

UT583 / 585 Operating Manual



Digital RCD (ELCB) Tester

I. Safety Information

In order to operate the Tester properly, please read the manual carefully before use. This manual includes safety information related to use of the Tester. To ensure your own safety and safe use of the instrument, strictly follow these safety instructions during the operation.

⚠ Caution:

1. Please read and understand the manual before using the Tester.
2. Keep the manual well for future reference.
3. Use the Tester in a procedure as specified in the manual.
4. Please make sure you have already read and understood the all safety instructions.
5. Strictly follow the safety instructions mentioned below, or it may cause personal injury or damage to the Tester.
6. The Tester must be operated by properly trained and qualified technical staff and done under conditions specified in the manual.
7. UNI-T will not be liable for equipment damage or other loss caused by improper use or violation against safe operation rules in the manual.

Safety symbol of “⚠” has 3 meanings in the manual. Please pay attention to operation when reading the manual.

⚠	Danger: Specifies conditions and actions that most likely pose severe or fatal harm to the user.
⚠	Warning: Specifies conditions and actions that may pose severe or fatal harm to the user;
⚠	Caution: Specifies conditions and actions that may cause minor injury or damage to the Tester

⚠ Danger

- This Tester is only applicable for single-phase 230V(±10%)/50Hz mains supply.
- Do not touch any exposed conductor during test.
- You can touch tested conductor only under a totally safe conditions during test.
- Remove the test leads immediately from the power supply after test.
- Do not keep test leads connected onto the power for a long time.

⚠ Warning

- Never open the Tester's casing during test, for hazardous voltage may be present inside. If any fault happens, please have the Tester serviced by professional personnel.
- If the Tester works abnormally(e.g. incomplete display, unexpected value, damaged casing, noise during test indication), please send it to professional staff for repair before using the Tester.
- Do not use the Tester if the operator's hands are wet.

⚠ Caution

- For the sake of your safety, use only the certified test leads supplied by our company, prohibit replacing by any other test leads during test.
- Do not expose the Tester to any sunshine, extreme temperature/humid -ity environments.
- Clean the Tester with soft dampened cloth or mild detergent. Do not use any abrasives or corrosives.
- Dry the Tester before storing it if it is wet.

Meanings of related symbol marks for the instrument:

⚠	Danger, Warning, Caution	□	Double or Reinforced Insulated
CE	Conforms to European Union standards		

II. Product Features

- Adopts intelligent micro-controller chip to maintain high accuracy, high reliability and stability.
- **Wiring Check:**

LCD Indication

- L-N&L-PE flash
- L-PE&N-PE flash, L-N doesn't flash
- L-N&N-PE flash, L-PE doesn't flash
- L-N,L-PE and N-PE flash

Connection Status

- abnormal power supply or no supply to tested circuits
- the tested terminals are badly or not earthed.
- neutral terminal is open
- wrong wiring to tested terminals,

the Tester will prohibit the tests regarding the above status, except reverse connection between earth and neutral terminals,

- **Phase Angle Selection:** The tests can be performed at positive 0° or negative 180° phase angle.
- **Test Locked:** The Tester will automatically carry out the tests once the test leads are connected to the tested terminals (UT585 Only)
- **Auto Ramp:** Measure trip current and trip time simultaneously.
- **Overload Indication:** Display “>300ms” or “>1000ms” when trip time exceeds Max. test time.
- **Data Hold:** The readings will be frozen when the test finishes.
- **1A Large-Current Trip Test(UT585 Only)**
- **Overheat Check:** When internal components inside the Tester is overheated, LCD will display “🔥”, and the Tester will automatically prohibit the tests. After it is cooled down, “🔥” displays and the tests can restart.
- **Backlight:** Press LIGHT (☀) button to turn on/off the backlight.
- **Low Battery Indication:** When battery voltage is <7V, “🔋” shows, please replace the battery timely.
- **Auto Power Off:** The Tester will automatically power off after ten minutes' idling. To disable the function, press and hold 0° / 180° button while turning on the instrument.
- **Fused Protection**

III. Technical Specifications

3.1 Measurement Range and Accuracy:

(Temperature: (23±5) °C ; Humidity: 45% ~ 75%RH); Altitude: ≤2000m
Accuracy: ± (2% of reading + b digits)

UT583

Function	Operating Voltage(AC)	Rated Trip Current(I Δ n)	Trip Time	Accuracy	
				Trip Current	Trip Time
*1/2	230V (Error scope: ±10%) Frequency: 50Hz	(10/20/30/100/300/500)mA	(0~1000)mS	10%~0%	± (0.6%+4)
*1		(10/20/30/100/300/500)mA			
*2		(10/20/30/100/300)mA	0%~+10%		
*5		(10/20/30/100)mA	(0~300)mS		
AUTO RAMP test		(10/20/30/100/300/500)mA	(RAMP increment: Step size is 10%) I Δ n varies from 20% to 110% 300*10ms (Testing period scope is from 0 to 300mS.)	-10%~+10%	

Function	Range	Resolution	Accuracy	Input protection	Note
Ac voltage	(60~400)V	1V	± (5%+2)V	500VAC/700VDC	Input impedance is about 9.9M Ω

UT585

Function	Operating Voltage(AC)	Rated Trip Current(I Δ n)	Trip Time	Accuracy	
				Trip Current	Trip Time
*1/2	230V (Error scope: ±10%) Frequency: 50Hz	(10/20/30/100/300/500)mA	(0~1000)mS	Error scope: -10%~0%	± (0.6%+4)
*1		(10/20/30/100/300/500)mA			
*2		(10/20/30/100/300)mA	0%~+10%		
*5		(10/20/30/100/200)mA	(0~300)mS		
AUTO RAMP test		(10/20/30/100/300/500)mA	Step at 10%; from 20%~110% of Rated Current, 300ms *10ms (Test Time Range: 0~300ms)	Error scope: -10%~+10%	

Function	Range	Resolution	Accuracy	Input protection	Note
Dc voltage	(±60~±400)V	1V	± (5%+2)V	500VAC/700VDC	Input impedance is about 9.9M Ω
Ac voltage	(60~400)V	1V			

⚠ Caution:

1. Frequency response is 50Hz for UT583/585 AC voltage test.
2. Testing value is only for reference if AC/DC voltage is less than 60V.

3.2 Test Functions

*1/2-----	Non-trip test, check RCD sensitivity
*1-----	Measure trip time
*2-----	Measure fast trip time at I Δ n×2 trip current
*5-----	Measure fast trip time at I Δ n×5 trip current
AUTO RAMP test-----	Measure trip current

3.3 Application Standards:

- IEC 61010-2 CATIII 300V; Pollution level: 2
- IEC 61557-1, 5
- IEC 61326-1
- IEC 61326-2-2

3.4 Operating Voltage

230VAC (±10%)/50Hz

3.5 Operating Environment

Temperature: 0°C~40°C
Relative humidity: ≤80%RH
Altitude: ≤2000m

3.6 Storage Conditions

Temperature: -20°C~60 °C

Relative humidity: ≤75%RH

3.7 Outline Dimension

210mmx175mmx90mm

3.8 Instrument Weight

About 1,000g

3.9 Accessories:

- Test Lead (1.5m) -----1pc
- Manual-----1pc
- Gallus/Tool Case-----1set

IV. Tester Description and Main Accessory
(See Figure 1,2&3)

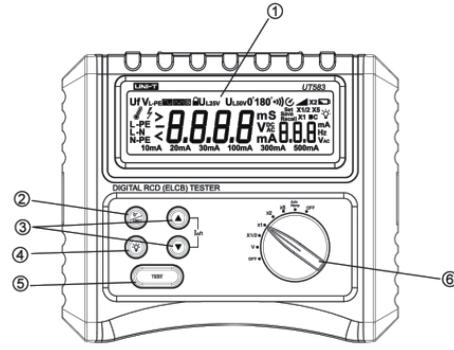


Figure 1

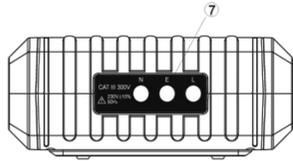


Figure 2

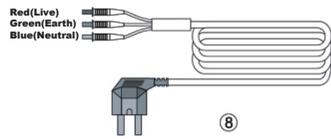


Figure 3

① LCD display	⑤ TEST key
② PHASE (0°/180°) key	⑥ Function selection switch
③ Current setup (UP/DOWN) key	⑦ Input Terminals
④ LIGHT key	⑧ Test Lead

V. RCD Test

(1) Test Lead Connections

Connect three connectors of the test lead respectively to three input terminals of the Tester: Red—L, Green—E, Blue—N, then connect another terminal of the test lead to tested circuit (230V/50Hz power socket).

(2) Voltage Test

Set the rotary switch to V position, The tester now can measure the voltage between L and N terminals, which should fall within 207V-253V, if not, please check if the wiring is correct before proceeding into next step. Besides, DC voltage test is available in Model UT585, when DC voltage test is needed during other measurements, connect test leads into L and N input terminals to begin the test.

(3) Wiring Check

Turn the rotary switch to RCD ranges and check the wiring status indicated on LCD.

LCD Indication

L-N&L-PE flash

L-PE&N-PE flash, L-N doesn't flash

L-N&N-PE flash, L-PE doesn't flash

L-N, L-PE and N-PE flash

the Tester will prohibit the tests regarding the above status, please check the wiring and correct the connection before restart the tests.

(4) Press I△n Up or DOWN button to adjust the trip current (I△n) the same as the rated trip current marked on RCD.

Default value: I△n 30mA 0°

(5) Test

5.1 Set the rotary switch to test parameters

- Non-Tripping ×1/2: Max. trip time up to 1000ms
- Tripping ×1: Max. trip time up to 1000ms
- Fast Tripping ×2: Max. trip time up to 1000ms
- Fast Tripping ×5: Max. trip time up to 300ms
- AUTO RAMP Test: 20%~110% of rated trip current(I△n), Max. trip time up to 300ms.

5.2 Press TEST button

- Non-Tripping ×1/2-----The RCD should not trip.
- Tripping ×1: -----The RCD should trip.
- Fast Tripping ×2:----- The RCD should trip.
- Fast Tripping ×5:----- The RCD should trip.
- AUTO Ramp Test: -----The RCD should trip, and trip time and trip current are displayed simultaneously.

5.3 Press 0°/180° button to set the phase angle and repeat Step 5.1 to determine the fastest trip time.

5.4 Press to change the phase angle and repeat Step 5.1

5.5 When the tests finish, disconnect the test lead from the tested circuit immediately.

⚠ Danger :Do not touch any exposed earthing metal or conductor during the operation

(6) Test locked: To enable the test locked function, press and hold TEST button while turning on the Tester. Then connect the test lead to tested terminals, the tests can be automatically performed (for UT585 Only)

(7) Backlight: when testing on dimly lighted sites, press LIGHT (☼) to turn on /off the backlight.

(8) Auto Power Off: To disable the function, press and hold 0°/ 180° button while turning on the Tester, LCD will show "APO OFF" icon; the Tester usually defaults at APO ON status(no pressing 0°/ 180° button).

Connection Status

abnormal power supply or no supply to tested circuits

the tested terminals are badly or not earthed.

neutral terminal is open

wrong wiring to tested terminals,

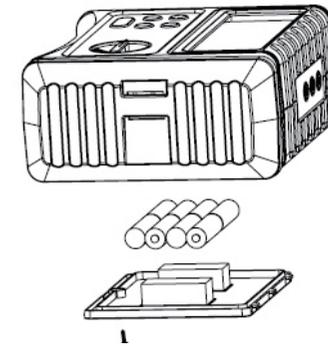


Figure 4

- A. The Tester's casing or components are damaged;
- B. The LCD displays abnormally;
- C. Unexpected data shows even under normal use;
- D. The buttons don't function normally or properly;
- E. Noise occurs during test.

** END **

Manual content is subject to changes without notice.

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VI. Maintenance and Repair

6.1 Replacing the Battery

Please replace the batteries as shown in Figure4(Battery Specifications: 1.5V AA, Alkaline LR6)

⚠ **Warning:**

●To avoid measurement error or cause electric shock or personal injury, please change the battery timely as soon as low battery indicator "▢" shows.

●Set the rotary switch to OFF position and remove the test leads from input terminals before replacing the battery.

6.2 Cleaning the Casing: Clean the casing with soft cloth; Do not use any alcoholic or solvent which may corrode the LCD display; Please keep the Tester from any moisture.

6.3 Repair

Please contact our after-sale service center or agent if following phenomena happen: