

MCCB TEST Kit

Instruction Bulletin

Ed. 01, 10/2018

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1. Precautions

1.1. Safety precautions

1.2. Safety precautions are classified into [Warning] and [Caution] according to the degree of danger.



This indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.



This indicates a hazardous situation which, if not avoided, could result in minor or moderate injury, and this is a warning about unsafe behavior.



- ✓ Do not perform wiring work while power is on or operation is in progress.
- ✓ Do not perform all wiring work when the bus line is in live.
- ✓ Check the connection status of the terminals before starting operation.
- ✓ Do not install or operate with wet hands.



- ✓ Install it by a qualified expert when installing and maintain the equipment.
- ✓ Apply the regular power according to the rating of terminals of the equipment.
- ✓ Do not disassemble the product arbitrarily or shock the outside of the product.
- ✓ Do not allow foreign substances such as screws, metal objects, water or oil to be in the product.

1.3. Precautions before the test

- ✓ Store in a place protected from direct sunlight or moisture for long-term storage.
- ✓ Check the product for crack, burned marks, dirt from foreign substances.
- ✓ Make sure that there is no damage to the connecting terminal part between body and case.

1.4. Precautions during the test

- ✓ Proceed with the test when the breaker is open.
- ✓ Do not disconnect the cable from the product during the test.

2. Product summary

2.1. Product composition

Figure 1 Product composition



- ① LCD display
- ② Operation button
- ③ Power adaptor
- ④ Cable

2.2. Technical specification

Table 1 Test kit technical specification

Item		Contents
Operating voltage (ADAPTOR is to be provided)	Input	AC 100 ~ 240V, 50/60Hz, 0.5A
	Output	DC 4.2V 1A
BATTERY		Lithium polymer battery 3.7V, 1800mAh
Operating temperature		0 ~ 50℃
Storage temperature		0 ~ 60℃
Trip time measurement range	Resolution	1ms
	Range	0 ~ 999.999 sec

Test signal	Digital Signal
Power consumption	120 W

2.3. User interface

2.3.1. Connection method

Figure 2 Connection configuration



2.3.2. Battery replacement procedure

Test kit requires Lithium polymer battery 3.7V, 1800mAh.

The battery is a consumable item and should be purchased separately.

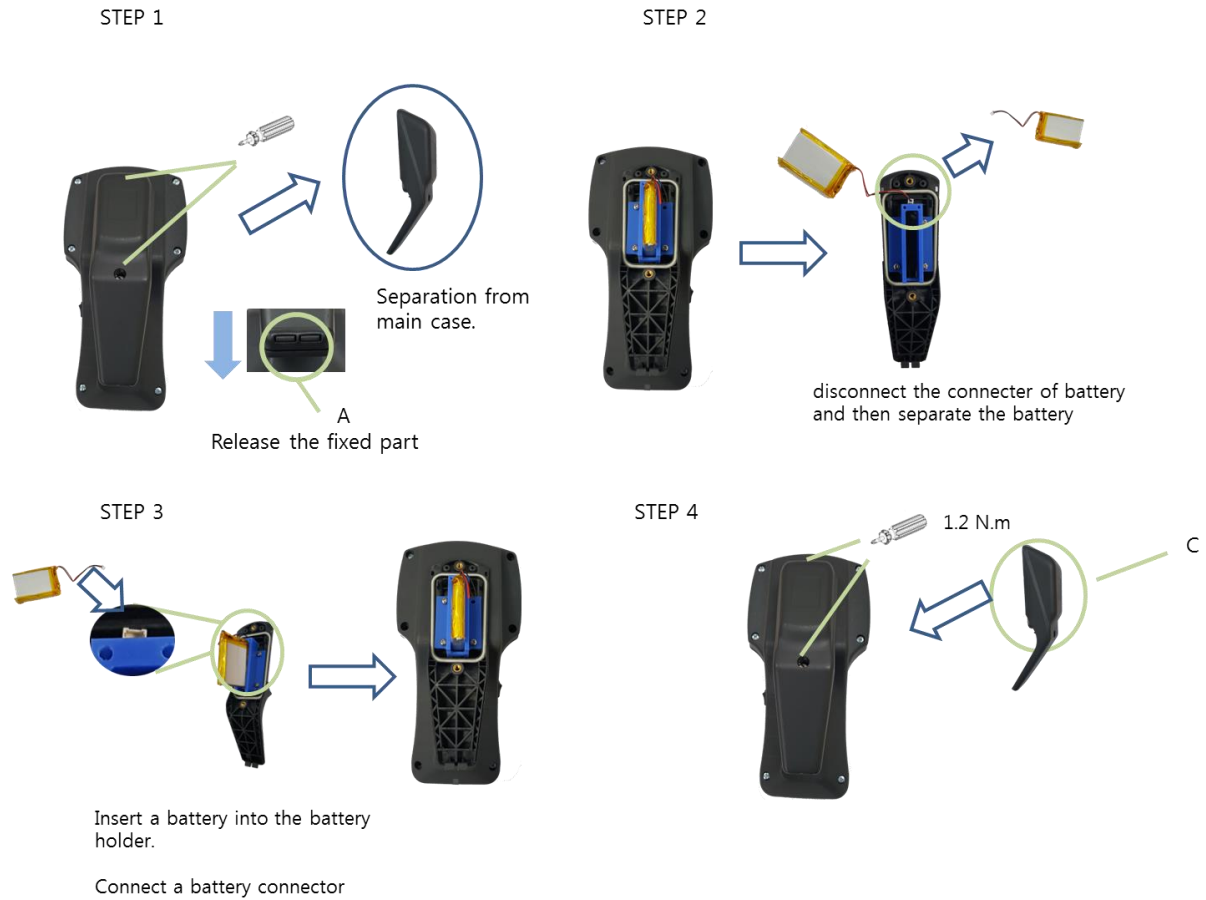
- 1) Battery product name : DTP103450



CAUTION

- ✓ Do not use the battery other than the designated battery. The internal circuit may be burned out.
- ✓ Do not touch the battery protection cover when removing/attaching the battery cable. It can cause cable breakage or malfunction.

Figure 3 Battery replacement procedure

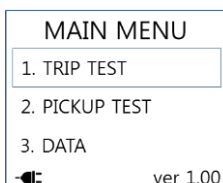


- A. In STEP1, remove the screw on the battery handle cover and pull it down to unhook a latch of the handle cover. In STEP2, after removing the battery cover, disconnect battery cable from a connector. Be careful not to break the cable while disconnecting.
- B. Connect a new battery to the connector and move the cable inward shown in STEP4. Install the battery carefully.
- C. Assemble in the reverse order of disassembly. When assembling the handle cover, hook the latch first then assemble the cover.

3. Operation procedure

3.1. Initial screen

In the initial screen, select the item you want to move.



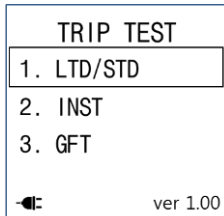
Move with UP/DOWN button
Enter : Selection

Trip Test: Simulation of current relay
Pickup Test: Measurement confirmation test generating test signal.

Data: Check the setting of ETU

3.2. Trip test screen

It is the screen simulating accident situation. 3 types of simulation can be performed.



Move with UP/DOWN button
Enter : Selection

LTD/STD: Test signal is generated as a multiple of I_r setting.

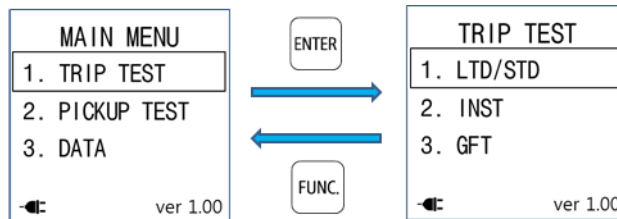
- Refer to operating hours of MCCB catalog.

INST: Test with 1.1 times the set value of I_i

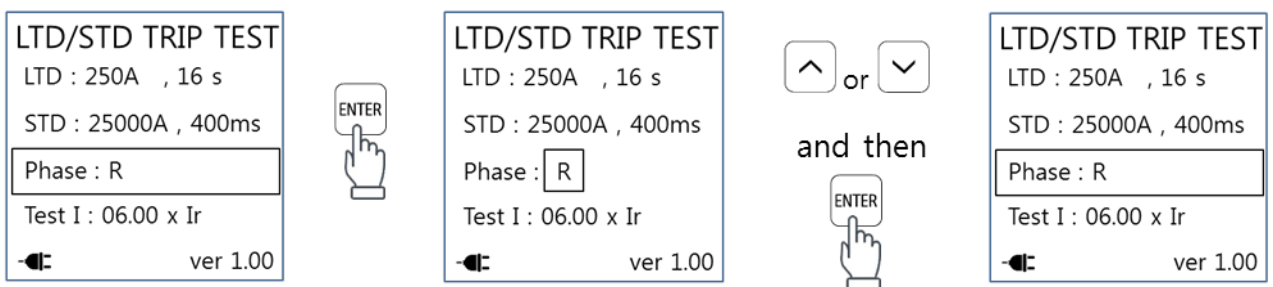
GFT: Test with 1.1 times the set value of I_g

3.2.1. LTD/STD test screen

The screen can be switched by FUNC. and ENTER buttons.

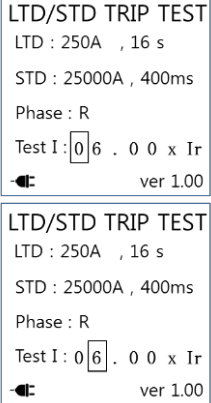
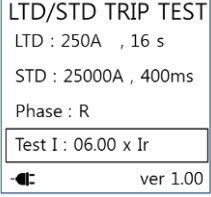
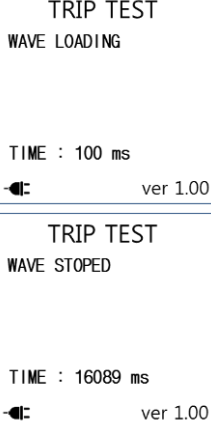


Phase setting

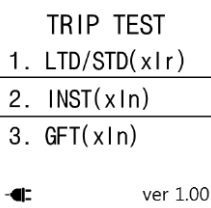
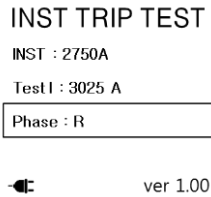


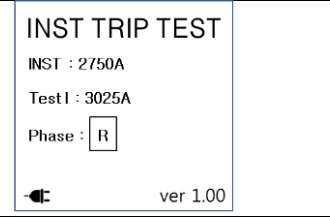
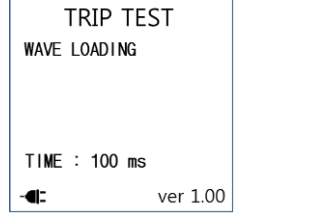
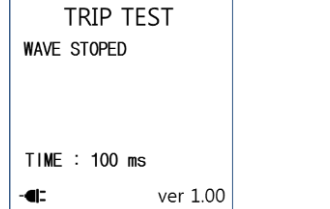
Setting up an test signal

1		Move to setting change mode.
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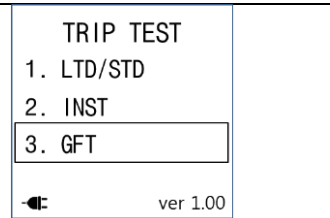
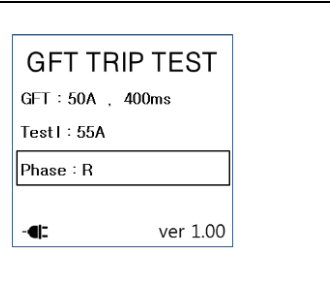
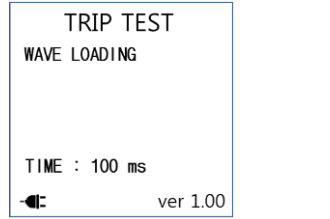
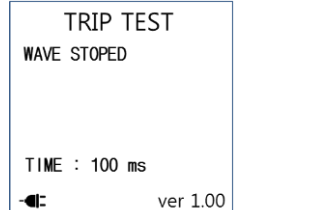
2		<p> <input type="button" value="v"/> or <input type="button" value="^"/> Change a test signal. (A multiple of Ir setting) </p> <p> <input type="button" value="ENTER"/> Save the setting and move to the next digit. </p>
3		<p> <input type="button" value="START"/> Generate a test signal. </p>
4		<p>If the ETU trips, time stops and the operating time is displayed.</p> <p> <input type="button" value="STOP"/> Stop the test. </p> <p> <input type="button" value="FUNC."/> Complete the test, and switch to the setting screen. </p>

3.2.2. INST test

1		<p> <input type="button" value="v"/> Move to INST </p> <p> <input type="button" value="ENTER"/> Select </p>
2		<p> <input type="button" value="ENTER"/> Move to phase selection mode. </p>

3		<p> <input type="button" value="v"/> or <input type="button" value="^"/> Select phase <input type="button" value="ENTER"/> Save changed value <input type="button" value="START"/> Start a test </p>
4	 	<p>If the ETU trips, time stops and the operating time is displayed.</p> <p> <input type="button" value="STOP"/> Stop the test. <input type="button" value="FUNC."/> Complete the test, and switch to the setting screen. </p>

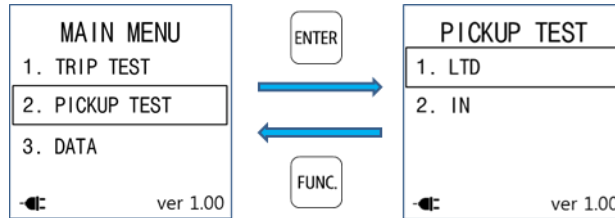
3.2.3. GFT Test

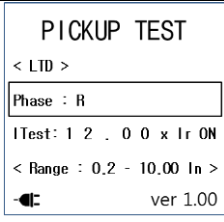
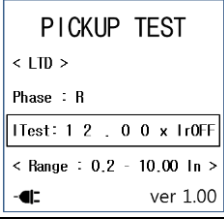
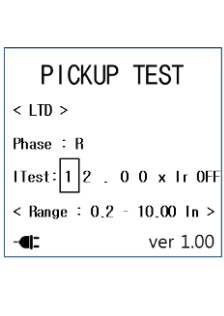
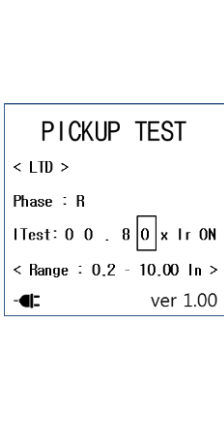
1		<p> <input type="button" value="v"/> Move to GFT <input type="button" value="ENTER"/> Select </p>
2		<p> <input type="button" value="ENTER"/> Move to phase selection mode. <input type="button" value="v"/> or <input type="button" value="^"/> Select phase <input type="button" value="ENTER"/> Save the changed value <input type="button" value="START"/> Start a test </p>
3	 	<p>If the ETU trips, time stops and the operating time is displayed.</p> <p> <input type="button" value="STOP"/> Stop the test. <input type="button" value="FUNC."/> Complete the test, and switch to the setting screen. </p>

3.3. Pickup test

This test can be performed with In(Rated current) and a multiple of Ir.

Test methods for LTD and IN are the same.



1		<p> <input type="button" value="v"/> or <input type="button" value="^"/> Select phase <input type="button" value="ENTER"/> Save changed value <input type="button" value="v"/> Move to </p>
2		<p> <input type="button" value="ENTER"/> Test signal changing mode </p>
3		<p> <input type="button" value="v"/> or <input type="button" value="^"/> <input type="button" value="v"/> Change the value <input type="button" value="ENTER"/> Save the changed value and move to the next digit. <input type="button" value="START"/> Start a test </p>
4		<p> Test signal is generated (OFF -> ON) The value can be changed with <input type="button" value="v"/> and <input type="button" value="^"/> during the test. <input type="button" value="STOP"/> Stop the test Note 1) Be sure to stop the test by pressing the STOP button. </p>

3.4. Data

It is possible to change the ETU system information, accident information and relay setting, and the following information is provided.

The information is displayed differently depending on the ETU type.

3.4.1. Configuration

<p style="text-align: center;">CONFIG</p> <p>1. ETU ID.</p> <p>2. ETU CONFIG</p> <p>3. PROTECTION</p> <p>4. TIME</p> <p style="text-align: right;">ver 1.00</p>	<ol style="list-style-type: none"> 1. ETU ID. : Rated current of ETU, Manufacturing number, The version of firmware 2. ETU CONFIG : Checking and changing configuration information 3. PROTECTION : Setting and changing relay and alarm information 4. TIME: Chaning the time in ETU
<p style="text-align: center;">PROTECTION</p> <p>1. I</p> <p>2. V</p> <p>3. FREQUENCY</p> <p style="text-align: right;">ver 1.00</p>	<p>PROTECTION</p> <ol style="list-style-type: none"> 1. I: Displaying LT, ST, INST, IG, Unbalance I 2. V: Displaying OVR, UVR, Unbalance V 3. FREQUENCY: Displaying OFR, UFR
<p style="text-align: center;">DATE</p> <p>2018 .10 . 23</p> <p>12 : 50 : 50</p> <p style="text-align: center;">SET</p> <p style="text-align: right;">ver 1.00</p>	<p>TIME</p> <p>Time in ETU can be checked and changed.</p> <p>Set the time in order of year, month, day, hour(24hr), minute. 0 second is the default.</p>

<p style="text-align: center;">ETU ID</p> <p>AF /TYPE : 250AF E</p> <p>In : 250 A</p> <p>Mfg Date : 2018. 10</p> <p>Prod. No. : 200</p> <p style="text-align: right;">ver 1.00</p>	<p style="text-align: center;">ETU CONFIG</p> <p>THERMAL SET : OFF</p> <p>REMOTE SET : ON</p> <p>COM SWAP : OFF</p> <p>COM BAUD: 38400</p> <p style="text-align: right;">ver 1.00</p>	<p style="text-align: center;">I set</p> <p>In : 250 A</p> <p>Thermal: OFF</p> <p>Ir : 250 A</p> <p>Tr : 16 s</p> <p style="text-align: right;">ver 1.00</p>	<p style="text-align: center;">Protection OVR</p> <p>OVR OP. : OFF</p> <p>Pick up : 0500 v</p> <p>Pick up Delay : 0040 s</p> <p style="text-align: right;">ver 1.00</p>	<p style="text-align: center;">Protection OFR</p> <p>OFR OP. : OFF</p> <p>Pick up : 65.0 Hz</p> <p>Pick up Delay : 0005 s</p> <p style="text-align: right;">ver 1.00</p>
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3.4.2. Metering

<p>N/D/A Type</p> <p style="text-align: center;">METERING</p> <p>1. I</p> <p style="text-align: right;">ver 1.00</p> <p>E-Type</p> <p style="text-align: center;">METERING</p> <p>1. I, V</p> <p>2. POWER</p> <p>3. ENERGY</p> <p>4. HARMONIC</p> <p style="text-align: right;">ver 1.00</p>	<ol style="list-style-type: none"> 1. I, V: Displaying current and voltage 2. POWER: Displaying power 3. ENERGY: Displaying energy 4. HARMONIC: Displaying harmonic
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3.4.3. EVENT

It is possible to check events and fault information in ETU.

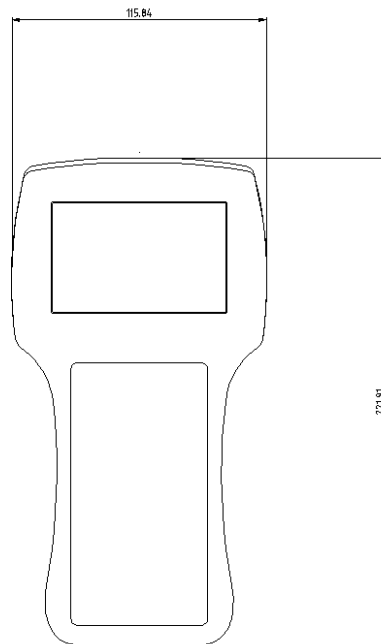
<p>EVENT LIST</p> <p>1. TRIP EVENT</p> <p>2. SYSTEM EVENT</p> <p>3. Trip Wave I</p> <p>4. Trip Wave V</p> <p>ver 1.00</p>	<ol style="list-style-type: none"> 1. TRIP EVENT: Fault information 2. SYSTEM EVENT: Event information ex) changing the setting 3. Trip Wave I: Fault current wave form* 4. Trip Wave V: Fault voltage wave form*
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Note *)

- You can see the shape of the waveform, however the exact values of the wave form are not displayed

4. Product outside view

Outside dimensions: 116 x 220 x 51 [mm]

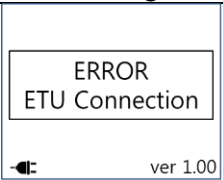



5. Trouble shooting

5.1. General error

Condition	Probable Causes	Solution
LCD is not displayed.	<ol style="list-style-type: none"> 1. Check power. Use the enclosed adapter. 2. Damage of test kit 	<ol style="list-style-type: none"> 1. After changing power adapter, retest. 2. Ask for A/S when repeating the same problem.
Button is not working.	<ol style="list-style-type: none"> 1. Damage of test kit 	<ol style="list-style-type: none"> 1. Ask for A/S when repeating the same problem.
Operation timeout during the trip test	<ol style="list-style-type: none"> 1. Damage of ETU 2. Damage of cable 	<ol style="list-style-type: none"> 3. After changing the cable, retest. 4. Ask for A/S when repeating the same problem.

5.2. Error message

Message	Probable Causes	Solution
 <p>ERROR ETU Connection ver 1.00</p>	<ol style="list-style-type: none"> 1. Bad cable connection between test kit and ETU 	<ol style="list-style-type: none"> 1. Reconnect the cable 2. Ask for A/S when repeating the same problem.
 <p>ERROR COM TIMEOUT ver 1.00</p>	<ol style="list-style-type: none"> 1. Bad communication connection between test kit and ETU 2. Bad cable connection 	<ol style="list-style-type: none"> 1. Check operation of ETU 동작 (the primary current) 2. Reconnect the cable 3. Ask for A/S when repeating the same problem.



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