

This Information Sheet provides guidance on how to use the Primetest 100 Portable Appliance Tester. The Tester can be used to carry out electrical safety checks on portable and transportable electrical equipment with a three-pin plug following suitable training and/or instruction. The Information Sheet is part of a series of Information Sheets that supports the Safety of Electrical Equipment Policy Standard.

Background

The PrimeTest 100 is a hand held battery powered unit suitable for carrying out electrical safety checks on Class 1 / Class 11 appliances, IEC mains leads and extension leads.

This Tester is the easiest to operate and handle of the central stock of Testers, though Departments and Colleges wishing to loan the Tester will be required to replace the AA batteries from time to time.

How to Use the Tester

Before using any tester it is imperative that a thorough visual inspection is undertaken to ensure the item is sound and in good working order.

The Connections



(Note: Numbers refer to numbers on pictures)

Test Connections:

1 = Mains socket on front for connecting the appliance under test.

6 = 4mm socket on end panel for earth test probe.

7 = IEC socket on end panel for mains cord testing.

User Interface:

5 = LCD display shows test progress, results for tests and overall test result for an appliance or mains cord.



Tests initiated by pressing:

Power On / Off = **2 + 3** until two beeps are heard.

Class 1 Appliance Test = **2**

Class 11 Appliance Test = **3**

Cord / Extension Lead Test = **4**

(Note: Device switches off if no buttons pressed in 3 minutes)

Testing Class 1 and Class 11 Appliances



- Plug earth test lead into the 4mm socket found in the end panel **6**.
- Plug the appliance into the front panel mains socket **1**.
- If the appliance has **ON / OFF** switch check in the **ON** position.
- Press the Class 1 test key **2** OR press the Class 11 test key **3**.
- The display will show **PASS** or **FAIL**.

Where appropriate note the readings and compare to specifications

Testing a Mains (IEC) Cord



- Plug the mains cord into the IEC socket **7** and the three-pin end into the front panel socket **1**.
- Press the 'cords' test key **4**.
- If the wiring is correct the display shows **PASS + GOOD**.
- If **FAIL + GOOD** is displayed this means the cable resistance is greater than the factory set limit but this may still be OK.
- If there is a wiring fault display shows **PASS+OPEN** or **CROSS**.
- **OPEN** indicates live or neutral is broken or the plug top has blown.
- **CROSS** indicates the live and neutral connections are reversed.

Testing an Extension Lead



- Plug the supplied 0.5m red IEC lead into the IEC socket **7** and into a mains outlet on the extension lead. Plug the mains plug of the extension lead into the front panel mains socket **1**.
- Press the cords test key **4**.
- If the wiring is correct, the display shows **PASS + GOOD**.
- If **FAIL + GOOD** is displayed, this means the cable resistance is greater than the factory set limit but this may still be acceptable.
- If there is a wiring fault, display shows **PASS + OPEN OR CROSS**. **OPEN** indicates the live or neutral is broken or the plug top fuse has blown. **CROSS** indicates reversed live & neutral connections.

Further information available in the PrimeTest 100 operating instructions.

Remove appliances showing **FAIL / OPEN / CROSS** from service until an Electrician has inspected it and repaired or confirmed its safety. Always consult an Electronics / Electrical Engineer if you are unsure of the safety of any electrical appliance.

ALL REPAIRS MUST BE UNDERTAKEN BY A COMPETENT PERSON

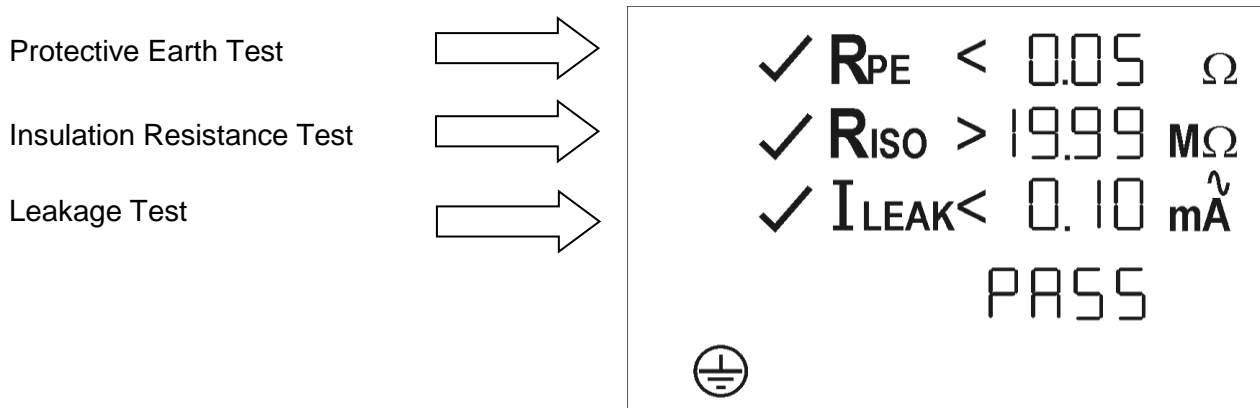
Testing Surge Protected Devices

A surge protector is a device that shields computer and other electronic devices from surges in electrical power, or *transient voltage*, that flows from the power supply. It works by channeling the extra voltage into the outlet's grounding wire, preventing it from flowing through the electronic devices while at the same time allowing the normal voltage to continue along its path.

Surge Protected circuits can be found incorporated within mains extension leads and in many computer Power Supply Units (PSU).

How does this affect the Readings?

The PrimeTest 100 uses both *Insulation and Leakage Test* procedures.



As the Insulation Test will probably give an *apparent fail* due to the surge protection, you need to check the Leakage Reading is below the required limits (as per PrimeTest 100 Factory Set Pass / Fail Limits):

PrimeTest 100 Factory Set Pass / Fail Limits

The Seaward PrimeTest 100 is designed for PAT Testing portable / handheld electrical equipment. The PrimeTest 100 Factory set Pass / Fail limits are set for these types of equipment (see Table 1):

Table 1	Class 1	Class II	Cord
Earth Continuity	0.2 ohms	N/A	0.2 ohms
Insulation Resistance	1.0 Mohm	2.0 Mohm	2.0 Mohm
Leakage	0.75mA	0.25mA	N/A

As seen in Table 1, the leakage limit in the PrimeTest 100 is factory set to 0.75mA – the limit for portable and hand held equipment. The limit for IT, Moveable / Stationary and Business Equipment as recommended in the IEE Code of Practice is 3.5mA.

When using the PrimeTest 100 to PAT Test Class 1 IT equipment and larger equipment such as centrifuges, fridge freezers etc, the *Leakage Test* may be greater than 0.75mA indicating a fail. In this case, refer to Table 2 for pass / fail limits for IT / Stationary / Moveable Equipment:

Table 2	Other Class 1 (eg IT, Moveable, Stationary)
Leakage	3.5mA

Limitations of the Substitute / Alternative Tests

Interpreting the measurements requires judgement. In many cases, if there is a genuine insulation fault then both the 500V DC Insulation Test and the Leakage Test are likely to fail.

However, the insulation fault may only occur when significant voltage is applied across the insulation. The Leakage Test on the PrimeTest 100 uses the alternative or substitute method when an AC test voltage of 40V is used - this may not be sufficient to cause a breakdown.

Additional Limit Values

In line with IEE Guidance, a Competent Person can assign a greater tolerance value to the "Leakage" Test results, and would directly relate to the type of equipment (movable, fixed, IT).