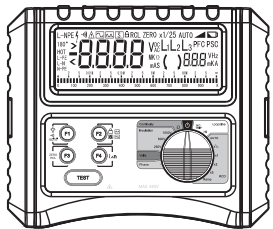


# CZ20500 Operating Manual



Multifunction Electrical Tester



## I. Overview

The CZ20500 is a multifunction digital test instrument designed to test the integrity of the various sections of a electrical wiring systems. The instrument's testing features include RCD functions, line/loop impedance functions, continuity functions, insulation resistance functions, and voltage/frequency measurements. The micro-processor controlled instrument is engineered with the latest design methodology integrating analogue and digital circuitry for best performance.

## II. Safety Information

The instrument is designed, manufactured, and tested to meet the IEC61010 safety standard. This manual includes safety information related to safe use of the instrument. The operator MUST adhere to the safety items and read the following instructions before use.

### Warning

- Please read and understand this manual before using the CZ20500.
- Use the instrument as specified in the manual and keep manual for future reference.
- Misuse of the instrument may cause personal injury or damage to the test instrument.

The icon on the instrument alerts the user to operate the instrument properly, please refer to the operating manual for further details.

	Danger	Specifies conditions and actions that may cause severe or fatal hazards.
	Warning	Alerts users to avoid electric shock.
	Caution	Specifies conditions and actions that may damage the tester or affect accurate measurement.

### Danger

- Do not operate near flammable material as sparks may cause fire or explosion.
- Do not operate the instrument if it is wet or the operator's hands are wet.
- Do not touch the conductive part of test leads during measurements.
- Do not operate the instrument when with the battery cover opened.
- Do not touch any circuits under test when measuring insulation resistance and RCDs.

### Warning

- If the instrument has signs of damage or the instrument has exposed metal parts, DO NOT operate the instrument.
- Take extreme caution when working with voltages greater than 33Vrms, 46.7ACrms or 70Vdc for it may pose electric shock.
- The circuit under test must be discharged after any measurement, particularly after a high resistance measurement.
- Do not replace the batteries if the instrument is wet.
- Make sure all test leads are firmly secured to input terminals of the instrument.
- Turn OFF the instrument before opening the battery cover.

### Caution

- If it is necessary to replace test leads or the power lead, make sure the replacement is the same model with same electrical specifications.
- When low battery indicator is present, do not use the instrument. If the instrument is not used for an extended period remove the batteries from the instrument.
- Do not store or use the instrument around high-temperature, high humidity, flammables, explosives and electromagnetic environments.
- Clean the instrument with a soft cloth dampened with water or mild detergent. DO NOT use abrasives materials or solvents.
- Do not store the instrument if wet.

## III. Electrical Symbols

	Danger of possible electric shock
	Double insulation or reinforced insulation
	DC
	AC
	Grounding

## VI. Technical Specifications

Accuracy: ±(a% of reading + b digits), calibration required annually.  
Ambient temperature: 23 ± 5 °C  
Ambient humidity: 45-75% RH

### 1. RCD Test

Test Current	10 mA    30mA    100mA    300mA    500mA
Operational Voltage	Voltage: 220 ± 10%    Frequency: 45Hz-65Hz
Test Current Accuracy	1/2 I Δn, 1 Δn, 2 I Δn and 5 I Δn: ±10%
Trip Time	1/2 I Δn scope: 0ms-2000ms
	1 I Δn scope: 0ms-300ms (Select Timer Function)
	2 I Δn scope: 0ms-200ms (Select Timer Function)
	5 I Δn scope: 0ms-150ms
5 I Δn scope: 0ms-40ms	
Trip Time Accuracy	± (5%+5)
Trip Current Range	1/2 I Δn - 1 I Δn (total 7 test points)
Trip Current Accuracy	±10%

### 2. Loop Impedance Measurement

Operating Voltage (L - E)	Voltage: 220V ± 10%, Frequency: 45Hz-65Hz
Test Current & Time	20A/20ms
Measuring Scope	0,05Ω-2000Ω
Measuring Ranges	0,05Ω - 1,99Ω
	2,0Ω - 19,9Ω
Accuracy	± (5%+5)
	± (5%+5)
Resolution	Minimum 0,01 Ω
Prospective Fault Current	0KA-26KA

### 3. Line Impedance Measurement

Operating Voltage (L - N)	Voltage: 195V-440V , Frequency: 45Hz-65Hz
Test Current & Time	20A/20ms
Measuring Scope	0,05Ω-2000Ω
Measuring Ranges	0,05Ω-1,99 Ω
	2,0Ω - 19,9Ω
Accuracy	± (5%+5)
	± (5%+5)
Resolution	Minimum 0,01 Ω
Prospective Short Current	0KA-26KA

### 4. Non-Trip Loop Impedance Measurement

Operating Voltage (L - E)	Voltage: 220V ± 10%, Frequency: 45Hz-65Hz
Test Current	20A
Display Range	0,01 Ω-2000Ω
Measuring Scope	1,00Ω-2000Ω
Measuring Ranges	1,00Ω-1,99Ω
	2,0Ω-19,9Ω
Accuracy	± 5% ± 12% Noise Margin (1,00-1,99) ± 5% ± 5d (2,0-19,9)
	± (5%+5)
Resolution	Minimum 0,01Ω
Prospective Fault Current	0KA-26KA

### 5. Continuity Test

Rated Voltage	About 5.0V
Measuring Scope	0,01Ω - 200Ω
Test Current	0,00-2,00Ω: ~200mA
Accuracy	0,01Ω - 200Ω: ± (2%+5)

### 6. Insulation Resistance Measurement

Rated Voltage	250V	500V	1000V
Measuring Ranges	250V Range: 0,05 MΩ-250MΩ		
	500V Range: 0,05 MΩ-500MΩ		
1000V Range: 0,05 MΩ-1000MΩ			
Open Circuit Voltage	DC 250V ± 10%    DC 500V ± 10%    DC 1000V ± 10%		
Rated Test Current	At 250 KΩ, 0,9mA-1,1mA	At 500 KΩ, 0,9mA-1,1mA	At 1 MΩ, 0,9mA-1,1mA
Short-Circuit Current	< 1,8mA		
Accuracy	0,05MΩ-1000MΩ: ± (5%+5)		

### 7. Voltage Measurement

	DC voltage	AC voltage
Measuring Range	± 0V - ± 440V	0V-440V(50/60Hz) < 10V: for reference only.
Special Function	Automatic identification for AC voltage and DC voltage	
Resolution	1V	
Accuracy	± (2%+3)	

### 8. Frequency Measurement

Measuring Range	20Hz-100Hz
Resolution	1Hz
Accuracy	Only for reference

### 9. Phase Rotation Test

Operating Voltage	Three-phase AC voltage 100V-440V, frequency: 45Hz-65Hz;
Test Result	Phase sequence: L1 → L2 → L3 forward rotation; L1 → L3 → L2 reversed rotation
Detect Open Phase	Any open phase among L1, L2, L3 will be displayed on LCD

- Display: LCD, display count: 9999
- Low Battery Indication: display
- Over-Load Indication: "> over-limited value"(e.g.: >500MΩ)
- Auto Ranging
- Unit Display: Simultaneously display function and electrical units symbols
- Release Voltage Automatically
- Working Conditions: 0 °C-40 °C / Humidity: ≤85%
- Storage Conditions: -20 °C-60 °C / Humidity: ≤90%
- Current Consumption: around 50mA (at Max. 1000V output voltage)(normally status at 10mA)
- Safety: CAT III 300V, Pollution Degree 2 as per IEC61010
- Dimensions: 210mm(L)×175mm(W)×90mm(D)
- Weight: 1kg (including battery)
- Power: Alkaline battery 1.5V (AA) ×8pcs
- Accessories: Test leads, alkaline battery 1.5V (AA) ×8pcs, operating manual, carrying bag

## V. Tester Description (See Figures 1 & 2)

1. LCD Display
2. Function Buttons F1, F2, F3, F4
3. TEST Button
4. Rotary Switch
5. Input Terminal to Test Lead (Black)
6. Input Terminal to Test Lead/Probe (Red)
7. Input Terminal to Test Lead (Green)

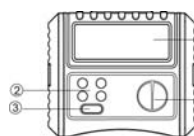


Figure 1

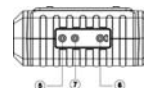


Figure 2

## VI. Rotary Switch

1. Phase Rotation: Detect Phase sequence
2. Volts: Measure Voltage/Frequency
3. 250V: Measure Insulation Resistance
4. 500V: Measure Insulation Resistance
5. 1000V: Measure Insulation Resistance
6. Continuity with Test Current up to 200mA;
7. OFF;
8. Loop/PSC/Zs/Ze: Measure Loop/Line Impedance, Prospective Fault current, Prospective Short Current.
9. Auto: Automatically Test RCD;
10. 1/2: Measure RCD Trip Time at ×1/2 Rated Current
11. ×1: Measure RCD Trip Time at ×1 Rated Current
12. ×2: Measure RCD Trip Time at ×2 Rated Current
13. ×5: Measure RCD Trip Time at ×5 Rated Current
14. Ramp: Measure RCD Trip Current

## VII. Preparations before Measurement

If the low battery indicator is illuminated in the top left hand corner of the LCD the batteries need replacing. Do not perform any measurements until the batteries are replaced.

Low Battery Indicator	Battery Voltage
	1. ≤7V;
	2.No Trip Loop measurement reading of low voltage is 9.0V;
	3.Other function measurement reading of low voltage is 8.0V;

## VIII. Testing for Continuity (See Figure 3)

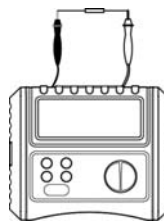


Figure 3

### To test for continuity:

- (1) Completely discharge the circuit to be tested before commencing any measurement. Ensure the circuit remains isolated from any power source during the test.
- (2) Insert red test lead/probe into red input terminal and black test lead to black input terminal.
- (3) Connect the red and black test leads/probe to the circuit under test.
- (4) Turn the rotary switch to 0 position, then press TEST button to begin. Refer to Figure 3 for details.

## F1-F4 Buttons Functions in Continuity Mode:

F1	F2	F3	F4
Buzzer and backlight	Test lock	ZERO	Not Used

- F1: Long press F1 for about 2 seconds to turn on/off the backlight  
Short press F1 to turn on/off 20 Ω compare function - the buzzer will alarm if the measured resistance is <20Ω.
- F2: Press to turn on/off the LOCK function. Normally, the Continuity measurement is only made whilst the operator holds down the TEST button. When the LOCK function is on the TEST button can be pressed and released and the measurement will commence. The measurement will continue until the TEST button is again pressed.  
To disable this function, or to turn it off, press F2 again or turn the rotary switch to a different function.
- F3: Press to zero the test leads. First connect the two test leads, and then long press F3 to zero the leads. The display will show 0.00Ω and 'ZERO' will show on LCD, indicating the operation is complete.

### Caution:

- To ensure an accurate test, please zero the test leads before any test.
- Do not test live objects
- Before the test starts, the tester will automatically display the voltage between two input terminals. If this voltage is >30V, the TEST button will be inhibited.

## IX. Measuring Insulation Resistance (See Figure 4)

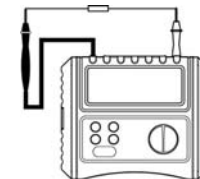


Figure 4

### To measure insulation resistance:

- (1) Completely discharge the circuit to be tested before commencing any measurement. Ensure the circuit remains isolated from any power source during the test.
- (2) Insert red test lead/probe into red input terminal and black test lead to black input terminal.
- (3) Connect the red and black test leads/probe to the circuit under test.
- (4) Turn the rotary switch to the insulation range you wish to test, 250V, 500V, or 1000V and press TEST button to initiate the testing.

### F1-F4 Buttons in Insulation Resistance mode:

F1	F2	F3	F4
Buzzer and backlight	Test lock	Not Used	Not Used

- F1: Long press F1 for about 2 seconds to turn on/off the backlight  
Short press F1 to turn on/off 2 MΩ compare function - the buzzer will alarm if the measured resistance is <2MΩ.
- F2: Press to turn on/off the LOCK function. Normally, the Insulation Resistance test is only made whilst the operator holds down the TEST button. When the LOCK function is on the TEST button can be pressed and the measurement will commence. The measurement will continue until the TEST button is again pressed.  
To disable this function, or to turn it off, press F2 again or turn the rotary switch to a different function.

### Caution

- Make sure the circuit under test is de-energized before measurement. Do not measure any live electrical circuits or devices.
- Before the test starts, the tester will automatically display the voltage between two input terminals. If this voltage is >30V, the TEST button will be disabled.
- Do not test with the battery cover open.
- Do not short-circuit the test leads during this test or repeat this test prior to discharging the circuit or device under test.

## X. Measuring Voltage/Frequency (See Figure 5)

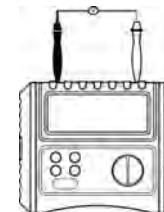


Figure 5

### To measure voltage/frequency:

- 1) Set the rotary switch to Volts.

- Insert red test lead/probe into red input terminal and black test lead to black input terminal.
- Connect the red and black test leads/probe to the circuit under test. The tester will automatically identify AC/DC voltage and show measured voltage and frequency readings on the LCD.

- Or connect as shown in Figure 7:
- Insert the three banana connectors of the GPO test lead, or three separate test leads into the three input terminals of the tester (red to red, green to green, black to black).
  - Connect the GPO plug or the test leads to the circuit to be tested and the tester will automatically identify AC/DC voltage and display the measured values on the LCD.

**F1-F4 Buttons in Voltage/Frequency mode:**

F1	F2	F3	F4
Buzzer and backlight	Not Used	Not Used	Not Used

F1: Long Press F1 for about 2 seconds to turn on/off the backlight.

**⚠ Caution**

- Do not input voltage higher than 440V or 440Vrms. Measurement is possible, but inaccurate, and damage may occur to the tester.
- To avoid electric shock, please take extreme caution when working with high voltage.
- Remove the test leads from the tested circuit and disconnect them from the input terminals of the tester after completing the measurements.
- Do not test with the battery cover open.

**XI. Detecting Phase Sequence(See Figure 6)**

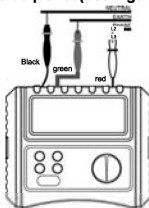


Figure 6

**To Detect Phase Sequence:**

- Turn the rotary switch to Phase position.
- Insert three connectors of three test leads into input terminals of the Tester(red to red, green to green, black to black).
- Connect three test leads into three-phase AC system(black to L1, green to L2, red to L3, refer to Figure 6 for details). The tester will automatically indicate the phase sequence and open phase result on the LCD.

**F1-F4 Buttons in Phase Sequence mode:**

F1	F2	F3	F4
Backlight	Not Used	Not Used	Not Used

F1: Long Press F1 for about 2 seconds to turn on/off the backlight.

**⚠ Caution**

- Do not input voltage higher than 440V or 440Vrms. Measurement is possible, but inaccurate, and damage may occur to the tester.
- To avoid electric shock, please take extreme caution when working with high voltage.
- Remove the test leads from the tested circuit and disconnect them from the input terminals of the tester after completing the measurements.
- Do not test with the battery cover open.

**XI. Measuring Loop Impedance/Prospective Fault Current (See Figure 7, 8)**

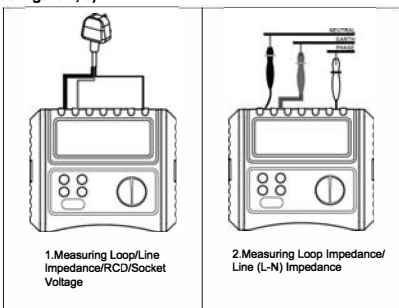


Figure 7

Figure 8

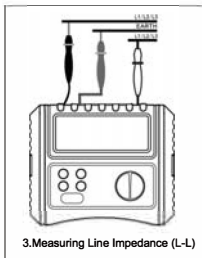


Figure 9

**To measure Loop Impedance/ Prospective Fault Current:**

- Turn the rotary switch to LOOP/LINE.
- Insert the three banana connectors of the GPO test lead, or three separate test leads into the three input terminals of the tester (red to red, green to green, black to black).
- Connect the GPO plug or the test leads to the circuit to be tested.
- Press TEST button to start.

**F1-F4 Buttons in Loop Impedance/Prospective Fault Current mode:**

F1	F2	F3	F4
Backlight	Invalid	Invalid	Invalid

F1: Press F1 for about 2 seconds to turn on/off the backlight.

**⚠ Caution**

- Only connect this tester to an approved electrical system compliant with standards and within the specification of this tester. If the tester detects high, low, or no voltage the L-PE and L-N icons on the lower left part of the LCD will flash simultaneously.
- Ensure the socket is properly earthed. If the socket has a poor, or no, earth connection the L-PE and N-PE icons on the lower left part of the LCD will flash simultaneously.
- Ensure the neutral terminal of the socket is firmly connected. If the neutral terminal is poorly connected, or not connected, the L-N and N-PE icons on the lower left part of the LCD will flash simultaneously.
- Ensure live and neutral terminals of the power socket are not reversely connected when measuring loop impedance/prospective fault current, otherwise the L-PE, L-N, and N-PE icons on the lower left part of the LCD will flash simultaneously.
- Please take extreme caution when making the loop impedance/prospective fault current measurement, as it is performed under high-voltage conditions.

**XIII. Measuring Line Impedance/Prospective Short Current (See Figure 7, 8, 9)**

**To measure Line Impedance/Prospective Short Current:**

- Turn the rotary switch to the 'NO TRIP' position.
- Insert the three banana connectors of the GPO test lead, or three separate test leads into the three input terminals of the tester (red to red, green to green, black to black). (Refer to Figure 8, 7, 9)
- Connect the GPO plug or the test leads to the circuit to be tested.
- Press TEST button to start.

**F1-F4 Buttons in Line Impedance/Prospective Short Current mode:**

F1	F2	F3	F4
Backlight/L-N/L-PE	Not used	Not used	Not used

F1: Long press F1 for 2 seconds to turn on/off the backlight

Short press F1 to switch between L-N and L-PE measurements.

**⚠ Caution**

- Only connect this tester to an approved electrical system compliant with standards and within the specification of this tester. If the tester detects high, low, or no voltage the L-PE and L-N icons on the lower left part of the LCD will flash simultaneously.
- Ensure the socket is properly earthed. If the socket has a poor, or no, earth connection the L-PE and N-PE icons on the lower left part of the LCD will flash simultaneously.
- Ensure the neutral terminal of the socket is firmly connected. If the neutral terminal is poorly connected, or not connected, the L-N and N-PE icons on the lower left part of the LCD will flash simultaneously.
- Ensure live and neutral terminals of the power socket are not reversely connected when measuring loop impedance/prospective fault current, otherwise the L-PE, L-N, and N-PE icons on the lower left part of the LCD will flash simultaneously.
- Please take extreme caution when making the line impedance/prospective short current measurement, as it is performed under high-voltage conditions.

**XIV. Taking Auto RCD Tests (See Figure 7)**

**To Test an RCD automatically:**

- Turn the rotary switch to 'AUTO' position.
- Insert the three banana connectors of the GPO test lead into the three input terminals of the tester (red to red, green to green, black to black)(Refer to Figure 7)
- Connect the GPO plug or the test leads to the circuit to be tested.
- Press the 'TEST' button to start.

**Process and features:**

The Auto RCD Test is designed to measure trip times of all trip currents with one button

press. The tester will complete all RCD measurements before proceeding into next test. All the test data will be saved in memory - to access, press test F3 key. RCD measurements are taken in following order:

- 1/2I<sub>Δn</sub>
- 1/2I<sub>Δn</sub>/180
- 1/1Δn
- 1/1Δn/180
- 2I<sub>Δn</sub>
- 2I<sub>Δn</sub>/180
- 5I<sub>Δn</sub>
- 5I<sub>Δn</sub>/180

**Understanding F1-F4 Buttons:**

F1	F2	F3	F4
Backlight	AC/DC/time	RCL	I <sub>Δn</sub>

F1: Press F1 for about 2 seconds to turn on/off the backlight.

F2: Press F2 to toggle between RCD types and timer mode.

- RCD types: AC and DC (full-and half-wave)

- Timer: under this mode, press down TEST button and the Tester will count down from 30s to 0s before commencing RCD test.

F3: Press to view the results from the test.

F4: Press to select/change RCD test current.

**⚠ Caution**

- Only connect this tester to an approved electrical system compliant with standards and within the specification of this tester. If the tester detects high, low, or no voltage the L-PE and L-N icons on the lower left part of the LCD will flash simultaneously.
- Ensure the socket is properly earthed. If the socket has a poor, or no, earth connection the L-PE and N-PE icons on the lower left part of the LCD will flash simultaneously.
- Ensure the neutral terminal of the socket is firmly connected. If the neutral terminal is poorly connected, or not connected, the L-N and N-PE icons on the lower left part of the LCD will flash simultaneously.
- Ensure live and neutral terminals of the power socket are not reversely connected when measuring loop impedance/prospective fault current, otherwise the L-PE, L-N, and N-PE icons on the lower left part of the LCD will flash simultaneously.
- Please take extreme caution when making the Auto RCD measurement, as it is performed under high-voltage conditions.

**XV. Taking Regular RCD Tests (See Figure 7)**

**To take a regular RCD test:**

- Turn the rotary switch to I<sub>Δn</sub>/2I<sub>Δn</sub>, 1/1Δn, 2I<sub>Δn</sub>, or 5I<sub>Δn</sub> position;
- Insert three banana connectors of the GPO test lead into three input terminals of the Tester (red to red, green to green, black to black)(Refer to Figure 7)
- Plug the GPO into the GPO socket on the circuit of the RCD to be tested.
- Press TEST button to start.

**F1-F4 Buttons in regular RCD test modes:**

F1	F2	F3	F4
Backlight/0/180°	AC/DC/time	Not used	I <sub>Δn</sub>

F1: Long Press F1 for 2 seconds to turn on/off the backlight

Short Press F1 to switch between 0/180 degrees

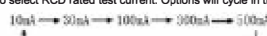
F2: Press to toggle between RCD types and Timer mode:

- RCD Types: AC and DC (full-and half-wave)

- Timer: under this mode, press down TEST button and the Tester will count down from 30s to 0s before enabling RCD test.

F3: Not used

F4: Press to select RCD rated test current. Options will cycle in the following order:



The leakage current will be different depending on the selected current multiplier. The following table details further.

	10mA	30mA	100 mA	300 mA	500Ma
1/2I <sub>Δn</sub>	■	■	■	■	■
1/1Δn	■	■	■	■	■
2I <sub>Δn</sub>	■	■	■	■	■
5I <sub>Δn</sub>	■	■	■	■	■

**⚠ Caution**

- Only connect this tester to an approved electrical system compliant with standards and within the specification of this tester. If the tester detects high, low, or no voltage the L-PE and L-N icons on the lower left part of the LCD will flash simultaneously.
- Ensure the socket is properly earthed. If the socket has a poor, or no, earth connection the L-PE and N-PE icons on the lower left part of the LCD will flash simultaneously.
- Ensure the neutral terminal of the socket is firmly connected. If the neutral terminal is poorly connected, or not connected, the L-N and N-PE icons on the lower left part of the LCD will flash simultaneously.
- Ensure live and neutral terminals of the power socket are not reversely connected when measuring loop impedance/prospective fault current, otherwise the L-PE, L-N, and N-PE icons on the lower left part of the LCD will flash simultaneously.
- Please take extreme caution when making the regular RCD measurement, as it is performed under high-voltage conditions.

**XVI. Measuring RCD Trip Current (See Figure 7)**

**To measure trip current:**

- Turn the rotary switch to Δ Ramp position.
- Insert three connectors of the GPO test lead into three input terminals of the tester (red to red, green to green, black to black)(Refer to Figure 7)
- Plug the GPO into the GPO socket on the circuit of the RCD to be tested.
- Press TEST button to start.

**F1-F4 Buttons when measuring RCD Trip Current:**

F1	F2	F3	F4
Backlight/0/180°	AC/DC/time	Not used	I <sub>Δn</sub>

F1: Long Press F1 for 2 seconds to turn on/off the backlight

Short Press F1 to switch between 0/180 degrees

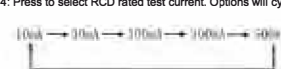
F2: Press to toggle between RCD types and Timer mode:

- RCD Types: AC and DC (full-and half-wave)

- Timer: under this mode, press down TEST button and the Tester will count down from 30s to 0s before enabling RCD test.

F3: Not used

F4: Press to select RCD rated test current. Options will cycle in the following order:



The leakage current will be different depending on the selected current multiplier. The following table details further.

	10mA	30mA	100mA	300mA	500Ma
Full wave	■	■	■	■	■
Half wave	■	■	■	■	■

**⚠ Caution**

- Only connect this tester to an approved electrical system compliant with standards and within the specification of this tester. If the tester detects high, low, or no voltage the L-PE and L-N icons on the lower left part of the LCD will flash simultaneously.
- Ensure the socket is properly earthed. If the socket has a poor, or no, earth connection the L-PE and N-PE icons on the lower left part of the LCD will flash simultaneously.
- Ensure the neutral terminal of the socket is firmly connected. If the neutral terminal is poorly connected, or not connected, the L-N and N-PE icons on the lower left part of the LCD will flash simultaneously.
- Ensure live and neutral terminals of the power socket are not reversely connected when measuring loop impedance/prospective fault current, otherwise the L-PE, L-N, and N-PE icons on the lower left part of the LCD will flash simultaneously.
- Please take extreme caution when making the RCD trip current measurement, as it is performed under high-voltage conditions.

**XVII. Replacing the Battery**

**⚠ Danger**

- To avoid electric shock, disconnect all test leads from the tester before replacing the battery.
- Do not perform any measurements with the battery cover opened.

**⚠ Danger**

- Do not mix old and new batteries for use.
- When low battery indicator 1 icon shows on the LCD, replace the battery immediately.

**To replace the battery:**

- Turn off the tester (set the rotary switch to OFF) and disconnect the test leads.
- Unscrew and remove the battery cover and replace all of the batteries with new batteries. Do not mix old and new batteries.
- Replace the battery cover and relighten the battery cover screws.

**XVIII. Maintenance & Repair**

**Cleaning the Casing:**

- Only clean the tester surface with soft cloth or sponge dampened with little water.
- Never pour water onto or submerge the tester.
- The tester must be completely dry before use or storage.

**Repair:**

When it become necessary to calibrate or repair the tester, please return it to Aegis. Aegis office locations can be found on the following websites:

www.aegis.net.au  
www.aegis.net.nz

**XIX. Disclaimer**

The information in this manual is subject to change without notice.