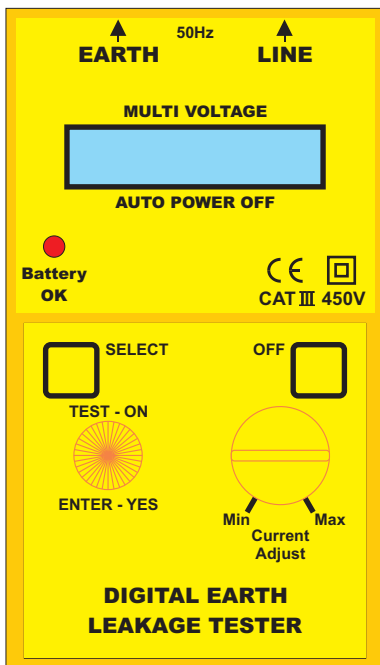




HellermannTyton

TEL28

DIGITAL RCCB / ELCB TESTER



INSTRUCTION MANUAL

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1. SAFETY PRECAUTIONS

Electricity can cause severe injuries even with low voltages or currents.

Therefore it is extremely important that you read the following information before using your Digital RCCB / ELCB Tester.

- 1.1 This Instrument must only be used and operated by a competent trained person and in strict accordance with the instructions.
We will not accept liability for any damage or injury caused by misuse or non compliance with instructions and safety procedures.
- 1.2 Never open Your Digital RCCB / ELCB Tester except for battery replacement. (See Battery replacement section).
- 1.3 Always inspect you Digital RCCB / ELCB tester and test leads before use for any sign of abnormality or damage. If any abnormal conditions exist (broken test leads, cracked case, display faulty etc...) do not attempt to take any measurement or use the tester.
Return your Digital RCCB / ELCB tester to your nearest Distributor for Service.
- 1.4 Never replace the protective fuse with any other than the specified or approved equivalent.
- 1.5 Your Digital RCCB / ELCB tester has been designed with your safety in mind. However, no design can completely protect against incorrect use. Electrical circuits can be dangerous and/or lethal when a lack of caution or poor safety practice is used. Use caution in the presence of voltage above 24V as these pose a shock hazard.

- 1.6 Pay attention to cautions and warnings which will inform you of potentially dangerous procedures.
- 1.7 Rated environmental conditions :
- (1) Indoor use.
 - (2) Installation Category **III**.
 - (3) Pollution Degree 2.
 - (4) Altitude up to 2000 Meter.
 - (5) Relative Humidity 80% Max.
 - (6) Ambient Temperature 0°~40°C.
- 1.8 Observe the International Electrical Symbols listed below :



Meter is protected throughout by double insulation or reinforced insulation.



Warning ! Risk of electric shock.



Caution ! Refer to this manual before using the meter.



Alternating current.

2. SPECIFICATIONS

Current Settings	0-999mAac / 50Hz
Current Selection	Knob
Phase Start Selection 0° and 180°	Referenced to Earth Yes
Over-Temperature Protection	Yes
Phase Polarity Trip Indicator	Referenced to Earth Yes
Operating Voltage (L-E)	110Vac to 450Vac
Timer Resolution	1mS (Max Time = 9.999S)
Timer Accuracy	1mS \pm 1mS
Current Accuracy	\pm 1% \pm 1mA
Current Resolution	1mA
Voltmeter Accuracy (50Hz)	50-350 Vac = \pm 2% \pm 1V 350-450Vac = \pm 5% \pm 1V
Voltmeter Resolution	1V
Operating Temperature	-5°C ~ 45°C
Storage Temperature	-10°C ~ 85°C
Battery	8 x AA batteries
Power Source	Bat OK Led lit if >7.5V
Maximum Current Specified at 450Vac / 50Hz	

3. FEATURES

2 Lines x 16 Characters L.C.D.

Very Low Consumption.

Microprocessor Controlled.

Suitable for industrial applications.

Better than 3% accuracy. (Current)

Menu Driven.

Accurate Digital readout of Disconnection Time.

Accurate Digital readout of Disconnection sensitivity.

Data Hold Function.

Zero Crossing Circuitry permits testing at 0° or 180° .

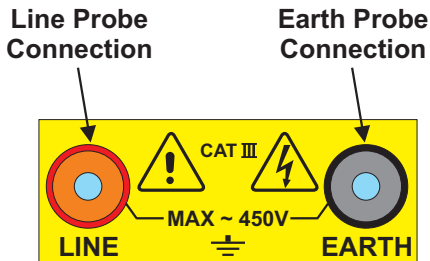
Disconnection Phase Polarity Shown on L.C.D. display.

Auto-Off and Off override.

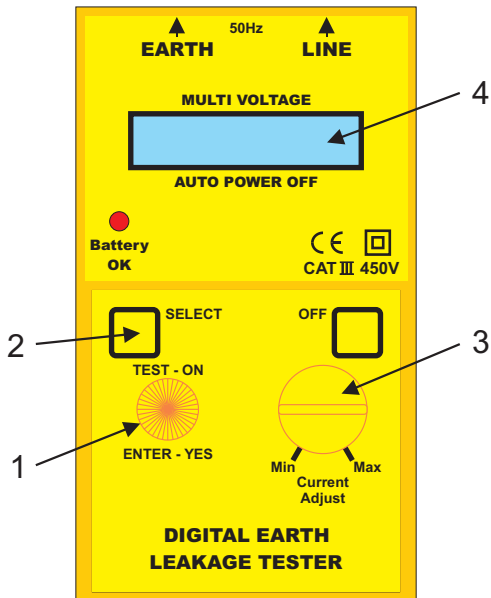
Polarity Trip Indicator (Positive or Negative Phase).

EN/IEC 61010-1 CAT III 450V

4. CONNECTIONS



5. INSTRUMENT LAYOUT



1. On Switch.-
Yes / Accept Button Switch.
2. Selection Switch.
Instantaneous - Time Delay
 $0^{\circ} - 180^{\circ}$
3. Current Selection Knob.
4. Intelligent L.C.D.

6. LID INSTRUCTIONS

INSTRUCTIONS DIGITAL ELCB (RCD) TESTER

IMPORTANT

1. The tester check both the point at which the ELCB (RCD) trips (TEST 1-mA) as well as the time taken for a given selected current (TEST 2-mS) to trip. Both tests show the phase at which tripping occurred.
2. The tester operates between Line and Earth. Ensure that L-E voltage does not exceed 450V.
3. The tester is protected against over-temperature. If over-Temperature message appears. Allow time for the tester to cool down.

TEST 1 - Tripping Point (Sensitivity)

A ramp current rising in one mA steps is injected. To save time and reduce power dissipation. The starting point of the ramp may be selected.

The Instrument displays :

1. The Tripping point (mA) of the ELCB (Sensitivity)
2. The Phase when tripping occurred.
3. The Voltage (L-E) at the start of the test.
Should the ELCB not trip within the current capability of the instrument, the display will show 1=999mA and "Hold>OVR", meaning the ELCB did not trip below 999mA. The tripping point is out of the Range of the Instrument (or ELCB faulty) .

TEST 2 - Tripping Time of Breaker

A preselected constant current is introduced L-E
The Instrument displays :

1. The tripping time of the ELCB.
2. The phase when tripping occurred.
3. The voltage (L-E) at the start of the test.
Should the ELCB not trip within the testing time capability of the instrument, the display will show T=99.999s and "Hold>OVR", meaning the ELCB did not trip below 99.999s. The tripping point is out of the Range of the instrument (or ELCB faulty) .

TEST PROCEDURE

1. Insert the leads into Instrument.
2. Select the test required:
Test 1 = ELCB Sensitivity (Instantaneous ELCB's)
Test 2 = Tripping Time (time Delay & Invers Time Delay ELCB's)
3. Select the current with the knob:
Test 1 = ramp starting test current.
Test 2 = constant test current.
4. Select positive or negative edge to start.
5. follow interactive menu for connections.
6. Test start immediately when voltage is detected.
7. The test stops automatically when ELCB trips. (voltage disappears)
8. Test results are shown on the display.

7. RCCB / ELCB TESTING - SENSITIVITY

Turn Instrument "ON" by pressing the "TEST-ON" button.
The L.C.D. display will come to the following Screen.

*** - Instantaneous
- Time Delay**

Push Select to change Selection
to Instantaneous, then Press "TEST " to accept.

**Dial Starting
Current. 123mA**

Dial the Starting Current of the
Instantaneous Test using the Current Adjust Knob.

 **0° Positive
Start Edge**

Select the Positive or Negative
Start Edge using the Select Button.

**Connect Leads
to Earth & Phase**

Connect Leads to Earth and Phase.
Testing will start Automatically when voltage is detected.

**V=317V
I=127mA**

Test In Progress. The Voltage
between leads is 317V and I=127mA

**V=317V -
I=140mA Hold TRP**

TRP= Tripped, Display on Hold
Tripped at 140mA, on - edge of signal.

8. RCCB / ELCB TESTING - TIME DELAY -

Turn Instrument "ON" by pressing the "TEST-ON" button.
The L.C.D. display will come to the following Screen.

- Instantaneous
*** - Time Delay**

Push Select to change Selection
to Instantaneous, then Press "TEST " to accept.

Dial Starting
Current. 125mA

Dial the Starting Current of the
Instantaneous Test using the Current Adjust Knob.

 **0° Positive**
Start Edge

Select the Positive or Negative
Start Edge using the Select Button.

Connect Leads
to Earth & Phase

Connect Leads to Earth and Phase. When voltage is
detected, Testing will start Automatically.

V=317V T=4.020s
I=125mA

Test In Progress since 4.020s. The Voltage
between leads is 317V and Constant current is 125mA.

V=317V + T=6.435s
I=125mA Hold TRP

TRP= Tripped, Display on Hold
at 6.435s Tripped on + edge of signal.

9. PREPARATION FOR MEASUREMENT

Before testing Always Check the Following.

At Power "ON", check :

The BAT OK led lit. If the BAT OK led does not lit, replace batteries.

There is no visual damage to the Instrument or Test leads.

Test lead Continuity with a continuity meter.

10. BATTERY REPLACEMENT

Your Digital RCCB / ELCB Tester's batteries are situated under the tester.

The BAT OK led (if battery voltage $>7.5V$) will indicate when the battery need to be replaced (if BAT OK led does not lit when tester is on).

Disconnect the Test leads from the Instrument, remove the battery cover and the batteries.

Replace with eight 1.5V R6 or L6 batteries, taking care to observe correct polarity.

Replace the Battery cover.

11. FUSE REPLACEMENT

The Fuse is located in the Battery compartment. To replace the Fuse, proceed as per Battery replacement to open the Battery cover, then remove and replace the fuse located on the side of the batteries . Make sure to place the fuse protection cover. (small rubberised fuse cover)

Only replace with the same specification fuse. (1A Fast Blow)

12. SERVICING AND CALIBRATION

Your Digital RCCB. ELCB tester has been factory calibrated.

However, it is of good practice to have your Instrument "CERTIFIED" by a National Calibration Facility and "CHECKED" every year by an Professional workshop.

12.1 Cleaning and Storage:

WARNING

To avoid electrical shock or damage to the meter, do not get water inside the case.

Periodically wipe the case with a damp cloth and detergent; do not use abrasives or solvents.

If the meter is not to be used for periods of longer than 60 days, remove the battery and store them separately.