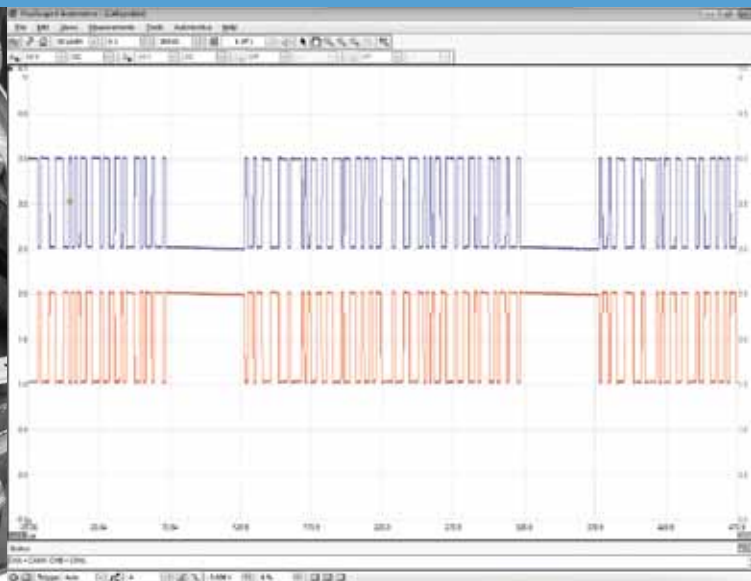


PicoScope® Oscilloscope Diagnostics



WHETHER YOU'RE A BUSY WORKSHOP, AUTOMOTIVE TECHNICIAN OR VEHICLE MANUFACTURER, OUR VEHICLE DIAGNOSTICS EQUIPMENT WILL HELP YOU TO SAVE TIME AND MONEY.

The Pico Automotive Diagnostics Kit turns your laptop or desktop PC into a powerful automotive diagnostic tool for fault-finding the increasing number of sensors, actuators and electronic circuits found on today's vehicles. Pico Technology offers a range of kits

to suit any budget, from our 2-channel Starter kit which gives you all the basics, to the Advanced kit which contains everything you would need to carry out your diagnostics work. The different kits and their contents are listed below:

2-CHANNEL STARTER KIT 4-CHANNEL STARTER KIT



2-CHANNEL

PicoScope 4223 oscilloscope,
1 x black TA005 & 1 x red TA006 dolphin clips
Premium test lead: BNC to 4mm blue TA125 (fixed ground)
Premium test lead: BNC to 4mm red TA126 (removable ground)
1 x red multimeter probe TA002, Acupuncture probe set TA008,
USB Cable MI106, Quick start guide, Carry case MI209
Automotive software CD, Training DVD DI090

4-CHANNEL

PicoScope 4423 oscilloscope,
1 x black TA003 & 1 x red TA004 small croc clips
1 x black TA005 & 1 x red TA006 dolphin clips
Set of 4 Premium test leads: BNC to 4mm PP718
1 x black TA001 & 1 x red TA002 multimeter probes
Acupuncture probe set TA008, 2 x 20:1 attenuators TA010
USB Cable MI106, Quick start guide, Carry case MI209
Automotive software CD, Training DVD DI090

2-CHANNEL or 4-CHANNEL STANDARD KIT



2-CHANNEL

Contains all the items in the 2-channel starter kit plus:
60 A current clamp TA018, 600 A current clamp TA019
2 x secondary ignition pick-up leads PP178
1 x black TA003 & 1 x red TA004 small croc clips
1 x black multimeter probe TA001
Two-pin breakout lead TA012
2 x 20:1 attenuators TA010
S-hook MI168

4-CHANNEL

Contains all the items in the 4-channel starter kit plus:
60 A current clamp TA018, 600 A current clamp TA019
4 x secondary ignition pick-up leads PP178
1 x black TA001 & 1 x red TA002 multimeter probes
1 x black TA003 & 1 x red TA004 small croc clip
Two-pin breakout lead TA012
2 x 20:1 attenuators TA010
S-hook MI168

2-Ch £575 \$978.75 €695.75

4-Ch £975 \$1608.75 €1179.75

ORDER CODE PP854 Starter 2-Channel Scope Kit
PP855 Starter 4-Channel Scope Kit

2-Ch £975 \$1,608.75 €1,179.75

4-Ch £1395 \$2,301.75 €1,687.95

ORDER CODE PP856 Standard 2-Channel Scope Kit
PP857 Standard 4-Channel Scope Kit

OUR AWARD-WINNING AUTOMOTIVE OSCILLOSCOPES WORK WITH ANY BIKE, CAR OR TRUCK AND MAKE IT EASIER – AND FASTER – FOR YOU TO FIND FAULTS, SAVING YOU AND YOUR CUSTOMERS TIME AND MONEY

The automotive kit is based around the highly successful range of PicoScope automotive diagnostic oscilloscopes. These high resolution PC oscilloscopes connect to a USB port on your PC and can take up to 32 million samples per trace, making it possible to

capture complex automotive waveforms – including CAN bus and FlexRay signals – and then zoom in on areas of interest. Being PC-based these waveforms can then be saved to your PC for future reference, printed or emailed.

4-CHANNEL ADVANCED KIT



Contains all the items in the 4-channel standard kit, plus:

- Extra 60 A current clamp TA018
- 2 x Fuse extension leads PP408
- Coil-on-plug (COP) probe PP338
- 4 x COP extension leads PP399
- 2 x Insulation-piercing probes TA007
- 2 x 60 MHz scope probes MI007
- Set of 4 universal breakout leads PP609, PP324, PP325, PP326
- Protective rubber case PP691
- Professional carry case MI211

COMMERCIAL VEHICLE KIT



PicoScope 4423 4-channel automotive oscilloscope
 2000 A AC/DC current clamp TA015
 60 A AC/DC current clamp TA018
 Set of 4 Premium test leads: BNC to 4mm PP718
 2-pin breakout lead TA012
 4 x 20:1 attenuator TA010
 8 x Multimeter probes (4 black TA001, 4 red TA002)
 4 x Small crocodile clips (2 black TA003, 2 red TA004)
 2 x Dolphin clips (1 black TA005, 1 red TA006)
 Acupuncture probe set TA008
 2 x Secondary ignition pickup leads PP178
 Automotive software CD
 Training DVD DI090
 Quick start guide
 Durable carry case MI216
 USB Cable MI106
 S-hook MI168

£1995 \$3,291.75 €2,413.95

ORDER CODE PP537 Advanced 4-Channel Scope Kit

£1395 \$2,301.75 €1,687.95

ORDER CODE PP862 CV 4-Channel Scope Kit

All prices exclude VAT

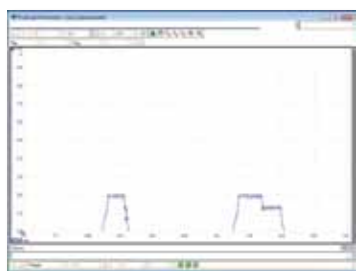
PICKED YOUR KIT? NOW MAKE SURE YOU HAVE THE RIGHT ACCESSORIES TO GO WITH IT...

The Pico range of automotive accessories is ideal for use with PicoScope automotive diagnostics kits, automotive oscilloscopes and other labscopes. Over the next few pages you will find a full list of all the accessories we offer. The items that are included in the six

kits have a colour coded circle next to them to indicate this.

○ 2-Channel Starter kit ● 4-Channel Starter kit ● Standard kits
● 4 Channel advanced kit ● Commercial vehicle kit

60 A CURRENT CLAMP

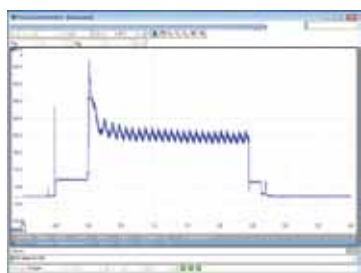


The 60 A current clamp allows you to measure current up to 60 amps in a wire without cutting, disconnecting or stripping the wire. It plugs directly into the PicoScope, and is ideal for measuring current waveforms from fuel pumps, injectors and ignition coils. When the correct preset test is selected, PicoScope shows current readings in amps.

● ● ● BNC 60 A current clamp PP264 £99 \$163.55 €119.79



600 A CURRENT CLAMP

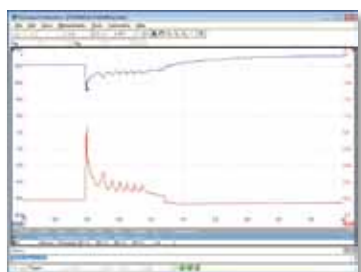


The 600 A current clamp allows you to measure current up to 600 amps in a wire without cutting, disconnecting or stripping the wire. It plugs directly into the PicoScope, and is ideal for starter current waveforms, charging and relative compression test. When the correct preset test is selected, PicoScope shows current readings in amps.

● ● BNC 600 A current clamp PP266 £99 \$163.55 €119.79



2000 A CURRENT CLAMP



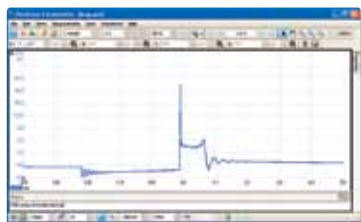
The 2000 A heavy duty current clamp allows you to measure current up to 2000 amps in a wire without cutting, disconnecting or stripping the wire, and is ideal for measuring the high currents drawn by the starter motor of commercial vehicles. Use a BNC to 4mm test lead to connect it to the PicoScope. When the correct preset test is selected, PicoScope shows current readings in amps.

● 4mm 2000 A current clamp PP253 £99 \$163.55 €119.79



Unlike many competing products, all our clamps are carefully screened to keep out noise, giving clearer waveforms and more accurate readings. Recommended for use with PicoScope.

SECONDARY IGNITION PICKUP

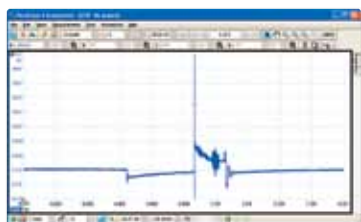


The secondary ignition pickup enables the PicoScope to measure high-tension (HT) voltages in secondary ignition circuits. It clips onto the HT lead with no need to disconnect the lead. The lead includes a ground clip that you must always connect to battery negative (earth) to prevent stray voltages from damaging the PicoScope.



● ● ● Secondary ignition pickup PP178 £35 \$57.75 €42.35

COIL-ON-PLUG (COP) PROBE

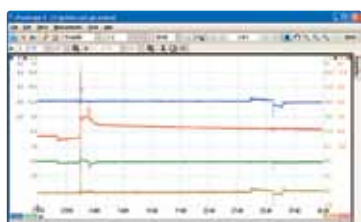


The Coil-on-Plug (COP) probe can pick up secondary ignition waveforms from most coil-on-plug or coil-per-cylinder systems where there are no exposed HT leads. The signal is displayed in PicoScope as kilovolts (kVs).



● Coil-on-plug probe only PP338 £95 \$156.75 €114.95
 ● BNC to BNC cable with ground clip TA033 £15 \$24.75 €18.15
 Coil-on-plug probe kit PP357 £105 \$173.25 €127.05

COIL-ON-PLUG (COP) PROBE EXTENSION LEADS

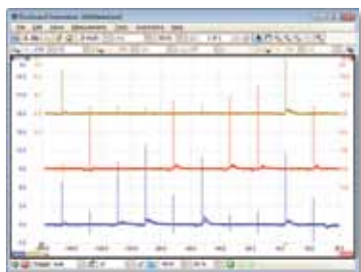


These extension leads give access to the HT (secondary) ignition circuit in coil-on-plug engines. Fit the COP Extension Lead between the coil and the plug, then place a PP178 Secondary Ignition Pickup on the lead to pick up the HT pattern on your PicoScope. Includes an earth (ground) wire to ensure safety.



● Earth wire for coil pack TA106 £7 \$24 €18
 COP extension leads each PP399 £24.99 \$41.23 €30.24
 ● COP extension leads x4 & Earth wire PP400 £95 \$156.73 €114.94

MIXMASTER



The Mixmaster can display up to 12 secondary ignition signals in a parade display on your PicoScope. It is supplied with 4 secondary ignition pickup leads. Additional leads are available separately.



Mixmaster PP361 £225 \$371.25 €272.25
 Extra pack of 4 short secondary ignition pickups
 PP339 £60 \$99 €72.60



INDUCTIVE PICK UP

Detects currents in injector wires, providing a cylinder ID signal for the ACE Misfire Detective software.

Inductive pick up TA032 £45 \$74.25 €54.45

ACUPUNCTURE PROBE SET



The acupuncture probes slide under the insulation of multi-plug terminals from behind the plug, allowing you to pick up signals without stripping wires or disconnecting plugs. This technique is sometimes called back-pinning. Each probe fits onto the 4-mm plug of our BNC to 4mm test leads. A storage box containing spare pins and screws is included.

○ ● ● ● ● Acupuncture probe set TA008 £29 \$47.85 €35.09

MULTIMETER PROBES



These probes fit all our BNC-to-4-mm test leads. They are used to make contact with exposed wires and terminals

● ● ● ● ● Multimeter probe (black) TA001 £4 \$6.60 €4.84
○ ● ● ● ● Multimeter probe (red) TA002 £4 \$6.60 €4.84

LARGE DOLPHIN CLIPS



These clips fit all our BNC-to-4-mm test leads. They are used to make contact with exposed wires and terminals, including battery terminals. For smaller terminals, use the TA003 and TA004 small crocodile clips.

○ ● ● ● ● Large dolphin clip (black) TA005 £5 \$8.25 €6.05
○ ● ● ● ● Large dolphin clip (red) TA006 £5 \$8.25 €6.05

SMALL CROCODILE CLIPS



These clips fit all our BNC-to-4-mm test leads. They are used to make contact with exposed wires and terminals. For larger terminals, use the TA005 and TA006 large crocodile clips.

● ● ● ● ● Small croc clip (black) TA003 £3 \$4.95 €3.63
● ● ● ● ● Small croc clip (red) TA004 £3 \$4.95 €3.63

INSULATION PIERCING CLIPS



When there is no other way to get to a wire, clamp one of these on and a sharp pin pierces the insulation. Accepts 4mm plugs. Sold as a pair (1 red, 1 black)

● Insulation piercing clips TA007 £25 \$41.25 €30.25

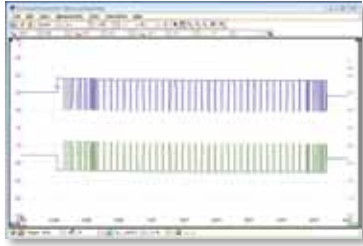
SPRUNG HOOK PROBES



These probes fit all our BNC-to-4-mm test leads. They allow you to make hands-free contact with exposed wires and terminals

Sprung hook probe (black) TA089 £4 \$6.60 €4.84
Sprung hook probe (red) TA090 £4 \$6.60 €4.84

60 MHZ OSCILLOSCOPE PROBE



This 60 MHz oscilloscope probe is used for accurately measuring fast signals like CAN bus and FlexRay. Standard BNC plug 1.2m long.

● 60 MHz oscilloscope probe
MI007 £15 \$24.75 €18.15



DIFFERENTIAL PROBE



The active differential probes lets you measure higher voltage and are ideal for hybrid and electric vehicles. These probes have a bandwidth of 25 MHz, with differential voltage ranges of 700V or 1400V.

700V differential probe TA041 £195 321.75 €235.95
1400V differential probe TA057 £220 \$363 €266.20

4 MM SHROUDED TO UNSHROUDED ADAPTORS



Converts the shrouded 4-mm (banana) plug on our test leads to an unshrouded plug for use with vehicle manufacturers' breakout boxes.

4mm shrouded to unshrouded adaptor (black)

TA016 £1 \$1.65 €1.21

4mm shrouded to unshrouded adaptor (red)

TA017 £1 \$1.65 €1.21

BNC PLUG TO 4 MM ADAPTOR



This handy adapter converts a BNC input to two 4-mm sockets, enabling you to plug accessories equipped with 4-mm plugs into the PicoScope

BNC plug to 4mm adaptor MI078 £10 \$16.50 €12.10

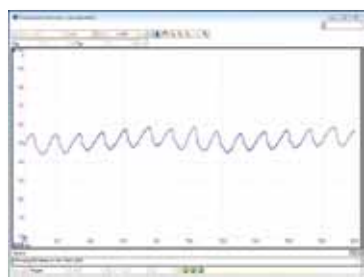
6-WAY UNIVERSAL BREAKOUT LEADS



No need to pierce insulation or back-pin connectors. Fully shrouded and insulated for safety. These breakout leads simply connect into the existing cable loom and enable voltage readings to be taken from numerous sensors in the engine compartment

- Micro 0.6mm PP609 £49 \$80.85 €59.29
- Small 1.5mm PP324 £49 \$80.85 €59.29
- Medium 2.3mm PP325 £49 \$80.85 €59.29
- Large 2.8mm PP326 £49 \$80.85 €59.29
- Breakout lead kit (S, M, L) PP327 £129 \$212.85 €156.09

FUSE EXTENSION LEADS



ATS and mini-ATS sizes for common fuses. Use with the 60 amp clamp to measure fuse current.

- Fuse extension leads PP408 £29.50 \$48.67 €35.70

2-PIN BREAKOUT LEAD



For standard 2-pin sensors and actuators. With 4mm plugs to connect to PicoScope test leads.

- 2-pin breakout lead TA012 £25 \$41.25 €30.25

BASIC BNC TO 4 MM TEST LEAD



Custom-made for automotive diagnostics. 3m and 5m long versions available. Fully screened to reduce noise pickup.

- 3m test lead TA000 £20 \$33 €24.20
- 5m test lead TA020 £30 \$49.50 €36.30

PREMIUM TEST LEADS



Premium test lead: BNC to 4mm blue (fixed ground)

- ● ● ● ● TA125 £30 \$49.50 €36.30

Premium test lead: BNC to 4mm red (removable ground)

- ● ● ● ● TA126 £30 \$49.50 €36.30

Premium test lead: BNC to 4mm green (removable ground)

- ● ● ● ● TA127 £30 \$49.50 €36.30 *not in 2-channel standard kit

Premium test lead: BNC to 4mm yellow (removable ground)

- ● ● ● ● TA128 £30 \$49.50 €36.30 *not in 2-channel standard kit

Set of four premium test leads (one of each)

- PP718 £100 \$165 €121

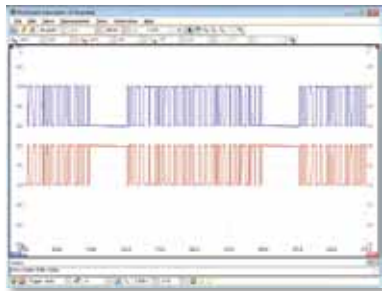
USB CABLE



A high-quality cable designed to ensure reliable signal & power connections between your PC and PicoScope

- ● ● ● ● 1.8m USB Cable MI106 £5 \$8.25 €6.05
- 4.5m USB Cable £10 \$16.50 €12.10

CAN TEST BOX



The CAN Test Box allows you to connect your PicoScope oscilloscope to the 16 pin diagnostic connector enabling you to monitor any signals present, such as the CAN High and Low signals. The CAN Test Box terminal pin ports are accessible with standard 4 mm plugs.

The CAN Test Box uses numbered backlit LEDs which illuminate when signal data is present on the corresponding pin of the Data Link Connector (subject to the vehicle manufacturer's specification). Pulsing LEDs indicate signals alternating high and low.

The CAN Test Box is fitted with a 2.5 metre (8.2 feet) cable so that you can work in a convenient location away from the diagnostic connector, and an additional pass-through connector so that you can hook up your scan tool at the same time as your scope. The box is powered by the diagnostic connector, so no batteries or mains adaptor are needed.

THE LEDS INDICATE THE FOLLOWING SIGNALS:

- | | |
|-----------------|---|
| • LED 1/9 | 485A/485B |
| • LED 2/10 | Bus+/Bus- lines J1850 |
| • LED 3/8/12/13 | Future upgrade |
| • LED 4 | Chassis GND (Ground) |
| • LED 5 | Signal GND |
| • LED 6/14 | CAN High/Low of SAE J2284 |
| • LED 7/15 | K/L Lines of ISO9141-2 and keyword 2000 |
| • LED 11 | Clock |
| • LED 16 | Batt+ (Voltage supply) |

CAN Test Box PP619 **£149 \$245.85 €180.29**

20:1 ATTENUATOR



Increases the input range to 300 V.
For measuring fuel injector and primary ignition voltages.

●●●● 20:1 Attenuator (each) PP198 **£49 \$80.85 €59.29**

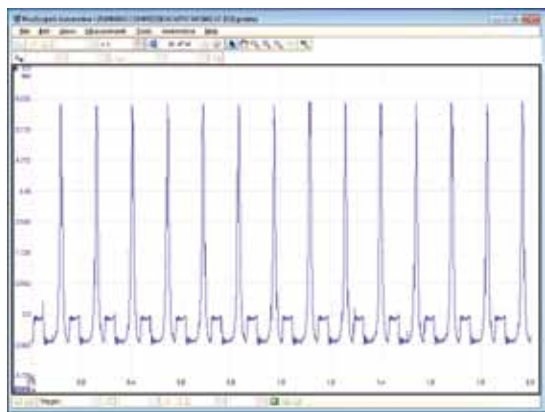
FIRSTLOOK ENGINE DIAGNOSTIC SENSOR



The FirstLook pressure sensor detects pressure and vacuum pulses in the inlet manifold and the exhaust tailpipe. When viewed on the PicoScope display, these pulses can give valuable diagnostic information. Can also be used with the TA040 ACE Misfire Detective software to automatically identify misfires.

FirstLook engine sensor TA014 **£269 \$443.85 €325.49**

WPS500X PRESSURE TRANSDUCER



With the uncompromising resolution and accuracy of the WPS500X automotive pressure transducer you can perform quick and accurate pressure analysis of many automotive systems.

- Accurately measure up to 500 psi
- Ultra-fast 100 μ s response time
- Zoom function for enhanced analysis capabilities
- Rechargeable LiPo battery
- Integrated pressure relief / bleed-off valve
- Auto zeroing
- High noise immunity
- Temperature compensated

The WPS500X features an extremely fast 100 μ s response rate from 0% to 90% of full scale and sensitivity down to about 0.07 psi (5 mbar). This provides you with an accurate representation of rapidly changing signals that span across a broad pressure range.

The product includes:

- WPS500X Pressure Transducer
- Carry case
- USB cable TA081
- BNC to BNC cable TA098

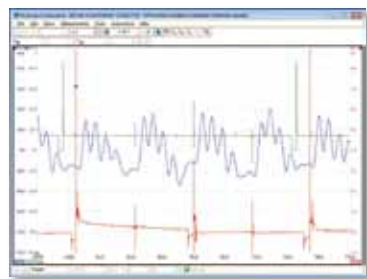
WPS500X pressure transducer PP652 £465 \$767.25 €562.65

WPS500X pressure transducer kit PP836 £655 \$1080 €795

KIT CONTAINS: WPS500X low pressure transducer, Carry case
USB cable TA081, Fuel hose large Schrader TA083, Fuel hose small Schrader TA117,
Vacuum hose TA085, Bleed hose TA086, Exhaust adaptor TA087, Compression
Hoses 10mm TA103, 14mm TA088 & Ford Triton TA105, BNC to BNC cable TA098,
Universal vacuum brass adaptor TA129.



VACUUM HOSE



This hose allows you to connect to the intake manifold for vacuum testing.

Vacuum hose TA085 £10 \$16.50 €12.10

BRASS ADAPTOR



To use with the TA085 vacuum hose as a step down into different size hoses.

Brass Adaptor TA129 £10 \$16.50 €12.10

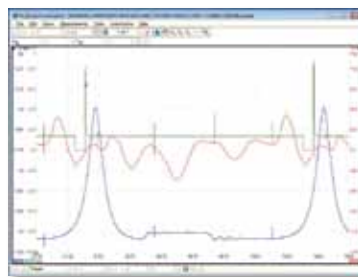
BLEED HOSE



Fits on the PP652 WPS500X pressure transducer's bleed port, allowing you to drain off fluid cleanly.

Bleed hose TA086 £9 \$14.85 €10.89

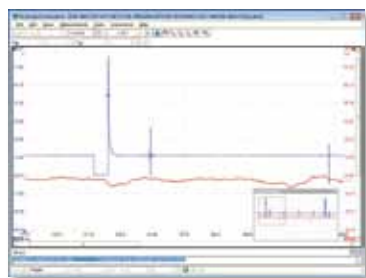
EXHAUST ADAPTOR



Insert this hose into the tailpipe to detect engine misfires.

Exhaust adaptor TA087 £18 \$29.70 €21.78

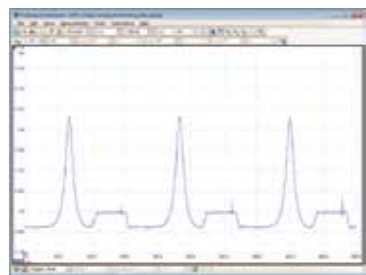
FUEL HOSES



Enables connection to fuel systems with WPS500X
See vehicle manufacture data sheets.

Fuel hose with large Schrader valve TA083 £20 \$33 €24.20
Fuel hose with small Schrader valve TA117 £20 \$33 €24.20
Set of 2 fuel hoses PP794 £36 \$59.40 €43.56

HIGH STRENGTH COMPRESSION HOSES



TA104

These specially designed compression hoses allow the WPS500X to be used for high pressure tests such as cranking and running cylinder compression or fuel pressure testing. Use to investigate compression issues, blocked catalytic converters, restricted air intakes and many other problems such as cam timing and valve issues.

10mm compression hose TA103 £39 \$64.35 €47.19
14mm compression hose TA088 £39 \$64.35 €47.19
Ford Triton compression hose TA105 £39 \$64.35 €47.19
18mm compression hose TA104 £39 \$64.35 €47.19

PICOSCOPE POLO SHIRT

Available in
M: To fit chest size: 38-40 in/90-100cm
L: To fit chest size: 41-43 in/102-107cm
XL: To fit chest size: 44-46 in/110-115cm
2XL: To fit chest size: 47-49 in/117-122cm

Polo shirt MI257 £32.50 \$54 €39
State size when ordering



CARRY CASES



The hard outer shell of these cases protects your kit from the inevitable knocks and bumps of workshop life.

● ● ● Standard carry case PP207 £50 \$82.50 €60.50
● Professional carry case PP607 £99 \$163.35 €119.79
● Commercial Vehicle carry case PP608 £50 \$82.50 €60.50

PROTECTIVE RUBBER BOOT



A rubber case to help protect your PicoScope from accidental damage. The boot incorporates a hanging bracket allowing you to hang your scope under the hood.

● Rubber boot PP691 £20 \$33 €24.20
Replacement hanging bracket MI254 £2 \$3.30 €2.42

S-HOOK

Use this S-hook to keep test leads tidy in the engine bay.



● ● ● S-hook MI168 £2 \$3.30 €2.42

TRAINING DVD



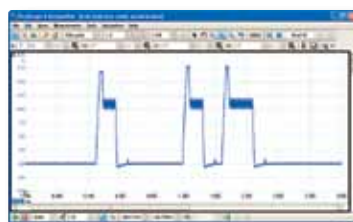
Designed to help you benefit from the extensive experience of Pico experts and users, troubleshooting problems in today's vehicles

● ● ● ● PicoScope Training Resources DVD DI090
£80 \$132 €96.80

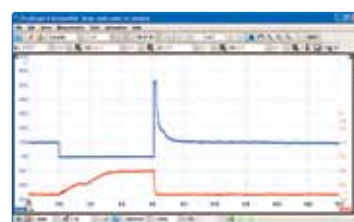
EXAMPLE WAVEFORMS AND TESTS



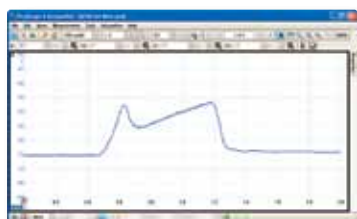
ABS



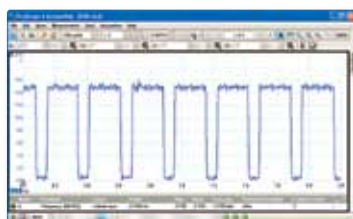
Diesel injectors



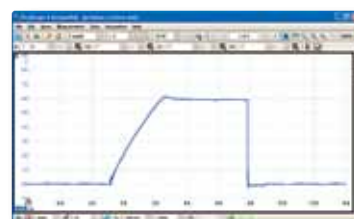
Petrol injectors



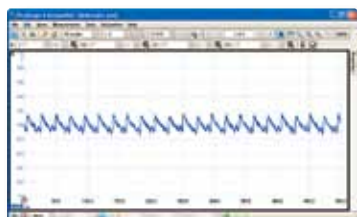
AFM (hot wire)



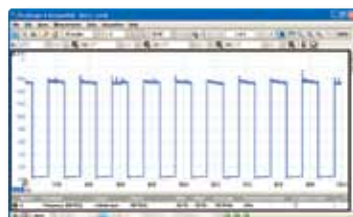
EGR valve



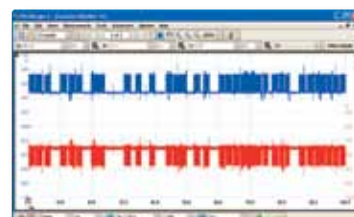
Primary ignition amps



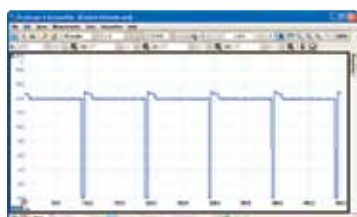
Alternator ripple



Idle speed control valve



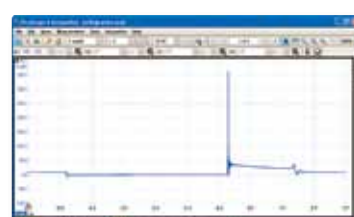
CAN bus



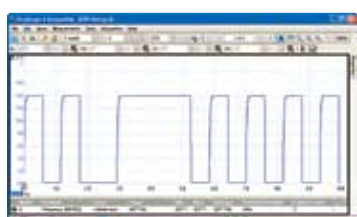
Carbon canister solenoid



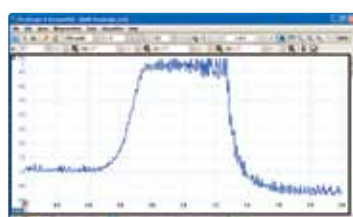
Knock sensor



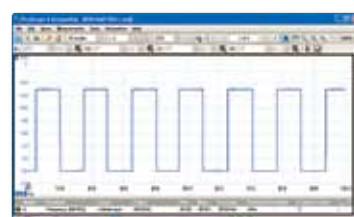
Primary ignition volts



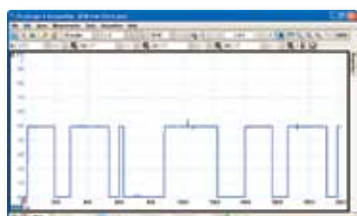
Crank sensor (Hall effect)



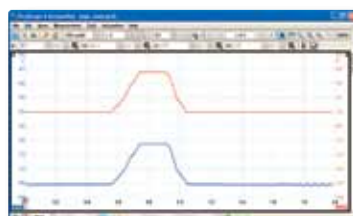
MAP sensor (analog)



Road speed sensor



Cylinder ID (Hall effect)



Pedal position sensor



FlexRay network