

PicoScope® 6000 Series

HIGH-PERFORMANCE USB OSCILLOSCOPES

Ultra-deep memory. Fast data transfers.

4 CHANNELS • 500 MHz BANDWIDTH • 5 GS/s SAMPLING
2 GSAMPLE BUFFER MEMORY

PicoScope



SuperSpeed USB 3.0 interface

500 MHz spectrum analyzer

Arbitrary waveform generator

Advanced triggers

100 million x zoom

Mask limit testing

Serial bus decoding

... all as standard!



Compatible with Windows XP, Windows Vista, Windows 7 and Windows 8, USB 2.0 and USB 3.0 • Supplied with an SDK including example programs • Free technical support

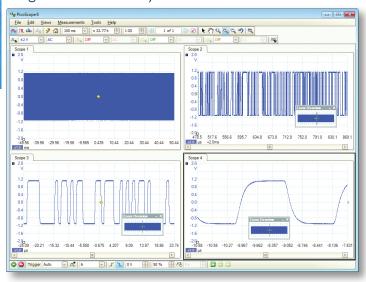
PicoScope performance and reliability

With over 20 years' experience in the test and measurement industry, we know what's important in a new oscilloscope. The PicoScope 6000 Series scopes give you the best value for money of any oscilloscope, with outstanding bandwidth, sampling rate and memory depth specifications. These features are backed up by advanced software optimized with the help of feedback from our customers.

High bandwidth, high sampling rate

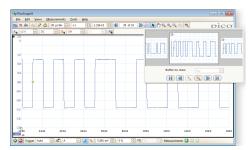
With 250 MHz to 500 MHz analog bandwidths complemented by a real-time sampling rate of 5 GS/s, the PicoScope 6000 Series scopes can display single-shot pulses with 200 ps time resolution. Equivalent time sampling (ETS) mode boosts the maximum sampling rate to 50 GS/s, giving an even finer timing resolution of 20 ps for repetitive signals.

Huge buffer memory



Deep memory allows you to zoom in ... and in ... and in

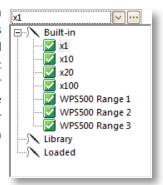
The PicoScope 6000 Series gives you the deepest buffer memory available as standard on any oscilloscope at any price. The SuperSpeed USB 3.0 interface ensures that the display is smooth and responsive even with long captures. Other oscilloscopes have high maximum sampling rates, but without deep memory they cannot sustain these rates on long timebases. The 2 gigasample buffer on the PicoScope 6404D can hold two 200 ms captures at the maximum sampling rate of 5 GS/s. To help manage all this data, PicoScope can zoom up to 100 million times using a choice of two zoom methods. There are zoom buttons as well as an overview window that lets you zoom and reposition the display by simply dragging with the mouse.



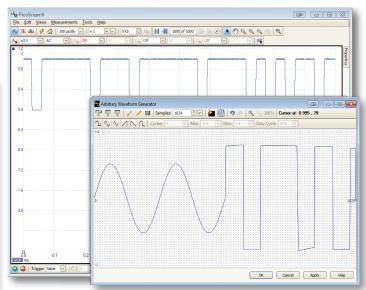
To help you find you way around the buffer memory, you can divide it into as many as 10,000 individually triggered segments. Use the visual buffer navigator to scan through the segments, or set up a mask to filter out the waveforms of interest.

Custom probe settings

The custom probes menu allows you to correct for gain, attenuation, offsets and nonlinearities of probes and transducers, or convert to different measurement units. Definitions for standard Pico-supplied probes are built in, but you can also create your own using linear scaling or even an interpolated data table.



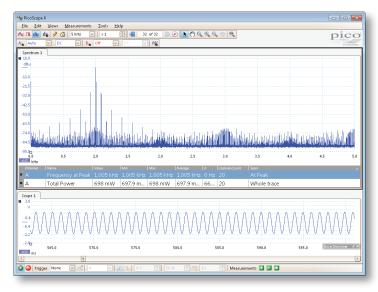
Arbitrary waveform and function generator



Every model includes a built-in DC to 20 MHz function generator with sine, square, triangle and DC waveforms. D models add a built-in 12 bit, 200 MS/s arbitrary waveform generator. You can import arbitrary waveforms from data files or create and modify them using the built-in graphical AWG editor.

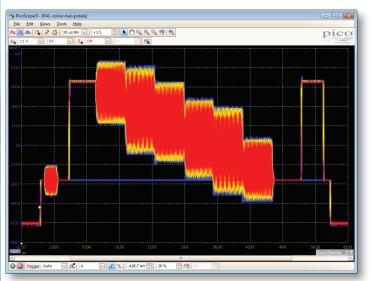
Spectrum analyzer

With the click of a button, you can open a new window to display a spectrum plot of selected channels up to the full bandwidth of the oscilloscope. The spectrum view can optionally be displayed together with a time-domain view. A comprehensive range of settings give you control over the number of spectrum bands, window types and display modes.

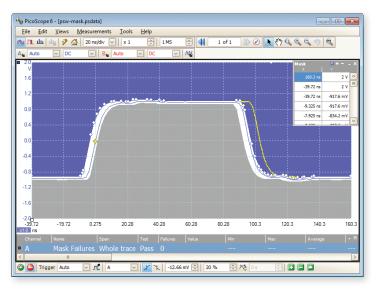


Color persistence modes

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



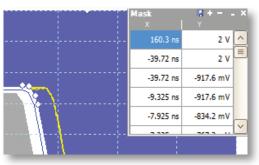
Mask limit testing



This feature is 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 vertical and horizontal tolerances. 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, so the scope can catch intermittent glitches even while your attention is elsewhere. 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 below) can be used separately

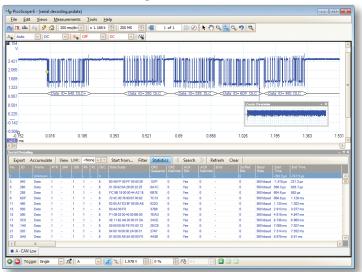
or in combination, allowing you to enter accurate mask specifications or modify existing masks. You can import and export masks as files.



High-speed data acquisition

The drivers and software development kit supplied allow you to write your own software or interface to popular third-party software packages. If the 2 GS buffer memory of the PicoScope 6404D isn't enough, the drivers support data streaming, a mode that captures gap-free continuous data over the USB 3.0 port directly to the PC's RAM at over 150 MS/s and to solid-state disk at up to 78 MS/s. Rates are subject to PC specifications and application loading.

Serial data decoding



The PicoScope 6000 Series oscilloscopes are well-suited to serial decoding, with a deep memory buffer that allows them to collect long, uninterrupted sequences of data. This allows the capture of thousands of frames or packets of data over several seconds. The scopes can decode up to four buses simultaneously with independent protocol selection for each input channel.

9	Serial protocols
)	UART (RS-232)
t	SPI
5	I ² C
5	I ² S
	CAN
5	LIN
I	FlexRay

PicoScope displays the decoded data in the format of your choice: **in view**, **in window**, or both at once.

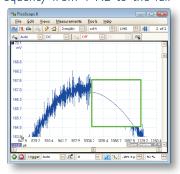
- In view format shows the decoded data beneath the waveform on a common time axis, with error frames marked in red. You can zoom in on these frames to look for noise or distortion on the waveform.
- In window format shows a list of the decoded frames, including the data and all flags and identifiers. 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 it lists the data.

Analog and digital low-pass filtering

Each input channel has its own digital low-pass filter with independently adjustable cut-off frequency from 1 Hz to the full

scope bandwidth. This enables you to reject noise on selected channels while viewing high-bandwidth signals on the others.

An additional selectable analog bandwidth limiter on each input channel can be used to reject high frequencies that would otherwise cause aliasing.



Digital triggering

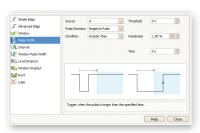
Most digital oscilloscopes sold today still use an analog trigger architecture based on comparators. This can cause time and amplitude errors that cannot always be calibrated out. The use of comparators often limits the trigger sensitivity at high bandwidths. In 1991 Pico pioneered the use of fully digital triggering using the

In 1991 Pico pioneered the use of fully digital triggering using the actual digitized data. This technique reduces trigger errors and allows our oscilloscopes to trigger on the smallest signals, even at the full bandwidth. Trigger levels and hysteresis can be set with high precision and resolution.

Digital triggering also reduces rearm delay and this, combined with the segmented memory, allows the triggering and capture of events that happen in rapid sequence. At the fastest timebase you can use rapid triggering to collect 10,000 waveforms in under 10 milliseconds. The mask limit testing function can then scan through these waveforms to highlight any failed waveforms for viewing in the waveform buffer.

Advanced triggers

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

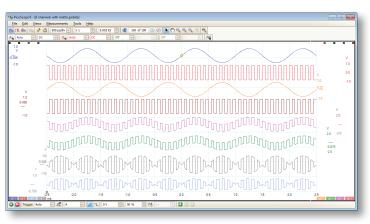


All triggering is digital, resulting in high threshold resolution with programmable hysteresis and optimal waveform stability.

Maths channels

With PicoScope 6 you can perform a variety of mathematical calculations on your input signals. You can calculate the sum, difference, product or inverse, or create your own custom function using standard arithmetic, exponential and trigonometric functions.





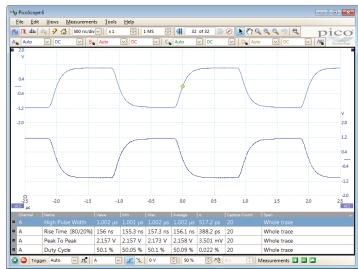
Automatic measurements

PicoScope allows you to automatically display a table of calculated measurements for troubleshooting and analysis.

Using the built-in measurement statistics you can see the average, standard deviation, maximum and minimum of each measurement as well as the live value.

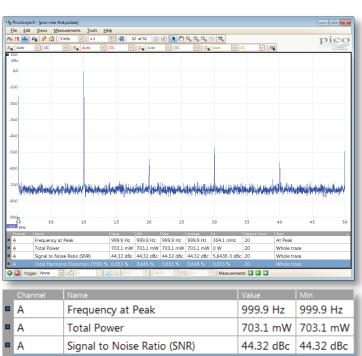
You can add as many measurements as you need on each view. Each measurement includes statistical parameters showing its variability.

For information on the measurements available in scope and spectrum modes, see **Automatic Measurements** in the **Specifications** table.



Channel	Name	Value	Min	Max	Average
	High Pulse Width	1.002 µs	1.001 µs	1.002 µs	1.002 µs
Α	Rise Time [80/20%]	156 ns	155.3 ns	157.3 ns	156.1 ns
Α	Peak To Peak	2.157 V	2.157 V	2.173 V	2.158 V
Α	Duty Cycle	50.1 %	50.05 %	50.1 %	50.09 %

15 scope mode measurements

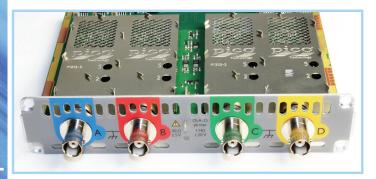


11 spectrum mode measurements

High signal integrity

Most oscilloscopes are built down to a price; ours are built up to a specification.

Our engineers use careful front-end design and shielding to reduce noise, crosstalk and harmonic distortion. With decades of oscilloscope experience, we know how to design for optimal pulse response and bandwidth flatness.



Hardware acceleration

On some oscilloscopes, enabling deep memory has a penalty: the screen update rate slows down and the controls become unresponsive as the processor struggles to cope with the amount of data. Thanks to the hardware acceleration inside PicoScope deep-memory oscilloscopes, you can collect waveforms containing hundreds of millions of samples while keeping fast screen update rates and a responsive user interface. Dedicated hardware inside

the oscilloscope processes multiple streams of data in parallel to construct the waveform that will be displayed on the screen. This is done far faster than any PC processor could manage, and together with USB 3.0 SuperSpeed data transfer eliminates any bottlenecks between the oscilloscope and the PC.

For example, the scope may be set to capture 100 000 000 samples but the PicoScope display window may be only 1000 pixels wide. In this case, the scope intelligently compresses the data into 1000 blocks of 100 000 samples each. Unlike simple decimation, which throws away most of the data, PicoScope hardware acceleration guarantees that you see any high-frequency details

such as narrow glitches, even when the display is zoomed out.

High-end features as standard

Buying a scope from some companies is a bit like buying a car. By the time you have added all the optional extras you need, the price has gone up considerably. With the PicoScope 6000 Series, high-end features such as mask limit testing, serial decoding, advanced triggering, measurements, math, XY mode, digital filtering, segmented memory and even a signal generator are all included in the price.

To protect your investment, both the PC software and firmware inside the unit can be updated. We have a long history of providing new features for free as software downloads. Other companies make vague promises about future enhancements but we deliver on our promises year after year. Users of our products reward us by becoming lifelong customers, frequently recommending us to their colleagues.

Probes included

Your PicoScope 6000 Series scope is supplied complete with four wideband, high-impedance probes. These probes have been designed for use with individual models of the PicoScope 6000 Series and are factory-compensated to match each scope's input characteristics. Each high-quality probe is supplied with a range of accessories for convenient and accurate high-frequency measurements.

A comprehensive range of alternative probes is also available.



Probe specifications	TA150	TA133				
Attenuation	10:1					
Resistance at probe tip	10	ΜΩ				
Capacitance at probe tip	9.5 pF					
Scope input impedance	1 ΜΩ					
Compatibility	PicoScope 6402C/D, PicoScope 6403C/D	PicoScope 6404C/D				
Bandwidth (3 dB)	350 MHz	500 MHz				
Rise time (10% to 90%)	1 ns	700 ps				
Compensation range	10 to 25 pF					
Safety standard	IEC/EN 61010-031					
Cable length	1.3 m					

Probe accessories included

TA133 and TA150

- Instruction manual
- Solid tip 0.5 mm
- Coding rings, 3 x 4 colors
- Ground lead 15 cm
- Ground spring 2.5 mm
- Trim tool
- Insulating cap 2.5 mm
- Sprung hook 2.5 mm



TA133 only

- Spring tip 0.5 mm
- Ground blade 2.5 mm
- 2 self-adhesive copper pads
- Protection cap 2.5 mm
- IC caps 0.5 to 1.27 mm pitch
- PCB adaptor kit 2.5 mm



PicoScope: The display can be as simple or as complex as Oscilloscope controls: Controls such as voltage range, scope you need. Begin with a single view of one channel, and then resolution, channel enable, timebase and memory depth are expand the display to include any number of live channels, placed on the toolbar for quick access, leaving the main display math channels and reference waveforms. area clear for waveforms. Signal generator: Generates standard signals or (on selected Tools > Serial decoding: Decode multiple serial data signals and display the data alongside the scopes) arbitrary waveforms. Includes frequency sweep mode. physical signal or as a detailed table. Waveform replay tools: PicoScope automatically records Tools > Reference channels: Store waveforms in up to 10 000 of the most recent waveforms. You can quickly memory or on disk and display them alongside live scan through to look for intermittent events, or use the Buffer inputs. Ideal for diagnostics and production testing. Navigator to search visually. Tools > Masks: Automatically generate a test mask from a waveform or draw one by hand. PicoScope Zoom and pan tools: PicoScope allows a zoom factor of highlights any parts of the waveform that fall several million, which is necessary when working with the deep outside the mask and shows error statistics. memory of the 6000 Series scopes. Either use the zoom-in, zoom-out and pan tools, or click and drag in the zoom overview Channel options: Filtering, offset, scaling, window for fast navigation. resolution enhancement, custom probes and bandwidth limiter. Math channels: Combine input channels and reference waveforms using simple arithmetic, or create custom Auto setup button: Configures equations with trigonometric and other functions. the timebase and voltage ranges for stable display of signals. **Views:** PicoScope is carefully designed to make the best use of the display area. You can add new scope Trigger marker: Drag and spectrum views with automatic or custom layouts. to adjust trigger level and pre-trigger time. Rulers: Each axis has two rulers that can be dragged across the screen to make quick measurements of amplitude, time and frequency. Ruler legend: Absolute and differential ruler measurements are listed here. <u>M</u>easu <u>Л. Ши Ца 🥕 🚮 |</u> 50 д pico 350.5 150.5 10.0 -15.67 -28.01 40.35 52.69 -30.16 -65.03 42.5 54.84 67.18 -95.0 Total Harmonic Distortion (THD) % 74.22 % 74.22 % 20 % ∨ 0 × 🗶 🔍 Measurements 1 Movable axes: The vertical **Automatic measurements:** Trigger toolbar: axes can be dragged up Display calculated measurements Ouick access to and down. This feature is for troubleshooting and analysis. main controls, particularly useful when You can add as many measurements Zoom overview: Spectrum view: one waveform is obscuring with advanced as you need on each view. Each Click and drag for View FFT data another. There's also an Auto triggers in a measurement includes statistical alongside scope view quick navigation in Arrange Axes command. pop-up window. parameters showing its variability. zoomed views. or independently.

	PicoScope 6402C	PicoScope 6402D	PicoScope 6403C	PicoScope 6403D	PicoScope 6404C	PicoScope 6404D	
VERTICAL							
Input channels			4, BNC connect	ors, single-ended			
Analog bandwidth (-3 dB)*	250 MHz 350 MHz (200 MHz on ±50 mV range) (250 MHz on ±50 mV range)			500 MHz			
Bandwidth limiter	•	switchable	•	switchable	25 MHz,	switchable	
Rise time (10% to 90%, calculated)	1.4 ns (50 mV	range 1.8 ns)	1.0 ns (50 m\	range 1.4 ns)	0.7 ns (all ranges)		
Input ranges (full scale)	±50 r	nV to ±20V, in 9 ra	anges (1 $M\Omega$ input), ± 50 mV to ± 5 V,	in 7 ranges (50 Ω input)		
Input sensitivity	10 mV/div	to 4 V/div at x1 ze			//div at x1 zoom (50 Ω input)	
Input coupling				$C (1 M\Omega \text{ or } 50 \Omega)$			
Input characteristics		1 M Ω ± 1% 15				pF, or $50 \Omega \pm 2\%$	
Analog offset range	± 50 to ± 200 mV input ranges: ± 0.5 V ± 500 mV input range: ± 2.5 V ± 1 V " ± 2.5 V ± 2 V " ± 2.5 V ± 5 V " ± 2.5 V ± 5 V " ± 20 V (50 Ω: ± 0.5 V) ± 10 V " ± 20 V ± 20 V			±2 V ±10 V (50 Ω: ±5 V) ±10 V (50 Ω: ±4.5 V) ±10 V (50 Ω: ±3.5 V) ±35 V (50 Ω: ±0.5 V) ±30 V ±20 V			
DC accuracy		. 100 1/		ull scale			
Overvoltage protection	, DNIC I			uts), 5.5 V RMS (5	0 Ω inputs)		
* Stated bandwidth is with supplied probes	or at BNC when !	00 Ω impedance se	lected				
DYNAMIC PERFORMANCE Noise		200 W PMC (50 mV range)		220 m/ DMC /	50 mV range)	
THD		200 μV RMS (–55 dB				50 mV range) typical	
SFDR		60 dB			55 dB		
Crosstalk		17 000:1 typi	, i		5600:1 typic	al at 20 MHz t full bandwidth	
HORIZONTAL (TIMEBASE)							
Timebase ranges			to 100 ns/div (eq	iv (real-time sampli uivalent-time sampl			
Timebase accuracy				opm			
Timebase ageing			1 ppm	oer year			
ACQUISITION							
ADC resolution Maximum real-time sampling rate	8 bits (up to 12 bits using software resolution enhancement) 1 channel 5 GS/s 2 channels 2.5 GS/s** 4 channels 1.25 GS/s						
Maximum ETS rate			50 GS/s (any nu	mber of channels)			
Maximum streaming data rate (PicoScope 6)				1S/s			
Maximum streaming data rate (SDK)				ming to SSD hard object to application			
Buffer size (shared between active channels)	256 MS	512 MS	512 MS	1 GS	1 GS	2 GS	
Buffer size (streaming mode)	1	00 MS in PicoScop			ory when using SDI	ζ.	
Max. buffer segments (using PicoScope 6)	250.000	500.000		000	4 000 000	2 000 000	
Max. buffer segments (using SDK)	250 000	500 000	500 000	1 000 000	1 000 000	2 000 000	
** To achieve 2.5 GS/s sampling rate in 2-	channel mode, use	channel A or B and	channel C or D.				
TRIGGERING Sources			Channols A	to D, AUX			
Trigger modes		None single		to D, AUX oid (segmented me	mory) FTS		
Advanced trigger types (real-time mode)	Edge, pulse width	window, window p				ric level, runt pulse	
Trigger types (ETS mode)	,	,				,,	
Trigger sensitivity		1 LS	Rising edge, falling edge 1 LSB accuracy up to full bandwidth of scope				
,	Adjustable over whole of selected voltage range						
Trigger level		Adjus	table over whole	of selected voltage	range		
Maximum pre-trigger capture		Adjus	table over whole of the control of control o	of selected voltage apture size	range		
Maximum pre-trigger capture Maximum post-trigger delay		Adjus	table over whole of the control of t	of selected voltage apture size samples	range		
Maximum pre-trigger capture Maximum post-trigger delay Re-arm time			table over whole of 100% of c 4 billion Less than 1 µs or	of selected voltage apture size samples a fastest timebase			
Maximum pre-trigger capture Maximum post-trigger delay Re-arm time Maximum trigger rate			table over whole of 100% of control of the 100% of control of the 100% of the	of selected voltage apture size samples I fastest timebase orms in a 10 ms bu			
Maximum pre-trigger capture Maximum post-trigger delay Re-arm time Maximum trigger rate Trigger timing resolution			table over whole of 100% of control of the 100% of control of the 100% of the	of selected voltage apture size samples a fastest timebase			
Maximum pre-trigger capture Maximum post-trigger delay Re-arm time Maximum trigger rate Trigger timing resolution AUX TRIGGER INPUT		Up	table over whole of the control of t	of selected voltage apture size samples a fastest timebase orms in a 10 ms bu e period	rst		
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Maximum pre-trigger capture Maximum post-trigger delay Re-arm time Maximum trigger rate Trigger timing resolution AUX TRIGGER INPUT AUX trigger connector type Trigger types		Up Rear pa	table over whole of 100% of control of the 100% of control of the 100% of control of the 100% of the 1	of selected voltage apture size samples a fastest timebase orms in a 10 ms bu e period with reference cloc	rst k input		
Maximum pre-trigger capture Maximum post-trigger delay Re-arm time Maximum trigger rate Trigger timing resolution AUX TRIGGER INPUT AUX trigger connector type Trigger types Input characteristics		Up Rear pa	table over whole of 100% of c 4 billion Less than 1 μ s of to 10,000 wavefor 1 sample anel BNC, shared ge, pulse width, di 50 $\Omega \pm 1\%$,	of selected voltage apture size samples a fastest timebase orms in a 10 ms but the period with reference clockpoot, interval, log DC coupled	rst k input		
Maximum pre-trigger capture Maximum post-trigger delay Re-arm time Maximum trigger rate Trigger timing resolution AUX TRIGGER INPUT AUX trigger connector type Trigger types Input characteristics Bandwidth		Up Rear pa	table over whole of 100% of c 4 billion Less than 1 μs of to 10,000 wavefor 1 sample anel BNC, shared ge, pulse width, do 50 $\Omega \pm 1\%$,	of selected voltage apture size samples in fastest timebase orms in a 10 ms but the period with reference clock copout, interval, log DC coupled	rst k input		
Maximum pre-trigger capture Maximum post-trigger delay Re-arm time Maximum trigger rate Trigger timing resolution AUX TRIGGER INPUT AUX trigger connector type Trigger types Input characteristics Bandwidth Threshold range		Up Rear pa	table over whole of 100% of c 4 billion Less than 1 μs or to 10,000 wavefor 1 sample anel BNC, shared ge, pulse width, di 50 Ω ±1%, 25 Γ	of selected voltage apture size samples in fastest timebase orms in a 10 ms but the period with reference clock ropout, interval, log DC coupled MHz	rst k input		
Maximum pre-trigger capture Maximum post-trigger delay Re-arm time Maximum trigger rate Trigger timing resolution AUX TRIGGER INPUT AUX trigger connector type Trigger types Input characteristics Bandwidth Threshold range Overvoltage protection		Up Rear pa	table over whole of 100% of c 4 billion Less than 1 μs of to 10,000 wavefor 1 sample anel BNC, shared ge, pulse width, do 50 $\Omega \pm 1\%$,	of selected voltage apture size samples in fastest timebase orms in a 10 ms but the period with reference clock ropout, interval, log DC coupled MHz	rst k input		
Maximum pre-trigger capture Maximum post-trigger delay Re-arm time Maximum trigger rate Trigger timing resolution AUX TRIGGER INPUT AUX trigger connector type Trigger types Input characteristics Bandwidth Threshold range Overvoltage protection REFERENCE CLOCK INPUT (SDK ONLY)		Up Rear pa	table over whole of 100% of c 4 billion Less than 1 μ s of to 10,000 wavefor 1 sample anel BNC, shared ge, pulse width, di 50 Ω ±1%, \pm 5 V (DC	of selected voltage apture size samples a fastest timebase orms in a 10 ms but a period with reference clockpoput, interval, log DC coupled MHz V + AC peak)	rst k input		
Maximum pre-trigger capture Maximum post-trigger delay Re-arm time Maximum trigger rate Trigger timing resolution AUX TRIGGER INPUT AUX trigger connector type Trigger types Input characteristics Bandwidth Threshold range Overvoltage protection REFERENCE CLOCK INPUT (SDK ONLY) Clock input characteristics		Up Rear pa	table over whole of 100% of c 4 billion Less than 1 μ s of to 10,000 wavefor 1 sample anel BNC, shared ge, pulse width, do $50 \Omega \pm 1\%$, $\pm 5 V$ (DC 50Ω , BNC, ± 1	of selected voltage apture size samples in fastest timebase orms in a 10 ms but a period with reference clockpoput, interval, log DC coupled MHz V + AC peak) V, DC coupled	rst k input		
Maximum pre-trigger capture Maximum post-trigger delay Re-arm time Maximum trigger rate Trigger timing resolution AUX TRIGGER INPUT AUX trigger connector type Trigger types Input characteristics Bandwidth Threshold range Overvoltage protection REFERENCE CLOCK INPUT (SDK ONLY) Clock input characteristics Frequency range		U _F Rear pa Ed	table over whole of 100% of c 4 billion Less than 1 μ s of to 10,000 wavefor 1 sample anel BNC, shared ge, pulse width, do $50 \Omega \pm 1\%$, $\pm 5 V$ (DC 50Ω , BNC, ± 15 , 10, 20, 25 MHz	of selected voltage apture size samples in fastest timebase orms in a 10 ms but a period with reference clockpout, interval, log DC coupled MHz V + AC peak) V, DC coupled Iz, user-selectable	rst k input gic		
Maximum pre-trigger capture Maximum post-trigger delay Re-arm time Maximum trigger rate Trigger timing resolution AUX TRIGGER INPUT AUX trigger connector type Trigger types Input characteristics Bandwidth Threshold range Overvoltage protection REFERENCE CLOCK INPUT (SDK ONLY) Clock input characteristics		U _F Rear pa Ed	table over whole of 100% of c 4 billion Less than 1 μ s of to 10,000 waveform 1 sample and BNC, shared ge, pulse width, draw $\pm 50 \Omega \pm 1\%$, $\pm 5 V$ (DC $\pm 50 \Omega$, BNC, ± 10 , 25 MF ar panel BNC, shared share ± 10 , 25 MF ar panel BNC, shared share ± 10 , 25 MF ar panel BNC, shared share ± 10 , \pm	of selected voltage apture size samples in fastest timebase orms in a 10 ms but a period with reference clockpoput, interval, log DC coupled MHz V + AC peak) V, DC coupled	rst k input gic		

	PicoScope 6402C	PicoScope 6402D	PicoScope 6403C	PicoScope 6403D	PicoScope 6404C	PicoScope 6404D	
FUNCTION GENERATOR							
Standard signal frequency			DC to 2	20 MHz			
Standard output signals All models D models only		Sine, square, triangle, DC Ramp, sinc, Gaussian, half-sine, white noise, PRBS					
Output frequency accuracy		·		mebase accuracy			
Output frequency resolution		< 0.05 Hz					
Output voltage adjustment		Offset ad	le adjustment: justment: n combined outpu	±1 V	(4 V max. p-p)		
DC accuracy		Пахітта		full scale	<u>*</u>		
Connector type			Rear pa	nel BNC			
Output impedance			·	Ω			
Overvoltage protection			±5	5 V			
Sweep modes		Up, down, or dua	, with selectable s	tart/stop frequenc	cies and increment	s	
Signal generator triggering	Sco	oe, manual, or AU	X input; programn	nable number of c	ycles from 1 to 1 b	oillion	
ARBITRARY WAVEFORM GENERATOR	(AWG)						
Buffer size		64 kS		64 kS		64 kS	
Sample rate		200 MS/s		200 MS/s		200 MS/s	
Resolution	_	12 bits	_	12 bits	-	12 bits	
Bandwidth		20 MHz		20 MHz		20 MHz	
PROBE COMPENSATION OUTPUT							
Impedance			60	0 Ω			
Frequency			1 kHz sq	uare wave			
Level			2 V	ok-pk			
Overvoltage protection			±5 V (DC	+ AC peak)			
SPECTRUM ANALYZER							
Frequency range	DC to 2	250 MHz	DC to 3	50 MHz	DC to 5	00 MHz	
Display modes			Magnitude, ave	rage, peak hold			
Windowing functions	Rectangular, Gaussian, triangular, Blackman, Blackman-Harris, Hamming, Hann, flat-top						
Number of FFT points		Sele	ctable power of 2	from 128 to 1 048	3 576		
MATH CHANNELS							
Functions	-x, x	x+y, x-y, x*y, x/y arctan, sinh, cosh,	, x^y, sqrt, exp, ln tanh, freg, deriva	, log, abs, norm, s tive, integral, min,	ign, sin, cos, tan, a max, average, pea	rcsin, ık, delay	
Operands			annels A to D, ref			,	
AUTOMATIC MEASUREMENTS							
Scope mode		IS, true RMS, cycle width, low pulse v					
Spectrum mode		total power, THI	eak, amplitude at D %, THD dB, TH	D+N, SFDR, SINA	D, SNR and IMD		
Statistics		Minimur	n, maximum, aver	age, and standard	deviation		
SERIAL BUS DECODING							
Data formats		CAN,	LIN, I ² C, I ² S, UAI	RT/RS-232, SPI, F	lexRay		
MASK LIMIT TESTING							
Statistics			Pass/fail, failure	count, total count			
DISPLAY							
Interpolation			Linear o	· sin(x)/x			
Persistence modes		Digit	al color, analog int	ensity, custom, or	none		
GENERAL							
PC connectivity			USB 3.0 (USB	2.0 compatible)			
Exported data formats		Comma-separated values, tab-delimited, BMP, GIF, PNG, MATLAB 4 format					
Power requirement			C, 4 A max. AC a				
Dimensions (inc. connectors & end caps)	170 × 255 × 40 mm 170 × 285 × 40 mm						
Weight		1 kg (appro	x. 2 lb 3 oz)		1.3 kg (appro	ox. 2 lb 14 oz)	
Temperature range	Operating: 0 °C to 40 °C (20 °C to 30 °C for stated accuracy). Storage: -20 °C to $+60$ °C.					o +60 °C.	
Humidity range	Operating: 5% to 80% RH non-condensing. Storage: 5% to 95% RH non-condensing.						
Compliance	EU: EMC, LVD, RoHS, WEEE. USA: FCC Part 15 Subpart B						
Safety approvals				N 61010-1:2010			
PC requirements	Micros	oft Windows XP, \			•	ows RT)	
Software included			pe 6, Windows SI				
Languages supported (software)	Simplified Chinese, Traditional Chinese, Czech, Danish, Dutch, English, Finnish, French, German, Greek, Hungarian, Italian, Japanese, Korean, Norwegian, Polish, Portuguese, Romanian, Spanish, Swedish, Turkish						
Languages supported (help)	English, French, German, Italian, Spanish						

Model selector

Model	Bandwidth	Buffer size	Signal generator	Arbitrary waveform generator
PicoScope 6402C	250 MII	256 MS	✓	
PicoScope 6402D	250 MHz	512 MS	✓	✓
PicoScope 6403C	250 MII	512 MS	✓	
PicoScope 6403D	350 MHz	1 GS	✓	✓
PicoScope 6404C	500 MII	1 GS	✓	
PicoScope 6404D	500 MHz	2 GS	✓	✓

Have you seen the PicoScope 6407 Digitizer?

The PicoScope 6407 Digitizer has four 1 GHz inputs and a maximum sampling rate of 5 GS/s.

→ PicoScope 6407 Digitizer



Product pack contents

- PicoScope 6000 Series oscilloscope
- Four factory-compensated probes
- USB cable
- Universal mains (AC) power supply
- Mains lead (power cord)
- Installation Guide
- Software and Reference CD
- Carrying case



Need more bandwidth?

For repetitive signals such as serial data streams, and characterization of cables and backplanes, the PicoScope 9000 Series Sampling Oscilloscopes deliver high specifications at low prices. Choose between the 12 GHz PicoScope 9200 Series and the 20 GHz PicoScope 9300 Series. TDR/TDT and optical models are also available.

→ PicoScope 9000 Series



Ordering information

Description	GBP	USD	EUR
PP884 PicoScope 6402C 250 MHz Oscilloscope with probes	1995	3295	2795
PP885 PicoScope 6402D 250 MHz Oscilloscope with AWG and probes	2495	4115	3495
PP886 PicoScope 6403C 350 MHz Oscilloscope with probes	2995	4945	4195
PP887 PicoScope 6403D 350 MHz Oscilloscope with AWG and probes	3495	5765	4895
PP888 PicoScope 6404C 500 MHz Oscilloscope with probes	3995	6595	5595
PP889 PicoScope 6404D 500 MHz Oscilloscope with AWG and probes	4495	7415	6295
TA150 Replacement x10 probe for PicoScope 6402C/D and 6403C/D	119	199	169
TA133 Replacement x10 probe for PicoScope 6404C/D	129	209	179
TA065, TA066 and TA067 accessory packs for TA150 and TA133 probes	ww	w.picotech.	com

Prices exclude VAT and are correct at the time of publication. Please contact Pico Technology for the latest prices before ordering.

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