

# PAT450 Technical Specifications

## Electrical supply range

230 V a.c

## Bond test

Open circuit voltage: 9 V a.c.  $\pm 10\% \pm 0.1$  V

10 A Bond test current:

10 A rms  $\pm 20\% \pm 0.5$ A into 0.1  $\Omega$

25 A Bond test current:

25 A rms  $\pm 5\% \pm 0.5$  A into 0.1  $\Omega$

Earth bond resistance accuracy:

$\pm 5\% \pm 3$  digits (0 to 0.49  $\Omega$ )

$\pm 5\% \pm 5$  digits 0.5 to .99  $\Omega$ )

Earth bond resistance resolution:

10 m $\Omega$  (0 to 1.99  $\Omega$ )

Display range: 0 to 1.99  $\Omega$

Adjustable test duration:

User selectable from 1 sec to 20 sec

## Continuity test

Continuity test voltage:

4.0 V d.c. -0% +10%

Continuity test current:

200 mA -0% +10%  $\pm 5$  mA

Continuity resistance accuracy:

$\pm 5\% \pm 3$  digits (0 to 0.49  $\Omega$ )

$\pm 5\% \pm 5$  digits 0.5 to .99  $\Omega$ )

Continuity resistance resolution:

10 m $\Omega$  (1 to 19.99  $\Omega$ )

Display range: 0 to 19.99  $\Omega$

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

Insulation resistance accuracy (230 V):

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

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

Insulation resistance resolution:

0.01 M $\Omega$  (0.10 to 99.99 M $\Omega$ )

Display range: 0 to 99.99 M $\Omega$

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

## Differential leakage current

Test voltage: Nominal mains 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

## Touch current test

Test voltage: Nominal mains 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

## Operational test

Test voltage: Nominal mains 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

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 230 V

RCD test frequency:

50Hz

Test current accuracy:

-8% to -2% (1/2 x 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 (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

## Safety

PAT400 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

# PAT410 Technical Specifications

## Electrical supply range

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

## Continuity test

Continuity test voltage:

4.0 V d.c.  $-0\% +10\%$

Continuity test current:

200 mA  $-0\% +10\% \pm 5$  mA

Continuity resistance accuracy:

$\pm 5\% \pm 3$  digits (0 to 0.49  $\Omega$ )

$\pm 5\% \pm 5$  digits 0.5 to .99  $\Omega$ )

Continuity resistance resolution:

10 m $\Omega$  (1 to 19.99  $\Omega$ )

Display range: 0 to 19.99  $\Omega$

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

Insulation resistance accuracy:

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

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

Insulation resistance resolution:

0.01 M $\Omega$  (0.10 to 99.99 M $\Omega$ )

Display range: 0 to 99.99 M $\Omega$

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

## Differential leakage current

Test voltage: Nominal mains 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

## Touch current test

Test voltage: Nominal mains 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

## Operational test

Test voltage: Nominal mains 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

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

## Portable RCD test

RCD test voltage: Nominal mains 230 V

RCD test frequency:

50Hz

Test current accuracy:

$-8\%$  to  $-2\%$  (1/2/x 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 (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

## Safety

PAT400 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