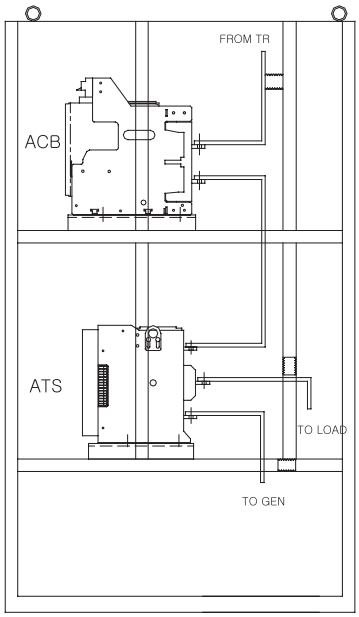
Specification

Rated specification

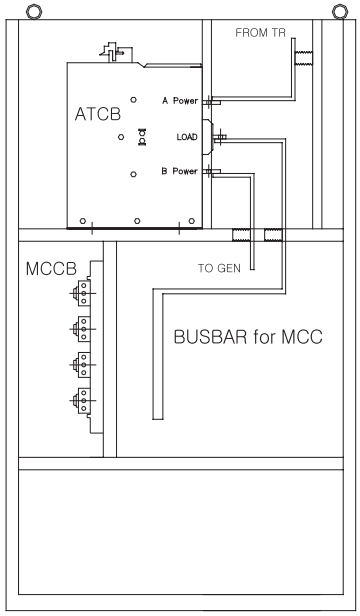
TYPE				616-ATCB					632-ATCB		
Rated Operational Voltage(VAC)	Ue			440							
Rated Insulation Voltage(VAC)	Ui			1000							
Rated Impulse Withstand Voltage(VAC)	Uimp			8000							
Frame Current (AF)				1600					3200		
Rated Current	Ie			630A	800A	1000A	1250A	1600A	2000A	2500A	3200A
Neutral Phase Current				630A	800A	1000A	1250A	1600A	2000A	2500A	3200A
Kind of Throw				Double Throw							
Connection				Back							
Number of poles				3P		4P			3P		4P
Weight(kg)	Fixed			95		110			105		130
	Drawout			140		165			150		200
Rated Short-circuit Breaking Capacity o-3min-co-3min-co	Icu Ics	IEC 60947-6-1[CB] 60947-2[B] BS 4752 KS C 4620		42kA					50kA		
Rated Short-circuit Making Capacity	Icm			88.2kA					105kA		
Rated Short-time Withstand Current (0.5sec)	Icw			42kA					50kA		
Switching Capacity				AC-33B (10 Ie marking / 10 Ie breaking cos ϕ=0.35) DC-31B (1.5 Ie making / 1.5 Ie breaking)							
Switching Frequency				20 Time / Hour					10 Time / Hour		
Operating Current (A peak)	Closing coil		"A" Power	DC110~125V= 5A, AC100~110V= 5A, AC200~240V= 6A							
			"B" Power	DC110~125V=20A, AC100~110V=20A, AC200~240V=20A							
	Trip coil			DC110~125V= 5A, AC100~110V= 5A, AC200~240V= 6A							
Motor Spring Charging	Charging time			≤ 8 sec							
	Charging current			DC110~125V=3A, AC100~110V=3A, AC200~240V=5A							
Operating Time (ms)	Marking		"A" Power	≤ 90 ms					≤ 90 ms		
			"B" Power	≤ 150 ms					≤ 150 ms		
	Breaking			≤ 30 ms					≤ 30 ms		
Number of Operating Cycles	With Current (A/B)			2,500 / 2,500					1,500 / 1,500		
	Without Current (A/B)			500 / 500					500 / 500		
Cautions	1. For complete operation, be sure to provide control source for more than 0.5sec. 2. When control source will be provided to A side and B side simultaneously, Coil may be damaged.										

Application

Installation with ACB & ATS

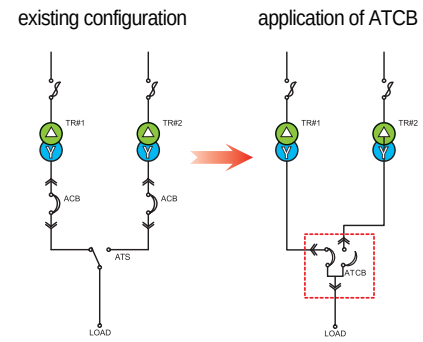


Installation with ATCB

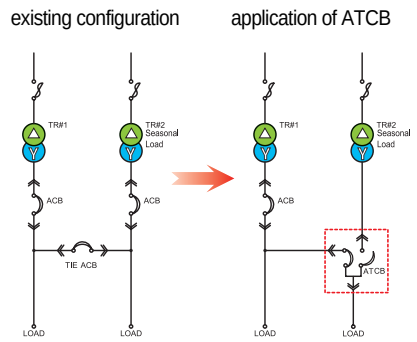


Comparison of Application

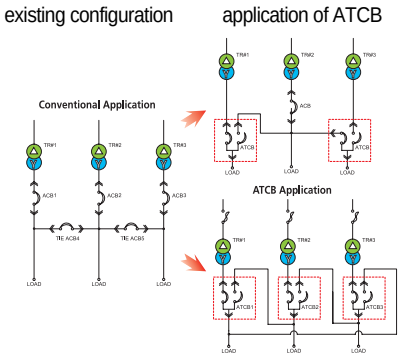
application example 1



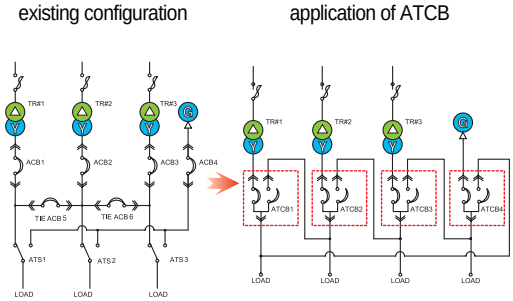
application example 2



application example 3



application example 4



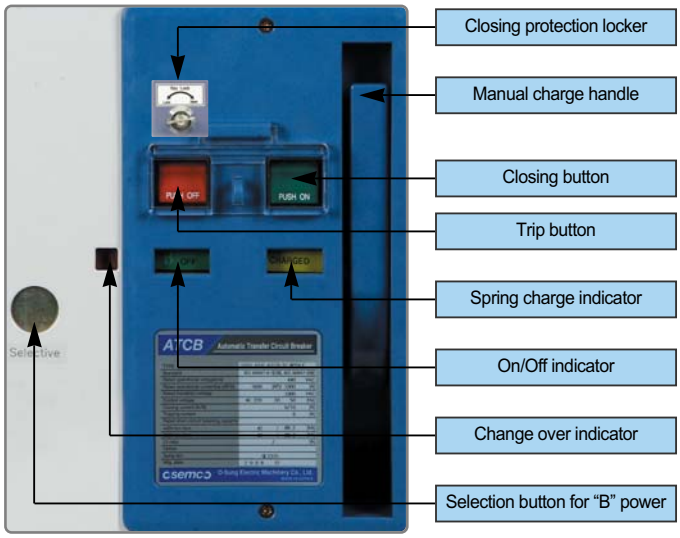
Charging Method

Manual charging type

- **Manual charging**
  When manual charging handle will be pulled forward 6-7times, closing spring will be charged and Charging Indicator will show CHARGED.

- **A-side manual charging**
  After Closing Coil is charged, Press Closing Button (PUSH ON), A-side power source is closed. When Trip Button (PUSH OFF) is pressed after closing, Breaker will be tripped.

- **B-side manual charging**
  After Closing Coil is charged, Press Closing Button (PUSH ON) while pressing B-side Closing Selective Button. Then, B-side power source is closed. When Trip Button (PUSH OFF) is pressed after closing, Breaker will be tripped.

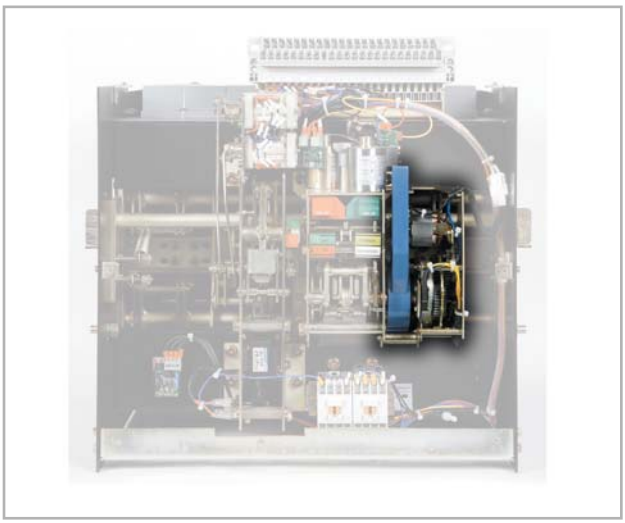


Motor Charge Type

When control power is provided, Closing spring is automatically charged and Charging Indicator will show CHARGED. Motor charging and closing is operated within the 85~110% range of designated control voltage.

- Manual charging is possible also.
- While Trip button is pressed, Closing can not be made due to electrical and mechanical locking.
- When Locker for closing protection is used, Closing can not be made due to electrical and mechanical locking.
- After spring charged, operation to close after is recommended with more than 1 sec interval.
- Circuit for pumping prevention is implemented with Closingcoil (XF) and Select Coil(SC).

Electrical features		Configuration	
Rating	AC Voltage	AC100~125V	AC200~240V
	Current consumption	3A	5A
	DC Voltage	DC100~125V	
	Current consumption	3A	
Max. inrush current		2~3 × In(0.1s)	
Charging Time		Less than 8 sec.	



Auxiliary Devices

Closing Coil Release (XF)

This device close the breaker by remote control.

When control source is provided continuously for more than 100ms, Closing coil will be operated normally.

- The operating voltage range is 85~110%.
- Electrical pumping prevention circuit is implemented.
- Caution is required that pumping prevention circuit may be reset if operation voltage is less than 85% of control voltage.

Rated voltage	Exciting current peak	Closing time
AC100~125V	5A	Less than A:90ms B:15090ms
AC200~240V	6A	
DC100~125V	5A	

Note) 1. Closing time is a contacting time of main contact by coil excitation.
2. If closing and tripping order (electrically on by relays is continuously made, Breaker will repeat OFF-ON-OFF. To avoid this problem, Pumping prevention circuit is provided. When reclosing is needed, Be sure to re-order after clearing of closing order.)

Shunt Trip Release (MX)

This device can open the breaker by remote control.

When control source is provided continuously for more than 40~50ms, Trip coil will be operated normally.

- The operation voltage range is 70~110%
- Aux Contact is used to prevent the coil damage.

Rated voltage	Exciting current peak	Tripping time
AC100~125V	5A	Less than 30ms
AC200~240V	6A	
DC100~125V	5A	

B-Side Closing Selective Coil (SC)

This coil is for remote selection of B-side Closing Coil. For normal operation, control source should be supplied for more than 150ms.

- Operating voltage range is 85~10%.
- Electrical pumping prevention circuit is implemented.
- Caution is required that pumping preention circuit may be reset if operating voltage is less than 85% of control voltage.

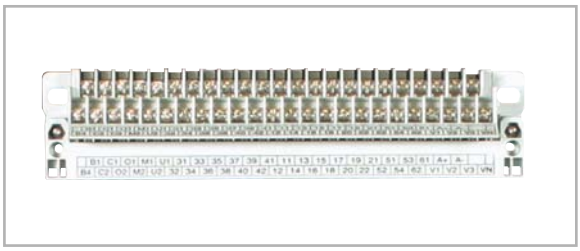
Rated voltage	Exciting current peak
AC 100~125V	15A
AC 200~240V	14A
DC 100~125V	15A

Optional Devices

Closing Preventing Locker (k1)

When two or more breakers are used together, this device prevents breakers from closing simul taneously by electrical and mechanical locking.

Automatic Terminal Connecting Device



▶Automatic Terminal Connecting Device

- When body is withdrawn from the cradle, this device can disconnect and connect the control wires without additional action.
- This device is avaiable only for drawout type.

Voltage	Terminal Capacity
AC250V	15A
AC125V	30A
DC250V	15A
DC125V	30A

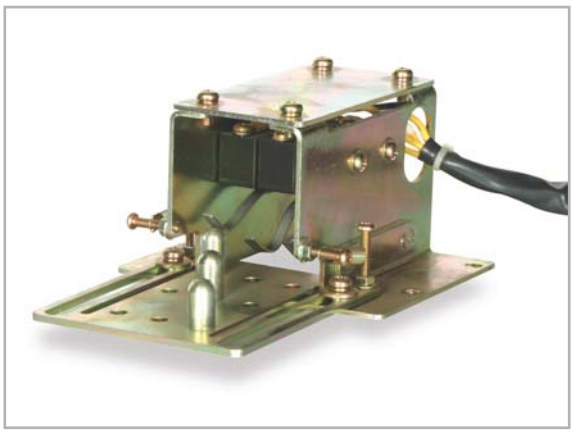
Pushbutton Locker (PBL)

Cover is fitted on buttons of PUSH ON and PUSH OFF to avoid the unnecessary manual pressing.

- Padlock is not supplied with ATCB.

Position Switch (PS)

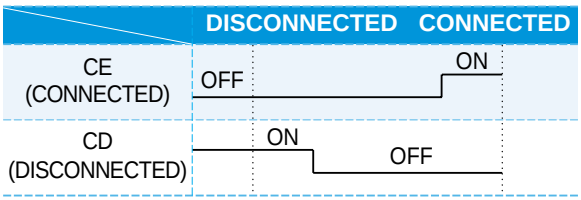
This is the contact to indicate breaker's position as Connected, Test & Disconnected. This is fitted in rear and upper side of cradle.



■Contact Configuration

- 2C : 1CE+1CD
- 4C : 2CE+2CD
- CE : Connected
- CD : Disconnected

■Contact Operation



■Contact Capacity

Classification	Capacity
250VAC	5A
30VDC	5A

Note) Contact capacity can be modified upon request.

Misinsertion Protection Device (MIP)

When the ratings of breaker and cradle doesn't match, this device prevent mechanically from breaker's insertion into the cradle.

Optional Devices

Protection Relay Alarm Contact

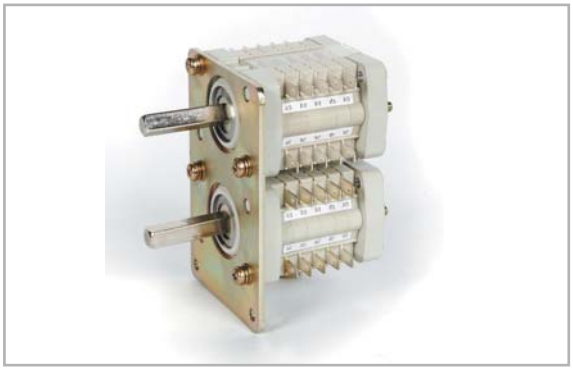
Alarm contact is built-in component with Protection Relay.
When Protection Relay operated and ATCB trips, Alarm Contact will transmit the electrical signal to supervise the trip status at remote location.

- Alarm Contact of OCR and GR are separately activated.
- Alarm Contact is self-maintained type.
- Alarm contact capacity

Classification	Capacity
250VAC	5A
30VDC	5A

Auxiliary Switch (AUX)

Auxiliary Switch of 2c is supplied as standard and max 4c can be supplied as option. Aux Switch is built-in ATCB to indicate ON/OFF status of ATCB.



■Operational status for contact

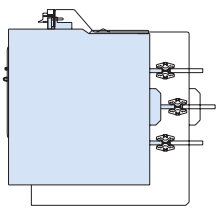
Breaker status	Cause of Trip	"a" contact
TRIP	LTD Trip STD Trip INST Trip	on
	GTD Trip	on
ON (CLOSE)		off
OFF (OPEN)		off

■Contact rating

AC			DC		
Voltage (V)	Current(A)		Voltage (V)	Current(A)	
	Resistance load	Induced load		Resistance load	Induced load
250	10	6	250	3	3
125	10	6	125	6	6

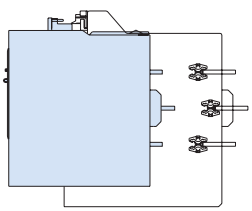
▶Operational position for draw-out

Connected Position



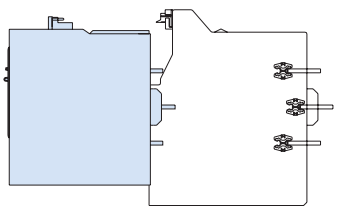
- Breaker and control circuit are connected.
- Normal operation condition.

Disconnected Position



- Main circuit and control circuit is disconnected.

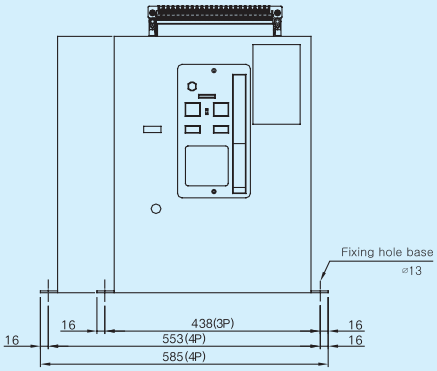
Drawout Position

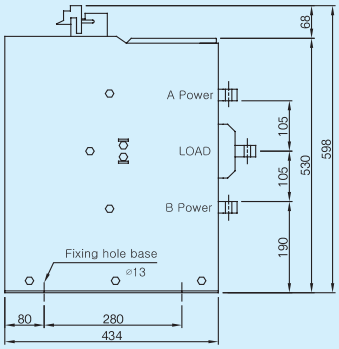


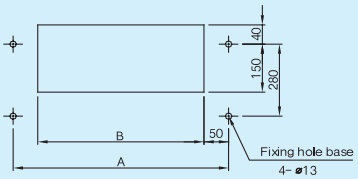
- Breaker is draw-out from cradle on drawout rail.
- When drawout lever will be raised upward, Breaker will be completely removed from cradle.

Outline Dimension

ATCB-630A~3200A Fixed



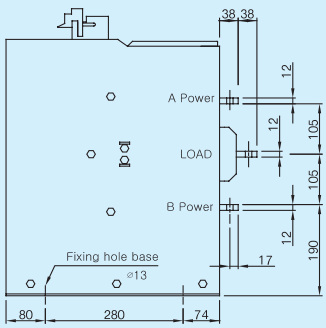


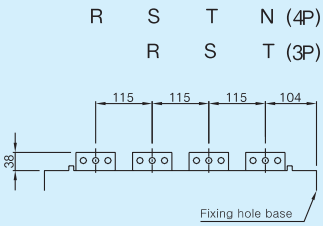


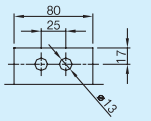
Poles	A	B
3 P	438	338
4 P	553	453

Panel cutting
(Fixing hole)

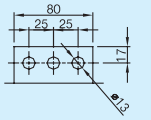
OSS-616-ATCB





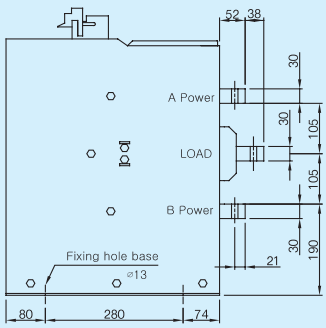


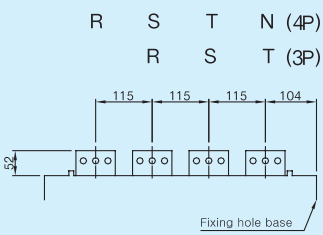
630A~1250A

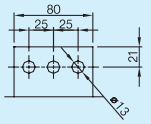


1600A

OSS-632-ATCB



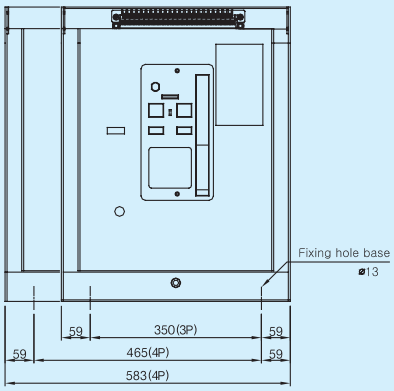


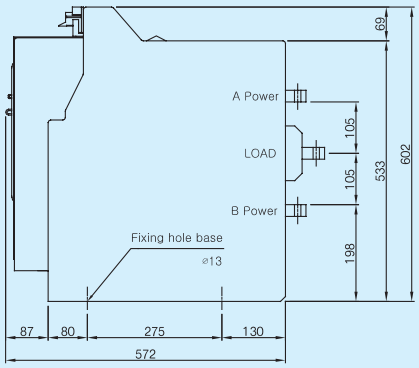


2000A~3200A

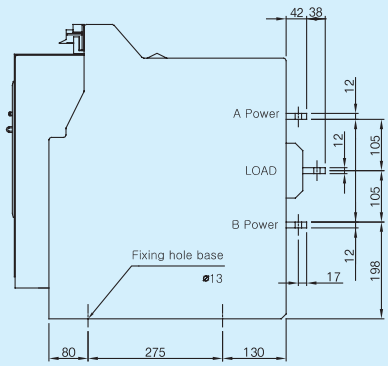
Outline Dimension

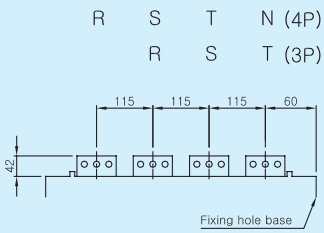
ATCB-630A~3200A Draw Out

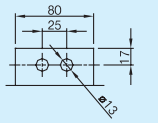




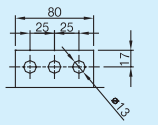
OSS-616-ATCB





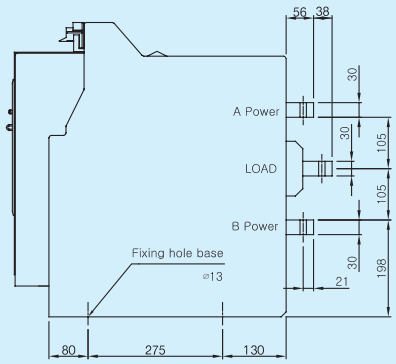


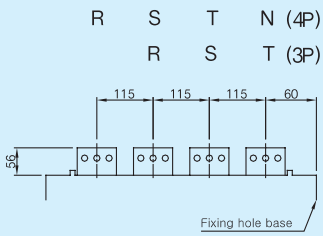
630A~1250A

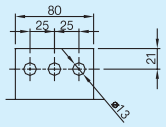


1600A

OSS-632-ATCB







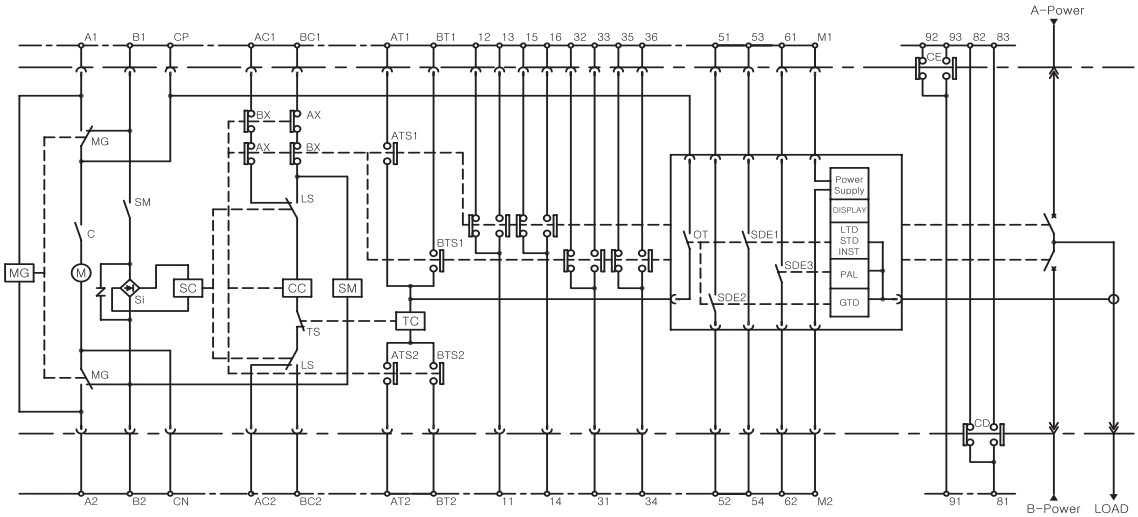
2000A~3200A

Wiring Diagram

ATCB-Circuit diagram

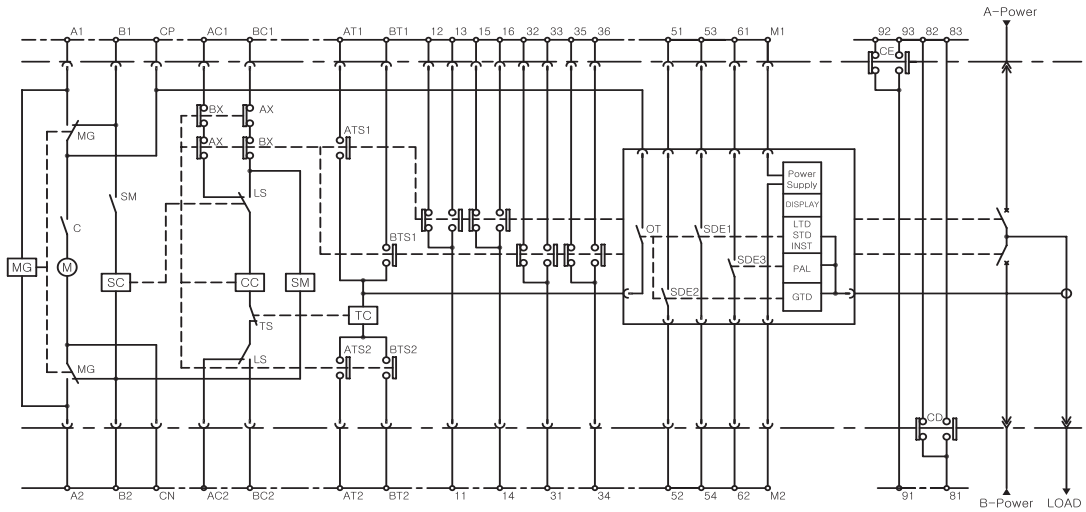
(AC110V, AC220V)

A T C B | Protection relay | Cradle



(DC110V, DC125V)

A T C B | Protection relay | Cradle

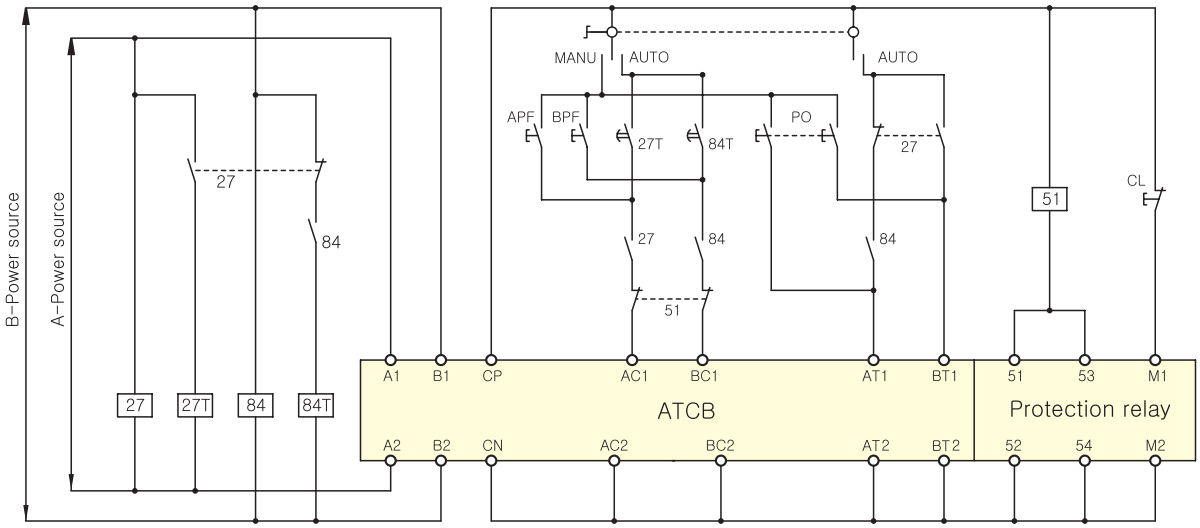


LS	Selective switch	SDE1	OCR trip indication contact
TS	Trip coil switch	SDE2	GR trip indication contact
ATS1,ATS2	A-Power Trip control switch	SDE3	Pal-Alarm indication contact
BTS1,BTS2	B-Power Trip control switch	11~16	A-Power contact (2C-contact)
SC	Selective coil	31~36	B-Power contact (2C-contact)
TC	Tripping coil	M1,M2	Protection relay control voltage
C	Motor switch	51, 52	LTD,STD,INST Indication contact
AX, BX	Control switch	53, 54	GR Indication contact
OT	Failure trip contact	61, 62	Pal-Alarm indication contact
M	Motor	SM	Selective magnetic coil
CC	Closing coil	CE	Contacts for connected position (C-contact)
MG	Magnetic coil	CD	Contacts for disconnected position (C-contact)

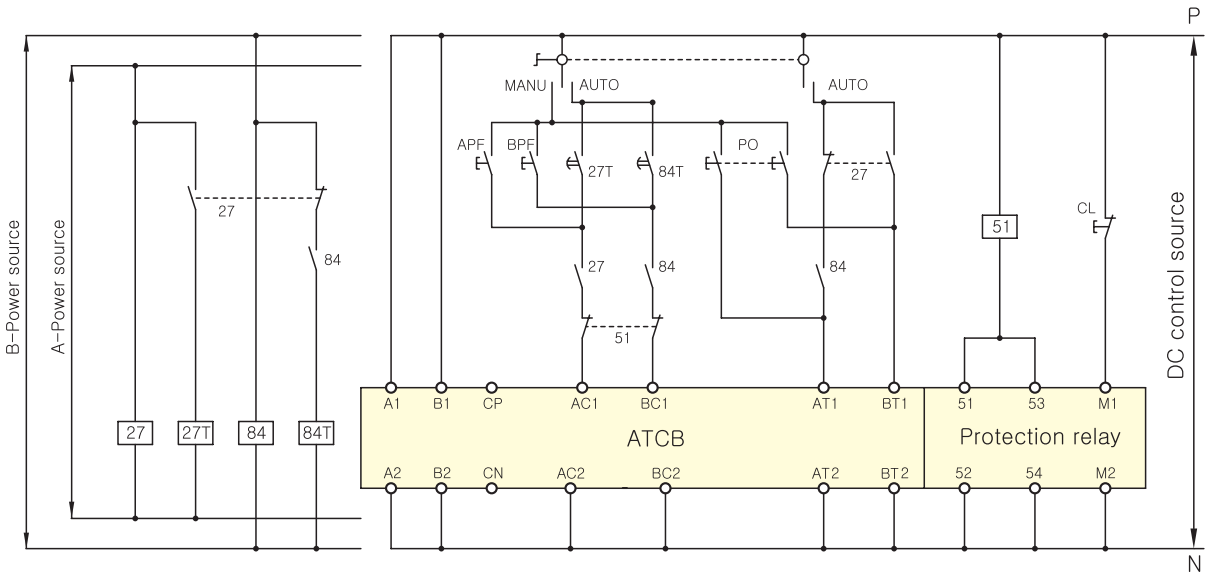
Typical Operating Circuit

Typical Operating Circuit

AC110V, AC220V



DC110V,DC125V

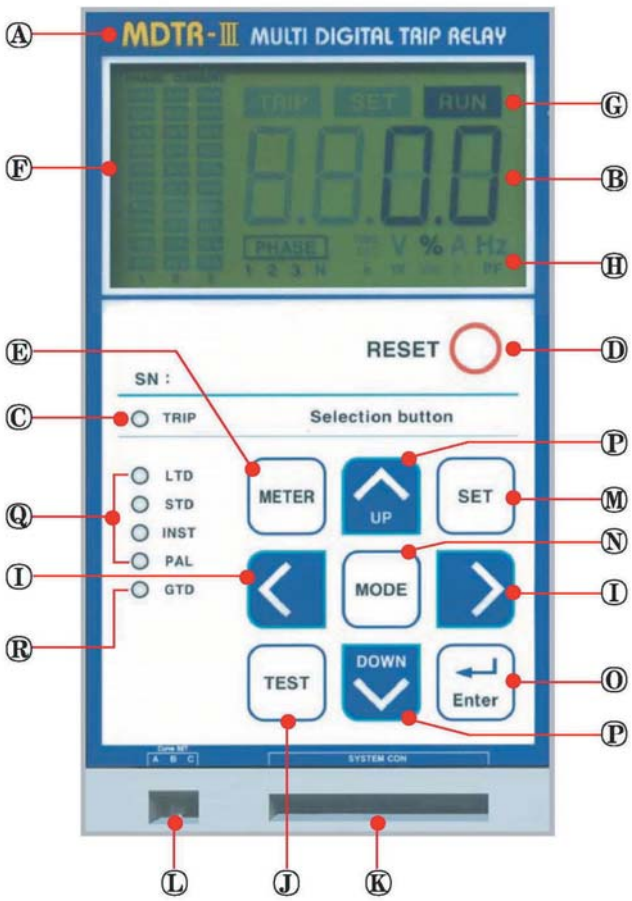


APF	A-Power closing push button	M1,M2	Protection relay control voltage
BPF	B-Power closing push button	51, 52	LTD,STD,INST Indication contact
PO	A,B-Power trip push button	53, 54	GR Indication contact
CL	Protection relay reset button	84	Source-B operating relay
27	Source-A operating relay	84T	84 Operating delay timer
27T	27 Operating delay timer	51	Over current relay

Protection Relay (MDTR-Ⅲ)

External view of MDTR-Ⅲ

With an optional Protection Relay of MDTR-Ⅲ, ATCB functions for OCR (LTD, STD & Instantaneous), GR and Pre-Alarm. Operating and overload current can be displayed by digital display of MDTR-Ⅲ.



Ⓐ Model Name MDTR-Ⅲ
Ⓑ Display part
Ⓒ Trip indicator
Ⓓ Reset Button
Ⓔ Meter function button
Ⓕ Bar-graph for comparing 3-phase current
Ⓖ Operation indicator
Ⓗ Display unit indicator
Ⓘ Setting change button
Ⓙ Test button
Ⓚ System connector
Ⓛ Operation feature selection button
Ⓜ Setting button
Ⓝ Operation changing button
Ⓞ Setting completion button
Ⓟ Input value increasing/decreasing button
Ⓠ Basic function displaying lamp
Ⓡ Optional function displaying lamp

Setting indication lamp

Protection	Function	Protection	Function
LTD (Long-time Delay)	Basic	PAL (Pre-Alarm)	Basic
STD (Short-time Delay)	Basic	GTD (Ground Fault Time Delay)	option
INST (Instantaneous)	Basic		

- Note -
RS 485/232 communication (Option)
It is functioned to control MDTR-Ⅲ via communication from computer. For further details, Please contact O-Sung.

Operation of MDTR-Ⅲ

Setting Range

Classification		Range (bold : default value) error ±10%	unit
Setting current	In	300-400-500-600-630-800-1000-1200-1250-1600-2000-2500-3150-3200	A
LTD Long-Time Delay	Current	30-35-40-45-50-55-60-65-70-75-80-85-90-95-**100**	%
	Time	10-20-**30**-40-50-60-70-80-90-100-110-120-OFF	sec
STD Short-Time Delay	Current	200-250-**300**-350-400-450-500-550-600-650-700-750-800-850-900-950-1000-OFF	%
	Time	0.1-0.2-0.3-0.4-**0.5**-0.6-0.7-0.8-0.9-1.0-1.1-1.2-1.3-1.4-1.5-OFF	sec
INST Instantaneous	Current	400-450-500-550-600-650-700-750-800-850-900-950-**1000**-1050-1100-1150-1200-1250-1300-1350-1400-1450-1500-1550-1600-OFF error ±15%	%
	Time	Less than 0.07	sec
PAL Pre-Alarm	Current	70-75-80-85-**90**-95-100-OFF (% of LTD current)	%
	Time	10-20-30-40-50-60-70-80-90-100-110-120-**OFF**	sec
GTD Ground fault	Current	20-25-30-35-**40**-45-50-OFF	%
	Time	0.1-0.2-0.3-0.4-0.5-0.6-0.7-0.8-0.9-**1.0**-1.1-1.2-1.3-1.4-1.5-OFF	sec

- Cautions -

1) Setting current is set not by frame but by the current ratio of installed CT on ATCB in factory.
2) GTD is operated by leaked current not by unbalance concept. Applicable to 3P and 4P.
3) CT of lower current than rated current of ATCB can be installed.

Button operation procedure and description

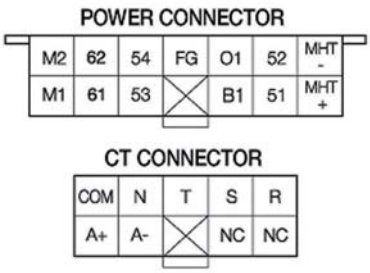
Measuring value confirming	Description	Range	Unit	Status	Auto. return
Firstly displayed value when powered in relay (basic display)	% display of current for phase with the max.	10~150	%	RUN	Maintaining status
In each pressing of MODE button, transfer to next step sequentially	% display of R phase	10~150	%	RUN	Auto-return to basic display after 30 sec. Maintaining status
	% display of S phase	10~150	%	RUN	
	% display of T phase	10~150	%	RUN	
	V display of control voltage	50~300	V	RUN	
	Hz display of control voltage	40~70	Hz	RUN	
	Sequential display of % for each phase current	10~150	%	RUN	
Press the METER button for 2 seconds at basic display	Display of current for phase with the max. current value as A.	10~150%	A	RUN	
In each pressing of MODE button, transfer to next step sequentially	Display of R phase with A	10~150%	A	RUN	Auto-return to basic display after 50 sec.
	Display of S phase with A	10~150%	A	RUN	
	Display of T phase with A	10~150%	A	RUN	
	Display of control voltage	50~300	V	RUN	

Check for setting	Description	Auto Return
Once pressing of ENTER button on basic display	Rated setting current(A) is displayed and lamps for implemented options are blinked	Return to basic display after 3 sec.
Continuous pressing of ENTER button on basic display	Setting value for implemented options are displayed sequentially	Return to basic display immediately

Note) Relay will be operated normally while checking the mesuring or setting value.

Operation test method	Description	Auto Return
Press the TEST button for 4 seconds at basic display	Implemented option's indicating lamps are blinked twice and testing for internal system is proceeded.	Return to basic display after test (When cancel for testing, Press RESET button)
Press the TEST button one more time in step 1 of relay operation test	After displaying the rated current and 10 times On/Off of implemented Alarm Contacts Relay, Trip Relay (MX) repeats 10 times On/Off and ATCB will be tripped.	Return to basic display automatically after test completing

Output terminal configuration



Note1) LTD, STD, and INST Trip Alarm Contact commonly use 51 and 52 contacts
Note2) GTD Trip Alarm Contact commonly use 53 and 54 contacts
Note3) 85V~250V AC, DC free voltages can be used for M1, M2.

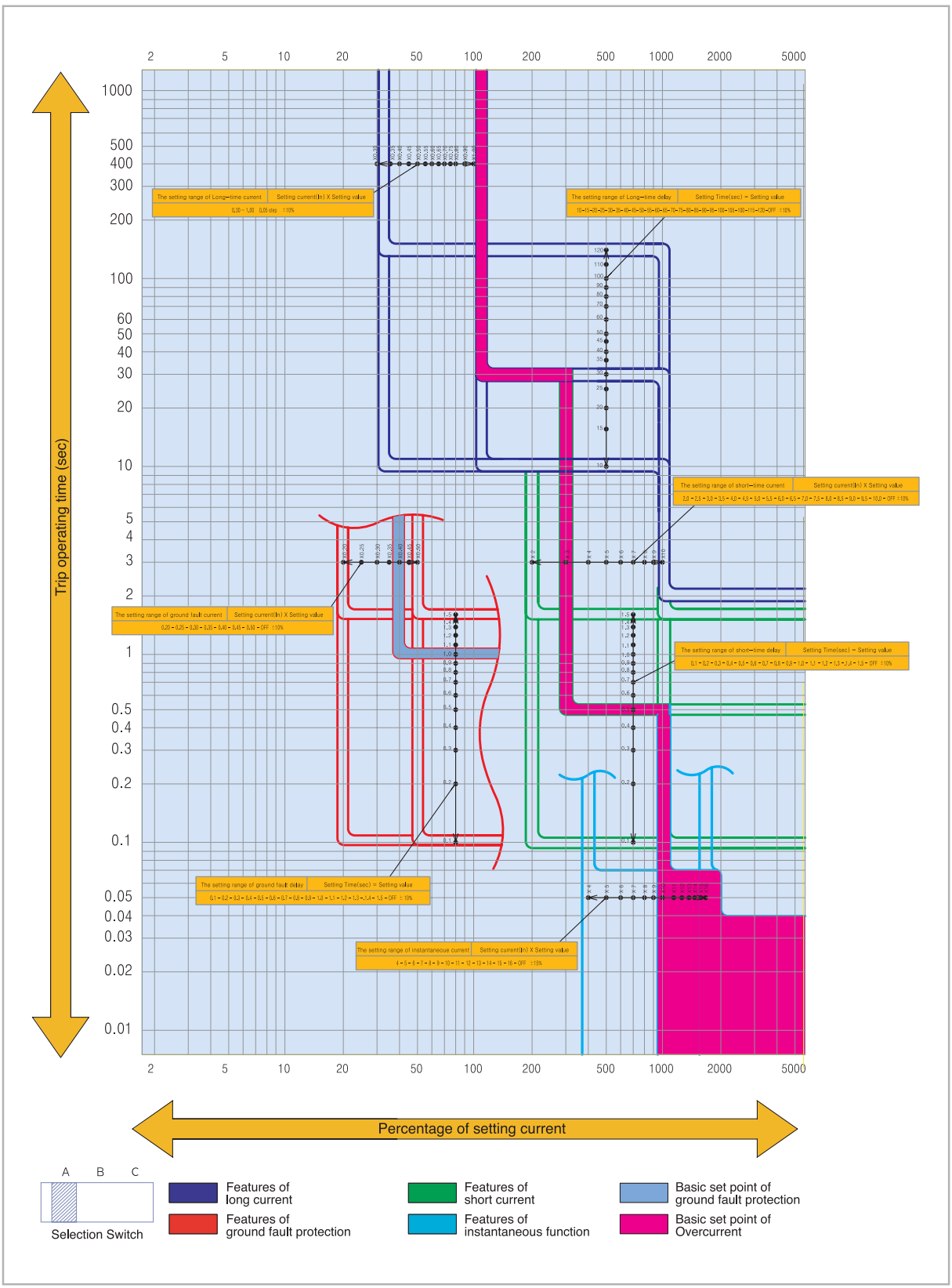
Terminal	Classification	Application
CT CONNECTOR	R	R-phase CT connection
	S	S-phase CT connection
	T	T-phase CT connection
	N	N-phase CT connection
	COM	CT common line terminal
	A+	External NCT connecting k
	A-	External NCT connecting l
	NC	Spare terminal
POWER CONNECTOR	MHT+,-	Output terminal for MHT control
	O1,B1	ATCB Trip Contact
	51,52	OCR Trip Alarm Contact
	53,54	GTD, NGR Trip Alarm Contact
	61,62	Pre-Alarm Contact
	M1,M2	Protection Relay Control Source
	FG	Earth

Protection Relay Setting

Function		After supply of control power source, Press SET button for 4 seconds.
Setting Increase	∧	- Each pressing of button changes the setting value or setting step. - By using left and right button, select setting step. - Increase or decrease of setting value is made within setting range. - Display is different according to the option. - Relay protection is not functioned during the setting process. - When next pressing is not made for 20 sec, Setting value is saved and display returns to initial stage. - During setting process, changed setting value is saved automatically and maintained without power supply. - If Relay is tripped continuously by faulty setting value, press setting button and reset. Then, setting change or OFF can be made in Setting mode. - When setting button is pressed, built-in buzzer beeps.
Setting Decrease	∨	
Previous Moving	<	
Next Moving	>	
Change to initial setting	MODE	
Setting Completion	Enter	

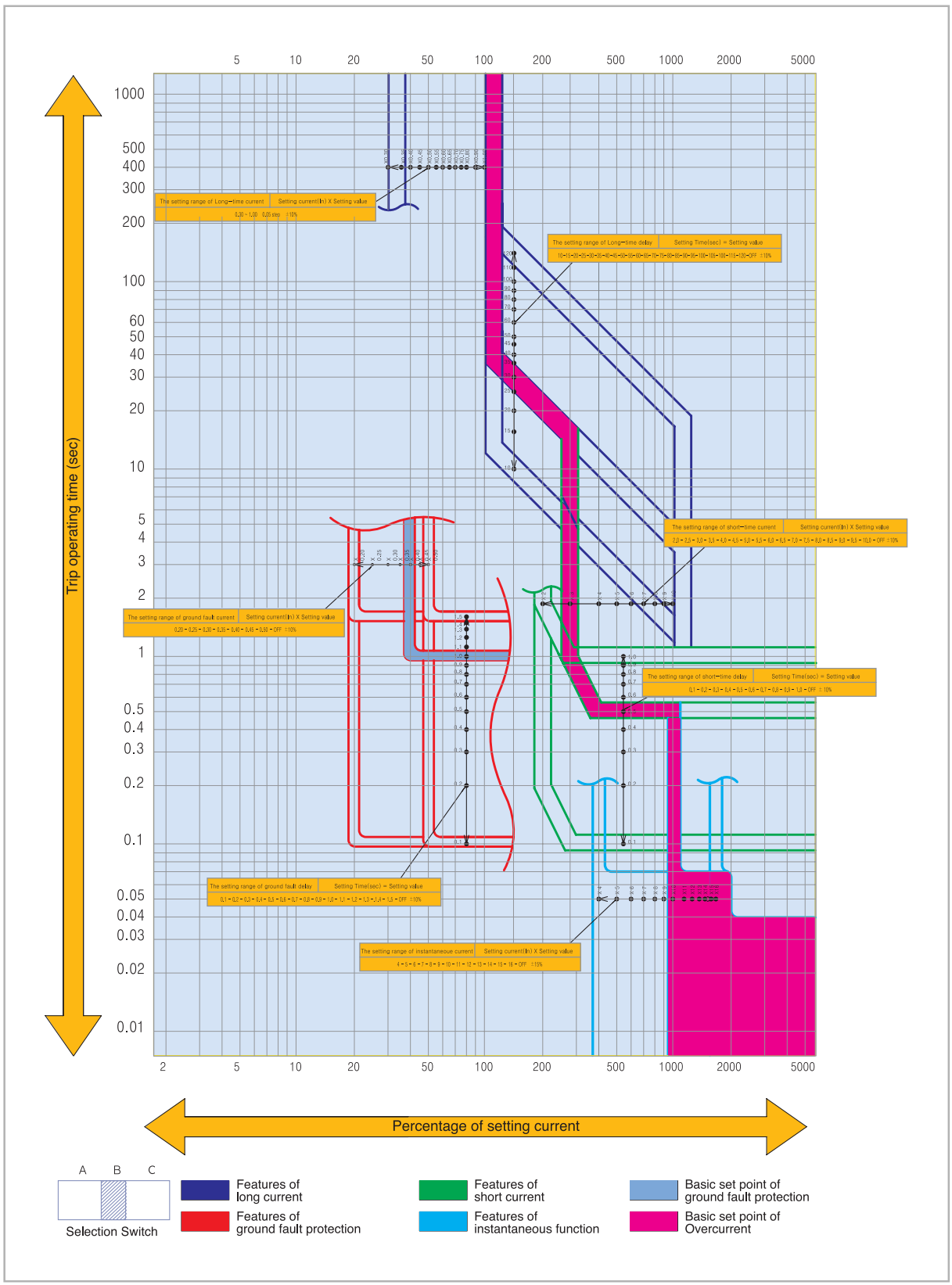
Characteristic Curve of MDTR-Ⅲ

▶Time/Current Characteristic Curves Type “A” (Definite time)



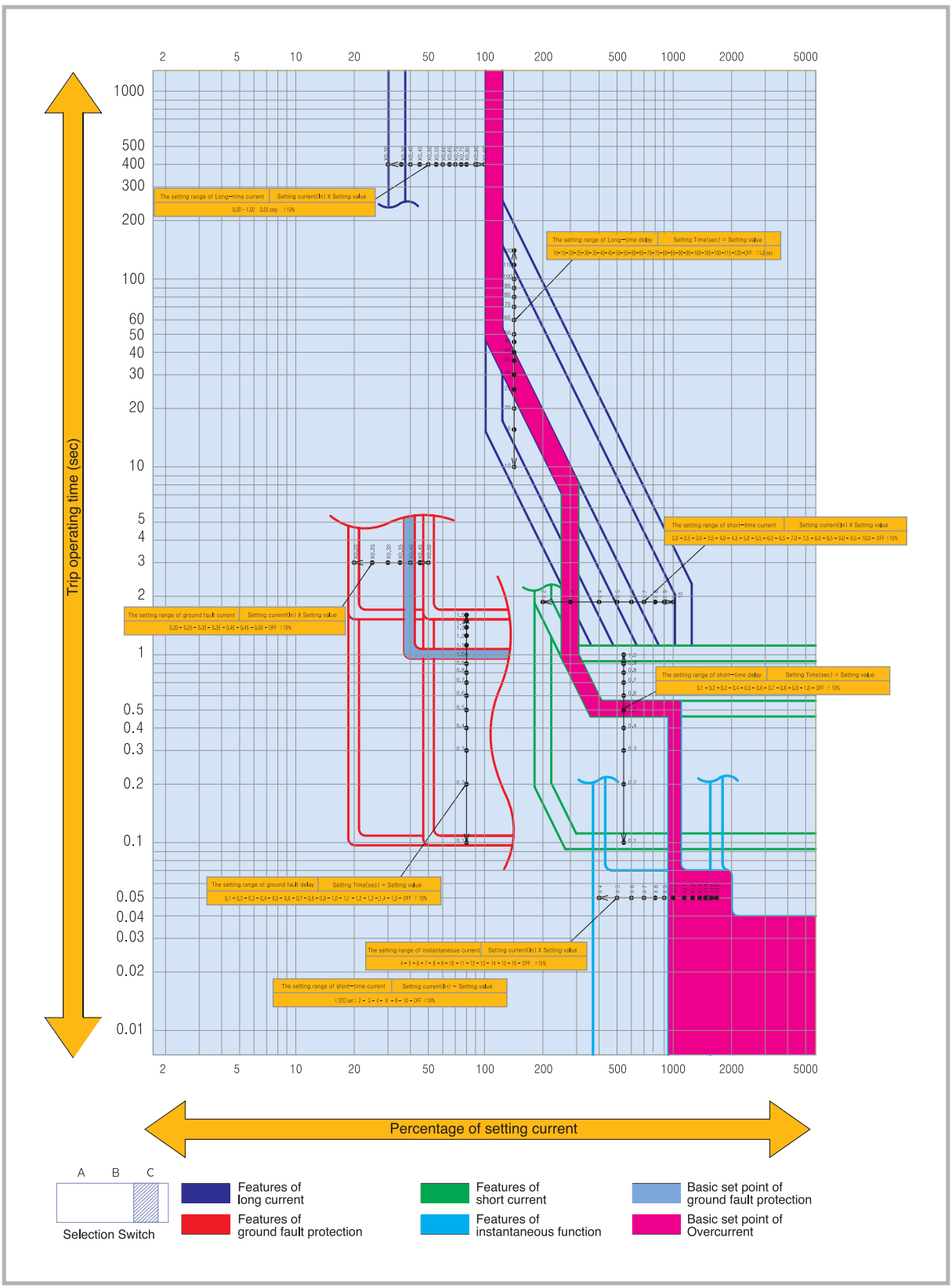
Characteristic Curve of MDTR-Ⅲ

▶Time/Current Characteristic Curves Type “B” (Normal Inverse)



Characteristic Curve of MDTR-Ⅲ

▶Time/Current Characteristic Curves Type “C” (Very Inverse)



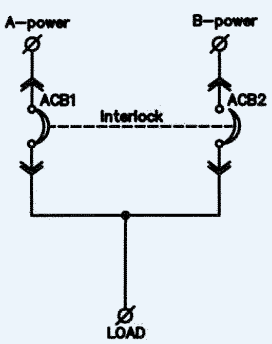
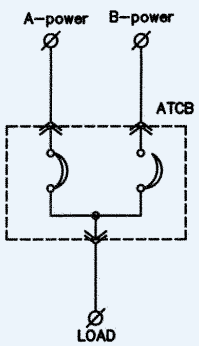
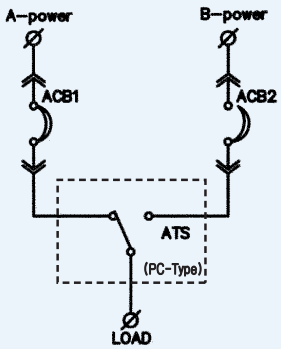
O Order Form

<table>
<tr><td rowspan="11">ATCB Main Body</td><td rowspan="3">Rated current</td><td>□ 630A</td><td>□ 800A</td><td>□ 1000A</td></tr>
<tr><td>□ 1250A</td><td>□ 1600A</td><td>□ 2000A</td></tr>
<tr><td>□ 2500A</td><td>□ 3200A</td><td></td></tr>
<tr><td rowspan="4">Protection Relay</td><td>□ No</td><td>□ Yes</td><td></td></tr>
<tr><td rowspan="2">Type</td><td colspan="2">Charateristic</td><td></td></tr>
<tr><td>OCR / Pre-Alarm</td><td>GTD</td><td>Operating voltage</td></tr>
<tr><td>MDTR-Ⅲ</td><td>□</td><td>□</td><td>AC/DC 85V~250V</td></tr>
<tr><td rowspan="2">□Rated current CT capacity
※Not allowable to increase the CT capacity than frame</td><td colspan="3">□300A □400A □500A □600A □630A □800A □1000A □1200A □1250A</td></tr>
<tr><td colspan="3">□1600A □2000A □2500A □3150A □3200A</td></tr>
<tr><td>Pole no.</td><td>□ 3-pole</td><td colspan="2">□ 4-pole</td></tr>
<tr><td>Installation</td><td>□ Draw out</td><td colspan="2">□ Fixed</td></tr>
<tr><td>Charging</td><td>□ Manual charge</td><td colspan="2">□ Motor charge</td></tr>
<tr><td>Control Voltage</td><td>□ AC 110V</td><td>□ AC 220V</td><td>□ AC 240V</td><td>□ DC 110V</td><td>□ DC 125V</td></tr>
<tr><td>AUX Contact</td><td>□ 2C * 2</td><td colspan="3">□ 4C * 2</td></tr>
<tr><td rowspan="3">ATCB Auxiliary Devices</td><td>ATCB Main body</td><td colspan="4">□ Closing Proteciton locker</td></tr>
<tr><td rowspan="2">ATCB cradle</td><td>□ Position switch</td><td>□ 2C</td><td>□ 4C (2C * 2EA)</td></tr>
<tr><td colspan="3">□ Misinsertion protection device</td></tr>
<tr><td colspan="2">Controller</td><td colspan="3">□ None □ S-SMART</td></tr>
</table>

· Control source is for both 50Hz & 60Hz. · LTD : Long-Time Delay, STD : Shot-Time Delay, INST : Instantaneous

Comparison of ATS with ACBs, ATCB and ATS

Comparison of ATS with ACBs, ATCB and ATS

	ATS with ACBs	ATCB	ATS (PC-Type)
Busbar	Busbar is necessary to connect ACB1 and ACB2.	Not necessary	Not necessary
Electrical Interlock	To avoid short-circuit between ACB1 and ACB2, Controller is used for electrical interlock.	Not necessary	Not necessary
Mechanical Interlock	To avoid short-circuit between ACB1 and ACB2, Mechanical Interlock is needed.	Not necessary	Not necessary
Control	By Controller	By typical operating circuit	By typical operating circuit
Rated short--time withstand current (Icw)	Withstand	Withstand	Withstand
Rated ultimate short-circuit breaking current (Icu)	Can break	Can break	Cannot break
Panel Configuration			

Safety Instruction

Safety Notice

This safety manual describes major informations for safe operation. Before handling this machinery, please be acquainted thoroughly with this manual. product handling, safety information and all other precautions before installation or maintenance.

Danger

Emergency situation, which may cause death or serious disaster if there is mistake.

Caution

A potentially problematic situation, which may cause slight personal injury and/or damage.

These safety notices are devided as "Danger" and "Caution" according to the hazard level.

Transportation Precaution

Caution

- Do not enter the area under the Automatic Transfer Circuit Breaker(ATCB) when it is lifted or suspended using a lifter or chain block. The ATCB may suddenly drop.
  The ATCB is heavy. Entering such an area may cause serious injury.

Installation Precautions

Caution

- Installation should be performed by qualified persons.
- Prior to commencing any installation, open the upstream circuit breaker to isolate all power/voltage sources.
  Otherwise, electric shock may occur.
- Tighten terminal screws securely according to the specified torque.
  Otherwise, a fire may occur.
- Fix the Drawout type ATCB firmly on a flat level using mounting screws.
  Otherwise, drawout operation may cause the ATCB to fall.
- Avoid blocking of ATCB's arc gas vents to ensure the adequate arc space.
  Blocking of the arc gas vents could result in failure of ATCB.
- Do not place the ATCB in such area of high temperature, high humidity, dusty air, corrosive gas, strong vibration and shock or other unsual conditions.
  Installation in such areas could cause a fire or malfunction.
- Be careful to prevent foreign material of debris, concrete powder, iron powder, etc and rainwater from entering into the ATCB.
  These materials inside the ATCB could cause a fire or malfunction.
- For 4 pole ATCB, connect the neutral wire of 3-phase, 4-wire cable to N-phase (on the right side).

Operation Precautions

Danger

- Do not touch the live terminal parts.
  Otherwise, electric shock may occur.
- Do not leave the ATCB in the drawout position.
  The ATCB is heavy. Dropping the ATCB could cause serious injury.

Caution

- The cable size of control power should be selected considering operation current.
  Otherwise, a fire could occur.
- ATCB should be operated by manual handle only under no-load condition. Operation by manual handle is strictly prohibited except emergency case.
  Otherwise, damage to the ATCB may occur.

Maintenance and Inspection Precautions

Caution

- Maintenance, inspection or components replacement should be performed by qualified persons.
- Prior to commencing any work, open the upstream circuit breaker to isolate all power/voltage sources.
  Otherwise, electric shock may occur.
- Prior to commencing internal inspection for ATCB, Be sure that main circuit and control source of ATCB should be off.
  Otherwise, fingers or tools could be pinched in the internal mechanism, causing injury.
- Retighten the terminal screws periodically according to the specified torque.
  Otherwise, a fire may occur.
- Retighten the arcing contact mounting screws periodically according to the specified torque.
  Otherwise, a fire or malfunction may occur.
- Be sure to reinstall the arc chute if removed.
  Failure to do so or incorrect installation may result in a fire or cause of burns.
- Do not touch the live parts or structural parts close to live parts immediately after stop of power supply to ATCB.
  Otherwise, remaining heat may cause burns.
- Do not approach near the arc gas vent of arc chute while ATCB is under transfer.
  Otherwise, burns may result from high temperature of arc gas.

MEMO

MEMO