

PicoScope Diagnostics PC Oscilloscope Kit



Oscilloscope diagnostics for petrol and diesel vehicles



Save time, save money

The kit turns any PC or laptop with a USB port into a powerful automotive diagnostics tool.

Test and measure virtually all of the electrical and electronic components and circuits found in a modern vehicle, including:

- Ignition (Primary and Secondary)
- Injectors and Fuel Pumps
- Battery, Starter and Charging Circuits
- ABS sensors, Crank and Cam Sensors
- Lambda, Airflow, Knock and MAP Sensors
- Glow Plugs and Timer Relays
- Relative Compression
- CANbus, LIN bus and FlexRay

Increase your repair rate and keep your customers happy

- Achieve more first-time fixes
- Don't just rely on the fault code or even on guesswork: confirm the fault for yourself before replacing a part
- Hand over the vehicle to the customer with confidence
- Improve your understanding of engines and other components

The kit is suitable for a range of users including OEMs, franchised and non-franchised garages, breakdown and roadside recovery organisations, and mobile diagnostic and repair services.

Kit Contents



PicoScope 4423 4-Channel Kit Contents

- PicoScope 4423 automotive oscilloscope
- 60 A AC/DC current clamp
- 600 A AC/DC current clamp
- Two-pin break-out lead
- Acupuncture probe set
- Insulation-Piercing Probes
- 4 x 20:1 attenuators
- Dolphin clip (black)
- Dolphin clip (red)
- 4 x BNC to 4 mm test leads
- 4 x Secondary ignition pickup leads
- 2 x Small croc clips (red)
- 2 x Small croc clips (black)
- 2 x Multimeter probes (red)
- 2 x Multimeter probes (black)
- S-Hook
- Automotive software CD
- Vehicle Electronics Diagnostic Course CD
- USB cable
- Quick start guide
- Carry case

Additional Items in Advanced Kit

- Extra 60 A AC/DC current clamp
- 2 x Fuse buddies (ATC and mini ATC)
- COP probe
- 4 x Spark plug extension leads
- 2 x 60 MHz scope probes
- Set of 4 breakout cables

Scope Technical Specifications

- 2 or 4 channels
- High resolution
- Deep "always on" 32M sample memory
- ± 100 V max. input range
- 200 V input protection
- DC to 20 MHz frequency range
- 80 MS/s sampling rate
- Connected to and powered by USB 2.0
- Runs on Windows XP 32-bit, Windows Vista 32-bit & 64-bit



Ordering Information

Product	Order Code	Price (ex. VAT)
PicoScope 4423 Kit	PP495	£1395
PicoScope 4423 Scope	PP503	£799
PicoScope 4223 Kit	PP494	£975
PicoScope 4223 Scope	PP502	£499
Advanced Kit	PP537	£1995
PicoScope 3423 Scope	PP277	£699
PicoScope 3223 Scope	PP279	£399

Finance available. Please ask for details.

You can order each component in the kit separately if you require any extra or replacement parts. Please visit our dedicated automotive website for more information:

www.picoauto.com

PicoScope Diagnostics

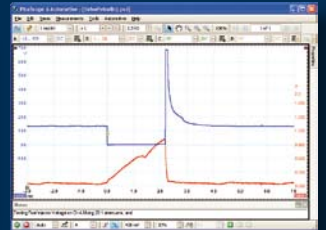
Supplied with all Pico Technology Diagnostics Kits, the PicoScope Automotive software is a powerful tool for capturing and viewing waveforms from almost any electrical or electronic system in today's motor vehicles. The software contains over 80 pre-loaded tests and reference waveforms under a simple "Automotive" menu. Each one launches a detailed help topic, and automatically sets up the oscilloscope and the software ready to acquire the waveform. You can easily save new waveforms to create your own reference library.



Example Waveforms and Tests

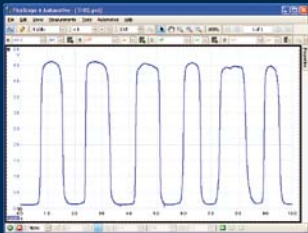
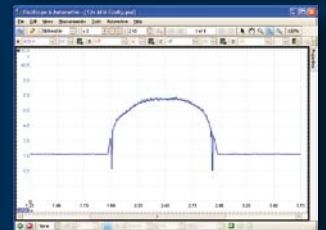
Injector Voltage and Current

The trace shows injector voltage (blue) and current (red). The dip in the current waveform occurs when the solenoid (pintle) opens and the fuel begins to flow. This test is ideal for identifying slow or sticking injectors without having to remove them from the engine.



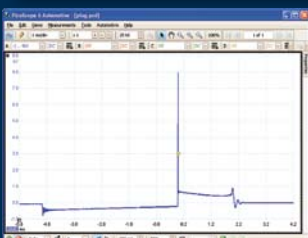
Air Flow Meter (air vane type)

This is a mechanical air flow meter in which a wiper moves across a carbon track. In this case the track has been worn away, leading to sudden drops in the waveform to zero volts. The fault will cause flat spots or hesitation during acceleration. The only solution is to replace the air flow meter.



Oxygen Sensor / Lambda Sensor

The waveform shows a titania-type sensor. When its output is high, indicating that the mixture is rich, the control unit adjusts the mixture until the sensor's output goes low, indicating that the mixture is lean. Oxygen sensors that are slow to respond require cleaning or replacement.

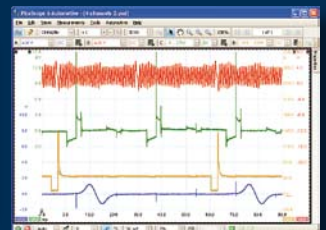


Secondary Ignition

The high resolution of the PicoScope Automotive Oscilloscope gives a detailed secondary ignition waveform. From this waveform you can measure the firing voltage, the burn time and the burn voltage. The coil oscillations are also clearly visible.

Cam, Crank, Secondary Voltage and Injector

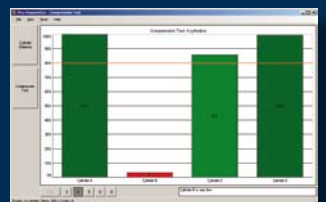
This trace shows four waveforms captured simultaneously: a camshaft sensor on channel A, a crankshaft sensor on channel B, a secondary ignition voltage on channel C and an injector voltage on channel D. These were captured from a 4-cylinder engine with a DIS wasted spark ignition system.



Relative Compression and Battery Test

The Pico Diagnostic software analyses relative compression automatically. There's no need to interpret complex waveforms: just run the program and read the report. You get a diagnostic chart that helps to explain your repair to the customer.

The same program also runs an automated battery test. You just start the engine and the program does the rest, giving you a detailed report on the state of the battery.



Free software upgrades are available to download from our website at:

www.picoauto.com

Automotive Support

Built-in Technical Library

Each Automotive Kit includes the full version of PicoScope Automotive with access to over 80 topics and waveforms.

Try before you buy: simply download a free copy of the software and let it run in demonstration mode.

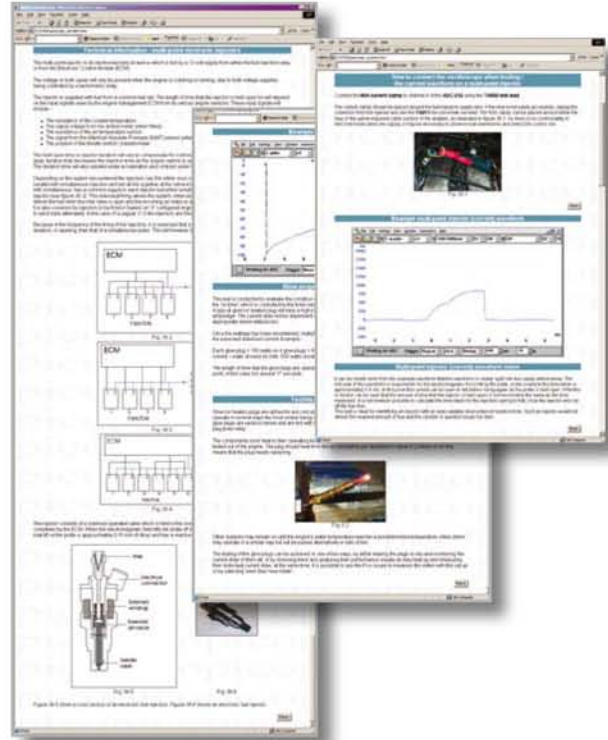
Get it from www.picoauto.com/software.html

Automotive Technical Experts

Our team of technical experts are on hand to assist you with your purchase and answer any technical queries you may have.

Online

The Pico Technology website features a support forum where members can post questions and share comments on Pico products. Our website also contains a collection of Automotive tutorials and application notes, designed to expand your knowledge of automotive diagnostics.



Automotive Training Courses

Pico automotive diagnostic training courses are held at locations throughout the UK. Focusing on engine management diagnostics, the courses will show you how to get the best from the PicoScope software and Diagnostics Kit. The two-day course includes the basic working principles of Engine Management systems, testing components and system diagnostics using oscilloscopes.

Vehicle Manufacturers / OEMs

For vehicle manufacturers, we can customise the PicoScope Automotive software to provide waveforms and data specific to particular makes and models of vehicles.

Other Vehicle and Engine Applications

We have a variety of oscilloscope diagnostic kits for bikes, vans, trucks and other vehicles. For example, our Commercial Vehicle Kit is used by a number of leading vehicle manufacturers.

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