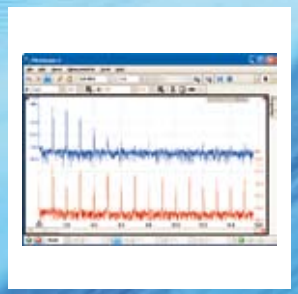
pico®
Technology



2010 Test & Measurement Catalogue

Established in 1991, Pico Technology is a worldwide leader in the field of PC-based test equipment and data acquisition. Our products regularly win industry awards, with our past achievements including:

We offer all of our customers unbeatable technical support, with our team of experts on call to answer your query or to advise you on the best product to suit your need. Our stringent quality controls ensure that you receive the highest quality products with the very best level of service. We often get comments like this from our customers :

"I would like to add that in today's world and economic climate it is truly refreshing to learn that there are still companies in this country which market products like yours, and who you can call up and get met with the level of help and support which I have been shown." BC, UK.

Contents


PicoScope

PC OSCILLOSCOPES

COMPACT AND PORTABLE UNITS

Unlike traditional bench-top instruments that contain a PC as well as the measuring hardware, Pico Technology's PC oscilloscopes are light and portable. When used with a laptop computer, a PC oscilloscope allows you to carry a complete electronics lab in the same bag as your PC.

A COMPLETE TEST AND MEASUREMENT LAB IN ONE UNIT

When you buy one of our PC-based oscilloscopes you don't just get an oscilloscope: you also get a spectrum analyzer and data logger. Some models even include a built-in signal generator or arbitrary waveform generator. So with a Pico Technology PC oscilloscope you really do get a complete test and measurement lab in one cost-effective unit.

LIFETIME TECHNICAL SUPPORT

Free lifetime technical support is available for all customers, whether you would like one of our team to answer your query or to advise you on the best products to suit your needs.

5 YEAR WARRANTY

We cover our most popular products with a five-year warranty against manufacturing defects. This covers 15 USB oscilloscope models and 5 USB data loggers.

FREE SOFTWARE UPDATES

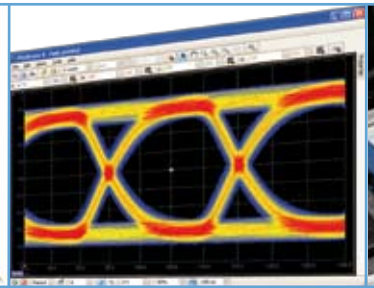
If you're lucky you can return a traditional DSO to the supplier for a firmware upgrade and maybe get improved functionality. With a PC-based oscilloscope new features and improved functionality can be added at any time with a simple software update. These free software updates mean that a PC oscilloscope is one of the few things that can actually become more powerful and useful with age.

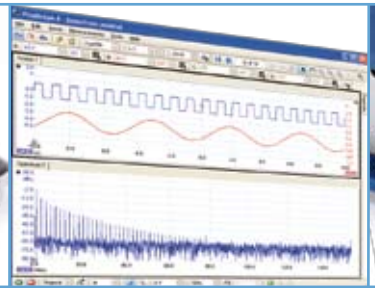
USE YOUR PC MONITOR AS A LARGE AND DETAILED COLOUR DISPLAY

The display of a traditional oscilloscope is limited by the physical size of the oscilloscope, and may only be a single colour. With a PC oscilloscope your computer controls the display, so not only do you get a full colour display, but the display can be the size of your monitor, projector or plasma display. (If you have the time and money you could even connect your PC oscilloscope up to the screens at Piccadilly Circus or Times Square and earn yourself a Guinness World Record for the largest oscilloscope display in the world!)

CAPTURED WAVEFORMS AND INSTRUMENT SETTINGS CAN EASILY BE SHARED WITH OTHERS

Need to show your customer or colleague the signal you have captured? Just save the waveform and email them a copy. They don't have a copy of the oscilloscope software? No problem – just export it as text, an image or in a binary format for use with third-party software. (If they want to set up their equipment to run the same test, simply send them the oscilloscope settings too.)

PC OSCILLOSCOPES

AFFORDABLE EXPERTISE

Pico Technology offers you a wide range of oscilloscopes to meet any specification, all with our expertise included in one low-cost payment. PicoScope software is included in the price, with free upgrades for life. A 5 year warranty comes as standard with all real-time USB PicoScopes, as well as access to our technical support team for all the peace of mind you need.

HUGE BUFFER MEMORY

These days most digital oscilloscopes have high sampling rates, but many of them let you down with a tiny memory buffer which means that you can only use the maximum sampling rate on a few timebases. We offer memory options from 8 kS to an enormous 1 GS with our PicoScope 6000 Series*; this is the deepest buffer memory available as standard on any oscilloscope. This huge buffer allows it to capture at 5 GS/s down to 20 ms/div - that's a total duration of 200 ms. Managing all this data calls for some powerful tools, so PicoScope has a maximum zoom factor of 100 million.

*Correct at time of printing.

HIGH BANDWIDTH, HIGH SAMPLING RATE

PicoScopes offer a range of bandwidth and sampling rate choices to suit any application. Bandwidth options range from 20 MHz to 12 GHz, and sampling rates range from 50 MS/S to 5 GS/s. For the PicoScope 6000 the 350 MHz analog bandwidth is complemented by a real-time sampling rate of 5 GS/s and ETS mode boosts the maximum sampling rate for repetitive signals to up to 100 GS/s. This gives it the ability to digitise signals accurately and with minimal distortion.

PC OSCILLOSCOPES

PICOSCOPE 6 SOFTWARE SUPPLIED WITH ALL OSCILLOSCOPES

Our PicoScope 6 Software is supplied free with all of our PC oscilloscopes. We are continually seeking to improve our software with added functionality and useful features, which are free to download in software updates throughout the year. Our newsletter and website lets you know when the latest software releases are available.

RESOLUTION

PicoScope oscilloscopes offer resolution options from 8 to 16 bits.

PRICE

PicoScope oscilloscopes offer the most cost-effective way to get the specifications you want. Prices range from £125 to £6995.

PC OSCILLOSCOPES

Oscilloscope	PicoScope 2100 Range	PicoScope 2200 Range	PicoScope 3200 Range	PicoScope 4224	PicoScope 4226 & 4227
Channels	1	2 + AWG	2 + External trigger and Signal Generator	2	2 + External trigger and AWG
Bandwidth	25 MHz	25 MHz	200 MHz	20 MHz	100 MHz
Sampling	100 MS/s	200 MS/s	200 MS/s	80 MS/s	250 MS/s
Resolution (enhanced)	8 bits (12 bits)	8 bits (12 bits)	8 bits (12 bits)	12 bits (16 bits)	12 bits (16 bits)
Buffer memory	24 kS	16 kS	1 MS	32 MS	32 MS
PC connection	USB 2.0	USB 2.0	USB 2.0	USB 2.0	USB 2.0
Price from	£125 $206 €151	£159 $262 €192	£399 $658 €483	£499 $823 €604	£699 $1153 €846

PC OSCILLOSCOPES

Oscilloscope	PicoScope 4424	PicoScope 3425	PicoScope 5200 Range	PicoScope 6200 Range	PicoScope 9200 Range
Channels	4	4 (differential inputs)	2 + External trigger and AWG	4 + External trigger and AWG	2
Bandwidth	20 MHz	5 MHz	250 MHz	350 MHz	12 GHz
Sampling	80 MS/s	20 MS/s	1 GS/s	5 GS/s	5 TS/s (equivalent)
Resolution (enhanced)	12 bits (16 bits)	12 bits (16 bits)	8 bits (12 bits)	8 bits (12 bits)	16 bits
Buffer memory	32 MS	512 kS	Up to 128 MS	Up to 1 GS	4 kS
PC connection	USB 2.0	USB 2.0	USB 2.0	USB 2.0	USB 2.0/LAN
Price from	£799 $1318 €967	£975 $1609 €1180	£1195 $1972 €1446	£2995 $4942 €3624	£5995 $9892 €7254

PicoScope Software

PicoScope software enables Pico Technology oscilloscopes to be used as an oscilloscope and spectrum analyser. It is supplied free of charge with Pico oscilloscope and data acquisition products, and updates can be downloaded for free. It is available in many different languages.

OSCILLOSCOPE CONTROLS

Ⓐ Commonly-used controls such as voltage range selection, timebase, memory depth and channel selection are placed on the toolbars for quick access, leaving the main display area clear for waveforms. More advanced controls and functions are located in the Tools menu.

Ⓑ Auto setup button: Configures the timebase and voltage ranges for a stable display of your signals.

AUTOMATIC MEASUREMENTS

Ⓒ Display calculated measurements for troubleshooting and analysis. You can add as many measurements as you need on each view. Each measurement includes statistical parameters showing its variability.

Built-in measurements:

AC RMS, True RMS, DC Average
Cycle Time, Frequency, Duty Cycle
Falling Rate, Fall Time
Rising Rate, Rise Time
High Pulse Width, Low Pulse Width
Maximum, Minimum, Peak to Peak

POWERFUL CAPTURE AND ANALYSIS

Ⓓ The PicoScope display can be as simple or as complex as you need. Begin with a single view of one channel, and then expand the display to include any number of live channels, math channels and reference waveforms.

Ⓔ PicoScope is carefully designed to make the best use of the display area. You can add new scope and spectrum views, all of which are fully adjustable in height and width.

DISPLAY TOOLS

Ⓕ Rulers: Each axis has two rulers that can be dragged onto the screen to make quick measurements of amplitude, time and frequency.

Ⓖ Movable axes: The vertical axes can be dragged up and down. This feature is particularly useful when one waveform is obscuring another. There's also a command to rearrange all the axes automatically.

Ⓗ Zoom and pan tools: PicoScope enables a zoom factor of up 100 million, which is necessary when working with our deep memory scopes. Use the conventional zoom-in, zoom-out and pan tools, or try the zoom overview window for fast navigation.

Ⓘ Waveform replay tool: PicoScope automatically records up to 10,000 of the most recent waveforms. You can quickly scan through to look for intermittent events.

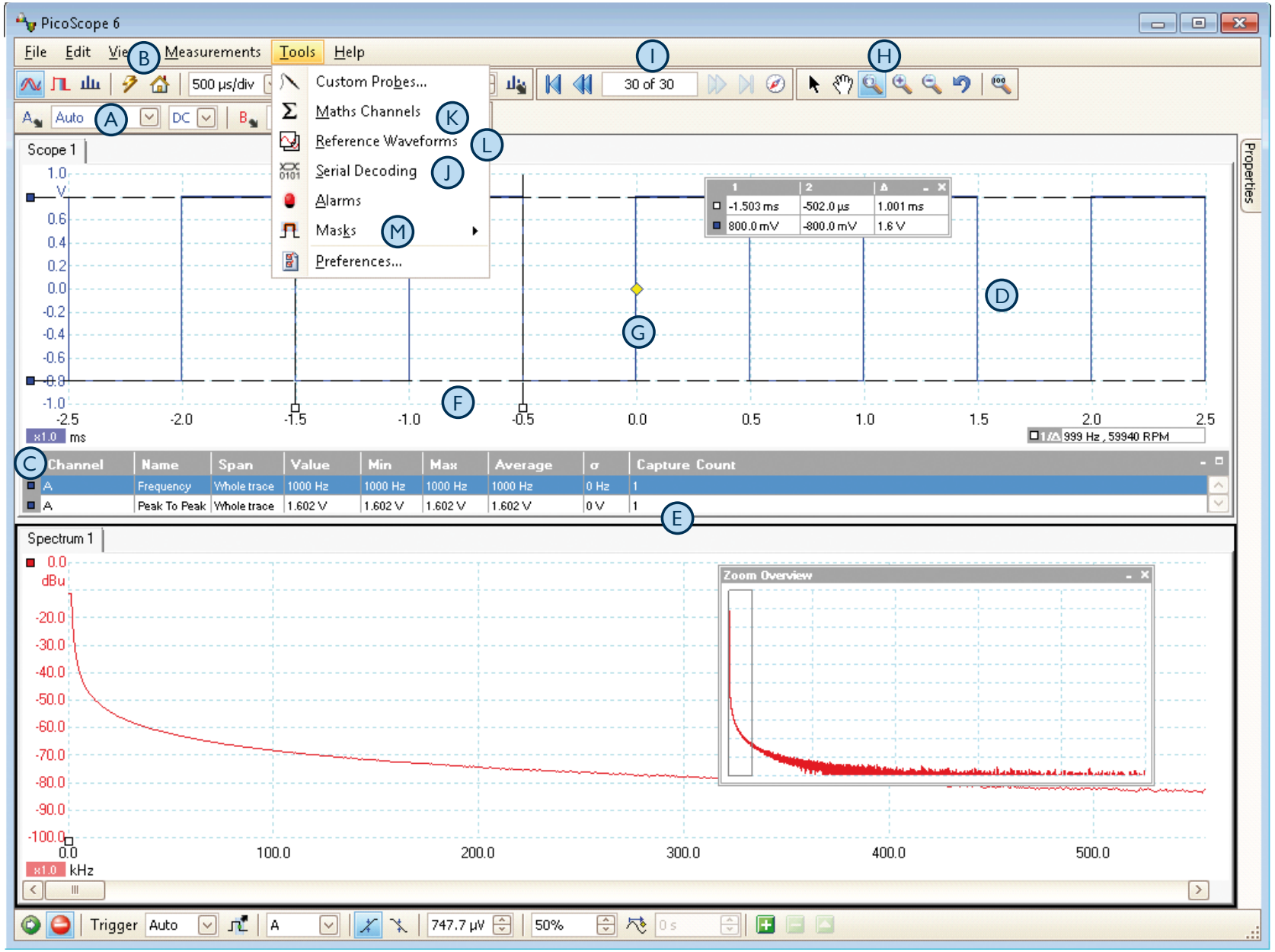
Ⓙ Serial decoding: Decode a CAN bus or I²C signal and display the data alongside the physical signal or as a detailed table.

Ⓚ Math channels: Combine input channels and reference waveforms using simple arithmetic or custom equations with trigonometric and other functions.

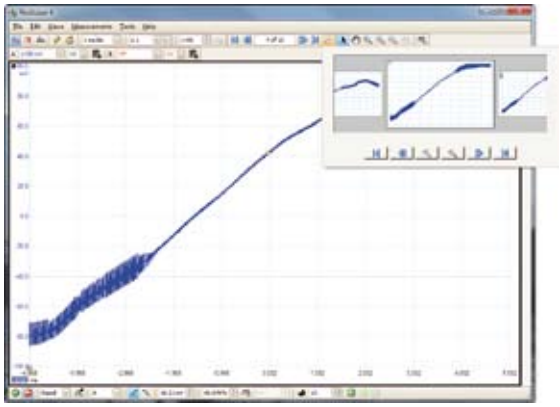
Ⓛ Reference waveforms: Store waveforms in memory or on disk and display them alongside live inputs. Ideal for diagnostics and production testing.

Ⓜ Mask limit testing: Automatically generate a testing mask from a waveform or draw one by hand. PicoScope highlights any parts of the waveform that fall outside the mask and shows error statistics.

PICOSCOPE SOFTWARE

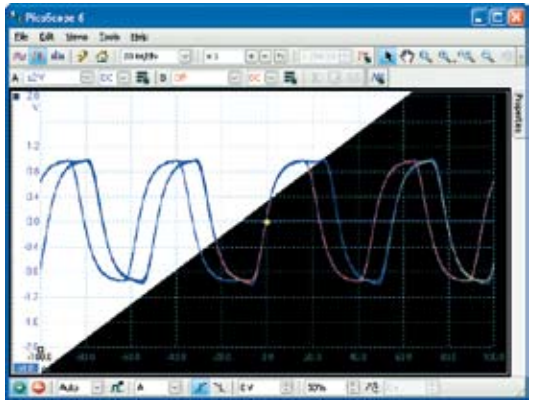


PICOSCOPE SOFTWARE



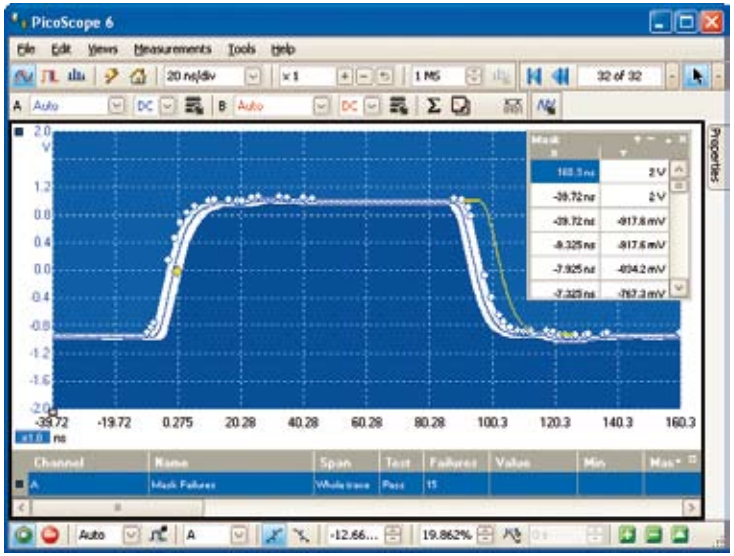
ADVANCED TRIGGERS AND RAPID TRIGGERING

PicoScope has a built-in set of advanced triggers to help you capture the data you need. Some models contain fast triggering hardware that allows you to capture up to 1 million waveforms per second. This improves your chances of spotting an infrequent glitch.



COLOR MODES

See old and new data superimposed, with new data in a brighter color or shade. This makes it easy to see glitches and drop-outs and to estimate their relative frequency. Choose between analog persistence and digital color, or create a custom display mode.

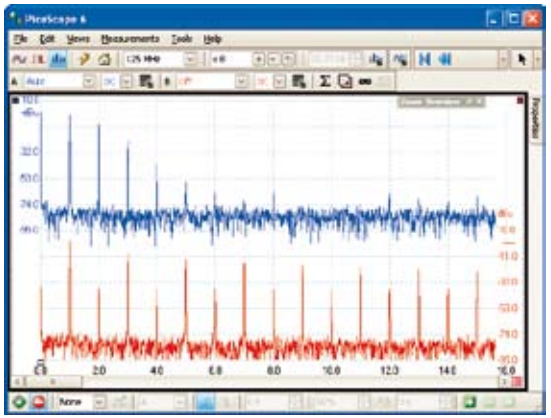


MASK LIMIT TESTING

This feature is specially designed for production and debugging environments. Capture a signal from a known working system, and PicoScope will draw a mask around it with your specified tolerance. Connect the system under test, and PicoScope will highlight any parts of the waveform that fall outside the mask area. The highlighted details persist on the display, allowing the oscilloscope to catch intermittent glitches while you work on something else. The measurements window counts the number of failures, and can display other measurements and statistics at the same time.

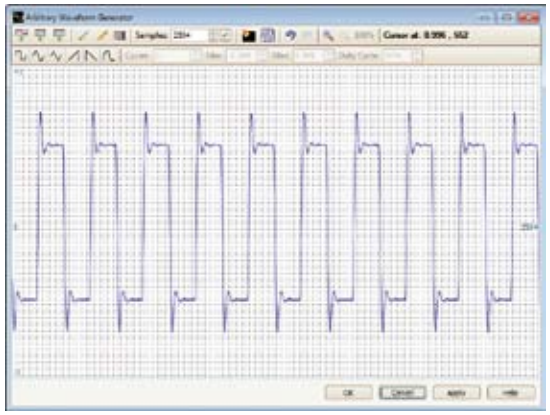
The numerical and graphical mask editors (both shown above) can be used separately or in combination, allowing you to enter accurate mask specifications and to modify existing masks. You can import and export masks as files.

PicoScope Software



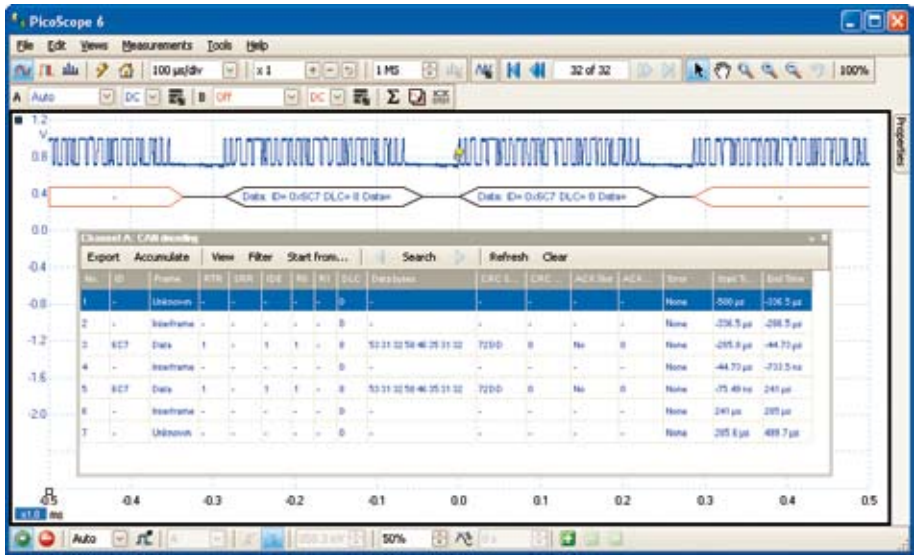
SPECTRUM ANALYZER

With the click of a button, you can open a new window to display a spectrum plot of the selected channels. The spectrum analyzer allows signals to be viewed in the frequency domain using FFTs of up to 1 million points. A full range of settings give you control over the number of spectrum bands, window types and display modes.



ARBITRARY WAVEFORM AND FUNCTION GENERATOR

Generate standard waveforms or define your own using the power of the built-in arbitrary waveform generator. You can import arbitrary waveforms from data files or draw them using the built-in AWG editor.



SERIAL BUS DECODING

The PicoScope 4000, 5000 and 6000 Series oscilloscopes are recommended for serial decoding as their deep memory allows the software to collect long, uninterrupted sequences of data. For example, the PicoScope 5204 can collect many thousands of frames of CAN bus data over several seconds into its 128-million-sample memory.

To decode serial data, you set up PicoScope in the usual way to display the signal or signals of interest, and then select Serial Decoding. PicoScope gives you a few options to define the type of serial bus protocol you are using, including a selection of all the common data rates. It then displays the data in the format of your choice: “in view”, “in window”, or both at once.

“In view” format shows the decoded data beneath the waveform on a common time axis, with error frames marked in red. You can zoom in on these frames to look for noise or distortion on the waveform.

“In window” format shows a list of the decoded frames, including the data and all flags and identifiers. You can set up filtering conditions to display only the frames you are interested in, search for frames with specified properties, or define a start pattern that the program will wait for before listing the data.

PicoScope 2100 Series

POWER AND PERFORMANCE IN YOUR HAND

PicoScope	2104	2105
Channels	1	
Bandwidth	10 MHz	25 MHz
Sampling rate - Real time	50 MS/s	100 MS/s
- Repetitive	1 GS/s	2 GS/s
Buffer memory	8 kS	24 kS
Resolution (enhanced)	8 bits (12 bits)	
Input ranges	±100 mV to ±20 V in 8 ranges	
Power	USB	
Warranty	5 years	
Part number	PP317	PP315
Price	£125	£199
	$206	$328
	€151	€241

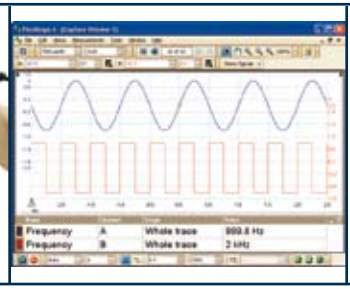
"EASY TO USE" JUST GOT EASIER

Using your PicoScope handheld oscilloscope could not be easier: plug-and-play technology allows you to simply plug the oscilloscope into a USB port and start using it straight away. No need for power supplies, additional oscilloscope probes or complex installation procedures.

Designed for single-handed operation, the oscilloscope can be controlled using a button located on the top of the scope. Press the button to start the oscilloscope; it will flash green to indicate the scope is running. A beam of light will illuminate the tip of the scope so you can clearly see the area being probed. Once you've captured your signal, press the button again; it will glow red to indicate the scope has stopped.

ALL YOU NEED IN A HANDHELD OSCILLOSCOPE

With oscilloscope, spectrum analyzer and data logger functions, all in an incredibly easy-to-use package, a Pico handheld oscilloscope gives you the performance,



PicoScope 2200 Series

SUPERB VALUE FOR MONEY

PicoScope	2203	2204	2205
Channels	2		
Bandwidth	5 MHz	10 MHz	25MHz
Sampling rate - Real time	40 MS/s	100 MS/s	200 MS/s
- Repetitive	1 GS/s	2 GS/s	4 GS/s
Buffer memory	8 kS		16 kS
Resolution (enhanced)	8 bits (12 bits)		
AWG	Yes		
Input ranges	±50 mV to ±20 V in 9 ranges		
Trigger modes	Rising edge, falling edge, threshold, save to buffer on trigger		Pulse width, dropout, window, logic
Power	USB		
Warranty	5 years		
Part number	PP418	PP419	PP420
Price	£159	£225	£295
	$262	$371	$489
	€192	€272	€357

ALL-IN-ONE INSTRUMENT

The PicoScope 2000 Series PC oscilloscopes are extremely versatile, with an oscilloscope, spectrum analyzer and arbitrary waveform generator included in every model. The compact, portable scopes fit easily in a laptop bag, and their robust cases have three BNC connectors - Channel A, Channel B and Signal Out - and a USB connector.

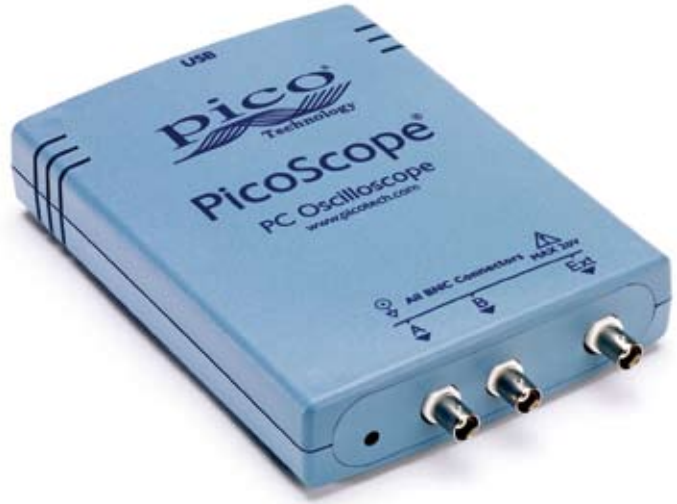
CONVENIENCE AND SPEED

The PicoScope 2000 Series oscilloscopes obtain their power from the USB 2.0 interface, so there's no need for an external power supply. The USB port also delivers high-speed data to give you a responsive, high-resolution display.

ADVANCED SOFTWARE

The oscilloscopes are bundled with the same PicoScope software that comes with our high-end oscilloscopes. PicoScope is easy to use, and can export data in a variety of graphical, text and binary formats. Also included are drivers and example programs.

PicoScope 3000 Series



POWERFUL ENOUGH TO REPLACE YOUR BENCHTOP OSCILLOSCOPE

All three PicoScopes in the 3000 range feature high bandwidths and sampling rates previously not available with PC-based oscilloscopes. The PicoScope 3206 has an impressive 200 MHz analogue bandwidth and a single-shot sampling rate of 200 MS/s (for repetitive signals, the sampling rate is increased to 10 GS/s).

LARGE MEMORY BUFFERS LET YOU CAPTURE FAST & COMPLEX SIGNALS

All digital oscilloscopes collect data into a waveform buffer: the bigger the buffer memory, the longer the scope can collect data without reducing its sampling rate. PicoScope 3000 PC oscilloscopes all feature large buffer memories — from an impressive 256,000 samples for the PicoScope 3204 up to a remarkable one million samples for the PicoScope 3206.

BUILT-IN SIGNAL GENERATOR

The PicoScope 3204 can output a fixed 1 kHz square wave for compensating oscilloscope probes. The signal generators built into the PicoScope 3205 and 3206 can output sine, square and triangle waves up to 1 MHz in frequency.

THE POWER TO PERFORM

PicoScope	3204	3205	3206
Channels	2 + Ext trigger		
Bandwidth	50 MHz	100 MHz	200 MHz
Sampling rate - Real time	50 MS/s	100 MS/s	200 MS/s
- Repetitive	2.5 GS/s	5 GS/s	10 GS/s
Buffer memory	256 kS	512 kS	1 MS
Resolution (enhanced)	8 bits (12 bits)		
AWG	Yes		
Input ranges	±100 mV to ±20 V		
Trigger modes	Free run, auto, repeat, single and save to buffer on trigger		
Power	USB		
Warranty	5 years		
Scope only			
Part number	PP255	PP256	PP257
Price	£399	£599	£799
	$658	$988	$1318
	€483	€725	€967
Kit			
Part number	PP353	PP354	PP355
Price	£407	£607	£807
	$672	$1002	$1332
	€492	€734	€976

PicoScope 3000 Series

DIFFERENTIAL PC OSCILLOSCOPE

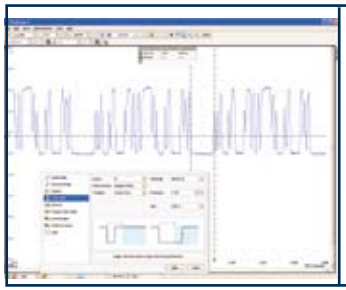
PicoScope	3425
Channels	4
Bandwidth	5 MHz
Sampling rate	20 MS/s
Buffer memory	512 kS
Resolution (enhanced)	12 bits (16 bits)
AWG	Yes
Input ranges	100 mV to 400 V in 12 ranges
Power	USB
Warranty	5 years
Part number	PP454
Price	£975
	$1608
	€1180

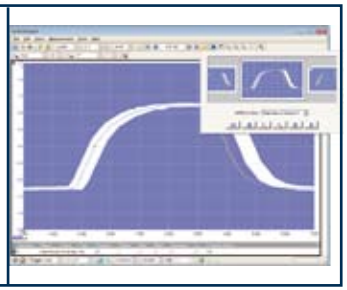
MEASURE FLOATING OR NON-GROUND-REFERENCED SIGNALS

With a maximum common mode and differential range of 400 V, the PicoScope 3425 is capable of measuring both high-voltage and low-level signals. Typical high-voltage applications include capturing waveforms from switch mode power supplies, telephone cables, motor inverters and hybrid vehicles. The high-impedance differential inputs also allow measurements on sensitive amplifiers and from bridge type sensors for pressure, load and strain.

EASY AND INEXPENSIVE

The PicoScope 3425 differential USB oscilloscope allows you to measure floating voltages, and signals where common-mode noise is present, with ease and without the need for expensive differential preamplifiers or probes. The maximum common mode and differential range of 400 V ensures the PicoScope 3425 is suitable for many common applications, while the included accessories and easy-to-use software allow you to get the maximum from your PicoScope, with the minimum of effort.





PicoScope 4224 & 4424 Oscilloscopes

ALL-IN-ONE INSTRUMENTS

The PicoScope 4000 Series PC oscilloscopes are extremely versatile, with an oscilloscope and spectrum analyser in every model.

CONVENIENCE AND SPEED

The PicoScope 4000 Series oscilloscopes obtain their power from the USB 2.0 interface, so there's no need for an external power supply. The USB port also delivers high-speed data to your PC to give you a responsive, high-resolution display.

DEEP MEMORY

The 32 M sample buffer is 'always on'. There is never a compromise between buffer size and waveform update rate, because the PicoScope 4000 Series always maximises both at the same time. Now you can capture every waveform with full detail.

DETAILED WAVEFORM CAPTURE

PicoScope	4224	4424
Channels	2	4
Bandwidth	20 MHz	
Sampling rate - Real time	80 MS/s	
- Repetitive	1 MS/s	
Buffer memory	32 MS	
Resolution (enhanced)	12 bits (16 bits)	
Input ranges	±50 mV to ±100 V in 11 ranges	
Trigger modes	Auto, repeat, single, none, rising & falling edge, edge with hysteresis, pulse width, runt pulse, dropout, windowed, rapid, save to buffer on trigger	
Power	USB	
Warranty	5 years	
Scope only		
Part number	PP492	PP493
Price	£499	£799
	$823	$1318
	€604	€967
Kit with probes		
Part number	PP478	PP479
Price	£519	£825
	$856	$1361
	€628	€998

PicoScope 4226 & 4227 Oscilloscopes

CONVENIENCE

The PicoScope 4000 Series PC Oscilloscopes with AWG are extremely versatile, with oscilloscope, spectrum analyzer, function generator and arbitrary waveform generator included in every model. The oscilloscopes are powered by USB port, so there's no need for an external power supply.

SPEED AND PRECISION

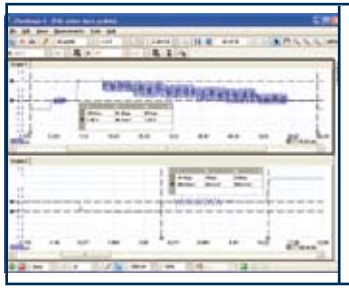
The USB 2.0 interface delivers high-speed data to your PC to give you a responsive, high resolution display. With sampling rates of up to 250 MS/s, these are the fastest USB powered 12-bit scopes around.

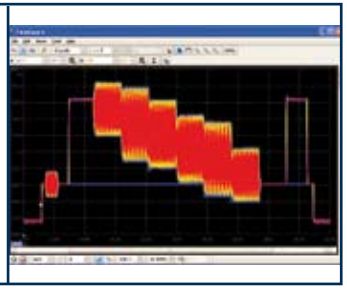
DEEP MEMORY

The 32 MS buffer is 'always on'. There is never a compromise between buffer size and waveform update rate, because the PicoScope 4000 Series scopes always maximize both at the same time. Now you can capture every waveform with optimal detail without having to be a scope expert.

SPEED AND PRECISION

PicoScope	4226	4227
Channels	2 + Ext trigger	
Bandwidth	50 MHz	100 MHz
Sampling rate - Real time	125 MS/s	250 MS/s
- Repetitive	10 GS/s	
Buffer memory	32 MS	
Resolution (enhanced)	12 bits (16 bits)	
AWG	Yes	
Input ranges	±50 mV to ±20 V in 11 ranges	
Trigger modes	Auto, repeat, single, none, rising & falling edge, hysteresis, pulse width, runt pulse, windows, dropout, rapid, save to buffer on trigger	
Power	USB	
Warranty	5 years	
Part number	PP671	PP672
Price (Kit)	£699	£899
	$1149	$1479
	€846	€1088





PICOSCOPE 5000 SERIES

THE NO-COMPROMISE PC OSCILLOSCOPE

All other oscilloscopes at this price range force you to compromise on one of three key specifications: bandwidth, sampling rate or buffer memory. The PicoScope 5000 Series gives you high specifications in all of these areas at once.

HIGH BANDWIDTH AND SAMPLING RATE

At the heart of the PicoScope 5000 is its ability to digitise signals accurately and with minimal distortion. The 250 MHz analog bandwidth is complemented by a real-time sample rate of 1 GS/s. For repetitive signals, an equivalent time sampling (ETS) mode increases the sampling to 20 GS/s.

HUGE BUFFER MEMORY

These days most digital oscilloscopes have high sampling rates, but many of them let you down with a tiny memory buffer which means that you can only use the maximum sampling rate on a few timebases. The massive 128 megasample (128,000,000) buffer memory of the PicoScope 5204 ensures complex waveforms can be captured at the full sampling rate.

PICOSCOPE OSCILLOSCOPE SOFTWARE

PicoScope 5000 oscilloscopes are supplied with PicoScope 6 software which allows you to use your PicoScope as an oscilloscope and spectrum analyser. Feature-packed, responsive and easy to use, PicoScope includes draggable axes, advanced zoom tools and a waveform replay tool which automatically records up to the last 10,000 waveforms.

THE NO-COMPROMISE PC SCOPE

PicoScope	5203	5204
Channels	2	
Bandwidth	250 MHz	
Sampling rate - Real time	1 GS/s	
- Repetitive	20 GS/s	
Buffer memory	32 MS	128 MS
Resolution (enhanced)	8 bits (12 bits)	
AWG	Yes	
Input ranges	±100 mV to ±20 V in 8 ranges	
Trigger modes	Rising / falling edge triggers, pulse width, dropout, window, delay, rapid, logic, save to buffer on trigger	
Power	AC adaptor	
Warranty	5 years	
Part number	PP376	PP377
Price	£1195	£1795
	$1972	$2962
	€1446	€2172

GREAT THINGS COME IN SMALL PACKAGES

PicoScope 5000 PC oscilloscopes have been designed to take up very little of your valuable desk space. The innovative anti-slip case design means that the PicoScope 5000 oscilloscopes can be used either horizontally or vertically — ideal when desk space is at a premium.

These oscilloscopes are lightweight and small enough to be carried in the same bag as your laptop, but for added protection you can use the tough carry case supplied. Despite the compact design, the case can safely store and protect your oscilloscope, leads, probes and power supply.

EVERYTHING YOU NEED

A PicoScope 5000 PC oscilloscope comes with everything you need to start taking measurements with the minimum of fuss and effort. The PicoScope 5000 oscilloscope is supplied in a tough carry case that includes a USB cable, two 250 MHz x1/x10 oscilloscope probes, PicoScope software and a universal power adaptor that allows you to use your oscilloscope almost anywhere in the world. Should you need to order extra probes for your PicoScope 5000, use the details below.

250 MHz x1/x10 PROBE FOR THE PICOSCOPE 5000 SERIES OSCILLOSCOPES

This calibrated 250 MHz oscilloscope probe is optimised for use with the PicoScope 5000 Series of high-performance oscilloscopes. A two-position slide switch allows attenuation of either x1 or x10 to be selected.

250 MHz PROBE FOR PICOSCOPE 5000 MI145 £25 $42 €30

PicoScope 6000 Series

HIGH BANDWIDTH, HIGH SAMPLING RATE

With a 350 MHz analog bandwidth complemented by a real-time sampling rate of 5 GS/s, the PicoScope 6000 Series scopes can display single-shot pulses with 200 ps time resolution. ETS mode boosts the maximum sampling rate even further, allowing a more detailed display of repetitive pulses.

MORE BUFFER MEMORY THAN ANY OTHER OSCILLOSCOPE

The PicoScope 6403 gives you the deepest buffer memory available as standard on any oscilloscope. Other oscilloscopes have high maximum sampling rates, but without deep memory they cannot sustain these rates on long timebases. The PicoScope 6403's huge 1-gigasample buffer allows you to capture at 5 GS/s down to 20 ms/ div — that's a total duration of 200 ms. Managing all this data calls for some powerful tools, so PicoScope has a maximum zoom factor of 100 million combined with a choice of two zoom methods : zoom overview and zoom toolbar.

ADVANCED TRIGGERS

As well as the standard range of triggers found on most oscilloscopes, your PicoScope 6000 Series scope has a built-in set of advanced triggers to help you capture the data you need.

CUSTOM PROBE SETTINGS

The custom probes feature allows you to correct for gain, attenuation, offsets and nonlinearities in special probes, or to convert to different units of measurement. You can save definitions to disk for later use. Definitions for standard Pico-supplied probes are included.

PicoScope 6000 Series

THE HIGHEST PERFORMANCE USB OSCILLOSCOPE AVAILABLE

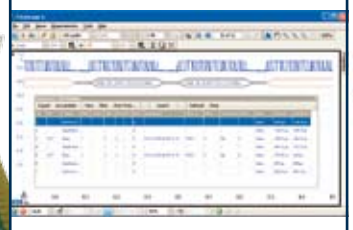
PicoScope	6402	6403
Channels	4	
Bandwidth	350 MHz	
Sampling rate - Real time	5 GS/s	
Buffer memory	32 MS	1 GS
Resolution (enhanced)	8 bits (12 bits)	
AWG	Yes	
Input ranges	±50 mV to ±20 V in 9 ranges	
Trigger modes	Auto, rapid, repeat, single, none, rising & falling edge, edge with hysteresis, logic level, pulse width, runt pulse, dropout, window, delayed, save to buffer on trigger	
Power	AC adaptor	
Warranty	5 year	
Scope only		
Part number	PP628	PP630
Price	£2995	£3995
	$4942	$6592
	€3624	€4834
Kit with probes		
Part Number	PP629	PP631
Price	£3495	£4495
	$5767	$7417
	€4229	€5439

OPTIONAL x10 PROBE

You can buy your PicoScope 6000 Series scope complete with four TA101 x10 probes, or you can buy these separately at a later date. These probes have been designed for use with the PicoScope 6000 Series and are factory-compensated to match the input characteristics. The probes have a 500 MHz (-3 dB) bandwidth to ensure a 350 MHz system bandwidth.

Each high quality probe is supplied with a range of accessories for convenient and accurate high-frequency measurements.

SINGLE X10 OSCILLOSCOPE PROBE	TA101	£125	$206	€151



PicoScope 9000

SAMPLING OSCILLOSCOPES

THE ULTIMATE PRICE AND PERFORMANCE

If you need to measure high-speed electrical signals, the PicoScope 9000 sampling oscilloscopes deliver the ultimate price/performance. The PicoScope 9000 Series are designed to look at repetitive signals and are not suitable for real-time or single-shot applications.

At prices starting from under £6000 (about $10000 / €7000) – less than half the price of comparable sampling oscilloscopes – the PicoScope 9000 Series has all the features and performance you need at a price you can afford. Unlike other manufacturers, all software functionality is included in the cost of the oscilloscope, and software updates are provided free of charge for the life of the product.

SAMPLING OSCILLOSCOPES COMPARED TO PC OSCILLOSOPES

- Can only capture repetitive waveforms
- Have lower sampling rate to increase ADC resolution
- Lower noise floor
- Wider bandwidth for lower budget
- Lower intrinsic jitter
- Eye diagrams and mask testing
- Can be used for TDR/TDT measurement
- Lower cost of ownership

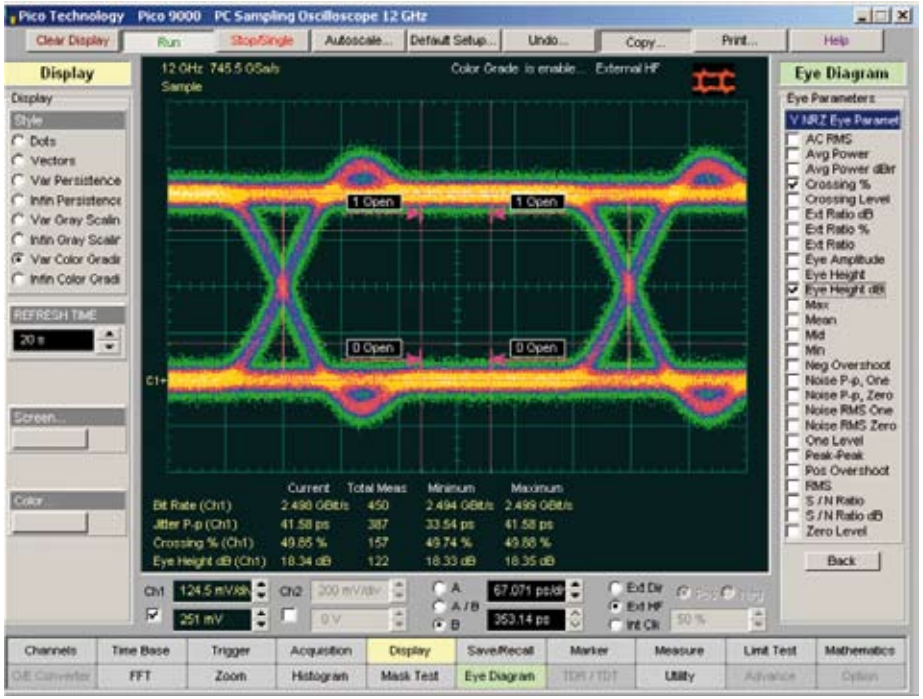
HIGH-SPEED ELECTRICAL SIGNALS

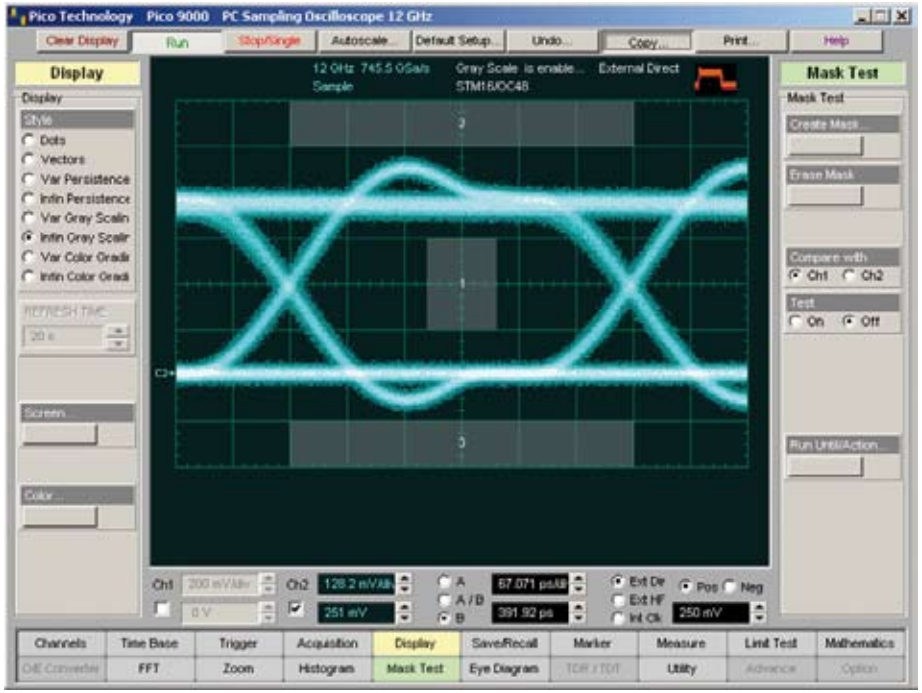
Designed specifically for the complex task of analysing high-speed electrical signals, PicoScope 9000 sampling oscilloscopes are ideal for many advanced applications including: signal analysis, timing analysis, testing and design of high-speed digital communication systems, network analysis, semiconductor testing, and research and development.

TDR/TDT

The PicoScope 9211A sampling oscilloscope is specially designed for time-domain reflectometry (TDR) and time-domain transmission (TDT). It provides a low-cost method of analysing cables, connectors, circuit boards and IC packages.

PICOSCOPE 9000 SOFTWARE





EYE DIAGRAM ANALYSIS

NRZ EYE DIAGRAM MEASUREMENTS

The PicoScope 9000 quickly measures 42 fundamental parameters used to characterise non-return-to-zero (NRZ) signals. Up to four parameters can be measured simultaneously.

RZ EYE DIAGRAM ANALYSIS

The PicoScope 9000 quickly measures 43 fundamental parameters used to characterise return-to-zero (RZ) signals. Up to four parameters can be measured simultaneously.

MASK TESTING

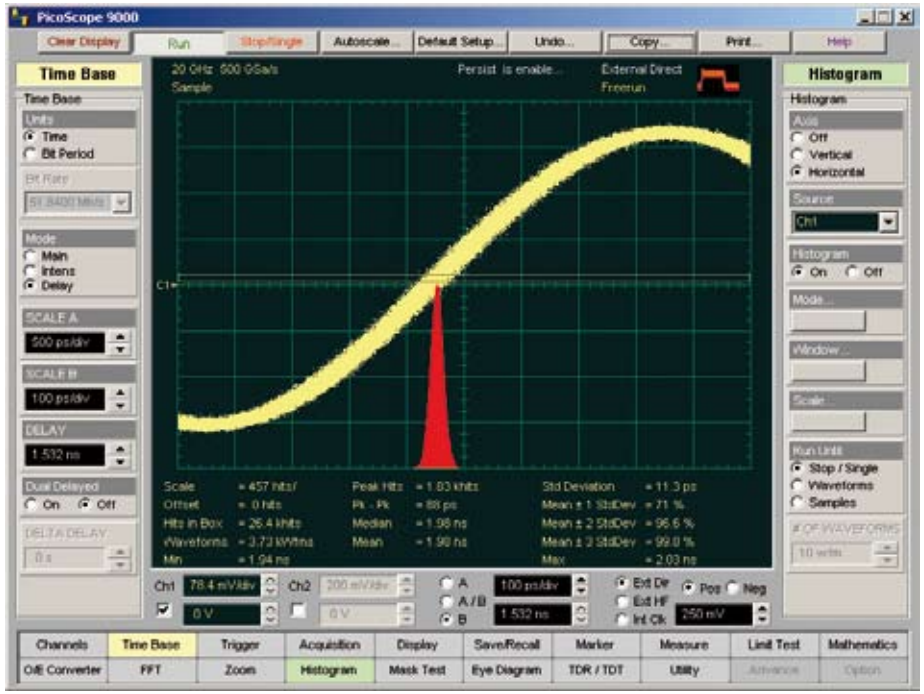
For eye-diagram masks, such as those specified by the SONET and SDH standards, the PicoScope 9000 supports on-board mask drawing for visual comparison. The display can create grey-scaled or colour-graded displays to aid in analysing noise and jitter in eye-diagrams.

Mask test quickly characterises:

- Noise
- Jitter
- Aberrations

The on-board mask drawing capability allows simple, operator-independent visual comparison of signal with standard mask.

PICOSCOPE 9000 SOFTWARE



TDR/TDT

Time Domain Reflectometry (TDR) is a method of characterizing a transmission line or network by sending a signal into one end and monitoring the electrical reflections.

A TDR step can also be used to make Time Domain Transmission (TDT) measurements. TDT is a technique that allows you to measure the response of a system by sending steps through a device and monitoring the output of the device.

HISTOGRAM ANALYSIS

A histogram is a probability distribution that shows the distribution of acquired data from a source within a user-definable histogram window. The information gathered by the histogram is used to perform statistical analysis on the source.

Histograms can be constructed on waveforms on either the vertical or horizontal axes. The most common use for a vertical histogram is measuring and characterising noise on displayed waveforms, while the most common use for a horizontal histogram is measuring and characterising jitter on displayed waveforms.

PicoScope 9000 Series

If you're looking for an affordable way to measure high-speed electrical signals, you can't do better than the PicoScope 9000 Series of PC Sampling Oscilloscopes.

Designed specifically for the complex task of analysing high-speed electrical signals, PicoScope 9000 Sampling Oscilloscopes are ideal for many advanced applications including: signal analysis, timing analysis, testing and design of high-speed digital communication systems, network analysis, semiconductor testing, and research and development.

Specifications of the PicoScope 9000 Series include:

- 12 GHz bandwidth on 2 channels
- Dual timebase down to 10 ps/div
- Up to 10 GHz trigger bandwidth
- 1 GHz full-function direct trigger
- 5 TS/s equivalent-time sampling rate
- Integrated 2.7 GB/s clock recovery (PicoScope 9211A only)
- Integrated pattern sync trigger (PicoScope 9211A only)
- High-resolution cursor and automatic waveform measurements with statistics
- Waveform processing including FFT
- Time and voltage histograms
- Eye-diagram measurements for NRZ and RZ
- Automated mask test
- USB 2.0 and LAN (PicoScope 9211A only)
- Familiar Windows graphical user interface
- Lightweight and energy-efficient design

Typical applications include:

- Electrical standards compliance testing
- Semiconductor characterization
- Telecom service and manufacturing
- Timing analysis
- Digital system design and characterization
- TDR/TDT measurement and analysis (PicoScope 9211A only)
- Electronic mask drawing and display
- Automatic pass/fail limit testing
- High-speed serial bus pulse response

The PicoScope 9000 software supplied with the instrument can now operate in two modes: as a standalone oscilloscope program, and as a COM object. As a COM object, the program can be controlled by the user's own software. Examples are provided in Visual Basic, LabVIEW and Delphi, but any programming language that supports the COM object model can be used.

The PicoScope 9000 SDK is available to download now, free of charge, from the Pico Technology website at www.picotech.com.

PicoScope 9000 Series

SPECIFICATIONS

VERTICAL
DC to 12 GHz bandwidth
29.2 ps rise time
2 channels
±2 % vertical gain accuracy
16-bit resolution
<2.0 mV RMS noise
±1 V input range
HORIZONTAL
Dual timebase 10 ps/div to 50 ms/div
±0.2% ±15 ps time interval accuracy
<200 fs sampling interval
Up to 4 kS/channel buffer size
TRIGGER
DC to 1 GHz full direct trigger
10 GHz prescaled trigger
<3.5 ps RMS jitter
Pattern sync trigger
OPERATIONAL
Power consumption: 15 W max.
Weight: 1 kg
Size: 170 (W) x 40 (H) x 255 (D) mm

TDR/TDT (9211 ONLY)
2 channels
Vertical scales: Volts, Rho (2 mrho/div to 2 rho/div), Ohm (1 ohm/div to 100 ohm div)
Horizontal scale: Time or distance (Meter, Foot, Inch)
TDR stimulus from internal or external generators
SIGNAL GENERATOR
Modes: Step, Coarse timebase, Pulse, NRZ and RZ
100 ps rise time (typ) for Step (TDR)
MEASUREMENTS AND ANALYSIS
High-resolution cursors, automatic waveform measurements, statistics and pass / fail limit tests
Waveform processing including FFT with five FFT windows
UTILITY
Autoscale
Automatic calibration
Windows 7, Vista and XP
Built-in help and information system

ACCESSORIES

2-WAY POWER SPLITTER SMA, 4200 MHz

Features:

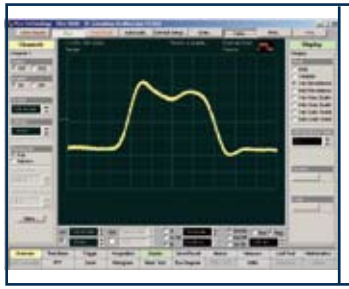
- Very wideband, DC to 4200 MHz
- Low insertion loss, 0.1 dB typical
- Excellent amplitude unbalance, 0.02 dB typical
- Rugged shielded case

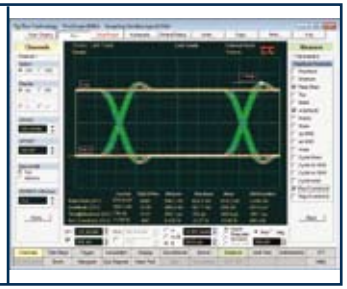
2-Way power splitter SMA	TA079	£150	$248	€176

ATTENUATOR -3 dB AND -6 dB SMA TO SMA

Attenuator -3 dB	TA077	£30	$50	€36
Attenuator -6 dB	TA078	£30	$50	€36

PicoScope	9201A	9211A
Part number	PP463	PP473
Price	£5995	£7495
	$9892	$12367
	€7254	€9069





Oscilloscope Accessories

PASSIVE PROBES

OSCILLOSCOPE PROBE 60 MHz x1/x10

This high-quality general-purpose oscilloscope probe, has a 60 MHz bandwidth. A two-position slide switch allows attenuation of either x1 or x10 to be selected.

SPECIFICATION	x1	x10
Attenuation	1:1	10:1
Bandwidth	DC to 15 MHz	DC to 60 MHz
Rise time	23.3 ns	5.8 ns
Input resistance	1 MΩ	10 MΩ
Input capacitance	46 pF plus scope	Approx. 15 pF
Working voltage	600 V DC incl Peak AC (derating with frequency)	
Cable length	1.2 m (approx 4 ft)	

OSCILLOSCOPE PROBE 60 MHz x1/x10	MI007	£15	$25	€18

OSCILLOSCOPE PROBE 500 MHz x10

The TA049 is a passive high-impedance oscilloscope probe designed and calibrated for use on instruments having an input impedance of 1 MΩ shunted by 15 pF. However, it may be compensated for use with instruments having an input capacitance of 10 to 35 pF. The probe has a further 3 trimmers for high-frequency compensation adjustment.

SPECIFICATION	
Attenuation	10:1
Bandwidth	DC to 500 MHz
Rise time	0.7 ns
Input resistance	10 MΩ when using an oscilloscope with 1 MΩ input
Input capacitance	approx. 11 pF
Working voltage	Max. 600 V (DC + AC peak)
Cable length	1.5 m (approx 5 ft)

OSCILLOSCOPE PROBE 500 MHz x10	TA049	£45	$74	€54

OSCILLOSCOPE PROBE 250 MHz x1/x10

The MI103 is a passive high-impedance scope probe with 250 MHz bandwidth and high-frequency trimming. The MI145 is calibrated for optimal use with the PicoScope 5000 Series oscilloscopes. A two-position slide switch allows attenuation of either 1:1 or 10:1 to be selected.

SPECIFICATION	MI103 x1	MI103 x10
Attenuation	1:1	10:1
Bandwidth	DC to 10 MHz	DC to 250 MHz
Rise time	35 ns	1.4 ns
Input resistance	1 MΩ	10 MΩ
Input capacitance	46 pF plus scope	Approx. 15 pF
Working voltage	600 V DC incl Peak AC (derating with frequency)	
Cable length	1.2 m (approx 4 ft)	

OSCILLOSCOPE PROBE 250 MHz x1/x10	MI103	£25	$42	€30
PROBE 250 MHz FOR PICOSCOPE 5000	MI145	£25	$42	€30

OSCILLOSCOPE PROBE 1.5 GHz x10, 50 OHM, SMA OR BNC

These very high-bandwidth 1.5 GHz probes are suitable for use with high-speed oscilloscopes and spectrum analyzers. Applications include digital communications and RF design. The TA061 has an SMA connector, making it ideal for use with PicoScope 9000 Sampling Oscilloscopes, while the TA062 has a BNC connector.

SPECIFICATION	
Attenuation	10:1
Bandwidth	1.5 GHz (-3dB)
Rise time	240 ps
Input resistance	500 Ω
Input capacitance	2 pF
Rated voltage	12V incl. AC peak
Cable length	1.3 m (approx 4 ft 3 in)

PROBE 1.5 GHz x10, 50 OHM, SMA	TA061	£199	$328	€240
PROBE 1.5 GHz x10, 50 OHM, BNC	TA062	£199	$328	€240

Active Probes

Active differential probe 700 to 7000 V, 70 to 100 MHz

The TA042, TA043 and TA044 are active differential oscilloscope probes. They let you use a conventional earthed oscilloscope to measure signals that are not referenced to ground, including mains voltages. They can also be used to measure and observe the waveforms of three-phase supplies or the gate and control signals of semiconductor circuits. They are ideal for investigating motor speed controls, uninterruptible power supplies, switch mode power supplies and process controllers.

SPECIFICATION	TA042	TA043	TA044
Description	100 MHz 1400 V differential probe	100 MHz 700 V differential probe	70 MHz 7000 V differential probe
Attenuation	100:1, 1000:1	10:1, 100:1	100:1, 1000:1
Bandwidth	100 MHz	100 MHz	70 MHz
Rise Time	3.5 ns	3.5 ns	3.5 ns
Differential voltage range	140 V DC + peak AC 100 V RMS	70 V + peak AC 70 V RMS	700 V + peak AC 500 V RMS
	1400 V + peak AC 1000 V RMS	700 V + peak AC 500 V RMS	7000 V + peak AC 5000 V RMS
Common mode range	1400 V + peak AC 1000 V RMS	700 V + peak AC 500 V RMS	7000 V + peak AC 2500 V RMS
Input impedance	4 MΩ/7 pF each side to ground	4 MΩ/7 pF each side to ground	10 MΩ/10 pF each side to ground
Power requirements	4 x AA cells (supplied)	4 x AA cells (supplied)	4 x AA cells (supplied)
Safety rating	CAT III	CAT III	CAT I

ACTIVE DIFF PROBE 1400 V, 100 MHz	TA042	£330	$545	€399
ACTIVE DIFF PROBE 700 V, 100 MHz	TA043	£450	$743	€544
ACTIVE DIFF PROBE 7000 V, 70 MHz	TA044	£480	$792	€581

Active differential probe 60 V, 200 MHz

The TA045 is a CAT I rated differential oscilloscope probe that can measure up to ±20 volts.

SPECIFICATION	
Bandwidth	200 MHz
Attenuation	10:1
Common mode	±60 V
Differential	±20 V
Input impedance	500 kΩ / 7 pF
Battery power	Optional (TA047)
Safety rating	CAT I

ACTIVE DIFF PROBE 60 V, 200 MHz	TA045	£600	$990	€726

TETRIS 1000 and 1500 high-impedance active probes

The TETRIS active probes can contact adjacent square pins in 2.54 mm pitch simultaneously. The probe's housing is T-shaped so that many probes can be positioned next to each other in a continuous chain. This allows a number of measurements to be taken at the same time.

SPECIFICATION	TETRIS 1000	TETRIS 1500
Attenuation	10:1	10:1
Bandwidth	1 GHz	1.5 GHz
Input impedance	1 MΩ	1 MΩ
Input capacitance	0.9 pF	0.9 pF
Working voltage	20 V	20 V
Cable length	1.3 m	1.3 m

TETRIS 1000 PROBE	TA112	£445	$734	€538
TETRIS 1500 PROBE	TA113	£580	$957	€702

ACTIVE PROBES

ACTIVE DIFFERENTIAL PROBE 1000 V OR 1400 V CAT III

The probe permits a conventional earthed oscilloscope to measure signals that are not referenced to earth, enabling mains voltages to be tested. Ideal for investigation of motor speed controls, uninterruptible power supplies, switch mode power supplies and process controllers.

SPECIFICATION	TA041	TA057
Attenuation ranges	10:1, 100:1	20:1, 200:1
Bandwidth	DC to 25 MHz (-3 dB)	25 MHz
Differential voltage range	±70 V or 70 V RMS ±700 V or 700 V RMS	±140 V, ±1400 V
Common mode voltage range	±700 V or 700 V RMS	±1400 V
Input impedance	4 MΩ / 5.5 pF	4 MΩ / 5.5 pF
Safety rating	CAT III	CAT III

ACTIVE DIFF PROBE 1000 V, 25 MHz	TA041	£195	$322	€236
ACTIVE DIFF PROBE 1400 V, 25 MHz	TA057	£220	$363	€266

ACTIVE DIFFERENTIAL PROBE 15 V, 800 MHz, X1/10, CAT III

The TA046 is a high-bandwidth differential probe. It is ideal for measuring high-speed differential signals.

SPECIFICATION	
Attenuation	10:1
Bandwidth	800 MHz
Common mode	±30 V
Differential	±15 V
Input impedance	100 kΩ / 2 pF
Safety rating	

ACTIVE DIFF PROBE 15 V, 800 MHz	TA046	£800	$1320	€968

ACTIVE DIFFERENTIAL PROBE 70 V, 50 MHz, x1/10, CAT I

The TA058 is a CAT I rated differential oscilloscope probe that can measure up to ±70 volts.

SPECIFICATION	
Attenuation	10:1
Bandwidth	50 MHz
Common mode	±700 V
Differential	±70 V
Battery power	Optional (TA047)
Input impedance	1.6 MΩ / 7 pF
Safety rating	CAT I

ACTIVE DIFF PROBE 70 V, 50 MHz	TA058	£245	$404	€296

ACCESSORIES FOR ACTIVE PROBES

The TA047 is an optional 4AA battery pack for the TA045 and TA046 active differential probes. We also offer power supplies should you need to buy a new one. The PS008 is a 9 V power supply for all TA differential probes. The PS009 is a 15 V power supply for the TA046 only.

BATTERY PACK 4AA FOR TA045/TA046	TA047	£37	$61	€45
9 V POWER SUPPLY (NOT TA046)	PS008	£15	$25	€18
15 V POWER SUPPLY (TA046 ONLY)	PS009	£15	$25	€18

3D PROBE POSITIONER

This 3D probe positioner is for scope probes and other measuring devices. This allows for hands-free testing and measuring, with accurate and safe positioning. It offers a stepless 3D clamping system. Available with fixed probe holder (MS100) or adjustable clamp (MSU1500).

PROBE POSITIONER MSA100	TA115	£270	$446	€327
PROBE POSITIONER MSU1500	TA116	£385	$235	€466

CABLES AND CONNECTORS

BNC PLUG TO 4 mm CABLE (3 m)

Its length (3 meters – approx. 10 ft) allows the oscilloscope to be placed on the work-bench away from the item being tested or repaired. A wide range of probes, clips and gators can be plugged into the 4 mm connectors at the end of the cable.

BNC PLUG TO 4 mm CABLE (3 m)	TA000	£20	$33	€24

BNC PLUG TO CROCODILE CLIPS

Test lead - BNC plug to crocodile clips (1.8 m)

BNC PLUG TO CROCODILE CLIPS	MI031	£5	$8	€6

BNC PLUG TO 4 mm PLUGS

Test lead - BNC plug to 4 mm plugs (1.8 m).

BNC PLUG TO 4 mm PLUGS	MI029	£5	$8	€6

BNC PLUG TO 4 mm ADAPTER

The BNC to 4 mm adapter connects two 4 mm (“banana”) plugs to a BNC socket.

BNC PLUG TO 4 MM ADAPTER	MI078	£10	$17	€12

BNC PLUG TO BNC PLUGS

Test lead - BNC plug to BNC plugs (1.8 m).

BNC PLUG TO BNC PLUGS	MI030	£5	$8	€6

DATA CABLES

Pico also offer a range of data cables. These USB, parallel and serial cables enable our products to be used at greater distances from the computer.
All cables are 1.8 m in length.

SERIAL CABLE D9M - D9F	MI010	£5	$8	€6
PARALLEL CABLE D25M - D25F	MI004	£8	$13	€10
USB CABLE A-B	MI106	£5	$8	€6
USB TO RS232	MI069	£25	$41	€30

General Accessories

ATTENUATOR SET: BNC 50 OHM 1 W 1 GHz, 3, 6, 10 AND 20 dB

The TA050 attenuator set consists of four coaxial attenuators designed for use with signals up to 1 GHz. Each attenuator has a male and a female BNC connector.

SPECIFICATION	
Attenuation	3, 6, 10, 20 dB
Bandwidth	DC to 1 GHz
Max. power dissipation	1 W
Input impedance	50 Ω
Output impedance	50 Ω
VSWR	1.5:1 or better
Dimensions	56 x 20 x 17 mm
Connectors	BNC, 1 male + 1 female

ATTENUATOR SET	TA050	£39	$64	€47

FEED-THROUGH TERMINATOR

The TA051 feed-through attenuator is a coaxial terminator with BNC connectors. It is useful for connecting signals from 50 ohm sources into instruments with high-impedance inputs, such as oscilloscopes.

SPECIFICATION	
Bandwidth	DC to 1 GHz
Max. power dissipation	1 W
Input impedance	50 Ω
Dimensions	56 x 20 x 17 mm
Connectors	BNC, 1 male + 1 female

FEED-THROUGH TERMINATOR	TA051	£9.50	$16	€11

CURRENT CLAMP 60 A AC/DC (4 mm BANANA PLUG OR BNC)

Clamp-on current probes or "current clamps" enable you to measure currents without breaking the electric circuit. Current clamps are designed with jaws that can be opened, placed around the conductor and clamped closed to form a magnetic loop around the conductor.

Current clamps offer a safe, cost-effective, simple and accurate way to take current measurements.

The Pico range of current clamps can be used with Pico oscilloscopes and data loggers, as well all major brands of oscilloscopes and multimeters.

SPECIFICATION	60 A	600 A
Range	10 mA to 60 A	0 to 600 mV
AC frequency range	Up to 20 kHz	50 Hz to 400 Hz
Max. conductor size	9 mm	30 mm
Operational temp,	0°C to 50°C, 70% RH	0°C to 50°C, 70% RH

CURRENT CLAMP 60 A

CURRENT CLAMP 600 A

CURRENT CLAMP 60 A 4 mm	PP218	£80	$132	€97
CURRENT CLAMP 60 A BNC	PP264	£99	$163	€120
CURRENT CLAMP 600 A 4 mm	PP179	£80	$132	€97
CURRENT CLAMP 600 A BNC	PP266	£99	$163	€120


PicoLog

DATA LOGGERS

Data acquisition products from Pico Technology provide a straightforward answer to your data logging requirements.

WHAT IS A DATA LOGGER?

A data logger is an electronic device that is used to record measurements over time. Pico Technology data loggers require no power supply and simply plug into a serial or USB port on your PC.

WHAT CAN I MEASURE?

By connecting suitable sensors, Pico Technology data acquisition products can be used to measure temperature, pressure, relative humidity, light, resistance, current, power, speed, vibration... in fact, any physical parameter.

WHAT SOFTWARE DO I NEED?

Pico data loggers are supplied complete with PicoLog. This powerful but flexible data acquisition software allows you to collect, analyze and display data. With PicoLog the data is viewable both during and after data collection, in both spreadsheet and graphical format. You can also export the data for use in other applications.

PICO DATA LOGGER RANGE

Along with voltage-input data loggers, the Pico Technology data acquisition range also includes loggers designed for specific applications:

- For measuring temperature and humidity, loggers such as the TC-08 thermocouple data logger and PT-104 temperature data logger offer an accurate solution.
- Ideal for monitoring large areas, the widely used EnviroMon data logging and alarm system is a network-based system capable of automatically measuring and recording readings from up to 40 sensors, and providing warnings when readings go out of range.

Whatever your data logging requirements, a Pico Technology data logger gives you an easy-to-use and accurate solution at a competitive price.

PicoLog Software

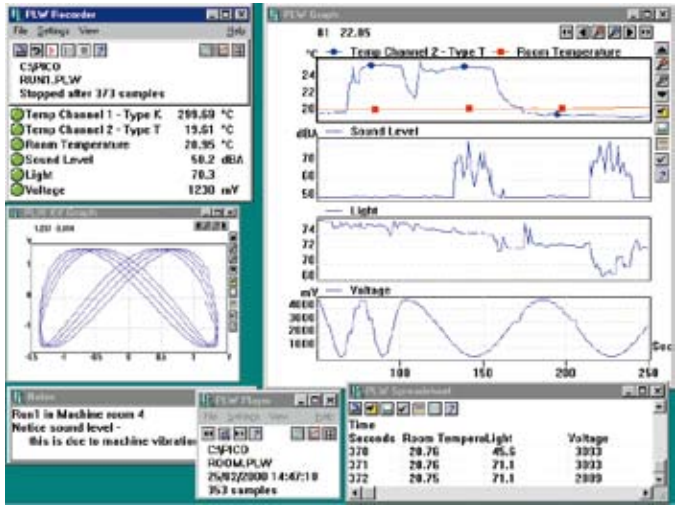
PicoLog is a powerful and flexible program for collecting, analysing and displaying data. The software can be used with Pico Technology's full range up to and including the PicoScope 3000 Series.

PicoLog can be used with the following product ranges:

- Data acquisition and data logging products
- Oscilloscope products (for high-speed data acquisition and logging)
- Temperature and humidity converters and loggers.

Some of the features of PicoLog are listed here. To see for yourself just how good it is, download your free demo copy.

- Collects up to 1 million samples
- Easy and intuitive to use
- Free upgrades and technical support
- Supports 32- and 64-bit editions of Windows XP (SP2 and above), Vista and Windows 7
- Compatible with Pico data loggers (except EnviroMon) and PicoScope 2000 and 3000 series USB oscilloscopes
- International language versions
- Easy to set up and use, with online help
- Real-time data collection, analysis and display
- Programmable alarm limits can be set for each channel
- Data can be exported to spreadsheets and databases
- Save multiple setups for different tests and experiments
- Can be used with desktop or laptop PCs
- Supports multiple loggers on the same PC
- Uses PC monitor to give large colour display, ideal for education and training
- Waveforms can be saved, printed, faxed or e-mailed from your PC
- 64-bit support for USB products



PROGRAM MODES

PicoLog for Windows works in two modes: player mode for displaying previously recorded data, and recorder mode for recording new data. You can have more than one copy of PicoLog for Windows running at once, so you can use the player to analyse old data whilst recording new data.

PicoLog can collect data from multiple converters at the same time. This not only allows a mix of voltage input units to be used on the same PC, but also allows other PC-based instruments such as the TC-08 thermocouple data logger and the PicoScope 3205 PC oscilloscope to be used at the same time.

EXPORTING DATA

Data can easily be transferred (either as graphs or raw data) to other Windows applications by using the clipboard (copy and paste). Graphs can also be saved to disk (as Windows Metafiles) and data from the spreadsheet can be saved in text format. Current readings can be transferred using Dynamic Data Exchange (DDE). PicoLog also supports IP networking so it is possible to transfer measurements from a remote site via an existing LAN, company network, or even over the Internet.

PicoLog Software

MULTIPLE VIEWS

PicoLog displays data in a number of views, which can be activated as and when required, both during and after data collection.

RECORDER VIEW

Enables you to start and stop recording and specify recording files. It shows the current readings and alarm conditions for each channel. All settings such as scaling, channels and sampling are controlled from the recorder view.

XY GRAPH VIEW

Displays one parameter against another. Useful for plotting voltage against current, for example.

SPREADSHEET VIEW

Displays text data in a format that can be easily - copied and pasted - into other applications. Data can also be saved to disk in standard text format.

GRAPH VIEW

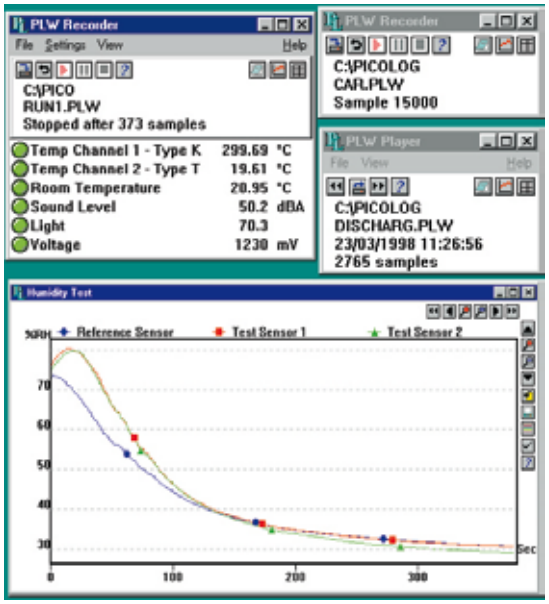
Graphs can be displayed both during and after data collection. Each channel can be displayed in its own graph, or multiple channels can be displayed in the same graph. Axes can be set up manually, automatically or in chart recorder mode. Multipliers allow you to magnify areas of interest. Graphs can be 'copied' into the clipboard and then pasted into reports.

NOTES VIEW

Notes view allows you to attach notes to data.

PLAYER VIEW

Displays previously recorded data. It enables you to scroll quickly through stored files to compare results on successive runs. The player can be used to examine old data whilst new data is still being recorded.



PARAMETER SCALING

Can be used to convert raw data into standard engineering units. A wide range of equation and table lookup scaling options are provided.

ADDITIONAL PARAMETERS

Can be calculated. For example, to calculate power output from a boiler, you may need to multiply a flow reading from one channel by the temperature difference between two further channels.

ALARM LIMITS

Can be set for each channel to alert the user should a parameter go out of a specified range.

IP NETWORKING

PicoLog data acquisition software supports IP networking. This enables remote data collection from Pico Technology's full range of data acquisition products.

VOLTAGE DATA LOGGERS

A DISTINGUISHED PEDIGREE

The PicoLog 1000 Series is the result of a distinguished lineage that goes back to the release of our first multi-channel data logger — the ADC-11 — in 1993. The original ADC-11, and its successor the USB ADC-11, proved to be the perfect choice for users wanting a low-cost way to measure and record multiple signals. The PicoLog 1000 Series builds on this success to give you the same low-cost data acquisition but with greater power and performance. (Because the ADC-11 was so popular we've also added a USB ADC-11 compatibility mode which allows you to use your PicoLog 1000 logger as a direct replacement for the USB ADC-11.)

AN EXPANDABLE DATA ACQUISITION SYSTEM

The budget model PicoLog 1012 has 12 input channels. The powerful PicoLog 1216 has 16. Need more channels? No problem. Using PicoLog you can connect up to 4 Pico data loggers to one PC — giving you a potential 64 channel PicoLog 1000 Series data acquisition system, or the ability to use your PicoLog 1000 logger with other devices such as the USB TC-08 thermocouple data logger.

PICOLOG 1000 SERIES

- UP TO 16 UNIPOLAR ANALOG INPUT CHANNELS
- UP TO 12-BIT RESOLUTION WITH 0.5% ACCURACY
- UP TO 4 SOFTWARE-CONFIGURABLE DIGITAL OUTPUT LINES
- UP TO 1 MS/s SAMPLE RATE

PicoLog	1012	1216
Channels	12	16
Resolution	10 bits	12 bits
Input ranges	0 to 2.5 V	0 to 2.5 V
Part number	PP543	PP544
Price	£95	£149
	$157	$246
	€115	€180
Part number	PP546	PP547
Price (with terminal board)	£105	£159
	$173	$262
	€127	€192

PICOLOG 1000 TERMINAL BOARD

This optional terminal board with screw terminals lets you easily and quickly connect your sensors to the logger. The board also has solder pads on which you can fit resistors to widen the measuring range for each input.

Terminal board	PP545	£15	$25	€18

VOLTAGE DATA LOGGERS

ADC-20 AND ADC-24

- UP TO 8 TRUE DIFFERENTIAL AND 16 SINGLE-ENDED INPUTS
- 24-BIT RESOLUTION
- ACCURATE TO WITHIN 0.1%
- FAST CONVERSION TIME

Model	ADC-20	ADC-24
Channels	4 diff/8 single-ended	8 diff/16 single-ended
Resolution	20 bits	24 bits
Voltage ranges	±2500 mV ±1250 mV	±2500 mV, ±1250 mV ±625 mV, ±312 mV ±156 mV, ±78 mV ±39 mV
Part number	PP308	PP309
Price	£199	£399
	$328	$658
	€241	€483
Part number	PP311	PP312
Price (with terminal board)	£219	£419
	$361	$691
	€265	€507

THE ULTIM

With up to 24 bit resolution, the ADC-20 and ADC-24 USB data loggers are able to detect the smallest signal changes. Features such as true differential inputs, galvanic isolation and software selectable sampling rates all contribute to a superior noise-free resolution, and ensure that your measurements are reliable and accurate to within 0.1%.

FLEXIBLE MULTI-CHANNEL ACQUISITION

Both the ADC-20 and ADC-24 feature true differential inputs for excellent noise rejection. To give you a very flexible system, each differential input can also be configured as 2 single-ended inputs. With up to 8 differential or 16 single-ended inputs on the ADC-24, this flexibility gives you complete control over the type of inputs you use. For example, you may configure the ADC-24 to use 4 differential and 8 single-ended inputs, or 2 differential and 12 single-ended inputs; and so on: the choice is yours.

With up to 7 bipolar voltage ranges, the ADC-20 and ADC-24 are also flexible enough to be used with a wide range of sensors and signal types.

ADC-20 AND ADC-24 TERMINAL BOARD

This optional terminal board provides screw terminals to allow you to quickly connect and disconnect different sensors.

Terminal board	PP310	£25	$42	€30

Temperature & Humidity Data Loggers

TC-08

- 8 CHANNEL THERMOCOUPLE DATA LOGGER
- MEASURES FROM -270°C TO +1820°C
- AUTOMATIC COLD CONJUNCTION COMPENSATION
- HIGH RESOLUTION AND ACCURACY

Model	TC-08
Channels	8
Resolution	20 bits
Input range	±70 mV
Conversion time	100 ms
Temperature accuracy	Sum of ±0.2 % of reading and ±0.5°C
Voltage accuracy	Sum of ±0.2 % of reading and ±10 µV
Thermocouple types supported	B, E, J, K, N, R, S, T
Part number	PP222
Price	£249
	$411
	€301

WIDE TEMPERATURE RANGE

The TC-08 thermocouple data logger is designed to measure a wide range of temperatures using any thermocouple that has a miniature thermocouple connector. Additionally, the TC-08 can also measure other sensors using a 70 mV range.

Featuring built-in cold junction compensation (CJC), the TC-08 has an effective temperature range of -270 to +1820°C. (The actual temperature range depends on the thermocouple being used.)

ALL THE BENEFITS OF USB

The TC-08 connects to the USB port of a Windows-based PC and enables the host PC to automatically detect the TC-08, avoiding the need for any complex setup procedures. The USB connection also allows the TC-08 to be powered directly by the USB bus, eliminating the need for an external power supply and making the TC-08 ideal for measuring temperatures both in the lab and in the field.

TC-08 TERMINAL BOARD

This is an optional terminal board for the TC-08. The screw terminals allow wires to be attached to the data logger without soldering and enable the TC-08 to measure voltages from 0 to +5 V, or 4-20 mA loop current.

Terminal board	PP624	£18	$30	€22

THERMOCOUPLES

Pico Technology offers a range of popular type K thermocouples for use with the TC-08 thermocouple data logger and other suitable temperature measuring devices.

Upon request Pico Technology can also supply type J, K and T thermocouples up to 10 m in length. These are exposed-wire thermocouples, with a choice of a PTFE or fibreglass cable.

Please contact our technical support team if you require any further information on thermocouples that are suitable for your application.

TYPE K THERMOCOUPLE (EXPOSED WIRE, FIBREGLASS INSULATED)

SPECIFICATION	
Tip diameter	1.5 mm
Tip temperature	-60 to +350°C

THERMOCOUPLE FIBREGLASS - 1 m	SE001	£6	$10	€7
THERMOCOUPLE FIBREGLASS - 2 m	SE030	£8	$13	€10
THERMOCOUPLE FIBREGLASS - 5 m	SE031	£12	$20	€15

TYPE K THERMOCOUPLE AIR PROBE

SPECIFICATION	
Tip diameter	4.5 mm
Tip temperature	-50 to +250°C
Probe length	120 mm

THERMOCOUPLE AIR PROBE	SE002	£30	$50	€36

TYPE K THERMOCOUPLE (EXPOSED WIRE, PTFE INSULATED)

SPECIFICATION	
Tip diameter	1.5 mm
Tip temperature	-75 to +250°C

THERMOCOUPLE PTFE - 1 m	SE000	£6	$10	€7
THERMOCOUPLE PTFE - 2 m	SE027	£8	$13	€10
THERMOCOUPLE PTFE - 3 m	SE028	£9	$15	€11
THERMOCOUPLE PTFE - 10 m	SE029	£18	$30	€22

TYPE K THERMOCOUPLE INSERTION PROBE

SPECIFICATION	
Tip diameter	3.3 mm
Tip temperature	-50 to +250°C
Probe length	120 mm

THERMOCOUPLE INSERTION PROBE	SE003	£24	$40	€29

TYPE K THERMOCOUPLE RIBBON SURFACE PROBE

SPECIFICATION	
Tip diameter	8 mm
Tip temperature	-10 to +250°C
Probe length	120 mm

THERMOCOUPLE RIBBON PROBE	SE004	£28	$46	€34

Temperature & Humidity Data Loggers

PT-104 USB PT100 DATA LOGGER

- MEASURES TEMPERATURE, RESISTANCE AND VOLTAGE
- HIGH RESOLUTION AND ACCURACY
- CONNECT VIA USB OR ETHERNET PORT

SPECIFICATION	Temperature	Resistance	Voltage
Sensor	PT100, PT1000	N/A	N/A
Range	-200 to 800°C	0 to 375 Ω 0 to 10 kΩ	0 to 115 mV 0 to 2.5 V
Linearity	20 ppm	20 ppm	20 ppm
Accuracy (@ 25°C)	0.01°C	20 ppm	0.2%
Temperature coefficient	5 ppm/°C	5 ppm/°C	100 ppm/°C
Resolution	0.001°C	1 µΩ	0.156 µV
Number of channels	4		
Part number	PP682		
Price	£399		
	$658		
	€509		

ACCURACY AND RESOLUTION

Although accurate temperature sensors are widely available, it has been difficult to find a measuring device that can take advantage of them without introducing excessive errors. The PT-104 USB, however, is inherently accurate due to its novel design. Rather than relying on voltage references (which tend to be temperature-sensitive) it uses 'reference' resistors which are extremely stable (low temperature coefficient and drift). The exact value of each resistor is stored in an EEPROM to provide the ultimate in accuracy (yearly recalibration is recommended). To achieve the 0.001°C resolution, a highly advanced ADC is used that can resolve to better than 1 part in 16 million.

TEMPERATURE

The PT-104 USB measures temperature using platinum resistance thermometers (PRTs). Both common industry standards (PT100 and PT1000) are supported. The unit is compatible with 2, 3 and 4 wire sensors (4 wire PT100 sensors are recommended for accurate measurements). A wide range of PT100 sensors are available for use with the PT-104.

PT-104 SCREW TERMINAL ADAPTER

The PT-104 Screw Terminal Adapter is an accessory for the PT-104 Platinum Resistance Data Logger. The adapter allows PT100 probes that are not fitted with a mini-DIN connector to be used with the data logger without the need for any soldering.

Terminal board	PP660	£6	$10	€7

PT100 Temperature Sensors

GENERAL-PURPOSE / LOW-COST PT100 PROBES

PT100 CLASS A SENSOR

PT100 GENERAL PURPOSE

SPECIFICATION	SE011	SE019
Temperature range	-30 to +200°C	-75 to +260°C
Accuracy	±0.15°C @ 0°C	±0.15°C @ 0°C
Dimensions	Length 150 mm Diameter 6 mm	Length 120 mm Diameter 3 mm
Cable	1 m	
Material	Stainless steel probe, PVC cable	
Handle	No	Yes

PT100 CLASS A SENSOR	SE011	£23	$38	€28
PT100 GENERAL PURPOSE PROBE	SE019	£21	$35	€25

INSERTION PT100 PROBES

PT100 INSERTION PROBE

PT100 INSERTION PROBE HEAVY DUTY

SPECIFICATION	SE015	SE016
Temperature range	-75 to +250°C	-150 to +650°C
Accuracy	±0.15°C @ 0°C	±0.15°C @ 0°C
Dimensions	Length 120 mm Diameter 3.3 mm	Length 150 mm Diameter 4 mm
Cable	1 m	
Material	Stainless steel probe, PVC cable	
Handle	Yes	

PT100 INSERTION PROBE	SE015	£48	$79	€58
PT100 INSERTION PROBE HEAVY DUTY	SE016	£50	$83	€61

IMMERSION PT100 PROBES

PT100 1/10 DIN SENSOR

PT100 IMMERSION PROBE

SPECIFICATION	SE012	SE014
Temperature range	-50 to +250°C	-75 to +250°C
Accuracy	±0.03°C @ 0°C	±0.15°C @ 0°C
Dimensions	Length 150 mm Diameter 4 mm	Length 120 mm Diameter 3.3 mm
Cable	1 m	
Material	Stainless steel probe, PTFE cable	Stainless steel probe, PVC cable
Handle	No	Yes

PT100 1/10 DIN SENSOR	SE012	£48	$79	€58
PT100 IMMERSION PROBE	SE014	£46	$76	€56

AIR PT100 PROBES

PT100 AIR PROBE FAST

PT100 AIR PROBE HIGH

SPECIFICATION	SE017	SE018
Temperature range	-75 to +250°C	-150 to +650°C
Accuracy	±0.15°C @ 0°C	±0.15°C @ 0°C
Dimensions	Length 120 mm Diameter 3.3 mm	Length 150 mm Diameter 4 mm
Cable	1 m	
Material	Stainless steel probe, PVC cable	
Handle	Yes	

PT100 AIR PROBE FAST RESPONSE	SE017	£46	$76	€56
PT100 AIR PROBE HIGH TEMPERATURE	SE018	£52	$86	€63

Temperature & Humidity Data Loggers

HUMIDIPROBE

- RECORDS TEMPERATURE AND RELATIVE HUMIDITY
- MEASURES 0 TO 100% RH
- MEASURES 0 TO 70°C
- COMPACT DESIGN
- CONNECTS TO A PC OR LAPTOP VIA A USB PORT
- NO POWER SUPPLY REQUIRED

Specification	Temperature	Humidity
Range	0 to 70°C	0 to 100% RH
Resolution	0.01°C	0.03% RH
Response time	5 to 30 seconds	4 seconds
Conversion time	2 seconds	
Accuracy	±0.5°C	±2% RH
Dimensions	Diameter 22 mm, Length 170 mm Cable length 4.5 metres (14 ft)	
Part number	PP299	
Price	£149	
	$246	
	€180	

The HumidiProbe is a self-contained humidity and temperature measuring data logger. Simply position the HumidiProbe near the source you want to measure, plug the cable into the USB port on your PC, and you're ready to measure humidity and temperature.

Monitoring temperature and humidity is very important: temperature and humidity play an important part in health, comfort and productivity. Extreme temperatures can also cause electronic equipment to age faster and mechanical equipment to break down. If humidity is too high it can lead to corrosion of equipment, mould growth – even printers jamming; if the humidity is too low it can lead to problems with static electricity and dehydration problems with everything from wine making to wood storage.

VERSATILE AND EXPANDABLE

The HumidiProbe's compact, all-in-one design allows it to be used in various locations and in a wide range of applications. Up to 4 HumidiProbes can be connected to one PC allowing you to accurately monitor the temperature and humidity in multiple locations at once, and at a low cost.

Other Products

OTHER PRODUCTS

EDUCATION KIT

THE WORLD CLASS KIT FOR YOUR CLASSROOM

Developed for both students and teachers, the PicoScope Education Kit is a versatile and affordable kit that has many educational uses.

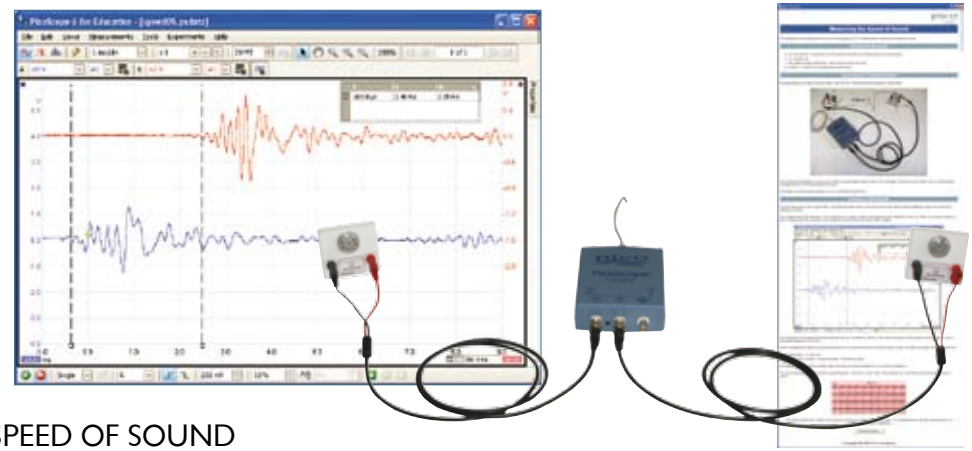
KIT CONTENTS

PicoScope 2205	Installation guide
Speed of sound apparatus	2 x BNC to 4mm plug cables
Faraday's Law apparatus	BNC to crocodile clip cable
AC dynamo apparatus	USB cable
Software CD	Durable carry case

PICOSCOPE FOR EDUCATION - THE EASY WAY TO TEACH & LEARN

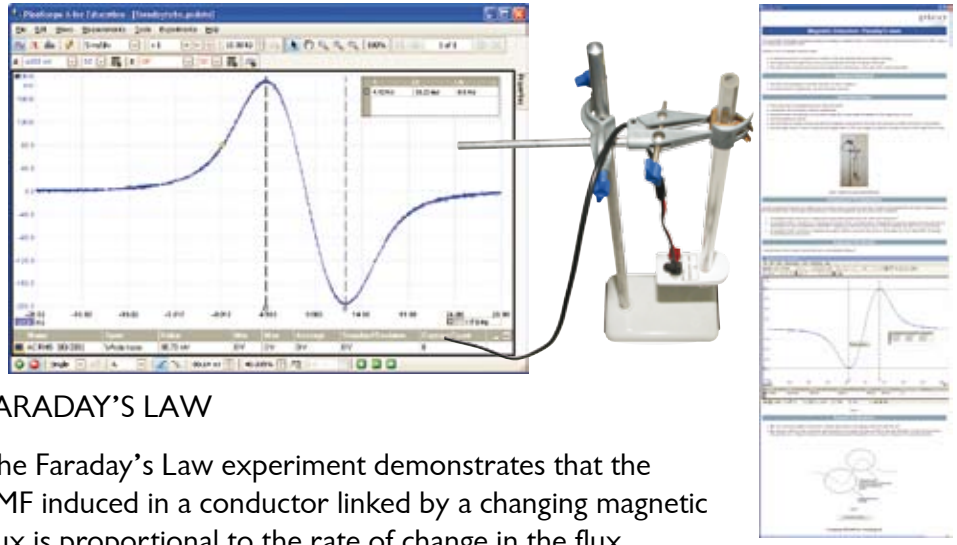
The Education Kit comes with these experiments which are fully documented, with instructions and automatic setups built in to the software:

- Speed of sound
- AC dynamo
- Faraday's law
- Measuring the value of a capacitor
- Serial data
- Speed of a pulse along a cable
- Acceleration due to gravity



SPEED OF SOUND

The speed of sound experiment uses two microphones (included) to measure the speed of sound.



FARADAY'S LAW

The Faraday's Law experiment demonstrates that the EMF induced in a conductor linked by a changing magnetic flux is proportional to the rate of change in the flux.

EDUCATION KIT	PP471	£395	$652	€478

OTHER PRODUCTS

ENVIROMON

EnviroMon is a complete data logging system. It automatically measures and records temperature, humidity and other parameters and provides warnings when readings go out of range. It is both flexible and economical: you can start off just recording a single temperature and expand to monitor up to 40 sensors spread around a site.

EnviroMon works on a network so that sensors can be placed 100s of metres apart. Measurements from the network can be read off the display on the logger, sent to a printer, downloaded to a PC or even displayed live on a website. Using a modem (radio, telephone or GSM) the loggers can be monitored remotely.

The system offers these important benefits:

- Carries out routine measurements automatically, saving time
- Sounds an alarm when there is a problem
- Maintains a permanent record of measurements
- It is easy to install and use

For more information request our brochure online at www.picotech.com

AUTOMOTIVE SCOPES AND KITS

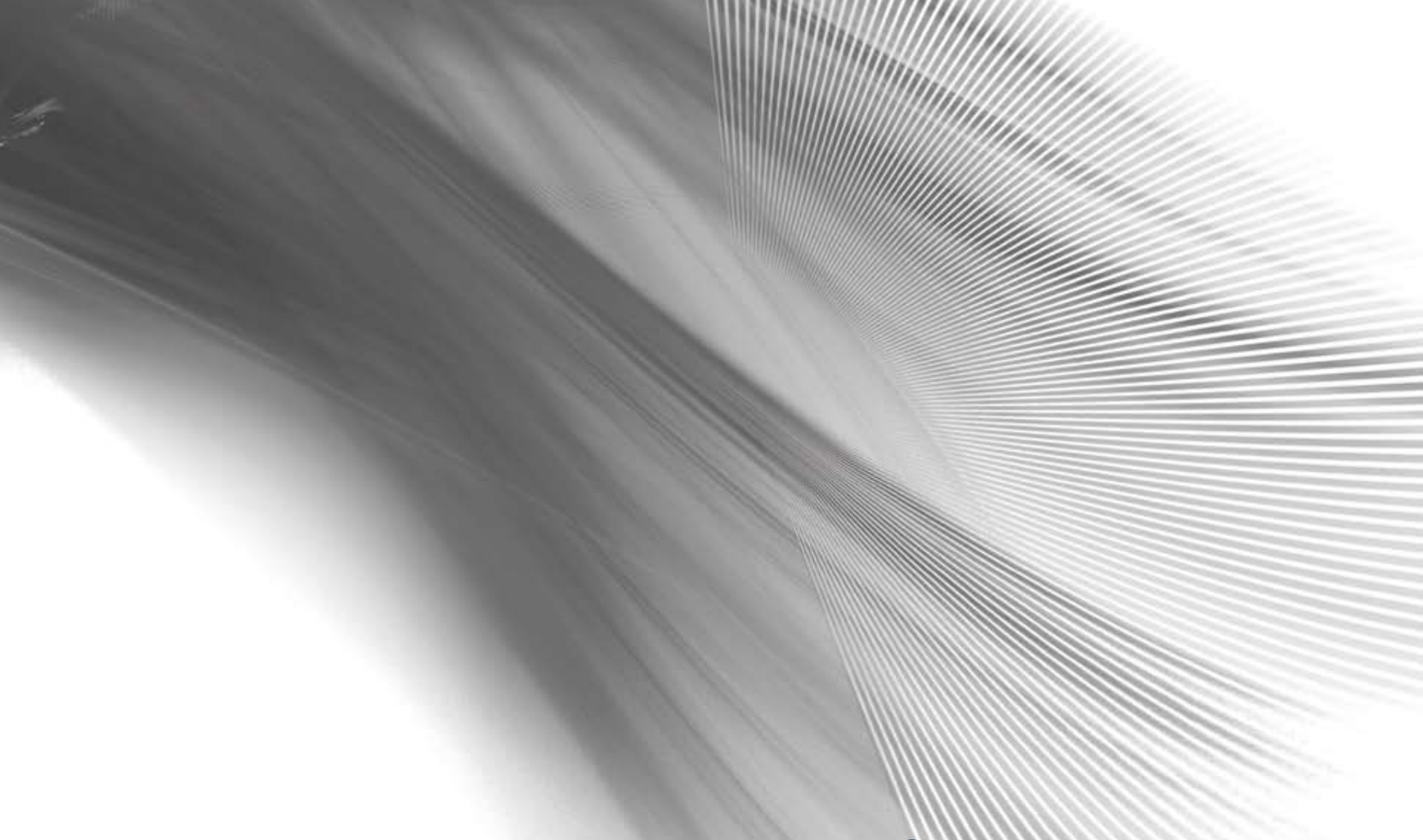
POWERFUL

We offer the automotive PicoScope 4000 Series scopes that turn your PC or laptop into a powerful automotive tool. The two main diagnostic techniques, ECU Fault codes and scopes, both have advantages but used together are very powerful. Scopes enable the actual signals to be viewed on your monitor ensuring a large high-quality display.

The kit can be used to test and measure virtually all of the electrical and electronic components and circuits in the modern vehicle, including:

- Ignition (primary & secondary)
- ABS sensors, crank & cam sensors
- Lambda, airflow, knock & MAP sensors
- FlexRay, CAN & LIN bus ref. waveforms
- Injectors & fuel pumps
- Starter & charging currents
- Glow plugs/timer relays
- Relative compression tests

For more information please request our automotive catalogue online at www.picoauto.com.



Ordering Information

Ordering Information

ORDERING

Pico Technology supports a network of distributors in over 50 countries worldwide who are helping to build and maintain its enviable reputation in the industry. Details of your local distributor who will be happy to help you can be found at www.picotech.com/distribl.html.

Customers from the UK and those from countries without a local distributor can also place orders direct with Pico Technology by phone, fax or secure e-commerce.

We aim to despatch orders within 24 hours of receiving payment for products in stock from 9am to 5pm (Monday to Friday).

PAYMENT

We accept payment in Sterling, Euros and US Dollars. Payment is also accepted by credit card (Visa or MasterCard) or debit card (Maestro/Switch or Delta).

Please note that all sales are subject to our standard terms and conditions. Prices are correct at the time of printing but are subject to change without notice.

Please check the current Euro and Dollar prices on our website before ordering.

Errors and omissions excepted.

pcb technologies

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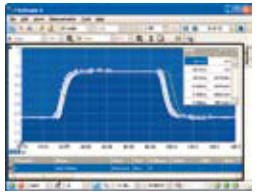
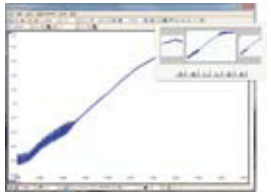

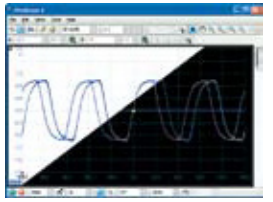

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