

ProTag™

PAC-3P 3 Phase Appliance & Extension Lead Tester

User Manual

Made in Australia by:
Emona Instruments Pty Ltd
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1.0 Introduction

The PAC-3P is a portable, battery powered 3 phase stand-alone test instrument for performing earth continuity and earth leakage current tests as required by AS/NZS 3760, including:

Earth continuity @ 200mA

Leakage Current Test – Mains-powered

The unit conducts a sequence test, starting with an earth continuity test and then proceeding with the leakage test. It indicates Pass/Fail and the actual measured readings on the LCD display and provides on-screen user prompts. It includes safety features such as preventing a leakage current test in event of a failed earth continuity test result. 20A and 32A extension lead test adaptor is included with an earth test pin terminal, which eliminates the need for probing of the extension lead earth.

2.0 PAC-3P Specifications

Display LCD

Indication PASS/FAIL and measured values

Operation 2 push buttons

Earth Continuity Test:

Display Range 0.1ohm to 20ohm

Test Current 200mA

Pass/Fail Limit 1ohm

Accuracy better than 5% at 1ohm

Leakage Test:

Display Range 0.15mA to 9.99mA

Pass/Fail Limit 5mA

Accuracy better than 5% at 5mA

Power Source 2x9V batteries

Accessory 20A and 32A extension lead test adaptor with earth test pin

3.0 User Note

This instrument and its operating instructions are intended for use by adequately trained personnel who are AS3760 competent.

It is important to follow the documentation and operating instructions to avoid danger.

4.0 Safety

In order to ensure safe operation of this instrument, all WARNING and CAUTIONS must be observed at all times.

WARNINGS

- If the test equipment is used in a manner not specified in this user manual, the protection provided by the equipment could be impaired.
- Read this user manual carefully, otherwise the use of the instrument may be dangerous for the operator, the instrument or for the equipment under test.
- Consider all generally known precautions in order to avoid risk of electric shock when dealing with hazardous voltages.
- Do not use the instrument in supply systems with voltages higher than 550V.
- Do not open unit, no other user serviceable parts.
- Hazardous voltages exist inside the instrument. Disconnect all test leads, remove the power supply cable and switch off the instrument before replacing batteries
- Always ensure that the appliance or lead under test is electrically isolated
- High voltages are present at the L1, L2 and L3 terminals when connected to the mains. Always use the adaptor provided to test extension leads, do not use the “probing” method.
- Do not touch any exposed metal parts of the PAC-3P during testing.
- Do not leave the PAC-3P permanently connected to the mains. Always disconnect all test leads immediately after use.

CAUTIONS

- The PAC-3P is intended for use in a dry environment only
- The PAC-3P BLACK earth clamp must **always** be used to provide earth continuity.
- Check the PAC-3P and all associated cables and leads and appliance/lead under test before conducting each test. Do not use if there are signs of damage.

When safe operation of the PAC-3P is no longer possible it should be immediately shut down and secured to prevent accidental operation.

It must be assumed that safe operation is no longer possible:

- if the instrument or leads show visible signs of damage or
- the instrument does not function or
- after long periods of storage under adverse environmental condition

5.0 Accessories

5.1 Standard Contents

The PAC-3P tester is supplied with the following items:

- 1 x PAC-3P unit
- 1 x PAC-3P-ELA Extension Lead Test Adaptor Set (20A/32A)
- 1 x User Manual

5.2 Type of Batteries

- 2 x 9V batteries

Replacement of batteries:

1. Pull the battery compartment up (Figure 1 – No 6)
2. Withdraw battery from its case
3. Put a new 9V battery into the case
4. Insert the battery case back into the compartment

5.3 Cleaning Instructions

You can clean the instrument regularly or as needed.

CAUTION: Please ensure unit is OFFLINE and disconnected from mains power.

When the panel surface or cover becomes soiled, wet piece of soft cloth with a water-diluted neutral detergent and wipe the surface gently.

Do not put volatile solvents such as thinner or benzene. They may discolour the unit surface coating and/or erase printed characters.

Do not wipe any exposed metal with excessive liquid.

After cleaning, wait until unit is completely dry prior to use.

6.0 Unit Description

6.1 PAC-3P 3 PHASE LEAKAGE TESTER

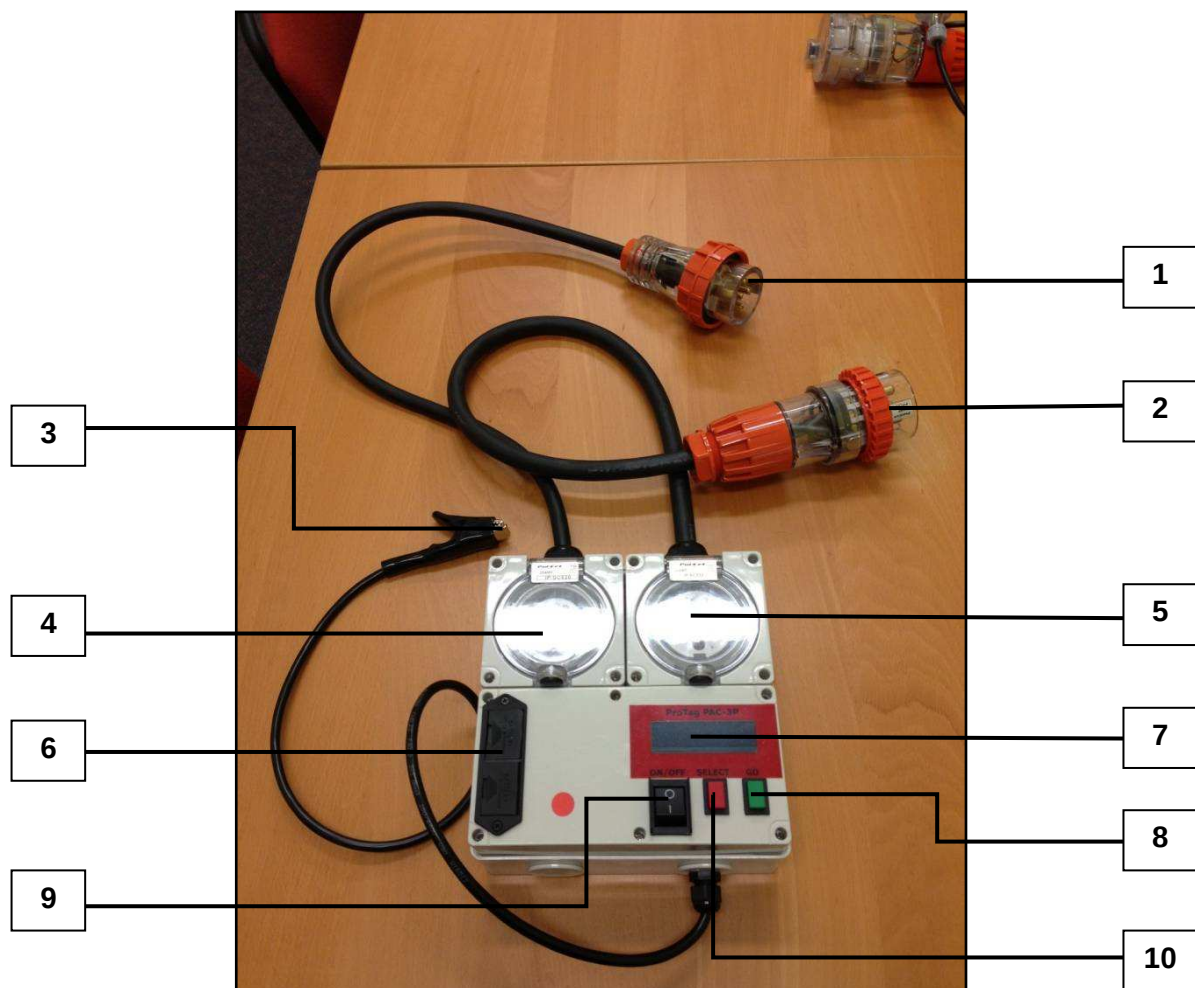


Figure 1

1. 20A Plug to Mains
2. 32A Plug to Mains
3. Earth Continuity Clamp
4. 20A Test Socket (for Appliances/Leads)
5. 32A Test Socket (for Appliances/Leads)
6. 9V Battery Compartments
7. LCD Screen
8. GO test key
9. Power ON/OFF button
10. SELECT test key

6.2 PAC-3P-ELA 3 PHASE EXTENSION LEAD TEST ADAPTOR

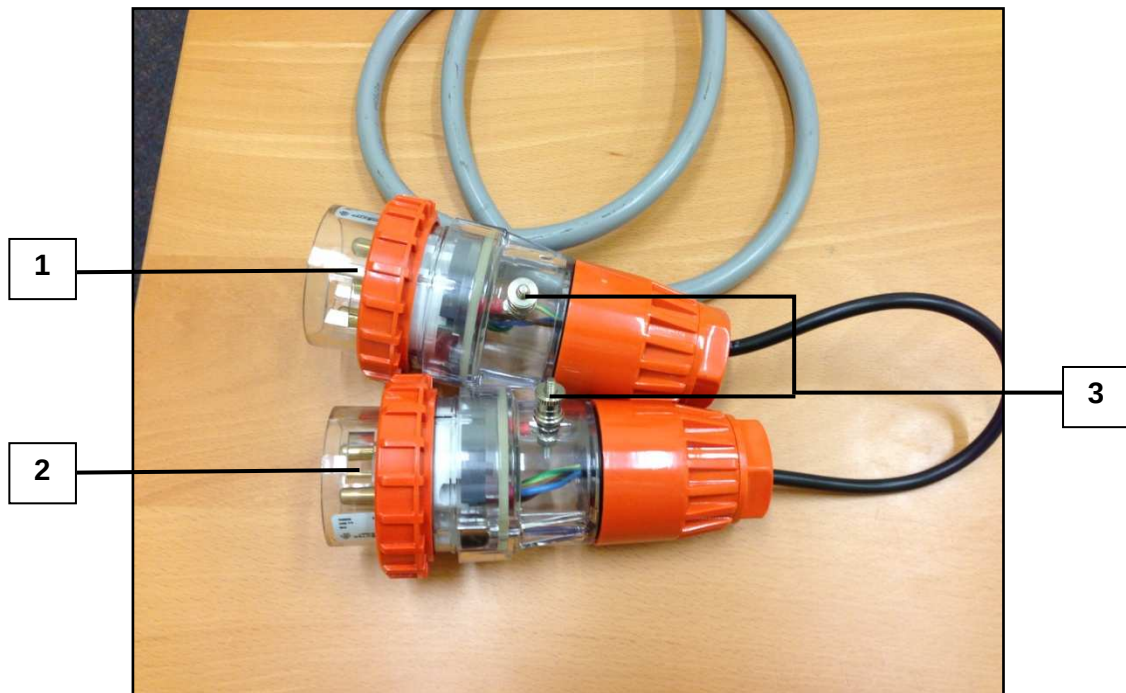


Figure 2

1. 20A Plug Test Lead
2. 32A Plug Test Lead
3. Earth Test Pin Terminal (Attach Earth Clamp Here)

7.0 Using the PAC-3P Leakage Tester

7.1 Power On PAC-3P Tester

To turn the PAC-3P on, switch the power button (Figure 1 – No 9) to the ON position.

NOTE: *The LCD screen will light up when unit is on.*

NOTE: *If battery is indicated as low, please change or replace with new batteries.*

7.2 Preliminary Electrical Safety Check

Always ensure that the appliance or lead under test is electrically isolated

7.3 Earth Continuity & Leakage Current Measurements

WARNINGS

For leakage current measurement, the equipment rating to be measured shall **NOT** exceed:

- For 3-phase 20A plug and socket: **415V/20A**
- For 3-phase 32A plug and socket: **415V/32A**

7.3.1 Testing 3-Phase APPLIANCES

Procedure:

- 1) Plug the 3-phase appliance under test into one of the PAC-3P sockets (20A or 32A).



- 2) Clip earth clamp to exposed metal of your 3-phase appliance.



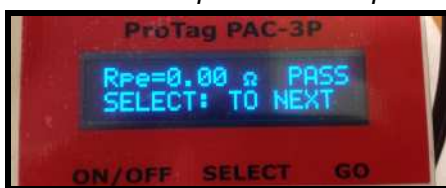
- 3) Check that PAC-3P is switched ON (Figure 1 – Button 9).
- 4) Please use the “**SELECT**” button until “**GO: APPLIANCE TEST**” is selected on screen.



- 5) Press “**GO**” to confirm.
- 6) Press “**GO**” – The PAC-3P will check earth continuity ($R_{pe} < 1\Omega$ is a PASS).
- 7) Press “**SELECT**” – If R_{pe} = PASS it will continue to the next stage of testing.

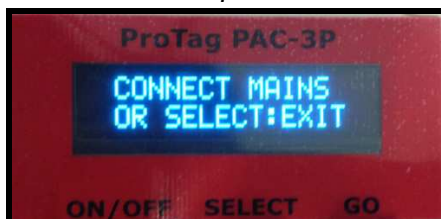
If R_{pe} = FAIL the PAC-3P will exit the testing procedure.

NOTE: If the R_{pe} has failed please check and verify your earth clamp connection.



- 8) Connect the PAC-3P mains plug (20A or 32A, depending on which test socket you are using) to an appropriate 3-phase power supply.

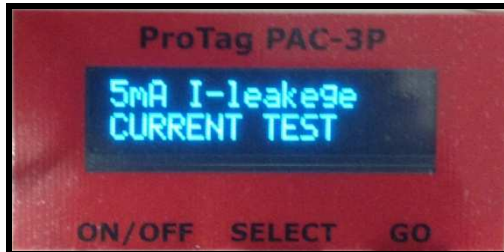
NOTE: Do **NOT** press “**SELECT**”, unless you want to exit the test.



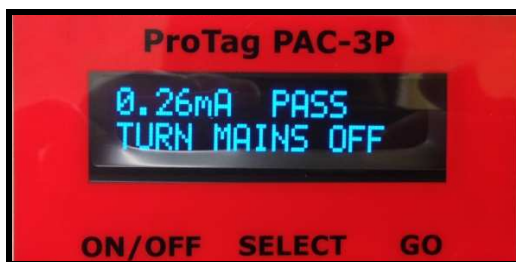
- 9) When MAINS is connected, the following message will appear on-screen.



- 10) Press "GO" to proceed with current leakage measurement.



- 11) After a few seconds, the measurement will be displayed on screen and indicate whether it is a **PASS** or **FAIL**.



- 12) Turn off the 3 Phase mains supply and then safely disconnect the PAC-3P from the 3 Phase mains socket.
- 13) Record the reading in your logbook or on your logging tester.
For PrimeTest 300, refer to Section 7.4.
- 14) Press: "**SELECT**" to exit to the main menu.

7.3.2 Testing 3-Phase EXTENSION LEADS

The procedure for testing 3-phase extension leads is very similar to testing 3-phase appliances; the difference is the user needs to use the Extension Lead Test Adaptor provided.

The test adaptor has its own earth terminal that is easily accessed on the outside of the case so that probing of the 3-phase plug is not required. It is designed to prevent the user from probing the earth clamp into the wrong terminal and thereby avoid the possibility of an electrical shock.

Procedures:

- 1) Plug the 3-phase extension lead into the appropriate test socket (20A or 32A).



- 2) Use one of the 3-phase Lead Test Adaptor's plugs (20A or 32A) and plug it into the socket of the extension lead to be tested.





- 3) Clip the PAC-3P's earth clamp to the earthed metal pin on the top of the Lead Test Adaptor plug being used.



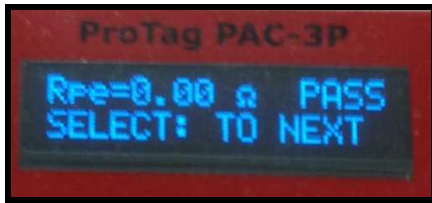
- 4) Switch the PAC-3P ON.
NOTE: *LCD screen will light up.*
- 5) Press the “**SELECT**” button until “**GO: LEAD TEST**” is selected on screen.



- 6) Press “**GO**” to proceed.
- 7) Press “**GO**” and the tester will conduct the Earth Continuity test.
- 8) Press “**SELECT**” – If Rpe = PASS it will continue to the next stage of testing.

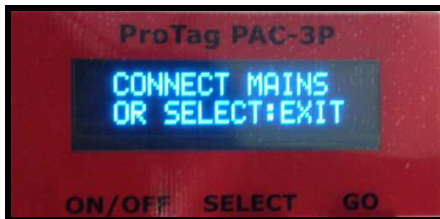
If Rpe = FAIL the PAC-3P will exit the testing procedure.

NOTE: *If the Rpe has failed please check and verify your earth clamp connection*



- 9) Connect the PAC-3P mains plug (20A or 32A to the appropriate socket) to the 3-phase power supply.

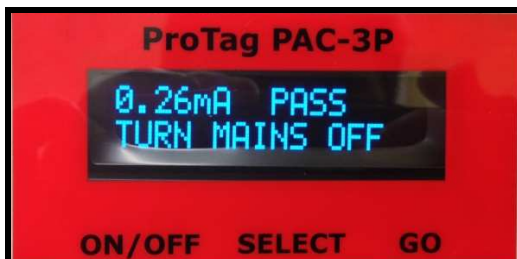
NOTE: Do **NOT** press "**SELECT**", unless you want to exit the test.



- 10) When MAINS is connected, the following message will appear on-screen.



- 11) Press "**GO**" to proceed with current leakage measurement. After a few seconds, the measurement will be displayed on screen and indicate **PASS** or **FAIL**.



- 12) Turn off the 3 Phase Mains supply and then safely disconnect the PAC-3P from the 3 Phase mains socket.
- 13) Record the reading in your logbook or on your logging tester. For the PrimeTest 300, refer to Section 7.4.
- 14) Press: "**SELECT**" to exit to main menu.

8.0 Recording Results on Seaward PrimeTest 300

This sequence will include a Visual Inspection and prompt for a log of the 3 phase leakage current reading from the PAC-3P.

Creating New Test Sequence

Note: *Perform once only*

1. Turn **"ON"** PrimeTest 300 and wait for it to load up
2. Press Menu (F4)
3. Select **"Configuration"**
4. Select **"Edit Test Sequences"**.
5. Press Options (F3)
6. Select **"Add New Sequence"**.
7. A new test sequence has been created, highlight new test sequence and select **"Edit"**.

Renaming New Test Sequence

8. Press **"Edit"**
9. Type in a new name (e.g. 3 Phase Leakage Log). Press **"Enter"**
10. Hit **"OK"**.

Inserting Sequence Details

11. Select **"Insert"** to add the Visual Inspection.
12. Select **"Visual Test"** from the drop-down box.
13. Press **"OK"**.
14. Scroll to **"End"**
15. Press **"Insert"** again to create "Leakage Current" log
16. Press the Right arrow (→) and scroll to **"User Test"**
17. Press **"Select"**
18. Change "User Test Name" from "Inspection" to "Leakage Current".
19. Press **"OK"** to confirm
20. Move the cursor down to **"User Test Units"** and press the Right arrow (→).

21. Type mA (milliamps)
22. Press "**Enter**" to confirm.
23. Press "**OK**" to return to the editing menu.
24. Press "**Esc**" and save changes (**OK**).
25. Press "**Esc**" again to exit to the main screen.
26. Sequence is now created.

Recording Results and Printing Tags

1. From the Main menu/screen Press F4
2. Select "**Auto Mode (New Test)**"
3. Confirm the Asset ID no is appropriate
4. Select the "**3 Phase Leakage**" test sequence that you created
5. Enter in the Site and Location details for the appliance/lead
6. Confirm Re-Test period is appropriate
7. Press "**OK**" to commence the test.
8. Confirm the Visual Inspection
9. Perform the Leakage test
10. Type in the measured reading (e.g. 2.60 mA)
11. Indicate PASS/FAIL (Press Pass or Fail).
12. Enter in Descriptions, Make, Model and Notes as required and then hit Save.
13. Press "Print" to print the Tag
(**NOTE:** *the printer should automatically pair to the PrimeTest 300 while you are testing*).

9.0 Service & Calibration

For service and calibration, please contact:

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