

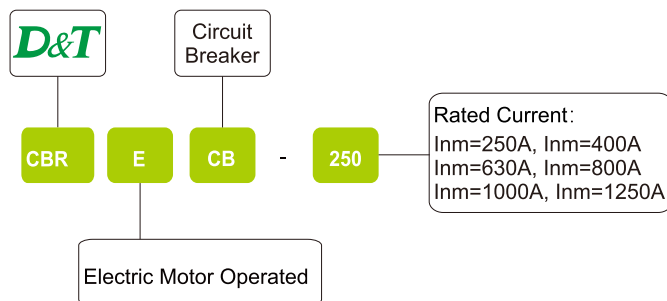


Application

ECB series molded case circuit breakers are designed for a rated operating voltage up to 400 V, with a rated current range from 125 A to 1250 A. They are used for power distribution, circuit protection, and safeguarding electrical equipment against overload and short circuit. The breakers integrate reliably with electronic instruments in distribution systems and support both remote and manual operation. A panel lock is provided to prevent accidental closing during line maintenance. Optional lead seals, terminal covers, and cage-type terminals are available to meet diverse market requirements.

Compliance Standards:
IEC 60947-1
IEC 60947-2

Model & Meaning



Main Features

- ◆ Panel lock prevents misoperation during line maintenance.
- ◆ Cage-type terminals allow direct connection with bare conductors for simplified wiring.
- ◆ No derating required for top or bottom cable entry.
- ◆ Flexible installation: vertical, horizontal, or side-mounted.
- ◆ Protective cover with IP40 ingress protection.
- ◆ High breaking capacity for reliable short-circuit protection.

Operating Environment

- ◆ Normal ambient temperature: -5 °C to +55 °C
- ◆ Note: For ambient temperatures between -10 °C and +75 °C, refer to the inverse time characteristic curve.
- ◆ Pollution Degree: 3
- ◆ Ingress Protection: IP30
- ◆ Main circuit installation category: III
- ◆ Vertical inclination: ≤ 5°
- ◆ Altitude: ≤ 2000 m
- ◆ Free from excessive vibration or shock
- ◆ Non-explosive atmosphere, no corrosive gases, dust, or conductive dust
- ◆ Climate conditions: at +55 °C, relative humidity ≤ 50%, higher humidity is permitted at lower temperatures. For the most humid month: average max RH 90%, average min temperature +25 °C. Condensation due to temperature changes must be considered.

Main Technical Parameters

Specification		CBRECB-250	CBRECB-400	CBRECB-630	CBRECB-800	CBRECB-1000	CBRECB-1250
Rated current (A), +55°C		125,160, 200,250	300,400	500, 630	800	1000	1250
Number of poles		3P					
Rated insulation voltage Ui (V)		1000					
Rated opration voltage Ue (V)		AC230V±5%, AC400V±5%(three phase)					
Rated impulse withstand voltage Uimp (kV)		8					
Frequency		50/60Hz					
Ultimate short-circuit breaking capacity Icu(kA)		AC230V=25kA, AC400V=20kA		AC230V=65kA, AC400V=40kA			
Rated service short-circuit breaking capacityIcs (kA)		100%Icu					
Arc Distance (mm)		50		100			
Operating cycles (times)	With current	1000	1000	1000	500		
	Without current	7000	4000	4000	2500		
	Total	8000	5000	5000	3000		

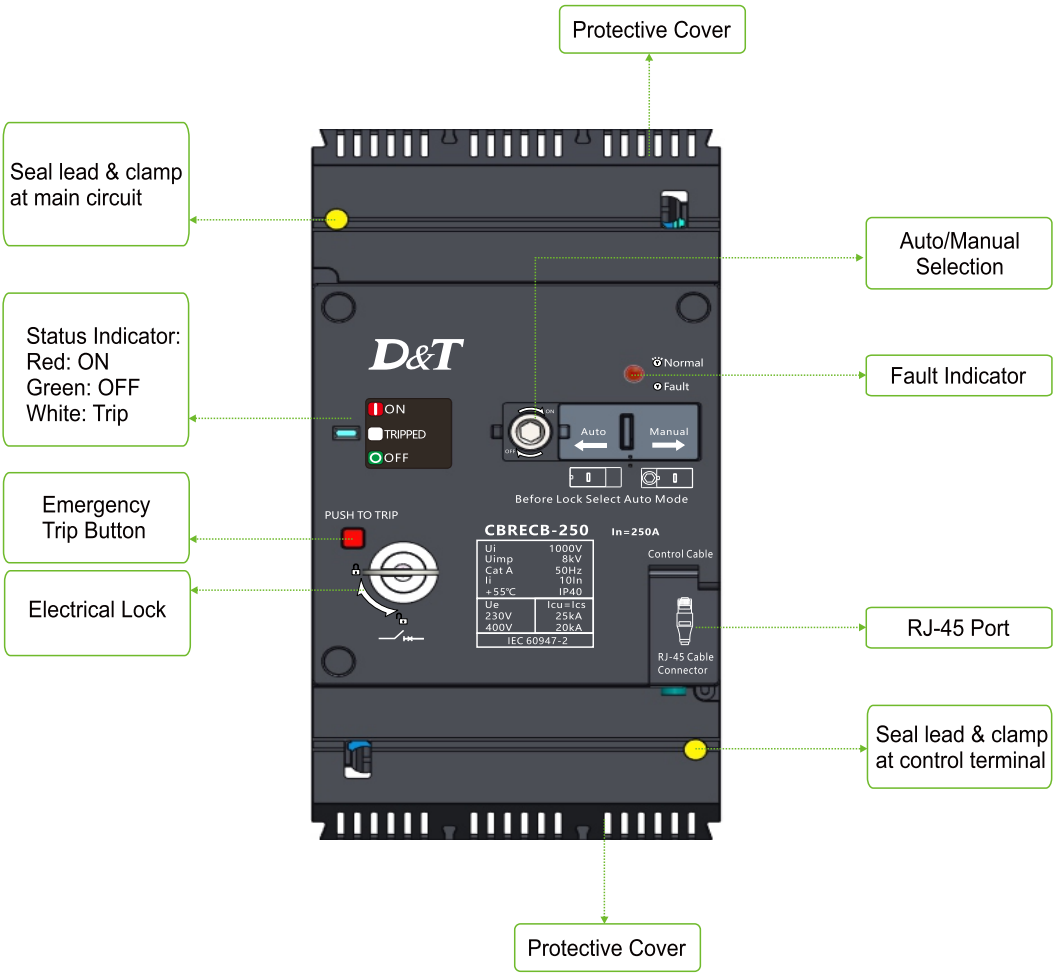
Note: This product is 3-pole only and supplied without accessories.

Operating Logic

Mode	Functions	Operation	Status
MANUAL	On → Off (Manual)	Manual tool/handle	OFF
	Off → On (Remote Reconnect)	Disabled (HES/Smart Meter command)	OFF
	Off → On(Manual)	Manual tool/handle	ON
	Manual Connect (OFF→ON) with Disconnect Command	Manual tool/handle	OFF>5s
	Push to Trip	External pushbutton	TRIP
	Auto Reconnect after Trip (2-step: TRIP→OFF→ON)	Remote operation disabled	TRIP
	On → Off (Remote)	Enabled (HES command)	OFF
AUTO	Auto Disconnect (ON→OFF)	HES/Smart Meter command	OFF
	Manual Connect (OFF→ON) with Disconnect Command	Manual tool/handle (clockwise)	OFF>5s
	Auto Connect (OFF→ON)	HES/Smart Meter command	ON
	Push to Trip	External pushbutton	TRIP
	Auto Reconnect after Trip (2-step: TRIP→OFF→ON)	Remote operation enabled	ON
	Remote reconnect after Unlock (Auto Mode)	Enabled	ON
LOCK	Manual Connect (OFF→ON)	Disabled	OFF
	Auto Connect (OFF→ON)	Disabled	OFF
	Push to Trip	Disabled	OFF

Structure Overview

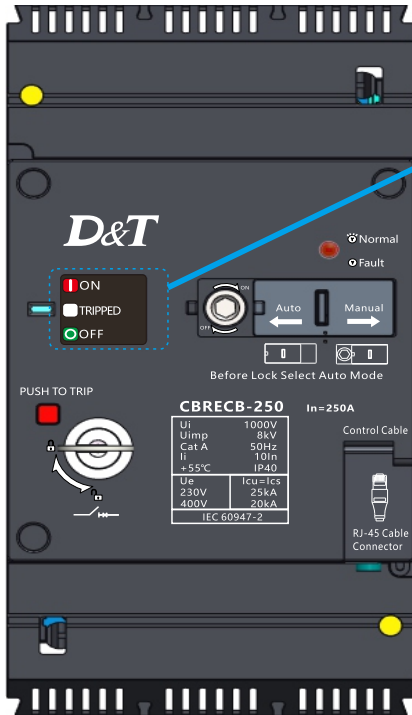
- ◆Panel lock function: The circuit breaker can only be locked in the OFF position; locking in ON or TRIP positions is prohibited. When locked, tripping and closing operations are disabled.
- ◆Connection method: Cage-type connection, supporting top-entry/bottom-exit or bottom-entry/top-exit wiring.



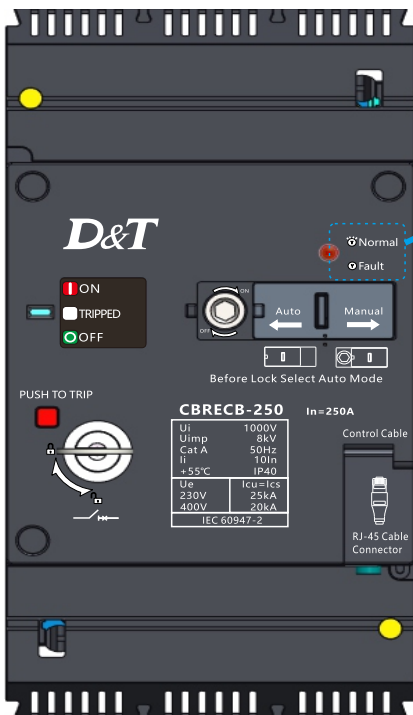
Model	Screw	Nut & Washer	Insulation Barrier	Terminal Cover	Key	Seal Lead & Clamp	RJ-45 Cable
CBRECB-250							
CBRECB-400							
CBRECB-630							
CBRECB-800							
CBRECB-1000							
CBRECB-1250							

1. Confirm the technical parameters of the products.
2. Installation, operation and maintenance of the products shall be performed by qualified personnel only.

Function Description

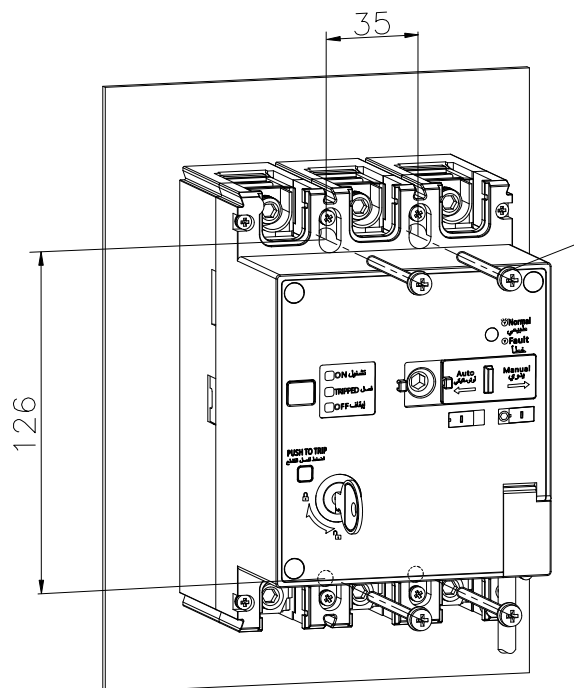


Sign	Function Description
ON تشغيل TRIPPED فصل OFF إيقاف	Green: MCCB in OFF position
ON تشغيل TRIPPED فصل OFF إيقاف	Green: MCCB in ON position
ON تشغيل TRIPPED فصل OFF إيقاف	White: MCCB in TRIP position

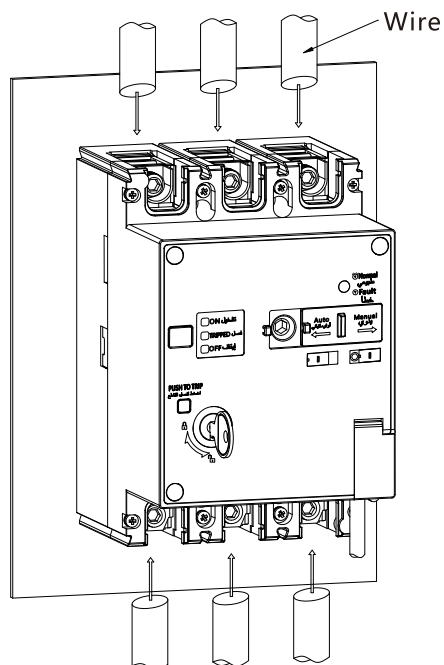


Sign	Function Description
Normal طبيعي Fault خطأ	Led indicator ON: MCCB is normal
Normal طبيعي Fault خطأ	Led indicator OFF: MCCB is faulty

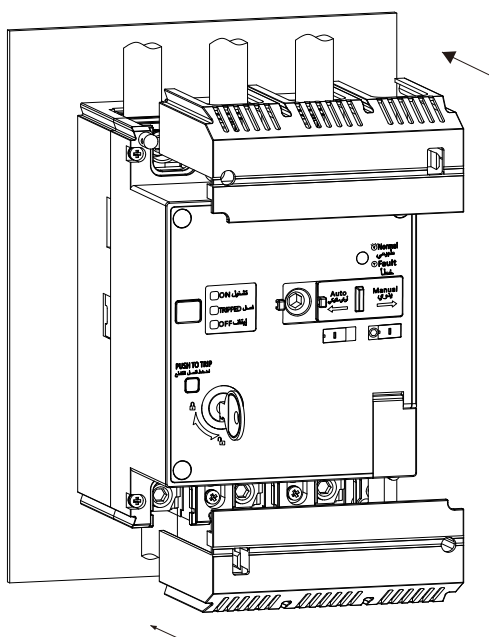
Installation & Wiring



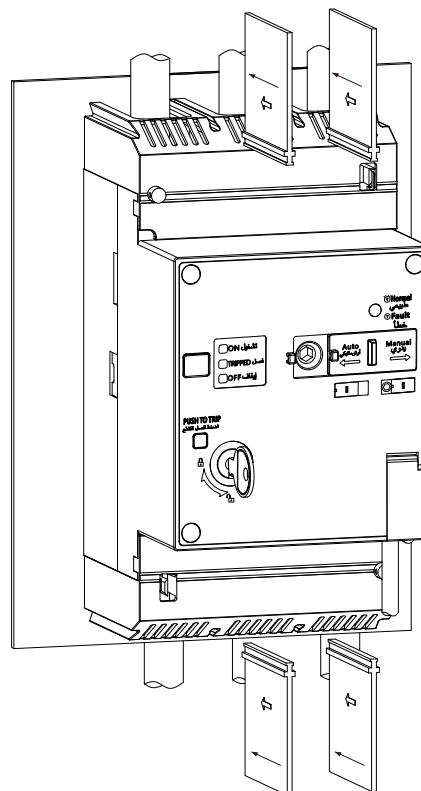
Screw M4x60
Torque 1.5 N·m



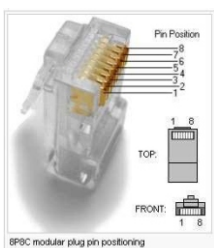
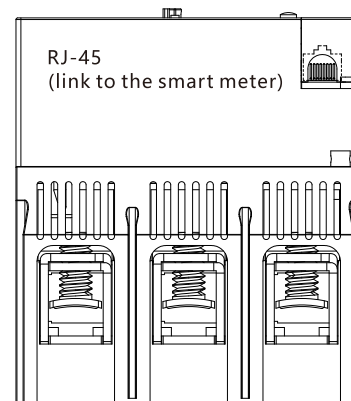
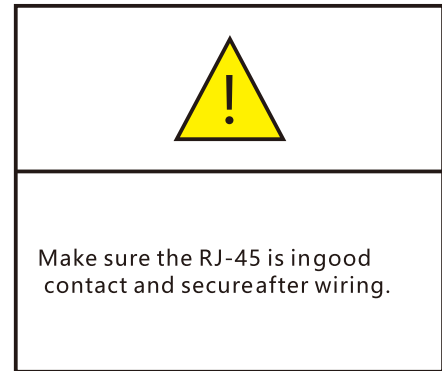
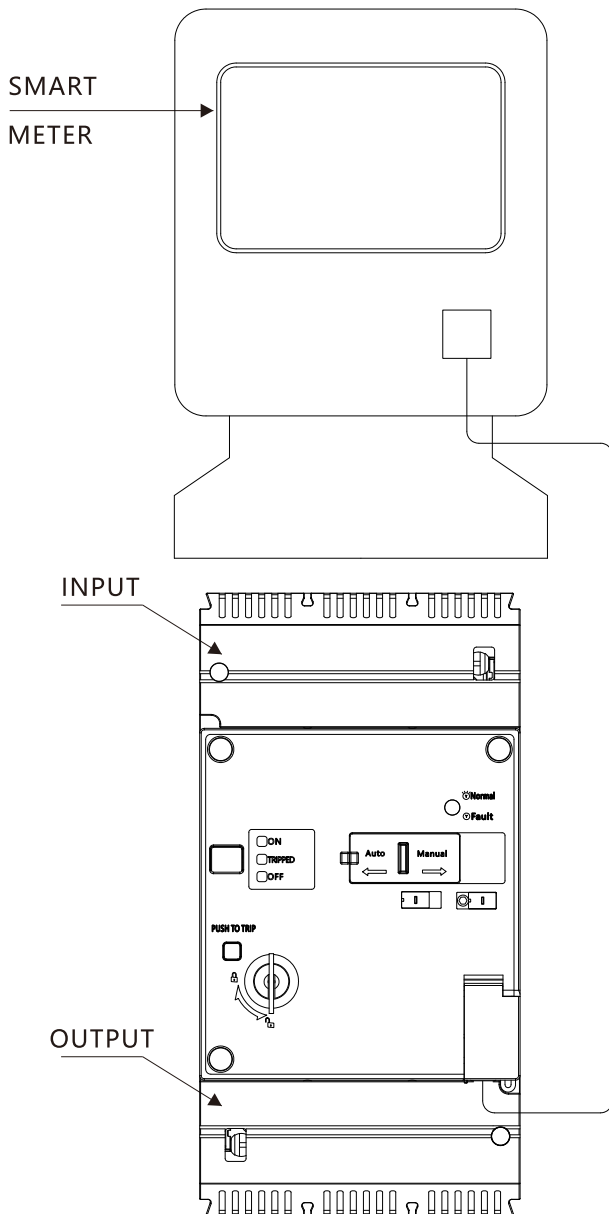
Installation of terminal cover



Installation of flash barrier



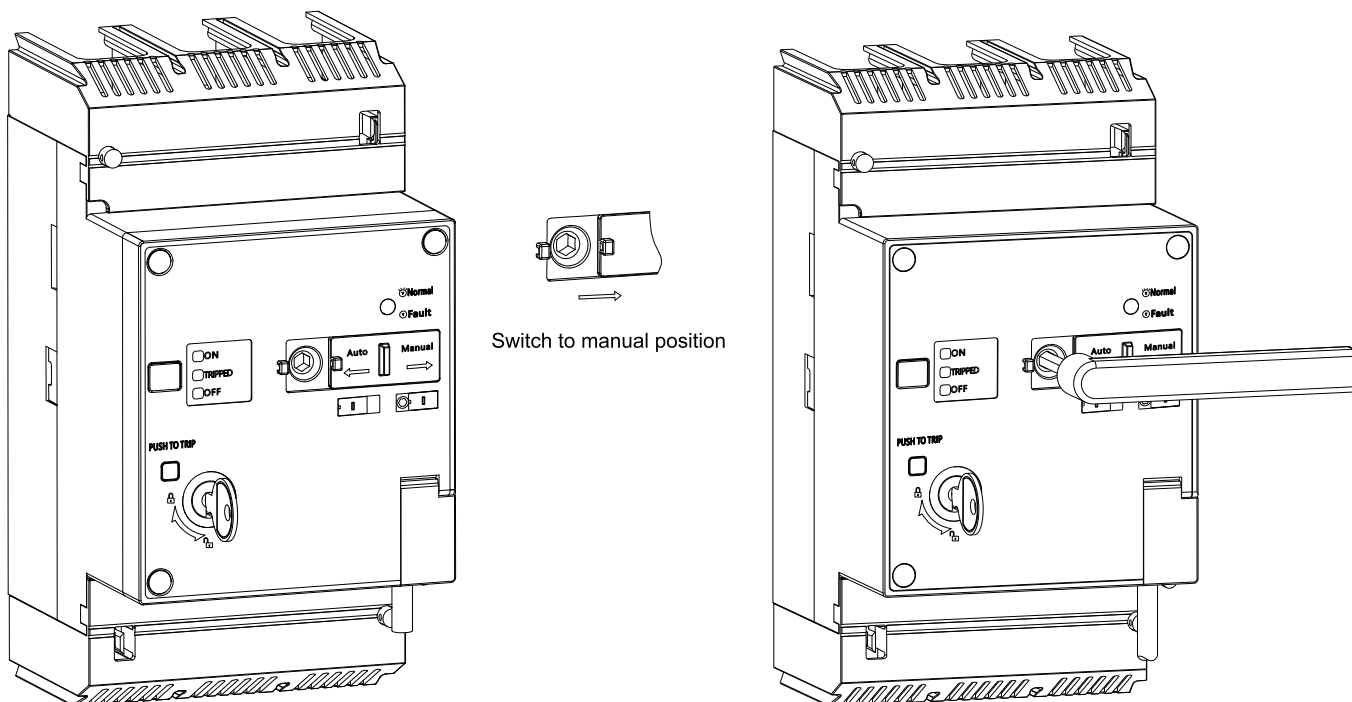
Apply to 133/230V or 230/400V System



Pin No	1	2	3	4	5	6	7	8
Pinout	(12 Vdc+) From meter	NC	RS-485 (+)	RS-485 (-)	NC	NC	GND (Vdc-) from meter	

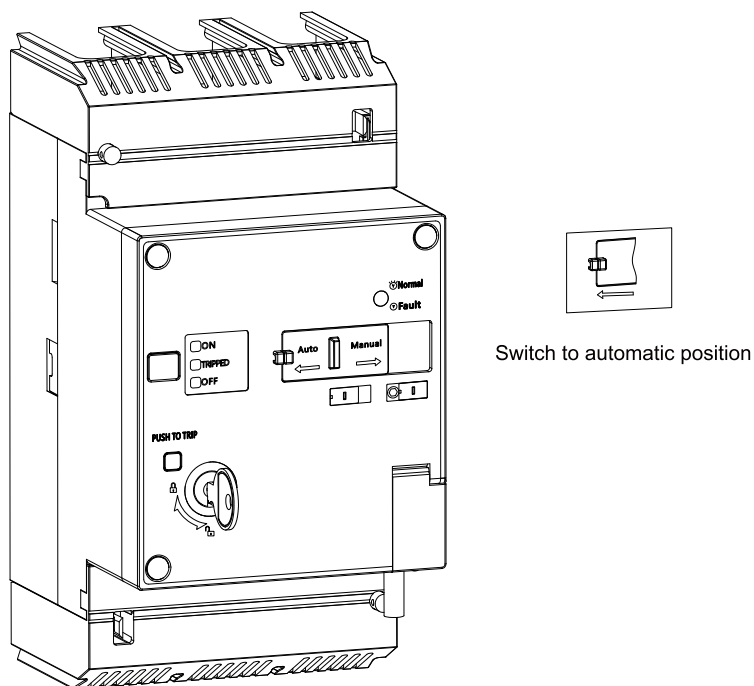
Manual Operation

- ◆ Manual operation: Clockwise rotate handle for OFF→ON; ON→OFF.
- ◆ Manual OFF→ON: Remote opening command triggers ON→OFF in ≥ 5 seconds.
- ◆ Manual ON status: Remote opening command is active.
- ◆ Trip: Test button, only functional when the breaker is closed (not operational in manual mode, trip position or remote closing status).

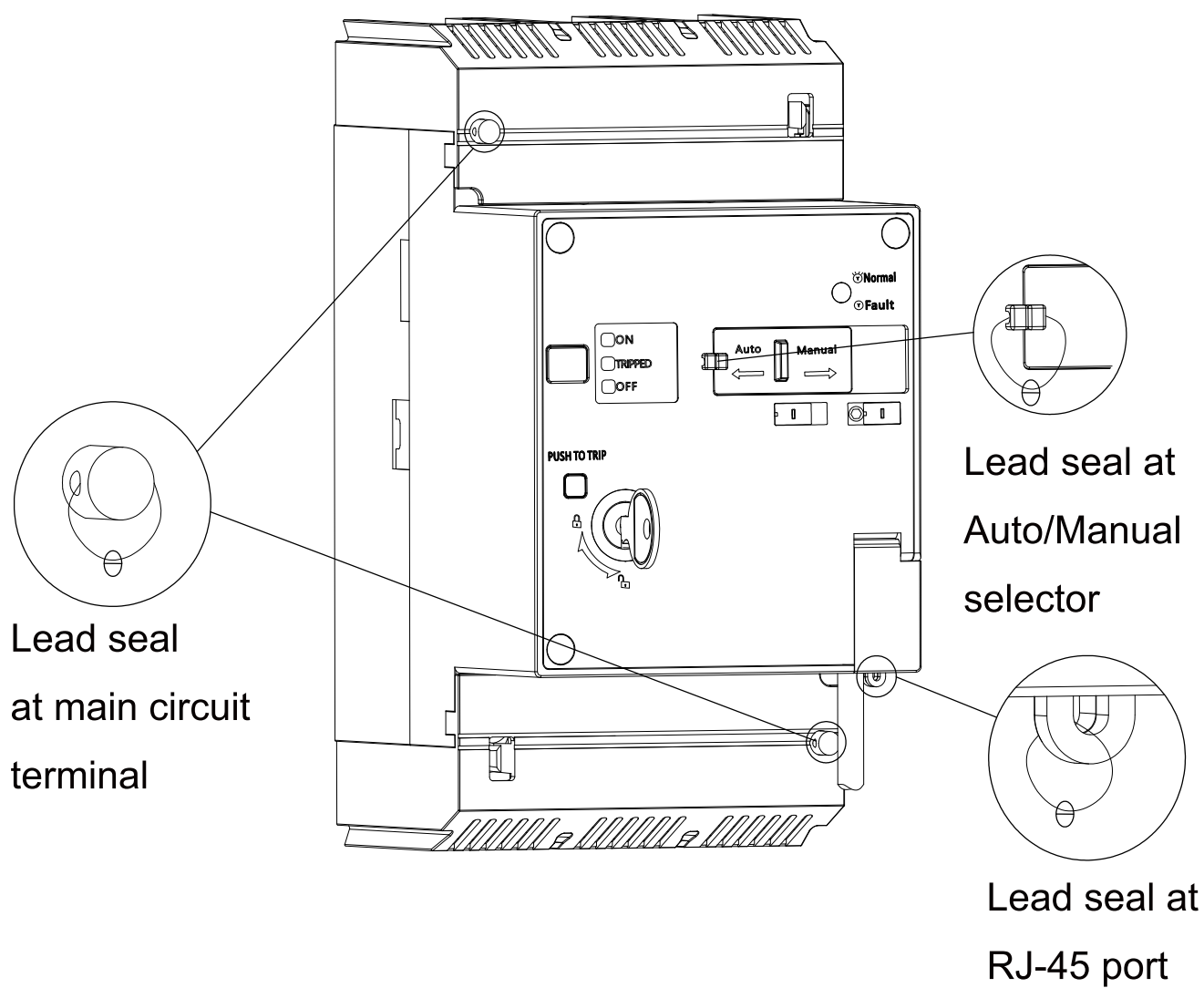


Automatic Test & Operation

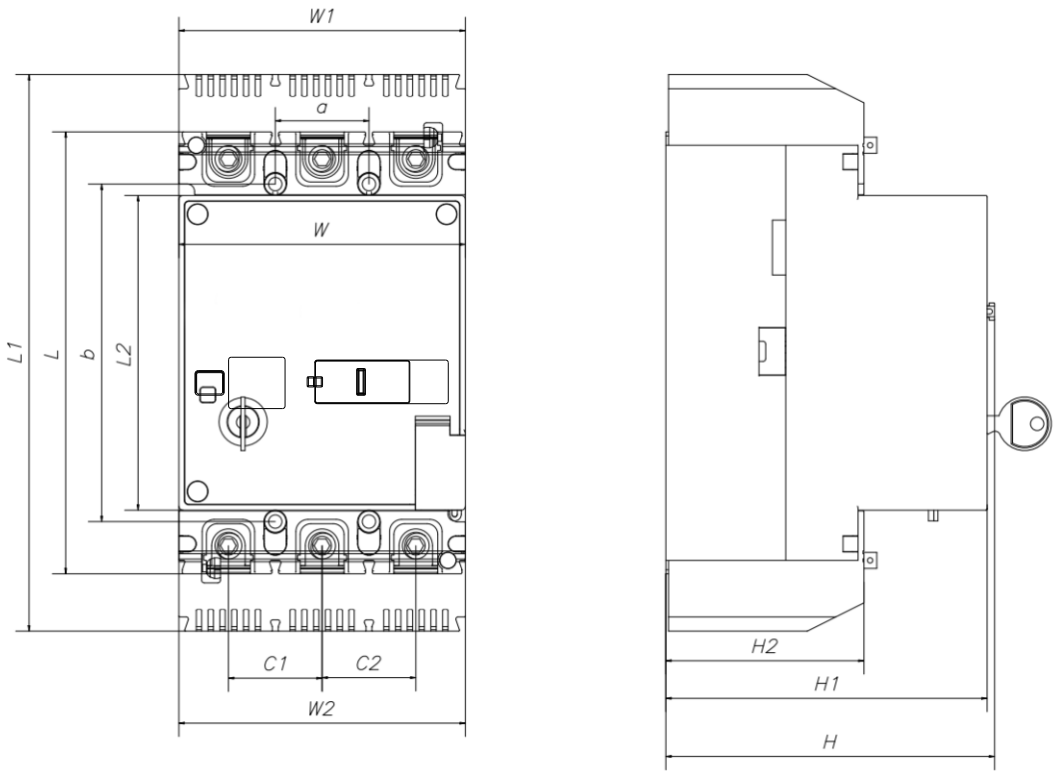
- ◆ Automatic operation: Remote disconnection for arrears, automatic reconnection after payment.
- ◆ Remote control: OFF→ON and ON→OFF.
- ◆ Trip: Test button, only functioning when MCCB is closed; supports 2-step auto-reconnect after trip (TRIP→OFF→ON).



Instruction for lead-seal installtion



Outline & Mounting Dimension



Model	Overall Dimensions(mm)							Mounting Dimensions(mm)						
	L	L1	L2	W	W1	W2	H	H1	H2	a	b	C1	C2	d
CBRECB-250	165	210	117.5	107	107	107	124	120	74	35	126	35	35	Φ4.5
CBRECB-400	257	397	181.5	140	140	187	140	137	102	44	194	44	44	Φ6.5
CBRECB-630	257	500	181.5	140	187	187	140	137	102	44	194	44	44	Φ6.5
CBRECB-800 CBRECB-1000 CBRECB-1250	280	436	175	210	234	234	170	166	108	70	243	70	70	Φ7

Smart Meter Communication

CBR-ECB use MODBUS communication, which has a fixed baud rate of 9600bps.

CBR-ECB is the slave(server) and the smart meter as the master(client).

Smart meter transmits status data to Error Register 10 every 5 seconds and updates Error Register 10.

Communication parameters: No parity, 1 stop bit, CRC (X25).

MSB	Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	LSB
ATE3 Tripped	ATE3 Connected	ATE3 Disconnected	ATE3 Manual	ATE3Auto	ATE3 Tampered	ATE3normal Condition	ATE3 Malfunction

□The MSB of Error Register 10 shall be set high if a trip occurs due to manual operation, short circuit, or overload.

□Bit 6 of Error Register 10 shall be set high when a connect command is issued locally or remotely (via HES).

□Bit 5 of Error Register 10 shall be set high when a disconnect command is issued locally or remotely (via HES).

□Bit 4 of Error Register 10 shall be set high in the following cases:

a. CBR-ECB's selector is in the manual position/state.

b. CBR-ECB's key switch is in the locked state.

c. The table below applies.

Different States and Bits 4 & 3 Status						
	Case 1	Case 2	Case 3	Case 4	Case 5	Case 6
Manual State	1	0	0	1	1	1
Auto State	0	1	1	1	1	0
Key(Lock Position)	1	0	1	0	1	0
Manual (Bit4)	1	0	1	×	×	1
Auto(Bit3)	0	1	0	×	×	0

⑤Bit 3 of Error Register 10 shall be set high when the CBR-ECB selector is in the auto state and the key is in the unlocked position.

□Bit 2 of Error Register 10 is reserved for configuration by the Smart Meter.

⑦Bit 1 of Error Register 10 is reserved for configuration by the Smart Meter.

⑧The LSB (Least Significant Bit) of Error Register 10 shall be set high in case of a command mismatch, i.e., when the Smart Meter sends a command to connect/disconnect the CBR-ECB, but the corresponding bit (Bit 6/5) in Error Register 10 does not reflect the intended state (and vice versa). This includes the following conditions:

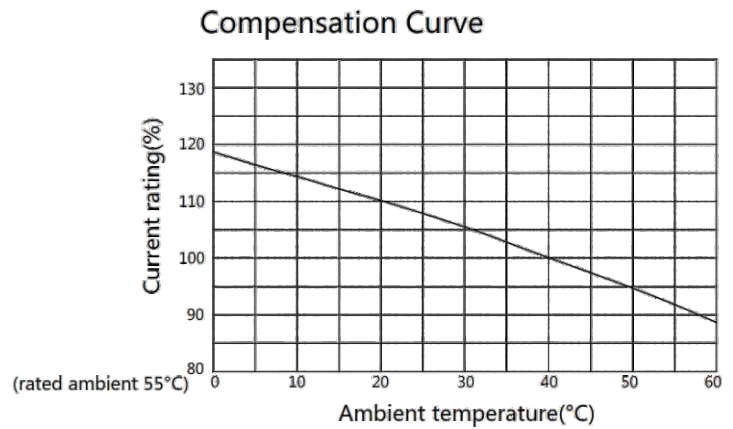
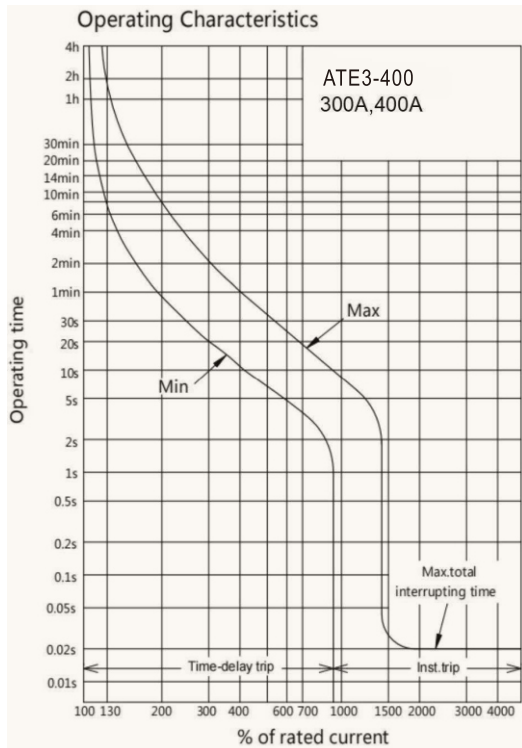
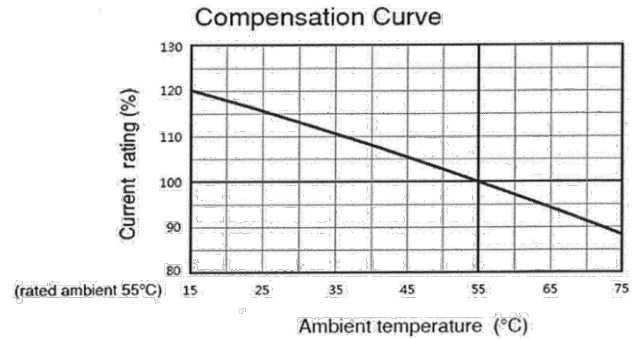
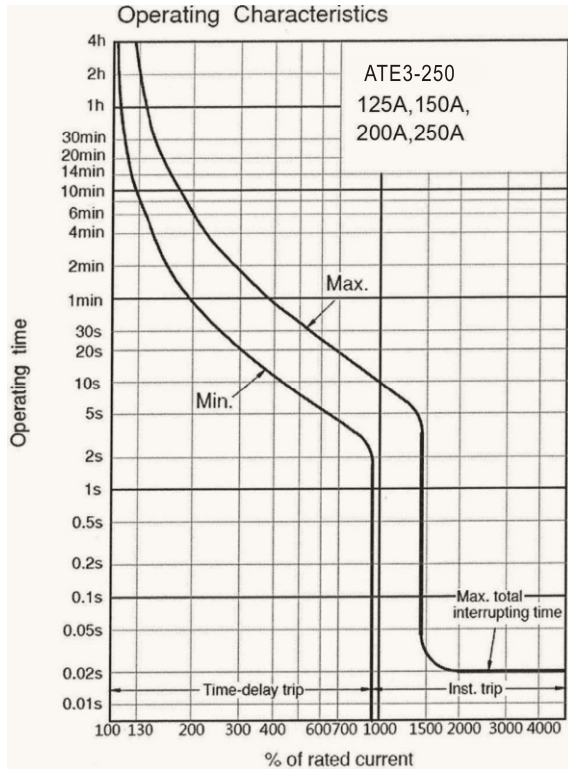
a. A disconnect command is issued, but Bit 5 of Error Register 10 is not set high.

b. A connect command is issued, but Bit 6 of Error Register 10 is not set high.

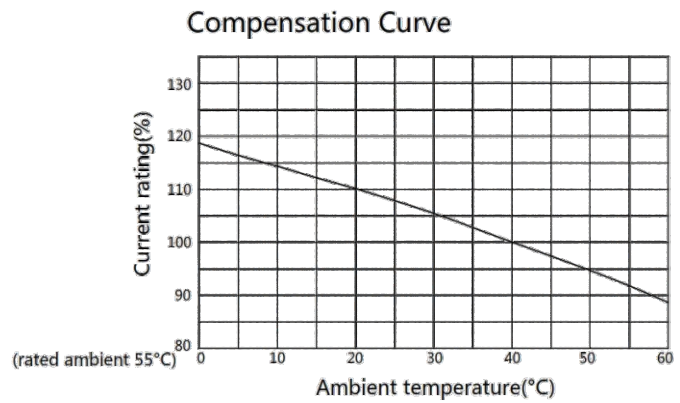
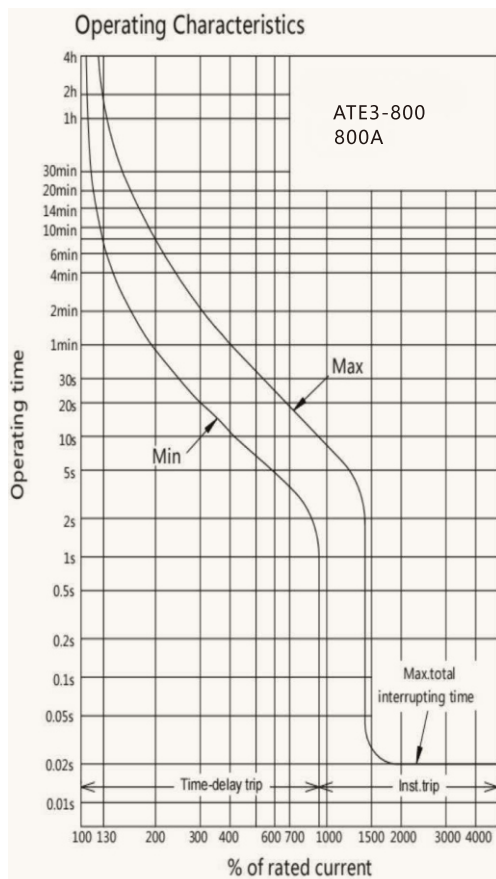
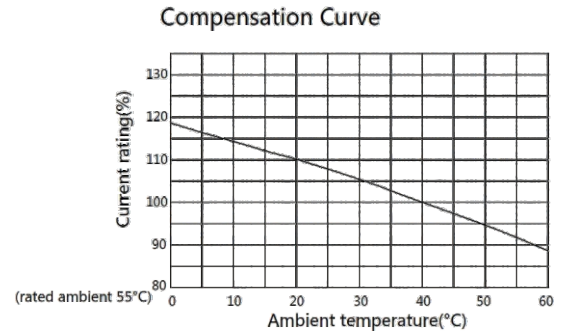
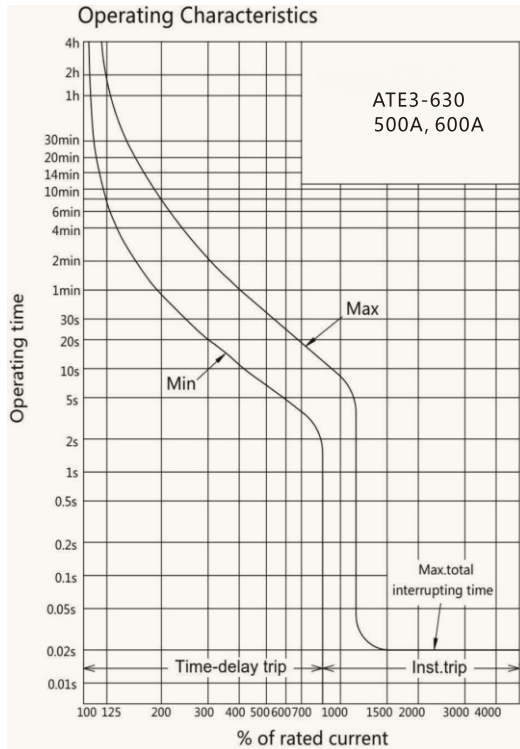
c. After a trip event, a disconnect command is issued, but Bit 5 of Error Register 10 is not set high.

d. If any of the above conditions (local or remote) occur: The "healthy status indicator" turns off. The malfunction flag (LSB) is set high. The flag will automatically clear (go low) once the conditions are resolved.

Characteristic Curve



Characteristic Curve



Characteristic Curve

