pico®
Technology

PC based oscilloscopes, data loggers and RF test equipment



www.picotech.com

L'IMPULSION
Retrouvez nous sur
www.limpulsion.fr

pico® Technology

Established in 1991, Pico Technology is a leading manufacturer of electronic Test and Measurement (T&M) products.

Our company and instruments have been recognized with several prestigious industry awards, including the Queen's Award for Enterprise (2014), Sunday Times 100 Best Small Companies to Work For (2018 and 2019) and Elektra (2018).
We have also won awards from NASA Tech Briefs and DesignVision for the PicoScope® 5000 Series.

ELEKTRA 2018 WINNER

DESIGNVISION AWARDS 2014

BEST COMPANY 2019

THE SUNDAY TIMES 100 BEST SMALL COMPANIES TO WORK FOR 2019

Pico Technology T&M products are used by scientists, technicians, engineers and researchers to troubleshoot their designs and validate the performance of their systems with precision and within budget. PicoScopes capture and display complex waveforms that are the heartbeat of next-generation electrical and electronic technologies. They address many challenges with mathematical waveform analysis tools, decoding of popular serial communication protocols and mixed-signal capabilities.

Pico data loggers enable multi-channel precision recording of scientific and engineering parameters such as temperature, voltage, current, force, strain and vibration. PicoScopes and





Calibration services available

bsi. ISO 9001 Quality Management ISO 14001 Environmental Management
FM52022 EMS612349

ISO 9001 & ISO 14001 accredited

PicoScope® oscilloscopes



	PicoScope 2000 Series		PicoScope 3000 with MSO options	PicoScope 4000 Series	
	2000A models with MSO options	2000B models with MSO options		4224 and 4424	4262
Description	Power and performance in your hand	Benchtop performance in a pocket-sized scope	Power, portability and performance	High-resolution oscilloscopes	Digital oscilloscope for the analog world
Channels	2 or 4 (+ 16 digital with MSO)	2 or 4 (+ 16 digital with MSO)	2 or 4 (+ 16 digital with MSO)	2, 2+IEPE or 4	2 + EXT
Outputs	FG + AWG 100 kHz / 1 MHz	FG + AWG 1 MHz	FG + AWG 1 MHz	None	AWG and low-distortion sine wave generator
Analog bandwidth	10 to 25 MHz	50 to 100 MHz	50 to 200 MHz	20 MHz	5 MHz
Sampling rate	100 to 500 MS/s	500 MS/s to 1 GS/s	1 GS/s	80 MS/s	10 MS/s
Resolution (enhanced)	8 bits (12 bits)	8 bits (12 bits)	8 bits (12 bits)	12 bits (16 bits)	16 bits (20 bits)
Capture memory	8 kS to 48 kS	32 MS to 128 MS	64 MS to 512 MS	32 MS	16 MS
Power	USB	USB	USB or AC adaptor	USB	USB
Price from	$115 / €95 / £79	$349 / €299 / £249	$579 / €489 / £379	$819 / €699 / £569	$1 235 / € 1 045 / £859

EXT: external trigger input, AUX: auxiliary trigger input, FG: function generator, AWG: arbitrary waveform generator.

L'IMPULSION Retrouvez nous sur www.limpulsion.fr

From our headquarters near Cambridge in the UK to our regional offices in Texas, USA and Shanghai, China, we are committed to delivering world-class support to our customers, wherever they are.

Pico data loggers are supported by a comprehensive five-year warranty.

Pico test instruments are supplied with a Software Development Kit (PicoSDK®) that can be used to write custom applications. Drivers for Windows, macOS and Linux (including Raspberry Pi and Beaglebone) are included, and code samples for Microsoft Excel, National Instruments LabVIEW, MathWorks MATLAB, C#, C++ and Python are hosted on our GitHub organization page.

Products and accessories from Pico Technology are built and tested according to our ISO 9001 Quality and ISO 14001 Environmental Management Systems for "The design, manufacture, sale, and technical support of electronic measuring equipment used for the recording of voltages, current, temperature and humidity." Traceable calibration is the foundation of our quality system, which means you can rely on measured results from any Pico instrument with complete confidence.



Hardware and software developers at our headquarters near Cambridge, UK.

Did you know?...

Pico Technology is also the leading supplier of automotive diagnostic scopes worldwide? Our automotive equipment is used in both franchised dealerships and independent workshops.

Visit www.picoauto.com for more information





PicoScope 4000 Series		PicoScope 5000 with MSO options	PicoScope 6000 Series	PicoScope 9000 Series
4444	4824			
High-resolution differential oscilloscope	8 channel oscilloscope	The complete all-rounders: FlexRes® and MSO oscilloscopes	Highest performance real-time oscilloscopes	SXRTO and Sampling oscilloscopes
4 true differential	8	2 or 4 (+ 16 digital with MSO)	4 + AUX input	2 (+OPT) or 4
Probe compensation signal	FG + AWG 1 MHz	FG + AWG 20 MHz	FG or FG + AWG 20 MHz	PRBS, Clock, diff. TDR/TDT
20 MHz	20 MHz	60 to 200 MHz	250 MHz to 1 GHz	5 to 25 GHz
50 MS/s to 400 MS/s	80 MS/s	62.5 MS/s to 1 GS/s	5 GS/s	200 kS/s to 500 MS/s
FlexRes 12 or 14 bits (16 or 18 bits)	12 bits (16 bits)	8, 12, 14, 15 and 16 bits (up to 20 bits)	8 bits (12 bits)	12 to 16 bits
256 MS	256 MS	128 MS to 512 MS (8-bit) 64 MS to 256 MS (≥12-bit)	256 MS to 2 GS	32 to 250 kS
USB	USB	USB or AC adaptor	AC adaptor	AC adaptor
$1 285 / €1 085 / £899	$2 305 / €1 955 / £1 735	$1 155 / €979 / £809	$3 295 / €2 795 / £2 275	$10 935 / €9 285 / £7 675

AUX: auxiliary trigger input, FG: function generator, AWG: arbitrary waveform generator, OPT: optical input (optional, on 2-channel model only).

L'IMPULSION Retrouvez nous sur www.limpulsion.fr

PicoScope 6 software

The display can be as simple or as advanced 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. Available in 23 languages.

Tools:
Including serial decoding, reference channels, macro recorder, alarms, mask limit testing and math channels.

FlexRes®:
FlexRes allows you to reconfigure the hardware to increase either the sampling rate or the resolution. Easily switch from 8 up to 16 bits resolution.
Avaliable on PicoScope 5000D and PicoScope 4444.

Auto setup button:
Configures the collection time and voltage range for clear display of signals.

Channel options:
Filtering, offset, resolution enhancement, custom probes and more.

Oscilloscope controls:
Controls such as voltage range, scope resolution, channel enable, timebase and memory depth.

Zoom overview:
Click and drag for quick navigation in zoomed views.

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 an **Auto Arrange Axes** feature.



Trigger toolbar:
Quick access to main controls, with advanced triggers in a pop-up window.

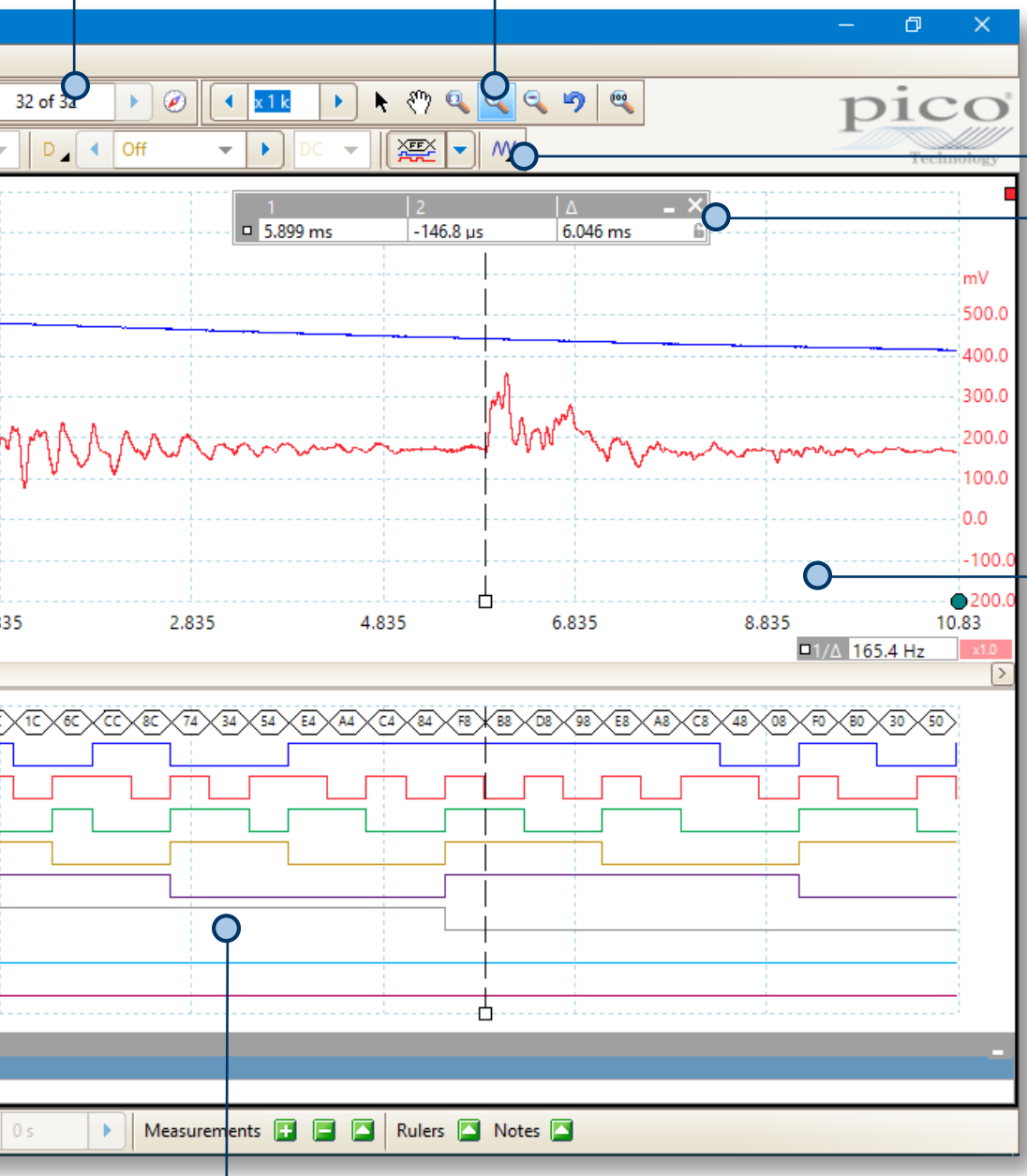
Automatic measurements:
Display calculated measurements for troubleshooting and analysis. You can add as many measurements as you need on each view. Each measurement includes statistical parameters showing its variability.

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

Trigger marker:
Drag the yellow diamond to adjust trigger level and pre-trigger time.

Waveform replay tools:
PicoScope 6 automatically records up to 10 000 of the most recent waveforms. You can quickly scan through to look for intermittent events, or use the **Buffer Navigator** to search visually.

Zoom and pan tools:
PicoScope 6 allows a zoom factor of several million, which is necessary when working with deep memory scopes, such as the PicoScope 5000 and 6000 Series



Signal generator:
Generates standard signals or arbitrary waveforms. Includes frequency sweep mode.

Ruler legend:
Absolute and delta ruler measurements are listed here.

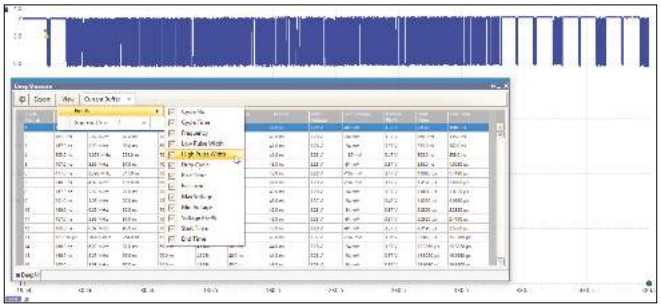
Views:
PicoScope 6 is carefully designed to make the best use of the display area. You can add new scope, spectrum and XY views with automatic or custom layouts.

Logic analyzer/ mixed signal capability:
MSO mixed signal models include 16 digital inputs so that you can view digital and analog signals simultaneously. The digital inputs can be displayed individually or in named groups with binary, decimal or hexadecimal values shown in a bus-style display.

Software features

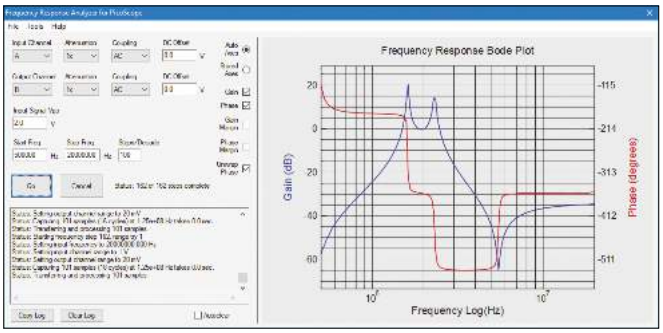
DeepMeasure

Measurement of waveform pulses and cycles is key to verification of the performance of electrical and electronic devices. DeepMeasure delivers automatic measurements of important waveform parameters on up to a million waveform cycles with each triggered acquisition. Results can be easily sorted, analyzed and correlated with the waveform display.



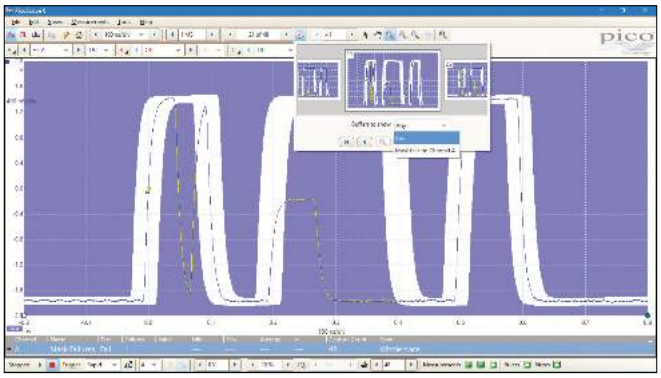
Software development kit (SDK)

The SDK allows you to write your own software and includes drivers for Microsoft Windows, macOS and Linux, including Raspberry Pi and BeagleBone. Example code shows how to interface to third-party software packages such as Microsoft Excel, National Instructions LabVIEW, MathWorks MATLAB and Python.



Mask limit testing

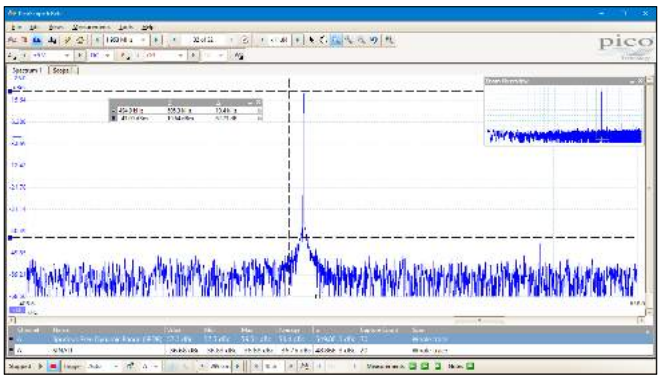
Mask limit testing allows you to compare live signals against known good signals, and is designed for production and debugging environments. Simply capture a known good signal, draw a mask around it, and then probe the system under test. PicoScope will check for mask violations and perform pass/fail testing, capture intermittent glitches, and can show a failure count and other statistics in the Measurements window.



Spectrum analyzer

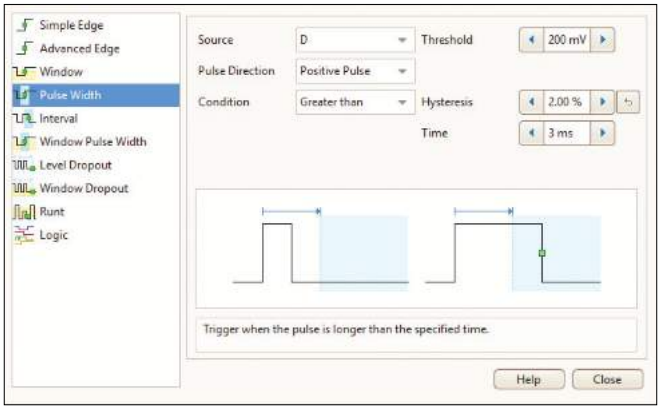
The FFT spectrum view plots amplitude against frequency. It is ideal for finding noise, crosstalk or distortion in signals.

You can display multiple spectrum views alongside oscilloscope views of the same data. A comprehensive set of automatic frequency-domain measurements can be added to the display, including THD, THD+N, SNR, SINAD and IMD. FFTs of up to 1 million points can be computed in milliseconds, giving superb frequency resolution.



Advanced digital triggering

Advanced trigger types enable you to capture a stable waveform with complex signals. This is ideal for troubleshooting glitches, timing violations, overvoltages and dropouts in analog and digital circuits. Advanced triggers include pulse width, runt, drop-out, logic, and digital modes.



Serial protocol decoding and analysis

Serial communication buses are used extensively in modern electronic designs and communications. There are a wide range of serial protocols, each optimized for specific operating conditions and design complexities, different speeds, power consumption, fault tolerance and, of course, cost. Some serial buses use differential signaling which improves noise immunity.

Although serial buses offer several advantages, they also present difficulties when troubleshooting and debugging systems, since the data is transmitted in packets or frames that need to be decoded to make sense of the information flow. PicoScope includes decoding and analysis of more than 20 popular serial standards to help engineers see what is happening in their design to identify programming and timing errors, and check for other signal integrity issues. Timing analysis tools help to measure communication system performance and data loading, enabling the identification of those parts of a design that need to be improved to optimize overall system performance.

The list of serial protocol decoders included as standard PicoScope is growing all the time, as new standards emerge and are added to the software.

At the time of printing the following are provided:

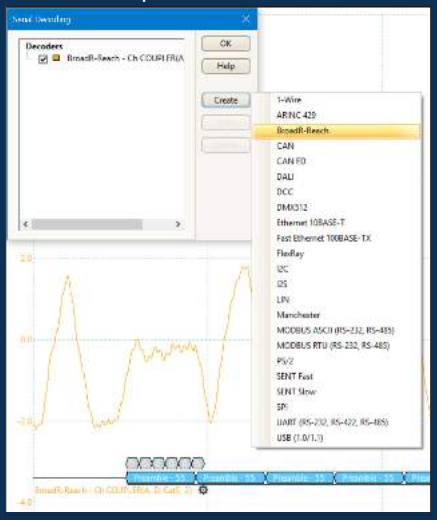
Computer / Embedded Systems
- 1-Wire
- DALI
- Ethernet 10BASE-T & 100BASE-TX
- I^2C
- I^2S
- Manchester
- MODBUS (ASCII & RTU)
- SPI
- UART (RS-232 / RS-422 / RS-485)
- USB

Automotive
- BroadR-Reach - NEW! (100BASE-T1 Automotive Ethernet)
- CAN & CAN-FD
- FlexRay
- LIN
- SENT

Other
- ARINC 429 (avionics)
- DCC (model railways)
- DMX-512 (stage lighting control)

BroadR-Reach

BroadR-Reach (100BASE-T Automotive Ethernet), shown here, operates in full duplex mode using differential signaling on a twisted pair of wires.

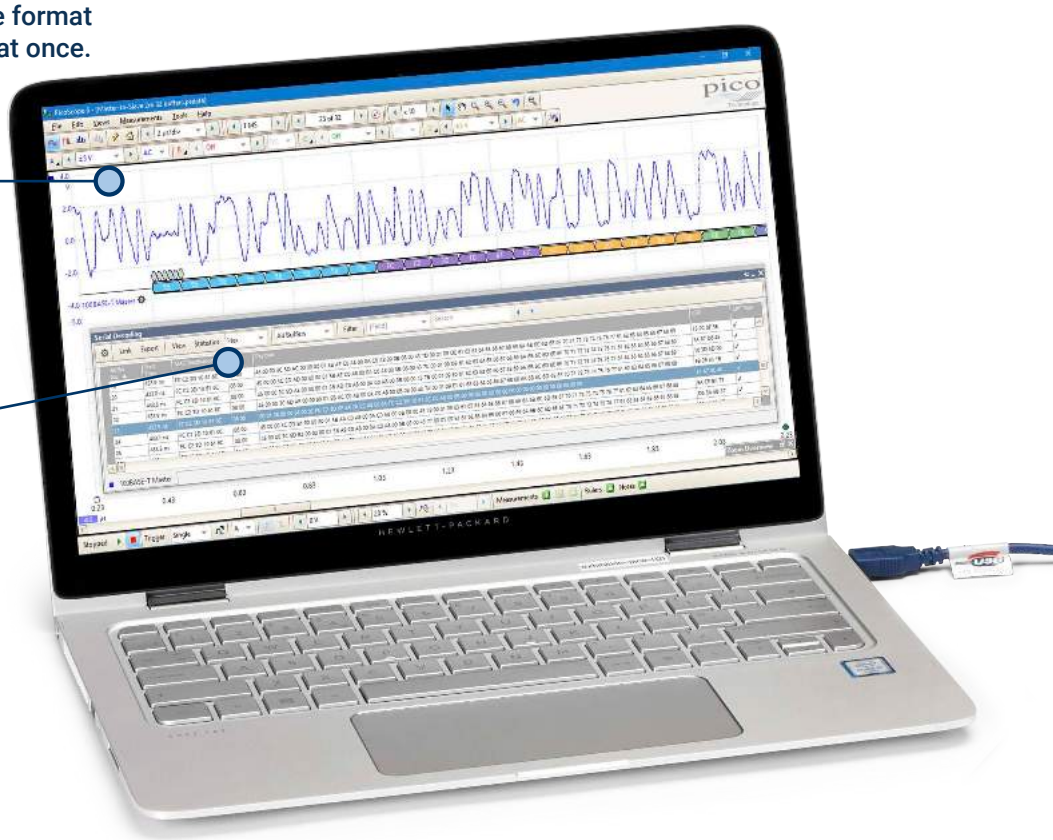


The decoder needs to discriminate between Master-Slave and Slave-Master communications. The PicoScope software directional coupler utilizes two probing points a known distance apart, and a velocity of propagation algorithm to extract the transmitted data waveform in each direction.

Decoded data can be displayed in the format of your choice: Graph, Table, or both at once.

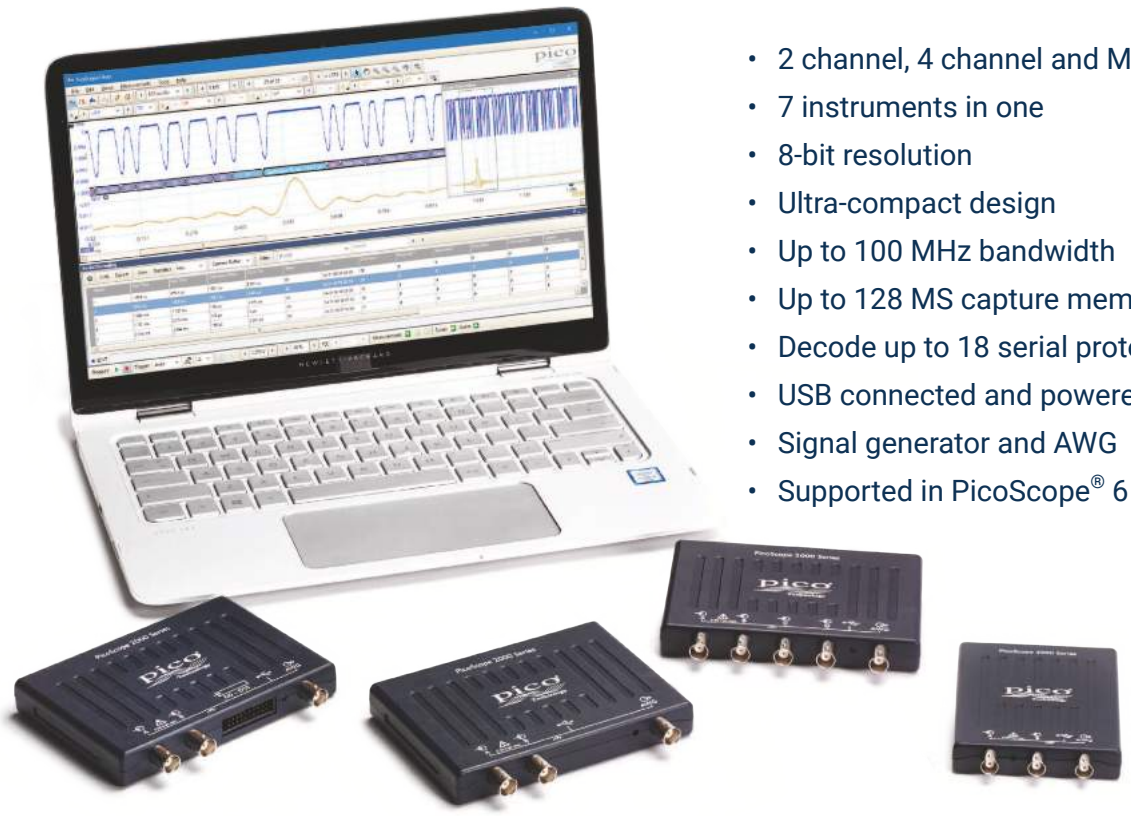
Graph format shows decoded data in a bus format, aligned with the analog waveform, on a common time axis, with error frames marked in red. Frames can be zoomed and correlated with acquired analog channels to investigate timing errors or other signal integrity issues that are the cause of data errors.

Table 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 to signal when the program should list the data.
Data can be displayed in Hex, Binary, ASCII or Decimal formats. To help make decoded data even easier to read, PicoScope enables use of a link file so that, for example, address hex 03DF can be displayed as “Oil temperature”, in human-readable form.



L'IMPULSION | Retrouvez nous sur www.limpulsion.fr

PicoScope 2000 Series



- 2 channel, 4 channel and MSO models
- 7 instruments in one
- 8-bit resolution
- Ultra-compact design
- Up to 100 MHz bandwidth
- Up to 128 MS capture memory
- Decode up to 18 serial protocols
- USB connected and powered
- Signal generator and AWG
- Supported in PicoScope® 6 and PicoLog® 6

Benchtop performance in a pocket-sized scope

You can use your PicoScope 2000 Series as an advanced oscilloscope, spectrum analyzer, function generator, arbitrary waveform generator, data logger and protocol decoder out of the box. Mixed signal models also add a 16 channel logic analyzer. A complete electronics lab in one compact, low-cost, USB-powered unit.



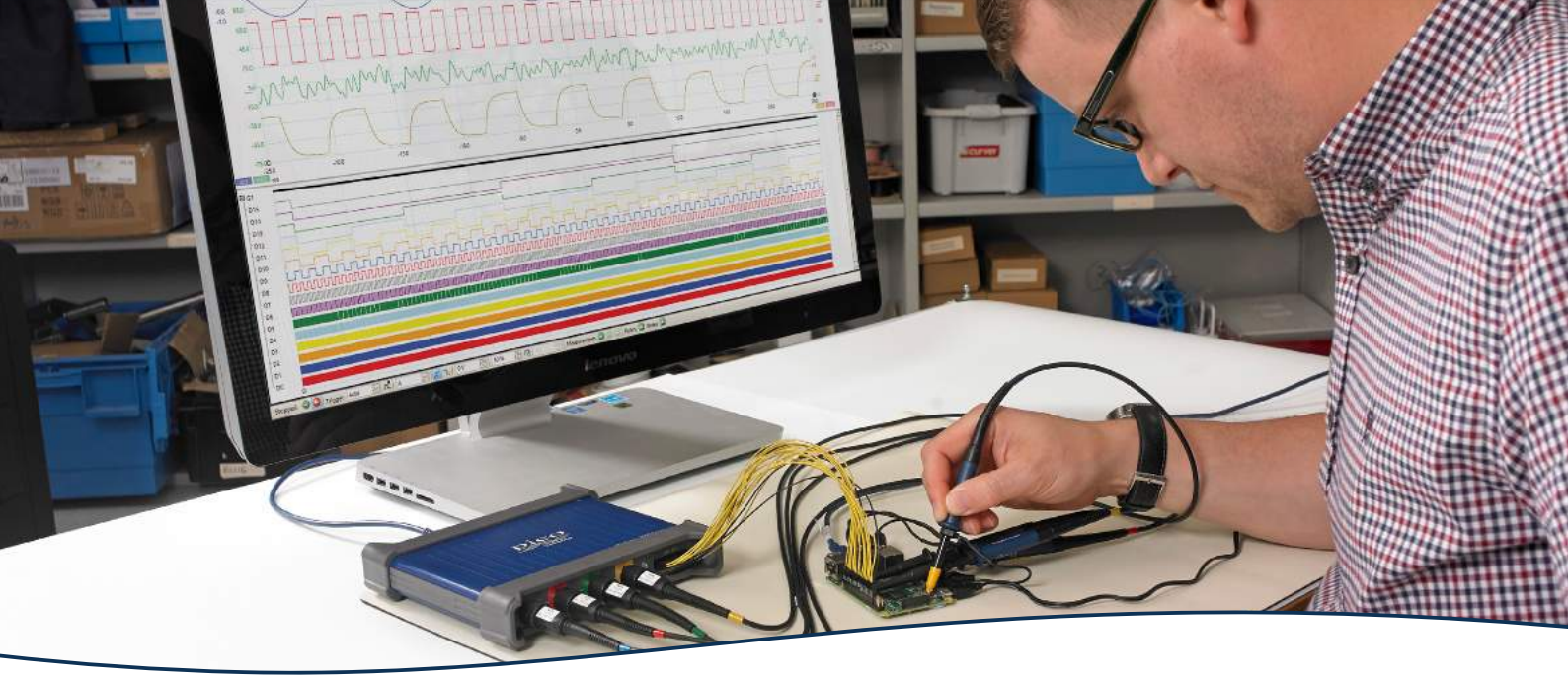
The PicoScope 2000A models deliver unbeatable value for money and are ideal for education, hobby and field service use. In the lab the low cost allows one scope per person rather than having to share.

The PicoScope 2000B models have the added benefits of deep capture memory (up to 128 MS), higher bandwidth (up to 100 MHz) and faster waveform update rates. PicoScope 2000B models give you the performance to carry out advanced analysis of your waveforms. They are ideal for design, debug and serial decoding.

PicoScope	2204A	2205A	2206B	2207B	2208B	2405A	2406B	2407B	2408B	2205A MSO	2206B MSO	2207B MSO	2208B MSO
Channels*	2A					4A				2A + 16D			
Bandwidth	10 MHz	25 MHz	50 MHz	70 MHz	100 MHz	25 MHz	50 MHz	70 MHz	100 MHz	25 MHz	50 MHz	70 MHz	100 MHz
Sampling rate**	100 MS/s	200 MS/s	500 MS/s	1 GS/s	1 GS/s	500 MS/s	1 GS/s	1 GS/s	1 GS/s	500 MS/s	1 GS/s	1 GS/s	1 GS/s
Capture memory**	8 kS	16 kS	32 MS	64 MS	128 MS	48 kS	32 MS	64 MS	128 MS	48 kS	32 MS	64 MS	128 MS
Part number - includes probes	PP906	PP907	PQ012	PQ013	PQ014	PQ015	PQ016	PQ017	PQ018	PQ008	PQ009	PQ010	PQ011
Price	$139 €119 £99	$225 €189 £159	$349 €299 £249	$499 €419 £349	$679 €579 £479	$449 €389 £319	$599 €509 £419	$829 €699 £579	$1 125 €949 £789	$449 €389 £319	$609 €519 £429	$769 €649 £539	$999 €849 £699
Part number - scope only	PP917	PP966											
Price	$115 €95 £79	$199 €169 £139											

* A=analog and D=digital ** Shared between active channels

L'IMPULSION Retrouvez nous sur www.limpulsion.fr



PicoScope 3000 Series

Power, portability and performance

The PicoScope 3000 Series PC oscilloscopes are small, light, and portable, while offering the high-performance specifications required by engineers in the lab or on the move.

These oscilloscopes offer 2 or 4 analog channels, plus an additional 16 digital channels on the MSO models.



The flexible, high-resolution display options enable you to view and analyze each signal in fine detail.

Operating together with the PicoScope 6 software, these devices offer an ideal, cost-effective package for many applications, including embedded systems design, research, test, education, service and repair.

- 2 channel, 4 channel and MSO models
- 8-bit resolution
- Up to 200 MHz analog bandwidth
- Up to 512 MS capture memory
- 1 GS/s real-time sampling
- 100 000 waveforms per second
- Decode 18 serial protocols as standard
- USB 3.0 connected and powered
- Signal generator and AWG
- Supported in PicoScope 6 and PicoLog 6

PicoScope	3203D	3203D MSO	3204D	3204D MSO	3205D	3205D MSO	3206D	3206D MSO	3403D	3403D MSO	3404D	3404D MSO	3405D	3405D MSO	3406D	3406D MSO
Channels *	2A	2A+16D	2A	2A+16D	2A	2A+16D	2A	2A+16D	4A	4A+16D	4A	4A+16D	4A	4A+16D	4A	4A+16D
Bandwidth	50 MHz		70 MHz		100 MHz		200 MHz		50 MHz		70 MHz		100 MHz		200 MHz	
Sampling rate**	1 GS/s															
Capture memory **	64 MS		128 MS		256 MS		512 MS		64 MS		128 MS		256 MS		512 MS	
Part number - includes probes	PP958	PP956	PP959	PP931	PP960	PP932	PP961	PP933	PP962	PP957	PP963	PP934	PP964	PP935	PP965	PP936
Price	$579 €489 £379	$819 €699 £589	$739 €629 £519	$989 €839 £699	$989 €839 £679	$1 235 €1 045 £879	$1 405 €1 185 £979	$1 645 €1 395 £1 155	$909 €769 £599	$1 155 €979 £809	$1 155 €979 £799	$1 405 €1 185 £989	$1 565 €1 325 £1 085	$1 805 €1 535 £1 275	$2 135 €1 815 £1 475	$2 385 €2 025 £1 675

For full product specification please visit www.picotech.com

* A=analog and D=digital ** Shared between active channels

L'IMPULSION Retrouvez nous sur www.limpulsion.fr

PicoScope 4224 and 4424

High-resolution oscilloscopes

The PicoScope 4224 and 4424 offer both high resolution (12 bits) and high DC accuracy (1%) making them an excellent choice for noise, vibration, precision electronics and mechanical analysis.

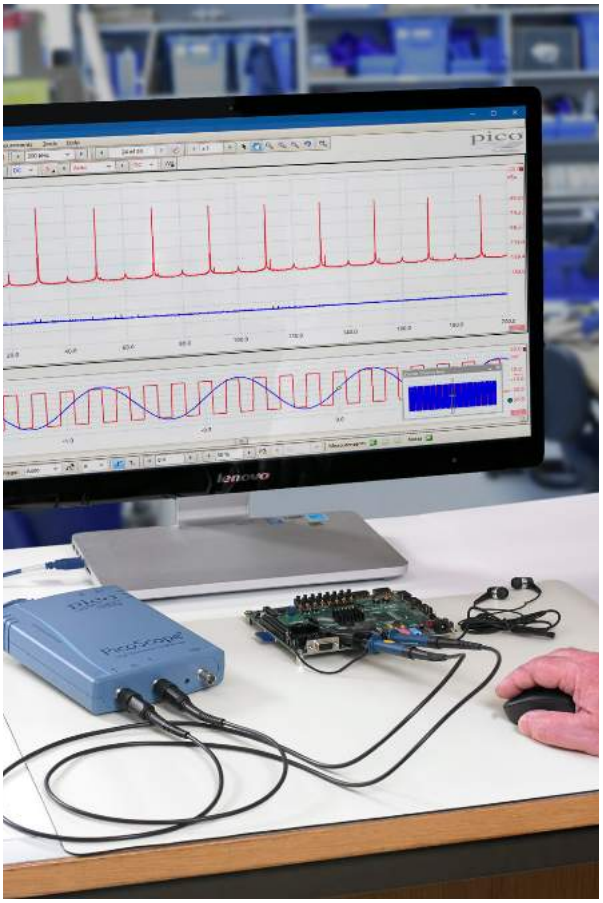
The optional IEPE model has built-in constant current sources that allow the direct connection and powering of industry standard accelerometers and microphones.



- 2 or 4 channels
- 12-bit resolution
- IEPE model available (for accelerometers, microphones etc)
- 20 MHz bandwidth
- 32 MS capture memory
- Decode 16 serial protocols as standard
- USB connected and powered

PP478	PicoScope 4224	Includes probes and carry case	2 channels	$859	€729	£599
PP695	PicoScope 4224 IEPE	Scope only	2 channels	$989	€839	£679
PP479	PicoScope 4424	Includes probes and carry case	4 channels	$1 365	€1 165	£949

PicoScope 4262



Digital oscilloscope for the analog world

Most digital oscilloscopes have been designed for viewing fast digital signals. The trend has been to use new technology solely to increase sampling rate and bandwidth. With the PicoScope 4262, however, we have focused on what's important for measuring analog signals: increasing the resolution, improving dynamic range, and reducing noise and distortion.

The result is an oscilloscope / FFT analyzer that has a level of performance to put most audio analyzers to shame. It has a 5 MHz bandwidth making it equally suitable for vibration and ultrasound signals as well as a wide range of precision measurement tasks.

The PicoScope 4262 has a built-in 20 kHz function generator (sine, square, triangle, DC voltage, ramp, sinc, Gaussian, half-sine, white noise and PRBS). The function generator offers an outstanding sine wave distortion performance of 102 dB SFDR.

- 2 channel oscilloscope / spectrum analyzer
- 16-bit resolution
- Low distortion (96 dB SFDR)
- Low noise (8.5 µV RMS)
- 5 MHz bandwidth
- 16 MS capture memory
- Low-distortion signal generator
- Arbitrary waveform generator
- USB connected and powered

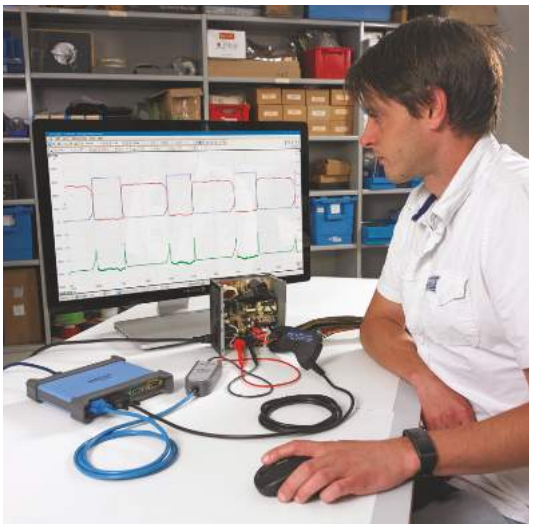
PP799	PicoScope 4262	Includes probes	2 channel + external trigger	$1 235	€1 045	£859

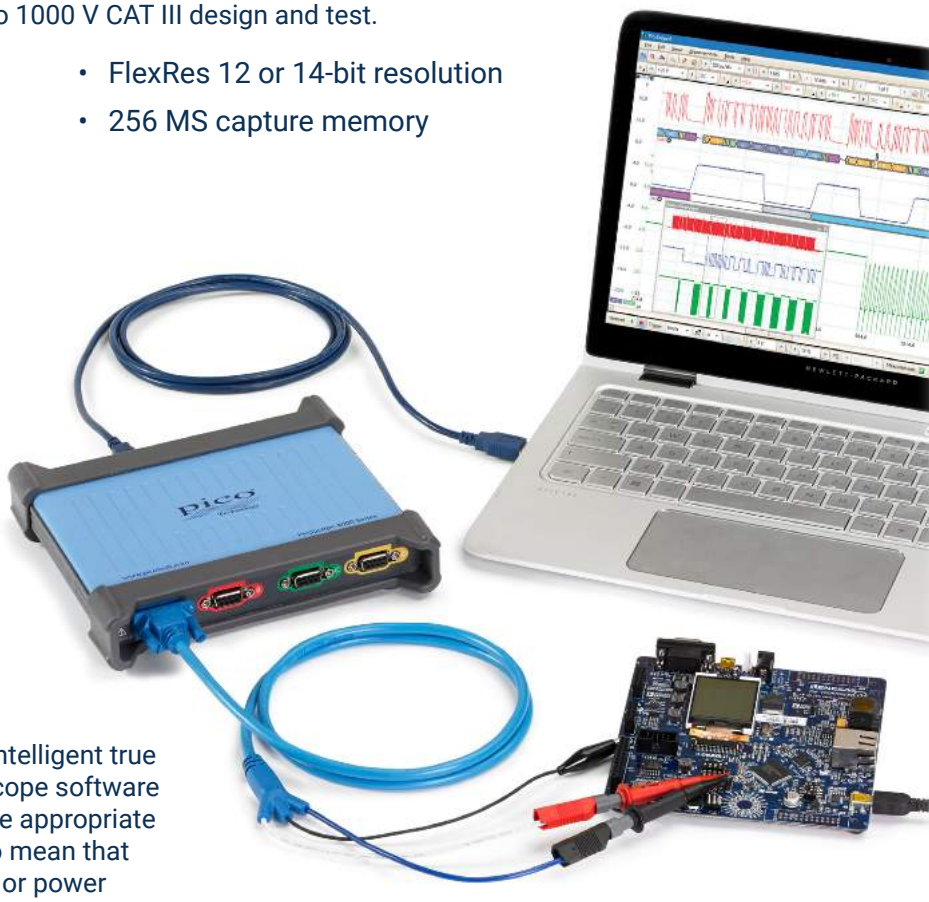
PicoScope 4444

High-resolution differential oscilloscope

With four true differential inputs, 12 or 14-bit resolution and wide differential and common-mode voltage ranges, the PicoScope 4444 and its accessories offer accurate and detailed measurement for a multitude of applications, from low-amplitude biomedical and electronic uses to 1000 V CAT III design and test.

- 4 true differential high-impedance inputs
- 20 MHz bandwidth
- FlexRes 12 or 14-bit resolution
- 256 MS capture memory





Intelligent probe interface

The scope's 9-pin D-type connectors create an intelligent true differential probe interface and allow the PicoScope software to automatically identify the probe and select the appropriate display settings. These Pico D9 connectors also mean that probes that would usually require battery packs or power supplies can draw their power through the scope device instead.

PQ073	PicoScope 4444 extra-low voltage kit	$1 535	€1 325	£1 075
PQ074	PicoScope 4444 1000 V CAT III voltage kit	$1 915	€1 625	£1 345
PQ167	1000 V CAT III mains voltage and current kit	$2 525	€2 145	£1 775

1000 V CAT III voltage probe



1000 V CAT III current probe



Low voltage 1:1 probe



40 A current probe

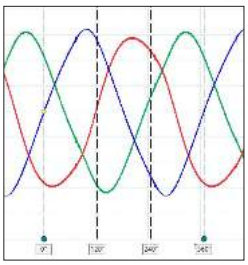


D9 to BNC adaptor

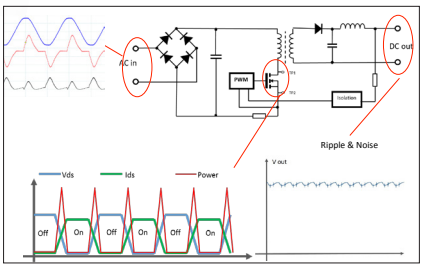


D9 to dual BNC adaptor

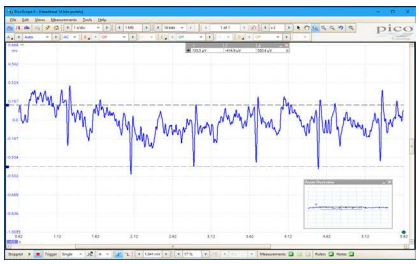




3-phase power test



Power inverter test



Biological (heartbeat) test

PicoScope 4824

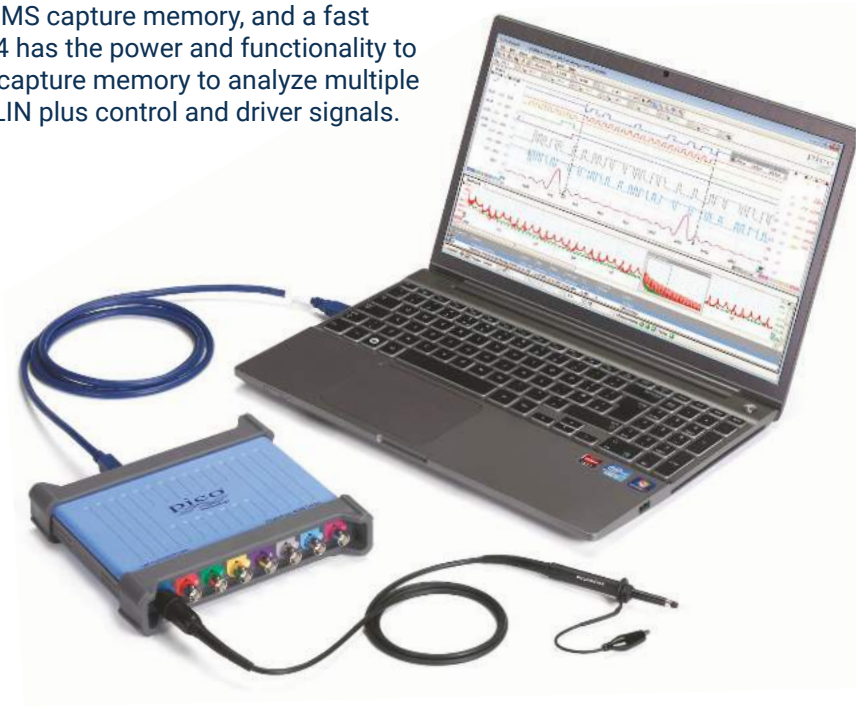
8 channel oscilloscope

The PicoScope 4824 is a low-cost, portable solution for multi-input applications. With 8 high-resolution analog channels you can easily analyze audio, ultrasound, vibration, power, and timing of complex systems.

Despite its compact size, there is no compromise on performance. With a high 12-bit vertical resolution, bandwidth of 20 MHz, 256 MS capture memory, and a fast sampling rate of 80 MS/s, the PicoScope 4824 has the power and functionality to deliver accurate results. It also features deep capture memory to analyze multiple serial buses such as UART, I²C, SPI, CAN and LIN plus control and driver signals.

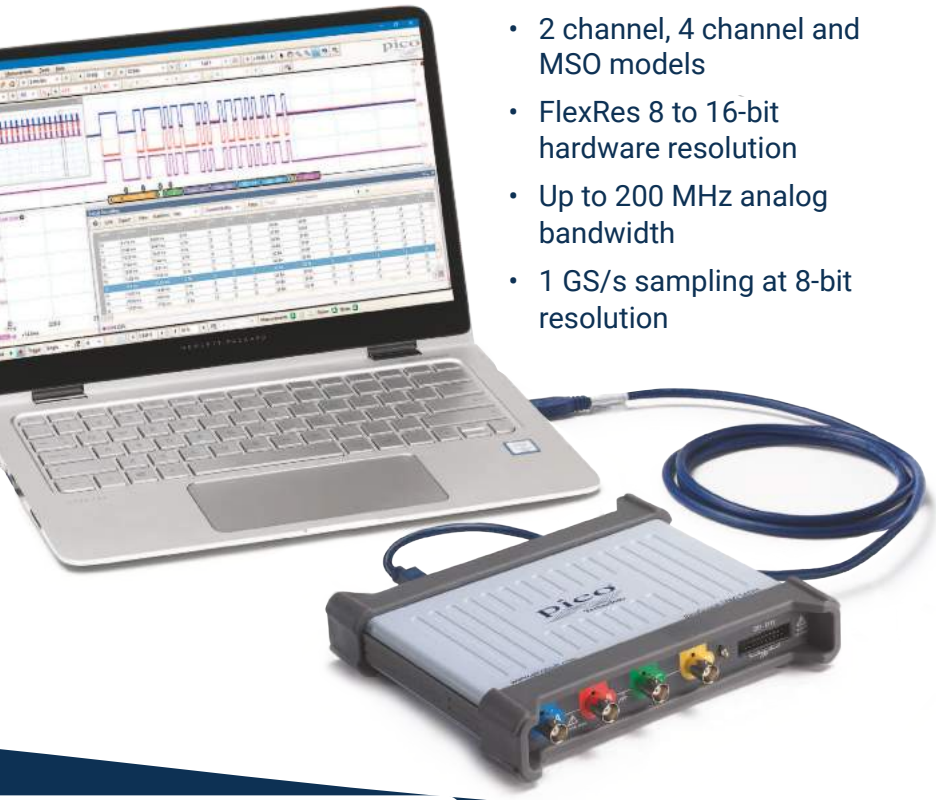
- 8 channels
- 12-bit resolution
- 20 MHz bandwidth
- 256 MS capture memory
- 14-bit signal generator and AWG
- Decode 16 serial protocols as standard
- USB 3.0 connected and powered
- Supports PicoScope 6 and PicoLog 6





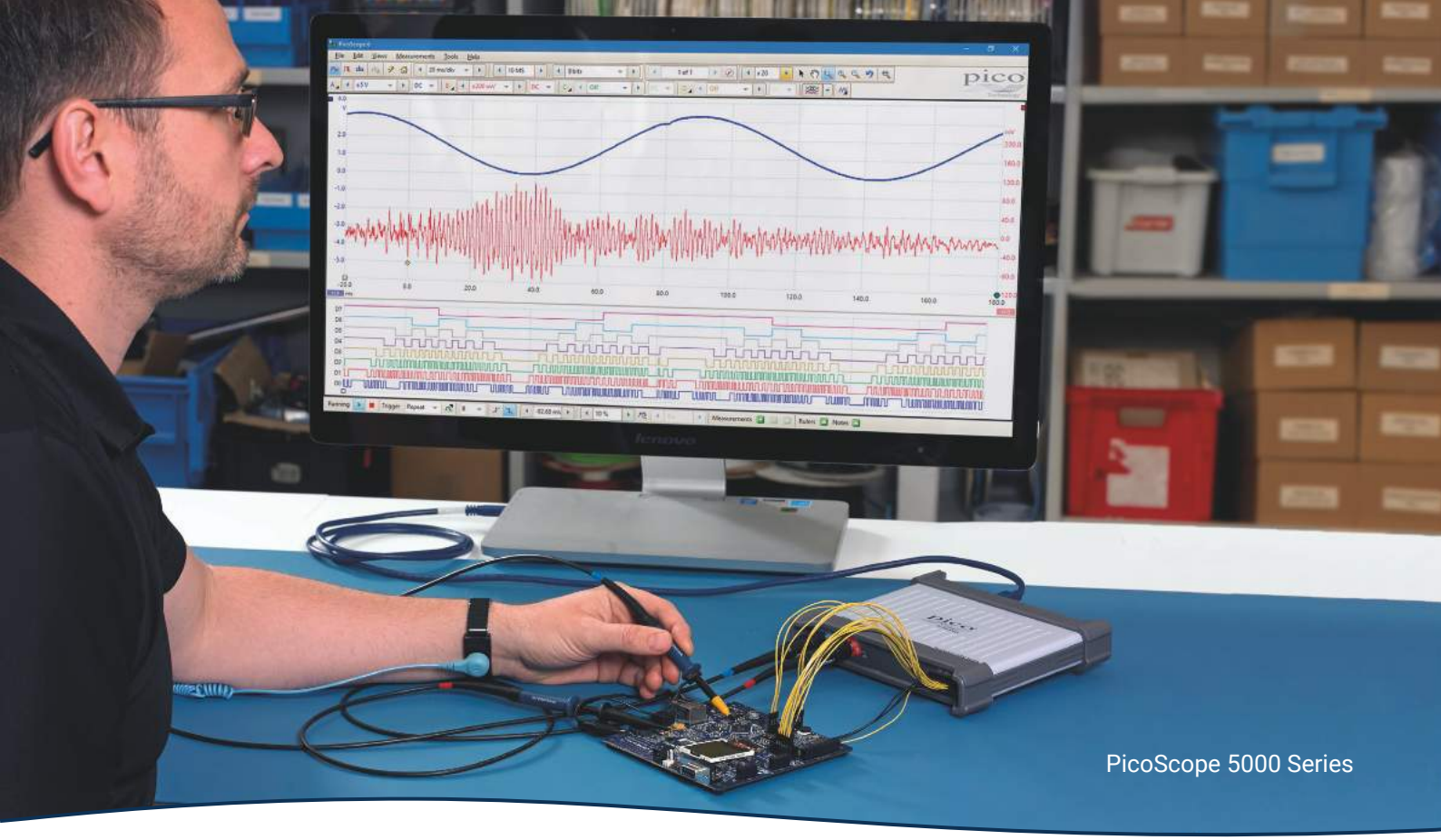
PP916	PicoScope 4824 (probes not included)	8 channels	$2 305	€1 955	£1 735

PicoScope 5000 Series



- 2 channel, 4 channel and MSO models
- FlexRes 8 to 16-bit hardware resolution
- Up to 200 MHz analog bandwidth
- 1 GS/s sampling at 8-bit resolution
- 62.5 MS/s sampling at 16-bit resolution
- Up to 512 MS capture memory
- 130 000 waveforms per second
- Signal generator and AWG
- Decode 18 serial protocols as standard
- USB 3.0 connected
- Supported in PicoScope 6 and PicoLog 6





The complete all-rounders: FlexRes® and MSO oscilloscopes

Today's electronic designs employ a wide range of signal types: analog, digital, serial (both high- and low-speed), parallel, audio, video, power distribution and so on. All need to be debugged, measured and validated to ensure that the device under test is functioning correctly and within specification.

To handle this variety of signal types, PicoScope 5000 FlexRes hardware employs multiple high-resolution ADCs at the input channels in different time-interleaved and parallel combinations to optimize either the sampling rate to 1 GS/s at 8 bits, the resolution to 16 bits at 62.5 MS/s, or other combinations in between – you select the most appropriate hardware resolution for the requirements of each measurement.

2 and 4 channel models are available, all featuring a SuperSpeed USB 3.0 connection, providing lightning-fast saving of waveforms while retaining compatibility with older USB standards. The PicoSDK software development kit supports continuous streaming to the host computer at rates up to 125 MS/s. The product is small and light, and operates silently thanks to its low-power fanless design.



PicoScope	5242D	5242D MSO	5243D	5243D MSO	5244D	5244D MSO	5442D	5442D MSO	5443D	5443D MSO	5444D	5444D MSO
Channels *	2A	2A+16D	2A	2A+16D	2A	2A+16D	4A	4A+16D	4A	4A+16D	4A	4A+16D
Bandwidth	60 MHz		100 MHz		200 MHz		60 MHz		100 MHz		200 MHz	
Sampling rate** (8-bit mode)	1 GS/s											
Capture memory ** (8-bit mode)	128 MS		256 MS		512 MS		128 MS		256 MS		512 MS	
Part number - includes probes	PQ143	PQ149	PQ144	PQ150	PQ145	PQ151	PQ146	PQ152	PQ147	PQ153	PQ148	PQ154
Price	$1155 €979 £809	$1 435 €1 215 £1 005	$1 615 €1 375 £1 135	$1 905 €1 615 £1 335	$1 945 €1 655 £1 365	$2 235 €1 895 £1 565	$1 665 €1 405 £1 165	$1 945 €1 655 £1 365	$2 275 €1 925 £1 595	$2 555 €2 175 £1 795	$2 745 €2 325 £1 925	$3 025 €2 575 £2 125

For full product specification please visit www.picotech.com

* A=analog and D=digital ** Shared between active channels and dependent on selected resolution

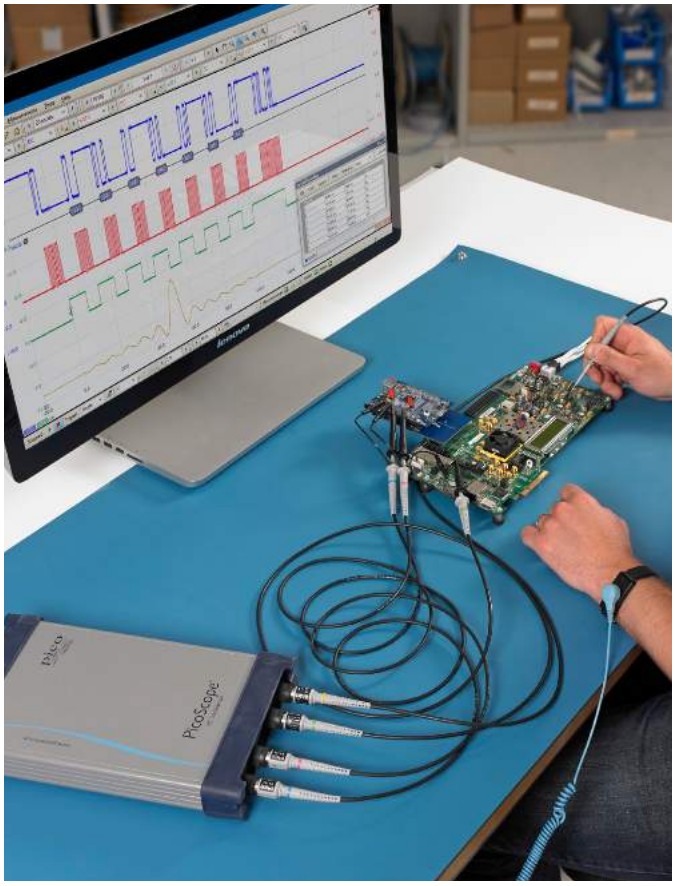
L'IMPULSION Retrouvez nous sur www.limpulsion.fr

PicoScope 6000 Series

Highest performance real-time oscilloscopes

The PicoScope 6000 Series is the ultimate USB oscilloscope. High-end features such as serial decoding, mask limit testing and segmented memory are included as standard.



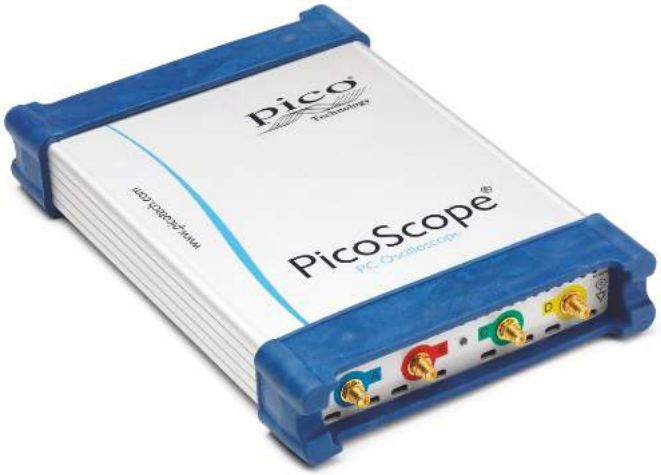


- 4 channels
- Up to 500 MHz bandwidth
- 5 GS/s real-time sampling rate
- Up to 2 GS ultra-deep capture memory
- 170 000 waveforms per second
- Arbitrary waveform generator (AWG) on D models
- Decode 21 serial protocols as standard
- USB 3.0 connected

PicoScope	6402C	6402D	6403C	6403D	6404C	6404D
Bandwidth	250 MHz		350 MHz		500 MHz	
Capture memory *	256 MS	512 MS	512 MS	1 GS	1 GS	2 GS
Outputs	Function generator	AWG and FG	Function generator	AWG and FG	Function generator	AWG and FG
Part number - includes probes	PP884	PP885	PP886	PP887	PP888	PP889
Price	$3 295 / €2 795 / £2 275	$4 115 / €3 495 / £2 835	$4 945 / €4 195 / £3 415	$5 765 / €4 895 / £3 985	$6 595 / €5 595 / £4 555	$7 415 / €6 295 / £5 125

* Shared between active channels

PicoScope 6407



High-speed digitizer

The PicoScope 6407 is a compact USB plug-in device that turns your PC or laptop into a 4-channel, high-speed digitizer. The PicoScope 6407 has high-bandwidth 50 Ω inputs with fixed ±100 mV input ranges and SMA connectors. Larger input signals can be accommodated with the use of external attenuators.

- 4 channels (fixed ±100 mV)
- 1 GHz bandwidth
- 1 GS capture memory size
- 5 GS/s real-time sampling rate
- Built-in function generator/AWG
- SMA input connectors
- USB 2.0 connected

PP795	PicoScope 6407	$9 895	€8 395	£6 835

L'IMPULSION | Retrouvez nous sur www.limpulsion.fr

PicoScope 9300 Series

Sampling oscilloscopes

With up to 25 GHz bandwidth, the PicoScope 9300 sampling oscilloscopes address digital and telecommunications applications of 10 Gb/s and higher, microwave applications up to 25 GHz and timing applications with a resolution down to 64 fs. Optional 11.3 Gb/s clock recovery, optical to electrical converter or differential, deskewable time domain reflectometry sources (60 ps/7 V) complete a powerful, small-footprint and cost-effective measurement package.

- Up to 25 GHz bandwidth models
- Up to 15 GHz prescaled, 2.5 GHz direct trigger and 11.3 Gb/s clock recovery
- Industry-leading 16-bit 1 MS/s ADC and 60 dB dynamic range
- Eye and mask testing to 16 Gb/s with up to $2^{23}-1$ pattern lock
- Comprehensive built-in measurements, histogramming and editable data mask library
- Integrated, differential, deskewable TDR/TDT step generator
- Intuitive, touch-compatible Windows user interface



Prices from	$10 935	€9 285	£7 675

PicoScope 9400 Series

A new format of broadband oscilloscopes

The PicoScope 9400 Series is a new class of SXRTO (sampler-extended real-time oscilloscope) devices that combine the benefits of real-time sampling, equivalent-time sampling and high analog bandwidth.

- PicoScope 9404-16: 16 GHz bandwidth, 22 ps transition time and 5 TS/s (0.2 ps resolution) equivalent-time sampling
- PicoScope 9404-05: 5 GHz bandwidth, 70 ps transition time and 1 TS/s (1 ps resolution) equivalent-time sampling
- Pulse, eye and mask testing down to 62 ps and up to 8 Gb/s
- Four 12-bit 500 MS/s ADCs
- Intuitive and configurable touch-compatible Windows user interface
- Comprehensive built-in measurements, zooms, data masks and histograms
- ±800 mV full-scale input range into 50 Ω
- Up to 250 kS trace length, shared between channels
- ±10 mV/div to ±0.25 V/div ranges provided by digital gain



PQ181	PicoScope 9404-05 SXRTO	5 GHz bandwidth	4 Channels	$ 14 995	€ 11 995	£ 10 995
PQ182	PicoScope 9404-16 SXRTO	16 GHz bandwidth	4 Channels	$ 19 495	€ 17 245	£ 14 995

L'IMPULSION | Retrouvez nous sur www.limpulsion.fr

More RF products from Pico...

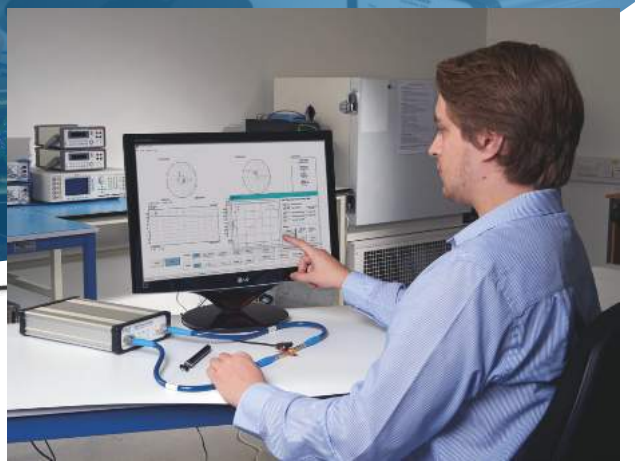
Find out more about our other RF products at www.picotech.com/rf-products

PicoVNA® 106

6 GHz Vector Network Analyzer

A low-cost, professional-grade 6 GHz VNA for both lab and field use. Professional and portable quad-receiver 118 dB design with bias-Ts. Up to 5000 dual-port Touchstone S-parameters per second. <0.005 dB RMS noise in 140 kHz bandwidth.





Prices from	$5 995	€5 085	£4 205

The PicoVNA Network Metrology Training Kit and NI/AWR Microwave Office Connected Partnership



The Network Metrology Test Kit includes active and passive circuit elements, low-cost calibration standards and test leads to partner the PicoVNA 106 in classroom microwave network measurement.

This PCB-hosted kit was designed within Microwave Office. DUT elements can be modified by students and the kit is supplied with the MWO project.



PicoSource™ AS108

8 GHz Agile Synthesizer

Professional and portable performance at low cost. 300 kHz to 8 GHz operation, -15 to +15 dBm dynamic range, with fast settling and programmable phase, frequency and amplitude to address a wide range of applications. CW, sweep, hop and list modes. Emulate schemes such as QPSK, QAM, ASK, and FSK.

Prices from	$5 875	€4 995	£4 125



L'IMPULSION Retrouvez nous sur www.limpulsion.fr

Accessories

Pico offers a broad portfolio of test accessories that enable you to make the measurements you need with our industry-leading oscilloscopes, data loggers and RF test equipment. From passive and active probes to accelerometers and carrying cases, we have everything you need for your application. Choose from:

Passive oscilloscope voltage probes

60 to 500 MHz high impedance general purpose probes

1.5 to 9 GHz low impedance probes suitable for any measuring instrument with 50 Ω inputs

Passive probe accessories, including replacement probe tips, logic test clips, cable identifiers and more.

Active oscilloscope voltage probes

Differential high-bandwidth probes from 200 MHz to 2.5 GHz

Differential high-voltage probes from 70 to 700 V and 25 to 100 MHz bandwidth

Current probes

60 to 2000 A AC/DC probes to 20 kHz bandwidth

“Rogowski coil” 3000A AC probes with 20 kHz bandwidth

“Pico D9” current probes to 100 kHz (for use with the PicoScope 4444)

Sensors

Type K thermocouples, PTFE / fiberglass, 1 – 5 m

Type T thermocouples, PTFE / fiberglass / stainless steel

PT100 sensors, wide variety including insertion, immersion and steel-braided cables

Accelerometers, single and three-axis types

Terminal adaptor boards for Pico data loggers

Screw terminal boards to adapt TC-08 and PT-104 data loggers for voltage measurements

For PicoLog 1000, allows sensor wires to be attached without soldering, and fit resistors to extend the input ranges

For ADC20/24, allows sensor wires to be attached without soldering, and construction of active signal conditioning circuitry

RF test accessories

SMA attenuators, 3 / 6 / 10 / 20 dB, 10 GHz

Bessel-Thomson filters, 622 Mb/s to 2.5 Gb/s

SOLT calibration kits for VNA, 6 GHz male & female

Network Metrology Training board, with example lumped element, active and passive and transmission line DUTs

Miscellaneous

BNC attenuators and terminators

4mm clips, leads, probes and hooks

USB type C to Standard A adaptor

Carry cases

And more . . .



L'IMPULSION
Retrouvez nous sur www.limpulsion.fr

PicoLog® 6 software

PicoLog 6 is a complete data acquisition software package that is fully compatible with Windows, macOS, Linux and Raspberry Pi*.

With its clear and user-friendly layout, ideal for use with a mouse or a touchscreen, PicoLog 6 allows you to set up the logger and start recording with just a few clicks of the mouse, whatever your level of data logging experience. Set up simple or advanced acquisitions quickly, and record, view and analyze your data with ease. Available in 9 languages.

Device settings view
Easily set up and adjust acquisition and math channels on one or more data loggers and check their status at a glance.

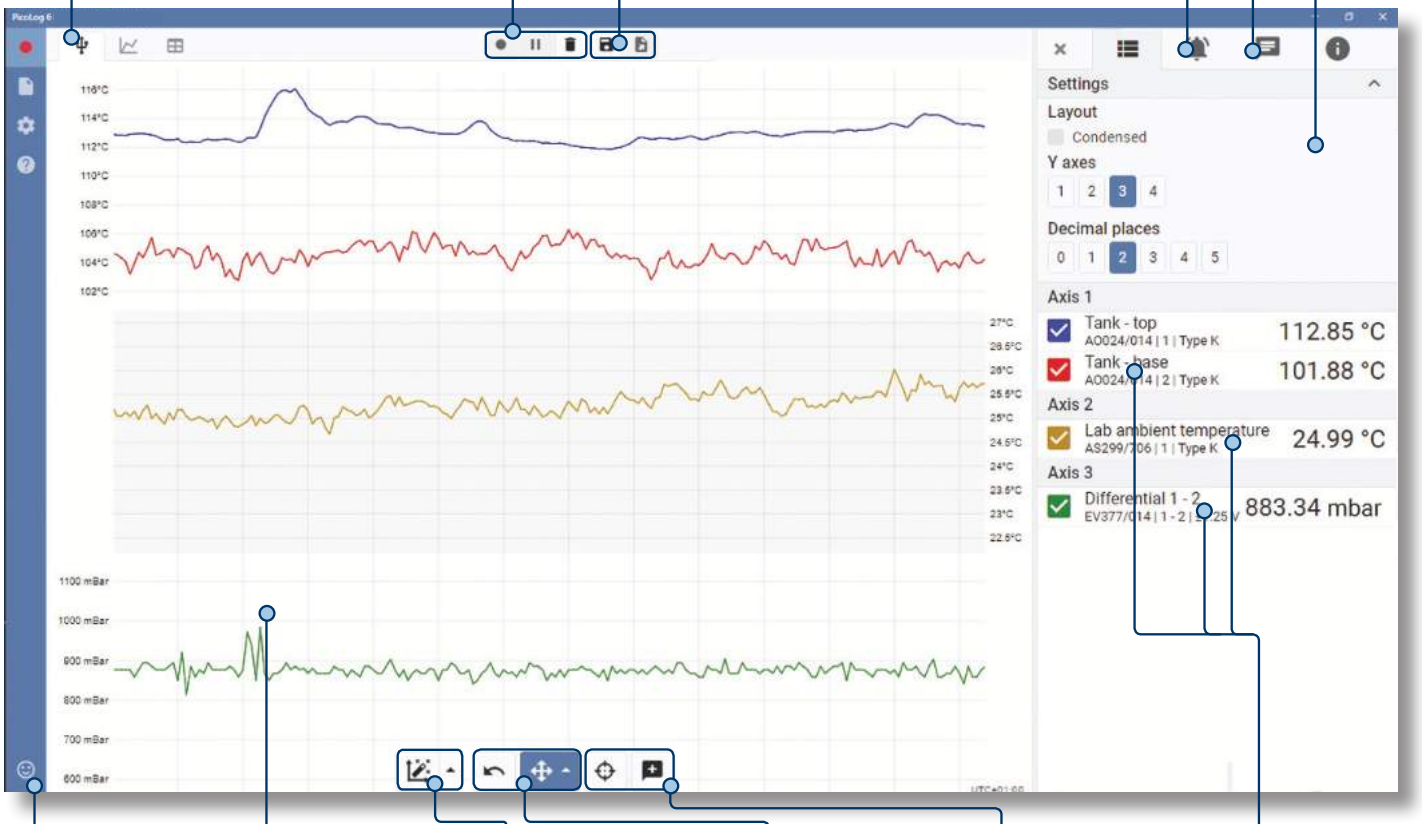
Capture controls
Separate **Record**, **Pause** and **Reset** buttons for quick access.
Select either continuous or time limited capture modes.

Save and Export options
Copy your graph to the clipboard, save it as a PDF, export the raw data to a CSV file, or save the data and configuration as a robust **.picolog** database file.

Alarms
Set up alarms to alert you to a range of events. Alarms can take the form of sounds, visual notifications, graph annotations and more.

Notes & annotations
Add notes about the dataset as a whole or annotations about particular points on the graph.

Pull-out information panel
Manage your channel and axis settings, alarms, notes and capture information in this easy-to-read layout. Close the panel to make more room for the capture graph, and reopen it at any time.



Give instant feedback
We want to hear from you! Click here to contact Pico with your comments.

Graph view
Display your data in real time, as it is collected, on up to four independent Y axes simultaneously: set them up by dragging and dropping the entries in the **Channels & Axes** panel on the right.

Data view
Display all the data collected so far or keep the graph scale the same and pan along as new samples appear.

Pan and zoom controls
Zoom in, zoom out, zoom to a selection or pan through the data with these tools. If you make a mistake, just click **Undo**.

Cursors and annotations
Use cursors to highlight the data value and time at any point on the graph, or click **Add annotation** to mark that point with a text note.

Multiple devices
Log data on up to 20 devices at the same time. Here, three separate data loggers are in use: two TC-08s and one ADC-24 voltage input logger.

Try the PicoLog 6 software today!

PicoLog 6's built-in demo mode allows you to try out the full functionality of the software with a choice of virtual devices and simulated live data. You also can use PicoLog 6 to view previously saved data, even with no device connected. Visit www.picotech.com/downloads and select **PicoLog Data Loggers** to get your copy.

*Raspberry Pi is a trademark of the Raspberry Pi Foundation

L'IMPULSION | Retrouvez nous sur www.limpulsion.fr

Software features

Intuitive logger and channel setup

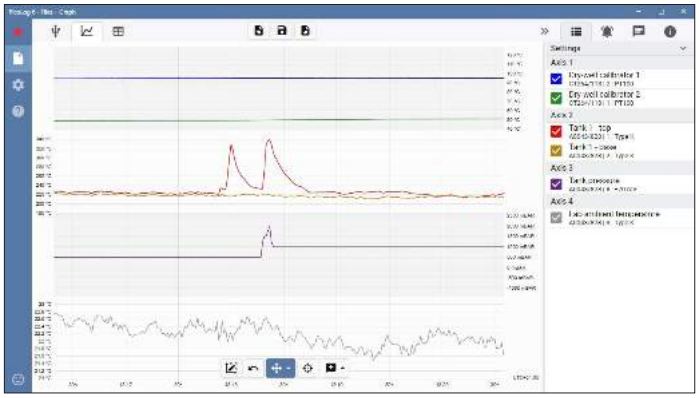
In the Device Configuration view you can instantly see the status of instruments, channel settings and math channels. An image of the device appears for each device detected, showing which channels are enabled. From this screen you can view and adjust settings such as adding graph axes, per-channel scaling factor, alarms, notes, graph annotations, channel naming and color, sample mode and sample interval.



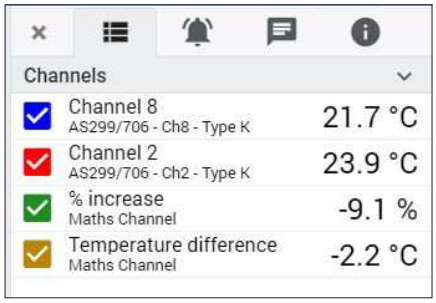
View live data in Graph View

The PicoLog 6 Graph View makes it easy to view captures, zoom and pan through large datasets, record alarm history and display when alarms occurred. It also allows you to annotate the graph with your notes and observations.

Adding additional graph axes is also essential for multi-channel logging applications where measurement units are different for every channel, or when the channels are measuring values at opposite ends of the range. You can view up to four axes with different ranges at a time.

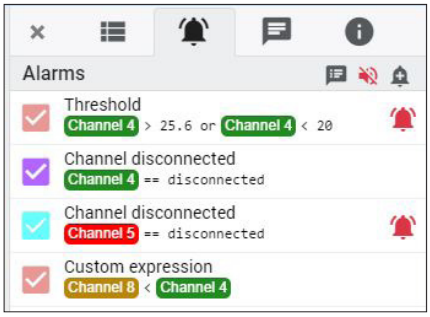


Math channels



Some applications require the recording and graphing of a calculated parameter containing data from one or more measurement channels. PicoLog 6 is equipped with an equation builder to perform simple calculations such as A – B, or more complex functions such as log, sqrt, abs, round, min, max, mean and median. Math channels are treated like any normal channel, so you can perform functions like alarms, graphing and annotations on them.

Alarms and annotations



In PicoLog 6, you can set up an alarm to alert users when a parameter goes out of range. This can be configured to play a sound, display visual alerts on the screen, run a specified application such as an email or SMS client, and automatically annotate the capture graph to mark when the alarm happened and its duration. Alarms can also trigger a digital output on devices with supporting hardware, such as the PicoLog 1000 Series, ADC-24 and DrDAQ. You can even trigger a digital output from one of these devices based on an alarm condition from another connected logger without digital outputs, such as a TC-08.

PicoLog 6 now supports Raspberry Pi



Coupled with a Raspberry Pi, this new PicoLog 6 package expands the flexibility and opens the door for Pico's data loggers to be used in new and different ways:

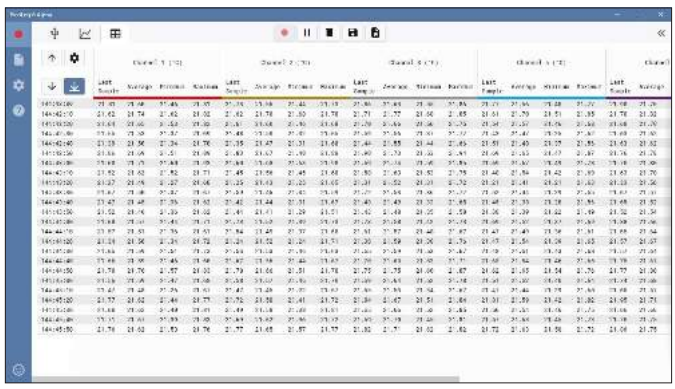
- You can now connect the logger to the Pi and remove the keyboard, mouse and video to make an inexpensive stand-alone logger storing its captured data locally on a Pi SD card.

- Furthermore, connecting your Pi by WiFi or Ethernet, you can internet-enable your Pico logger which you can then access remotely using an open-source VNC server and viewer freely available...

- ...and better still, utilizing the Power over Ethernet (PoE) capability on the Raspberry Pi 4B or 3B+ paired with the PoE PiHAT not only eliminates the need for an external power supply and powered USB hub, it also internet-enables your logger at the same time.

View live numerical data in table format

Table View allows you to view live and saved data from your logger. When configuring table view, it is possible to add four statistical parameters to each channel: last sample, minimum, maximum and average. In addition, you can specify the table update rate for the display of live data or the time interval between rows for saved data.



L'IMPULSION | Retrouvez nous sur www.limpulsion.fr

PicoLog data loggers

Pico data acquisition products provide a straightforward answer to your data logging needs. Our data loggers require no power supply and simply plug into a USB port on your PC, or an Ethernet port on your PC or network. Every logger is supplied with PicoLog 6 data acquisition software so you can measure, record and analyze your data (see previous page for more information).



TC-08

Temperature Data Logger

All you need in one easy-to-use data logger

Temperature data acquisition with the TC-08 is very easy — simply plug the TC-08 into a USB port on your computer (no external power required), connect your thermocouples, and you are ready to measure temperatures straight out of the box.

- 8 channel thermocouple data logger
- Measures from –270 to +1820 °C (–454 to +3308 °F)
- High resolution and accuracy
- Expandable to 20 units / 160 channels
- Supports all popular thermocouple types
- Fast sampling rate — up to 10 measurements per second, including CJC (cold junction compensation)
- USB connected and powered
- Terminal board expands input ranges

PP222	TC-08	$409	€349	£289

A range of accessories is available at www.picotech.com

PT-104

Precision Temperature Data Logger

Flexible: Measures temperatures ranging from –200 to +800°C with either PT100 or PT1000 sensors, as well as resistance and voltage.

Stable: Instead of voltage references, which tend to drift with temperature, the PT-104 uses high-precision reference resistors for improved stability. This also allows the PT-104 to achieve up to 0.001°C resolution and 0.015°C accuracy.

Expandable: Use any combination of Pico loggers and oscilloscopes for using up to 20 units simultaneously on one PC.

- Measures temperature, resistance and voltage
- High resolution (0.001 °C) and accuracy (0.015 °C)
- Works with PT100 and PT1000 sensors
- Supports 2, 3 and 4-wire sensors
- USB and Ethernet (PoE) interfaces
- No additional power supply required if using USB
- Run multiple units on a single PC
- Terminal adaptor allows custom sensors, voltage and resistance measurement



PP682	PT-104	$659	€559	£459

A range of accessories is available at www.picotech.com



L'IMPULSION Retrouvez nous sur www.limpulsion.fr



ADC-20 and ADC-24

Precision Data Loggers

With up to 24-bit resolution the ADC-20 and ADC-24 USB data loggers are able to detect small 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.

- 20 and 24-bit resolution models available
- Up to 8 true differential inputs
- Up to 16 single-ended inputs
- Up to 7 input ranges (±39 mV to ±2500 mV)
- Digital outputs for control
- Galvanic isolation from the PC to eliminate noise pickup
- Includes screw terminal board

PP311	ADC-20	8 single-ended inputs or 4 true differential inputs	20-bit resolution	$359	€309	£249
PP312	ADC-24	16 single-ended inputs or 8 true differential inputs	24-bit resolution	$689	€589	£479



PicoLog 1000 Series

Multi-purpose Data Loggers

Designed to meet the needs of a wide range of general-purpose voltage, sensor and transducer logging applications, the PicoLog 1000 Multichannel DAQ Series features independent software-configurable scaling and control outputs, an external terminal board for custom front-end circuitry and a choice of 10 or 12-bit input resolution.

- Up to 16 input channels per data logger
- Includes screw terminal board
- Use up to 20 data loggers at the same time
- Up to 1 MS/s sample rate using PicoSDK
- USB connected and powered
- Compatible with PicoScope 6 and PicoLog 6

PP546	PicoLog 1012	12 channel	10-bit resolution	$179	€149	£129
PP547	PicoLog 1216	16 channel	12-bit resolution	$259	€219	£185

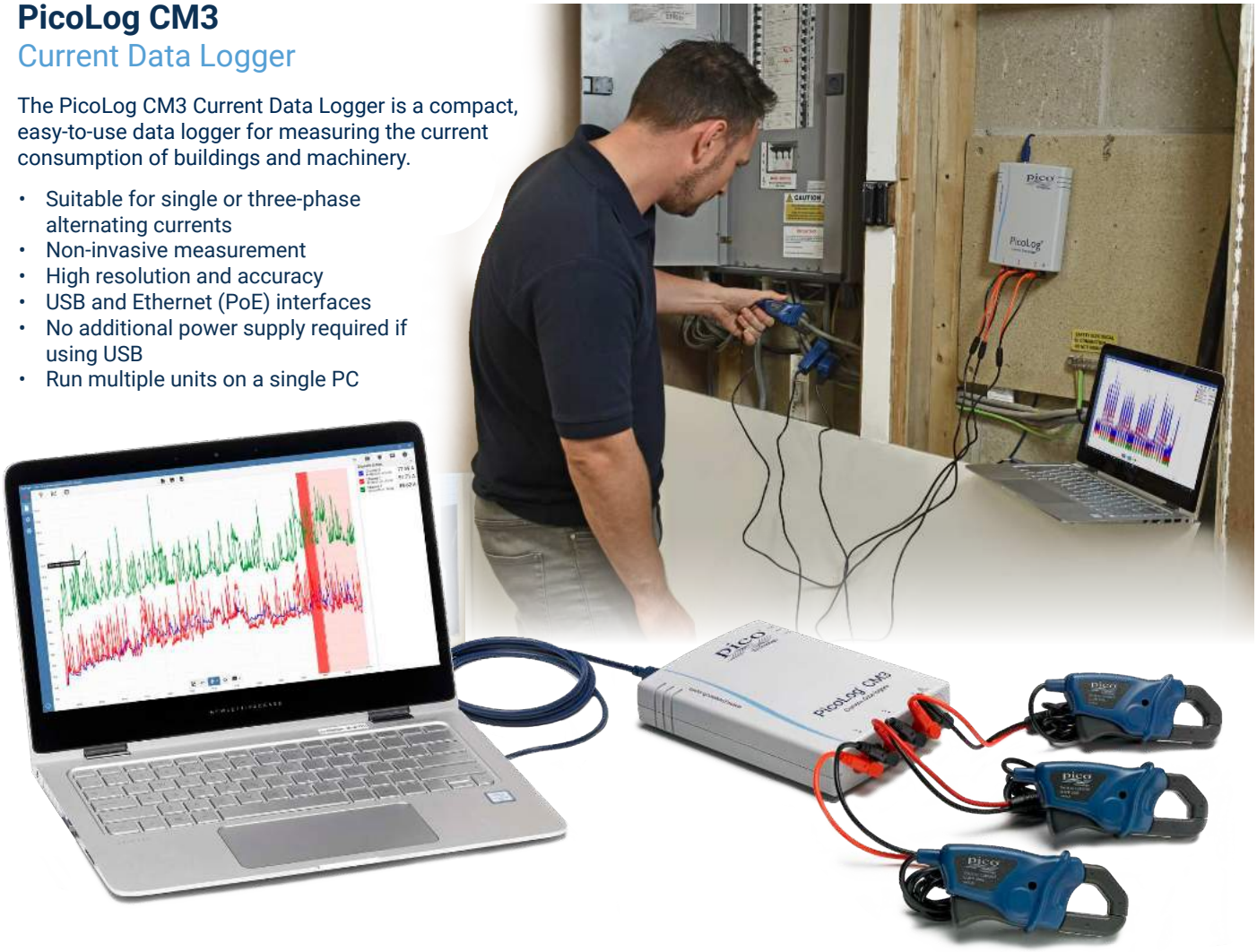
L'IMPULSION
Retrouvez nous sur
www.limpulsion.fr

PicoLog CM3

Current Data Logger

The PicoLog CM3 Current Data Logger is a compact, easy-to-use data logger for measuring the current consumption of buildings and machinery.

- Suitable for single or three-phase alternating currents
- Non-invasive measurement
- High resolution and accuracy
- USB and Ethernet (PoE) interfaces
- No additional power supply required if using USB
- Run multiple units on a single PC



PP815	PicoLog CM3	Logger only	$409	€349	£289
PP803	PicoLog CM3 kit	Logger with 3 current clamps	$579	€489	£399



DrDAQ

Educational Data Logger

- Oscilloscope / spectrum analyzer
- Signal generator / arbitrary waveform generator
- Built-in sensors for light, temperature and sound
- Measure pH and redox — just plug in any standard electrode
- Sockets for external sensors including temperature and humidity
- 4 digital inputs and outputs (alarms, PWM, pulse counting)
- USB connected and powered
- Very low cost
- Compatible with PicoScope 6 and PicoLog 6
- For more information please visit www.drdaq.com

PP706	DrDAQ logger only	$129	€109	£95
PP707	DrDAQ kit	$329	€279	£225
PP716	DrDAQ pH logger kit	$199	€169	£139

L'IMPULSION
Retrouvez nous sur
www.limpulsion.fr

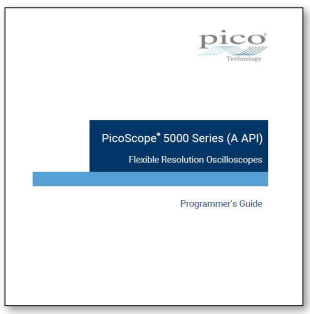


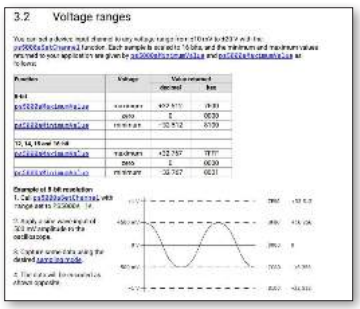
OEM & custom applications

PicoScope, Pico data logger and RF products are at the heart of many custom applications and OEM projects. Pico Technology has supplied products for use in custom test and monitoring solutions since 1991. Our products have been used as core components in a broad range of demanding applications.

Rather than reinvent the wheel, businesses can outsource non-core technical design and module requirements. Pico products are proven, cost-effective and compact digitizer and data acquisition components that are ideal for use in bespoke systems. Our PC-based products take advantage of industry standards that are widely adopted and deliver good performance at reasonable prices.

Key to deployment of any test product for a custom application is the Application Programming Interface (API). All Pico products are supplied with a Software Development Kit (SDK) that includes full documentation of the API.







Example code, hosted on the Pico Technology GitHub pages, shows how to interface to third-party software packages such as Microsoft Excel, National Instruments LabVIEW and MathWorks MATLAB and programming languages like C, C#, C++, and VB.NET.

Instrument drivers are available for Windows and, for most products, macOS and Linux (Intel and ARM versions).

Our technical support team has extensive software applications expertise. We can provide your business with support and guidance for you to develop your custom test requirements, including software development and system integration.

We are proud to be a MathWorks Connections Program Partner with extensive MATLAB developer experience in-house.

MathWorks
Partner



L'IMPULSION
Retrouvez nous sur
www.limpulsion.fr

L'IMPULSION | Retrouvez nous sur www.limpulsion.fr

pico® Technology



UK global headquarters:
Pico Technology
James House
Colmworth Business Park
St. Neots
PE19 8YP
United Kingdom

☎ +44 (0) 1480 396395
✉ sales@picotech.com

North America regional office:
Pico Technology
320 N Glenwood Blvd
Tyler
Texas 75702
United States

☎ +1 800 591 2796
✉ sales@picotech.com

Asia-Pacific regional office:
Pico Technology
Room 2252, 22/F, Centro
568 Hengfeng Road
Zhabei District
Shanghai 200070
PR China

☎ +86 21 2226-5152
✉ pico.china@picotech.com

NeoMore
5 rue de la Plaine
78860 St Nom-la-Bretèche
Tel. +33 1 30 64 15 81
sales@neomore.com
www.neomore.com
www.moreneo.com

Pico Technology | @LifeAtPico | @picotechnologyltd | Pico Technology | @picotech

DO082-29 Copyright © 2011–2019 Pico Technology Ltd. All rights reserved.