**DESCRIPTION**

The PAT100 series of hand-held portable appliance testers enable simple, fast safety testing in all environments including offices, shops and business units. It is ideally suited to training organisations with a very short learning curve and tough, reliable functionality. With rubber armoured cases and fitted with hardened, scratch proof glass, the PAT100s are exceptionally tough instruments.

Battery powered operation makes the PAT100s perfect for those locations where an electrical supply is not available, inconvenient or unsafe, especially building sites and warehouses. The PAT100 series conforms to all UK and European requirements for electrical safety testing.

**Test groups**

Test groups enable the correct sequence of tests to be performed automatically with minimum intervention by the user. This keeps testing simple, reduces test times to a minimum and helps to prevent testing errors.

**PAT120:**
- The PAT120 model has test groups available for Class I, Class II and Extension/Power leads.
- Fixed PASS limits.
- Insulation testing at 500 V (default) or 250 V can be selected at the start of the test.
- Leakage testing uses a “Substitute Leakage” also known as the “Alternative” method to remove the need for a mains supply during test.

**PAT150:**
- The PAT150 has additional tests available for testing portable RCDs (PRCDs) of 10 mA and 30 mA.
- Separate tests for continuity, insulation, mains powered leakage testing and SELV measurements can be made using the Quick Test (QT) button.
- Test group pass limits and test duration can be configured by the user.
- Bond lead resistance can be nulled to reduce measurement errors.
- Live circuit measurement is available for testing the mains supply and socket polarity or electrical circuit voltage to 300 V ac.
- Can be used for testing fixed appliances.

**Continuity test**

Used for measuring the proper bonding of all metal parts of a class I device to the protective conductor. Tests are performed at 200 mA dc in both polarities to be compliant with international and UK regulation or recommendations. This test is safe to perform on equipment where higher test currents could cause damage.

**Insulation testing**

Used for measuring the separation of conductive parts or conductors from earth. This test is usually performed at 500 V dc. The PAT100 series maintain the necessary test voltage down to 0.5 Mohms.
An additional 250 V dc insulation test is available on all models for use on IT equipment, on devices or extension leads that are fitted with surge protection, or simply where it may be considered undesirable to use a 500 V test.

Substitute leakage testing
Substitute leakage testing enables the measurements of AC leakage currents, which could differ significantly from the DC Insulation test results.
Substitute leakage testing is performed at less than 40 V ac and does not require a mains supply.

Substitute leakage testing is used for measuring protective conductor current and touch current, in addition to an insulation test, or where it is considered an insulation test may damage equipment.

The Substitute leakage test will not operate equipment and so can be used where the operation of the equipment under test is undesirable.

Portable RCD testing (PRCD)
Portable RCDs can be tested using the PAT150. There is no need to find a non-RCD protected supply as the PAT150 will not trip external RCDs.
Both 10 mA and 30 mA RCDs can be tested both for disconnection times and the manual test button function.

Separated Extra Low Voltage (SELV) supplies
SELV supplies should be tested to ensure the output voltage does not exceed maximum limits as defined in the international regulations for Extra Low voltage systems. The PAT150 permits up to 50 V ac measurement, with a PASS or fail indication for SELV.

Differential Leakage (Protective Conductor Current), Touch Current & operational test
The PAT150 includes the facility for mains powered leakage test. This test has the benefit that equipment under test will function during the test sequence.

Battery life
The PAT120 & PAT150 operates from AA Alkaline or NiMH cells. Battery life is typically 4 days, based on 120 assets per day.
The PAT150R can be re-charged with NiMH batteries fitted.
**SPECIFICATIONS**

**ENVIRONMENTAL CONDITION:**
- Operating ambient: 20°C
- Humidity: Nominal humidity

**CONTINUITY TEST**
- Test voltage: Compliance Voltage: +4V dc, -0% to +10% (open circuit)
- Test current: Bi-directional, +200mA, -0% + 50mA (into 2Ω load)
- Continuity accuracy: Resistance: ± 5% ± 3 digits (0 to 19.99 Ω)
- Resistance resolution: 10 mΩ
- Display range: 0.01 to 19.99Ω
- Continuity test nulling: up to 9.99 Ω
- Test time: User selectable from 2 sec to 20 sec or selected during test to 180 sec

**INSULATION TEST**
- Insulation test: 250V dc –0 %/+25 % open circuit
  - 500V dc –0 %/+25 % open circuit
  - ≥ 500V 0% dc across 0.5 MΩ load
- Short circuit/charge current: < 2mA dc
- Insulation accuracy: ±3% ±10 digits (0 to 19.99 MΩ)
- Resolution: 0.01 MΩ
- Display range: 0.10 MΩ to 99.99 MΩ
- Test duration: User selectable from 2 sec to 20 sec or selected during test to 180 sec

**SUBSTITUTE LEAKAGE TEST**
- Leakage current: Accuracy ± 5% ± 3 digits
- Test frequency: Nominal mains frequency 50Hz
- Test voltage: < 50V ac
- Resolution: 0.01mA
- Display range: 0.10 to 19.99mA
- Test duration: User selectable from 2 sec to 5 seconds

**DIFFERENTIAL LEAKAGE CURRENT**
- Reading corrected to 230V ac.
- Test voltage: Nominal supply voltage 230 V ac
- Test frequency: Nominal mains frequency 50 Hz
- Test accuracy: ±5% ±3d ±3uA/V
- Resolution: 0.01 mA
- Display range: 0.10 to 19.99 mA
- Test duration: User selectable from 2 sec to 5 seconds

**TOUCH CURRENT TEST**
- Test voltage: Nominal mains 230 V ac
- Test frequency: Nominal mains 50 Hz
- Test accuracy: ± 5% ± 3 digits
- Resolution: 0.01 mA
- Display range: 0.10 to 3.99 mA
- Test duration: User selectable from 2 sec to 5 sec

**SELV DEVICE TEST**
- Test voltage: 0 to 300 V ac
- Measurement accuracy: ± 3% ± 3 digits
- Resolution: 0.1 V ac
- Display range: 0.1 to 300 V ac

**EXTENSION LEAD TEST**
- Test includes Insulation and Bond tests.
- Test voltage: 5V
- Polarity:
  - Lead OK
  - Live/neutral shorted
  - Live/neutral reversed
  - Live/neutral open circuit

**PORTABLE RCD TEST**
- Test voltage: Nominal mains 230 V
- Test frequency: 50Hz
- Test current accuracy: +2% to +8% (1 x I, 5 x I)
- Trip time accuracy: ±1% ± 1ms
- Trip time resolution: 0.01ms
- Display range:
  - 0 to 200ms (1 x I)
  - 0 to 40ms (5 x I)

**MAINS SUPPLY TEST**
- Frequency measurement range: 50 Hz
- Test voltage: 40 to 300V ac
- Accuracy: ± 3% ± 3 digits
- Resolution: 0.1Vac
- Display range: 40 to 300V ac

**CIRCUIT TEST**
(Carried out automatically, not available to user)
- Test voltage: Nominal Mains 50 Hz
- Test frequency: < 100mA short circuit

**Safety**
- Instrument designed to IEC 61010-1: 2012
- Test leads designed to IEC 61010-031: 2005
- 300 volts to Earth Category II
- Mains fuse protection to 250 volts rms ac
EMC

Fuse
(user replaceable)
UK variants has mains plug fuse
One F 100 mA 250 V 5 x 20 mm HBC fuse.

ENVIRONMENTAL
Operating temperature range
0°C to +40°C
Storage temperature range
-20°C to +60°C
Humidity
90%RH @ +10°C to +30°C
75%RH @ +30°C to +40°C
Maximum altitude
2,000m to full safety spec.
IP rating
IP40 (with front cover closed)

MECHANICAL
BATTERIES
Battery life
3 days based on 120 tests/day using 2000 mAh Alkaline batteries
Battery type
Supply voltage
12 Vdc (Alkaline AA LR6)
9.6 Vdc (NiMH AA LR6)

WEIGHT
PAT120 (instrument only): 1150 g
Shipping weight: 2370g
PAT150 (instrument only): 1300 g
Shipping weight: 2795g
PAT150R (instrument only): 1300 g
Shipping weight: 2975

DIMENSIONS
Dimensions (instrument and case)
203mm (L) x 148mm (W) x 78mm (H)
Dimensions (instrument and packaging)
456mm(L) x 178mm (W) x 89mm (H)

ORDERING INFORMATION

<table>
<thead>
<tr>
<th>Description</th>
<th>Order Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>PAT120-UK PORTABLE APPLIANCE TESTER</td>
<td>1003-062</td>
</tr>
<tr>
<td>PAT150-UK PORTABLE APPLIANCE TESTER</td>
<td>1003-064</td>
</tr>
<tr>
<td>PAT150R-UK PORTABLE APPLIANCE TESTER</td>
<td>1003-428</td>
</tr>
</tbody>
</table>

Included accessories for PAT120
- Continuity/earth bond lead 1001-233
- Carry case 1005-075

Included accessories for PAT150
- Continuity/earth bond lead 1001-233
- SELV/mains voltage test lead Red x1 1005-077
- Extension lead adaptor BS1363 1001-234
- Mains plug test lead 6231-601
- Carry case 1005-075

Included accessories for PAT150R
- AC Mains charger – multi-country 1003-436
- Plug adaptor IEC C6 - C13 2000-551
- Roll of 1000 PASS test labels 1000-971
- PAT test certificate book 1001-299
- PTDVD - DVD covering Portable Appliance Testing 1002-384

Optional accessories
- PAT100 SERIES
- Handheld portable appliance testers

UK
Archcliffe Road Dover
CT17 9EN England
T +44 (0) 1304 502101
F +44 (0) 1304 207342
UKsales@megger.com

UNITED STATES
4271 Bronze Way
Dallas TX 75237-1019 USA
T 800 723 2861 (USA only)
T +1 214 233 3201
F +1 214 331 7399
USsales@megger.com

OTHER TECHNICAL SALES OFFICES
Valley Forge USA, College Station USA,
Sydney AUSTRALIA, Danderyd SWEDEN,
Ontario CANADA, Trappes FRANCE,
Oberursel GERMANY, Aargau SWITZERLAND,
Kingdom of BAHRAIN, Mumbai INDIA,
Johannesburg SOUTH AFRICA, Chonburi THAILAND

CERTIFICATION ISO
Registered to ISO 9001:2008 Cert. no. G 00290
Registered to ISO 14001-2004 Cert. no. EMS 61597

www.megger.com
Megger is a registered trademark.