

PAT320

Portable Appliance Tester



- Simple manual or automatic testing
- 120 V 60 Hz operation
- User-selectable PASS/FAIL limits
- Fast test times selectable from 1 s
- Ground bond testing at 25 A, 10 A and 200 mA
- Differential, touch and substitute ground leakage testing
- Tests power cords
- Full color QVGA display

DESCRIPTION

The PAT320 is a portable bench-top appliance tester for testing the safety of electrical equipment by performing a ground bond test, an insulation test, specific ground leakage tests and operational VA tests to international standards. It is a fully featured tester designed for customers who do not need the complexity of a fully configurable database of clients and results within the tester but require a complete range of functions to allow automatic or manual testing of the widest range of electrical equipment.

Simple push-button operation makes the PAT320 fast and intuitive to use. All regulatory test requirements are supported: Class I (grounded) and Class II (non-grounded) equipment, IEC power cords and extension leads. An automatic mode is available for Class I and Class II testing. In automatic mode, the tests proceed sequentially through bond, insulation and operation (VA), 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 chosen, 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.

APPLICATIONS

The PAT320 is used on the production line for final verification of electrical safety prior to general sale, or export to the EU. When exporting to Europe, it is the European importers responsibility to ensure imported items are safe to European standards. However, any testing performed at the destination can prove very costly for the US manufacturer when faults are found.

Testing at the manufacturing plant ensures electrical safety and provides the opportunity to fix faults and problems prior to shipping and export. For example, a poor ground connection would not normally be picked up during operational testing, and the PAT320 provides an excellent means of simple safety verification.

The PAT320 is also suitable for use in the repair shop. Equipment can be checked on receipt in the shop before the technician powers it up, so ensuring he remains safe – the equipment could be in repair for any reason. Additionally, it can (and perhaps should) be checked prior to despatch to make sure the ground bond remains good, and the phase connections remain isolated from the chassis following repair. This maintains full integrity of the repaired item before the customer receives it back.

SPECIFICATIONS**Electrical supply range**120 V a.c. $\pm 10\%$ **Supply measurement**Voltage: $\pm 2\% \pm 1$ VFrequency: $\pm 1\% \pm 0.1$ Hz**Bond test**Open circuit voltage: 9 V a.c. $\pm 10\% \pm 0.1$ V10 A bond test current: 10 A rms $\pm 25\% \pm 0.5$ A into 0.1 Ω 25 A bond test current: 25 A rms $\pm 20\% \pm 0.5$ 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 1.99 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% ± 5 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 19.99 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 testInsulation test voltage: 250 V d.c. -0%/+25% open circuit
500 V d.c. -0%/+25% open circuit
(500 V d.c. across 0.5 M Ω)Insulation resistance accuracy: $\pm 2\% \pm 5$ digits (0 to 19.99 M Ω)
 $\pm 5\% \pm 10$ digits (20 to 99.99 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 testTest voltage: 40 V a.c. $\pm 10\%$

Test frequency: Nominal mains 50/60 Hz

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 120 V + 10% a.c.

Differential leakage current

Test voltage: Nominal mains 120 V a.c.

Test frequency: Nominal mains 60 Hz

Accuracy: $\pm 5\% \pm 5$ digits

Resolution: 0.01 mA

Display range: 0 to 19.99 mA

Reading corrected to 120 V + 10% a.c.

Touch current test

Test voltage: Nominal mains 120 V a.c.

Test frequency: Nominal mains 60 Hz

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 120 V + 10% a.c.

Operational test

Test voltage: Nominal mains 120 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 - 1800 VA)

Resolution: 1 VA (0 to 1800 VA)

Display range: 0 to 3.99 KVA

Reading corrected to 120 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

Fuse test

Test voltage: 3.3 V

Warning: Audible beep if fuse is OK

Safety

Meets the requirements of IEC 61010-1: 2001

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

Creepage and clearances for 300 V to Earth Category II

Environmental

Operating temperature: 50° to 122° F (10° to 50° C)

Storage Temperature: -4° to +140° F (-20° to +60° C)

Humidity: 90% RH @ 14° to 86° F (-10° to +30° C)

75% RH @ 86° to 122° F (+30° to +50° C)

Weight

10 lb (4.5 kg)

Dimensions

Instrument only: 7 in. H x 13 in. D x 10 in. W

(175 mm H x 320 mm D x 250 mm W)

With case: 7.5 in. W x 16 in. D x 11 in. W

(190 mm H x 400 mm D x 290 mm W)

ORDERING INFORMATION

Item	Cat. No.	Item	Cat. No.
PAT320-US	1001-366	<i>Optional accessories</i>	
<i>Included accessories</i>		Plug adaptor IEC C6 - C13 (3way 5A PSU)	2000-551
Continuity/earth bond lead	1001-233	Roll of 1000 PASS test labels	1000-971
Storage/carry case w/ lead and document pouch	2000-962	Roll of 1000 FAIL test labels	1001-227
Extension lead adaptor (ELA) 120V US	2001-290	PAT accessory pouch (attaches to side of case)	2001-044

SALES OFFICE

Megger USA -
Valley Forge Corporate Center
2621 Van Buren Avenue, Norristown,
Pennsylvania, 19403, USA
T. 1-610 676 8500
F. 1-610-676-8610
E. VFCustomerSupport@megger.com

PAT320_DS_enUS_V02

www.megger.com
ISO 9001

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