WAVECOM INSTRUMENTS PTY LTD©

Fully Integrated TEST n PRINT UNIT

TnP 500 PH with Internal Lithium Ion Battery
Black Phantom – 10 A / 20A Model

User Manual

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

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Contents

Scan this QR code to visit www.wavecom.com.au
(Use QR code reader app on iPhone / android phone)[1]

Scan this QR code to book manufacturer's calibration / repair service.
(Use QR code reader app on iPhone / android phone)

Scan this QR code to save contact card with Wavecom Instruments contact numbers and email address for tech support – to your phone.

Simply scan the code on left, click save / done in your phone.
(Use QR code reader app on iPhone / android phone)

[1] Brand names, logos and trademarks used herein remain the property of their respective owners. This listing of any firm or their logos is not intended to imply any endorsement or direct affiliation with Wavecom Instruments Pty Ltd.

Important Information

In the box

- Integrated Test N Print System
- User Manual/Quick Start Guide
- USB A to USB A 1.5m Cable
- Wavecom Scanner, Wireless Keyboard with trackpad
- Wavecom TT-040-50
- WinPATS Software (Full Version - Asset Management)
- Self-Contained in Heavy Duty Case
- Manufacturer's 1st Calibration Certificate
- Panasonic Toughbook Tablet
- IEC Test Lead (500mm Orange)
- USB A to USB B Interface Cable
- Serial Scanner Cable
- 1 x Roll /500 Labels – 1 x Resin Ribbon
- Earth Lead with Alligator Clip (1800mm black)
- Locking IEC Power Cable (1800mm Blue)
- (Valid for 12 months from date of purchase)

Important: Please register your WinPATS Software and Test N Print Unit with the provided documentation or online via our website www.wavecom.com.au

Precautions

Unique Locking Power Cable – For whole TnP Range

Please make sure yellow lever is pressed prior to removal of the locking power supply cable - 10A & 20A Models. Failure to do so, combined with excessive force may damage the panel. This revolutionary locking, removable cable is intended not to dislodge during test procedures. Note: 10A ver. plug illustrated. 20A ver. is similar.

Switch from battery power to mains power

To switch from battery power to mains power, simply plug in the supplied power cord and connect to mains. Unit will automatically switch to mains. Turning off Main Red Neon switch on left top corner will turn off the unit completely.

Switching from mains power to Battery Power or Turning On /Off unit on Battery power

When unit is not connected to mains, simply press and hold ENTER button on the unit till unit starts. Use the same button to turn off the unit. Mains Supply tests, Leakage tests and Meter Mode functions are not available on battery power. To perform RCD Tests, unit is required to be connected to mains power. **[Make sure that battery isolation switch located underneath the keyboard is ON all the time while operating the unit & performing tests.]**

To Charge the battery

Internal lithium-ion battery is of 97.92Wh, 6800mAh. It gets charged automatically while unit is connected to mains. It takes around four hours to charge it fully. While charging, a battery symbol on top right corner of LCD screen will show how much it has been charged and how much is left.

While it's charging and user is not using the unit, display can be turned off by pressing and holding the same ENTER button. This will bring a charging information display and decrease the brightness of LCD screen. Once battery is full charged and it is still connected to mains, battery symbol will convert to plug symbol. It is advised not to put unit to charge when it is unattended or overnight.

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

Please keep unit away from extreme exposed heat or extreme warm environment where typical temperature is above 60°. Please keep unit safe and secured from free-fall or physical pressures, trauma or drop from heights.

Please do not open Battery compartment which is located behind the printer, unless user suspects that battery is damaged or smoke is detected. Robust design and studies has been carried out while unit was under development and all possible safety concerns are taken care of in this regard. It is still advised not to be opened. Damaged lithium ion batteries are not allowed for transportation. Please speak to support team at Wavecom @ +61 08 8243 3500. Battery can simply be removed by opening a black cover behind the printer, which should only be done in case of damage.

If sending unit for calibration, please turn off the battery isolation switch which is located underneath the keyboard.

Storage Warning: **Please store the unit as per operating environment, do not leave unit where temperature can rise above 60° C]**

For units with wireless scanner, please note that user have to press and hold yellow trigger button on scanner till It lights up and beeps. Long beep will confirm the connection between unit and scanner. Please let scanner charge for some time once in a while, when unit is connected to mains. Wireless Scanner charges through the dock, please make sure that scanner is docked properly and red LED flashes on scanner, indicating charge mode. Scanner battery and internal main TnP Li battery charges simultaneously while being on Mains power, in case of TnPBW & TnPBWX units.

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.

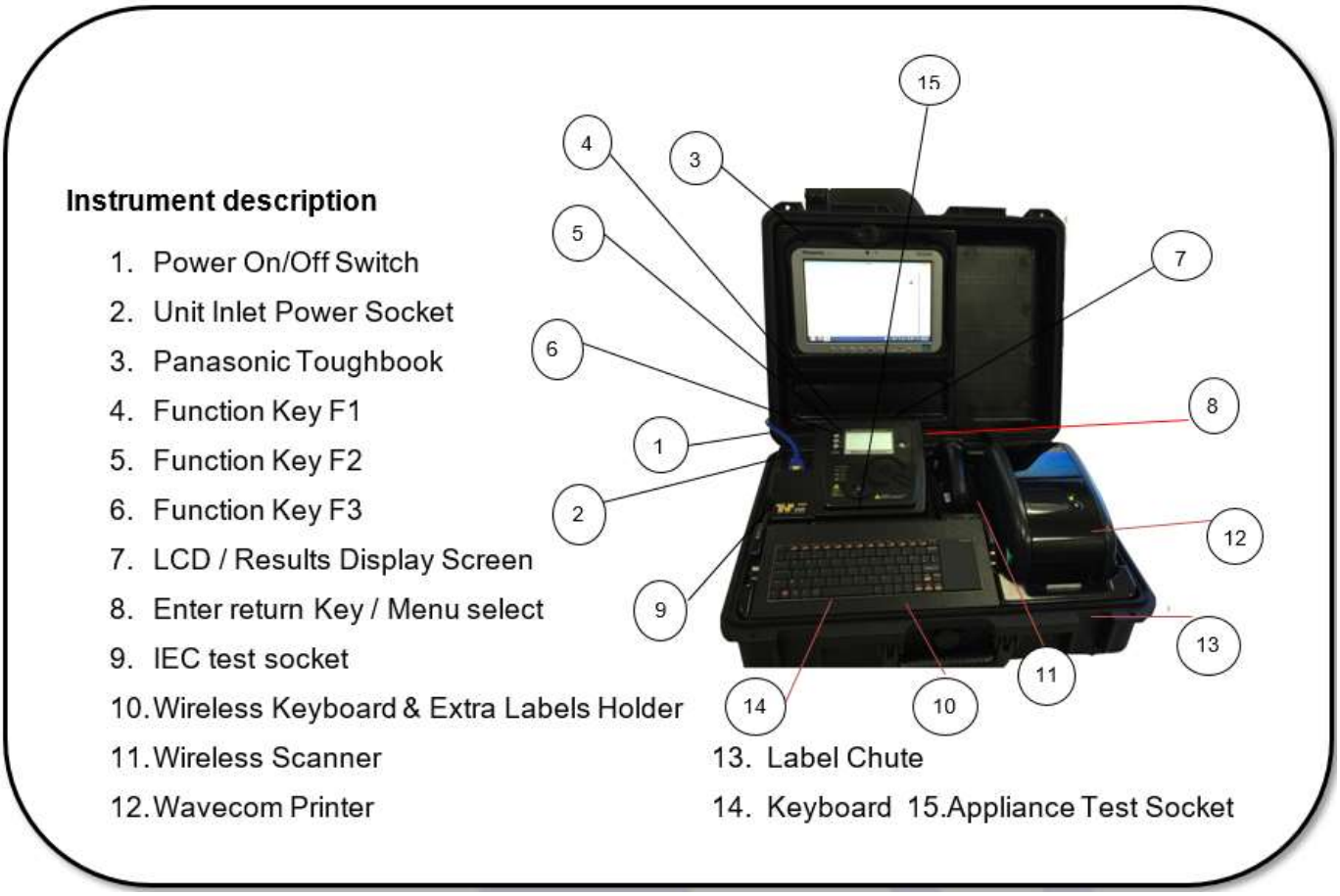
Safety Warning

This 4th Generation TnP series of products have been designed to meet stringent safety requirements, however no device can completely protect persons from the consequences of incorrect use.

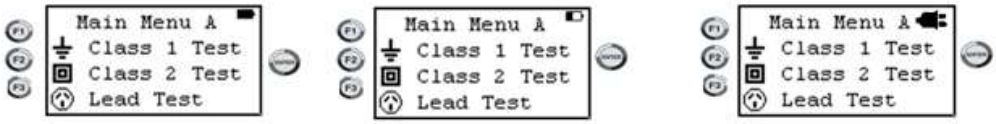
The testing of Electrical appliances requires that extra care and caution is taken at all times to ensure personal safety.
The Manufacturer also advises that appliance testing should be conducted by a **Competent** and suitably trained person, as referred to under the current Standard AS3760:2010, as 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.

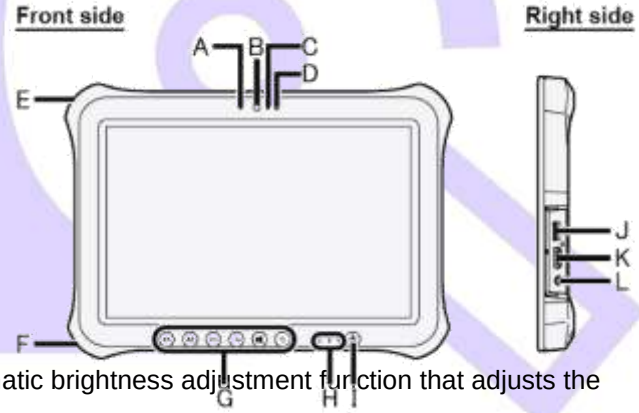
TnP 500PH Layout



Battery Symbols on TnP Screen: If unit is powered from battery, a solid battery symbol will show status of charge left. If charging, battery symbol will be interactive and live according the charge status. If unit is fully charged and still connected to mains, battery symbol will change to plug symbol.



Panasonic Toughbook Tablet Description



Front Camera

→ Reference Manual “Camera”

A: Camera Indicator

B: Camera Lens

C: Microphone

D: Ambient Light Sensor

The ambient light sensor is equipped with an automatic brightness adjustment function that adjusts the display screen. (→ page 25)

E: Security lock

A Kensington cable can be connected, for further information, read the manual that comes with the cable.

F: DC-IN jack

G: Tablet Buttons

→ Reference Manual “Tablet Manuals”

H: LED indicator

: Power Indicator

: Off: Power off/ Hibernation, Green:

: Power on, Blinking green: Sleep

: Drive Status

: Battery Status

→ page 25 “When the battery indicator does not light on”

→ Reference Manual “Battery Power”

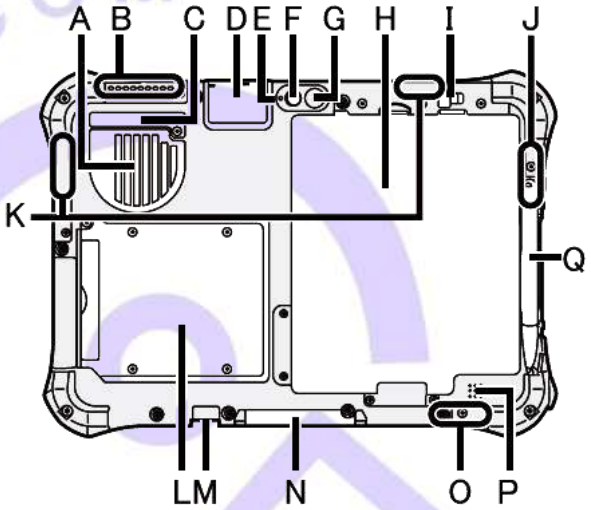
I: Power Switch

J: USB 3.0 Port
→ Reference Manual “USB Devices”

K: HDMI Port
→ Reference Manual “External Display”

L: Headset Jack
A headset or headphone can be connected

A: Ventilation Hole (Intake)
B: Ventilation Hole (Exhaust)
C: Dust Cover → page 27 “To clean inside of the dust cover”
D: USB 2.0 Port / LAN Port / Serial Port / MicroSD Memory Card Slot
Only for model with USB2.0 port
→ Reference Manual “USB Devices”
Only for model with USB2.0 port
→ Reference Manual “LAN”
Only for model with Serial port
→ Reference Manual “Serial Port”
Only for model with microSD memory card slot
→ Reference Manual “MicroSD Memory Card”
Rear Camera
< Only for model with Rear Camera>
→ Reference Manual “Camera”
E: Camera Indicator
F: Camera Lens
G: Camera Light



H: Battery Pack
→ Reference Manual “Battery Power”
I: Battery Latch
→ Reference Manual “Camera”
J: Wireless LAN Antenna
<Only for model with wireless LAN>
→ Reference Manual “Wireless LAN”
K: Wireless WAN Antenna
<Only for model with Wireless LAN>
L: Smart Card Slot
<Only for model with Smart Card Slot>
→ Reference Manual “Smart Card”
M: External Antenna Connector
N: Expansion Bus Connector
→ Reference Manual “Camera”
O: Wireless LAN Antenna / Bluetooth Antenna
<Only for model with wireless LAN>
<Only for model with Bluetooth>
→ Reference Manual “Wireless LAN Bluetooth”
P: Speaker
→ Reference Manual “Dashboard for Panasonic PC”
Q: Pen Holder

Getting Started with TnP 500PH Fully Integrated Test & Print Unit with Internal Lithium Ion Battery

Turning ON the Unit for the first time

- ✓ Register your Unit & WInpats Software at https://www.wavecom.com.au/wcm_product_registration.php
- ✓ Please make sure that you are the Competent Person to operate the unit. Refer User Manual Page 6, *Competent Person.*
- ✓ Please read the specifications of TnP series (Page 32 in User Manual; Ratings label on the inner sider of case, behind the black foam).
- ✓ Battery Isolation Switch is located underneath the keyboard. Please turn it ON.
- ✓ Use **Enter** Button on the unit; press and hold till screen lights up with Wavecom logo.

- ✓ For TNPBW units with wireless scanner, press and hold yellow trigger on Wireless scanner till you hear long beep (around 2-3 secs).
- ✓ Press ⏻ on Panasonic Toughbook tablet to turn it on. Please wait till windows loads, go to desktop. Use WinPATS FE / WInPATS MX to perform tests.
- ✓ make sure USB output and DC tablet charge out plugs located behind printer are connected.
- ✓ **Always shut down the tablet and unit both while closing the lid.**
- ✓ Use same Enter Button from Unit / Enter key from keyboard to turn off the unit while it is on Battery mode.
- ✓ **Switch from battery power to mains power**

To switch from battery power to mains power, simply plug in the supplied BLUE power cord to the BLUE IEC socket on the unit and connect to mains. Unit will automatically switch to mains. Turning off Main Red Neon switch on left top corner till turn off the unit completely. Refer Manual Page 11.

- ✓ **Turning On / Off unit on Battery power:** When unit is not connected to mains, simply press and hold ENTER button on the unit till unit starts. Use the same button to turn off the unit.
- ✓ **To Charge the battery:** Internal lithium-ion battery is of 97.92Wh, 6800mAh gets charged automatically while unit is connected to mains. It takes around four hours to charge it fully.

  Charge the battery fully before first use. Internal battery is pre-charged to 30% capacity to meet transport regulations.
- ✓ Load labels in to Printer and calibrate the printer (Refer User manual, Page 40; Gap / Black Mark Sensor calibration)
- ✓ **Load existing WinPATS database through USB drive:** Use any of the four USB Ports available underneath keyboard, insert USB drive with existing database / files, it can be accessed now through Toughbook tablet.
- ✓ Unit is required to be powered on (through mains / battery) for keyboard / printer / scanner to connect with Toughbook tablet.
- ✓ **Connect Unit to other PC / Tablet**: Use supplied USB A to USB A 1.5m cable, connect one end to target computer and other end to USB Port located behind Printer.
- ✓ **In case** tablet doesn't recognise the keyboard / Printer/Scanner, take tablet out from cradle and put it back properly, so all 24pins are connected to dock. If still not helping, USB Out port located behind the printer can be used with supplied USB A to USB A 1.5m cable, and connect it straight to tablet through USB port available in right side of the cradle.
- ✓ **In case** cradle is unable to provide charge through provided dc plug, there is an emergency DC plug behind the foam, next to cradle. Connect this to DC female jack located behind the printer, by replacing the older DC Plug. Make sure tablet has DC male jack plugged in, located in bottom left corner of tablet.
- ❖ **Storage Warning**: Please store the unit as per operating environment. Refrain from exposing unit to extreme temperatures and rough handling. Refer User *Manual Page 4 – Precautions.*
- ❖ **Battery Isolation Switch** is located underneath the keyboard: **Keep it ON while operating the unit / performing the test**. Turn it OFF while transporting the unit.
- ❖ It is advised not to put unit to charge when it is unattended or overnight.
- ❖ The lithium-ion battery is situated in rear of Wavecom thermal transfer printer. Please do not open the battery cover unless battery is damaged. Do not transport the Unit if battery is damaged.
- ❖ **Refer User Manual, Sections Precautions & Safety Warning before operating the unit.**

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 TnP.

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

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 TnP 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 TnP appliance testers' DUT socket. The Maximum allowable limit is less than1.0 (ohm).

Refer Page 7 on how to extend time to get a true earth connection (Unique **Earth Bond Test Feature)**

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 TnP Range of appliance testers, these concerns are alleviated.

The TnP 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 TnP 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 TnP 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 TnP – Series are designed to perform these tests).

NOTE: 10Amps MAXIMUM Resistive Load only (Standard TnP Series 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-Probe kit'.

The TnP.500 unit conducts earth continuity tests at Approx. 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 3760:2010).

Unique Earth Bond Test Feature

Note: Test time with the new TnP-500 series can now be user controlled. This function enables testing personnel to extend the **Earth Bond** test time by 30 second increments!
This is achieved by momentarily pushing the ENTER 

button once, during the test.

The TnP-500 will then add 30 seconds to the test time for ENTER button 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.
Benefit to test personnel is to save time by not having to continually repeat tests in a less than perfect situation.

3 Phase Testing: *Optional equipment required

3 Phase appliances can be tested by the TnP series appliance testers. As the insulation tests are from Phase to Earth, only a 500V insulation test is required. This test may be carried out by using the optional adaptor 'WCM-3PH-MADP' [See 'Optional Accessories' for details.]

Note: The TnP500 series will not perform a 3 Phase Leakage test.

Contact Wavecom Instruments Pty Ltd for information on appropriate testers.

Switching between 250V & 500V Test

To change the test voltages, when in Main Menu A; Press Enter and F2 together to enter in settings. Select "Change Insulation Vol" and press enter. Select either 250V or 500V.
Please note, TnP starts default to 500VDC, and will revert back to that when restarted.

Integrated Tests

Supply Mains Test [Not available in Battery Mode of TnPB Series]

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.

	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 TnP- 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).
	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. **ALL GOOD !!**
	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.

Note: While in Battery mode, all LEDs will be off as no mains connected and supply mains test is not carried out.

NCNT Test

(No Connection No Test)

The TnP – 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 TnP appliance tester and that it is switched on. If the device is not plugged in and the TnP 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** (Done with User Discretion)

With an emphasis in the **Standard AS/NZ3760:2010** for carrying out the live testing the TnP - 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 TnP – 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 TnP 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 HAS TO BE DONE BEFORE ANY OTHER TEST IS CARRIED OUT USING ANY OF THE RANGE OF TnP 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.

The Wavecom series of appliance testers have been designed & manufactured to exceed and comply with the AS/NZ:3760 standard, and to aid the end user with simple everyday electrical symbols that they can identify with which will allow them to start the testing regime quickly and efficiently, without any complexity as illustrated below.

Powering on the Tester

When the tester is powered on, the scanner will beep a few times indicating the scanner is also powered. If no beep is heard check the PS2 connections from the tester, in case of wired scanner. When wireless scanner is provided, keep pressing yellow button on wireless scanner till it starts and makes beeping noise that indicates it is connected to the unit.

Turn on the tablet, load the windows. Open WinPATS FE software loaded on tablet. Use manual for WinPATS FE, available online http://www.wavecom.com.au/onlinesupport/desktop/WinPATS_Help.html

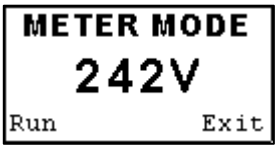
For performing RCD tests, please make sure it is connected as per following.

Diagram 1 For Testing Portable RCD models

Diagram 2 For Testing Fixed RCD -All

Meter Mode ® [Not available in Battery Mode of TnPB Series]

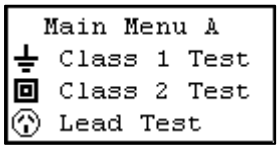
Meter Mode Screen



How to Activate Meter Mode

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

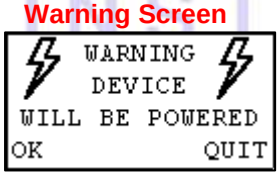
Main Menu A



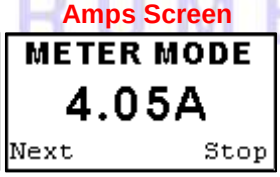
Volts Screen

- 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.

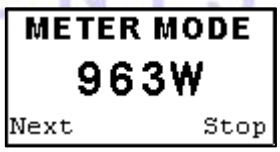
Warning Screen



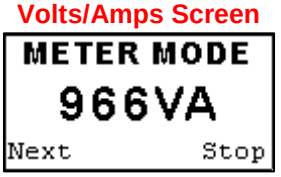
Amps Screen



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 TnP-500 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.

Meter Mode Features – (Four Discrete Options)

Electrical parameters are displayed as Volts, Amps, Watts, and Volt / Amps

These electrical parameters will be displayed on the Testers main screen display. Select from the 4 Test available in Meter Mode.

Meter Mode Measures and displays volts in AC, Current in Amps, Power Measurement in Watts and VA in Volt/AMPS

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

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 times amps (V*A).

***Meter Mode ® is a unique function of all TnP-500 + Gen 4 Models.**

Uses of Volt-Amp Measurement

- Because it represents the amount of energy computing systems may draw from a power grid, the VA is used to determine the kind of wiring and circuit breakers required to support the computing equipment in question.

Watts and VA (Detailed Explanation)

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

Safety Precautions

Make sure you have a clear and safe area when powering any equipment, remove any drills bits etc before testing any equipment. Always read equipment compliance plates.

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 TnP® 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: 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. *See also Leakage Test

CLASS 2 Double Insulated Appliance

- Appliance Check: Ensures appliance is plugged in and turned on.
- Earth Bond Test: 200mA test current. Pass level Less than 1.0Ω. Measurement: 0.1Ω to 10Ω.
- Insulation Test: 500VDC / 250VDC. Pass level greater than 1MΩ. Measurement: 0.1Ω to 10MΩ. *See also Leakage Test

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 10Amp load operation.

*__TnP-500X__ model is capable of up to **20 Amp load**

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

- Leakage Current: 0 to 30.0mA at 200 to 265V
- Load Current: 0.0 to 10Amp (20Amp for TnP-500X)
- Voltage: 200 to 265VAC
- Power Factor: 0.00 to 1.00
- Apparent Power: 0 to 2400VA
- Power 0 to 2400W

Meter Mode®
Green flashing LED denotes MM is engaged

- Load Current: 0.0 to 10Amp
- Voltage: 200 to 265VAC
- Apparent Power: 0 to 2400VA
- Power: 0 to 2400W

Wireless BARCODE scanners 1560P

		1500P / 1500WA	1560P	1502	1562	1504B	1504A	1564A
Category		Linear Imager		Laser		2D Imager		
		Corded	Bluetooth® Class 2 (2.4 GHz) Version 4.0+EDR	Corded	Bluetooth® Class 2 (2.4 GHz) Version 2.1+EDR	Corded		Bluetooth® Class 2 (2.4 GHz) Version 4.0+EDR
RF Communication of Bluetooth® scanner	Coverage	--	90 m² / 295 ft. line of sight	--	90 m² / 295 ft. line of sight	--		90 m² / 295 ft. line of sight
	Standard profile		SPP, HID		SPP, HID			SPP, HID
Performance	Optical sensor	2500 pixels		Laser		1280 x 800 pixels	752 x 480 pixels	
	Light source	Red LED 625 nm	Red LED 618-626 nm	Visable laser diode at 650 ± 15 nm		White LED (2x)	625 ±5 nm LEDs (2x)	
	Resolution	3 mil		4 mil		3 mil - 1D barcode / 5 mil - 2D barcode		
	Depth of field: Code 39 3 mil	6.9 to 10.7 cm / 2.7 to 4.2 in.		Code 39 4 mil: 1 to 4 cm / 0.4 to 1.6 in.		3.5 to 9.5 cm / 1.4 to 3.7 in.	6.9 to 10.7 cm / 2.7 to 4.2 in.	
	Depth of field: Code 39 5 mil	6 to 17 cm / 2.4 to 6.7 in.		1 to 12 cm / 0.4 to 4.7 in.		3.5 to 14.5 cm / 1.4 to 5.7 in.	3.8 to 18.5 cm / 1.4 to 7.3 in.	
	Depth of field: UPCA 13 mil	4 to 40 cm / 1.6 to 15.7 in.		1.5 to 51.5 cm / 0.6 to 20.3 in.		6 to 34 cm / 2.4 to 13.4 in.	4 to 30.5 cm / 1.6 to 12 in.	
	Depth of field: PDF417 5 mil	--		--		3 to 10.5 cm / 1.2 to 4.1 in.	7.1 to 11.4 cm / 2.8 to 4.5 in.	
	Depth of field: QR Code 10 mil	--		--		2 to 16 cm / 0.8 to 6.3 in.	2.5 to 16.5 cm / 1.0 to 6.5 in.	
	Depth of field: *Long barcode 8.2 cm, 9 mil*	1500P: 15 to 25 cm / 5.9 to 7.9 in 1500WA: 7.5 to 14.5cm / 3 to 5.7 in	--	--		--	--	
	Scanning angle	Pitch ± 70° Skew ± 70°		Pitch ± 65° Skew ± 50°		Pitch ±60° Skew±60°		
	Minimum PCS	25% (1500WA: 30%)		45%		30%		
	Scan rate	520 scans/ second (1500WA: 100 scans/ second)		100 scans/ second		30 scans/ second	60 scans/ second	
	Ambient illumination	100,000 lux						
	Hands-free scanning	Auto-sense and continuous modes		Continuous mode		Auto-sense and presentation modes		
	Barcodes support	Codabar, Code 39, Code 93, Code 128,GS1 DataBar (RSS), Industrial 2 of 5, Interleave 2 of 5, ISBT-128, Italian and French Pharmacodes,Matrix 2 of 5, MSI, Plessey, Telepen, UPC / EAN / GS1-128, and more				1D: All of the barcodes that 1500 series 1D scanners can support 2D: PDF417, MicroPDF417, DataMatrix, QR code, Micro QR code	1D: All of the barcodes that 1500 series 1D scanners can support except French Pharmacodes, Plessey and Telepen 2D: PDF417, MicroPDF417, Composite, RSS, TLC-39, Datamatrix, QR code, Micro QR code, Aztec, MaxiCode Postal Codes: US Postnet, US Planet, UK Postal, Australian Postal, Japan Postal Dutch Postal (KIX)	
	Programmable features	Data editing, interface selection, symbology configuration						
	Language support	US and UK English, French, Italian, Belgian, Norwegian/Swedish, Spanish, Portuguese, German, Japanese and Turkish						
Physical	Dimension L x W x H	15.3 x 6.1 x 9.3 cm / 6.0 x 2.4 x 3.7 in.						
	Weight without cable / with battery	1500P: 149 g / 5.2 oz. 1500WA: 145 g / 5.1 oz.	173 g / 6.1 oz.	149 g / 5.2 oz.	177 g / 6.2 oz.	149g / 5.2 oz.	154 g / 5.4 oz.	185 g / 6.5 oz.
	Color	Black						
	Switch	Tactile Switch						
Electrical	Memory for Bluetooth® scanner: reserve buffer / batch mode	--	4 K / 512 K	--	4 K / 512 K	--		10 K / 4 MB
	Working hours for Bluetooth® scanner	--	36 hours based on 1 scan / 5 seconds	--	24 hours based on 1 scan / 5 seconds	--		28 hours based on 1 scan / 5 seconds
	Voltage	+5 V ±10% / 3.7 V 800 mAh Li-ion battery						
	Power consumption[1] Standby / Operating	1500P: 20 mA / 286 mA 1500WA: 50 mA / 265 mA	20 mA / 250 mA	35 mA / 210 mA	25 mA / 210 mA	50 mA/ 280 mA	22mA / 150 mA	22mA / 166 mA
User Environment	Temperature	Operating: 0°C to 50°C / 32°F to 122°F Storage: -20°C to 60°C / -4°F to 140°F						
	Humidity	Operating: 10% to 90% Storage: 5% to 95%						
	Impact resistance	1.5 m (4.9 ft) multiple drops onto concrete	1.2 m (3.9 ft) multiple drops onto concrete					
	Ingress protection	IP30						
	Electrostatic discharge	±8 kV contact ±15 kV air						
	Regulatory Compliance	BSMI, CE, RCM, FCC, IC	BSMI, CE, RCM, FCC, IC, NCC, SRRC, JRL	BSMI, CE, RCM, FCC, IC, KC	BSMI, CE, RCM, FCC, IC, KC, NCC, SRRC, JRL	BSMI, CE, RCM, FCC, IC, KC		BSMI, CE, RCM, FCC, IC, KC, NCC, SRRC, JRL
		RoHS, REACH, WEEE, ErP						
Configuration		Setup options include Windows®-based ScanMaster software, by direct connection or printing out barcode settings						

1560/62 BT **DOES NOT** require any initial programming and can be used immediately, these configuration instructions are for reference purposes.

The A4 sheets of command and control bar codes that accompany these instructions should be studied and will be required during the batch data download operations, we recommend that copies are made and laminated to provide greater durability, the originals filed for reference. The Bar-Key.exe command charts can to be folded and laminated as A5.

Capable of charging 1560/62, the built-in stand is specifically designed for the scanner to communicate with a host tester wirelessly, the connection between the scanner and the stand is made easy and reliable. The stand is also an Auto-Sense stand when used with the 1560 scanner set to Auto-Sense mode.

Two LED indicators are provided on cradle base for communications status and power status.

Power LED		Meaning
Red, solid	---	Power ON
---	---	Power OFF
Communication LED		**Meaning**
---	Blue, solid	Initialize
Red, solid	---	Failed to establish a USB connection
Red, solid	Blue, flashing	Serial command mode with USB Virtual COM or RS-232: wait 3 seconds for starting a serial command
Red, flashing	Blue, flashing	Serial command mode with USB HID: wait 3 seconds for pressing [Num Lock] or [Caps Lock] 5 times via keyboard
---	Blue, flashing	Wait for connection request from the scanner (Slow flash at 0.5 Hz)

A multicolour LED (Red / Blue / Green) is provided on scanner head.

(LED On Scanner Head) Status LED		Meaning
Red, solid	---	Charger power ON (LED on for 0.5 second)
Red, solid	---	Charging battery
---	Green, solid	Charging done
Red, solid	Green, solid	Pre-charging when battery voltage under 3V (Typical)
---	---	Power or battery not ready

Scanner LED			Meaning
Red, flashing	---	---	▸ Charging (On/Off ratio 0.5 s: 0.5 s) ▸ Configuration Mode (On/Off ratio 0.5 s: 0.5 s)
Red, solid	---	---	Charging error
Red, flashing	---	---	Flashing red (On/Off ratio 0.3 s: 2.5 s) indicates the scanner is inactive and its CPU running at low speed to save power — ▸ No WPAN connection is established after waiting for two minutes
Red, on-off	---	---	▸ Power on, with one long beep (high tone, LED on for 1 second) ▸ Data saved to buffer when transmit buffer is enabled and the scanner is out of range, with two short beeps (high-low tone) ▸ Transmit buffer full, with one long beep (low tone) ▸ Transmit buffer disabled, with one long beep (low tone) ▸ Memory full in memory mode, with two short beeps (high-low tone)
---	---	Green, on-off	Good Read, with one short beep (high tone) and beeper pitch and duration programmable
---	Blue, flashing	---	First, flashing blue (On/Off ratio 0.5 s: 0.5 s) for two minutes indicates the scanner is waiting for connection, and goes off if no connection is established, then flashing red (On/Off ratio 0.3 s: 2.5 s) indicates the scanner is inactive. It is ready for connection only while the LED is flashing blue — ▸ SPP Slave: waiting host to connect ▸ HID or SPP Master: trying to connect to host ▸ Using 3656: trying to connect to 3656
---	Blue, flashing	---	Flashing blue (On/Off ratio 0.1 s: 0.1 s) indicates the scanner receives a PIN code request from host (flashing more quickly than waiting connection).
---	Blue, flashing	---	Flashing blue (On/Off ratio 0.02 s: 3 s) indicates the scanner has established a WPAN connection successfully.
---	Blue, flashing	Green, flashing	Flashing blue and green (On/Off ratio 0.1 s: 0.1 s) indicates an error occurs while entering the PIN code. Press the trigger to get ready for re-connecting.

The scanner has a buzzer to provide user feedback in various operating conditions.

Beeping	Meaning
One long beep, high tone	Power on, with red LED on (1 second) and off quickly
One short beep, high tone ▸ Programmable, default to 4 KHz	Good Read, with green LED on-off quickly
Six short beeps ▸ High-low tone repeats three times	▸ Enter Configuration Mode, with red LED flashing ▸ Exit Configuration Mode
Two short beeps, low-high tone	Setup barcode read successfully
One short beep, high tone	▸ More setup barcode required ▸ Input PIN code ▸ Clear PIN code
One short beep, low tone	More barcodes required to complete the "output sequence" requirements of Multi-Barcode Editor, with green LED on-off quickly (Upon completion, same as Good Read.)
One long beep, low tone	▸ Transmit buffer full, with red LED on-off quickly ▸ Transmit buffer disabled, with red LED on-off quickly ▸ Configuration error (Wrong barcode...) ▸ PIN code input error ▸ Reject random PIN request ▸ Fail to send data in memory mode
Two short beeps, high-low tone	▸ Data saved to buffer when transmit buffer is enabled and the scanner is out of range, with red LED on-off quickly ▸ Memory Mode – Memory full, with red LED on-off quickly
Two short beeps, high tone	Low Battery Alarm
Two long beeps, high-low tone	Multi-Barcode Mode – Buffer full
Three short beeps, tone ascending from low to high	▸ WPAN connection established, with blue LED flashing ▸ WPAN connection resumed, with blue LED flashing
Three short beeps, tone ascending from high to low	WPAN connection out of range or suspended

Notes:

- ✓ The battery may not be full charged for shipment and will require a complete charge before first use. Make sure the scanner is correctly installed on the dock; connect the tester to mains power and scanner battery will start charging automatically.
- ✓ The scanner LED will be flashing RED while charging and will turn OFF when the charging process is complete. If a charging error occurs the scanner LED will stay solid RED.
- ✓ It takes approximately 3 hours for the battery to become fully charged.
- ✓ Battery charging stops when the temperature drops below O^{o} C or exceeds 40^{o}C. It is recommended to charge the battery at room temperature (18^{o}C to 25^{o}C) for optimal performance.
- ✓ When the scanner battery is fully charged remove the scanner from the stand and hold down the trigger for approximately 2-3 seconds to turn the scanner ON. The scanner will respond with a long beep and its LED will turn ON and OFF shortly.
- ✓ To turn OFF the scanner in an emergency, remove the battery. Scanner will turn off automatically if idle for 10 minutes.
- ✓ When the battery charge becomes low the scanner will be unable to emit the scan beam and its power-on-beep will sound different to normal.
- ✓ Pairing: - In some cases where the 1560/62 BT has been programmatically reconfigured it may be necessary to re-pair (bind) the 1560/62 BT unit with the communication stand.
  Pairing (sometimes refereed to binding) is the process of respectively scanning both the “Set Connection” bar code and the “Serial No” bar code located on the communication stand using the associated 1560/62 scanner unit. A rapidly flashing blue light on the communication stand will indicate successful pairing.

The barcode reader is now ready to use, simply open the application that you require to capture the bar code data and start scanning. For windows users, an ideal application to test the scanner is “Notepad”, a small editor program located among Windows accessories.

Once paired, 1560/62 scanner will automatically try to establish a connection with the communication stand, each time its powered on.

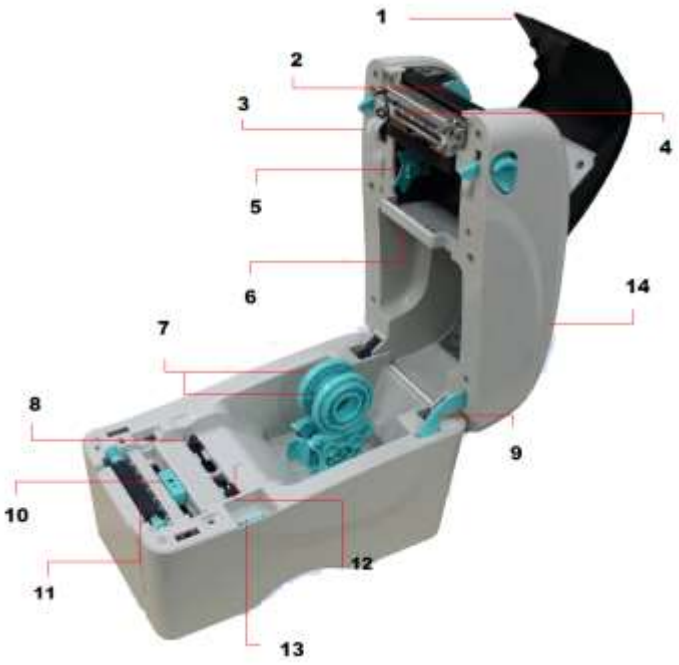
Please refer CipherLab user guide for advanced settings and setup barcodes 1560/1562 Barcode scanners. This is available at our website and can be requested through after-sales support.

Wavecom Thermal Transfer Printer

1. LED indicator
2. Feed button
3. Paper exit chute
4. Media view window
5. Top cover open lever

When TT040-50 is purchased as part of a Wavecom Test n Print Unit, the Printer is ready and fully set up to use.
Owner's Barcode Label Artwork may be installed as an option.

Please note that images in this section are for illustration purposes only. Actual Model of Printer in TnP may vary.



1. Ribbon access cover
2. Ribbon rewind hub
3. Ribbon rewind gear
4. Print head
5. Ribbon supply hub
6. Gap sensor (receiver)
7. Media holders
8. Media guide
9. Top cover support
10. Black mark sensor
11. Platen roller
12. Gap sensor (transmitter)
13. Media guide adjuster knob
14. Top cover

Rear Side of the Printer

1. Power switch
2. Power jack socket
3. USB interface
4. USB host (Factory option)
5. RS-232C interface / Ethernet interface (Option)
6. SD card socket (Not Applicable to this unit)

Loading the media

Open the printer top cover by pulling the tabs located on each side towards the front of the printer, and then lift the top cover to the maximum open angle. →

←Separate the media holders to the label roll width.

Place the roll between the holders and close them onto the core. Place the paper, printing side face up, through the media guides & media sensor. Place the label leading towards the edge onto roller. →

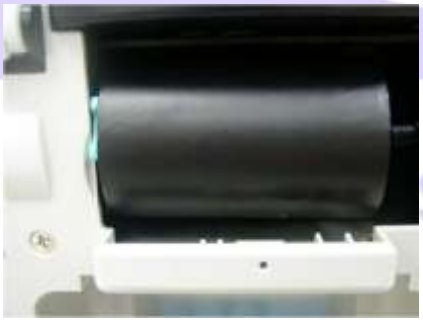
← Move the media guides to fit the label width by turning the media guide adjuster knob.

Hold the Top cover and press the top cover support to disengage the top cover support with lower inner cover. Gently close the top cover. Make sure the cover latches securely. →

Loading the Ribbon

Open the printer's top cover by pulling the top cover open leavers located on each side of the printer and lifting the top cover to maximum open angle. (To this position →)

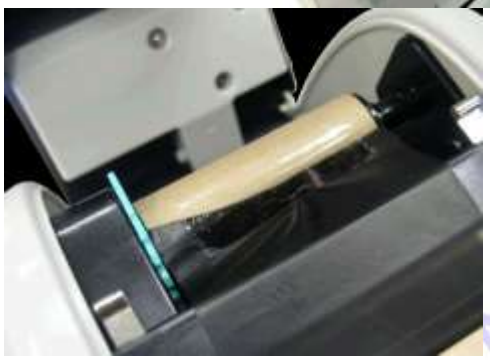
Insert the ribbon right side onto supply hub (5). Align the notches on the left side and mount onto the spokes. ↓



← Open the ribbon access cover.

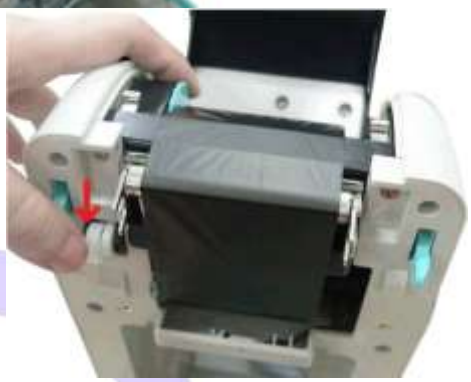
Insert the paper core right side onto rewind hub. Align the notches on to the left side and mount on to spokes. →

Pull the leading ribbon to pass the print head. ↓



← Stick the ribbon onto the ribbon rewind reel.

Turn the ribbon rewind gear until the ribbon plastic leader is thoroughly wound and the black section of the ribbon covers the print head. Close the ribbon access cover and the top cover. →



LED and Button Functions

This printer has one button and one three-color LED indicator. By indicating the LED with different color and pressing the button, printer can feed labels, pause the printing job, select and calibrate the media sensor, print printer self-test report, reset printer to defaults (initialization). Please refer to the button operation below for different functions.

LED Indicator

LED Color	Description
Green/ Solid	This illuminates that the power is on and the device is ready to use.
Green/ Flash	This illuminates that the system is downloading data from PC to memory or the printer is paused.
Amber	This illuminates that the system is clearing data from printer.
Red / Solid	This illuminates printer head open, cutter error.
Red / Flash	This illuminates a printing error, such as head open, paper empty, paper jam or memory error etc.

Regular Button Function

1. **Feed labels**
When the printer is ready, press the button to feed one label to the beginning of next label.

2. **Pause the printing job**

When the printer is printing, press the button to pause a printing job. When the printer is paused, the LED will be green blinking. Press the button again to continue the printing job.

Power on Utilities

There are six power-on utilities to set up and test printer hardware. These utilities are activated by pressing FEED button then turning on the printer power simultaneously and release the button at different color of LED.

Please follow the steps below for different power-on utilities.

1. Turn off the power switch.
2. Hold on the button then turn on the power switch.
3. Release the button when LED indicates with different color for different functions.

Power on utilities	**The LED color will be changed as following pattern:**						
LED color / ***Functions***	Amber	Red (5 blinks)	Amber (5 blinks)	Green (5 blinks)	Green/Amber (5 blinks)	Red/Amber (5 blinks)	Solid green
1. Gap / black mark sensor calibration		*Release*					
2. Gap / black mark sensor calibration, Self-test and enter dump mode			*Release*				
3. Printer initialization				*Release*			
4. Set black mark sensor as media sensor and calibrate the black mark sensor					*Release*		
5. Set gap sensor as media sensor and calibrate the gap sensor						*Release*	
6. Skip AUTO.BAS							*Release*

Gap/Black Mark Sensor Calibration

Gap/black mark sensor sensitivity should be calibrated at the following conditions:

1. A brand new printer
2. Change label stock.
3. Printer initialization.

Please follow the steps below to calibrate the gap/black mark sensor.

1. Turn off the power switch.
2. Hold on the button then turn on the power switch.
3. Release the button when LED becomes **red** and blinking. (Any red will do during the 5 links).
   - It will calibrate the gap/black mark sensor sensitivity.
   - The LED color will be changed as following order :
     Amber → **red (5 blinks)** → amber (5 blinks) → green (5 blinks) → green/amber (5 blinks) → red/amber (5 blinks) → solid green

Note: **1. Sensor calibration can be done by the power on utility.**
2. Please select gap or black mark sensor type prior to calibrate the sensor.

Gap/Black Mark Calibration, Self-test and Dump Mode

While calibrate the gap/black mark sensor, printer will measure the label length, print the internal configuration (self-test) on label and then enter the dump mode. To calibrate gap or black mark sensor depends on the sensor setting in the last print job.

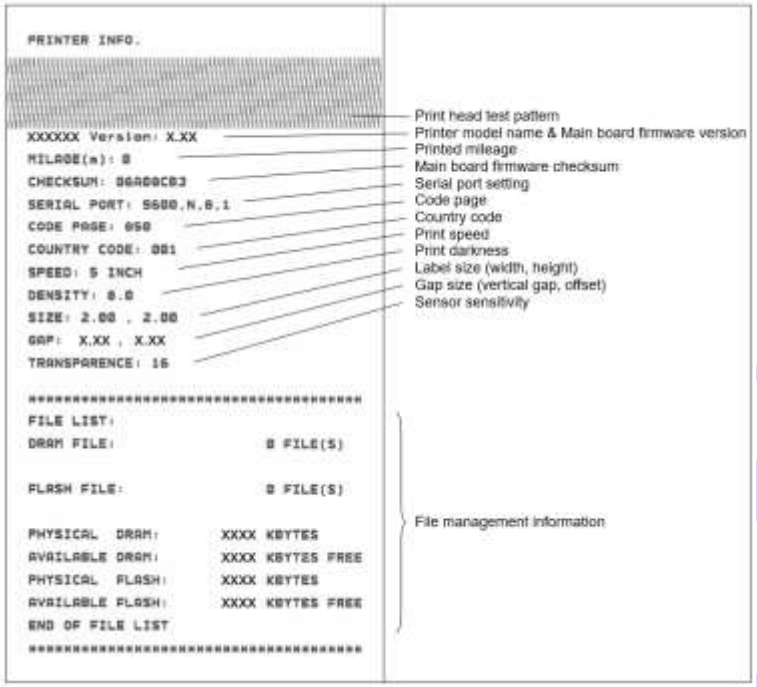
Please follow the steps below to calibrate the sensor.

1. Turn off the power switch.
2. Hold on the button then turn on the power switch.
3. Release the button when LED becomes **amber** and blinking. (Any amber will do during the 5 blinks)
   - The LED color will be changed as following order.
   - Amber → red (5 blinks) → **amber (5 blinks)** → green (5 blinks) → green/amber (5 blinks) → red/amber (5 blinks) → solid green
4. It calibrates the sensor and measures the label length and prints internal settings then enter the dump mode.

Note: 1. Sensor calibration can be done by power on utility.
2. Please select gap or black mark sensor type prior to calibrate the sensor.

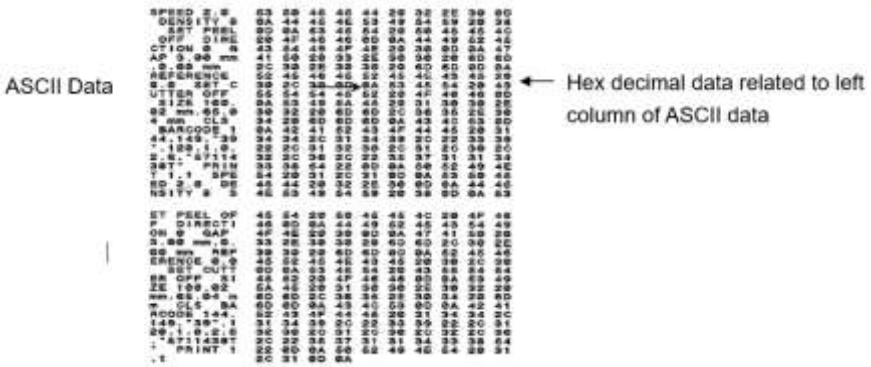
Self-test

Printer will print the printer configuration after gap/black mark sensor calibration. Self-test printout can be used to check if there is any dot damage on the heater element, printer configurations and available memory space.



Dump mode

Printer will enter dump mode after printing printer configuration. In the dump mode, all characters will be printed in 2 columns as following. The left side characters are received from your system and right side data are the corresponding hexadecimal value of the characters. It allows users or engineers to verify and debug the program.



Note:
1. Dump mode requires 2” wide paper width.
2. Turn off / on the power to resume printer for normal printing.
3. Press FEED button to back to the previous menu.

Printer Initialization

Printer initialization is used to clear DRAM and restore printer settings to defaults.
Printer initialization is activated by the following procedures.
1. Turn off the power switch.
2. Hold on the button then turn on the power switch.
3. Release the button when LED turns **green** after 5 amber blinks. (Any green will do during the 5 blinks).

- The LED color will be changed as following:

- Amber → red (5 blinks) → amber (5 blinks) → **green (5 blinks)** → green/amber (5 blinks) → red/amber (5 blinks) → solid green

Printer configuration will be restored to defaults as below after initialization.

Parameter	Default setting
Speed	127 mm/sec (5 ips) (203DPI) 76.2 mm/sec (3 ips) (300DPI)
Density	8
Label Width	2" (50.8 mm)
Label Height	2" (50.8 mm)
Sensor Type	Gap sensor
Gap Setting	0.12" (3.0 mm)
Print Direction	0
Reference Point	0,0 (upper left corner)
Offset	0
Tear Mode	On
Peel off Mode	Off
Cutter Mode	Off
Serial Port Settings	9600 bps, none parity, 8 data bits, 1 stop bit
Code Page	850
Country Code	001
Clear Flash Memory	No
IP Address	DHCP

Set Black Mark Sensor as Media Sensor and Calibrate the Black Mark Sensor

Please follow the steps as below.

1. Turn off the power switch.
2. Hold on the button then turn on the power switch.
3. Release the button when LED turns **green/amber** after 5 green blinks. (Any green/amber will do during the 5 blinks).
   - The LED color will be changed as following:
     Amber → red (5 blinks) → amber (5 blinks) → green (5 blinks) → **green/amber (5 blinks)** → red/amber (5 blinks) → solid green

Set Gap Sensor as Media Sensor and Calibrate the Gap Sensor

Please follow the steps as below.

1. Turn off the power switch.
2. Hold on the button then turn on the power switch.
3. Release the button when LED turns **red/amber** after 5 green/amber blinks. (Any red/amber will do during the 5 blinks).
   - The LED color will be changed as following:
     Amber → red (5 blinks) → amber (5 blinks) → green (5 blinks) → green/amber (5 blinks) → **red/amber (5 blinks)** → solid green

Troubleshooting

The following guide lists the most common problems that may be encountered when operating this bar code printer. If the printer still does not function after all suggested solutions have been invoked, please contact the Customer Service Department of your purchased reseller or distributor for assistance.

LED Status

This section lists the common problems that according to the LED status and other problems you may encounter when operating the printer. Also, it provides solutions.

LED Status / Color	Printer Status	Possible Cause	Recovery Procedure
OFF	No response	No power	* Turn on the power switch. * Check if the green LED is lit on power supply. If it is not lit on, power supply is broken. * Check both power connections from the power cord to the power supply and from the power supply to the printer power jack if they are connected securely.
Solid Green	ON	The printer is ready to use	* No action necessary.
Green with blinking	Pause	The printer is paused	* Press the FEED button to resume for printing.
Red with blinking	Error	The out of label or the printer setting is not correct	1. Out of label * Load a roll of label and follow the instructions in loading the media then press the FEED button to resume for printing. 2. Printer setting is not correct * Initialize the printer by instructions in “Power on Utility”.

Print Problem

Problem	Possible Cause	Recovery Procedure
Not Printing	Check if interface cable is well connected to the interface connector.	Re-connect cable to interface.
	The serial port cable pin configuration is not pin to pin connected.	Please replace the cable with pin to pin connected.
	The serial port setting is not consistent between host and printer.	Please reset the serial port setting.
	The port specified in the Windows driver is not correct.	Select the correct printer port in the driver.
	The Ethernet IP, subnet mask, gateway is not configured properly.	Configure the IP, subnet mask and gateway.
No print on the label	Label loaded not correctly.	Follow the instructions in loading the media.
Continuous feeding labels	The printer setting may go wrong.	Please do the initialization and gap/black mark calibration.
Paper Jam	Gap/black mark sensor sensitivity is not set properly (sensor sensitivity is not enough)	Calibrate the gap/black mark sensor.
	Make sure label size is set properly.	Set label size exactly as installed paper in the labeling software or program.
	Labels may be stuck inside the printer mechanism near the sensor area.	Remove the stuck label.
Poor Print Quality	Top cover is not closed properly.	Close the top cover completely and make sure the right side and left side levers are latched properly.
	Wrong power supply is connected with printer.	Check if 24V DC output is supplied by the power supply.
	Check if supply is loaded correctly.	Reload the supply.
	Check if dust or adhesives are accumulated on the print head.	Clean the print head.

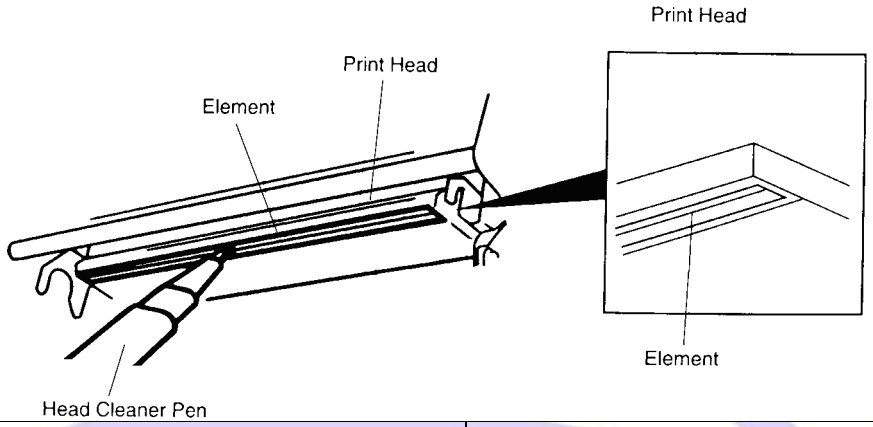
	Check if print density is set properly.	Adjust the print density and print speed.
	Check print head test pattern if head element is damaged.	Run printer self-test and check the print head test pattern if there is dot missing in the pattern.

Maintenance

This session presents the clean tools and methods to maintain your printer.

1. Please use one of following material to clean the printer.
   Cotton swab (Head cleaner pen)
   Lint-free cloth
   Vacuum / Blower brush
   100% ethanol

2. The cleaning process is described as following:

Printer Part	Method	Interval
Print Head	1. Always turn off the printer before cleaning the print head. 2. Allow the print head to cool for a minimum of one minute. 3. Use a cotton swab and 100% ethanol to clean the print head surface.	Clean the print head when changing a new label roll
		
Platen Roller	1. Turn the power off. 2. Rotate the platen roller and wipe it thoroughly with 100% ethanol and a cotton swab, or lint-free cloth.	Clean the platen roller when changing a new label roll
Tear Bar/Peel Bar	Use the lint-free cloth with 100% ethanol to wipe it.	As needed
Sensor	Compressed air or vacuum	Monthly
Exterior	Wipe it with water-dampened cloth	As needed
Interior	Brush or vacuum	As needed

Note:

- Do not touch printer head by hand. If you touch it accidently, please use ethanol to clean it.
- Please use 100% Ethenol. DO NOT use medical alcohol, which may damage the printer head.
- Regularly clean the print head and supply sensors when changing media to keep optimal performance and extend printer life.
- The maximum printing ratio per dot line is 15% for this printer. To print the full web black line, the maximum black line height is limited to 40 dots, which is 5mm for 203 DPI resolution printer and 3.3mm for 300 DPI resolution printer.

Important Information

Restrictions to the transporting of LITHIUM ION products

It has come to the attention of Wavecom Instruments Pty Ltd, that battery and /or products containing batteries are being shipped by customers through air freight. It is our understanding that, for the purpose of Air transport, lithium ion batteries are considered as 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 Instruments makes no warranty that these regulations will permit particular shipments of its products by air freight.

Lithium ion batteries are not allowed to ship by air. Product that contains internal batteries are allowed as long as batteries are not damaged.

Should you require further information on the relevant regulations and requirements, please contact your dangerous goods adviser and/or review the IATA website on:

www.iata.org/ps/publications/dgr/pages/index.aspx

This letter is not intended to constitute legal advice, and you should obtain your own professional advice.

Please contact tech-support or sales support team of Wavecom Instruments Pty Ltd for more information.

Optional Accessories

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500mm Earth Strap	Part No: TnT-ES 500
3-Phase Adaptor 20A & 32A 5pin + 5pin	Part No: WCM-3PH-MADP
HBC Fuse	Part No: WCM-HBC10AM205
Isolation Transformer for RCD testing	Part No: WCM-ISOT 11
Probe Kit	Part No: WCM-Probe
Wavecom Printer Labels	Part No: WCM-TAG - (Colour)
Wavecom Printer Ribbons	Part No: WCM-RIBBON
WinPATS Extended Support (12 months)	Part No: WCM-WinPATS Support
IEC 20amp-10amp Current Limited Adapter Cable	Part No: WCM-IEC2010 Suitable for TP500X Model Only

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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WinPATS Professional Asset Management Software

A Full Version of **WinPATS FE** Software is included with TnP500PH.
It is installed on your Toughbook Tablet already.

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 TnP-500(X) 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 Test n Print 500(X) Unit.

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

WINPATS can be downloaded from our website

https://www.wavecom.com.au/wcm_software_trails.php

WAVECOM TT040-50 Thermal Transfer BARCODE 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 BARCODE printer can be found in the Owner's Manual located on the Main Software and Drivers CD supplied with the TnP-500 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 BARCODE 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,Bl,G,O,Y, Br)

UV Tag |Part no: WCM-UV-TAG-W (R,Bl,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

RIBBONS

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.

UV RIBBONS

Order information:

STANDARD RIBBON | Part no: WCM-RIBBON

UV-RIBBON | Part no: WCM-UV-RIBBON

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.

Clear Laminated Labels
Per roll 1000

Order information:

Clear Laminated Labels |Part no: WCM-TAG-ALL-Clear-LAM

User Notes

User Notes

Fully Integrated

TEST n PRINT UNIT

TnP Series

www.wavecom.com.au

V010613

Scan to visit Official Website | Scan to Book manufacturer's calibration | Scan to save contact card to phone for tech Support & Inquiries