



WAVECOM INSTRUMENTS PTY LTD[©]

3PLM *User Manual*

3PLM - 20Amp Model

3PLM - 32Amp Model

Australian Designed & Manufactured to comply with testing requirements of
AS/NZS 3760:2010 Standards.



*Note: If required 3PLM Firmware can be updated by Wavecom
only to comply with potential Changes in Testing Standards*

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Important Information

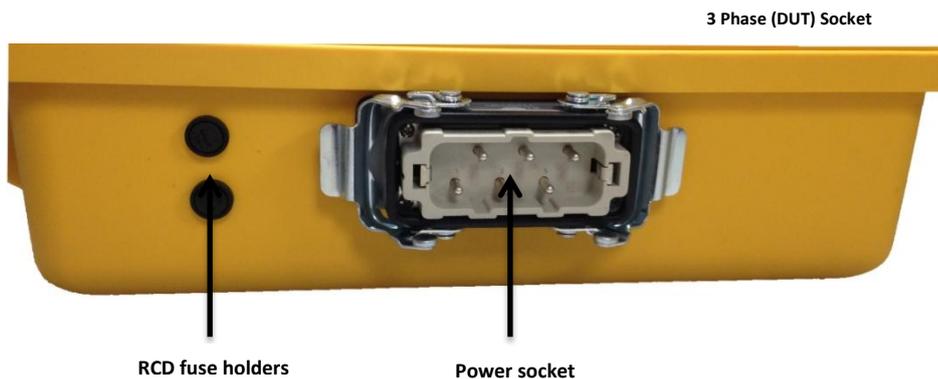
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3PLM Appliance Tester
 User Manual
 Wavecom Keyboard (Standard)
 Wavecom Scanner (Standard)
 Wavecom Tag Printer (Optional)
 Serial Printer Cable (Optional)
 WinPATS Software (Standard)
 2 Rolls / 500 Labels – 2 x Resin Ribbons (Optional)

IEC Test Lead (500mm Orange)
 USB – PC Cable
 Earth Alligator Lead (1800mm Black)
 1 Phase Power Supply Cable
 3 Phase Power Supply Cable
 3 Phase Extension Test Lead
 Manufacturer's 1st Calibration Certificate (Valid for 12 Months after Purchase)

Important: Please Register your WinPATS Software and 3PLM Unit with the provided documentation or online via our website www.wavecom.com.au

3PLM Diagram



3PLMTest n Print Unit 20A ver. shown

Plug, Apaptor and Cord Information

Single Phase Power Supply Cord:



3 Phase Power Supply Cord (4 and 5 pin types):



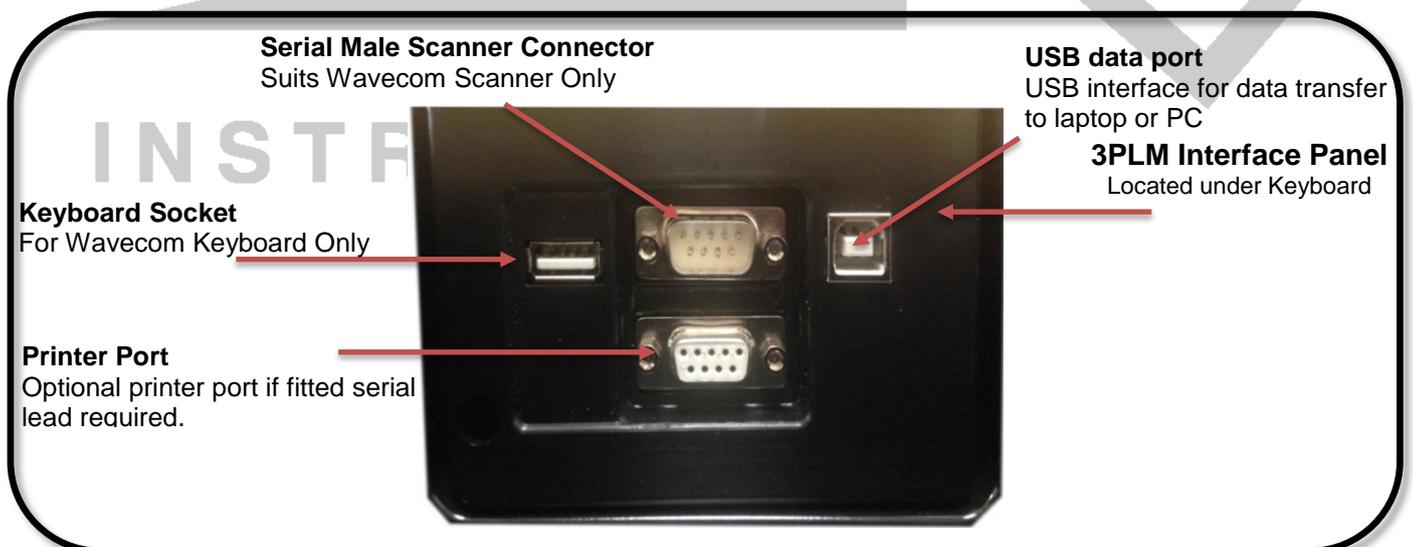
3 Phase Extension Lead Testing Cord



Single Phase Extension Lead & Alligator Clip



Warning: Do not connect the 3 phase extension cable to a 3 phase wall outlet. Damage may result. This cable should only be used for testing extension leads. Similar testing procedures are done with this cable as described in Ext Lead Test.



Warning: Do not plug any other leads or devices into the L/H USB or R232 sockets! These are proprietary connectors, specifically wired for 3PLM models only.

Manufacturer Recommendations

Calibration: The AS/NZS3760:2010 Standard recommends a routine calibration / verification of this unit to ensure the accuracy of readings on a 12 monthly basis, or as prescribed under any additional local Regulatory requirements.

Note: Only Wavecom Instruments or its Authorised Service Agents are permitted to repair and Calibrate this Instrument. Failure to perform unauthorised service or repair may void all warranties and Calibration Status.

Safety Warning



The 3PLM series of products have been designed to meet stringent safety requirements; however no device can completely protect persons 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** and suitably trained person, as referred to under the current Standard AS3760:2010, 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 / visual check.
- All user instructions are followed.
- Double check power supply connections. (note LED status)
- 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.

* See P.6 AS/NZ 3760:2010 def.

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 above definition as described in the current **AS/NZ-3760:2010 Standard** and in addition, to any other local legislation or jurisdictions as may be relevant in your State.

EXAMPLE:

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.

Disclaimer

Limited Warranty

The Manufacturer 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 manufacturer of the 3PLM appliance tester.

The 3PLM 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, and DAMAGES FOR PERSONAL INJURY. The Distributors of this product cannot assume liability or responsibility for any loss or damage resulting from the use of this device.

The 3PLM manufacturer reserves the right to discontinue models, change specification, price or design, at any time without notice or obligation.

Power Up Checking

When the 3PLM is turned on it will determine the type power source. This is either:

1 Phase Detected	3 Phase Detected	3 Phase Detected
3 Wire Detected	4 Wire Detected	5 Wire Detected

- 1 Phase 3 Wire
- 3 Phase 4 Wire (No Neutral wire)
- 3 Phase 5 Wire (With Neutral wire)

If the power source is 3 phase the tester will do an additional phase rotation test. The test will indicate that the phase rotation is correct or incorrect. The 3PLM will determine the power source by the plug attached to the mains power supply in 3PLM front diagram.

Menu System

Main Menu A	Main Menu B	Main Menu C
Earthed Test	Power Test	3PH Earth Test
D/Insulated Test	Leakage Test	3PH Ex Lead Test
Ext Lead Test	RCD Test	3PH Leakage Test

The menu system is divided into 3 menus. Menu 1 & 2 are related to single phase testing. Menu 3 is related to 3 phase testing. When performing 1 phase test only the 1 phase DUT socket will be used. In menu 3 only the 3 phase DUT socket will be used. The 3PLM has an internal contactor that switches between the single and 3 phase outlet. You must select the correct type of test to select the correct outlet. For example if a DUT is plugged into the single phase outlet and a 3 phase test is chosen then a NCNT message will appear. This is because the 3PLM has selected the 3 phase outlet and is not detecting any appliance.

Certain test will be available depending on what power source the 3PLM is plugged into. The 3 different test modes are:

1 Phase 3 Wire: All tests except 3 Phase leakage test.

3 Phase 4 Wire: All tests except single phase power test.

3 Phase 5 Wire: -All tests are available.

These modes are displayed when the 3PLM is first powered on. If a test is not available based on the type of power input then a message will be displayed on the screen.

Other 3PLM Features:

- The 3PLM contains two fuse holders show in side view diagram. These are used to protect the RCD circuitry of the 3PLM. Only replace these fuses with M205 1A ceramic slow blow fuses. Under normal condition these fuse should never have to be replaced.
- An RS-232 port is located in the under the keyboard tray. This is for connecting to the Wavecom printer VIA a serial cable.
- USB and serial socket is provided to connect a scanner and keyboard.
- A USB port that connects to the PC for uploading, downloading records and general testing.
- 3PLM allows up to 1000VDC insulation tests. The default is always 500VDC. If the voltage needs to be changed then please read the change in the 3PLM options section.

3PLM Test n Print Unit

3PLM-20A & 3PLM-32A

Introduction to Memory functions

The 3PLM units have Memory. There is inbuilt flash memory and a real time clock. This gives the ability to store up to 5,000 records, which can include items from 16 different sites and 6 different users. This will help to increase the efficiency and pace of testing. The 3PLM units (with memory) have two operating modes:

- 3PLM tester mode only, no devices attached
- Test and Tag mode, all devices connected & on, allowing testing, scanning, retrieval & printing

The 3PLM mode is determined if a keyboard is connected. If there is no keypad detected then the 3PLM will load the main menu screen and function as a standard unit. If the keypad is present then the new barcode screen will be loaded.

Powering on the Tester

When the tester is powered on the scanner will beep a few times indicating the scanner is also powered.

Initially the printer's status light will be orange but after about 5-10 seconds it will change to green. The tester will not print unless the printer light is solid green. A flashing red status light can indicate a media or general printer fault.

Note 1: If the 3PLM stays locked on the logo screen please check the connectivity of keyboard & scanner cables. The 3PLM unit will not work with scanner only connected. The 3PLM system requires either Keyboard only, or both Keyboard & Scanner to be connected.

Note 2: If no devices are connected to the interface, the unit will function as a 3PLM basic tester only.

Adding New Equipment

The following must be done before testing:

- Create a site or use an existing site.
- Create a user name to under the users list.
- If auto generate number is used the initial number must be set correctly.
- If you are adding equipment to an existing site please make sure that the correct site is displayed. If the wrong site is displayed the equipment will be assigned to the wrong site.

When the appliance testers memory has been erased it will look like the following screen.

Screen	Instruction
<pre><F1 SELECT SITE New Barcode 0000000 5000</pre>	<p>When the initial screen in memory mode operation is displayed. A site and user must be entered before testing can be done. When using the 3PLM for the first time, < F1 Select Site will be flashing in the top region of the screen.</p>

Adding a Site

Screen	Instruction
<pre><F1 SELECT SITE New Barcode 00000000 5000</pre>	From the initial screen, press F1. Don't hold the F key, this will select a different function.
<pre>SITES 1 - 3</pre>	The 3PLM can hold up to 16 sites. To scroll through the sites, press enter. 3 sites will be shown on each screen. Each site corresponds to an "F" key, for example Site 1 = F1. To edit a site, hold the corresponding "F" key for 2 seconds. If the Site has a * symbol next to the name then the site name cannot be altered. This site was uploaded from WinPATS and needs to remain the same.
<pre>Edit Site 1</pre>	Using the keypad, enter the name of the site. The Keypad operates in 3 modes-Alpha, Numeric and Predictive. When an editable screen is entered, there will be an ALP, NUM or PRE in the top right hand corner of the screen. Leave the text on ALP mode. Once the details have been typed in press enter to return. <i>Note:</i> Any reference in this instruction manual to keypad should be replaced by qwerty keyboard
<pre>SITES 1 - 3 WAVECOM</pre>	Once a site has been entered, the 'F' buttons are used to select the site. For example to select site 1, F1 would be pressed.
<pre>WAVECOM New Barcode 00000000 5000</pre>	Once a site has been selected, the 3PLM will return to the initial screen and the site that was selected will be shown in the top left hand corner of the screen.

Adding a User

Screen	Instruction
<pre>WAVECOM New Barcode 00000000 5000</pre>	From the initial screen, press F2. Don't hold the F key, this will select a different function.
<pre>USERS 1 - 3</pre>	The 3PLM can hold up to 6 users. To scroll through the users, press enter. 3 sites will be shown on each screen. Each site corresponds to an "F" key, for example User 1 = F1. To edit a user, hold the corresponding "F" key for 2 seconds.
<pre>Edit User 1 GEORGE</pre>	Entering a user is the same process as entering a site, please refer to the Adding a Site steps above, <i>Note:</i> The user name will not appear on the initial screen once selected.
<pre>USERS 1 - 3 GEORGE</pre>	Once a user has been entered, the 'F' buttons are used to select the user. For example to select user 1, F1 would be pressed.

Auto Generate Barcode Function

If required the auto generate barcode number can be set before testing. The auto generate is always displayed in the bottom left hand corner of the new barcode screen.

Screen	Instruction
<pre> WAVECOM New Barcode 0000000 5000 </pre>	<p>The 3PLM incorporates an auto generate barcode function which allows barcodes to be generated sequentially after a barcode has been specified, for example: the specified barcode is 1000 so the next barcode to be generated will be 1001, 1002, 1003 etc. This can be accessed by holding F3 for 2 seconds on the Barcode Entry screen.</p>
<pre> BARCODE LENGTH: Up 7 DIGITS Down ESC SET </pre>	<p>Once the auto generate menu has been accessed, the user can specify how many digits they want in the barcode. The auto generate function allows a minimum of 2 and a maximum of 7 digits in the barcode to be generated. To increase the number of digits in the barcode, press F1. To decrease the number of digits in the barcode, press F2. To proceed, press enter, or to return to the Barcode Entry screen, press F3.</p>
<pre> SET BARCODE: 1000 ESC SET </pre>	<p>If enter was pressed, the user can now set the barcode that will begin the sequence. Key in a barcode and press enter to continue, or F3 to return the Barcode Entry screen.</p>
<pre> USE LEADING ZEROS Enable Disable </pre>	<p>If enter was pressed, the user can specify whether or not to use leading zeros in the auto generated barcode. For example: If the user selected 7 digits in the barcode and entered 1000 as the barcode, the barcode will be 0001000 if leading zeros are enabled. To enable leading zeros press F3. To disable, press enter. The current barcode that will be generated is displayed in the bottom left hand corner of the Barcode Entry screen.</p>
<pre> WAVECOM New Barcode 0001000 5000 </pre>	<p>The current barcode that will be generated is displayed in the bottom left hand corner of the Barcode Entry screen.</p>

Entering Items

Screen	Instruction
<pre> WAVECOM New Barcode 0000000 5000 </pre>	<p>Type in the new barcode or press F3 quickly to choose the auto generate number. Once a barcode has been specified, items can be entered. If the screen displays "search barcode" press enter to switch to new barcode. There must be no numbers entered in to switch between the two modes.</p>
<pre> Loc Desc Make Loc Desc Make OFFICE LEAD HPM </pre>	<p>A selection of details can be entered for an item. Details include; location, description, make, model, serial number, asset number, frequency of test and notes. Each heading relates to an 'F'; e.g. Loc = F1, Desc = F2 and Make = F3. Only 3 items are displayed at one time. To scroll through the various details, press enter key. By continually pressing enter you can loop back to the first 3 items.</p> <p>Please make sure location, description are filled out and check to see that the frequency is correct. Once the details are entered hold the enter key for 2 seconds to move on to the visual check screen.</p>
<pre> Model SN Asset Freq Notes Tests 3METRE 10001 0 Tests </pre>	

<p>ALPHA MODE</p>	<p>Entering an items details is the same process as entering sites and users, please refer to the Adding a Site/User steps above. Ensure that test frequency for the item is set in accordance with the AS/NZ 3760 Standard</p>
<p>VISUAL CHECK 30/03/2015 17:46 OTHER STATUS FAIL PASS</p>	<p>After the item has been visually inspected, there is 1 of 3 options F2 is Other Status, F3 is Fail, Enter is Pass, if F2 is selected then under Other Status. You have the following choices F2 New to Service and F3 Out of Service. If Out of Service or Fail is selected the result will be saved and the 3PLM will revert back to the barcode entry screen. If you have a wavecom printer a tag will be printed. If the test is a visual check only then press (enter hold). See below for details.</p>
<p>Main Menu A Earthed Test D/Insulated Test Ext Lead Test</p>	<p>If the item passes a visual inspection and pass is selected, testing can begin. Select the correct test based on the appliance type.</p>
<p>EARTH BOND TEST Pass < 1.0 Ohms 0.0 Ohms Pass 1s</p> <p>INSULATION TEST 500VDC 1 MOhms 3s</p>	<p>Once test has been completed the results are displayed.</p>
<p>WHAT NEXT? RE-TEST CONT</p>	<p>To test the item multiple times press (F3). This will take you back to the main menu A screen. From here you can choose a test class. You would use this for example if testing power boards. To complete the test press enter. This will take you back to the new barcode screen. If you have a wavecom printer a barcode will be printed once (enter) is pressed.</p>
<p>Visual Check Only Option</p>	
<p>VISUAL CHECK 30/03/2015 17:46 OTHER STATUS FAIL PASS</p>	<p>Items can be passed with a visual check only (no testing required). You must be at the visual check screen shown on the left. To do a visual check only press and hold (enter) for 2 seconds.</p>
<p>VISUAL CHECK ONLY? SAVE AND EXIT YES NO</p>	<p>Pressing (enter) will take you back to the visual check screen. Pressing (F3) will complete the test. Print out a tag if you have a wavecom printer. Then go back to the new barcode screen.</p>

Retesting Equipment

The following must be done before retesting:

- A site must exist in the tester with records. A site is usually uploaded from WinPATS.
- The correct site must be displayed on the first line of the new / search barcode screen. If the incorrect site is displayed no equipment will be reported when scanned. To change see the add sites section.

The correct user must be selected from the users list. A user is important because it give a reference to the test results in WinPATS. It is also the user that is displayed on the tag. If there is no users create a user as described in the add equipment section or upload the users list from WinPATS.

Screen	Instruction
<pre> WAVECOM Search Barcode 0000001 4999 </pre>	Type in or scan the barcode number to be searched and press enter. If the screen displays new barcode press enter to switch over. The screen can only be switched if there is no entry.
<pre> Loc Desc Make OFFICE LEAD HPM </pre>	The existing record details will be shown. Any changes made here will be updated once the site is downloaded in WinPATS. If nothing needs changing hold the enter key to proceed to the next screen.
<pre> VISUAL CHECK 30/03/2015 17:49 OTHER STATUS FAIL PASS </pre>	After all item details have been entered, hold the enter key for 2 seconds to proceed to the Visual Check screen. After the item has been visually inspected, there is 1 of 3 options that can be selected; Out of Service (F2), Fail (F3) and Pass (enter). If Out of Services or Fail is selected the result will be saved and the 3PLM will revert back to the barcode entry screen. If you have a wavecom printer a tag will be printed. If the test is a visual check only then press (enter hold). See add equipment for details.
<pre> Main Menu A Earthed Test D/Insulated Test Ext Lead Test </pre>	If the item passes a visual inspection and pass is selected, testing can begin.
<pre> EARTH BOND TEST Pass < 1.0 Ohms 0.0 Ohms Pass 1s INSULATION TEST 500VDC 1 MOhms 3s </pre>	Once test has completed the results are displayed.
<pre> WHAT NEXT? RE-TEST CONT </pre>	To test the item multiple times press (F3) this will take you back to the main menu A screen. From here you can choose a test class. You would use this for example if testing power boards. To complete the test press (enter). This will take you back to the search barcode screen. If you have a wavecom printer a barcode will be printed once (enter) is pressed.

To download records using WinPATS software, please refer to the Downloading Records section of the WinPATS manual

Deleting Equipment

If for some reason a record needs to be deleted it can be removed from the search barcode screen. This feature removes the whole record and not just the test results. If a record is deleted and replaced it might create a new record when downloaded in WinPATS. This is because the record details didn't match the original ones. Multiple items cannot be deleted at the same time.

WAVECOM Search Barcode 0000001 4999	From the search barcode screen press and hold the enter key. Then press the F1 key. The feature cannot be selected when new barcode is displayed.
WAVECOM S/Records Del. 0000001 4999	The search barcode will change to S/Record Del. Scan or type the barcode that needs to be deleted. If the record does not exist or is in the wrong site a message will be displayed saying nothing was found.
Delete Record? 0000000 Hold F3 to Del. DELETE QUIT	When a match is found a last warning message will be displayed. To delete the record hold the F3 key for 2 seconds. To cancel press enter.

Technical Information

Class 1 (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 this test a continuous earth loop must be made between the exposed conductive material (metal) and the 3PLM appliance tester. This is done by means of connecting the earth lead with the crocodile clip/probe attached to a GOOD earth point (paint & coatings will not provide effective connections) and the DUT (Device Under Test) plugged into the 3PLM appliance testers' DUT socket. The Maximum allowable limit is less than 1.0 (ohm).

The 3PLM has a user selectable current range for earth bond test. It is up to the user to not exceed the current rating of the device under test. For single phase appliances and extension cords 10A should be exceeded. For 3 the correct current level should be selected based on the device under test.

To Change the Earth Current Level

To change the earth current, select the "E/Bond Amps Set" from the options menu. Please refer to the **special functions** section of this manual.

Class 2 (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.

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

The second layer of insulation is termed 'the Supplementary Insulation'. In Class II equipment, protection against electric shock does not rely on basic insulation only, but has additional supplementary 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



For double insulated under Safety Symbols:

Note 1 – Double Insulation is insulation comprising both basic and supplementary insulation.

Note 2 – 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. There is a perceived fear of causing internal damage from over voltage. With the introduction on the 3PLM Range of appliance testers, these concerns are alleviated.

The 3PLM Range of electrical portable appliance testers is safe to test electronic equipment as the tests are carried from Active-Neutral (shorted by a relay inside the tester) to Earth. No dangerous voltages pass through in this mode to the internal components of the DUT (Device Under Test). If these tests are done using an Insulation Tester only and the user tests Active to Neutral, this would be a cause of potential damage, **this is why the 3PLM product range is far safer to use.**

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 retest. If DUT still fails, check with the DUT Operators Manual or an electrician. *[for details see - 'Double Insulation Test' 250/500VDC to change test voltage].*

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 the 3PLM test unit.

Leakage Test:

If there are any doubts with insulation testing of the equipment, the standard (AS/NZ3760 since 2001) allows for an alternative test method. A Leakage Test can be performed instead. (The 3PLM – Series are designed to perform these tests).

NOTE: 20Amps MAXIMUM Resistive Load only (Standard 3PLM 20A units). **32Amps MAXIMUM Resistive Load only** (Standard 3PLM 32A units).

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.

Earth Continuity Test, commonly called EARTH BOND TEST:

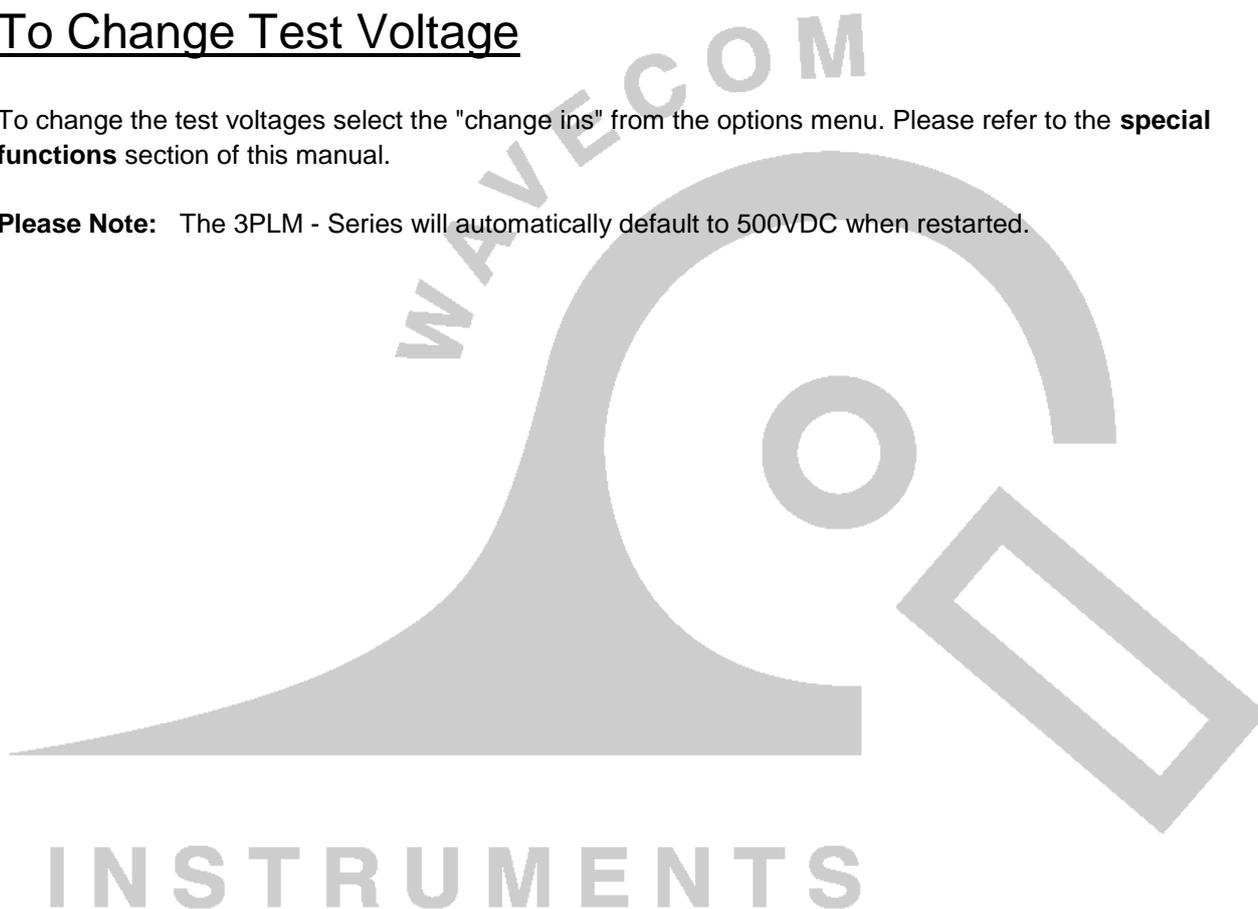
Note: Part of normal (Class 1 test) procedure

Use supplied IEC–Croc clip lead or optional accessory ‘WCM-Probekit’.

To Change Test Voltage

To change the test voltages select the "change ins" from the options menu. Please refer to the **special functions** section of this manual.

Please Note: The 3PLM - Series will automatically default to 500VDC when restarted.



Integrated Tests

Supply Mains Test

The Supply Mains Test checks the polarity and connectivity of the mains supply by LED's. This test is also a part of all the testing functions of this unit.

	<p>If the N-E (red) light is on and you need to conduct load/leakage tests DO NOT CONTINUE. If you are carrying out standard Insulation and Earth Bond tests, it is generally safe to continue. This light will glow if a voltage difference lies between the neutral and the earth, or if no earth is connected to the 3PLM- Series supply. (If working with a generator or inverter, this is most likely to occur and you may need to consult an electrician before proceeding).</p>
	<p>If both the A-E & A-N (green) lights are on but not the N-E (red), mains supply test is ok, continue to test.</p>
	<p>If both of the N-E (red) & A-E (green) lights are on, consult an Electrician, as there is a fault with the Mains Supply.</p>

NCNT Test

(No Connection No Test)

The 3PLM – Series appliance testers ensure that the appliance is plugged in and switched on. This test is also a part of all of the testing functions of this unit.

This test function ensures that the appliance is plugged into the 3PLM appliance tester and that it is switched on. If the device is not plugged in and the 3PLM appliance tester detects that no device is present, plug in to continue the test or confirm 'QUIT' to return to the main menu.

If for some reason the NCNT circuit does not detect the device but it is actually plugged in and turned on, the operator will need to override the NCNT function.

To do this Over Ride **Press F3**

With an emphasis in the **Standard AS/NZ3760:2010** for carrying out the live testing the 3PLM - Series appliance testers will indicate for you to check if the device is plugged in and switched on. If the device is not plugged in and/or recognised, it may require a live test therefore making it necessary for the operator to carry out a full functional Leakage Test (Available on all models of 3PLM – Series).

This function is to ensure that correct testing procedures are carried out in accordance with the Standard AS/NZ3760:2010.

***Optional**

Note: When using 3-Phase adaptors the **NCNT** function will need to be over ridden by pressing the 'OK' key prior to the 3PLM appliance tester performing the assigned test. Some single Phase appliances controlled by contactors will also require manual over ride. In some instances holding the 'ON' button will enable the NCNT function to work normally.

Visual Inspection (First Test)

VISUAL INSPECTION IS TO OCCUR BEFORE ANY OTHER TEST IS CARRIED OUT BEFORE USING ANY OF THE RANGE OF 3PLM APPLIANCE TESTERS

- There is no damage or component defects to the accessories, plugs, outlet sockets or connectors (physical).
- 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 / Over load protection components (if fitted) are checked.
- All labels, markings and warning indicators (of the maximum load to be connected to the device) are legible and intact.
- The insulation is not damaged in any way i.e. melted, cuts or abrasions. 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 intact).
- All covers or guards are in place and secure as intended by the supplier/manufacturer.
- All safety devices and systems are in good working order. (i.e. overload latches & buttons).
- No dust &/or dirt obstructs any exhausts or ventilation outlets.
- All controls are working properly and are secure and aligned.

Important: If result is a FAIL!!

If any Equipment **FAILS ANY** of the above, 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. It is recommended by the manufacturer and distributor of this product that it **SHOULD NOT BE RETURNED TO SERVICE**. To do so would be considered unsafe.

Class 1 - Earthed Appliance Test - F1

Please Note: A **Visual Inspection** test must be carried out before any others (refer to *First Test* Section)

The Class 1- Earth Appliance Test completes the following sequences as part of its procedure:	
1. Integrated Supply Mains Test	Refer to <i>Integrated Test</i> section
2. Integrated NCNT Test	Refer to <i>Integrated Test</i> section
3. Earth Bond Test (@ User Selectable current level): pass level less than 1Ω	
4. Insulation Test (@ 250V or 500V): pass level greater than 1MΩ	

Please Note: 250V insulation testing applies to Class 1 appliances if selected (refer to *Technical Information* for details to change test voltage)

In some situations if the DUT is labelled with “Surge Protection Fitted” or if it contains **MOV's** (Metal Oxide Varistors), conduct a 250V-insulation test.

*If unsure refer to the **AS3760 Standard**.

Should it still fail, remove it from service. (Refer to the *Technical Information* section to change test voltage).

Procedure:

1. Complete a Visual Inspection. **Only proceed if test passed.**
2. Plug device into appliance socket.
3. Connect earth clip to any exposed metal on the device.
4. Press the F1 key and wait for results (ensure that device is powered on)
5. Read and record results appropriately
6. Unplug device
7. Tester will return to Main menu A automatically

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 the DUT with a **DANGER** tag and remove the device from service.

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



Class 2 Test - Double Insulation Test - F2

Please Note: A **Visual Inspection** test must be carried out before any others (refer to *First Test* Section)

The Double Insulation Test completes the following test sequences as part of its procedure	
1. Integrated Supply Mains Test	Refer to <i>Integrated Test</i> section
2. Integrated NCNT Test	Refer to <i>Integrated Test</i> section
3. Double Insulation Test (@250V or 500V): pass level greater than 1M Ω	

Procedure:

1. Complete a Visual Inspection (**Note: Only proceed if test passed !!**)
2. Plug the appliance into appliance test socket.
3. Connect earth clip to any exposed metal on the device (if any, or device can be wrapped in foil or use metal mesh braid, Part No: WCM-ES 500)
4. Press the F2 key and wait for results (ensure the device is powered on)
5. Read and record results appropriately
6. Unplug device
7. Tester will return to Main menu A automatically

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.

In some situations if the device is labelled with "**Surge Protection Fitted**" or if it contains **MOV's** (Metal Oxide Varistors), conduct a 250V-insulation test. (**Hint always read the compliance plates during Visual**)

*If unsure refer to the **AS3760 Standard**.

Should it still fail, remove it from service. (Refer to the *Technical Information* section to change test voltage).

Lead Test (Ext Lead Test) - F3

Please Note: A **Visual Inspection** test must be carried out before any others (refer to *First Test* Section)

The Lead TEST completes the following sequence as part of its comprehensive testing procedure:	
1. Integrated Supply Mains Test	Refer to <i>Integrated Test</i> section
2. Earth Bond Test (@User Selectable current level): pass level less than 1 Ω	
3. Insulation Test (@ 250V or 500V): pass level greater than 1M Ω	
4. Continuity and Polarity Test 240VAC @ 2mA Checks continuity & polarity of leads	

Procedure:

1. Complete a Visual Inspection. **Only proceed if test passed.**
2. Plug in supplied orange IEC adaptor lead supplied into front IEC socket.
3. Plug male end of extension lead or power board in to 3PLM – Series appliance socket.
4. Press the F3 key and wait for results.
5. Read and record results appropriately.
6. Unplug extension lead/power board.
7. Tester will return to Main menu A automatically.

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.

Please Note:

- 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.

Leakage / Run Test

Main Menu C	LEAKAGE TEST	EARTH LEAKAGE
3PH Earth Test	Earthed Devices	3 PHASE TEST
3PH Ex Lead Test	D. Insulated	Neutral -5 Pin
3PH Leakage Test	RCD Protected	No Neutral-4 Pin

The Leakage Test is an alternate method to perform insulation resistance tests. Leakage testing is a major function of the 3PLM - Series

Please Note: A **Visual Inspection** test must be carried out before any others (refer to *First Test* Section)

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 since 2001)** allows for a **leakage test** to be carried out **instead**. The 3PLM - Series appliance testers have been designed to perform these tests. 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 i.e. Class 1 = > 5mA as Fail.

The Limit of imbalance measured on the 3PLM 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.

Procedure:

1. Complete a **Visual Inspection**. For details refer to the *First Test* section. If the device passed the Visual Inspection, continue with the following instructions, if not, refer to the *First Test* section.
2. Press the return key to view Main menu B for single phase leakage test or Menu C for 3 phase leakage test.
3. Press a function key (as follows) to start the test/s. Press F1, F2 or F3 depending on the type of device you are testing). **F1** = Earth Leakage, limit set to MAX then 5mA fail. **F2** = D/insulated leakage and ext. leads, limit set to MAX then 5mA fail. **F3** = RCD leakage.

CONFIRM IF SAFE TO CONTINUE? OK/QUIT. IF OK, DEVICE WILL POWER SWITCH ON. ENSURE ITEM AND ENVIRONMENT FOR SAFE OPERATION!

4. Results are displayed, read and record appropriately.
5. Unplug DUT.
6. Press Enter until you return to the main menu.

If the result was a pass - Tag with the appropriate tag including "next test due" date and "return to service".

If the result was a fail - Tag with a **DANGER TAG** and remove from service.

The **Leakage Test** allows the user to operate the appliance in normal 240v operation conditions and measure its Operating Leakage current. The displayed parameter is mA.

A predefined value for individual class types is programmed into your 3PLM. These limits are set according to the **AS/NZ3760**. Should these values change in future it can be simply altered in firmware. A Pass / Fail will also be displayed at the end of the test.

The run time period can be adjusted (by 5sec increments). The value can be changed by selecting the leakage test time in the options menu. See the **special functions** section of the manual for more details. The factory default setting is 20sec. The value for the leakage runtime is also used for the power test (plus models only).

Caution: Before operating ensure the equipment is firmly secured to eliminate the possibility of causing injury or damage. This function will power the Unit on, Please make sure the drills or any blades of any rotating devices have been removed prior to any testing and have clearance from body or object. Appliances may jump off benches and may need to be secured by clamping them, or they may cause serious damage if not secured properly.

KILL SWITCH



To stop operation press the **return/enter** key at **any time**. The unit will power down after 20 seconds as factory default



Caution: This test turns the Equipment ON. The leakage test can handle up to **20-32 Amp** (Resistive – 20A Models & 32A Models) Load MAX. **Exceeding** this value will either trip the front thermal fuse or an internal auto reset fuse. Care should be taken when testing inductive loads (i.e. AC motors) with large start up currents.

Caution: **DO NOT OPEN** 3PLM - Series case as there are no serviceable parts inside and you can void your Warranty

Power Test - Main menu B

Main Menu B	WARNING	POWER RESULTS	
Power Test	DEVICE POWERED	232V	0W
Leakage Test	Continue If SAFE	0.097A	22VA
RCD Test	OK QUIT	0.03PF	

The **Power Test** is for the purposes of monitoring and performance of equipment. The power test feature is for single phase appliances only.

Please Note: A **Visual Inspection** test must be carried out before any others (refer to *First Test* Section)

The Power TEST completes the following sequence as part of its comprehensive testing procedure:

1. Integrated Supply Mains Test	Refer to <i>Integrated Test</i> section
2. Power Test	

Procedure:

1. Complete a Visual Inspection. For details refer to the *First Test* section. If the unit passed the Visual Inspection, continue with the following instructions. If not, refer to the *First Test* section.
2. Plug male end of appliance into 3PLM – Single Phase Series Appliance socket.
3. Press F1 to start the power test.
4. If the appliance is safe to test press F3 on safety warning message. The unit will power on.
5. Read and record results appropriately.
6. Once the appliance has powered down and the test is complete. Unplug the unit.
7. Press Enter to return to the main menu.

This test is ideal for service agents and electricians. The user can plug in the appliance and turn it on with real time measurements displayed on the display. This is useful when testing an appliance with a compliance/name plate on it. The operator can compare the name plate details of operating voltage, operating current, and power factor etc. should the appliance exceed the said values on the name plate it could be deemed faulty and require service.

Please note: Because the **power test** is not required in the electrical testing standards there is no pass / fail value in the 3PLM. It is up to the user to determine if the item is a pass or a fail based on the compliance/name plate.

If the result was a pass - Tag with the appropriate tag including "next test due" date and "return to service".

If the result was a fail - Tag with a **DANGER TAG** and remove the unit from service. The **Power Test** allows the user to turn the appliance on and measure its performance as a digital wattmeter. Displayed parameters are:

- Volts AC
- Current
- Volt Amp
- Power Factor
- Watts



Caution: Before operating ensure the equipment is firmly secured to eliminate the possibility of causing injury or damage. This function turns powers the Unit on, Please make sure the drills or any blades of any rotating devices have been removed prior to any testing and have clearance from body or object. Appliances may jump off benches and may need to be secured by clamping them, or they may cause serious damage if not secured properly.

RCD Test - Main menu B

```

Main Menu B
Power Test
Leakage Test
RCD Test

```

Please Note: Where ANY RCD testing, is to be carried out any circuit that is protected by an RCD in the main switchboard (upstream), it's most likely to trip this upstream RCD. When performing RCD trip time or Ramp current tests on any (portable) RCD devices, the **RCD in the switchboard may trip faster**. This is due to increased upstream levels of **leakage current** from the **additional circuits** and devices connected to it. The fixed RCD's can also have better connectivity, sensitivity and mechanical mechanisms.

To avoid tripping large areas in the work place monitored by the switchboard RCD it is suggested that an RCD (**Isolation Transformer**) be used. These are designed specifically for the purposes of field RCD tripping.

DO NOT use these Transformers for any other purpose.

Ratings 240VAC in 240VAC Out @ 30VA Fuse protected Primary winding 500mA

To perform RCD tests the 3PLM supply lead needs to be plugged in to the RCD device to be trip tested. For tripping switchboard mounted (Fixed) RCDs Plug 3PLM into GPO marked RCD protected or if known to be protected circuit. (Diagram 2)

(Isolation Transformer Required) If testing portable RCD devices on power boards or extension leads plug 3PLM into power board or lead **(Isolation Transformer Required)** Diagram 1

Diagram 1 For Testing Portable RCD



Diagram 2 For Testing Fixed RCD at Switchboard

To do this test select the second menu, press and release the Return/Enter button.

This menu will now display 3 functions:

```

Main Menu B
Power Test
Leakage Test
RCD Test
  
```

To enter the RCD menu press and release the F3 button.

```

RCD TESTS
Time Test
Ramp Test
Exit
  
```

Press F1 to select the time test.

Trip Time Testing: This principal is designed to trip RCD devices at a fixed current and to determine the trip time of the RCD device.

This function is factory set to 30mA for fast testing the user can set the current to X0.5, X1.0, X 5 using the RCD Multiplier.

I.E. 30mA X 0.5 =15mA

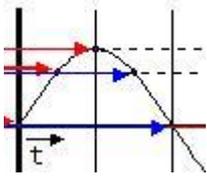
30mA X 1.0 = 30mA
(this also is effective on any set test current of the RCD tester from 5mA to max 500mA output.)

(this also is effective on any set test current of the RCD tester from 5mA to max 500mA output.)

30mA X 5.0 = 150mA

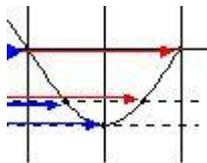
These tests should result in no-trip, trip & fast trip times respectively.

F1 - 0 deg



This is the positive half of the mains supply cycle. (50HZ Aust/NZ). Press F1 – The preset mA test current will then be used in the following test and begin the trip test from the positive half of the sine wave.

F2 - 180 deg



This is the negative half of the mains cycle, (50HZ Aus/NZ). Press F2 - The preset mA test will then be used in the following test and begin the trip test in the negative half of the sine wave.

Performing a Time Test:

```
Timed Test 30mA
0' phase
180' phase
Settings
```

The displayed trip time is in milliseconds. This is the time taken for the RCD device to trip once the injected fault current has been applied. The 3PLM injects a true fault current value using a real time compensation calculation of the actual voltage at the time of test hence delivering a true and accurate trip current.

RCD Test Options:

```
Options:
Set Current
Set RCD type
```

F3 – Change to select tested: 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. See the next section for explanation. From the options menu press F2 to change the current level and F3 to change the RCD type.

Adjusting the current level:

RCD TEST CURRENT	
Up	30mA
Down	
SET	ESC

The 3PLM 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 and release F2 from the options section to display test current.



Up - This button raises the trip current in 1mA increments to 500mA. Hold the button and the value will scroll faster the longer depressed. Once 500mA limit is reached the value will then loop over and start again from 0mA



Down - This button decreases the trip current in 5mA increments. Hold the button and the value will scroll faster the longer depressed. Once 0mA limit is reached the value will then loop over and start again from 500mA.



Set - This button sets the selected current for the next trip time test. The 3PLM will then return to the current trip time test screen.

Changing the RCD type:

Set RCD Type:
<40mS, <10mA
<300mS, <30mA

Depending on the RCD, the RCD type needs to be selected from the options menu. These options change the pass / fail values when performing RCD tests. Please make sure that you have the correct RCD type selected. The RCD types are:

Type I:

Has a trip time of < 40mS and a trip current of < 10mA. These types of RCD's are mainly used on sites containing medical equipment. These types of RCD's must be compliant with AS3551.

Type II:

Has a trip time of < 300mS and a trip current of < 30mA. Unless specified on the RCD device nearly all RCD will be this type. This is the default setting on new units.



Selects type I and saves to memory



Selects type II and saves to memory

RCD Timed Test (continued):

Press the F1 key to select the 0 deg test and the F2 key to select the 180 deg test.

Use the F1/F2 keys to scroll through the multipliers X0.5 X1.0 X5.0 of the set current.

Maximum output current = 500mA. I.E if set test current were 100mA then $100 \times 5.0 = 500\text{mA}$.

If set test current = 200mA then maximum output $5 \times 200\text{mA} = 1\text{A}$ is out of range. Unit will not deliver this output current and display on Screen "OUT of RANGE".

Press F3 to start test. 3PLM will display results for 5 seconds after mains supply is tripped. If the power is not reset by the time the unit loses power then the result will be displayed on power on.



Caution: Pressing F3 at this point will cause tripping if RCD fitted to circuit

RAMP CURRENT TEST. This testing principal 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 or determining RCD performance if suspected faulty or inconsistent in performance. The 3PLM has a nominal leakage current of 2mA, which should be added to the result of test. **E,G.** if RCD tripped at $22\text{mA} + 2\text{mA}(3\text{PLM}) = 24\text{mA}$ trip current.

RCD Trip Current. Press F2 to show the Trip current screen.

RCD RAMP TEST	
Set RCD type	
Start	Exit



Caution: Pressing F3 at the RCD ramp test screen will cause tripping if RCD fitted to circuit. F2 can be pressed to change the RCD type at this point. See "Changing the RCD type" for details.

The Trip Current Test will ramp the mA current up until the RCD breaker trips. Current range 1 - 500mA. This test can go for up to 10 sec to scroll through full range if RCD faulty or not fitted. Repeated testing in this mode will cause heating of 3PLM. Should over heating occur the internal temperature sensor will cause display to indicate "over temp allow to cool" This requires the 3PLM device to be best left unplugged for several minutes allowing unit to cool.

3PLM will display results for 5 seconds after mains supply is tripped. If the power is not reset by the time the unit loses power then the result will be displayed on power on.



Caution: Continuous ramp current testing will cause unit to over heat

3PLM Options Menu

Introduction

Here you can adjust the way the 3PLM behaves under certain tests and other functions. Some 3PLM options may not be available to some 3PLM versions.

To access the 3PLM options menu

```
TnT Options:
Change Ins Vol
Next
Esc          OK
```

From either the Enter barcode screen (memory unit) or the main menu 'A' screen hold down the enter button, and then press the F2 key



You should now be in the 3PLM options screen. The screen displays 1 option at a time.

- You can select this option by pressing the enter button. 
- To select the next item press the F2 button. 
- Pressing the F3 button  escapes out of the 3PLM options menu.

The 3PLM Memory model options list.

- Change Insulation Voltage
- Leakage Test Time
- Audio Option
- 3PLM Earth Bond Current Selection
- Label Options
- Barcode Options

Change Insulation Voltage - All 3PLM models

Some DUT contain MOV's (metal oxide varistor) or commonly known as spike protection devices. These limit the mains voltage to about 280VAC. If you attempt to perform a 500VDC insulation test on one of these devices you will get a failed result. To fix this problem select the 250V option.

```
INSULATION TEST
250 VDC
500 VDC
1000 VDC
```

- Press the  key to select the 250V option.
- Press the  key to select 500V option.

You can also set the unit back to 500V by switching the mains power off and on again. The default insulation voltage is 500V.

Leakage Test Time

TnT Options:	LEAKAGE DURATION		
Leak. Test Time	Up	20 S	
Next	Down		
Esc	OK	SET	ESC

The **leakage test time is USER adjustable**. You may need to adjust timing in this feature if the DUT has a long power up time or requires special power on procedure. Default time for **Leakage Test** is 20 seconds. From this menu you can change the test time from 5 seconds to 28800 seconds. Adjusting to any less than 5 seconds will put the test time to infinite.

- Press the  key to increase the test time.
- Press the  key to decrease the time.
- Press the  key to set the new leakage / power test time.
- Press the  key to escape out of the menu. No changes saved.

Audio Option - All 3PLM models

TnT Options:	SET AUDIO BUZZER		
Audio Option	FOR TESTS		
Next			
Esc	OK	DISABLE	ENABLE

Enabling the audio option will make the 3PLM use a sound to indicate a pass or a fail at the end of a test. If the 3PLM unit has never been altered then the audio beep is disabled.

- Press the  key to disable.
- Press the  key to enable.

3PLM Earth Bond Current Selection

TnT Options:	EARTH BOND AMPS
E/Bond Amps Set	5.0A
Next	UP
Esc	OK DOWN DOME

In all 3PLM models the tester has the ability to adjust the earth bond current amps. This can be selected between 0.2, 1, 2, 5, 10, 15, 20, 25 Amps.

- Press  key to decrease the current.
- Press the  key to increase the current.
- Press the  to select the displayed current.

Label Options - Only on Selected Memory Models

TnT Options:	
Label Options	
Next	
Esc	OK

Changing the label options changes the way the printer behaves or how the tag is printed. When selecting this option you will be prompted with 3 different options. Enable / Disable, Choosing a label set and modify the due date.

Enable / Disable

SET LABEL PRINT FOR TESTS
DISABLE ENABLE

Selecting this option will **enable** or **disable** the tag information being sent to the wavecom printer. The printer can also be disabled by switching the printer off from the power switch located on the side of the printer. Once the printer is switched back on it will not print out the records that were created while the printer was switched off.

- Press the  key to disable.
- Press the  key to enable.

Choose Label Set:

Choose label set	Select Logo:
Select LABEL0 if	LABEL0
blank tag prints	UP
OK	DOWN OK

If you have more than one logo in the printer's memory (multiple company logos) this function will allow you to select the various logos. If you have one logo stored in the printer then you only need to choose Label 1. If you choose anything else a blank tag will be created. If you have multiple logos then the next one to choose would be label1 and so on. If you are unsure which one to choose select the Label 0.

- Read the onscreen message and then press the  key.
- Press the  key to increase the label number.
- Press the  key to decrease the label number.
- Press the  key to select the displayed label number.

Customize Next Test Due Dates

USE CUSTOM TEST DUE DATES WHEN TESTING ENABLE DISABLE

Enabling this feature will allow **customize next test due** dates when testing equipment. When this feature is disabled (default setting) the **next test due** date is determined by the test date plus the frequency of test. When enabled a custom date can be set after visual test in 3PLM models.

- Press the  key to enable.

Setup printer Darkness

Please leave this at default setting if unsure, this only needs be changed if the print quality has degraded due to printer head wear or if using different label media eg: UV rated tags that need higher head temp rating

SET PRINTER DARKNESS: 0 DECREASE INCREASE OK
--

Press the  key to disable.

Stop Labels Spooling On Power On

```

STOP PRINTER
SPOOLING ON
STARTUP
YES          CANCEL
    
```

If the printer is spooling tags on power on then it has reverted back to the factory default settings. To stop this choose the F3 key when prompted. The printer must be switched on and have a solid green light. If not, the printer won't receive the command.

- Press the  key to enable.
- Press the  key to disable.

Barcode Options - Only on Selected Models

BARCODE LENGTH: Up 7 DIGITS Down ESC SET	SET BARCODE: 00001 ESC SET	USE LEADING ZEROS Enable Disable	WAVECOM New Barcode 0000001 4996
---	---	---	---

Barcode options refers to modifying the auto generate barcode function. The **barcode options** can be selected in two ways. Either holding F3 down when on the new barcode screen or by the 3PLM options menu. Both have the same menu options expect when entering **barcode options** VIA 3PLM options. These menu options are:

- Set the number of digit for barcodes.
- Set the auto generate barcode number
- Use leading zeros for the auto generate number.
- Search all sites on barcode search (only available from 3PLM options menu).

Search All Sites

Allows the 3PLM to **search all sites** listed in the site names section for the given barcode. If this option has not been altered then by default **search all site** is disabled. When disabled the 3PLM can only search for barcodes that are in the site selected (Indicated by the site name in new barcode / search barcode screen).

Search all sites is useful disabled and enabled. For example, you may have many items with the same barcode number in different sites. Disabling this feature allow you isolate a particular barcode with ease. If you have a barcode but you are unsure which site it is in then you should enable **search all sites**.

Be careful when **search all sites** is enabled. If a barcode is found in another site the site name will change when you return the new barcode screen.

SEARCH ALL SITES ON BARCODE SEARCH? Enable Disable	ALLOW ADVANCED SEARCH METHODS ON RECORDS ENABLE DISABLE
--	--

Other Features

Barcode Printing Function - Only on Selected Memory Models

This utility will print out barcode labels from what is typed on the screen. The idea is to save time by storing these barcodes in a book or collection. From here you can quickly scan a barcode without having to retype the text back into the 3PLM unit. To access this feature:

- Hold the  key from the new barcode / search barcode screen.

Type Barcode:	Type Barcode:
	1234567
Print Exit	Print Exit

You will be required to select your printer model. The Wavecom printer has a different print orientation to the Wavecom model. Selecting the wrong printer model will make the tag print incorrectly.

- Press the  key if you have a Wavecom or plus model printer.
- Press the  key if you have a Wavecom model printer.

Type the text you want for your barcode. If you go past the end of the screen the text will wrap. A maximum of 32 characters can be entered.

- Press the  key to print the barcode.
- Press the  key to return back to the new barcode screen.

INSTRUMENTS

Meter Mode ® - (Independent of all other Tests)

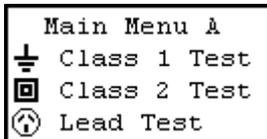
Meter Mode Screen



How to Activate Meter Mode

- Hold **F3** from main screen display for 2 seconds

Main Menu A



Volts Screen

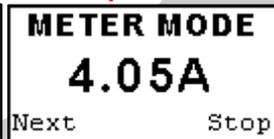


- Screen will change to show volts by default when socket is (not powered)
- Plug appliance into testers , test socket , Press F3 to go into power mode and will show
- **(Warning device will be powered)**
- Press F3 again to continue and **(power the device)**. If you continue the A-N LED on the tester will flash green  and device will power up. Otherwise press enter to exit.

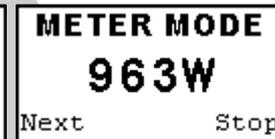
Warning Screen



Amps Screen



Watts Screen



Volts/Amps Screen



- Press the enter key to stop the power mode and return to volts.
- Pressing F3 key will start power mode again.
- **TnT stays in Meter Mode** regardless of power on/off until you exit
- Pressing **Return key** will **exit** meter mode and return the main menu.
- If the TnT is reset in meter mode it will return to meter mode when powered up again.

Meter Mode Uses

Meter Mode is a new and versatile function of the new Gen 4 tester that will allow you to display **Electrical Parameters** from a Power outlet source or from the appliance under test.

Typical Applications

Example.: Measuring the Power of a bar heater, or electric power drill check the ratings and compare them to that on the compliance plate etc. Quick test of Power outlet Voltages in rooms or locations split from multiple circuits.

SPECIFICATIONS 3PLM® Series

Mains Supply Test

- ▶ Checks Polarity and continuity of mains supply by LED indicators (A-N, A-E, and N-E). (Flashing red LED indicates test fail)

CLASS 1 Earthed Appliance

- ▶ Appliance Check: Ensures appliance is plugged in and turned on.
- ▶ Earth Bond Test: @0.2, 1, 2, 5, 10, 15, 20, 25A. Pass level Less than 1.0 Ω . Measurement: 0.1 Ω to 10 Ω .
- ▶ Insulation Test: 1000VDC, 500VDC / 250VDC. Pass level Greater than 1M Ω . Measurement: 0.1 Ω to 10M Ω . *See also Leakage Test

CLASS 2 Double Insulated Appliance

- ▶ Appliance Check: Ensures appliance is plugged in and turned on.
- ▶ Insulation Test: 500VDC / 250VDC. Pass level greater than 1M Ω . Measurement: 0.1 Ω to 10M Ω . *See also Leakage Test

Extension Leads

- ▶ Earth Bond Test: @0.2, 1, 2, 5, 10, 15, 20, 25A.. Pass level Less than 1 Ω . Measurement: 0.1 Ω to 10.0 Ω s
- ▶ Insulation Test: 500VDC / 250VDC . Pass level Greater than 1M Ω . Measurement: 0.1 Ω to 10.0M Ω .
- ▶ 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 20-32 Amp load operation (Depending on 20A or 32A model).

Note 1: Pass level for CLASS 1 is 5 mA
Pass level for CLASS 2 is 1 mA

Note 2: Leakage test may be performed if for any reason a standard CLASS 1 or CLASS 2 is not possible.

RCD Test

- ▶ 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

(Power test available in 1 phase only)

- ▶ Leakage Current: 0 to 30.0mA at 200 to 265V
- ▶ Load Current: 0.0 to 20Amp (1 Phase Socket)
- ▶ Voltage: 200 to 265VAC
- ▶ Power Factor: 0.00 to 1.00
- ▶ Apparent Power: 0 to 4800VA
- ▶ Power 0 to 4800W

WinPATS Professional Asset Management Software

A Full Version of **WinPATS** Software is included with models **3PLM**.

WinPATS must be installed on a Laptop or PC from the Autorun menu on the CD provided. The USB-USB Driver supplied on the CD **must** also be installed!

***Brief Installation steps.**

*Firstly make sure you have registered **WinPATS** and have the correct REGISTRATION KEY*

- ❖ Install WinPATS
- ❖ Install USB-USB Driver
- ❖ Locate Interface panel under Keyboard, USB PC socket R/H side 
- ❖ Connect from USB Port on 3PLM to Laptop or PC – USB
- ❖ Check Device Manual for Comms Port Setting. See full WinPATS Manual for full details.
- ❖ Go to file option in WinPATS set Comm Port to same as the Silabs Driver Comm Port setting for communication to PC / Laptop.
- ❖ You now have the ability to upload / download data to & from the 3PLM Unit.

***NOTE:** *Please familiarise yourself with, and refer to the **WinPATS** manual for full details.*

INSTRUMENTS

Disclaimer – E&OE

All specifications may be subject to be change by Wavecom Pty. Ltd. without prior notice.

Updated Specifications & Model 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.

This is partly based on the fact that Electronics & Electrical testing and specifications worldwide are constantly changing and that Local, State and National Regulatory Authorities may also have differing or additional requirements.

It is strongly recommended the Purchaser check Local Regulatory Standards that may be applicable in your region.

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WAVECOM TT040-50 Thermal Transfer Tag Printer

Please Note: there is a master **POWER SWITCH** at the rear r/h side of the printer. This should be left **ON** under all normal operation conditions.

Full instructions on the operation of the Tag Printer can be found in the Owner's Manual located on the Main Software and Drivers CD supplied with the 3PLM series unit.

Insert the disc into any PC, then from the Auto Run Menu select the tab for the Printer Manual. On this disc is information and operating instructions for the Tag Printer, including steps with images on how to change the printer Media, Ribbon and general maintenance tips. The user may either read this manual directly from the CD, or print a hard-copy for reference.



Wavecom Tags & Ribbons

Wavecom are a wholly owned and operated company who manufacture top grade Electrical Test Equipment in Adelaide Australia. 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 and resistant to tearing and will cope with harsh Australian environments. It is recommended in extreme external conditions you use UV resistant 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.

All of the Wavecom tags are suitable for printing using every brand of thermal transfer printers available from around the world. The adhesive used on our tags is most aggressive and comes highly recommended for use in the electrical test and tag industry, there should be no butterflying once applied.

Order Information:

Standard Tag Part no: **WCM-TAG-W (R,BI,G,O,Y, Br)**

UV Tag Part no: **WCM-UV-TAG-W (R,BI,G,O,Y, Br)**

Colour: (W) White, (R) Red, (BL) Blue, (G) Green, (O) Orange, (Y) Yellow (BR) Burgundy



STANDARD TAGS
Per roll 500

UV TAGS
Per roll 400

In support of the Wavecom Tags we offer two grades of ribbons which we have resourced that are very well suited for "On the spot printing" of Electrical Testing tags. Our standard ribbon (WCM-Ribbon) is recommended for locations where the printed tag is not exposed to harsh outdoor environment such as Factory, Office etc... Our UV Ribbon (WCM-UV-Ribbon) is recommended for harsher environments like Mines or where the equipment is being tested is exposed to the elements etc... To ensure the durability of print on your tag it is essential that the right ribbon is used on the appropriate label material.

Order information:

STANDARD RIBBON

Part no: **WCM-RIBBON**

UV-RIBBON

Part no: **WCM-UV-RIBBON**



RIBBONS

UV RIBBONS



In locations where a tag is exposed harsh chemicals or extreme heavy abrasive environments a printed tag may need additional added protection to protect the integrity of the print. Wavecom have available clear film overlays which can be applied over the top of an existing tag. These clear laminate overlays are made of strong durable synthetic materials and come with an adhesive backing that ensures that when the overlay is stuck done it stays stuck. The added benefit to users of the Wavecom tag printing units is they can print the test tag as normal. Before the tag is removed from the backing paper, or still attached to the printer, the clear laminate is placed over the printed tag. The combination of tag and overlay is then removed from the backing paper and applied to the appliance as per normal.

Order information:

Clear Laminated Labels

Part no: **WCM-TAG-ALL-Clear-LAM**

Clear Laminated Labels
Per roll 1000

VISIT OUR WEBSITE: www.wavecom.com.au

Fully Integrated 3PLM UNIT

3PLM®



www.wavecom.com.au

V100913

Note: If required 3PLM Firmware can be updated by Wavecom only to comply with potential Changes in Testing Standards
