Wavecom

Wavecom

Portable Appliance Tester

User Manual

+ Certificate of Warranty and Product Support Information

Wavecom Certificate of Warranty

Your Wavecom Appliance Tester comes with a conditional 36 month warranty.

Your warranty applies for 12 months from the date of purchase.

This can be extended an additional 12 months if your Tester is calibrated within 12 months of the date of purchase.

This can be extended a further 12 months if you calibrate your tester a second time within 24 months of the date of purchase.

The Manufacturer (Wavecom Pty. Ltd.) warrants its products against defects in materials and workmanship for a period of 12 months from the date of purchase. During the warranty period, the Manufacturer will repair (or at its option replace at no charge) the product that proves to be defective. This warranty does not apply if the product has been damaged by accident, abuse, misuse or mis-application or as a result of service or modification by anyone other than the Manufacturer of this tester.

The TnT & TnP Product Range of devices or its Manufacturer is not responsible for incidental or consequential damages resulting from the breach of any express or implied warranty, including damage to property and to the extent permitted by law, damages for personal injury. The distributors of this product cannot assume liability or responsibility for any loss of damage resulting from the use of this device.

The Manufacturer reserves the right to discontinue models, change specifications, price or designs at any time without notice or obligation.

Key

Throughout this manual the following symbols are used to denote which tester the section applies to:

TnT EL TnT RCD TnT Titan

Wavecom Instruments Pty. Ltd.

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(+64) 0800 164 888

Important Information

Contents

- Wavecom Portable Appliance Tester
- IEC Test Lead (500mm Orange)
- Earth Lead with Alligator Clips (1800mm Black)
- IEC Power Cable
- Black 16A Power Adaptor *(20A Units Only)*
- 12 Month Calibration Certificate
- 36 Month Conditional Warranty
- User Manual & Quick Start Guide
- Wavecom Carry Bag

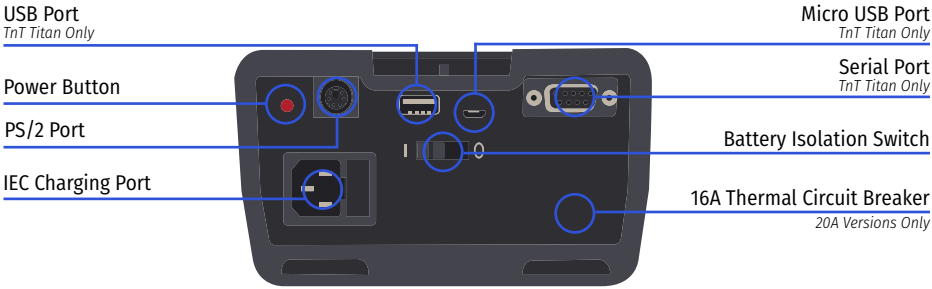
The TnT Titan also contains:

- Tablet Charging Cable
- 8 inch 4G-Ready Android tablet with mount accessories
- WinPATS voucher for App License through Google Playstore

Diagrams

Tester Diagram

Rear Panel of Tester Diagram



Precautions

Your Wavecom Portable Appliance Tester has been designed to meet stringent safety requirements, however no device can completely protect you from the consequences of incorrect use. The testing of electrical appliances requires that extra care and caution is taken at all times to ensure personal safety.

The Manufacturer also advises that appliance testing should be conducted by a *Competent Person* who is suitably trained (see AS/NZS 3760:2022 for the definition of *Competent Person*), as well as any additional legislation or rulings in different states. If in doubt, the manufacturer suggests the user contact their responsible authority.

For maximum safety, always ensure that the following advice is followed:

- The equipment being tested is in good condition and passes a visual check.
- All instructions are read, understood and followed.
- The power supply connections are always checked - if the N-E (middle) LED Indicator flashes red, do not proceed before consulting the manual.
- Always use specified fuses and protection devices.
- Do not use leads that require repair or are damaged.
- If you are unsure, call a licensed Engineer/Electrician.

Warnings

Operating Environment: Charging – 0° to ~45°C; Discharging -20°to ~ 60°C.

Please ensure the unit is stored in compliance with the operating environment requirements and in a safe and secure location.

When sending your Wavecom Portable Appliance Tester for calibration, please turn off the battery isolation switch which is located on the rear panel of your tester.

Using the Lithium Ion Battery

Important: You must switch the Battery Isolation Switch (located on the rear panel) to ON (I) when using or charging your Portable Appliance Tester.

Switching the Isolation Switch to OFF (0) isolates the battery completely, preventing the battery from being charged and from powering the tester. The Isolation Switch must be switched off when transporting your Portable Appliance Tester.

Using Your Portable Appliance Tester On Mains Power & Charging The Battery

To use your Portable Appliance Tester on mains power, simply plug in the supplied power cable and connect it to a mains power outlet. Your Portable Appliance Tester will automatically connect to mains power and begin charging the battery.

While your Portable Appliance Tester is charging and not in use, the display can be turned off by pressing and holding the ENTER button until you hear a beep and the LCD screen turns off. You will then see charging information displayed on the screen. Once the battery is fully charged and it is still connected to mains, battery symbol will convert to plug symbol. Your Portable Appliance Tester should not be left unattended while charging.

Using Your Portable Appliance Tester On Battery Power

The internal lithium-ion battery can power your Portable Appliance Tester for around 3000 sets of tests, and it takes around four hours to fully charge.

When your Portable Appliance Tester is not connected to mains, **simply press and hold the power button at the rear of the tester until you hear a beep and the LCD screen turns on. Use the same button to turn off the unit when in battery mode.**

Earth Leakage, RCD Trip Time, RCD Ramp Current, Power Tests, Meter Mode and the Mains Supply tests all require a mains power source and are not available on battery power.

Transporting Lithium Ion Battery Products

For the purpose of air transport, lithium ion batteries may be considered **dangerous goods** under the International Air Transport Authority (IATA) regulations. It is the responsibility of the shipper to ensure that the product being shipped and the packaging used comply with all regulations, noting that **extensive penalties can be imposed by the relevant authorities for any breach.**

The IATA and other laws and regulations covering the transport of goods are very comprehensive, and Wavecom makes no warranty that these regulations will permit particular shipments of its products by air freight. Should you require further information on the relevant regulations and requirements, please contact your dangerous goods adviser and/or review the IATA website:

www.iata.org/publications/dgr/Pages/index.aspx

This section is not intended to constitute legal advice, and you should obtain your own professional advice. Please contact Wavecom Pty Ltd for more information.

Competent Person

To ensure that all electrical equipment or devices are inspected, tested and tagged correctly, regulations require that a 'competent person' such as a Licensed Electrician be employed to perform the required tests. Please refer to the below definition as described in the current AS/NZS 3760:2022 Standard and in addition, to any other local legislation or jurisdictions as may be relevant in your State.

A person competent to undertake Inspection and Testing of electrical equipment must have:

- Knowledge and practical experience of electricity and its hazards.
- A clear understanding of precautions to avoid danger.
- The ability to recognise at all times whether or not it is safe for work to continue.
- The ability to carry out visual examinations of electrical equipment.
- The ability to distinguish between electrical equipment that is double insulated and equipment that is earthed as well as being able to identify the appropriate test for each type.
- The competency to safely carry out the Earthing Continuity, Insulation Resistance or Leakage Test and RCD tests on electrical equipment.
- The knowledge of how to use the relevant testing instruments, interpret and record the results for compliance with the Standard/Workplace requirements.
- The knowledge to be able to correctly recommend the frequency of testing required.

Due to the potential hazards of electrical testing, due care must be taken at all times.

Replacing Fuses

From time to time an appliance may cause an internal fuse within your Portable Appliance Tester to break. When this occurs you will need to replace the fuse. If you prefer you can return your tester to Wavecom and we can replace the fuse for you, or if you wish you may replace the fuse. Contact us if you require information or guidance when replacing a fuse in your Portable Appliance Tester.

Important Calibration Information

Your Wavecom Appliance Tester should be calibrated every 12 months. A correctly calibrated tester is essential for ensuring testing accuracy and precision is maintained, and for AS/NZS 3760:2022 compliance.

To book your tester in for calibration, go to

www.wavecom.com.au/calibrations

Then, send your tester to your nearest calibration service centre:

Scan to book your calibration online

For Western Australian customers:

Wavecom WA Calibrations
Unit 2/17 Casino Street,
Welshpool, WA 6016

For all other customers:

Wavecom Calibrations
257 Grange Road,
Findon, SA 5023

Product Support

At Wavecom we take great pride in our customer service and support. We provide assistance, troubleshooting and support over the phone, via Skype or Facetime, via email or in person to help you get the most from your Wavecom Portable Appliance Tester. To be eligible for our support services, register your Wavecom product.

You can register via the WinPATS App (this is done automatically during the setup process), or via our website: **www.wavecom.com.au**

Using the Tablet

TnT Titan

The TnT Titan comes with an Android tablet to be used with the WinPATS App to control your tester, save your test results and generate reports. In the next section you will find a short introduction to using the TnT Titan with your tablet, and more detailed, step by step guides are available on our website - www.wavecom.com.au

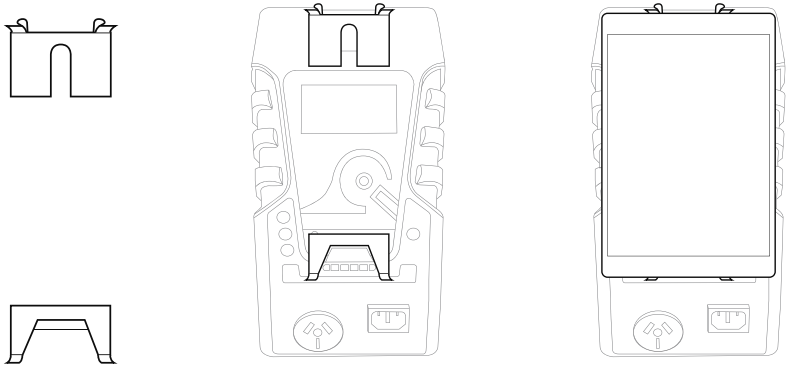
The tablet provided is intended for use with WinPATS only. We recommend that you do not install other apps on this tablet, to ensure the stable operation of the WinPATS App.

Before using your tablet with WinPATS, you must set it up as per the manufacturers instructions, and connect it to the internet (via 4G or wifi). We also recommend that the tablet is fully charged before the first use.

Your tablet warranty is covered by the manufacturer of the tablet. While Wavecom are happy to provide support to help you use your tablet for WinPATS, any issues that arise from the tablet (and not the WinPATS App) will need to be resolved with the manufacturer.

With your TnT Titan you will have two tablet docking accessories. These are to be attached to your tablet so you can secure your tablet to your TnT Titan.

To attach the docking accessories, we recommend docking them to the TnT Titan as shown below.



Then, peel off the backing plastic to expose the adhesive and place your tablet onto the docking accessories. Take care to ensure that your tablet's camera and charging port are not blocked by the docking accessories.

Operating your Wavecom Appliance Tester

Powering on the Tester

To use your Wavecom Appliance Tester, ensure the isolation switch (located on the rear of the tester) is switched ON. We recommend that your Wavecom Appliance Tester is fully charged before the first use.

Your Wavecom Appliance Tester will be powered on automatically when you connect it to mains power. To power on your Wavecom Appliance Tester in battery mode, press and hold the rear power button until the unit beeps and the LCD screen turns on.

WinPATS Pro

The following sections apply only to the **TnT Titan**
TnT EL & **TnT RCD** users should proceed to page 14.

Setting Up Your WinPATS Account

We recommend setting up WinPATS before you need to use it on site so you can familiarise yourself with the features of the app.

Your tablet will already have WinPATS installed, though you may need to download and install an update.

To update WinPATS, you can search for WinPATS in the Google Play Store. You will be have the option to update the app if an update is available.

Scan to view our Tutorial Video on this topic

To set up WinPATS, you will need:

- Your TnT Titan, your tablet, and an internet connection
- The coupon code located on the rear of this manual
  Alternatively, you can pay for another WinPATS license if you have already used your coupon code.
- Your organisation's ABN
- An email address you can access to set up your Company Account. This will be the email for your entire organisation, and you will need it for setting up new accounts, changing Cloud Support plans, and other important actions.
  If you already have a WinPATS Company Account for your organisation, you will simply need access to that email inbox (or contact with someone in your organisation with access).
- A separate email address you can access to set up your User Account. This will be used for your individual profile.

Connecting via Bluetooth

To control your TnT Titan via Bluetooth, you will need to perform a short setup procedure. Ensure you have both your tablet with WinPATS installed, and your TnT Titan in front of you.

Go to the Bluetooth settings in your Tablet's settings menu. Ensure that Bluetooth is enabled, then select your TnT Titan from the list of available devices (ensure you select the correct tester by referring to the serial number. Your TnT Titan's serial number is located on the side of your tester, and on the rear cover of this booklet).

You may now be prompted to pair your two devices using a PIN code. If so, your TnT Titan will display a code on the screen. Enter this code into WinPATS and tap OK. You will be asked to confirm the connection - tap Confirm after checking the details are correct.

Note: If you have any issues with the PIN code, you can disable this function from the TnT Titan settings menu. See the Settings section on Page 34.

Setting Up Your Company Account

To begin setting up WinPATS, open WinPATS Pro and create up a 4 digit pin code for the app. This will help keep your data secure.

You now need to set up or log in to your Company Account. This is the account for your entire organisation. If your organisation already has a Company Account, log in now. Otherwise, create a new Company Account now.

You will receive an email with a One Time Password (OTP) from noreply@wavecom.com.au. Enter the OTP, then click 'Verify OTP'.

You will then receive another email from noreply.winpats@wavecom.com.au with your Company ID and a temporary Company Password. Keep this email, as you will need these details to log in.

Redeeming Your WinPATS License

Now you can pay for your WinPATS License - you should have a coupon code on the rear of this booklet which provides you with one free license for the WinPATS App.

Your coupon code is linked to your tester, and you will need to have your TnT Titan connected to your Android tablet via Bluetooth to authenticate your coupon code.

Enter your coupon code and tap APPLY. You should see the Total Amount number drop to zero. Tap PAY to proceed.

Once you have entered your code or paid, you can now Log In and set up your password. Enter the Company ID and temporary Password which was emailed to you, which will enable you to log in for the first time. You will now be prompted to set up a new password.

User Account

You can now set up your User Account - this is your individual profile, and each user of WinPATS should have an individual User Account. If you are the first or the only Test and Tag technician at your organisation, you should set yourself as an 'ADMIN' user, which will allow you to use the full features of WinPATS. Technician users have reduced access to features - this is designed for organisations with multiple technicians and/or multiple sites.

Once your details are complete, tap ADD to create your account. Confirm your details are correct, then tap CONFIRM to finish registering your user account.

When you start WinPATS for the first time you'll be required to perform a data sync. This creates a new cloud database for you, or connects your WinPATS App to your company's existing database. Depending on the number of items in your cloud database this process may take up to 5 minutes, but syncing with a new database usually only takes a few seconds.

Connecting Your TnT Titan to WinPATS

If your TnT Titan is not already connected and recognised by WinPATS, you can go to the Test menu in the WinPATS App (at the top of the screen) to establish this connection.

You should be prompted to connect a Wavecom Appliance Tester as soon as you open the Test Menu for the first time. Tap 'BLUETOOTH' to begin the Bluetooth setup process.

WinPATS will scan for any available TnT or TnP testers and display them in a list - select your tester from the list by tapping it. If you see multiple TnT or TnP products in the list, use the serial number of your TnT Titan to identify your tester.

You will now be asked to register your TnT Titan - this allows you to receive product support, service and calibration reminders from Wavecom. Once complete, tap Register. You're now ready to start testing with WinPATS!

Using Your TnT Titan with WinPATS

Adding a User

Note: You will have already created a WinPATS *User* during the setup process. Follow this process to add another *User*, or to edit the details of your *Users*.

This feature requires Admin access; Technician level *Users* will need to enter the Company Password to access this feature.

Important: To avoid duplication of data, a *User* must only be logged in and active on one tablet at a time.

To add a new *User* to WinPATS, open the Side Menu, then tap the *User* Profile Picture at the top of the menu. If required, enter the Company Password. You can now view the *Users* at your company using the dropdown menu, then edit, suspend (lock the *User* but keep the profile) or delete the *User*.

To add a new *User*, tap the '+' symbol next to the dropdown menu. Fill out the form (including assigning Admin permissions if required), then tap 'Add' when complete. You can now select this *User* from the dropdown menu.

When changing *Users*, select your *User* from the menu, then tap 'Confirm'.

Adding a Customer

Note: You can also add a new customer during the 'Entering a New Item' process if needed.

To add a new *Customer* to WinPATS, open the Side Menu, then tap 'Database+', then tap '*Customers*'. You can view your existing *Customers* in the list, and add a *Site* to a *Customer*, edit their details and delete the *Customer* by tapping a *Customer* in the list.

Tap 'Add *Customer*' to open the new *Customer* form. Fill out the form - please note, a valid ABN is required for each *Customer*. When complete, tap 'Add *Customer*'. You will now be able to assign *Sites* and *Items* to this *Customer*.

Adding a Site

Note: You can also add a new *Site* during the 'Adding an *Item*' process if needed.

To add a new *Site* to WinPATS, open the Side Menu, then tap 'Database+', then tap '*Sites*'. You can view your existing sites (and filter by Customer) in the list, and edit or delete your sites by tapping a *Site* in the list.

Tap 'Add *Site*' to open the new *Site* form. Fill out the form, and tap 'Add *Site*' when complete. You will now be able to assign *Locations* (places within a site) and *Items* to this *Site*.

Entering a New Item

To add a new *Item* to WinPATS, open the Side Menu, then tap 'Database+', then tap 'Add Equipment'. Enter in the Device Under Test's information, and set the Current Status, Test Frequency and Test Sequence. This allows WinPATS to tell your TnT Titan which test sequence to run when you test this *Item*.

When you have added all the information to your *Item*, tap 'Add Equipment'. You can now test this *Item* immediately by tapping 'Start Test', or later by searching for it in your database.

Testing Items

Once you have added a new *Item* into your database (or located an existing *Item* in your database), you can proceed to test the *Item*.

Set up the *Item* to be tested by plugging it into the TnT Titan (along with any accessories as required) then tap 'Start Test'. Conduct the Visual Test, and if the *Item* passes, proceed with the test. The relevant test sequence will be conducted in stages, and the results displayed on screen. Your results will be saved to your WinPATS database.

You can then continue with your testing by adding or searching for another *Item*.

Editing Items

Items in your database can be edited from the Inventory screen. To open the Inventory screen, open the Side Menu, tap 'Database+' then 'Inventory'. Double tap (or press and hold) an *Item* in the Inventory list to open the *Item* Information screen.

You can then tap 'Update Details' to change any of the details of the *Item*. After you have made your changes tap 'Update *Item*' to confirm.

You can also edit multiple *Items* at once - view the 'Managing your Inventory with WinPATS' video on the Wavecom Youtube channel for more information.

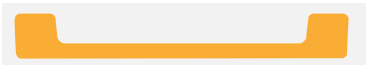
Deleting Items

Items in your database can be deleted from the Inventory screen. To open the Inventory screen, open the Side Menu, tap 'Database+' then 'Inventory'. Double tap (or press and hold) an *Item* in the Inventory list to open the *Item* Information screen. Tap 'Update Details', then scroll to the bottom of the 'Update Details' screen and tap the red Trash icon to delete that *Item*.

LED Indicators

Status LEDs

TnT EL **TnT RCD** **TnT Titan**



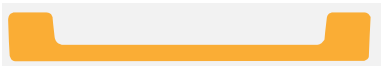
LEDs will flash yellow during tests when running on mains power.

When an appliance fails a test, the Status LEDs will turn red while the test results are on screen

When an appliance passes a test, the Status LEDs will turn green while the test results are on screen

TnT EL **TnT RCD**

Your Portable Appliance Tester is running on battery power. When the test socket is live during a test, the LEDs will flash white.



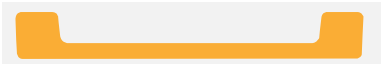
Your Portable Appliance Tester is running on mains power and is charging.
LEDs will flash yellow during tests.

Your Portable Appliance Tester is fully charged.

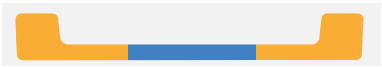
TnT Titan

TnT Titan is running on battery power, no Bluetooth connection. When the test socket is live during a test, the LEDs will flash white.

TnT Titan is running on battery power, active Bluetooth connection. LEDs will flash blue during tests



TnT Titan is running on mains power, and is charging, no Bluetooth connection.



TnT Titan is running on mains power, and is charging, and has an active Bluetooth connection. LEDs will flash solid yellow during tests.

TnT Titan is fully charged, and has no Bluetooth connection

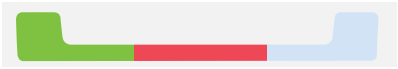
TnT Titan is fully charged, and has an active Bluetooth connection

TnT EL **TnT RCD** **TnT Titan**

If there is a fault with the mains power connection, you may see one (or more) of the Status LEDs turn red. This may indicate a serious issue with the mains power supply - consult a qualified professional before proceeding. This won't apply when using battery power.

Standard Mains Supply Test result with no issues.

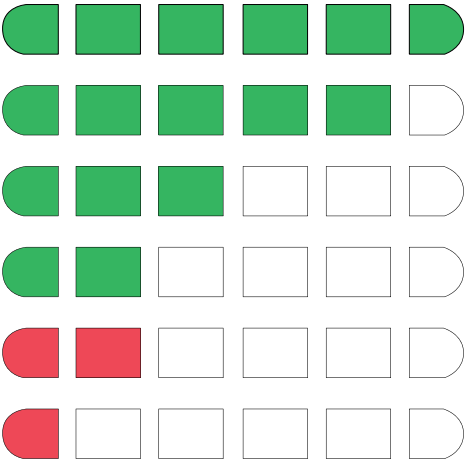
N-E Fault - If the N-E light in on, DO NOT PROCEED. The N-E LED will turn red if there is a voltage difference between the neutral and earth, or if there is no earth connected. If you are working from a generator or inverter this is likely to occur - consult a qualified electrician before proceeding.



If the N-E LED is red, and A-N is green, there is a fault with the Mains Supply

You may also see more than one, or all of these turn red. For more information, see Mains Supply Test (Page 33)

Battery LEDs



100% - Battery is fully charged

80%

60%

40%

20% (LED 2 will be flashing)

0% (LED 1 will be flashing)

Testing Menu – Main Menu A

Class I Test - Earthed Appliances

TnT EL **TnT RCD** **TnT Titan**

You Will Need:

- Device Under Test
- IEC Earth Clamp Cable
- Metal Mesh Braid or Cloak
  (if not possible to connect IEC Earth Clamp to exposed metal on Device Under Test)

Test Sequence:

- Earth Bond Test (@ 200mA):
  Pass level less than 1Ω
- Insulation Test (@ 250V or 500V)
  Pass level greater than 1MΩ
- Mains Supply Test
  (If connected to Mains Power)
- NCNT Check

Scan to view our Tutorial Video on this topic

Test Procedure

1. Complete a Visual Inspection.
2. Plug device into appliance test socket.
3. Plug the IEC Earth Clamp Cable into the IEC Test socket.
4. Connect the IEC Earth Clamp to any exposed metal on the device. If this is not possible, you can wrap a metal mesh braid or cloak around the Device Under Test, and attach the IEC Earth Clamp to that in order to establish an earth connection
5. If you are using WinPATS Pro, add the item to your database, select the 'Class I Test' sequence, then tap 'Start Test'.
   Otherwise, navigate to Main Menu A, then Press the F1 key to begin the test
6. The test will be conducted
7. When the test is complete your results will be appear on the screen.

If the result was a **PASS** - Tag with PASS tag showing "next test due" date and return the device to service.

If the result was a **FAIL** - Tag with a DANGER tag and remove the device from service.

Further Information

Note: Ensure that the device is isolated from any ground loop.

If the Device Under Test is labelled with "Surge Protection Fitted" or if it contains MOV's (Metal Oxide Varistors), conduct a 250V Insulation Test. TnT EL & TnT RCD users can adjust the Insulation Test Voltage in the Settings Menu - see page 34. TnT Titan users testing with WinPATS can select the insulation test voltage when adding the item to their database. If unsure refer to AS/NZS 3760:2022.

Always read the compliance plates before testing, especially on surge protected powerboards.

Class II Test - Double Insulated Appliances

TnT EL **TnT RCD** **TnT Titan**

You Will Need:

- Device Under Test
- IEC Earth Clamp Cable
- Metal Mesh Braid or Cloak

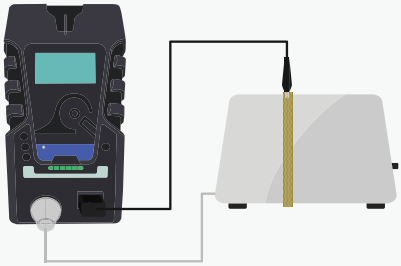
Test Sequence:

- Insulation Test (@ 250V or 500V)
  Pass level greater than 1MΩ
- Mains Supply Test
  (If connected to Mains Power)
- NCNT Check

Scan to view our Tutorial Video on this topic

Test Procedure

1. Complete a Visual Inspection, and inspect the compliance plate to ensure the appliance is a Class II appliance. Look for the double insulated symbol:
2. Plug the Device Under Test into appliance test socket.
3. Plug the IEC Earth Clamp Cable into the IEC Test socket.
4. Wrap a metal mesh braid or cloak around the Device Under Test
5. Attach the IEC Earth Clamp to the braid or cloak



6. If you are using WinPATS Pro, add the item to your database, select the 'Class II Test' sequence, then tap 'Start Test'.
   Otherwise, navigate to Main Menu A, then Press the F2 key to begin the test
7. The test will be conducted
8. When the test is complete your results will be appear on the screen.

If the result was a **PASS** - Tag with PASS tag showing "next test due" date and return the device to service.

If the result was a **FAIL** - Tag with a DANGER tag and remove the device from service.

Further Information

If the Device Under Test is labelled with "Surge Protection Fitted" or if it contains MOV's (Metal Oxide Varistors), conduct a 250V Insulation Test. You can select between 250V and 500V when adding your item to your WinPATS database. TnT EL & TnT RCD users can adjust the Insulation Test Voltage in the Settings Menu - see page 34. TnT Titan users testing with WinPATS can select the insulation test voltage when adding the item to their database. If unsure refer to AS/NZS 3760:2022.

Always read the compliance plates before testing, especially on surge protected powerboards.

Lead Test - Extension Leads & Power Boards

TnT EL **TnT RCD** **TnT Titan**

You Will Need:

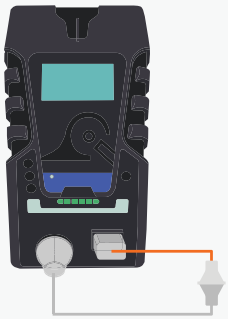
- Device Under Test
- Orange IEC-550 Cable

Test Sequence:

- Earth Bond Test (@ 200mA)
  Pass level less than 1Ω
- Insulation Test (@ 250V or 500V)
  Pass level greater than 1MΩ
- Continuity and Polarity Test (240VAC @ 2mA)
  Checks continuity & polarity of leads
- Mains Supply Test
  (If connected to Mains Power)
- NCNT Check

Scan to view our Tutorial Video on this topic

Test Procedure



1. Complete a Visual Inspection
2. Plug the Orange IEC-550 Lead Cable into the IEC socket
3. Plug the male end of the Device Under Test into the appliance test socket
4. Plug the IEC-550 Lead into the socket of the Device Under Test
5. If you are using WinPATS Pro, add the item to your database, select the 'Ext. Lead Test' sequence, then tap 'Start Test'.
   Otherwise, navigate to Main Menu A, then Press the F3 key to begin the test
6. When the test is complete your results will be appear on the screen.

If the result was a **PASS** - Tag with PASS tag showing "next test due" date and return the device to service.

If the result was a **FAIL** - Tag with a DANGER tag and remove the device from service.

Further Information

Extension leads should always be uncoiled before using or testing.

Please ensure that the IEC Adaptor & the IEC socket are inserted firmly or it may result in a continuity/ polarity fail.

Each socket of a multi-adapter, power board, or other device with multiple sockets should be tested individually in order to PASS the device.

Testing Menu – Main Menu B

Use the Enter button to switch between Menu A and Menu B.

All tests on Menu B require a Mains Power source. 20A Portable Appliance Testers must be connected to Mains via the provided Power Adaptor when testing.

Power Test - Any Appliance

TnT RCD **TnT Titan**

You Will Need:

- Device Under Test
- A Mains Power Source
  (The TnT RCD 20A/TnT Titan 20A must be connected to Mains via the provided 20A Power Adaptor when testing)

Test Sequence:

- Power Test
- Mains Supply Test
- NCNT Check

Test Procedure

CAUTION

This test will power on the Device Under Test. Take due care to ensure the Device is safely located before proceeding.

1. Complete a Visual Inspection
2. Connect your Portable Appliance Tester to a mains power source.
3. Plug the Device Under Test into the Appliance Test Socket
4. If you are using WinPATS Pro, add the item to your database, select the 'Power Test' sequence, then tap 'Start Test'. Otherwise, navigate to Main Menu B and press F1 to start the power test

5. A warning message will appear on screen. If the appliance is safely located and secured press F3 to proceed. The unit will power on
6. Read and record results appropriately.
7. Once the appliance has powered down and the test is complete, unplug the unit.

Further Information

The Power Test feature is for single phase appliances only. The Power Test allows the user to power an appliance to observe real time measurements. A Power Test can measure: Volts AC, Current, Volt Amp, Power Factor, and Watts. These readings can be compared to the stated values on the Device Under Test's compliance plate to check compliance.

Because the power test is not specified in the AS/NZS 3760:2022 standard, there is no pass/fail value built in to the tester. It is up to the user to determine if the item is a pass or a fail based on the compliance/name plate.

Earth Leakage Test - Class I

TnT EL **TnT RCD** **TnT Titan**

You Will Need:

- A Mains Power Source
  (The TnT RCD 20A/TnT Titan 20A must be connected to Mains via the provided 20A Power Adaptor when testing)
- Device Under Test
- IEC Earth Clamp Cable
- Metal Mesh Braid or Cloak
  (if not possible to connect IEC Earth Clamp to exposed metal on Device Under Test)

Test Sequence:

- Earth Bond Test (@ 200mA):
  Pass level less than 1Ω
- Insulation Test (@ 250V or 500V)
  Pass level greater than 1MΩ
- Earth Leakage Test
  0 to 30.0mA at 200-265V. 240VAC Mains.
  Pass level 5.0 mA
- Mains Supply Test
- NCNT Check

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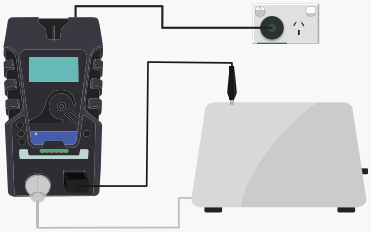
Test Procedure

CAUTION

This test will power on the Device Under Test. Take due care to ensure the Device is safely located before proceeding.



1. Complete a Visual Inspection
2. Connect your Portable Appliance Tester to a mains power source.
3. Plug the IEC Earth Clamp Cable into the IEC Test socket.
4. Plug the Device Under Test into the Appliance Test Socket of the Portable Appliance Tester
5. Connect the IEC Earth Clamp to any exposed metal on the device. If this is not possible, you can wrap a metal mesh braid or cloak around the Device Under Test, and attach the IEC Earth Clamp to that instead.
6. If you are using WinPATS Pro, add the item to your database, select the 'Class I Leakage' sequence, then tap 'Start Test'
   Otherwise, navigate to Main Menu B, then press F2 to enter the Leakage Test Menu, then press F1 to select Class I Leakage Test
7. The first part of the test will be conducted without powering the appliance
8. A warning will be displayed on screen - ensure the appliance is safely located, then proceed with the leakage test
9. When the test is complete your results will be appear on the screen.

If the result was a **PASS** - Tag with PASS tag showing "next test due" date and return the device to service.

If the result was a **FAIL** - Tag with a DANGER tag and remove the device from service.

Earth Leakage Test - Class II

TnT EL **TnT RCD** **TnT Titan**

You Will Need:

- A Mains Power Source
  (The TnT RCD 20A/TnT Titan 20A must be connected to Mains via the provided 20A Power Adaptor when testing)
- Device Under Test
- IEC Earth Clamp Cable
- Metal Mesh Braid or Cloak

Test Sequence:

- Insulation Test (@ 250V or 500V)
  Pass level greater than 1MΩ
- Earth Leakage Test
  0 to 30.0mA at 200-265V. 240VAC Mains.
  Pass level 1.0 mA
- Mains Supply Test
- NCNT Check

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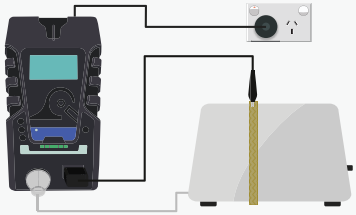
Test Procedure

CAUTION

This test will power on the Device Under Test. Take due care to ensure the Device is safely located before proceeding.



1. Complete a Visual Inspection
2. Connect your Portable Appliance Tester to a mains power source.
3. Plug the IEC Earth Clamp Cable into the IEC Test socket.
4. Plug the Device Under Test into the Appliance Test Socket of the Portable Appliance Tester
5. Wrap a metal mesh braid or cloak around the Device Under Test, and attach the IEC Earth Clamp to that in order to establish an earth connection
6. If you are using WinPATS Pro, add the item to your database, select the 'Class II Leakage Test' sequence, then tap 'Start Test'
   Otherwise, navigate to Main Menu B, then press F2 to enter the Leakage Test Menu, then press F1 to select Class II Leakage Test
7. The Portable Appliance Tester will conduct the first part of the test sequence without powering the appliance
8. A warning will be displayed on screen - ensure the appliance is safely located, then proceed with the leakage test
9. When the test is complete your results will be appear on the screen.

If the result was a **PASS** - Tag with PASS tag showing "next test due" date and return the device to service.

If the result was a **FAIL** - Tag with a DANGER tag and remove the device from service.

Earth Leakage Test - RCD

TnT EL **TnT RCD** **TnT Titan**

You Will Need:

- A Mains Power Source
  (The TnT RCD 20A/TnT Titan 20A must be connected to Mains via the provided 20A Power Adaptor when testing)
- Device Under Test
- IEC Earth Clamp Cable
- Metal Mesh Braid or Cloak

Test Sequence:

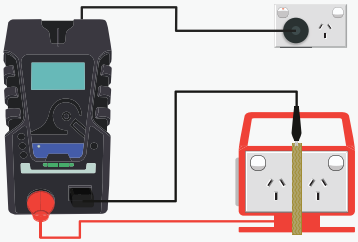
- Earth Bond Test (@ 200mA):
  Pass level less than 1Ω
- Earth Leakage Test
  0 to 30.0mA at 200-265V. 240VAC Mains.
  Pass level 1.0 mA
- Mains Supply Test
- NCNT Check

Scan to view our Tutorial Video on this topic

Test Procedure

CAUTION

This test will power on the Device Under Test. Take due care to ensure the Device is safely located before proceeding.



1. Complete a Visual Inspection.
2. Connect your Portable Appliance Tester to a mains power source.
3. Plug the IEC Earth Clamp Cable into the IEC Test socket.
4. Plug the male end of the Device Under Test into the appliance test socket.
5. Wrap a metal mesh braid or cloak around the Device Under Test, and attach the IEC Earth Clamp to that in order to establish an earth connection
6. If you are using WinPATS Pro, add the item to your database, select the 'RCD Leakage' sequence, then tap 'Start Test'.
   Otherwise, navigate to Main Menu B, then press F2 to enter the Leakage Test Menu, then press F3 to select RCD Leakage Test.
7. Your Portable Appliance Tester will conduct the first part of the test without powering the appliance
8. A warning will be displayed on screen - ensure the appliance is safely located, then proceed with the leakage test
9. When the test is complete your results will be appear on the screen.

If the result was a **PASS** - Tag with PASS tag showing "next test due" date and return the device to service.

If the result was a **FAIL** - Tag with a DANGER tag and remove the device from service.

Further Information

The Leakage Test is an alternate method to perform insulation resistance tests. There are three types of Leakage test available on your Portable Appliance Tester - take care to ensure you use the correct test for your appliance.

This test determines errors of leakage not otherwise detected in a normal insulation test. If there are any doubts with insulation testing of the equipment, the Standard (AS/NZS 3760:2022) allows for a leakage test to be carried out instead. The Leakage Test applies power to the Device Under Test and measures any imbalance or leakage current. The leakage is tested to the limits of the class types specified in the Standard AS/NZS 3760:2022.

The limit of imbalance measured on your Portable Appliance Tester will read well in excess of the limits set in mA. However, should the supply circuit be protected by an RCD this device will trip anywhere between 10 to 30mA and trip the mains supply switch OFF. The Leakage Test allows the user to operate the appliance in normal operation conditions and measure its Operating Leakage current. The displayed parameter is mA. The mA Display Range 0.0 to 22.0 mA.

A predefined value for individual class types is programmed into your Portable Appliance Tester. These limits are set according to the AS/NZS 3760:2022. Should these values change in future it can be simply altered in firmware. The run time period can be adjusted (by 5 second increments). The value can be changed by selecting the leakage test time in the Settings menu, or via WinPATS. The factory default setting is 20seconds, which is generally long enough to obtain an accurate reading for most appliances.

RCD Leakage Test

Please note that the RCD Leakage Test is not an alternative to an RCD Trip Time or Ramp Current Test. The RCD Leakage Test measures only the earth bond and earth leakage of a Residual Current Device, and should not trip an RCD that is functioning correctly.

RCD Tests - Portable & Fixed Residual Current Devices

Types of RCD

There are two types of RCD - Type 1 and Type 2:

Type 1 RCDs have a trip time of < 40mS and a trip current of < 10mA. These types of RCDs are mainly used on sites containing medical equipment. These types of RCDs must be compliant with AS/NZS 3551.

Type 2 RCDs a trip time of < 300mS and a trip current of < 30mA. These types of RCDs are generally more commonplace. All Wavecom Appliance Testers are set to test Type 2 RCDs by default.

Adjusting Test Parameters For RCD Type:

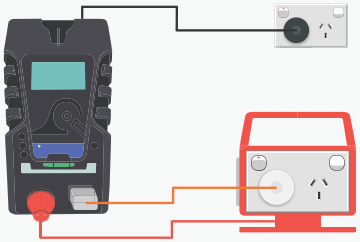
If you are using WinPATS, you can simply select the appropriate test for your RCD type (RCD Trip Time 10mA for Type 1, RCD Trip Time 30mA for Type 2). You will be able to set Portable RCD (pRCD) to on or off. If you are testing a Portable RCD with a physical switch turn pRCD on, otherwise turn PRCD off.

If you are conducting testing directly from your Portable Appliance Tester, you can adjust the RCD testing options from the RCD Testing Menu. After setting your RCD type, you will be promoted to enable or disable (pRCD) testing. If you are testing a Portable RCD with a physical switch turn pRCD on, otherwise turn PRCD off.

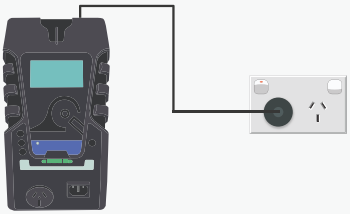
RCD Testing Setup

When testing RCDs, different kinds of RCDs will require different test setups. Consult the diagrams below to determine which setup is required for your situation.

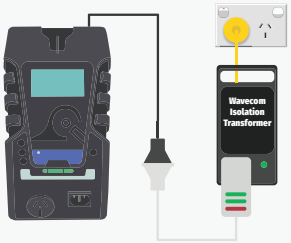
Testing Portable RCDs with physical switches



Testing Switchboard RCDs



Testing Portable RCDs with no physical switch



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RCD Trip Time Test

TnT RCD **TnT Titan**

You Will Need:

- A Mains Power Source
  (The TnT RCD 20A/TnT Titan 20A must be connected to Mains via the provided 20A Power Adaptor when testing)
- Device Under Test
- IEC-550 Orange Cable
  For portable RCDs with a physical switch
- Wavecom Isolation Transformer
  For portable RCDs without a physical switch

Test Sequence:

- Trip Current
  Injects fixed trip current (User selectable from 2-500mA in 1mA increments)
  Measures Trip Time (0 to 3,000ms at 1ms resolution)
- Mains Supply Test
- NCNT Check

Scan to view our Tutorial Video on this topic

Test Procedure

1. Complete a Visual Inspection
2. Connect your Portable Appliance Tester to a mains power source.
3. Set up your test according to the variety of RCD you are testing (see page 24)
4. If you are using WinPATS Pro, add the item to your database, select the 'RCD Trip Time' sequence, then tap 'Start Test'.
   Otherwise, navigate to Main Menu B, and press F3 to enter the RCD Menu, then press F1 to select Time Test. Press F3 to enter the Time Test options menu, to ensure your Portable Appliance Tester has the correct settings for the type of RCD. Once your Portable Appliance Tester is set up correctly, select either the 0° (Positive) or the 180° (Negative) Phase to test. Both phases should be tested, and after the first test, you can select 'Retest' to test the other phase.
5. When ready, begin the test - the RCD will trip, and the time will be recorded in milliseconds.
6. If the mains power source RCD tripped (either during a switchboard RCD test or a Portable RCD with no physical switch test) your Portable Appliance Tester will switch to battery power (if charged), but will need to be Mains Powered again to conduct further RCD tests.
7. You can now retest the other phase of the RCD, or simply record your results.

If the result was a **PASS** - Tag with PASS tag showing "next test due" date and return the device to service.

If the result was a **FAIL** - Tag with a DANGER tag and remove the device from service.

Further Information on Page 26

RCD Trip Time Test (continued)

Further Information

This test is designed to trip RCD devices at a fixed current and to determine the trip time of the RCD device. During an RCD Trip Time test, your Portable Appliance Tester injects a true fault current value using a real-time compensation calculation of the actual voltage at the time of test, delivering a true and accurate trip current. Your Portable Appliance Tester will measure the time the RCD takes to trip in milliseconds, and display it on the screen. This function is factory set to 30mA for fast testing, but the user can set the current to 0.5x, 1.0x or 5.0x using the RCD Multiplier.

Nominal Current	RCD Multiplier	Actual Current	Expected Result *(Type 2 RCD)*
30ma	0.5x	15ma	RCD does not trip
30ma	1.0x	30ma	RCD trips
30ma	5.0x	150ma	RCD fast trips

The 1x multiplier is also effective on any set test current of the RCD tester from 5mA to 500mA output.

RCD Test Options:

To adjust the Trip Time test options, navigate to Main Menu B, press F3 to enter the RCD Test Menu, then press F1 to select Trip Time Test, then press F3 . This allows the user to set the trip current level, 5mA to 500mA. The RCD type can also be select here depending whether the unit is a Type I or Type II RCD. From the options menu, press F2 to change the current level and F3 to change the RCD type.

Adjusting the current level:

Your Portable Appliance Tester displays and maintains the last set trip current value. If the user wishes to change the value of the trip current the following steps enable the changes. Press F2 from the options menu to display test current.

F1 - Raises the trip current in 1mA increments to 500mA. Hold the button and the value will scroll faster the longer it is pressed. Once 500mA limit is reached the value will then loop over and start again from 0mA

F2 - Decreases the trip current in 5mA increments. Hold the button and the value will scroll faster the longer it is pressed. Once 0mA limit is reached the value will then loop over and start again from 500mA.

Enter - Sets the selected current for the next trip time test. Your Portable Appliance Tester will then return to the current trip time test screen.

RCD Ramp Current Test

TnT RCD **TnT Titan**

You Will Need:

- A Mains Power Source
  (The TnT RCD 20A/TnT Titan 20A must be connected to Mains via the provided 20A Power Adaptor when testing)
- Device Under Test
- IEC-550 Orange Cable
  For portable RCDs with a physical switch
- Wavecom Isolation Transformer
  For portable RCDs without a physical switch

Test Sequence:

- Trip Current
  Injects incrementing trip current (0-500mA in 1mA increments)
- Mains Supply Test
- NCNT Check

Scan to view our Tutorial Video on this topic

Test Procedure

1. Complete a Visual Inspection
2. Connect your Portable Appliance Tester to a mains power source.
3. Set up your test according to the variety of RCD you are testing (see page 24)
4. If you are using WinPATS Pro, add the item to your database, select the 'RCD Ramp Test' sequence, then tap 'Start Test'.
   Otherwise, navigate to Main Menu B, and press F3 to enter the RCD Menu, then press F2 to select Ramp Test. Press F2 to select your RCD Type (Type 1 or Type 2) and set Portable RCD Testing on or off. You can then press F3 to begin the test.
5. Your Portable Appliance Tester will increase the current to the RCD until it trips, displaying the current on screen.
6. If the mains power source RCD tripped (either during a switchboard RCD test or a Portable RCD with no physical switch test) your Portable Appliance Tester will switch to battery power (if charged), but will need to be Mains Powered again to conduct further RCD tests.
7. You can now record your results.

If the result was a **PASS** - Tag with PASS tag showing "next test due" date and return the device to service.

If the result was a **FAIL** - Tag with a DANGER tag and remove the device from service.

Further Information

This test is designed to trip RCD devices using a ramping up current value, to determine the trip current of the RCD device. This useful test allows the user to determine circuit leakage load/pre-loading of RCD circuit. This can assist in determining nuisance tripping issues (RCD is too sensitive) or determining RCD performance if suspected faulty or inconsistent in performance.

Your Portable Appliance Tester has a nominal leakage current of 2mA, which should be added to the result of test. For example if your RCD tripped at 22mA, add 2mA to get a result of 24mA trip current.

Meter Mode®

Meter Mode measures electrical parameters such as Volts, Amps, Watts, and Volt/Amps. These electrical parameters will be displayed on screen.

How to use Meter Mode

1. Conduct a visual inspection, and inspect the compliance plate to determine the expected results
2. Plug in the appliance to the appliance test socket on your Portable Appliance Tester.
3. Ensure the appliance is safely located and secured, as it will be powered during this test.
4. Press and Hold F3 to enter Meter Mode
5. When ready, press F3 to begin Meter Mode, then press F3 to power the appliance.
6. Press F3 to scroll through the options (Volts, Amps, Watts, & Volt/Amps)
7. To end Meter Mode, simply press Enter, then to leave Meter Mode and return to the Menu, press Enter again. Your Portable Appliance Tester will remain in Meter Mode when powered off unless you exit Meter Mode.

Explanation of Electrical Parameters

Volts
A volt is the unit used to measure the energy available in the electrical current of a circuit. Voltage controls the available electrical power (wattage).

Amperes (aka Amps)
An amp is the unit used to measure electrical current as it flows past a specified point.

Watts
A watt is the unit used to measure the amount of actual flowing electrical energy.

Volt-Amps
A volt-amp is the unit used to measure the apparent electrical power used by computing equipment. Mathematically, it is expressed as volts multiplied by amps (V*A). Because it represents the amount of energy computing systems may draw from a power grid, Volt-Amp measurements are used to determine the kind of wiring and circuit breakers required to support the computing equipment in question.

Watts
The power drawn by equipment is expressed in Watts or Volt-Amps (VA). The power in Watts is the real power drawn by the equipment. Volt-Amps are called the “apparent power” and are the product of the voltage applied to the equipment times the current drawn by the equipment. Both Watt and VA ratings have a use and purpose. The Watt rating determines the actual power purchased from the utility company and the heat loading generated by the equipment.

Disclaimer

Meter Mode is to be used for quick simple indicative electrical parameter measurements. Providing reasonably accurate readings without the need to carry any other instruments. It is not intended to replace specific, more accurate individual test equipment, nor is its purpose to replace prescribed testing requirements. It in doubt please consult a qualified electrician when unsure or perform proper test procedures.

Specifications

Refer also to the compliance plate on the rear of your Portable Appliance Tester.

Mains Supply Test	Checks Polarity and continuity of mains supply by LED indicators when connected to Mains Power Supply.
Class I ***Earthed Appliances*** *See also: Leakage Test*	NCNT Check: Ensures appliance is plugged in and turned on. Earth Bond Test: 200mA test current. Pass level Less than 1.0 Ω. Measurement: 0.01Ω to 10 Ω. Insulation Test: 500VDC / 250VDC. Pass level Greater than 1M Ω. Measurement: 0.1Ω to 10MΩ.
Class II ***Double Insulated Appliances*** *See also: Leakage Test*	NCNT Check: Ensures appliance is plugged in and turned on. Insulation Test: 500VDC / 250VDC. Pass level greater than 1MΩ. Measurement: 0.1Ω to 10MΩ.
Extension Leads	Earth Bond Test: 200mA test current. Pass level Less than 1Ω. Measurement: 0.01Ω to 10.0Ωs Insulation Test: 500VDC / 250VDC. Pass level Greater than 1MΩ. Measurement: 0.1Ω to 10.0MΩ. Continuity/Polarity Test: 250VAC check continuity and polarity of leads. Displays Pass/Fail.
Leakage Test	Leakage Current: 0 to 30.0mA at 200 to 265V Earth Leakage Test: 240VAC Mains. Pass level 1, 2.5, 5.0 mA leakage test levels with up to 10 amps load operation (20 amps for TnT RCD 20A & TnT Titan 20A) **Note 1: Pass level for Class I is 5 mA; pass level for Class II is 1 mA** **Note 2: Leakage test may be performed if for any reason a standard Class I or Class II Test cannot be performed.**
RCD Test *TnT RCD & TnT Titan Only*	Trip Current: 2 to 500mA in 1mA steps. User selectable. Trip Time: 0 to 3,000ms at .001sec resolution. Current Ramp Trip Test: 0 to 500mA in 1mA increments.
Power Measurement *TnT RCD & TnT Titan Only*	Leakage Current: 0 to 30.0mA at 200 to 265V Load Current: 0.0 to 10 amps (20 amps for TnT RCD 20A & TnT Titan 20A) Voltage: 200 to 265VAC Power Factor: 0.00 to 1.00 Apparent Power: 0 to 2400VA Power: 0 to 2400W
Meter Mode®	Load Current: 0.0 to 10 amps (20 amps for TnT RCD 20A & TnT Titan 20A) Voltage: 200 to 265VAC Apparent Power: 0 to 2400VA Power: 0 to 2400W
AC Input	110V-240V 50/60Hz
Battery	6800 mAH, 14.4V, 97.92WH; Charge Time Approximately 7 Hours.
Bluetooth *TnT Titan Only*	Bluetooth Low Energy technology with inbuilt antenna.

Technical Information

Visual Inspection

A visual inspection must be undertaken before proceeding to any further AS/NZS 3760 test.

The visual inspection is carried out to ensure there are no physical faults with the appliance before testing. The following list is an example of a visual inspection checklist, but is not exhaustive and the relevant standards must be consulted to ensure a proper Visual Inspection is undertaken.

- There is no damage or component defects to the accessories, plugs, outlet sockets, or connectors.
- There are no cracks or abrasions.
- There are no exposed inner cores or conductors (flexible) and the supply cords are not twisted or distorted.
- Any fuse or other overload protection components (if fitted) are checked.
- All labels, markings, and warning indicators are legible and intact.
- The insulation is not damaged in any way. There are no iron filings in the insulation. There is no insulation tape on the lead.
- Any flexible cords and/or leads are effectively anchored (glands and grommets are intact).
- All covers or guards are in place and secure as intended by the supplier/manufacturer.
- All safety devices & systems (overload latches & buttons etc.) are in good working order.
- No dust or dirt obstructs any exhausts or ventilation outlets.
- All controls are working properly and are secure and aligned.

If The Device Under Test Fails The Visual Inspection:

If any Equipment fails **ANY** of the above (or other criteria as determined by the relevant Standard) it should be deemed to have **FAILED** the Visual Test, and therefore no other tests need be performed. If this is the case the Equipment should be tagged with a DANGER TAG and removed from service.

Class I (Earthed Appliance) Construction

Single basic insulated and protectively earth equipment

This type of product design provides two safety barriers between all live conductors at dangerous voltages and the equipment user. The provision of basic insulation between exposed metal parts and live parts is the first barrier to provide basic protection against electric shock. The second safety barrier is by the connection of exposed (accessible) conductive (metal) parts to the protective earthing conductor (earth wire) in the fixed wiring of the device/Installation.

The protective earthing terminal of the equipment must be marked with the word “earth” or the symbol “E” or the symbol for Earth Terminal or Protective.

To perform a Class I appliance test, a continuous earth loop must be made between the exposed conductive material (metal) and your Portable Appliance Tester appliance tester.

This is done by means of connecting the earth lead with the crocodile clip/probe attached to an earth point (metal covered by paint or other coatings will not provide effective connections) and the appliance plugged into your Portable Appliance Tester appliance testers' test socket. The Maximum allowable limit is less than 1.0Ω.

Earth Continuity Test

Your Portable Appliance Tester conducts earth continuity tests (also known as earth bond tests) at approximately 200mA. Continuity tests at higher currents are not required or recommended on certain equipment as this may cause severe damage or premature failure to the Device under test (see AS/NZS 3760:2022).

Unique Earth Bond Test Feature

The Earth Bond test duration can be extended by the user by pushing the ENTER button during the test. This will extent the test time by 30 seconds for each press.

This feature has been incorporated to provide extra time to achieve an adequate physical connection, or confirm any possible intermittent issues. There may be situations where the condition of equipment, coatings applied, or suspect wiring breaks may alter the earth connection path of the device under test. This may save time by prolonging tests instead of conducting multiple iterations of the same test.

Class II (Double Insulated) Construction

Double insulated equipment

This method of construction employs two safety barriers comprising two layers of insulation between dangerous voltages and the user of the equipment. Double Insulated equipment generally comprises of both *Functional* and *Supplementary* insulation.

The first layer of insulation is the Functional Insulation, and is formed around the live conductor.

The second layer of insulation is the Supplementary Insulation. In Class II equipment, protection against electric shock does not rely on basic insulation only, but has additional insulation such as double insulation or reinforced insulation provided, there being no reliance on precautions in the fixed wiring of installation.

Class II equipment is marked with the words "DOUBLE INSULATION" or the symbol:

Note – Reinforced Insulation is a single insulation system with a degree of protection against electric shock, which is equivalent to double insulation.

Testing of Electrical Equipment

Many testing personnel have some reservations in testing sensitive electronic equipment using a 500V DC insulation test, due to the concern of over-voltage causing internal damage.

Your Portable Appliance Tester can safely test electronic equipment as the tests are carried from Active-Neutral (shorted by a relay inside the tester) to Earth. In this mode no dangerous voltages pass through to the internal components of the Device Under Test ('DUT').

Some changes may be required in certain configurations where fitted surge protection devices (MOV's) in the DUT may cause a failed test result. Applying 500V in this these situations can cause the surge protection devices to trip, therefore conducting the applied voltage to earth, thus showing a failure of insulation. In these instances the test voltage should be changed to 250V, then the DUT should be retested. If the DUT still fails, check with the DUT Operators' Manual or an electrician.

Under these circumstances, it would be difficult for any damage to occur to either the surge protection device or the DUT, as there is insufficient current generated by your Portable Appliance Tester.

Leakage Test

If there are any doubts with insulation testing of the Device Under Test, AS/NZS 3760:2022 allows for an Earth Leakage Test be performed instead or in addition to a standard Class I or Class II test.

The TnT EL, TnT RCD & TnT Titan have a maximum resistive load of 10 amps. The TnT RCD 20A & the TnT Titan 20A have a maximum resistive load of 20 amps.

The TnT RCD 20A & the TnT Titan 20A use a 16A thermal circuit breaker. Any Leakage (or Power) test up to 16A can be conducted indefinitely. Leakage and Power tests from 16A to 20A load can typically be conducted for 30 to 60 minutes before the thermal circuit breaker cuts out. If the circuit breaker cuts out, allow the circuit breaker to cool for *at least* 5 minutes before resetting.

A Leakage Test applies power to the Device Under Test (DUT) and measures the imbalance of leakage current from the DUT between the active and neutral conductors. The leakage is tested to the limits specified in the standard and a Pass/Fail result as well as a digital reading is provided to ensure that the user gains as much information as necessary.

Three Phase Testing

Note: Three Phase Testing requires a three phase adaptor, sold separately. Your Portable Appliance Tester cannot perform a Three Phase Leakage test.

Three Phase appliances can be tested by your Portable Appliance Tester with the use of a three phase adapter. As the insulation tests are from Phase to Earth, only a 500V insulation test is required. Contact us for more information regarding three phase testing with your Portable Appliance Tester.

Integrated Tests

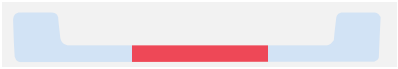
Mains Supply Test

Note: The Mains Supply Test only applies when connected to Mains Power - if you are using your Portable Appliance Tester in battery mode, you can disregard this information.

The Mains Supply Test checks the polarity and connectivity of the mains power supply to your Portable Appliance Tester. This test is conducted passively whenever connected to a Mains Supply, and actively during each test sequence.

If there is a fault with the mains power connection, you may see one (or more) of the Status LEDs turn red. This may indicate a serious issue with the mains power supply - consult a qualified professional before proceeding. This won't apply when using battery power.

Standard Mains Supply Test result with no issues.



N-E Fault - If the N-E light in on, DO NOT PROCEED. The N-E LED will turn red if there is a voltage difference between the neutral and earth, or if there is no earth connected. If you are working from a generator or inverter this is likely to occur - consult a qualified electrician before proceeding.

If the N-E LED is red, and A-N is green, there is a fault with the Mains Supply. Consult a qualified electrician.

No Connection No Test (NCNT Check)

This function ensures that the appliance is correctly plugged into the Portable Appliance Tester and that it is switched on. If the device is not plugged in and the Portable Appliance Tester detects that no device is present, and prompts the user to plug in an appliance to continue the test or press 'QUIT' to return to the main menu.

If for some reason the NCNT check does not detect the device but it is actually plugged in and turned on, the operator can to override the NCNT function. This is done at the user's discretion.

This function ensures that correct testing procedures are carried out in accordance with AS/NZS 3760:2022. If the Device Under Test is not plugged in or recognised, it may require a live test therefore making it necessary for the operator to carry out an Earth Leakage Test.

Note: When using 3-Phase adaptors the NCNT function will need to be overridden. Some single-Phase appliances controlled by contactors will also require manual over ride. In some instances, holding the 'ON' button of the Device Under Test will enable the NCNT function to work normally.

Settings

If you are using a TnT Titan, you can adjust many of these settings directly from WinPATS which we recommend as it offers an easier user interface. In particular, you can change the insulation test voltage and leakage test time directly as part of the testing process.

Accessing the Settings Menu

To access the Settings Menu, navigate to Main Menu A, then hold Enter and press F2. You can then scroll through the options by pressing F2, select a setting using Enter, or leave the Settings menu by pressing F3. We recommend leaving these settings at their default values.

Settings Explanations

Setting Name	Purpose	Possible Values
Change Ins Vol	Adjust the voltage level used in the insulation test.	250V DC *or* 500V DC
Leak. Test Time	Adjust the duration of the leakage test	5 seconds *to* 28,800 seconds *(5 second increments)*
Audio Option	Turn on or off the audible beep to indicate the completion of a test.	Enable *or* Disable
Result Hold Time	Adjust the time that test results are displayed on screen after the completion of a test sequence	1 second *to* 90 seconds *(1 second increments)*
Battery Options	Adjust the power-saving battery time out function, which powers the unit off when left idle in battery mode.	1 minute *to* 60 minutes *(1 minute increments)*
Bluetooth Config *TnT Titan only*	Select whether to enable or disable the security PIN for establishing a Bluetooth connection between your TnT Titan and your tablet.	Enable *or* Disable
	Select whether to formally disconnect the Bluetooth connection when the connection between your tablet and your TnT Titan is interrupted.	Enable *or* Disable
LEDS Options	Select whether to use the Battery LEDs to display the battery charge	Enable *or* Disable
	Set the LED Display Mode of the Status LEDs	TnT Status *or* Mains Detect *or* LEDs Off
	Select whether the Status LEDs should flash to indicate a test is in progress	Enable *or* Disable
	Select whether to use the LEDs to indicate a PASS (green) or FAIL (red) result after a test	Enable *or* Disable
Set Date / Time	Set the date and time of the internal clock.	DD/MM/YYYY, HH:MM *[Requires keyboard or other input device]*

Wavecom Tags & Accessories

To support our test and print units we offer to you our range of electrical test tags that are made of the highest grade polypropylene and polyester label materials. These materials are robust, resistant to tearing, and will cope with harsh Australian environments. It is recommended in extreme external conditions you use UV resistant tags.

Wavecom Tags

The test tags/labels we offer come in the full range of colours, each tag comes with a clear white area where a barcode can be printed into ensuring easy and accurate scanning, this results in the user being able to conduct fast scanning without issues.

TT Tags (100 Tags)	Suitable for indoor and outdoor use	Available in: Black (BLK), Blue (BL), Burgundy (BUR), Green (G), Orange (O), Red (R), Yellow (Y), & Mixed [Blue, Green, Yellow & Red] (RAIN)	Order Code: WCM-TT-TAGS-*
TM Tags (100 Tags)	Suitable for all but the most extreme environments	Available in: Black (BLK), Blue (BL), Burgundy (BUR), Green (G), Orange (O), Red (R) & Yellow (Y)	Order Code: WCM-TM-TAGS-*
TA Tags (100 Tags)	Suitable for all industrial and outdoor sites	Available in: Black (BLK), Blue (BL), Burgundy (BUR), Green (G), Orange (O), Red (R), Yellow (Y)	Order Code: WCM-TA-TAGS-*
NTS Tags (100 Tags)	New to Service Tags. Suitable for indoor and outdoor use		Order Code: WCM-NTS-TAGS
OOS Tags (100 Tags)	Danger - Out of Service Tags. Suitable for indoor and outdoor use		Order Code: WCM-OTS-TAGS
RCD Tags (100 Tags)	RCD Tags. Suitable for indoor and outdoor use		Order Code: WCM-RCD-TAGS

Optional Accessories

1000mm Earth Braid	**WCM-TnT-ES-X**	AS/NZS 3760 Log Book	WCM-LOG-BOOK
3-Phase Adaptor (20A 5pin & 32A 5pin)	**WCM-3PH-MADP**	RCD Testing Log Book	**WCM-RCD-LOG-BOOK**
Probe Kit	**WCM-Probe-Kit**	Tag Remover Device	**WCM-KUTTER**
Isolation Transformer for RCD testing	**WCM-ISOT**	Bluetooth Direct Thermal Printer	**WCM27420**
IEC-C13 to Figure 8 Adapter	**WCM-8-ADPT**	Bluetooth Thermal Transfer Printer	**WCM-TT040-50BB**
IEC-C13 to Cloverleaf Adapter	**WCM-CLOVER-ADPT**	Bluetooth Barcode Scanner	**WCM40292**

Disclaimer – E&OE

All specifications may be subject to be change by Wavecom Pty. Ltd. without prior notice. Updated specifications and other changes may be found on the Wavecom website: www.wavecom.com.au

At the time of developing this manual, all care and consideration for accuracy has been implemented. Wavecom accepts no responsibility for any errors or omissions in this document. It is strongly recommended the Purchaser check Local, State and National Regulatory Standards that may be applicable in your region.

Tester Serial Number

WinPATS Android App
Discount Coupon
(Valid for one use only)

Purchase Information

Date of Purchase

Sold By

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