PAC3760 plus

Operating Instructions

Represented in Australia by:
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Part Number 372A550 Revision 2

Limited Warranty & Limitation of Liability

SEAWARD Electronic Limited guarantees this product to be free from defects in material and workmanship under normal use and service for a period of 1 year. The period of warranty will be effective at the day of delivery.

Due to a policy of continuous development SEAWARD Electronic Limited reserves the right to alter the equipment specification and description outlined in this publication without prior notice and no part of this publication shall be deemed to be part of any contract for the equipment unless specifically referred to as an inclusion within such contract.

DECLARATION OF CONFORMITY

As the manufacturer of the apparatus listed, declare under our sole responsibility that the product:

PAC3760 plus

To which this declaration relates are in conformity with the relevant clauses of the following standard:

IEC 61010-1:2001
Safety requirements for electrical equipment for measurement, control, and laboratory use – Part 1: General requirements.

IEC 61326:2005
Electrical equipment for measurement, control and laboratory user-EMC Requirements

Performance: The instrument operates within specification when used under the conditions in the above standards EMC and Safety Standards.

The product identified above conforms to the requirements of Council Directive 89/336/EEC and 73/23 EEC.

Seaward Electronic Ltd is registered under BS EN ISO9001:2000 Certificate No: Q05356.

Contents

1 Important Information

These operating instructions are intended for the use of adequately trained personnel.

The following symbols are used in these operating instructions and on the PAC3760 plus.

Caution, risk of electric shock. Indicates instructions must be followed to avoid danger to persons.

Caution, risk of danger. The operating instructions must be adhered to in order to avoid danger.

Caution, risk of electric shock. Always ensure that the equipment under test is disconnected from any supply before connecting to the PAC3760 plus.

It is the responsibility of the user to ensure that the operation of the unit is correct and that the accuracy of the measurements are within specification.

Before use, ensure unit is clean and dry; visually inspect all leads, connectors, and case. Any damage or wear must be rectified prior to use.

Standard Accessories

	Part Number
Carry Case	71G082
Mains Supply Test lead	44B165
Black Continuity/Earth Test Lead 1m	161A024
Australian IEC mains cord 0.5m	325A005

Optional Accessories

	Part Number
Leakage test 3-Phase Adaptor	372A950
Insulation test 3-Phase Adaptor	372A951
Isolation Transformer	372A952

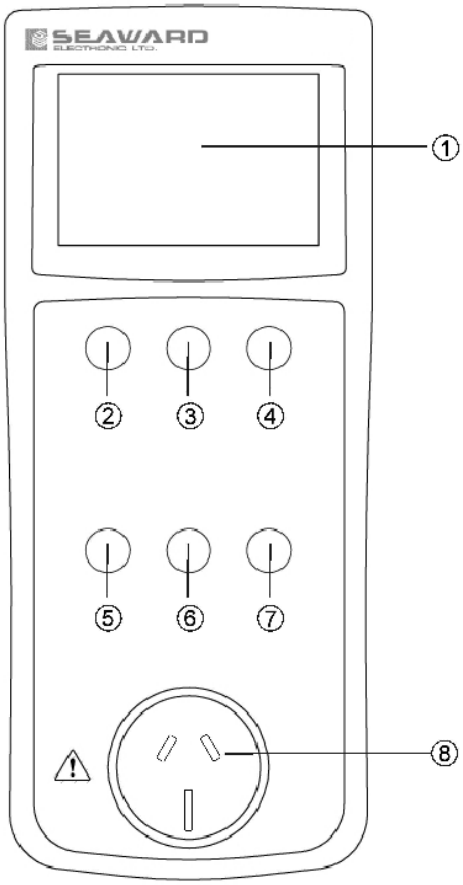


Figure 1. PAC3760 Front View

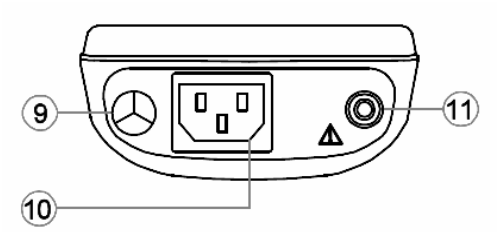


Figure 2. PAC3760 End View

2 Introduction

The PAC3760 plus is a hand held battery powered unit suitable for carrying out electrical safety checks on:

- Class I appliances
- Class II appliances
- IEC mains leads
- Extension leads
- 10mA RCD
- 30mA RCD
- 3 Phase appliances when used with a 3-Phase Adaptor

Overview

With reference to Figures 1 and 2.

1. The LCD
2. Class I Test / Cord Sequence Button
3. Class II Test Sequence Button
4. Leakage Test Sequence Button
5. 10mA RCD Test Button
6. 30mA RCD Test Button
7. 3-Phase Test Sequence Button
8. Test/Mains outlet socket
9. Mains inlet socket
10. IEC Test Connection
11. Earth Continuity Test Terminal

User Interface

The LCD display shows test progress, results for individual tests and the overall test result for an appliance or mains cord.

Measurements displayed next to the R_{PE} icon indicate the resistance of the protective earth conductor.
Measurements displayed next to the R_{ISO} icon indicate the resistance measured by the insulation test.
Measurements displayed next to the I_{LEAK} icon indicate the leakage current measured while the unit is powered from a mains supply.

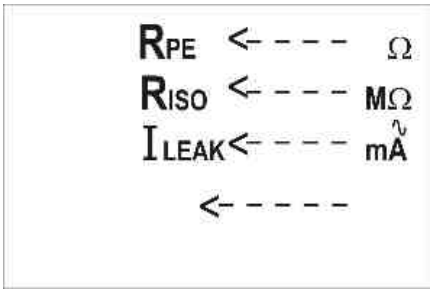
Tests are initiated using the six push buttons.

Power ON/OFF = press and hold the Class I and Class II test buttons simultaneously, PAC3760 plus will power on/off when buttons are released.

Note: The unit will automatically switch OFF after approximately 3 minutes if no keys are pressed.

3 Performing Tests

Press keys Class I and Class II test buttons together to switch on the unit. When the unit is ready the display will be as shown below.

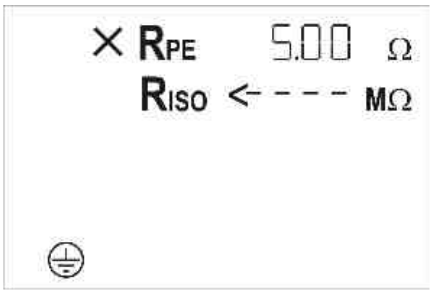


3.1 Testing a Class I Appliance

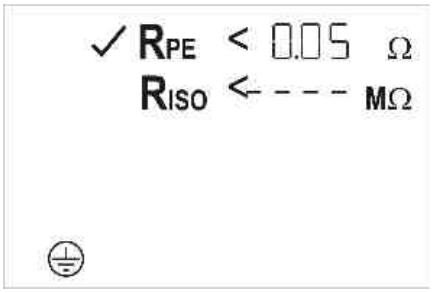
Visually inspect the appliance as per requirements of AS/NZS3760:2003. If the appliance passes a visual inspection proceed with the electrical tests.

Plug the earth test lead into the Earth Continuity test terminal on the PAC3760 plus end panel.
Plug the appliance into the PAC3760 plus front panel test socket.
Connect the earth test lead to an exposed metal part on the appliance.
If the Appliance under test has an ON/OFF switch, make sure it is in the ON position.
Press the Class I test button to start a Class I test sequence.
The PAC3760 plus will now test the continuity of the protective earth.

If the measured value is greater than the 1 ohm pass/fail threshold, the measured value is displayed and the unit indicates a fail result as shown below.



If the measured value is less than or equal to the 1 ohm pass/fail threshold, the measured value is displayed and the unit indicates a pass result, as shown below.



If the Earth Continuity test has passed then the unit will proceed with an Insulation test.

Note: The power switch on the appliance under test must be in the ON position to perform an insulation test. If no appliance is detected the PAC3760 plus will display LO LOAD.

If the **LO LOAd** enunciator is displayed, the load presented by the appliance may be too small for the PAC3760 plus to detect. In this case, press the Class I test button to continue.

If the Insulation test measures below the 1Mohm pass/fail threshold, the measured value is displayed and the unit indicates a fail.

If the measured value is greater than or equal to the 1 Mohm pass/fail threshold, the measured value is displayed and the unit indicates a pass result.

3.2 Testing a Class I Appliance with Leakage

Visually inspect the appliance as per requirements of AS/NZS3760:2003. If the appliance passes a visual inspection proceed with the electrical tests.

Plug the mains lead into the PAC3760 plus and a mains supply socket.

When plugging the mains lead into the PAC3760 plus ensure that the polarity orientation of the connector is correct. DO NOT FORCE THE PLUG INTO THE CONNECTOR, doing so may damage the PAC3760 plus.

Plug the earth test lead into the Earth Continuity test terminal on the PAC3760 plus end panel.
Plug the appliance into the PAC3760 plus front panel test socket.
Connect the earth test probe to an exposed metal part on the appliance.
If the Appliance under test has an ON/OFF switch, make sure it is in the ON position.
Press and hold the Leakage button and then the Class I test button.
The PAC3760 plus will now test the continuity of the protective earth.

If the measured value is greater than the 1 ohm pass/fail threshold, the measured value is displayed and the unit indicates a fail.

If the measured value is less than or equal to the 1 ohm pass/fail threshold, the measured value is displayed and the unit indicates a pass result.
The unit will proceed with a Leakage test.

Note: The power switch on the appliance under test must be in the ON position to perform a leakage test. If no appliance is detected the PAC3760 plus will display LO LOAD.

The ILEAK icon will flash, press the Leakage button to start a Leakage test.

The mains supply status is checked and the status is indicated using the LN, LE and NE enunciators of the LCD.

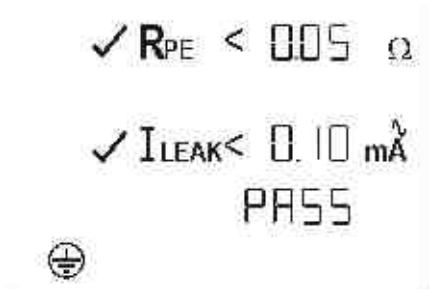
LN	**LE**	**NE**	**Mains status**
ON	ON	OFF	Correct
Flash	Flash	OFF	No mains
OFF	Flash	Flash	Earth fault
OFF	Flash	Flash	Live/neutral reversed

If the **LO LOAd** enunciator is displayed, the load presented by the appliance may be too small for the PAC3760 plus to detect. In this case, press the Leakage button to continue.

Note: If the High Load enunciator is displayed, the load presented by the appliance may be too great for the PAC3760 plus and users should carry out an insulation test.

If the Leakage current is greater than 5mA the **FAIL** enunciator is illuminated.

If the Leakage current is less than or equal to 5mA a tick is placed next to the **ILEAK** enunciator.
The **PASS** enunciator is illuminated.



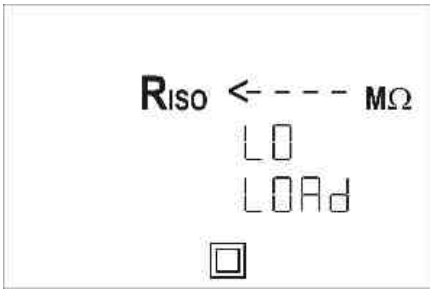
3.3 Testing a Class II Appliance

Visually inspect the appliance as per requirements of AS/NZS3760:2003. If the appliance passes a visual inspection proceed with the electrical tests.
Plug the black continuity test lead into the Earth Continuity test terminal on the PAC3760 plus end panel.
Plug the appliance into the PAC3760 plus front panel test socket.
Connect the black continuity test lead to an exposed metal part on the appliance.

If the Appliance under test has an ON/OFF switch, make sure it is in the ON position.
Press the Class II test button to start a Class II test sequence.

Note: The power switch on the appliance under test must be in the ON position to perform an insulation test. If no appliance is detected the PAC3760 plus will display LO LOAD.

If the **LO LOAd** enunciator remains on the display, the load presented by the appliance may be too small for the PAC3760 plus to detect. In this case, press the Class II test button to continue.



The unit will now perform an Insulation test.

If the Insulation Resistance is less than 1Mohm the **FAIL** enunciator is illuminated.

If the Insulation Resistance is greater than or equal to 1Mohm a tick is placed next to the **R**ISO enunciator. The **PASS** enunciator is illuminated.

3.4 Testing a Class II Appliance with Leakage

Visually inspect the appliance as per requirements of AS/NZS3760:2003. If the appliance passes a visual inspection proceed with the electrical tests.
Plug the mains lead into the PAC3760 plus and a mains supply socket.

When plugging the mains lead into the PAC3760 plus ensure that the polarity orientation of the connector is correct. DO NOT FORCE THE PLUG INTO THE CONNECTOR, doing so may damage the PAC3760 plus.

Plug the black continuity test lead into the Earth Continuity test terminal on the PAC3760 plus end panel.
Plug the appliance into the PAC3760 plus front panel test socket.
Connect the black continuity test lead to an exposed metal part on the appliance.

If the Appliance under test has an ON/OFF switch, make sure it is in the ON position.

Press and hold the Leakage button and then the Class II test button to perform the Class II test sequence including a Leakage test.

Note: The power switch on the appliance under must be in the ON position to perform an leakage test. If no appliance is detected the PAC3760 plus will display LO LOAD.

The ILEAK icon will flash, press the Leakage button to start a Leakage test.

The mains supply status is checked and the status is indicated using the LN, LE and NE enunciators of the LCD.

LN	**LE**	**NE**	**Mains status**
ON	ON	OFF	Correct
Flash	Flash	OFF	No mains
OFF	Flash	Flash	Earth fault
OFF	Flash	Flash	Live/neutral reversed

If the **LO LOAd** enunciator is displayed, the load presented by the appliance may be too small for the PAC3760 plus to detect. In this case, press the Leakage button to continue.

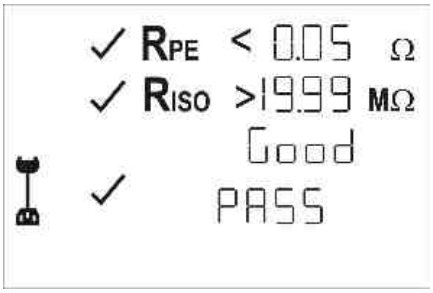
Note: If the High Load enunciator is displayed, the load presented by the appliance may be too great for the PAC3760 plus and the user should carry out an Insulation test.

If the Leakage current is greater than 1mA the **FAIL** enunciator is illuminated.

If the Leakage current is less than or equal to 1mA a tick is placed next to the **ILEAK** enunciator.
The **PASS** enunciator is illuminated.

3.5 Testing a mains cord

Visually inspect the appliance as per requirements of AS/NZS3760:2003. If the cord passes a visual inspection proceed with the electrical tests.
Plug the mains cord under test into the IEC socket and the front panel mains socket on the PAC3760 plus.
Press the Class I test sequence button.
The PAC3760 plus will first test the continuity of the protective earth.
If the measured value is greater than 1 ohm a cross is placed next to the **RPE** enunciator, a FAIL is indicated.
If the measured value is less than or equal to 1 ohm a tick is placed next the **RPE** enunciator.
The unit will proceed with the Insulation test.
If the Insulation Resistance is less than 1 Mohm a cross is placed next to the **RISO** enunciator.
If the Insulation Resistance is greater than or equal to 1 Mohm a tick is placed next to the **RISO** enunciator.
The unit will proceed with the wiring test, checking the live and neutral conductors for short or open circuits or reversed connections.
If the wiring is correct a tick is placed next to the cord enunciator, the **GOOd** enunciator is illuminated and a **PASS** is indicated for the sequence.



Note: If the tested cord has a wiring fault, one of the following enunciators will be illuminated in place of GOOd

OPEn indicates that either the live or neutral conductor is broken (open circuit) or the plug top fuse has blown
Shrt indicates that the live and neutral conductors are shorted together

CrOS indicates that the live and neutral connections are crossed (live and neutral conductors reversed)

3.6 Testing an extension lead

Visually inspect the appliance as per requirements of AS/NZS3760:2003. If the cord passes a visual inspection proceed with the electrical tests.
Plug the supplied 0.5m IEC lead into the IEC socket and into a mains outlet on the extension lead. Plug the mains plug of the extension lead into the front panel mains socket on the PAC3760 plus.
The extension lead can now be tested in the same manner as an IEC as described above.

3.7a Test an EPOD (Powerboard)

Visually inspect the appliance as per requirements of AS/NZS3760. If the cord passes a visual inspection proceed with the electrical tests. AS/NZS3760 requires an earth resistance test to be performed to each outlet.

Operators have the choice of carrying out two test sequences for EPODs:
Procedure A: a complete test sequence is carried out for every socket (earth, insulation and polarity)
Procedure B:. a complete test sequence is carried out on the very last socket. Only an earth resistance test is carried out on the remaining sockets.

Procedure A:
1. Plug powerboard lead into mains outlet socket on the PAC3760 plus.
2. Plug IEC Lead into the IEC socket on the top of the PAC3760 plus.
3. Plug the IEC Lead plug into the first socket of the EPOD.
4. Press Class I test button to perform a complete test sequence covering earth, insulation and polarity to test the socket.
5. Repeat sequence on every socket.

Procedure B:
1. Plug powerboard lead into mains outlet socket on the PAC3760 plus.

2. Plug IEC Lead into the IEC socket on the top of the PAC3760 plus.
3. Plug the IEC Lead plug into the first socket of the EPOD.

Note: First socket is defined as the closest socket to the power lead.

4. Press the Class I and LKGE buttons simultaneously. The PAC3760 performs an earth test.
5. Repeat step 4 on every socket until the last socket.
6. At the last socket, press the Class I button to do a complete test.

Note: Last socket is defined as the socket furthest from the power lead.

3.7b Test an EPOD/Extension Lead with MOV and/or RCDs

Visually inspect the appliance as per requirements of AS/NZS3760. If the cord passes a visual inspection proceed with the electrical tests. AS/NZS3760 requires an earth resistance test to be performed to each outlet.

This test sequence uses a leakage test to replace an insulation test at 500V DC to avoid triggering the MOV (surge protector) or to apply power to the RCD to allow circuit connections.

Operators have the choice of carrying out two test sequences for EPODs with MOV and/or RCD:
Procedure A: a complete test sequence is carried out for every socket (earth, leakage and polarity)
Procedure B: a complete test sequence is carried out on the very last socket. Only an earth test is carried out on the remaining sockets.

Note: For extension leads with RCDs, follow 3.7b Procedure A and carry out a single socket test.

Procedure A:
1. Plug the mains lead into the PAC3760 plus and a mains supply socket.

2. Plug powerboard lead into mains outlet socket on the PAC3760 plus.
3. Plug IEC Lead into the IEC socket on the top of the PAC3760 plus.
4. Plug the IEC Lead plug into the first socket of the EPOD.
5. Press the CLS1 and LKGE buttons simultaneously. The PAC3760 will perform an earth test.
6. The PAC3760 will give warning beeps. The user should press the LKGE button to carry out a leakage and polarity test on the socket.
7. Repeat sequence on every socket.

Procedure B:
1. Plug the mains lead into the PAC3760 plus and a mains supply socket.
2. Plug powerboard lead into mains outlet socket on the PAC3760 plus.
3. Plug IEC Lead into the IEC socket on the top of the PAC3760 plus.
4. Plug the IEC Lead plug into the first socket of the EPOD.

Note: First socket is defined as the closest socket to the power lead.

5. Press the Class I and LKGE buttons simultaneously. The PAC3760 performs an earth test.
6. The PAC3760 will give warning beeps. Press the Class II button to stop the test.
7. Repeat steps 5 and 6 on every socket until the last socket.
8. At the last socket, press the Class I and LKGE buttons simultaneously. The PAC3760 performs an earth test.
9. The PAC3760 will give warning beeps. Press the LKGE button to carry out a leakage and polarity test on the last socket. This completes the sequence for the powerboard test.

Note: Construction site EPODs usually have 2 banks of outlet sockets. A complete test sequence must be carried out on at least one socket outlet on each bank.

Note: Powerboards with RCDs may cause the polarity test to fail. An RCD trip time test will confirm correct polarity if test is allowed to proceed.

3.8 Testing 3-Phase equipment

The PAC3760 plus is capable of performing electrical tests on 3-Phase equipment.
In order to perform tests refer to the documentation supplied with the adaptor.
If the 3-Phase button is pressed while no adaptor is connected to the PAC 3760 plus then a warning message PLUG IN 3 PH ADPTR will be displayed.

3.9 Testing RCD Operating Time

The PAC 3760 plus can be used to measure the operating time of both portable and distribution system RCDs.

When plugging the mains lead into the PAC3760 plus ensure that the polarity orientation of the connector is correct. DO NOT FORCE THE PLUG INTO THE CONNECTOR, doing so may damage the PAC3760 plus.

The test configuration depends upon the type under test:

a) Portable RCD
Connect the portable RCD under test to a non RCD protected mains outlet. If the mains outlet is protected by an RCD, an isolation transformer will be required.
Connect the PAC 3760 plus mains lead to the mains inlet socket of the PAC 3760 plus and mains outlet of the RCD.

b) Mains RCD
Connect the PAC 3760 plus mains lead to the mains inlet socket of the PAC 3760 plus and a mains outlet on the RCD protect distribution system. This test should be carried out by a licenced electrical contractor.

To test the RCD operating time, first identify the rated residual operating current of the RCD under test and press the appropriate button (10mA or 30mA) to begin the test.

The mains supply status is checked and the status is indicated using the LN, LE and NE enunciators of the LCD.

LN	**LE**	**NE**	**Mains status**
ON	ON	OFF	Correct
Flash	Flash	OFF	No mains
OFF	Flash	Flash	Earth fault
OFF	Flash	Flash	Live/neutral reversed

If the mains supply status is correct then the test will be performed. If the mains supply is incorrect, testing is inhibited.

The operating time of the RCD will be shown on the PAC 3760 display.

For 10mA RCD tests the PAC3760 Plus will indicate a pass for ≤40ms.
For 30mA RCD tests the PAC3760 Plus will indicate a pass for ≤300ms.

The PAC3760 Plus will alternate between 0^o and 180^o in between tests. It is essential that two RCD tests are performed in order to cover both 0^o and 180^o conditions.

4 Troubleshooting

Q I have attached an IEC lead but the unit does not detect it and performs a Class I test.
A The IEC lead has an open earth path, the lead should be labelled as fail.

Q The PAC3760 plus shows a 'NO LOAD' warning.
A The appliance under test is either not switched on or PAC3760 plus cannot detect that the appliance is connected. Ensure that the appliance is connected correctly and is switched on. Press the Class I button to proceed with a Class I sequence, the Class II button to proceed with a Class II sequence or the Leakage button to proceed with a Leakage test.

Q The PAC3760 plus shows a 'HIGH LOAD' warning.
A The appliance under test is greater than 10A, proceeding with the Leakage test may blow the fuse in the PAC3760 Plus. It is suggested that the sequence is aborted and a sequence which include an Insulation test be performed.

Q I have started a test sequence but the IEC icon is flashing.
A The PAC3760 plus has detected an IEC lead. To test the IEC lead press the Class I button.

Q I have pressed the 3 Phase button but the PAC 3760 plus indicates 'PLUG IN 3 PH ADPTR'.
A The PAC 3760 plus requires an additional adaptor in order to test 3 phase appliances.

5 Specification

Earth Continuity

Display Range	0.01 -19.99 ohms
Measuring Range	0.05 – 19.99 ohms
Accuracy*	± (5% + 2 digits)
Test current	200mA minimum
Test voltage	9V nominal

*When used with Seaward test lead, Part Number 161A024

Insulation resistance

Display Range	0.01 -19.99 Mohms
Measuring Range	0.10 – 19.99 Mohms
Accuracy	± (5% + 2 digits)
Test voltage	500V VDC
Test current	>1mA into 500kΩ
Test current	<2mA into 2kΩ

Class I Leakage Current

Display Range	0.15 – 9.99 mA
Measuring Range	0.25 – 9.99 mA
Accuracy	± (5% + 2 digits)
Test voltage	Mains Supply voltage

Class II Leakage Current

Display Range	0.10 – 5.00 mA
Measuring Range	0.10 – 5.00 mA
Accuracy	± (5% + 2 digits)
Test voltage	Mains Supply voltage

Cord Test

Earth continuity, insulation resistance as above.
Check for Live and Neutral open circuit, short circuit or reversed polarity.

RCD Tests

Measuring Range	0 – 500 ms
Test Current	± 5%
Time Indication	± 2ms

Factory Set Pass/Fail limits

	Class I	**Class II**
Earth Continuity	1.0 ohms	N/A
Insulation Resistance	1.0Mohm	1.0Mohm
Leakage	5.00mA	1.00mA

	10mA RCD	**30mA RCD**
Test Time	40ms	300ms

Environmental rating
IP Rating IP40
Operating temperature range 0°C to 40°C, without moisture condensation.
Storage temperature range –25° to 65°.
Note: Batteries should be removed prior to storage.
Overvoltage category 300V CAT II

6 Maintenance

Clean only with a dry cloth; do not use solvents.
Before use, ensure unit is clean and dry; visually inspect all leads, connectors, and case. Any damage or wear must be rectified to preserve user safety.

Check the battery contacts and compartment are free of electrolytic contamination.
Any contamination of the battery contacts or compartment should be cleaned with a dry cloth.

Note: The PAC3760 plus contains no user serviceable parts. If an **Error** warning should appear on the display please contact Emona Instruments for advise.

7 Battery Check

The PAC3760 plus is powered from a 6 AA cells which are checked before a test is performed. When the battery voltage is low the ▪___ enunciator is illuminated. The

unit will continue to perform within specification for a limited number of tests, dependent upon the type of the batteries fitted.

When the battery voltage reaches a level where the performance is affected the enunciator will flash and all test keys are disabled. The batteries must be replaced.

7.1 Battery Replacement

Before opening the PAC3760 plus ensure that all test leads are disconnected.

Switch off the unit by pressing and holding Class I and Class II buttons.
Disconnect all leads from the PAC3760 plus.
Place the PAC3760 plus face down and release the captive screw in the battery compartment cover.
Remove the battery compartment cover and remove the discharged batteries.
Replacement batteries must be either Alkaline or NiMH.
Insert the replacement batteries into the battery compartment ensuring that the battery polarity matches the marking on the inside of the battery compartment.
Relocate the battery cover over the battery compartment and fasten in position with the battery cover captive screw.

8 Fuse

The unit is protected by a fuse. If the fuse should blow then the mains tests will not be allowed to start and the PAC3760 plus will indicate that the mains connection is incorrect.

8.1 Fuse Replacement

Before opening the PAC3760 plus ensure that all test leads are disconnected.

Switch off the unit by pressing and holding Class I and Class II buttons.
Disconnect all leads from the PAC3760 plus.
Place the PAC3760 plus face down and release the captive screw in the battery compartment cover.
Remove the battery compartment cover and remove the fuse.

Ensure that the replacement fuse is a 20mm 10A 250V F Ceramic. Fitting the incorrect fuse type may lead hazard.

Insert the replacement fuse into the fuse holder.
Relocate the battery cover over the battery compartment and fasten in position with the battery cover captive screw.

9 Service and Calibration

To maintain the specified accuracy of the measurement results, the instrument must be recalibrated at regular intervals by either the manufacturer or by **Emona Instruments**. We recommend a recalibration period of one year.
For help or advice on Service and Calibration contact:

AUSTRALIA

Service Department:
Emona Instruments
78 Parramatta Rd
Camperdown NSW 2050

PO Box 15
Camperdown NSW 2050

Tel: 1 800 632 953
Fax: 02 9550 1378
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SA & TAS:
3/26 The Parade West, Kent Town SA 5067, Tel: 08 8363 5733

WA:
63 Shepparton Rd, Victoria Park WA 6100, Tel: 08 9361 4200

LOAD MESSAGES

Message	Reason	Solution
Lo Load	Appliance switch is not engaged (switch in off position)	Engage the switch (turn it on)
Lo Load	Appliance switch is engaged but requires power to latch	Insulation test ineffective. Consider doing a leakage test.
Hi Load	Appliance may draw more than 10 amps	Appliance under test is greater than 10A, consider doing Insulation test.

ERROR CODES

Error Code	Meaning	Action
err 10	Internal relay failure	Return for Service.
err 12	No Insulation Volts	Return for Service.
err 61	Internal relay failure	Return for Service.
err 63	Internal relay failure	Return for Service.
err 80	Internal relay failure	Return for Service.

TEST SEQUENCE

Test Setting	Description	Earth Continuity	Insulation Test	Leakage Test	Polarity Test
CLI	Class I Earthed Appliance	±200mA	500V		
CLII	Class II Double Insulated Appalance		500V		
CLI-Lead Power Board	LEAD-IEC or Extension	±200mA	500V		Yes
CLI-Leakage	Class I Power-up Test	±200mA		240VAC	
CLII-Leakage	Class II Power-up Test			240VAC	

Test Type	Press Button(s)	Attachment Required	Examples & Comments
CLI		Appliance lead (black) connected to exposed metal parts.	3 pin – Most kitchen appliances (toaster, microwave..)
CLII		Appliance lead (black) connected to exposed metal parts.	Most hand held tools (2 or 3 pin socket)
Lead or Power Board Class I		IEC Lead Adaptor (red)	For power tools every socket must be checked.
Class I Leakage		Appliance lead (black) connected to exposed metal parts.	Beware moving parts. Appliance is active.
Class II Leakage		Appliance lead (black) connected to exposed metal parts.	Beware moving parts. Appliance is active.