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TYRE DATA MANAGEMENT HARDWARE INSTRUCTION MANUAL

Bluetooth®
Pneu-Logic

MODEL: TDP Pro Kit *(Model.105)*

Please note:
This product is manufactured to be RoHS Compliant and have been WEEE registered.
Please read the RoHS & WEEE statements for more information.

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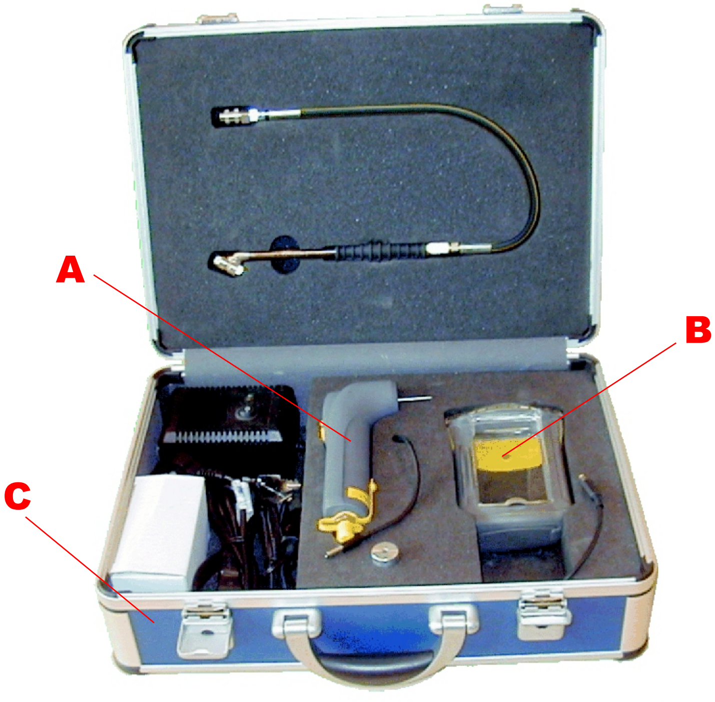
PRODUCT OVERVIEW



The **Trans-Logik Tyre Management** hardware system is designed as a front end data collection tool to record fleet inspections accurately. Details of the vehicles, their individual tyre specifications, tread and pressure readings, fault descriptions and relevant comments are recorded all without the need to write a single word.

When the inspection is completed the data is then ready, without any intermediate stage or secondary keying, to be transferred directly to a computer to accommodate both Billing and Reporting functions.

The PL1BT kit comprises of 3 basic parts:-

A. Tyre Probe: This battery powered handheld unit is used for measuring the tread depth and air pressure of a commercial tyre. This device sends any measurements to a PocketPC (Or other Bluetooth enabled device) via Bluetooth wireless link. An adapter is supplied to attach the Tyre Probe to a standard tyre valve, whilst taking pressure measurements. See Section 3 for a full description of the Tyre Probe.

B. Otterbox (For PocketPC): This is a rugged handheld enclosure used for housing a PocketPC which is used for storing the data from the Tyre Probe. The PocketPC is a touch screen computer with Bluetooth capability to receive the data from the Tyre Probe. Dependant upon the software installed, the PocketPC can also manage the data, accept more information from the user and generate forms & reports. This data can then be sent to a range of other devices, such as printers, modems or Pc's, using either the USB, RS232, bluetooth or Wi-Fi data links. See Section 2 for a full description of the Otterbox / Pocket PC.

C. Carry Case: The Carry Case provides the means to properly store and transport the complete kit & accessories, and includes a dual output power supply for charging the internal batteries of both the Tyre Probe and the PocketPC.
All features of the Carry Case are enclosed by a proprietary hinged case.

Using New Kits

Upon the receipt of a new kit, it must be fully charged before use. See Section 4 for full details on charging the Tyre Probe and PocketPC. Like most electronic measurement devices, when the unit is fully charged, it must be calibrated before the unit is used to take measurements. The items required are the calibration block supplied and a known air pressure. See Section 3 for full instructions on calibrating the probe. Prior to proceeding it is imperative that both the Hardware Manual and Software instruction manuals are read carefully.

PRODUCT SPECIFICATION

TYRE PROBE SPECIFICATIONS

General Specification:

Weight (without tyre adapter)	280g (without adapter)
Weight of tyre adapter	190g
Operational Cycle	16 hours typical
Recharge Cycle	6 hours Max
Battery	3.6V NimH Rechargeable
Operating Temperature	0 - 40 °C
Wireless Communication	Class 1 Bluetooth V2.0 (2.4GHz)
Range	20m. in free air
Compliance	RoHS, WEEE Registered

Depth Gauge:

Measuring Range	0-30mm
Accuracy	+/- 0.1mm
Operations	200,000+ typical
Depth Probe Pressure	50N Max
Measurement Modes	Data, mm, inches

Pressure Gauge:

Measuring Range	10 - 150 PSI
Accuracy	+/- 3%
Operations	1,000,000+
Measurement Modes	Data, PSI, BAR

OTTERBOX SPECIFICATIONS

Model	Otterbox 1900
External Dimensions	165x114x56mm (6.50"x 4.50"x 2.20")
Internal Dimensions	141x89x23.6mm (5.56"x 3.50"x 0.93")
Weight	340g (without PocketPC)
Compatible Pocket Pc's	See Appendix A for full list

CARRY CASE SPECIFICATIONS

Input Supply Voltage	11-14VDC 2.5A
Power Consumption	30W Max.
Outputs	5V DC 2A (PocketPC Charging), 11.5VDC 500mA (Tyre Probe Charging)

MAINS CHARGING ADAPTER SPECIFICATIONS

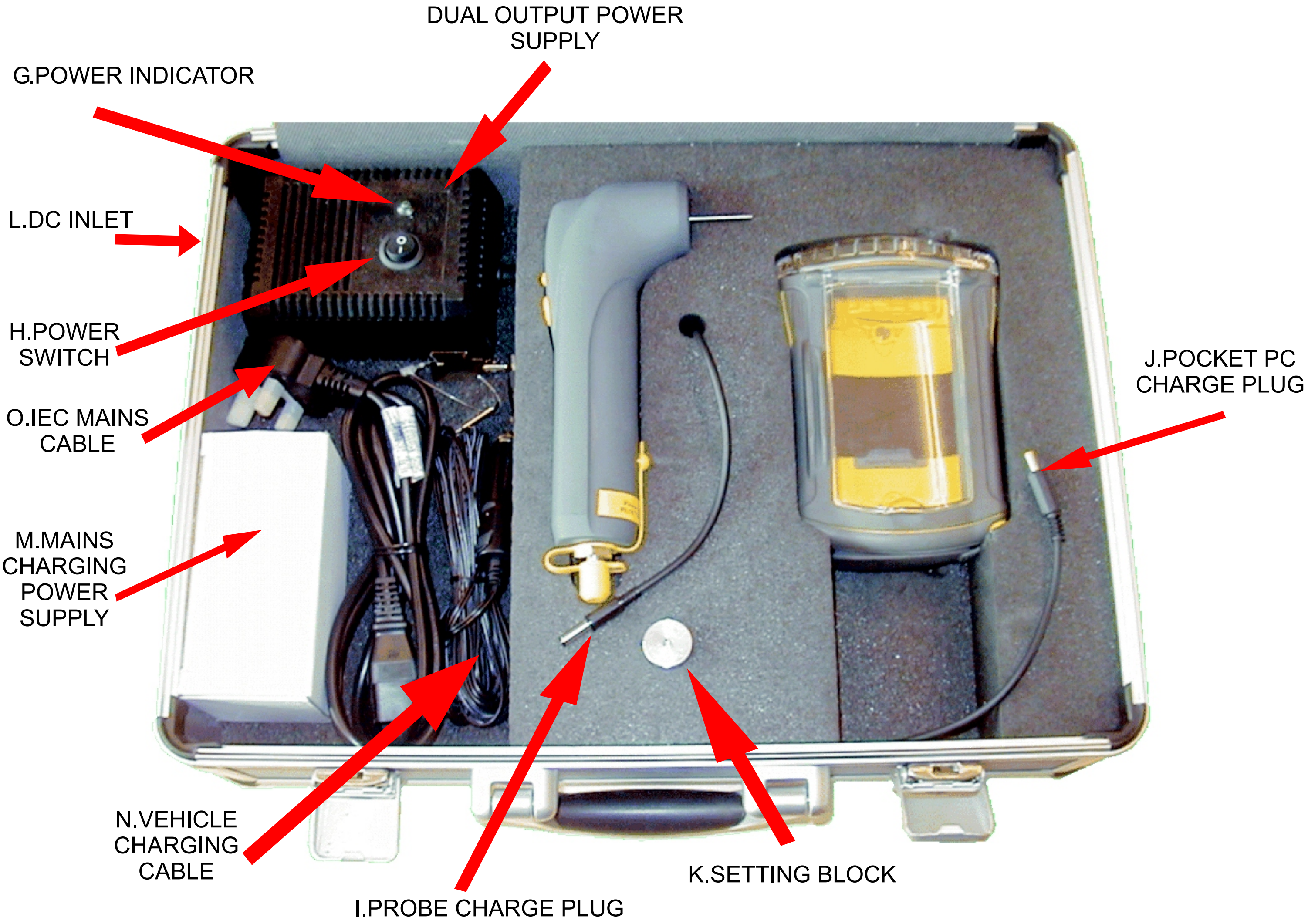
Input Supply Voltage	100-240VAC 50/60Hz
Power Consumption	250W Max.
Output	12VDC 2.5A 30W

KIT CONTENTS

- 1x Carry Case
- 1x Tyre Probe
- 1x Otterbox1900
- 1x Tyre Adaptor Hose(J)
- 1x Setting Block (O)
- 1x Mains Charging Adapter(P)
- 1x Mains Cable (Q)
- 1x Car Charger Cable
- 1x Hardware Instruction Manual

CARRY CASE FEATURES

All Items that constitute the PL1BT Kit are transported (and stored when not in use) within the Carry Case. Individual storage pockets are present for the Otterbox (with Pocket PC), Tyre Probe, Air-line and Setting Block. A further pocket exists for the storage of loose items such as power supply cables etc. The case body is supplied to be a robust and light means of providing a self-contained package.


DUAL OUTPUT POWER SUPPLY
G.POWER INDICATOR
L.DC INLET
H.POWER SWITCH
O.IEC MAINS CABLE
M.MAINS CHARGING POWER SUPPLY
J.POCKET PC CHARGE PLUG
N.VEHICLE CHARGING CABLE
K.SETTING BLOCK
I.PROBE CHARGE PLUG

Important Notice:

The Carry Case is not intended to be operated ooutdoors and should be adequately protected from the elements.

G. POWER INDICATOR - Illuminates GREEN to indicate when the “Charging Power Supply” is powered up and switched on.

H. POWER SWITCH - Turns the “Charging Power Supply” on and off.

I.PROBE CHARGE PLUG - Plugs into the Trans-Logik Probe “charger inlet” to facilitate charging.

J. POCKET PC CHARGE PLUG - Plugs into the Pockets Pc’s “Charger Inlet” to facilitate charging.

K. SETTING BLOCK - Used for datum surfaces whilst calibrating tread depth on the Trans-Logik Probe.

L. DC INLET - 12-14VDC inlet for powering the Carry Case in built charger.

M. MAINS CHARGING POWER SUPPLY - Used to connect the Carry Case in built charger to a mains power supply (100-240VAC 50/60Hz). This power supply can be used with any standard 3-pin IEC mains cable to connect it to the respective mains supply.

N. VEHICLE CHARGING CABLE - Used to connect the Carry Case in built charger to a 12V vehicle lighter socket for charging Probe and/or Pocket PC.

O. IEC MAINS CABLE - Used to physically connect the Mains Charging Power Supply to the mains

Important Notice:

When using the vehicle charging cable to power / charge the Probe or Pocket PC, it must be connected to a 12VDC source only. You must NOT use on 24V vehicle power sources.

When in use the Mains Charging Power Supply can get quite hot and must never be placed on soft furnishings or flammable / heat sensitive objects.

When charging either the Probe or Pocket PC leave the Carry Case lid open. NEVER close the Carry Case lid whilst charging.

CARRY CASE BASIC OPERATION

The Carry Case has two purposes; to contain and transport all the parts of the Trans-Logik Field Kit and to facilitate the charging of the Probe and Pocket PC. The Carry Case can be used as a charger from two different power sources;

Charging from a standard mains supply (100VAC - 240VAC 50/60Hz):

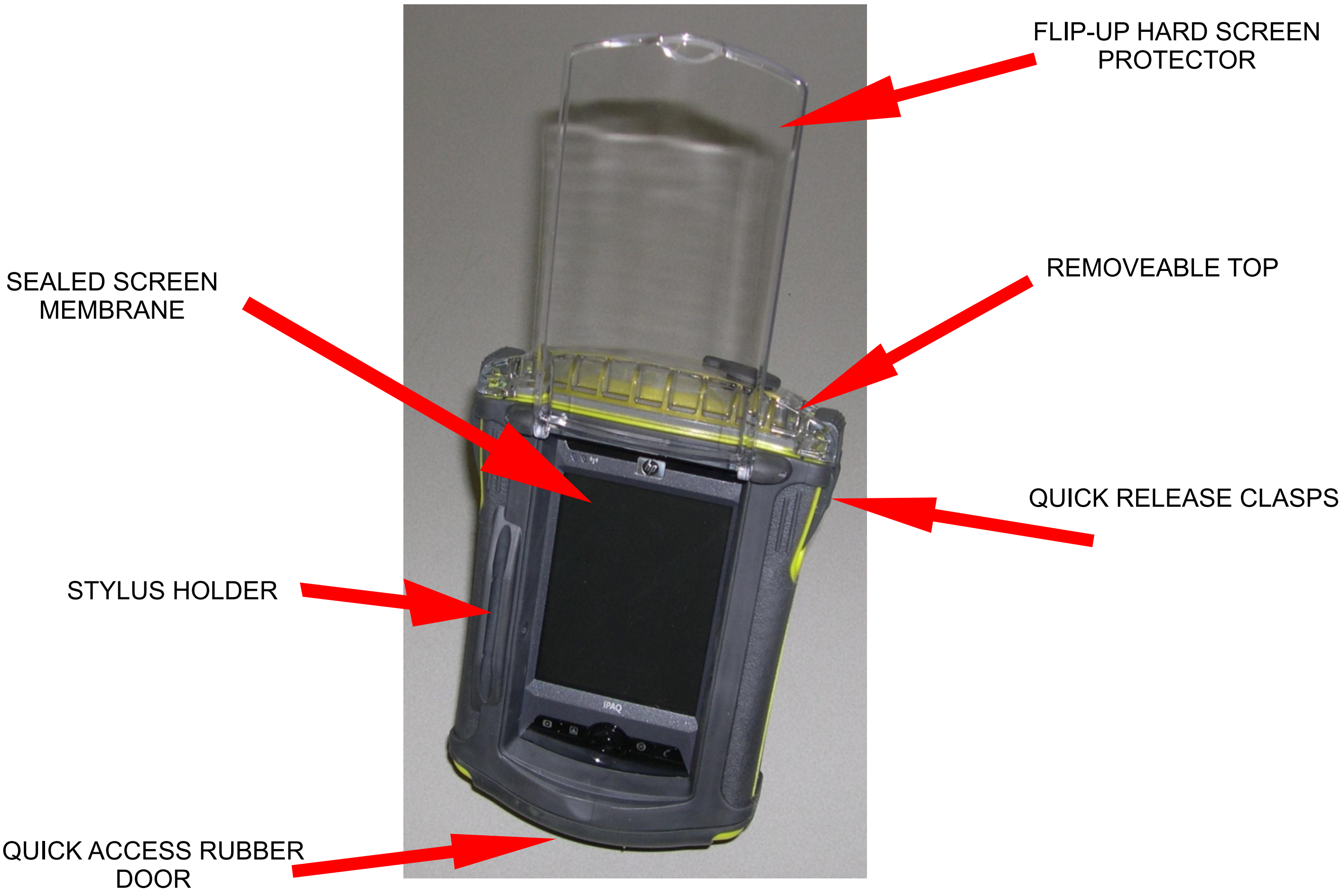
- Plug the IEC Mains Cable (O) into the Mains Charging Power Supply (M).
- Plug the DC plug on the Mains Charging Power Supply (M) into the DC inlet (L) on the side of the Carry Case.
- Plug the IEC mains cable (O) into the mains supply.
- Turn on the in built charger using the Power Switch (H). The Power Indicator (G) should illuminate green.
- To charge the Probe, plug the Probe Charge Plug (I) into the Charge Port (D) on the Probe. The Probe charge sequence should start which will be indicated by the Probe's LED Indicator (B) flashing red.
- To charge the Pocket PC, plug the Pocket PC Charge Plug (J) into the Pocket PC (or adapter). The Pocket PC should now start charging. Please refer your Pocket PC user manual on the charging of the Pocket PC.

Charging from a vehicle 12DC source (12-14VDC):

- Plug the Vehicle Charging Cable (N) into the DC Inlet (L) on the side of the carry case.
- Plug the Vehicle Charging Cable (N) into a suitable 12V cigarette lighter socket on the vehicle and ensure it is powered up. (Some vehicles may need the ignition to be turned on to power up the lighter socket).
- Turn on the in built charger using the Power Switch (H). The Power Indicator (G) should illuminate green.
- To charge the Probe, plug the Probe Charge Plug (I) into the Charge Port (D) on the Probe. The Probe charge sequence should start which will be indicated by the Probe's LED Indicator (B) flashing red.
- To charge the Pocket PC, plug the Pocket PC Charge Plug (J) into the Pocket PC (or adapter). The Pocket PC should now start charging. Please refer your Pocket PC user manual on the charging of the Pocket PC.

For more detailed information on charging the Probe please refer to section 4-8 "Charging The Probe".

OTTERBOX FEATURES


FLIP-UP HARD SCREEN PROTECTOR
SEALED SCREEN MEMBRANE
REMOVEABLE TOP
QUICK RELEASE CLASPS
STYLUS HOLDER
QUICK ACCESS RUBBER DOOR

The OtterBox 1900 Pocket PC / PDA Case

This is a versatile, rugged, expandable PDA case which houses the PocketPC used for collecting and organising the data from the Tyre Probe.

It’s main features include;

- Universal fit for newer smaller form-factor PDAs Waterproof, crushproof, drop- proof ergonomic design
- Flexible, fully sealed interactive screen membrane
- Quick access to CF and SD slots through the top of the case
- Quick access to PDA connection through the bottom of the case
- Adjustable neoprene handstrap
- External stylus holder
- Flip-up hard screen cover
- Headphone/headset access

Please see Otterbox Instruction Leaflet for fitting the Pocket PC / PDA

NOTES ON THE POCKET PC

The Trans-Logik Hardware Kit was designed for, and is recommended for use with Hewlett Packard, Dell and Fujitsu-Siemens range of Pocket PC's. However other products can be used.

Below are some notes which may help when selecting or using a compatible alternative to the HP iPaq range:-

- The Tyre Probe uses a standard Bluetooth V1.1 connection it can therefore communicate with almost any other Bluetooth enabled Pocket PC, PDA , Notebook PC or Desktop PC.
- The Otterbox is compatible with the majority of Pocket PC's & PDA's currently on the market. Please see Appendix A for a list of compatible devices.
- The PPC output of the carry case charger is 5VDC @ 2Amax which is the required supply for charging and powering the HP iPaq, Dell and many other models of Pocket PC / PDA. The charger output also terminates with a 1.3mm DC Jack Plug, which is standard for plugging directly into Hp and Dell's range of Pocket PC cables & accessories.
- Pocket PC / PDA requirements:-
    - The Pocket PC / PDA has Bluetooth V1.1 (*or Better*) connectivity.
    - The Pocket PC / PDA has the correct hardware specification and operating system to run the required software.
    - The Pocket PC / PDA physically fits into the Otterbox. (*See Appendix A for a list of compatible models*)
    - The Pocket PC / PDA requires 5VDC @ 2Amax to charge and power the device.
    - A suitable adaptor may be required for plugging into the PPC charger cable. (*Contact Trans-Logik for more information*)
    - If using software supplied by Trans-Logik please check that the software is compatible with the chosen PocketPC.

Useful Pocket PC Operating Tips

- When entering data, if there is an 'Accept', ' Save' or 'OK' button available on the Pocket PC, click on it to ensure any input data is saved.
- Never use a sharp object to operate the Touch Screen as it may puncture the display and cause failure.
- Using a pen on the touch screen will not damage the screen, but it does tend to leave messy ink marks upon it which may obscure the display.
- Even when the Pocket PC is turned off it is draining the battery/s and therefore is good practice to return the Pocket PC to the Carry Case and place on charge when not in use.
- When the Pocket PC battery is low it will power itself down to protect the integrety of the memory.
- Never let the Pocket PC battery drain completely. If this happens the installed software will be lost and the Pocket PC will return to its original 'out of box' condition. In this instance refer to the software manual for instructions on 'Recovering The Software'.

CHARGING THE POCKET PC

Pocket PC’s are usually supplied with a charger / power supply to re-charge the batteries of the device. However, for convenience, the Carry Case also includes a charger / power supply to re-charge the Pocket PC. This can be used instead of the supplied charging device on compatible Pocket Pc’s.

To re-charge the Pocket PC from the Carry Case:-

- ☞ Ensure the Carry Case Charger is plugged into a suitable supply and turned ON and the ‘Power’ indicator (ML1) is illuminated.
- ☞ Plug the ‘PPC Charge’ Cable (K) into the relavent cable or adaptor for the Pocket PC and plug the adaptor into the port on the Pocket PC. After a short period of time, the Charge Indicator on the Pocket PC should start to flash. This is indicating that it is fast charging the internal battery of the Pocket PC.
- ☞ The Pocket PC should indicate when the charge has finished as described in the instruction manual for the Pocket PC used.

Important Notice:

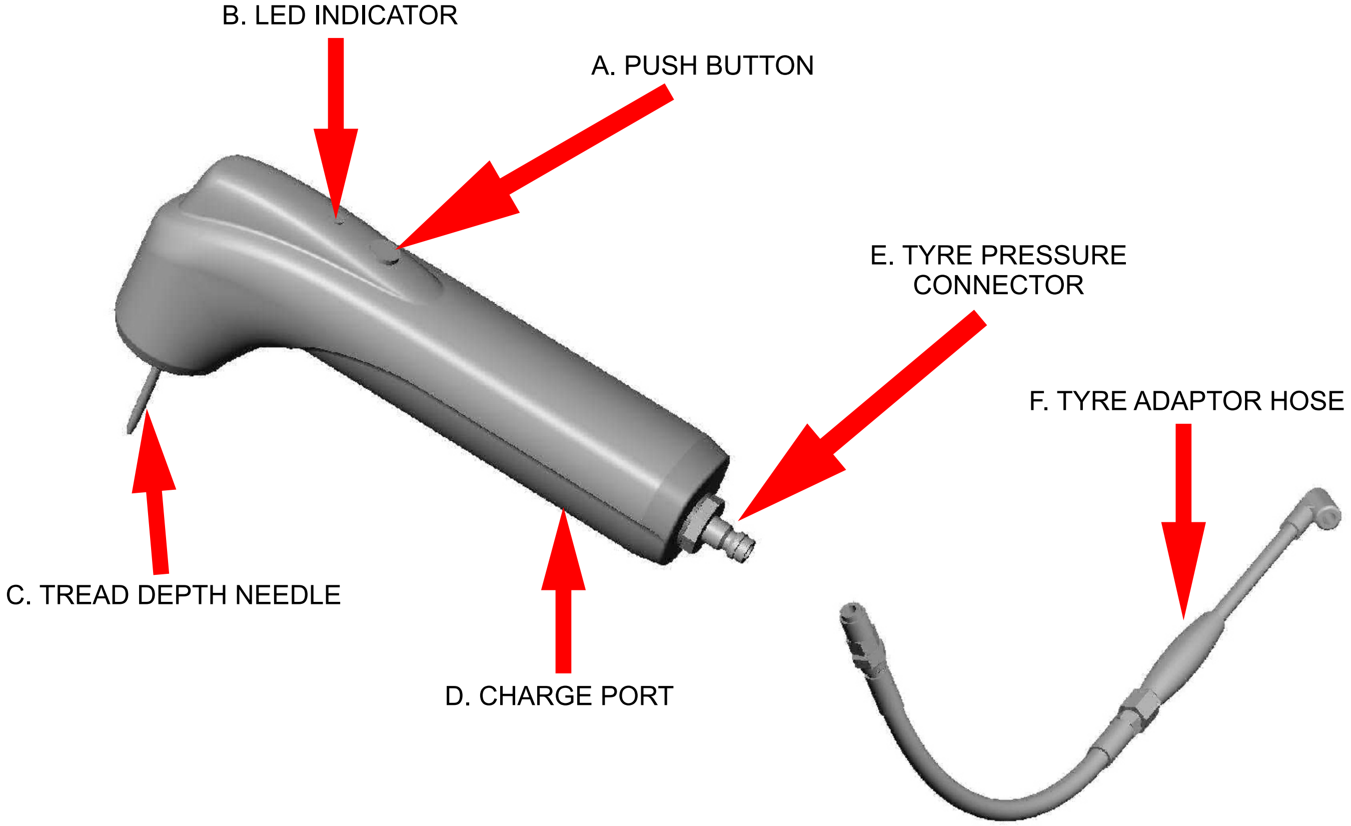
- **Please carefully read the instructions on operating and handling the Pocket PC that were supplied with the Pocket PC.**
- **The Pocket PC will charge more quickly if it is turned off.**
- **Depending upon the installed software and upon the model of Pocket PC, the Pocket PC may automatically power up as it is plugged into the charger. If this does happen, simply press the Power Button on the Pocket PC to turn it off.**

TYRE PROBE FEATURES

The Tyre Probe unit is a hand held device supplied to conduct three tasks:-

- ☞ Measure tyre tread depths.
- ☞ Measure tyre pressures.
- ☞ Transmit the above data to a remote processing point. (I.e. The Pocket PC)

A sprung loaded needle (C) is used to measure the displacement (tyre tread depth) as it is pushed at a right angle between the tyre tread. A part flexible air-line (F) is connected to the probe body and tyre pressure readings can be taken. Data transmissions are via a wireless Bluetooth link and are triggered automatically during the measurement process. The probe unit is battery powered and rechargeable and houses an intelligent charging circuit.



A. PUSH BUTTON - Push-button, used to turn the Probe on and off, and check the battery status.

B. LED INDICATOR - Displays the current status of the probe.

C. TREAD DEPTH NEEDLE - Spring loaded probe, used to take tyre tread measurements.

D. CHARGE PORT - Plug into the Carry Case Charger to charge the probe.

E. TYRE PRESSURE CONNECTOR - Air pressure intake. Connect the Tyre Adaptor to take pressure measurements.

F. TYRE ADAPTOR HOSE - Allows the Probe to connect to a standard tyre valve whilst taking pressure measurements.

OPERATION OF THE LED INDICATOR

The probe incorporates an LED Indicator (B) to show the operation and status of the probe.
The following table describes the operation of the LED indicator (B):-

COLOUR	POWER OFF	POWER ON	BATTERY STATUS MODE*
RED	-	Initialising Probe(Upon powerup)	Battery Low, requires charging
RED FLASHING	Conditioning Charge	Battery Low	-
GREEN	-	Probe Ready	Battery Good
GREEN FLASHING	-	Probe Ready & Battery Low	-
AMBER	-	-	-
AMBER FLASHING	Fast Charge	-	-

TURNING ON THE TYRE PROBE

The Tyre Probe is operated using the ‘Push Button’ (A). To turn on the Tyre Probe:-

- Press and hold ‘Push Button’ (A) until the ‘LED Indicator’ (B) illuminates RED. This usually takes 2-3 seconds.
- The Tyre Probe is now powering up and initialising.
- After about 7-10 seconds the ‘LED Indicator’ should change to GREEN.
- The Tyre Probe is now powered up and ready to use.

TURNING OFF THE TYRE PROBE

The Tyre Probe is operated using the ‘Push Button’ (A). To turn off the Tyre Probe:-

- Press and hold ‘Push Button’ (A) until the ‘LED Indicator’ (B) extinguishes. This usually takes 2-3 seconds.
- The Tyre Probe is now powered down and in “stand-by” mode.

If the Tyre Probe is plugged into the charger when it is turned off the ‘LED Indicator’ (B) will not extinguish if the battery is charging. Instead the’LED Indicator’ (B) will flash repeatedly to display the charging mode. The Tyre Probe will automatically turn off (or go into stand-by) once the charge cycle is complete.

CHECKING THE BATTERY STATUS* (Feature only available on 105 models)

- The Tyre Probe is operated using the ‘Push Button’ (A). To turn on the Tyre Probe:-
- With the Tyre Probe in OFF (or stand-by) mode, press and hold ‘Push Button’ (A) for 1 second.
- Release ‘Push Button’ (A). The LED Indicator should illuminate GREEN for approximately 1 second and then it will display the battery status for a further 2-3 seconds.
- If GREEN, the probe battery is charged. If RED the probe battery is low and requires charging.

Do not use the Tyre Probe with a low battery. If the Tyre Probe is operated with a low battery it may incorectly measure the tread depth and pressure, or you may experience Bluetooth connection problems.

TYRE PROBE MEASUREMENT MODES

The Tyre Probe can take tread and pressure measurements in 2 ways:-

- Automatic - The Tyre Probe automatically sends measurements after it senses a change in either tread depth or air pressure and when it senses the tread or pressure measurement stabilise.
- Manual - Tread and pressure measurements can be taken anytime by sending a “T” or “P” command via the Bluetooth to the probe. When the Tyre Probe receives this command it will take the relevant measurement and transmit the data back. (*See Appendix A - Bluetooth Command Set for further information*)

TAKING AUTOMATIC TYRE TREAD MEASUREMENTS

This instruction assumes the Pocket PC is turned on, the Tyre Probe is turned on and connected and the software has progressed to the point where it is ready to accept tread depth measurements. Refer to the software manual for full instructions on navigating the software.

- Ensure the LED indicator (B) is GREEN and the probe is ready to use.
- Making sure the tread is free from mud and grit, place the ‘Tread Depth Needle’ (C) into the tyre tread at a right angle to the surface of the tyre. {See FIG.A}
- Ensuring the LED indicator (B) is still GREEN, in one smooth motion push the Probe head down toward the tyre until it is flat against the top of the tread. {See FIG.B}
- When the head of the Probe is flat on the surface of the tyre and the depth needle (C) stops retracting the data will automatically be sent to the Pocket PC.
- When you see (or hear depending on software) the depth reading on the Pocket PC remove the Probe from the tyre, again in one smooth operation, until the ‘Tread Depth Needle’ (C) is fully extended.
- The probe is ready to use for the next measurement.

FIG.A

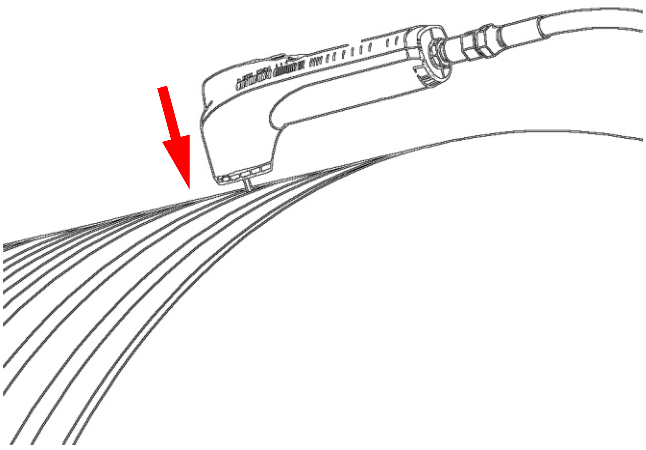
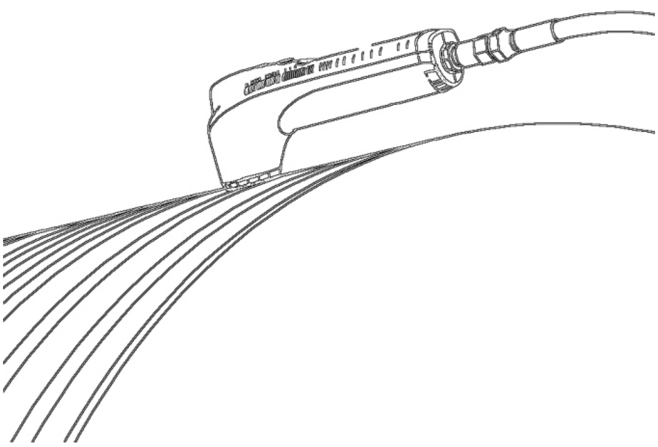


FIG.B

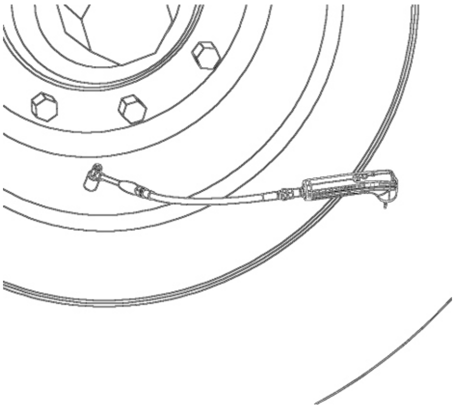


TAKING AUTOMATIC TYRE PRESSURE MEASUREMENTS

This instruction assumes the Pocket PC is turned on, the Tyre Probe is turned on and connected and the software has progressed to the point where it is ready to accept tread depth measurements.
Refer to the software manual for full instructions on navigating the software

- ☞ Ensure the LED indicator (B) is GREEN and the probe is ready to use.
- ☞ Connect the 'Tyre Adaptor Hose' (F) to the 'Tyre Pressure Connector' (E) on the Probe.
- ☞ In one smooth operation push the 'Tyre Adaptor Hose' (F) on to the tyre valve until air is released into the Probe. When the pressure in the hose stabilises the data will automatically be sent to the Pocket PC.
- ☞ Hold the 'Tyre Adaptor Hose' (F) on the valve until you see (or hear depending on software) the measurement is displayed on the Pocket PC. {See FIG.C}
- ☞ At this point, again in one smooth operation, remove the 'Tyre Adaptor Hose' (F) from the tyre valve.
- ☞ The probe is ready to use for the next measurement.

FIG.C



Useful Operating Tips

- When taking Depth measurements, after a reading has been taken allow the probe needle to fully return before taking the next measurement.
- When connecting the Tyre Adaptor Hose (F), ensure there is no obstruction in the Air Connector.
- When taking pressure measurements, after a reading has been taken, remove the air pressure as quickly and smoothly as possible.
- When fitting or removing the tyre adapter, ensure the probe is turned off.
- When not measuring pressure remove the tyre adapter Hose (F). The probe device is easier to handle for depth measurements if the tyre adapter is removed.
- If the Probe ever returns an error or loses its zero position (Unit fails to take automatic measurements) due to improper operation, simply turn the probe off and then on again using the Push Button (A) to reset the device.

CONNECTING TO THE TYRE PROBE

The Tyre Probe communicates to your Pocket PC or other Bluetooth enabled device using a standard Bluetooth V1.1 wireless connection. The Probe utilizes the standard virtual serial port protocol to send and receive standard ASCII format serial data, which enables it to operate in a very similar manner to many other serial device such as modems etc. Different Pocket Pc's or PDA's all have different software for managing its Bluetooth connections, however using a standard Bluetooth protocol means that every type of Pocket PC has to function in a similar way to connect to the devices. The basic steps for connecting to the probe are as follows;

- **Search & detect the Bluetooth connection of the probe -** Most Bluetooth applications have a method of searching for the available Bluetooth devices. The Tyre Probe usually shows up during the search with the name "Pneu Logic Probe - Dxxxxxx".
- **Pair with the probe -** Most Bluetooth applications will let you pair with the probe. Pairing is simply a way of indicating to the Pocket PC which device(s) you want to connect to. Also during the pairing process the Bluetooth security measures must be passed through and the software may ask for a passkey. Bluetooth uses a simple 4 digit passkey to authenticate the connection. The default passkey for all probes is "1234".
- **Discover the available service -** The probe uses the standard serial port protocol which often has to be selected from the service list. This service is called "Tyre Probe" and must be selected before the device can assign the probe its COM port number. When the serial port service has been selected a COM port number will be assigned to the probe.
- **Connect to the serial port and communicate** - Standard serial communications routines can be used to connect to the assigned COM port. Communication is performed using standard ASCII text format. The software application on your Pocket PC should automatically handle any communications with the probe giving the operator a user friendly interface to enable them to use the probe with ease. However other COM's applications can also be used to communicate with the probe like Hyperterminal which is supplied with most releases of Microsoft Windows on desktop or laptop Pc's. The list of commands can be found in Appendix B.

Useful Connection Settings:

COM Port	Assigned by Bluetooth Manager Application
Bluetooth Passkey	1234
Baud Rate	9600 bps
Data bits	8
Parity	None
Stop Bits	1
Start Bits	1

For more information on enhanced operation, serial commands and how to use them please refer to the Bluetooth Command Set (Appendix B).

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YRE PROBE ENHANCED OPERATION MODES

For enhanced operation the Tyre Probe can function in many different modes which allows the Probe to report its measurements in different ways. These modes are:-

Tread Depth Modes:

- **Actual** - When set to “actual” mode the probe returns the raw measurement data from the embedded analogue to digital converter. This data is returned in decimal format as ASCII text. This data is in the range 0 to 1024. E.g. T1010.
- **Millimeter Measurement Mode** -When set to “mm” mode the probe returns the tread measurement in actual millimeters.This data is returned in ASCII text format. This data is typically in the range 0 to 28mm.This mode will only function correctly if the probe has been calibrated and it contains tread measurement calibration data in its internal memory. E.g. T19.85
- **Inches Measurement Mode** - When set to “Inch” mode the probe returns the tread measurement in actual imperial inches. This data is returned in ASCII text format. This data is typically in the range 0 - 1.10.This mode will only function correctly if the probe has been calibrated and it contains tread measurement calibration data in its internal memory. E.g. T0.76

Pressure Modes:

- **Actual** - When set to “actual” mode the probe returns the raw measurement data from the embedded analogue to digital converter. This data is returned in decimal format as ASCII text. This data is in the range 0 to 1024. E.g. P1010.
- **BAR Measurement Mode** - When set to “BAR” mode the probe returns the pressure measurement in actual BAR.. This data is returned in ASCII text format. This data is typically in the range 0 - 10.This mode will only function correctly if the probe has been calibrated and it contains tread measurement calibration data in its internal memory. E.g. P6.45
- **PSI Measurement Mode** -When set to “PSI” mode the probe returns the pressure measurement in actual PSI. This data is returned in ASCII text format. This data is typically in the range 0 to 150PSI.This mode will only function correctly if the probe has been calibrated and it contains tread measurement calibration data in its internal memory. E.g. P99.55

Other Modes:

- **Click Mode** - With this feature enabled when you are measuring tyre tread and pressure everytime the push button on the top of the probe is pressed for between 0.25 and 3 seconds the probe will send a command back to the Pocket PC to let it know the button has been pressed. This command can be used in the Pocket PC (If software supports click feature) to automatically switch between tyres and/or vehicles. ***Please note this feature is only available to 103 & 104 models that have version 2.08 firmware or better, but is a standard feature on model 105 probes.***
- **Idle Timeout Mode -** To save battery power if the probe is inactive for a set period of time it will automatically shut itself off. This set period can be set between 0 and 255 minutes. Setting this value to 0 will disable the timeout mode.

For more information on enhanced operation modes and how to use them please refer to the Bluetooth Command Set (Appendix B).

To use the probe in either mm, inches, PSI or BAR measurement modes the probe must first be calibrated. To calibrate the probe must be given 4 calibration valuies. These 4 values are:-

- Tread measurement at 0mm (X3 Value)
- Tread Measurement at 16mm (X4 Value)
- Pressure measurement at 0 PSI (X5 Value)
- Pressure measurement at 100 PSI (X6 Value)

The application software on the Pocket PC or other Bluetooth device you are using should include a small calibration routine to allow these values to be set. Every application is different, but the general calibration procedure must be similar. The description below describes how a typical calibration procedure can be achieved.

Calibrating tread:

- Using the flat end of the calibration block (supplied with kit) set the tread depth needle to 0mm by pushing the nose of the probe fully flat upon the block.
- Click “Calibrate 0mm” or similar button on the Pocket PC application. (Click OK on dialog box appropriate)
- Wait a couple of seconds then release the tread depth needle back to its fully extended position.
- Using the 16mm end of the calibration block (supplied with kit) set the tread depth needle to 16mm by pushing the nose of the probe fully flat upon the top of the block and the needle inside the 16mm deep hole.
- Click “Calibrate 16mm” or similar button on the Pocket PC application. (Click OK on dialog box if appropriate)
- Wait a couple of seconds then release the tread depth needle back to its fully extended position.

Calibrating pressure:

- Using atmospheric pressure as 0PSI set the pressure to 0PSI by ensuring the pressure inlet is vented to atmosphere and there is no pressure applied to the probe.
- Click “Calibrate 0PSI” or similar button on the Pocket PC application. (Click OK on dialog box if appropriate)
- Using a known 100PSI pressure set the pressure value by applying the 100 PSI air pressure to the inlet of the probe.
- Click “Calibrate 100PSI” or similar button on the Pocket PC application. (Click OK on dialog box if appropriate)
- Wait a couple of seconds then release the air pressure and allow the inlet to vent to atmosphere.

Notes On Calibration:

Practice on operating the probe is needed to obtain accurate readings. As you practice you will find your readings become more consistent. The more accurate the known 100PSI air pressure the more accurate the calibration.

CHARGING THE PROBE

The Tyre Probe contains an intelligent charger circuit to help maintain the batteries. Charging of the Tyre Probe is performed using the charger power supply inside the Carry Case. To re-charge the internal batteries of the Tyre Probe:-

- Ensure the Carry Case Charger is plugged in to a suitable supply and turned ON and the ‘Power’ indicator (ML1) is illuminated.
- Ensure the Probe is turned OFF.
- Plug the ‘Probe Charge Cable’ (L) into the ‘Charge Port’ (H) on the Probe. The ‘Probe Indicator’ (ML2) should illuminate FLASHING RED to indicate the Probe is in conditioning charge mode.
- After 2 to 10 minutes the ‘Probe Indicator’ should change to FLASHING AMBER to indicate it is in fast charge mode.
- When the ‘Probe Indicator’ (ML2) goes out the probe is fully charged.

Important Notice:

- **The charging circuit is ‘Intelligent’, so if the ‘Probe Indicator’ (ML2) does not illuminate when it is first plugged in, the battery is fully charged.**

- **If the Probe’s battery has been allowed to go totally flat for an extended period of time this can cause the battery to reject the charge and terminate early. In this situation when the charging stops place the probe straight back on charge again. Keep putting the probe on charge repeatedly until it has had a total of 4 hours charge time. The battery should recover after 2-3 charge / discharge cycles.**

- **If the ‘Probe Indicator’ remains in conditioning charge mode (FLASHING RED) for longer than 20 minutes this could mean the following;**
  - **The environmental conditions are not correct. (I.e. Too cold or too hot)**
  - **The intelligent charger circuit has got out of sequence.**
  - **There is a fault with the probe or battery.**

  If this occurs first try unplugging the ‘Probe Charge Cable’ (L) from the ‘Charge Port’ (H) on the Probe, waiting for 20 seconds and plugging back in again. If this has no effect try charging in a more acceptable environment.

CARE & HANDLING

The Trans-Logik Tyre Data Management Kit has been designed for rugged industrial use. However, handling the equipment with care will increase its accuracy, usability and life span. Some pointers for particular attention are as follows :-

- Read the operating instructions fully before operating the equipment.
- Follow the operating instructions carefully whilst operating the equipment.
- Keep the Probe as clean and dry as possible, especially around the ‘Tyre Adaptor Hose’, ‘Tread Depth Needle’ and ‘Charge Port’.
- Never use the Probe’s ‘Tread Depth Needle’ as a pry bar or lever.
- Care should be taken during inclement weather conditions to protect the Pocket PC as much as possible from the elements.
- Keep the Pocket PC out of extreme temperatures and direct sunlight.
- In extreme temperatures try to keep the Pocket PC in a more suitable environment such as in an office or cab of a lorry etc.
- Never use any sharp pointed device on the Pocket PC ‘Touch Screen’ display.
- Never operate the Docking Station outdoors.
- If the equipment is not being used ensure it gets a full charge at least once a week.
- Always use the correct Trans-Logik charging devices to charge the equipment and never use any type of charger or power supply off any other equipment or supplier.
- Always ensure the plugs are securely inserted into the equipment whilst charging.

TROUBLESHOOTING

If any problems are encountered first check you are performing the operation correctly as per instructions. Read all instructions carefully to ensure that the correct procedures are implemented.

If problems are still encountered check through the following possibilities.

☞ THE POCKET PC BACKLIGHT WILL NOT ILLUMINATE.

POSSIBLE CAUSE: The backlight has been disabled.
REMEDY: Whilst the Pocket PC is powered up, hold down the Power Button on the Pocket PC for 2 seconds to enable the backlight. Note: This is only for the HP iPaq range of Pocket Pc's.

☞ THE PROBE AND/OR POCKET PC WILL NOT CHARGE.

POSSIBLE CAUSE: There is no power to the charger or the charger is not turned on.
REMEDY: Please check that the switch on the charger PSU is turned on and that the LED is illuminated green.
REMEDY: Please check external power supply / cigarette charger is plugged correctly into the side of the charger PSU and that the mains supply (if applicable) is turned on. If using the cigarette lighter socket on your vehicle ensure it is in operation as some only function with the vehicle ignition switch turned on.
REMEDY: The external power / cigarette lighter cable supply plug MUST be securely inserted into the charger PSU socket until the plug locates at the rear of the socket. On new units the plug can be a little stiff or tight and may require a little extra force to ensure the plug is located correctly.
REMEDY: Check the fuse in the mains cable of the external power supply.

☞ THE PROBE BATTERY DOES NOT CHARGE CORRECTLY AND THE LED INDICATOR REMAINS FLASHING RED.

POSSIBLE CAUSE: The Probes integrated charger circuit will only charge the battery if the correct environmental criteria are met. The charger will refuse to charge the battery if it is too cold, too warm, has been run too flat or if there is a fault with the battery.
REMEDY: If the probe is in a particularly hot or cold environment please attempt charging in a more suitable location. Eg. The office.
REMEDY: If the battery was run extremely flat the charger circuit needs to condition the battery before attempting a full charge. In this situation you should leave the probe in conditioning mode (LED indicator flashing RED) for approx 20mins then disconnect the charger supply and re-connect to reset the charging cycle. The probe should now charge correctly.
REMEDY: Keep your probe updated with the latest firmware. Newer firmware releases have enhanced functionality and is constantly being improved to make the battery management more efficient.
POSSIBLE CAUSE: If the Probe has not been serviced for more than 12 months it is possible the internal battery has become worn.
REMEDY: The Probe will require service.

☞ THE PROBE BATTERY DOES NOT CHARGE CORRECTLY AND THE CHARGE KEEPS TERMINATING EARLY OR THE PROBE SEEMS UNABLE TO RETAIN ITS CHARGE FOR ANY REASONABLE LENGTH OF TIME.

POSSIBLE CAUSE: If the Probe's battery has been allowed to go totally flat for an extended amount of time this can cause the battery to reject the charge and terminate early.
REMEDY: When the charge terminates place the probe back on charge again. Keep repeating this until the battery has had a total of 4 hours of charge time. The battery should recover after 2-3 charge / discharge cycles.

POSSIBLE CAUSE: If the Probe has not been serviced for more than 12 months it is possible the internal battery has become worn.
REMEDY: The Probe will require service.

☞ THE PROBE WILL NOT TURN ON.

POSSIBLE CAUSE: The Probe requires its internal batteries charging.
REMEDY: Place the Probe on charge.
POSSIBLE CAUSE: The Probe push button was not held down for 4 seconds.
REMEDY: To turn the Probe on and off the push button on the top must be held down for 4 seconds. This feature is to help prevent accidentally turning the probe on/off.

☞ THE PROBE WILL NOT TURN ON AND WHEN I PLACE ON CHARGE THE LED LIGHT ILLUMINATES CONSTANT GREEN.

POSSIBLE CAUSE: The Probes internal firmware has become corrupt.
REMEDY: The most common cause of the firmware becoming corrupt is an incorrect or failed firmware upgrade attempt. If this is the case then the probe will remain in “upgrade” mode until a successful upgrade is completed. In which case check that you have the correct upgrade software, the correct revision of firmware, plug into the charger and try again.
REMEDY: If the probe cannot be recovered by a firmware upgrade or it has become corrupt for any other reason the probe must be returned for service.

☞ THE PROBE TAKES INCONSISTENT, INACCURATE OR WILL NOT TAKE TREAD MEASUREMENTS.

POSSIBLE CAUSE: The Probe requires calibration.
REMEDY: Re-calibrate the probe.
POSSIBLE CAUSE: If the Probe has not been serviced for over 12 months then the tread pot assembly may be worn.
REMEDY: .The probe must be returned for service.

SERVICE REQUIREMENT

The Trans-Logik Probe contains serviceable and consumable parts and Trans-Logik recommend that all PL1BT series Probes are serviced every 12 months of use. The service includes;

1. Replacement of Tread Pot Assembly.
2. Replacement of Battery Pack.
3. Replacement of seals and grommets.
4. Cleaning the internal parts & electronics.
5. Checking for and removing any blockages of the pressure assembly.
6. Upgrade to latest firmware revision if required.
7. Re-calibration and re-testing.

Trans-Logik will supply a 12 month parts & labour warranty for any parts that are replaced.

The unit will also be checked over for any other damage or wear and repairs will be undertaken if necessary. Any parts replaced not covered by the service will be charged in addition to the service cost.

Any service or repair will only be undertaken by Trans-Logik or by a Trans-Logik authorised service agent.

For more information on the Trans-Logik service contract or to get your Trans-Logik product serviced please contact either Trans-Logik or your I.T. Managment / Department.

FURTHER ASSISTANCE

If you require assistance or have any queries please contact your administrator:

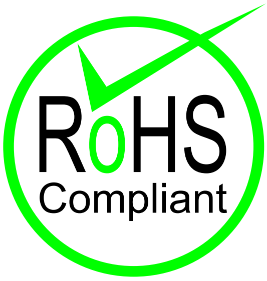
For further information you can:-

- ☞ Check out our website at www.trans-logik.com
- ☞ E-mail your query to sales@trans-logik.com
- ☞ Telephone our customer support line +44(0) 1869 238380

translogik
www.trans-logik.com

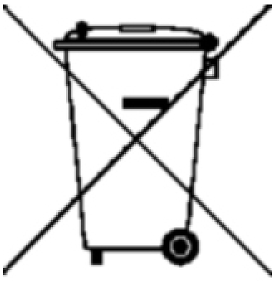
Tel: +44(0) 1869 238380
Fax: +44(0) 1869 238381
sales@trans-logik.com

RoHS & WEEE STATEMENT



RoHS, also known as Lead-Free, stands for Restriction of Hazardous Substances. RoHS Directive 2002/95/EC restricts the use of six hazardous materials found in electrical and electronic products. The substances banned under RoHS are lead (Pb), mercury (Hg), cadmium (Cd), hexavalent chromium (CrVI), polybrominated biphenyls (PBB) and polybrominated diphenyl ethers (PBDE). All applicable products in the EU market after July 1, 2006 must pass RoHS compliance.

This Trans-Logik product complies with the requirements of the RoHS directive for all banned substances.



Directive 9002/96/EC Waste Electrical and Electronic Equipment (the "WEEE Directive") which was introduced into European Law on 13th February 2003 encourages the proper repair, upgrading, reuse, or disassembly and recycling of certain categories of electronic equipment.

The WEEE logo on this product or on the product packaging indicates that this product MUST NOT be disposed of or dumped with your other waste items. You are liable to dispose of all your electrical or electronic waste equipment at specified collection points for the recycling of such hazardous waste. The proper disposal of your electrical and electronic waste will allow us to help conserve natural resources and more importantly will ensure the safety of human health and the environment.

When deemed to be at the end of their life all Trans-Logik products must be returned to Trans-Logik or an appointed agent for correct recycling and disposal.

For more information on WEEE or the correct disposal of this product please contact your local authority, waste disposal service, product retailer or the manufacturer of the equipment.

OTTERBOX 1900 COMPATIBILE POCKET PC'S

Although Trans-Logik recommend using the HP iPaq range of Pocket Pc's with the PL1BT Kit the Otterbox is compatible with a wide range of other Pocket Pc's. The following table lists other compatible models:

BRAND	MODEL	ACCESSORY	FIT IN 1900	TESTED	NOTES
Acer	n10		Y	N	
	n20 and n20w		Y	N	
	n30		Y	N	
Asus	MyPal 600		Y	N	
	MyPal 620/620BT		Y	N	
Audiovox	2032 & 2032SP		Y	N	Antenna may be a problem in the standard case and might require a medium POD to fit
	1032C		Y	N	
	PPC4100		Y	N	Antenna may be a problem in the standard case and might require a medium POD to fit
	PPC5050BM		Y	N	Antenna may be a problem in the standard case and might require a medium POD to fit
	PPC6600/01/00WOC		Y	N	Unit cannot be slid open in case and therefore the keyboard will not be usable in the case
Dell	Axim X3/X3i		Y	Y	
	Axim X30		Y	Y	
	Axim X50/X50v		Y	Y	
Fujitsu	Loox 400 Series		Y	N	
	Loox 600 Series		Maybe	N	Not tested and very close on length. May require medium POD lid to clear antenna
	Loox 700 Series		Y	N	
Garmin	iQue M5		Y	N	In order to have antenna unfolded, a large POD will be required
					Based on dimensions the thickness will be a tight fit, needs testing to know for sure
	iQue 3200		Y	N	In order to have antenna unfolded, a large POD will be required
	iQue 3600		Y	Y	In order to have antenna unfolded, a large POD will be required
HP	iPAQ 1700 Series		Y	Y	
	iPAQ 1900 Series		Y	Y	
	iPAQ 2100 Series		Y	Y	
	iPAQ 2200 Series		Y	Y	
	iPAQ 2400 Series		Y	Y	
	iPAQ 2400 Series	SD/CF WiFi Cards	Y	Y	Fits in the 1900 case with the standard POD lid that is included with the case
	iPAQ 2700 Series		Y	Y	
	iPAQ 3100 Series		Y	Y	
	iPAQ 3700 Series		Y	Y	
	iPAQ 4100 Series		Y	Y	
	iPAQ 4700 Series		Y	Y	We highly recommend using a 4700 custom screen (see accessories) for best functionality
	iPAQ 5100 Series		Y	Y	
	iPAQ 5500 Series		Y	Y	Includes 5555 model - a sleeve cannot be used in conjunction with this case (see 3600)
	iPAQ 6300 Series		Y	Y	Keyboard cannot be used with case
Mitac	Mio168		Y	N	Antenna cannot be unfolded because it does not fold fully flat
	Mio336		Y	N	
	Mio558		Y	N	
Navman	PiN		Y	N	Should fit, but we are unsure about the antenna situation on this model
O2	XDA		Y	N	
	XDAII		N	Y	PDA is too thick
Palm	Zire 21		Y	N	
	Zire 31		Y	N	
	Zire 72		Y	N	
	Tungsten E		Y	N	
	Tungsten T3		Y	N	Should fit fine when closed, but we are unsure about it when open
	Tungsten T5		Y	N	
	Tungsten C		N	N	Keyboard is too wide for the screen opening
	Treo 600 & 650		Y	Y	
Panasonic	P1		N	N	
Qtek	2020		Y	N	
Tapway	Zodiac		Y	N	Should fit dimensionally, but button access may be questionable in landscape format
Toshiba	e400		Y	N	
	e800		Y	N	

TYRE PROBE BLUETOOTH COMMAND SET

Introduction

This appendix details the commands that can be transmitted/received from the Trans-Logik Bluetooth enabled tyre and pressure measuring probe, hereafter called the Tyre Probe.

Hardware

The Probe contains a TDK Bluetooth transceiver that presents itself to a PC as a serial device. The serial device can be connected using the following settings

Baud Rate	9600
Data Bits	8
Parity	None
Start Bits	1
Stop Bits	1

Bluetooth Connection

The Probe can connect to any Bluetooth enabled PC or Pocket PC. The Probe device will display on the PC as “Pneu Logic Probe Dnnnnnn” where nnnnnn is a six character string. When selected the service supplied by the Probe device is “Tyre Probe on Pneu Logic Probe Dnnnnnn” this is a serial port and can connect to any serial terminal program when a pairing is made. When the Probe is paired with the PC a PIN may be asked for, this has been factory set to “1234”.

The data from the probe is transmitted via the bluetooth in 10 Bit ASCII Text Format and allows the full range of the A/D module to be utilised and for the data to be viewed in a terminal program as ASCII data, the data is transmitted in the following format:-

Command	<varies>
Thousands	decimal number 0 - 9 (30 - 39 hex)
Hundreds	decimal number 0 - 9 (30 - 39 hex)
Tens	decimal number 0 - 9 (30 - 39 hex)
Units	decimal number 0 - 9 (30 - 39 hex)
Terminator	<cr> (0D Hex)

Normal Operation

The Probe is simple to operate, when a connection has been made the tread depth and pressure of a tyre can be sent by taking samples using the Probe. When the tread depth or pressure has stabilised the reading is sent automatically via the Bluetooth link.

Receive Data Format

This section details the data format used to transmit commands to the Probe from the PC. The PC transmits commands to the Probe using the following format:-

START byte	A2 (hex)
Command	varies
STOP byte	A7 (hex)

Receive Commands

The commands currently accepted by the Probe are as follows:-

W (57 hex)	Wakeup/Shut down
A (41 hex)	Acknowledge
F (46 hex)	Negative Acknowledge
L (4C hex)	Learn the RF ID
Q (51 hex)	Query the RF ID

Transmit Data Format

This section details the data format used to transmit commands from the Probe to the PC. The Probe transmits it's data to the PC using the following formats.

- ACK Command

The probe may acknowledge a command with the following ACK command:-

START byte	A2 (hex)
Command	A (41 hex)
STOP byte	A7 (hex)

- Pressure Reading

The Probe will transmit a pressure reading in the following format:-

START byte	A2 (hex)
Pressure	P (50 hex)
Space	(A5 hex)
Thousands	decimal number 0 - 9 (30 - 39 hex)
Hundreds	decimal number 0 - 9 (30 - 39 hex)
Tens	decimal number 0 - 9 (30 - 39 hex)
Units	decimal number 0 - 9 (30 - 39 hex)
STOP byte	A7 (hex)

- Tread Depth Reading

The Probe will transmit a tread depth reading in the following format:-

START byte	A2 (hex)
Tread Depth	T (54 hex)
Space	(A5 hex)
Thousands	decimal number 0 - 9 (30 - 39 hex)
Hundreds	decimal number 0 - 9 (30 - 39 hex)
Tens	decimal number 0 - 9 (30 - 39 hex)
Units	decimal number 0 - 9 (30 - 39 hex)
STOP byte	A7 (hex)

☞ Enhanced Operation

The Bluetooth enabled Probe contains a number of enhancements that are not available in the RF version of the Probe. These enhancements allow commands to be sent to the Probe to change various options and to query the state or readings from the Probe.

D - Device Number

This command allows the device number of the Probe to be viewed. The device number presented to the Pc is "Pneu Logic Probe Dnnnnnn", where nnnnnn is a six character string.

Cmd	Description	Probe Response
D	View Device Number	Dnnnnnn

I - Idle Timer

This command allows the user to set the Idle Timer time in minutes. The idle timer is used by the probe to shut down the probe if there has been no activity for "x" minutes. Setting the idle timer to "0" will disable the idle timer.

Cmd	Description	Probe Response
I	View Current Idle Time	Innn
Innn	Set Idle Time	-
I0	Disable Idle Timer	-

L - Operation Counter

This command allows the user view how many measurement operations have been performed. This feature is useful to determine the service interval of the unit. The count is output as a hexadecimal number(E.g. "DA" is 218 operations).

Cmd	Description	Probe Response
LT	View Tread Operations	Lnnnn
LP	View Pressure Operations	Lnnnn
LTC	Reset Tread Counter	-
LPC	Reset Pressure Counter	-

N - "Click" Mode Feature

This command controls the "Click" mode feature and enables you to turn the feature on or off as desired.

Cmd	Description	Probe Response
NTE	Enable "Click" Mode	-
NTD	Disable "Click" Mode	-
NT?	View "Click" Mode setting	Ntn (E=enabled, D=disabled)

P - Pressure Reading

This command transmits the Pressure reading for the Probe. The value nnnn will vary based on the units of measurement selected, if Actual A/D Readings then nnnn will represent the voltage detected at the Pressure Sensor and will be a whole number. If any other measurement, PSI or BAR, is selected then nnnn will be a decimal number (i.e. 0.166).

Cmd	Description	Probe Response
P	View Pressure Reading	Pnnnn

T - Tread Depth Reading

This command transmits the Tread Depth reading for the Probe. The value nnnn will vary based on the units of measurement selected, if Actual A/D Readings then nnnn will represent the voltage detected at the Tread Depth Sensor and will be a whole number. If any other measurement, mm or inches, is selected then nnnn will be a decimal number (i.e. 16.00).

Cmd	Description	Probe Response
T	View Tread Depth Reading	Tnnnn

X - Recalibrate

This command allows the user to view or re-calibrate the Probe's internal references that are used in the calculations for the units of measurements. The internal references that can be viewed or re-calibrated are as follows:-

1. Idle Tread Depth level
2. Idle Pressure Level
3. 0mm Tread Depth Reading
4. 16mm Tread Depth Reading
5. 0 PSI Pressure Reading
6. 100 PSI Pressure Reading

Cmd	Description	Probe Response
X	View internal References	X[1]nnnn X[2]nnnn X[3]nnnn X[4]nnnn X[5]nnnn X[6]nnnn
X1	Set Idle Tread Depth level	
X2	Set Idle Pressure level	
X3	Set 0mm Tread Depth level	
X4	Set 16mm Tread Depth level	
X5	Set 0 PSI Pressure level	
X6	Set 100 PSI Pressure level	
XC	Clear values in X3 to X6	

U - Units of Measurement

This command allows the Probe's units of measurements to be viewed or changed. The units of measurement can be changed for both the Tread Depth and Pressure readings, the units allowed are as follows:-

A	Actual A/D Readings
M	Tread reading in mm
I	Tread reading in inches
P	Pressure reading in PSI
B	Pressure reading in BAR

For the mm/inches PSI/BAR units of measurement to operate correctly the Probe must be re-calibrated with two references for the Tread Depth (0 and 16mm) and Pressure (0 and 100 PSI) using the X command.

If these references and report types are not set then the Probe will revert to Actual A/D Readings.

Cmd	Description	Probe Response
U	View units of measurement	UTn Upn
UTA	Set Tread Depth to Actual	
UTM	Set Tread Depth to mm	
UTI	Set Tread Depth to inches	
UPA	Set Pressure to Actual	
UPP	Set Pressure to PSI	
UPB	Set Pressure to BAR	

V - Software Version

This command transmits the Version number of the software running on the Probe.

Cmd	Description	Probe Response
V	View Software Version	Vxx.yy (dd-mm-yy)

UPDATING THE TYRE PROBE FIRMWARE

The Tyre Probes contain software on an embedded microcontroller which enables the probe to function. This software is called firmware. From time to time as the product is improved we release updated versions of the firmware which may include new features, enhanced features or bug fixes. To see the benefits of our improvements the firmware on your probe will require updating. Probe versions 103, 104 & 105 support "Bluetooth Updating", where the firmware can be upgraded wirelessly using the Bluetooth connection. All you require to do this is a standard Windows based desktop PC or Laptop which has Bluetooth capability, our "Bluetooth Updater" software and a file containing the new firmware. Bluetooth capability can be added to most current Windows PC's using an inexpensive Bluetooth USB adaptor. Using this method it should take less than 10 minutes to update the Firmware.

Requirements:

- ·A Windows based desktop PC or Laptop.
- ·Bluetooth capability on the PC or Laptop (e.g. with a USB Bluetooth Adaptor).
- ·Bluetooth Updater Software (Ensure you have the latest version for 105 probes)
- ·New firmware file (e.g. P105_401.HEX).
- ·Probe for updating (Hardware Version PL1BT105 ONLY).
- ·Probe battery charger (e.g. Charger in Carry Case).

Important Notice:

- **Always use the latest version of the Bluetooth Updater Software that is avaiable.**
- **The Probe will only successfully update if it is connected to the charger. Failure to do this during update could cause the process to fail and may even damage the firmware in the probe, which will make the probe unuseable.**
- **If for any reason the probe fails to program the updater software will show a red cross to indicate an error. If the probe had started the program cycle before it failed then the probe will remain in "Updating mode" until a successfull update has occured. If this happenns then simply try the process again.**

To update the firmware you need to;

- Install the Bluetooth Updater Software.
- Pair the probe to the Bluetooth enabled PC.
- Open and connect to the Bluetooth Virtual Serial Port.
- Run the Bluetooth Updater Application.
- Enter the correct COM Port number of the connection and click "Program".
- When prompted select the new HEX file and click "Open".
- The probe should now update. This should take between 2-10 minutes.
- When the probe is updated the Updater Application should show a green tick and the probe will reset.

The Firmware Updater Software and update HEX files should be available to download off the Trans-Logik website. Alternatively you can contact Trans-Logik for an update kit. More detailed information and instructions can be also found on the Trans-Logik website.