



PB500VX Quick Start Guide

PAT Testing sequence

1. Risk Assessment to determine frequency of testing.
2. Full visual Inspection which will determine the Class of the equipment.
3. PAT Test
4. Label the equipment & complete the record/log.
5. Functional Test

How to switch on/off & useful tips:

- Switch on: press the Class I & Class II buttons together until you hear two beeps.
- Switch off: press the Class I & Class II buttons together and hold.
- Remove batteries after use. Leakage can damage the printed circuit board.
- Apply a green pass label to the equipment itself, rather than the plug, and use a cable tag for a lead.

Where to find more information

The Parker Bell website www.parker-bell.co.uk has lots of useful information. Free PAT Tester training can be found at www.onlinepattestingcourse.co.uk. You can call us and get technical support Monday to Friday 9am until 5pm on 01392 364933 or by emailing sales@parker-bell.co.uk.



Visual Inspection

- Is the plug damaged in any way?
- Check the plug is suitable?
- Ensure the flexible lead is secure at the anchorage grip.
- Has a non-moulded plug been correctly wired?
- Are the wires securely attached to the correct terminals?
- Any loose strands of wire?
- Does the fuse have the correct fuse rating and is it secure?
- Remove any paper wiring diagram that might have been placed over the pins.
- New plugs must have a partial sleeve on the live and neutral pins.
- Straighten any tightly bent cable.
- Make sure leads haven't been damaged.
- Extension leads **should** be Class I.
- Remember, extension leads should only be used on a temporary basis. Install a new socket-outlet nearer the equipment.
- Check the equipment is not damaged in any way.

PASS

Update the visual inspection section of your register/log. You should now know the Class of the equipment you are testing.

FAIL

Minor faults can be rectified if you know how to, e.g., changing an incorrect fuse or broken plug. You can then proceed to test.

Other repairs will need to be carried out by an electrician or competent person and your action recorded in your register/log.



Using the PB500VX

Insulation Resistance

The PB500VX displays the Insulation Resistance voltage of a test when initiated as either:

500V representing a 500 volts Test

250V representing a 250 volts Test

The machine is initially set to 500 volts. You can change the value to 250 volts during the test of surge-protected equipment. It will revert to 500 volts for subsequent tests. For further information see the **Set Up Guide** on page 12.

Leakage Limits

The PB500VX default setting displays the maximum reading in mA for both Class I and Class II as shown in the table below:

Equipment	IET 5 th Edition Values
Class I	5mA
Class II	5mA



Class I Test

Only carry out the PAT test once a full visual inspection has been completed and passed

Class I equipment is earthed and has 3 wires in the plug. Earth, Live and Neutral.

1. Switch on the PB500VX.
2. Insert the round jack of the earth test lead into the top of the PB500VX.
3. Using the probe or crocodile clip connect to an external metal earth point on the equipment.
4. Inset the plug of the equipment into the front socket of the PB500VX.
5. Make sure the equipment switch is in the ON position.
6. Press the **Class I** button.
7. If **Long Lead Test?** is displayed, a calculation is required. Go to page 10.
8. If **Lo Load** is displayed on the screen, check the equipment is switched on. If there is no on/off switch press the **Class I** button again.

PASS

Update the appropriate section of your register/log.

FAIL

No Earth – See Page 12.

Long Lead Test -Page 10.

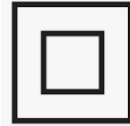
X Riso – See X Riso Fail Guide – Page 12.

X Ileak – See X Ileak Fail Guide – Page 12.

Class II Test

Only carry out the PAT test once a full visual inspection has been completed and passed

Class II equipment has two wires in the plug: live and neutral. This symbol is often displayed on the manufacturer's label.



1. Switch on the PB500VX.
2. Inset the plug of the equipment into the front socket of the PB500VX.
3. Make sure the equipment switch is in the ON position.
4. Press the **Class II** button.
5. If **Lo Load** is displayed on the screen. Check the equipment is switched on. If there is no on/off switch, press the **Class II** button again.

PASS

Update the appropriate section of your register/log.

FAIL

X Riso – See X Riso Fail Guide – Page 12.

X ILeak – See X ILeak Fail Guide – Page 12.

Class II FE Test

Only carry out the PAT test once a full visual inspection has been completed and passed.

Class II FE equipment has three wires in the plug; a ***functional*** Earth, Live and Neutral. This symbol is often displayed on the manufacturer's label.



This equipment is tested as a Class II because the earth wire is **not protective**. See Page 5.

PASS

Update the appropriate section of your register/log.

FAIL

X Riso – See X Riso Fail Guide – Page 12.

X ILeak – See X ILeak Fail Guide – Page 12.



IEC Lead Testing

Only carry out the PAT test once a full visual inspection has been completed and passed.

IEC Leads should be recorded and labelled separately.

1. Switch on the PB500VX.
2. Insert the socket of the supplied IEC lead into the IEC plug located on the top of the PAT Tester.
3. Insert the plug of the IEC lead into the socket of the PB500VX.
4. Press the **Cord** button.
5. If **Long Lead Test?** is displayed, a calculation is required. Go to page 10.

PASS

Update the appropriate section of your register/log.

FAIL

No Earth – See Page 12.

Long Lead Test - Page 10.

X Riso – See X Riso Fail Guide – Page 12.

Short/Open/Cross – See Polarity Fail Guide – Page 12.



Extension Lead Testing

Only carry out the PAT test once a full visual inspection has been completed and passed.

Extension leads should be recorded separately.

1. Switch on the PB500VX
2. Insert the socket of the supplied IEC lead into the IEC plug located on the top of the PAT Tester.
3. Insert the plug of the IEC lead into the first or only socket of the extension lead and insert the plug of the extension lead into the socket of the PB500VX.
4. Press the **Cord** button.
5. Repeat the test for every socket.
6. If **Long Lead Test?** is displayed, a calculation is required. Go to page 10.
7. All sockets must be tested. If one fails, the lead must be failed.

PASS

Update appropriate section of your register/log.

FAIL

No Earth – See Page 12.

Long Lead Test – Page 10.

X Riso – See X Riso Fail Guide – Page 12.

Short/Open/Cross – See Polarity Fail Guide – Page 12.



Mains Power Outlet/Socket Test

Only carry out the PAT test once a full visual inspection has been completed and passed.

1. Switch on the PB500VX.
2. Insert the socket of the supplied IEC lead into the IEC plug located on the top of the PAT Tester.
3. Insert the plug of the IEC Lead into the mains power outlet.
4. Switch the socket on.

PASS

Update the appropriate section of your register/log.

FAIL

LN / LE / NE X Fail – shows incorrect wiring. Do not use the socket and contact an electrician.



Long Leads Tests.

***If the equipment you are testing does not have a long lead you should seek a better earth connection.**

If the PB500VX displays **Long Lead Test?** the display will pause for approx. 9 seconds before continuing the test sequence. You will see an **X** displayed next to **Rpe** and an overall **Fail**.

1. Perform the calculation on page 11 to determine if the resistance reading is within maximum tolerance.
2. If the resistance reading is acceptable repeat the test and press the **Cord** button again when **Long Lead Test?** appears.
3. A ✓ will now appear next to **Rpe**.

Note. You must not press the cord button for a second time unless you are certain you have carried out the calculation on page 11, otherwise you may have a false positive outcome.

Long Lead Earth Resistance Calculation

Cable CSA	Ohms per metre
0.5mm ²	0.039Ω
0.75mm ²	0.026 Ω
1.0mm ²	0.0195 Ω
1.25mm ²	0.0156 Ω
1.5mm ²	0.0133 Ω
2.5mm ²	0.008 Ω
4.00mm ²	0.005 Ω

The above table shows the **ohms (Ω) per metre** value for the **CSA (cross sectional area)** of the lead.

The maximum figure is calculated by multiplying the length of the lead in metres by the Ohms per meter value for the lead's CSA plus 0.1 ohm. The CSA is stamped on the lead.

Lead length	×	Ohms per metre	+	0.1 Ω	=	Calculation result
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e.g.

25m	×	0.026 Ω	+	0.1 Ω	=	0.75 Ω
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Remove or repair the equipment if the figure shown on the PC500VX is **above the calculated figure**.



No Earth – probable causes

1. Have you connected the earth test lead?
2. The earth test lead probe/clip is not touching an external earth point. Retry on other metal parts.
3. The earth wire is broken. The equipment should be removed from use.
4. If using the IEC lead, is it fully inserted into the plug at the top of the PB500VX?

X Riso Fail Guide

If your surge-protected equipment/extension lead has failed the 500 volts Riso insulation resistance test, the setting can be changed to 250 volts by repeating the test as follows.

Press and hold down the Cord button for 5 seconds until a beep is heard. A small triangular symbol with an exclamation mark will briefly flash at the bottom of the screen. Release the button and the Riso test will be done at 250 volts. **The Riso test will then revert to 500 volts for any subsequent tests.**

Remove or repair equipment if it still fails.

X Ileak Fail Guide

The **maximum value** for Class I, Class II and Class IIFE is **5.0 mA**. Any reading above is a fail.

Polarity Fail Guide

If your equipment/lead/socket is incorrectly wired, the screen will indicate the reason such as short, open (not connected) or crossed.



Set Up Guide

The PB500VX Set Up Menu allows:

1. The resistance of the earth **Rpe** test to be set as either 0.1 Ω , 0.2 Ω or 0.3 Ω .
2. The default voltage of the insulation resistance **Riso** test to be changed from 500 vdc to 250 vdc.
3. The **ILeak** resistance test, which is set in accordance with the IET 5th Edition Code of Practice, to be changed to the British Standard BS EN 50699 & BS EN 5067800.

Entering the Set-Up Menu:

Press and hold the Class II and the Cord buttons at the same time until the **SETUP** menu displays.

1. To change the resistance of the earth **Rpe**, press the Class I button.
2. To change the voltage of the insulation resistance **Riso**, press the Class II button.
3. To change the **ILeak** resistance test from the IET standard to the British Standard, press the Cord button. Wait until the symbols **Rpe** and **Riso** re-appear.

Saving and Exiting the Set-Up Menu.

To save and exit press the Class II and Cord buttons together. **If this is not done the PB500VX will remain in the Set Up menu mode.**

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