5 YEAR WARRANTY

pico® Technology

PicoScope® 6407 Digitizer

HIGH PERFORMANCE USB DIGITIZER

Programmable and Powerful

1 GHz bandwidth
1 GS buffer size
5 GS/s real-time sampling
Advanced digital triggers
Built-in function generator
USB-connected

Signals Analysis On The Move

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High-speed data acquisition

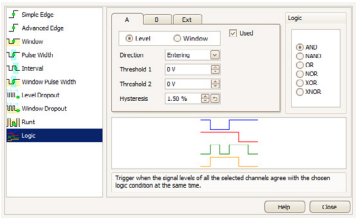
The PicoScope 6407 Digitizer is a compact USB plug-in device that turns your PC or laptop into a high-speed digitizer. It can easily digitize a 1 GHz sine wave with a timing resolution of 200 ps.

Huge buffer memory

The PicoScope 6407 digitizer has a memory depth of 1 billion samples. Other digitizers have high maximum sampling rates, but without deep memory they cannot sustain these rates on long timebases. The PicoScope 6407 can sample at 5 GS/s at timebases all the way down to 20 ms/div, giving a total acquisition time of 200 ms. If that's not enough, the driver supports streaming mode for capturing unlimited gap-free data directly to the PC's RAM or hard disk at over 10 MS/s.

The large buffer enables the use of segmented memory. Each captured waveform segment is stored in the buffer so you can rewind and review thousands of previous waveforms. No longer will you see a glitch on the screen only for it to vanish before you stop the scope.

Advanced triggers



As well as the standard range of triggers found on all oscilloscopes, the PicoScope 6407 offers a comprehensive set of advanced triggers including pulse width, windowed and dropout triggers to help you capture the data you need.

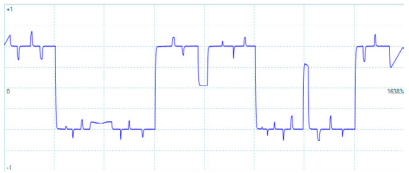
Digital triggering

Most digital oscilloscopes sold today still use an analog trigger architecture based around comparators. This can cause time and amplitude errors that can not always be calibrated out. The use of comparators often limits the trigger sensitivity at high bandwidths and can also create a long trigger "re-arm" delay.

Since 1991 we have been pioneering the use of fully digital triggering using the actual digitized data. This 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 great precision and resolution.

Digital triggering also reduces re-arm 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 20 milliseconds. Our mask limit testing function can then scan through these waveforms to highlight any failed waveforms for viewing in the waveform buffer.

Arbitrary waveform and function generator



The unit has a built-in function generator (including sine, square, triangle, ramp, sin (x)/x, Gaussian, half-sine, white noise, DC level, and PRBS). As well as basic controls to set level, offset and frequency, more advanced controls allow you to sweep over a range of frequencies. Combined with the spectrum peak hold option, this makes a powerful tool for testing amplifier and filter responses.

Also included is a full arbitrary waveform generator with a 16k-sample buffer.

High-end features as standard

To protect your investment, both the API and the firmware inside the unit can be updated. We have a long history of providing new features for free via 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.

High signal integrity

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

Careful front-end design and shielding reduces noise, crosstalk and harmonic distortion. Years of oscilloscope experience enable us to achieve improved pulse response and bandwidth flatness.

We are proud of the dynamic performance of our products and publish these specifications in detail. The result is simple: when you probe a circuit, you can trust in the data you capture.

- *Supplied with a software development kit (SDK), supporting all C-compatible languages*
- *SDK compatible with Windows XP (SP3), Windows Vista, Windows 7 and 8 (not Windows RT) and Windows 10*
- *Example programs available as part of the SDK*
- *Free Technical Support available*

VERTICAL	
Number of Channels	4
Input connectors	SMA
Bandwidth (-3 dB)	1 GHz
Rise time (calculated)	350 ps
Resolution	8 bits (12 bits with software enhancement)
Input impedance	50 Ω ±2%
VSWR	< 1.5:1 DC to 1 GHz typical over full bandwidth of scope
Input coupling	DC
Input sensitivity	20 mV/div (10 vertical divisions)
Input ranges	±100 mV
DC accuracy	±3% of full scale
Overvoltage protection	±2 V (DC + Peak AC)
HORIZONTAL	
Sampling rate (real time 1 Channel)	5 GS/s
Sampling rate (real time 2 Channels)	2.5 GS/s (using A+C, A+D, B+C, B+D)
Sampling rate (real time 4 Channels)	1.25 GS/s
Sampling rate (cont. USB streaming)	1 MS/s in PicoScope software. >10 MS/s using supplied SDK (PC-dependent)
Buffer memory	1 GS
Waveform buffer (no. of segments)	1 to 10,000
Timebase accuracy	±5 ppm
DYNAMIC PERFORMANCE (typical)	
Crosstalk	100:1 DC to 100 MHz 30:1 100 MHz to 1 GHz
Step response	±3% after 3 ns, typical
Noise	<0.5 mV RMS
TRIGGER	
Basic trigger modes	Rising, falling
Advanced digital triggers	Edge: Single edge or dual edge with adjustable hysteresis Window: signal enters or exits a user-defined voltage range Pulse width: a negative or positive pulse is wider or narrower than a set width, or inside / outside a range of widths Window pulse width: signal is inside or outside a voltage range for a set time Dropout: signal does not cross a voltage threshold for at least a set time Window dropout: signal does not enter or exit a voltage range for at least a set time Interval: time between two edges is greater or less than a set time, or inside / outside a time range Logic: arbitrary logic state of Channels A, B, C, D and AUX matches a user-defined pattern Runt pulse: signal crosses one voltage threshold and returns without crossing the other
Trigger sensitivity (Ch A, Ch B)	Digital triggering provides 1 LSB accuracy up to full bandwidth of scope
Max. pre-trigger capture	Up to 100% of capture size
Max. post-trigger delay	Up to 4 billion samples
Trigger re-arm time	< 1 µs on fastest timebase
Max. trigger rate	Up to 10,000 waveforms in a 20 ms burst
AUX TRIGGER/CLOCK INPUT	
Trigger types	Edge, pulse width, dropout, interval, logic, delayed
Input characteristics	Rear panel BNC, 50 Ω ±1%
Voltage range	±5 V, DC coupled
Bandwidth (AUX TRIGGER)	25 MHz
Threshold adjustment range	±1 V
Overvoltage protection	± 5V
Frequency Range (CLOCK INPUT)	5 MHz to 25 MHz

SIGNAL GENERATOR	
Standard output signals	Sine, square, triangle, ramp, sin (x)/x, Gaussian, half-sine, white noise, DC level, PRBS
Standard signal frequency	DC to 20 MHz
Output frequency accuracy	±5 ppm
Output frequency resolution	< 0.1 Hz
Output voltage range (Pk to Pk)	±250 mV to ±2 V (into high impedance load)
Offset voltage adjustment	±1 V (max. combined output ±2.5 V)
Amplitude flatness	1.5 dB DC to 20 MHz, typical
Connector type	Rear panel BNC
Overload protection	±5 V
Sweep modes	Up, down, dual with selectable start/stop frequencies and increments
AWG	
Sample rate	200 MS/s
Buffer size	16,384 samples
Resolution	12 bits
Bandwidth	20 MHz
Rise time (10 - 90%)	10 ns, typical
GENERAL	
PC connectivity	USB 2.0
Power requirements	12 V DC, 3.5 A supply
Dimensions	255 x 170 x 40 mm (including connectors)
Weight	< 1 kg
Temperature range	Operating: 0 °C to 40 °C (20 °C to 30 °C for stated accuracy)
Safety approvals	Designed to EN 61010-1:2010
EMC approvals	Tested to EN61326-1:2006 and FCC Part 15 Subpart B
Environmental approvals	RoHS and WEEE compliant
Software/PC requirements	PicoScope 6: Microsoft Windows 7, Windows 8 (not Windows RT) and Windows 10 (32-bit or 64-bit)

Have you seen our PicoScope 6000 Series data sheet?

It shows the full range of features available with the PicoScope software, which turns your PicoScope 6407 Digitizer into a powerful oscilloscope and spectrum analyzer. All of these capabilities are included in the price of your digitizer.

PicoScope 6407 Digitizer Connections

Ch A
Ch B
Ch C
Ch D

The four SMA input connections on the front of the PicoScope 6407 Digitizer allow four signals to be sampled. Various attenuators can be fitted to these connections to allow a wider range of signals to be measured on the device.

DC power input
USB
AWG and function generator output
AUX trigger/Reference Clock input

Your PP795 PicoScope 6407 Digitizer product pack contains the following items:

- PicoScope 6407 Digitizer
- USB cable
- Quick Start Guide
- Software and Reference CD
- Carrying case (pictured right)

Ordering Information

ORDER CODE	PART DESCRIPTION
PP795	PicoScope 6407 Digitizer
TA181	Attenuator 3 dB, 10 GHz 50 Ω SMA (m-f)
TA261	Attenuator 6 dB, 10 GHz 50 Ω SMA (m-f)
TA262	Attenuator 10 dB, 10 GHz 50 Ω SMA (m-f)
TA173	Attenuator 20 dB, 10 GHz 50 Ω SMA (m-f)
TA061	Oscilloscope probe 1.5 GHz, x10, 50 Ω, SMA

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