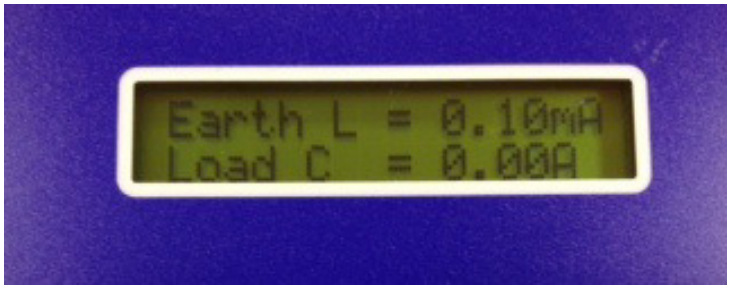
Earth Leakage & Load Current Meter

There are many battery powered Portable Appliance Testers now on the market. These are useful for carrying out safety tests during in-service inspection or after repair. **However they are not able to do any of the tests that require mains power.**

The Earth Leakage & Load Current Meter is designed to supplement battery powered PAT Testers.

The Earth Leakage test is carried out at mains voltage. All the user has to do is to plug the appliance into the front panel socket. The Meter continuously monitors the leakage current and displays the value on the LCD. The Meter also displays the current taken by the appliance.

When appliances have been repaired, it is essential to measure the Earth Leakage and Load currents to make sure that it is safe to use.



The meter continuously measures the Earth leakage and Load currents and displays this on the LCD.

Useful Information

The Insulation between Live and user touchable metal parts on an appliance can be measured in one of 2 ways.

1. The popular way is to apply a DC voltage of 500V to the Live and Neutral wires of the appliance and check for any leakage current to the earth pin on the plug (Class 1) or any user touchable metal part on the appliance (Class 2). This leakage current is then used to work out the Insulation Resistance.

2. Another way is to supply mains voltage to the appliance and look for any leakage current on the Earth pin (Class 1) or from any user touchable metal part (Class 2). When testing Class 1 appliances this is referred to as the Earth Leakage test and for Class 2 appliances is referred to as the Touch Current test.

Both these tests look for any breakdown of the insulation. The Leakage Current test has some advantages over the 500V test.

- The appliance must be switched ON for this test to be carried out. For appliances that need mains voltage (like a PC) to be properly ON, this is a better test than the 500V DC test.
- Any surge protection devices fitted to the appliances will not interfere with this test as it is in its normal operating state.
- On some older appliances the IET Code of Practice claims that there is a possibility of damage with the 500V DC test. For this reason the Earth Leakage test is referred to as a “soft test” as there is no risk of damage.

The Load Current test is useful as a higher than normal current draw can indicate a faulty

The pass limits for Earth Leakage are presented below. These are from the IET Code of Practice, Edition 4.

Class 1

Portable or hand-held appliances	<0.75 mA
Heating appliances 1kW	<0.75 mA
Heating appliances 2kW	<1.5 mA
Heating appliances 3 kW	<2.25 mA
Other appliances	<3.5 mA

Class 2

All appliances	<0.25 mA

Specification

EARTH LEAKAGE CURRENT

RANGE	0 - 10 mA
TOLERANCE	+/- 5% + 1 digit
RESOLUTION	0.1 mA

LOAD CURRENT

RANGE	0 TO 10 Amp
TOLERANCE	+/- 5% + 1 digit
RESOLUTION	0.1 Amp

DIMENSIONS

HEIGHT	45mm (front) /65 mm (back)
WIDTH	120 mm
DEPTH	177 mm
WEIGHT	1.0 Kg

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