

Technical Specification

Earth Bond O/C volts Current into 0.10 ohms Displayed values Accuracy Test time	7.5V ac rms 26A, 8A ac rms 0.00-1.99 ohms >2 ohms $\pm 10\%$ rdg ± 2 digits! 5s
Earth Bond Business Equipment O/C volts Current into s/c Displayed values Accuracy Test time	100mV ac rms 100mA ac rms 0.00-1.99 ohms >2 ohms $\pm 10\%$ rdg ± 2 digits! 5s
P-N Fuse Continuity O/C volts Current into s/c Pass threshold Test time	7.5V ac rms 20mA 39 kohms (approx) 5s
PN-E Insulation Test volts Displayed values Accuracy Test time	500V dc 0.1-19.9 Mohms >20 Mohms $\pm 5\%$ rdg ± 2 digits! 5-30s

All values are nominal

ROBIN

Robin Electronics Limited
Precision Centre, Dwight Road
Watford, Hertfordshire WD1 8HG

SmartPAT 3000

OPERATOR'S MANUAL

Contents

1.0 INTRODUCTION	2
2.0 SAFETY	2
3.0 FEATURES	3
4.0 HOW TO USE SMARTPAT	5
4.1 Power up	5
4.2 Selecting and performing a test	5
4.3 IEC lead test	7
TECHNICAL SPECIFICATION.....	8

1.0 Introduction

Under the 1989 Electricity at Work Regulations employers are required to maintain the portable appliances in use on their premises. Your SmartPAT 3000 portable appliance tester has been designed to help you carry out and record the necessary tests.

2.0 Safety

This meter has been designed to the requirements of IEC publication 1010, Safety Requirements for Electronic Measuring Apparatus.

This manual contains information and warnings which must be heeded to ensure user safety during operation. It is therefore important that this manual is read before proceeding with any tests.

SmartPAT 3000 carries out a number of electrical tests which could be potentially hazardous to the user. These tests must be performed by suitably trained personnel.

To ensure repeatable accuracy, your SmartPAT should be returned to Robin on a regular basis for calibration.

This instrument should be operated strictly in accordance with the instructions supplied. Robin Electronics Limited shall not be held responsible for any losses as a result of misuse in the course of operation. Robin Electronics Limited runs regular training courses covering all aspects of portable appliance testing. Please contact Robin for further information.



- There are no serviceable parts contained within SmartPAT and under no circumstances should you attempt any repair or modification.
- Ensure the earth clip is securely connected to the appliance during the earth bond test.
- If in any doubt regarding the tests requirements for the appliance always refer back to the manufacturer of the appliance under inspection/test.
- To ensure continued correct operation, the SmartPAT 3000 should be periodically calibrated.
- Do not connect SmartPat to the mains supply via the IEC lead connection.

4.0 How to use SmartPAT

500V Insulation Test

With the appliance connected select the 500V Insulation test. Connect the earth clip to the appliance for class II

SmartPAT display

0

Press the GO key to begin test.

SmartPAT display

↑ E S T

SmartPAT display

actual reading up to 19.9Mohm or
HI indicating resistance is >20M

SmartPAT will follow the above sequence and then automatically return to the ready display [0].

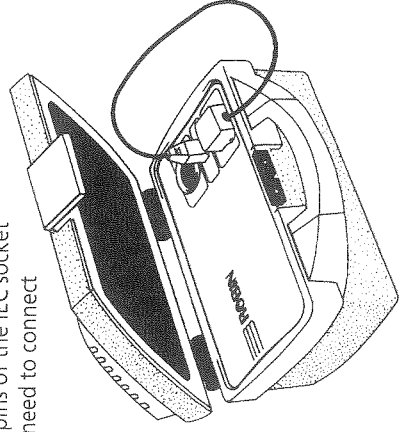
SmartPAT display

0

4.3 IEC Lead Test

Connect the IEC lead to the SmartPAT as shown in the diagram below.
To carry out any of the available tests proceed as detailed above.

Earth Bond - between earth pins of the IEC socket and 240V socket there is no need to connect the black clip.



**WARNING - DO NOT CONNECT SMARTPAT TO THE MAINS
VIA THE IEC LEAD CONNECTION**

4.0 How to use SmartPAT

8 & 26A Earth Bond and 100mA Business Equipment Tests

Select the required test and plug the appliance into the relevant appliance socket located on SmartPAT's front panel. Connect the black crocodile clip to a suitable earthing point on the appliance.

SmartPAT display

0

When the appliance has been connected and the earth clip secured, press the GO key.

SmartPAT display

↑ E S ↑

SmartPAT display

actual reading up to 1.99ohm or
H I indicating resistance is >1.99ohm

SmartPAT will follow the above sequence and then automatically return to the ready display [0].

SmartPAT display

0

P-N Fuse Continuity Test

With the appliance connected and the black earth clip removed select the P-N Fuse Continuity Test.

SmartPAT display

0

Press the GO key to begin test.

SmartPAT display

↑ E S ↑

SmartPAT display

P A S S

OR

F A I L L

SmartPAT will follow the above sequence and indicate pass/fail, then automatically return to the ready display [0].

SmartPAT display

0

3.0 Features

Dual Voltage Operation

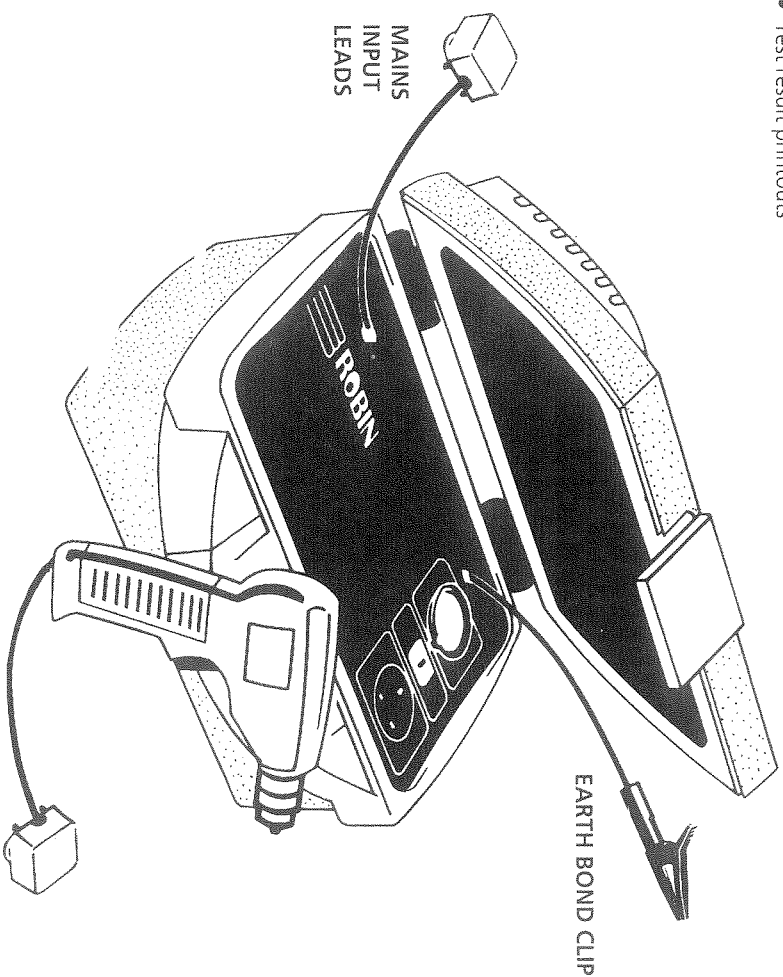
The SmartPAT 3000 will accept either a 240V or 110V input and will automatically calibrate itself to the supplied voltage. All the available tests can be performed at either voltage relative to the supply input.

Software (optional)

Recording test results and registering appliances is made easy using PATest 5000 data management software. PATest 5000 has been designed for users who are carrying out large volumes of testing and require to log data from multiple sites and locations.

PATest 5000 features include

- Automatic test recall
- Full test certificate printout facility
- Customer invoicing
- Multiple site facility
- Test result printouts



3.0 Features

Earth Bond Test

The earth bond test will verify that the earth's point of connection to the appliance's chassis is sound. The test can be performed at 100mA, 8A or 26A depending on the type of equipment under test - e.g. 100mA for business equipment. During the test SmartPAT 3000 applies a low voltage signal between the earth pin and the chassis of the appliance.

P-N Fuse Continuity

SmartPAT 3000 will verify the fuse continuity by applying a low voltage signal across the appliances phase and neutral pins. The pass/fail point is set at approximately 30kohm. This test must be conducted with the appliance switch in the ON position. Appliances with a phase-neutral resistance above this value may fail this test although they are not faulty. Such appliances include those with electronically controlled on/off switches (e.g. some types of drill), appliances with an inductance (since the test is conducted with a low ac voltage) and low power soldering irons. For these appliances the fuse test is not appropriate and should be omitted.

Note: The purpose of the fuse test is to check that the fuse is not blown or phase/neutral conductors are not open circuit as this may not be evident from a visual inspection.

Insulation

The insulation test will establish the value of the appliance's insulation. The insulation test is conducted at 500V d.c. which is applied between the appliance's earth pin and phase & neutral pins. The appliance should be switched on.

Typical test sequences	Typical appliances
Class I appliances Visual check 26A earth bond test P-N Fuse Continuity Insulation test	Power tools, electric heaters, kitchen appliances etc
Class II appliances Visual check 100mA earth bond test P-N Fuse Continuity Insulation test	Business equipment - fax machines, printers etc
Class III appliances Visual check P-N Fuse Continuity Insulation test	Double insulated appliances - fans, lamps etc

The following appliance labels are available from Robin for use in conjunction with the SmartPAT 3000;

- Pass labels (pack of 500) Cat. No. Pass 500
- Pass labels (pack of 250) designed for fixing to flexible cords. Cat. No. Pass 250
- Fail labels (pack of 100) Cat. No. Fail 100

4.0 How to use SmartPAT

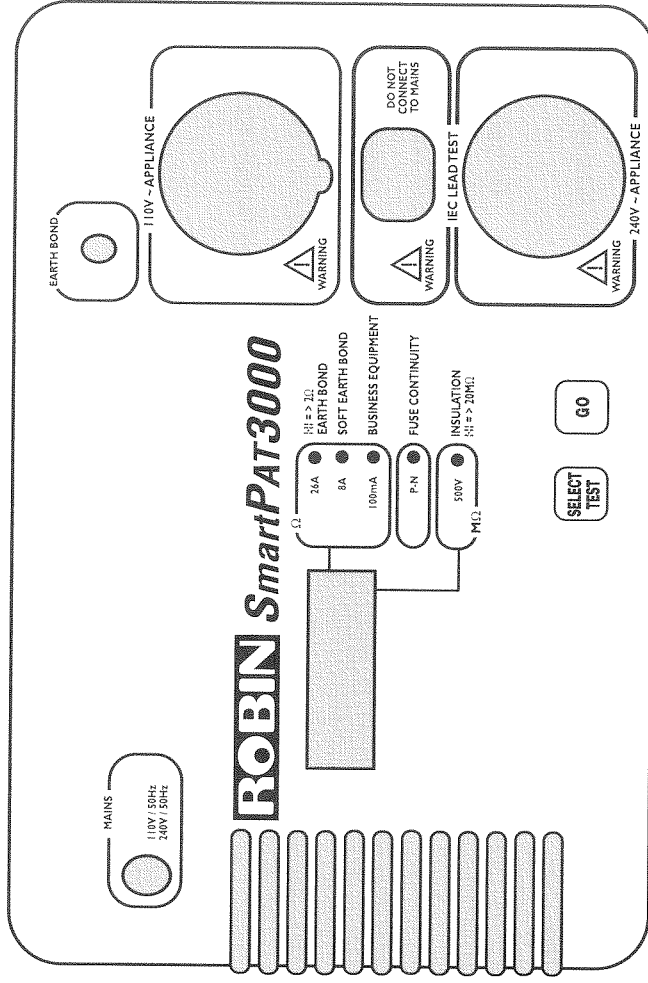
4.1 Power up

Using the mains input lead connect SmartPAT to either a 110V or 240V a.c. supply*. On power up SmartPAT will go through a self check procedure and automatically calibrate itself to the input voltage.

Following the self check procedure SmartPAT will indicate that it is ready by displaying [0]

4.2 Selecting and performing tests

All of SmartPAT's tests are selected using the SELECT TEST key. Simply press the key to scroll through the available tests. Stop when the LED to the side of the required test is lit.



*110V to 240V a.c. adaptor available from Robin Cat. No. AD110