PAT400 series
Portable appliance testers



- **10,000 memory storage with USB download**
- **Large 5.7" ¼ VGA backlit full colour screen for clear results**
- **200 mA; 10 A and 25 A Bond Test with high duty cycle for repetitive testing (PAT410 – 200 mA only)**
- **Selectable PASS/FAIL limits provide instant indication of a faulty asset**
- **Optional barcode scanner and printer available to save time typing asset IDs**
- **230 V and 110 V operation for industrial, commercial and residential applications**

DESCRIPTION

The PAT400 series from Megger is a new generation of downloading portable appliance testers, fully testing portable electrical equipment to the latest edition of the Code of Practice for the In-Service Inspection and Testing of Electrical Equipment. There are 3 products in the range; the PAT410 providing a low-profile 230 V only solution without the added weight required of 110 V operation, plus a database capacity for up to 10,000 test results. The PAT420 provides the same extensive memory and downloading capability, and has the added features of 110 V operation, and also 10 A and 25 A earth bond testing. The PAT450, the top of the range, has all of these features and includes 1.5 kV and 3 kV flash testing, ideal for tool hire outlets and service workshops where flash testing is routine. All products in the range have a high duty-cycle, with the design tailored to fast testing, easy operation, and all-day use. The PAT400s feature a unique fast-re-start, so that when moving the tester from one room to another, it re-starts instantly from the same menu where it was unplugged. This is a significant timesaver, so allowing more tests per day.

USB communication provides convenient download to a standard USB memory stick., and an on-board 10,000 record memory provides interruption-free testing for improved efficiency, with a large QWERTY keypad for fast data entry. Data is directly compatible with Megger PowerSuite® software for professional certification, and all products have the option of a barcode scanner and a thermal transfer barcode label printer operating directly from the USB port. Thermal transfer labels are highly resistant, stable and easily available. The PAT420 and PAT450 have dual 230 V and 110 V operation for complete industrial, commercial and residential applications.

5 soft-keys give direct access to frequently used functions, accelerating navigation through menus and therefore increasing productivity, where time is money. Both standard and customer configurable test groups are available for fast, flexible asset testing.

Tests available in the range include 250 V and 500 V insulation tests, 200 mA, 10 A and 25 A earth bond tests, differential, touch and alternative (substitute) leakage tests, operational VA tests, RCD trip-tests for portable RCDs, anti-surge and RCD protected extension leads and power cords. RCD testing is now a requirement of the UK Code of Practice.

Accessories supplied with all models include a combined earth-bond and insulation test lead, an adaptor for testing 230 V extension leads, a laptop power supply adaptor, and a carry-case for convenient product and lead storage. All instruments also include Download Manager software, to enable data to be converted into a CSV format which can be read directly on a PC using Microsoft® Excel.

Megger PowerSuite software can be purchased to compliment any PAT400, providing full databased asset management and professional electronic certificate generation, providing options for multiple clients and locations.

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 PAT400 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. where high volume testing

requires that accurate records may be difficult to maintain, or aided by, on-board memory and download to management software. The PAT450 is particularly suitable for use in tool-hire shops where equipment is routinely tested prior to hire, or service workshops where deep disassembly is routine, and will perform a flash test in addition to standard PAT tests.

	PAT410	PAT420	PAT450
SUPPLY			
230 V	■	■	■
110 V		■	■
Supply measurement	■	■	■
EARTH BOND/CONTINUITY			
200 mA	■	■	■
10 A		■	■
25 A		■	■
Bond lead null	■	■	■
INSULATION TEST			
250 V	■	■	■
500 V	■	■	■
ALTERNATIVE LEAKAGE TESTS			
Substitute	■	■	■
Differential	■	■	■
Touch current	■	■	■
OPERATION TEST			
VA Measurement	■	■	■
EXTENSION LEAD TESTS			
Earth bond	■	■	■
Insulation	■	■	■
Polarity	■	■	■
Portable RCD tests	■	■	■
FLASH TEST			
1.5 kV and 3 kV			■
OTHER FEATURES			
Low-profile light weight	■		
Auto test routine	■	■	■
Manual testing	■	■	■
Fuse check	■	■	■
Colour display	■	■	■
110 V test connection		■	■
Configurable tests times	■	■	■
Selectable pass limits	■	■	■
Lead storage pouch	■	■	■
10,000 record on-board storage	■	■	■
Download to USB memory stick	■	■	■
PowerSuite compatible	■	■	■

SPECIFICATIONS

Electrical supply range

PAT410	230 V ± 10% @ 50/60 Hz
PAT420, PAT450	110 V ± 10% + 110 V ±10% @ 50/60 HZ

Bond test (10 A and 25 A) (not PAT410)

Open circuit voltage:	9 V a.c. ± 10% ± 0.1 V (Supply: 230 V 50Hz)
Earth bond resistance accuracy:	±5% ±3 digits (0 to 0.49 Ω) ±5% ±5 digits 0.5 to .99 Ω)
Earth bond resistance resolution:	10 mΩ (0 to 1.99 Ω)
Display range:	0 to 1.99 Ω

Continuity test (200 mA)

Continuity test voltage:	4.0 V d.c. -0% +10%
Continuity resistance accuracy:	±5% ±3 digits (0 to 0.49 Ω) ±5% ±5 digits 0.5 to .99 Ω)
Continuity resistance resolution:	10 mΩ (1 to 19.99 Ω)
Display range:	0 to 19.99 Ω

Insulation test (250 V and 500 V)

Insulation resistance accuracy (230 V):	±2% ±5 digits (0 to 19.99 MΩ) ±5% ±10 digits (20 to 99.99 MΩ)
Insulation resistance resolution:	0.01 MΩ
Display range:	0 to 99.99 MΩ

Substitute leakage test

Test voltage and frequency:	40 V a.c. ±10% nominal mains frequency
Leakage current accuracy:	±5% ±5 digits
Leakage current resolution:	0.01 mA
Display range:	0 to 19.99 mA

Differential leakage current

Test voltage:	Nominal mains 110/230 V ac
Test frequency:	Nominal mains 50/60 Hz
Differential leakage current accuracy:	±5% ± 0.05mA (1.0mA to 9.99mA) ±5% ± 0.1mA (0.1mA to 0.99mA)
Resolution:	0.01 mA
Display/measurement range:	0.10mA to 19.99mA
Test duration:	User selectable from 1 sec 10 sec + ∞

Reading corrected to 230 V + 10% or 110 V + 10% ac.

Touch current test

Test voltage and frequency:	Nominal mains supply
Touch current accuracy:	±5% ±5 digits
Touch current resolution:	0.01 mA
Display:	0 to 10 mA

Operational test

Test voltage and frequency:	Nominal mains supply
VA rating:	230 V 3700 VA 110 V 1800 VA
VA accuracy:	±5% ±10 digits (0 - 99 VA) ±5% ±50 digits (100 VA - 999 VA) ±5% ±100 digits (1000 VA - 3700 VA)
Resolution:	1 VA (0 to 3700 VA)
Display range:	0 to 3990 VA

Extension lead test

Tests performed:	Bond, insulation and polarity
Polarity test voltage:	12 V
Polarity checks:	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:	±5% ±5 digits
Flash test breakdown current resolution:	0.01 mA
Display range:	0 to 3.0 mA

Portable RCD test

Test voltage and frequency:	Nominal mains supply
Test current accuracy:	-8% to -2% (1/2 x I)
	+2% to +8% (1 x I, 5 x I)
Trip time accuracy:	±1% ±5 digits
Trip time resolution:	0.1 ms
Display range:	0 to 1999 ms (1/2 x 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

Environmental

Operating temperature:	-10 to +50 °C
Storage temperature:	-20 to +60 °C
Humidity:	90% RH @ -10 to +30 °C
	75% RH @ +30 to +50 °C
Maximum altitude:	2000 m
Ingress protection:	IP40

Weight

PAT410 (with packaging)	2.7 kg (3.2 kg)
PAT420 (with packaging)	4.4 kg (4.9 kg)
PAT450 (with packaging)	5.0 kg (5.5 kg)

Dimesions

PAT410	145 (H) x 255 (W) x 320 (L)
PAT420 & PAT450	180 (H) x 255 (W) x 320 (L)
Packaging:	210 (H) x 280 (W) x 390 (L)

Safety

IEC 61010-1: CAT II 300 V

EMC

IEC 61326-1: 2006
IEC 61326-2-2: 2005

ORDERING INFORMATION

Product	Order Code
PAT410-UK	1000-745
PAT420-UK	1000-752
PAT450-UK	1000-755
Included accessories	
Printed quick start guide	
Full user guide on CD	
Calibration Certificate	
Continuity / earth bond lead + probe (black)	2000-870
Extension lead adaptor 13 A	2000-881
Flash lead 3.0 KV 3.5 mA (red) (PAT450 only)	5310-401
Carry case with lead/document pouch	2000-962
Plug adaptor IEC C6 - C13 (3 way 5 A PSU)	2000-551
Screen protector	

Product	Order Code
Optional accessories	
Extension lead adaptor (ELA) 110 V* (BS4343)	6220-639
110 V Mains lead adaptor BS1363 - BS4343	1000-766
415 V Adaptor lead (4 pin) to BS (BS1363) 16 A	1000-767
415 V Adaptor lead (5 pin) to BS (BS1363) 16 A	1000-770
Bar code scanner (USB)	1001-047
Pass/fail barcode label printer (USB)	1001-046
USB lead – PAT – printer	25970-041
Barcode printer label refills (cartridge)	90001-010
Appliance bar-code labels (1-1000)	6121-483
Roll of 1000 FAIL test labels	1001-227
Roll of 1000 PASS test labels	1000-971
PAT accessory pouch	2001-044
PAT test certificate book	1001-299
Screen protector (2)	1002-572

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CERTIFICATION ISO
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