

PAT300 series Portable appliance testers



- **Simple manual or automatic testing**
- **230 V and 110 V operation**
- **Bond testing at 25 A, 10 A and 200 mA**
- **Differential, touch and substitute leakage testing**
- **Full colour display**
- **Tests portable RCDs and extension leads**

DESCRIPTION

An easily portable desktop appliance tester for testing the safety of portable electrical equipment to meet health and safety regulations. The PAT300 series are fully featured testers with dedicated test buttons for direct access to tests. They are designed for customers who do not require the complexity of a fully configurable database of clients and results within the tester but do need a complete range of functions to allow automatic or manual testing of the widest range of electrical assets. There are two products in the range – the PAT320 and the PAT350. The PAT350 is identical to the PAT320, with the addition of flash-test capability for use in environments such as manufacturing, production or tool-hire shops.

Simple push-button operation make the PAT300s fast and intuitive in use. All regulatory test requirements are supported, including Class I and Class II, IEC power leads, extension leads and full tests for portable RCDs. An automatic mode is available for Class I and Class II testing. In automatic mode, the tests proceed sequentially through bond, insulation and operation, indicating a pass or fail at each test. If a fail occurs, testing is stopped. When manual testing, each test is preceded by a selection screen where the test parameters are selected, such as bond test current, insulation test voltage or leakage test type. These diagnostic buttons provide direct access to any test individually, allowing single tests to be performed following repair or a suspect result.

Accessories supplied with all models include a combined earth-bond and insulation test lead, an adaptor for testing extension leads, and a carry-case convenient product and lead storage.

APPLICATIONS

There is a legal requirement for any landlord, employer or owner of a place of work or public place, to ensure that all electrical equipment accessible by tenants, employees or the public is maintained in a safe condition, and an acceptable method of ensuring this is by routine electrical testing. This can be performed by electrical contractors, specialist PAT testing organisations, maintenance departments, or facilities management companies.

The PAT300 range is suitable for performing portable appliance testing in locations such as hotels, public houses, schools, colleges, nurseries, shops, offices, theatres, banks, restaurants, cafés, sports and leisure facilities, cinemas, factories and hair salons etc. The PAT350 is suitable for use in tool-hire shops where equipment is routinely tested prior to hire, and will perform a flash test in addition to standard PAT



SPECIFICATIONS

Electrical supply range

230 V a.c.	230 V a.c. $\pm 10\%$
110 V a.c.	110 V a.c. $\pm 10\%$

Supply measurement

Voltage:	$\pm 2\% \pm 1\text{ V}$
Frequency:	$\pm 1\% \pm 0.1\text{ Hz}$

Bond test

Open circuit voltage: 9 V a.c. $\pm 10\% \pm 0.1\text{ V}$ (Supply: 230 V 50Hz)

10 A Bond test current:

10 A rms $\pm 20\% \pm 0.5\text{ A}$ into 0.1 Ω

25 A Bond test current:

25 A rms $\pm 5\% \pm 0.5\text{ A}$ into 0.1 Ω

Earth bond resistance accuracy:

$\pm 5\% \pm 3$ digits (0 to 0.49 Ω)

$\pm 5\% \pm 5$ digits 0.5 to .99 Ω)

Earth bond resistance resolution:

10 m Ω (0 to 1.99 Ω)

Display range: 0 to 1.99 Ω

Bond test nulling: Up to 1.00 Ω

Adjustable test duration:

User selectable from 1 sec to 20 sec

Continuity test

Note:

The continuity test is a DC test performed automatically in both positive and negative directions. The average of the two results is shown.

Continuity test voltage:

4.0 V d.c. -0% +10% (open circuit)

Continuity test current:

200 mA -0% +10% $\pm 5\text{ mA}$ (into 2 Ω load)

Continuity resistance accuracy:

$\pm 5\% \pm 3$ digits (0 to 0.49 Ω)

$\pm 5\% \pm 5$ digits 0.5 to .99 Ω)

Continuity resistance resolution:

10 m Ω (1 to 19.99 Ω)

Display range: 0 to 19.99 Ω

Continuity test nulling:

up to 9.99 Ω

Test duration: User selectable from 1 sec to 20 sec

Insulation test

Insulation test voltage:

250 V d.c. -0%/+25% open circuit

500 V d.c. -0%/+25% open circuit

(500 V d.c. across 0.5M Ω)

Insulation resistance accuracy (230 V):

$\pm 2\% \pm 5$ digits (0 to 19.99 M Ω)

$\pm 5\% \pm 10$ digits (20 to 99.99 M Ω)

Insulation resistance accuracy (110 V):

$\pm 5\% \pm 5$ digits (0 to 10 M Ω)

Insulation resistance resolution:

0.01 M Ω (0.10 to 99.99 M Ω)

Display range: 0 to 99.99 M Ω

Test duration: User selectable from 1 sec to 1 minute

Substitute leakage test

Test voltage: 40 V a.c. $\pm 10\%$

Test frequency: Nominal mains 50/60Hz

Leakage current accuracy: $\pm 5\% \pm 5$ digits

Leakage current resolution: 0.01 mA

Display range: 0 to 19.99 mA

Test duration: User selectable from 1 sec to 1 minute

Reading corrected to 230 V + 10% or 110 V + 10% a.c.

Differential leakage current

Test voltage: Nominal mains 110/230 V a.c.

Test frequency: Nominal mains 50/60Hz

Differential leakage current accuracy:
 $\pm 5\% \pm 5$ digits

Differential leakage current resolution:
0.01 mA

Display range: 0 to 19.99 mA

Reading corrected to 230 V + 10% or 110 V + 10% a.c.

Touch current test

Test voltage: Nominal mains 115/230 V a.c.

Test frequency: Nominal mains 50/60Hz

Touch current accuracy: $\pm 5\% \pm 5$ digits

Touch current resolution: 0.01 mA

Display range: 0 to 10 mA

Test duration: User selectable from 1 sec to 5 sec

Reading corrected to 230 V + 10% or 110 V + 10% a.c.

Operational test

Test voltage: Nominal mains 110/230 V a.c.

Accuracy: $\pm 5\% \pm 10$ digits (0 to 99 VA)

$\pm 5\% \pm 50$ digits (100 VA - 999 VA)

$\pm 5\% \pm 100$ digits (1000 VA - 3700 VA)

Resolution: 1 VA (0 to 3700 VA)

Display range: 0 to 3.99 KVA

Reading corrected to 230 V or 110 V a.c.

Results show load VA

Extension lead test

Test includes insulation and bond tests.

Polarity test voltage: 12 V

Polarity: Lead OK

Live neutral S/C

Live neutral reversed

Live/neutral O/C

Flash test

Flash test voltage: 1500 V a.c nominal for Class 1

3000 V a.c nominal for Class 2

Flash test current: < 3.5 mA short circuit @ 253 V primary supply voltage

Flash test breakdown current accuracy: $\pm 5\% \pm 5$ digits

Flash test breakdown current resolution: 0.01 mA

Display range: 0 to 3.0 mA

Test duration: User controlled

Portable RCD test

RCD test voltage: Nominal mains 110/230 V

RCD test frequency: 50Hz

Test current accuracy: -8% to -2% ($\frac{1}{2} \times I$)

+2% to +8% (1 x I, 5 x I)

Trip time accuracy: $\pm 1\% \pm 5$ digits

Trip time resolution: 0.1 ms

Display range: 0 to 1999 ms ($\frac{1}{2} \times I$)

0 to 300 ms (1 x I)

0 to 40 ms (5 x I)

Fuse test

Test voltage: 3.3 V

Warning: Audible beep if fuse is OK

Safety

PAT300 series meet the requirements of IEC 61010-1: 2001

Test leads meet the requirements of IEC 61010-031: 2002

Creepage and clearances for 300 volts to Earth Category II

Operating temperature	10 to +50 deg C
Storage Temperature:	-20 to +60 deg C
Humidity	90%RH @ -10 to +30 deg C
	75%RH @ +30 to +50 deg C

Weight

PAT320 (instrument only)	4.5 kg
PAT350 (instrument only)	5.0 kg

Dimensions

Instrument only:	175mm (H) x 320mm (D) x 250mm (W)
With case	190mm (H) x 400mm (D) x 290mm (W)

ORDERING INFORMATION

Product	Order Code	Product	Order Code
PAT320-UK 110 V and 230 V	1000-740	Optional accessories	
PAT350-UK 110 V and 230 V and Flash Test	1000-743	110 V mains lead adaptor	1000-766
Included accessories for PAT320		Plug adaptor IEC C6 - C13	2000-551
Carry case		110 V Extension lead adaptor	6220-639
Continuity/earth bond lead	2000-870	415 V adaptor lead (4-pin) to BS1363 (16 A)	1000-767
Extension lead adaptor BS1363	2000-881	415 V adaptor lead (5 pin) to BS1363 (16 A)	1000-770
Included accessories for PAT350		Screen protector (2)	1002-572
Carry case			
Continuity/earth bond lead	2000-870		
Extension lead adaptor BS1363	2000-881		
Flash test lead	5310-401		
Screen protector			

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