

## TEST AND MEASUREMENT PRODUCT CATALOG



REAL TIME OSCILLOSCOPE



SAMPLING OSCILLOSCOPE



DATA LOGGER



VECTOR NETWORK ANALYZER

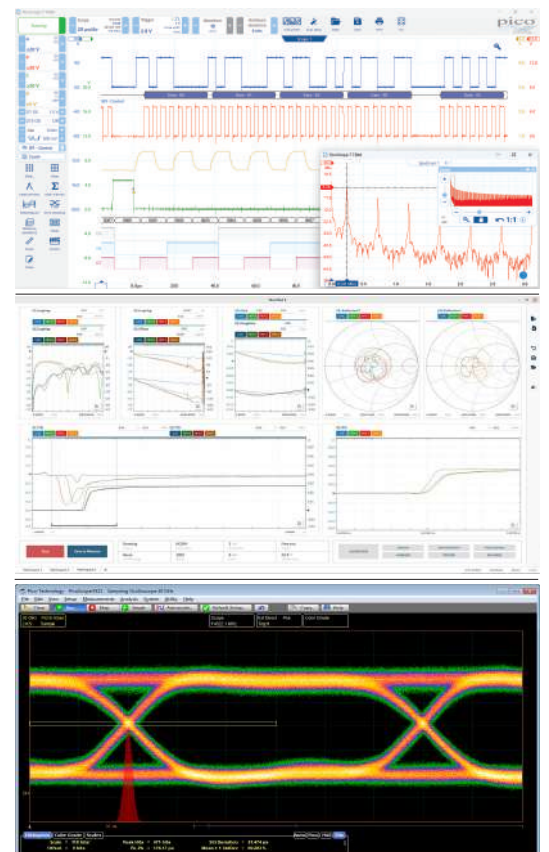


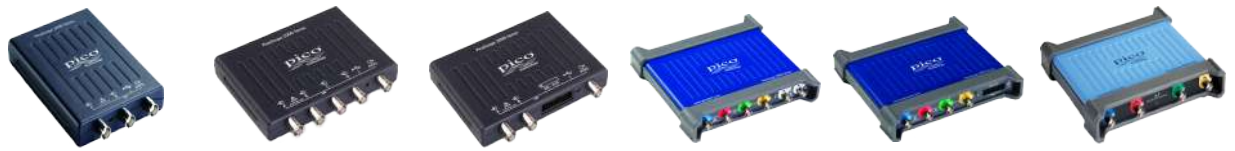
PULSE GENERATOR



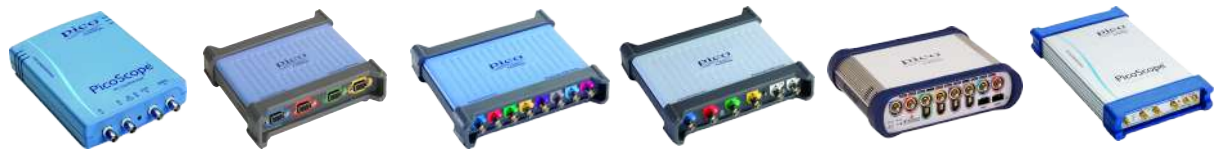
RF SIGNAL SYNTHESIZER

- Six instruments in one, portable, economic oscilloscope
- 16 Bits high resolution and 8 Bits-16 Bits flexible resolution oscilloscope
- 4 GS deep memory oscilloscope
- 4 true differential inputs and 14 Bits high resolution oscilloscope USB 3.0 bus supports continuous data recording
- without gaps up to 312 MS/s
- 5 MHz-30 GHz Analog Bandwidth
- 8 KS-4 GS Capture Memory
- 8 channels and 12 Bits oscilloscope
- 21 decode options as standard
- 300KHz-8.5 GHz Cost-efficiency Vector network Analyzers
- 300KHz-8 GHz Cost-efficiency RF Signal Synthesizer





	PicoScope 2000 Series			PicoScope 3000 Series		4224A and 4424A
	2000A models	2000B models	2000A & B MSO models	3000D models	3000D MSO models	
<b>Description</b>	Power and performance in your hand	Benchtop performance in a pocket-sized scope	Mixed signal oscilloscopes	Fast sampling with deep memory	Mixed signal oscilloscopes	High resolution oscilloscopes
<b>Channels</b>	2 or 4	2 or 4	2 analog + 16 digital	2 or 4 + EXT	2 or 4 analog + 16 digital	2 or 4
<b>Outputs</b>	FG + AWG 100 kHz / 1 MHz	FG + AWG 1 MHz	FG + AWG 1 MHz	FG + AWG 1 MHz	FG + AWG 1 MHz	None
<b>Analog bandwidth</b>	10 to 25 MHz	50 to 100 MHz	25 to 100 MHz	50 to 200 MHz	50 to 200 MHz	20 MHz
<b>Sampling rate</b>	100 to 500 MS/s	500 MS/s to 1 GS/s	500 MS/s to 1 GS/s	1 GS/s	1 GS/s	80 MS/s
<b>Resolution (enhanced)</b>	8 bits (12 bits)	8 bits (12 bits)	8 bits (12 bits)	8 bits (12 bits)	8 bits (12 bits)	12 bits (16 bits)
<b>Capture memory</b>	8 kS to 48 kS	32 MS to 128 MS	48 kS to 128 MS	64 MS to 512 MS	64 MS to 512 MS	256 MS
<b>Power</b>	USB	USB	USB	USB or AC adaptor	USB or AC adaptor	USB



	PicoScope 4000 Series			PicoScope 5000D & 5000D MSO Series	PicoScope 6000&6000E Series	PicoScope 9000 Series
	PicoScope 4262	PicoScope 4444	PicoScope 4824A			
<b>Description</b>	Digital oscilloscope for the analog world	High-resolution differential oscilloscopes	8 channel oscilloscope	Flexible Resolution & MSO oscilloscopes	Highest performance real-time oscilloscopes	SXRT0 & Sampling Scope
<b>Channels</b>	2 + EXT	4 true differential	8	2 or 4 analog + EXT or 16 digital	4 or 8 analog + 16 digital + AUX input	2 electrical (+ 1 optional optical), 4 electrical
<b>Outputs</b>	AWG and low-distortion sine wave generator	Probe compensation signal	FG + AWG	FG or FG + AWG	FG or FG + AWG	PRBS, Clock, diff. TDR/TDT
<b>Analog bandwidth</b>	5 MHz	20 MHz	20 MHz	60 to 200 MHz	300 MHz to 1 GHz	5 GHz to 30 GHz
<b>Sampling rate</b>	10 MS/s	Up to 400 MS/s	80 MS/s	Up to 1 GS/s	5 GS/s	1 MS/s, 500 MS/s
<b>Resolution (enhanced)</b>	16 bits (20 bits)	Flexible 12- or 14-bit	12 bits (16 bits)	8, 12, 14, 15 and 16 bits (up to 20 bits)	8, 10, 12 bits, up to 16 bits	12 bits, 16 bits
<b>Capture memory</b>	16 MS	256 MS	256 MS	64 MS to 512 MS	1 GS to 4 GS	32 KS, 250 KS
<b>Power</b>	USB	USB	USB	USB or AC adaptor	AC adaptor	AC adaptor



Voltage Data Loggers PicoLog 1000	Voltage Data Loggers ADC20	Voltage Data Loggers ADC24	Current Data Loggers PicoLog CM3	Thermocouple Temperature Data Loggers TC-08	PRT Temperature Data Loggers PT-104	
12/16 Channels	8 Channels	16 Channels	3 Channels	8 Channels	8 Channels	
10/12 Bits ADC	20 Bits ADC	24 Bits ADC	24 Bits ADC	20 Bits ADC	24 Bits ADC	



Fast Pulse Generators PG 914/PG 912/PG 911	Vector Network Analyzer PicoVNA106&108	RF Signal Synthesizer AS 108	RF & Gigabits Probe PicoConnect 900
2 or 4 Channels	2 Channels	1 Channel	1 Channel
40 ps/60 ps Rising Time	300 KHz-8.5 GHz	300 KHz-8 GHz	4 GHz-9 GHz

## Six instruments in one, portable, economic oscilloscope - PicoScope 2000 series

- 10,25,50,70 MHz & 100 MHz
- Capture memory from 8 KS to 128 MS
- Sampling rate from 100 MS/s to 1 GS/s
- Digital oscilloscope
- Function generator
- Arbitrary Waveform Generator
- Logic analyzer
- Protocol analyzer
- Spectrum analyzer

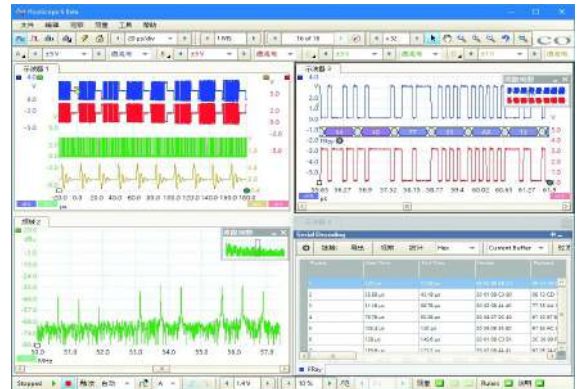
PicoScope can decode 1-Wire, ARINC 429, BroadR-Reach, CAN & CAN-FD, DALI, DCC, DMX512, Ethernet 10Base-T and 100Base-TX, FlexRay, I<sup>2</sup>C, I<sup>2</sup>S, LIN, PS/2, Manchester, Modbus, SENT, SPI, UART (RS-232 / RS-422 / RS-485), and USB 1.1 protocol data as standard, with more protocols in development and available in the future with free-of-charge software upgrades.

The SDK allows you to write your own software and includes drivers for Microsoft Windows, Apple Mac (OS X) and Linux, including Raspberry Pi and BeagleBone. Example code shows how to interface to third-party software packages such as C, C#, Microsoft Excel, National Instruments LabVIEW and MathWorks MATLAB.

"Great functionality in a compact size"

"Simplicity and low weight when traveling overseas"

"USB power, small size, an ideal choice for field use and system integration"



## 8 channels & 12 Bits high resolution oscilloscope – PicoScope 4824A

- 8 channels, 12 Bits ADC(16 Bits software enhanced)
- 20 MHz Bandwidth, 80 MS/s sampling rate, 256 MS capture memory
- USB 3.0 interface, internal Arbitrary Waveform Generator and Function Generator

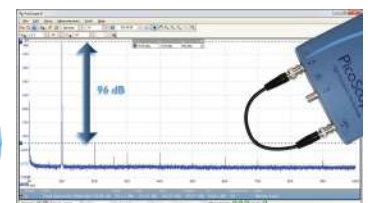
The PicoScope 4824A is a low-cost, portable solution for multi-input applications. With 8 high-resolution analog channels you can easily analyze audio, ultrasonic, vibration and power waveforms, check timing of complex systems, and perform a wide range of precision measurement tasks on multiple inputs at the same time. All of this fits into the same small footprint as the PicoScope 3000 and 5000 Series. The BNC connectors still accept the vast majority of probes and accessories with ample spacing of 20 mm.

## 16 Bits high resolution and low noise oscilloscope (Dynamic analyzer – PicoScope 4262)

- 16 Bits ADC
- 8.5 uV (RMS) baseline noise & 96 dB dynamic range
- 5 MHz bandwidth

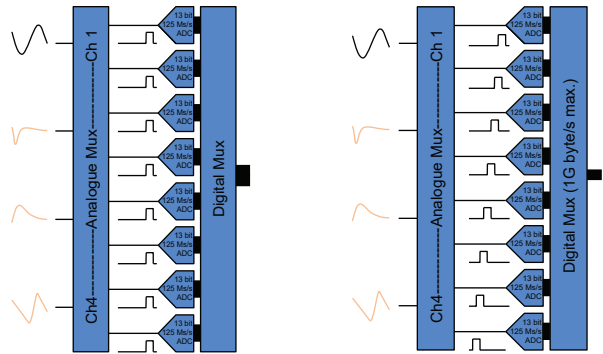
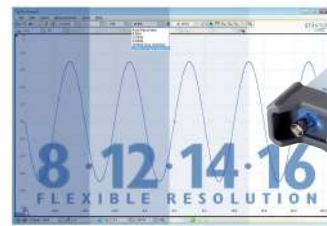
The high resolution of the PicoScope 4000 series makes them ideal for low-noise, low-distortion measurements, and the built-in signal generators removes the need for an additional signal source. They can easily analyze audio, ultrasonic and vibration signals and characterize noise in switched mode power supplies, measure distortion in audio systems and perform a wide range of precision measurement tasks.

The 16 Bits PicoScope 4262 has unrivalled dynamic performance and can outperform many dedicated (and expensive) audio analyzers.



## Flexible ADC resolution oscilloscope – PicoScope 5000D & 5000D SMO series

- Bandwidth: 60 MHz-200 MHz
- Sampling rate: 62.5 MS/s-1 GS/s
- ADC resolution: 8 Bits-16 Bits
- Capture memory: 64 MS-512 MS
- Built-in Function Generator and Arbitrary Waveform Generator with 14 Bits, 20 MHz bandwidth, 32 ks buffer size
- Both high speed acquisition for digital signal and accurate acquisition for analog signal can be accomplished through flexible ADC resolution in one instrument
- Switch between 8, 12, 14, 15 and 16 Bits resolutions, up to 20 Bits with software enhancement.
- Best performance & Cost efficiency



### Parallel Clocked ADCs

4 Ch 14 Bits @ 125 MS/s

2 Ch 15 Bits @ 125 MS/s

Or

1 Ch 16 Bits @ 62.5 MS/s

### Serial Interleave ADCs

1 Ch 8 Bits @ 1 GS/s

Or

1 Ch 12 Bits @ 500 MS/s

## High-resolution true differential oscilloscope – PicoScope 4444

- 4 true differential inputs
- Capture memory: 256 MS
- ADC: 12 Bits or 14 Bits
- CATIII Voltage Test: 1000V

With four true differential inputs, 12 to 14 Bits 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 lowamplitude biomedical and electronic uses to 1000 V CAT III design and test.



## Deep memory & flexible ADC resolution high performance oscilloscope - PicoScope 6000E series

- Bandwidth: 300 MHz-1 GHz
- Channels: 4 or 8 analog + 16 digital + AUX input
- ADC resolution: 8 Bits or 8, 10, 12 Bits flexible
- Sampling rate: up to 5 GS/s
- Capture memory: up to 4 GS
- Maximum sampling rate in continuous streaming mode using supplied SDK: up to 312 MS/sy



The PicoScope6000/6000E has the deepest buffer memory available as standard on any oscilloscope. Deep memory allows the scope to sample at higher speeds for longer periods without gaps. For example, even at the maximum sampling rate of 5 GS/s, the PicoScope 6000E can capture 200 ms of uninterrupted data. Zoom, pull and buffer overview tools in the PicoScope software make it easy to find details of interest.



## The First & New Class Scopes(SXRTO)-PicoScope 9404

- SXRTO (sampler-extended real-time oscilloscope)
- 5 GHz, 16 GHz bandwidth
- Up to 2.5 TS/s (0.4 ps resolution) equivalent-time sampling
- Four 12-bit 500 MS/s ADCs
- Up to 250 kS trace length
- Pulse, eye and mask testing down to 45 ps and up to 11 Gb/s
- Optional clock and data recovery (8 Gb/s on 9404-16, 5 Gb/s on 9404-05)
- Combine the benefits of RTS + ETS + HBW



## High speed serial data and TDR/TDT test solutions – PicoScope 9000 series

- Bandwidth: 30 GHz
- Real-time sampling rate: 1 MS/s
- CDR: 6.3 Mb/s-11.3 Gb/s
- Optical input bandwidth: 9.5 GHz
- ADC: 16 Bits
- Equivalent Sampling Rate: 15 TS/s
- Rise time: 14 ps
- Signal source: Pulse/Clock/NRZ/RZ
- Eye diagram, Jitter, Extinction ratio measurement of electrical/optical signal
- TDR Pulse: < 65 ps or < 45 ps
- Characteristic impedance, loss, delay measurement of cables/connectors/PCB traces
- High bandwidth probe PicoConnect 900: 4 GHz-9 GHz bandwidth; Fingertip browse or solder-in; Divide by 5:1, 10:1, 20:1; AC or DC coupling; Support all instruments with 50Ω input like real-time oscilloscope, sampling oscilloscope, spectrum analyzer, vector network analyzer, protocol analyzer.



## Portable Vector Network Analyzer-PicoVNA 106 & 108

- 300 kHz to 6 GHz or 8.5 GHz operation
- 118 dB (6 GHz) or 124 dB (8.5 GHz) dynamic range at 10 Hz bandwidth
- 0.005 dB (6 GHz) or 0.006 dB (8.5 GHz) RMS trace noise at bandwidth of 140 kHz
- Up to 5500 points/s, S2P measurement
- Test automation, field service, installation test, embedded and classroom applications
- Electronics component, assembly and system, and interface/interconnect ATE
- Material, life science & food sciences; tissue imaging; penetrating scan & radar
- Broadband cable & harness test at manufacture, installation & fault-over-life monitoring
- Antenna matching and tuning



## Cost efficiency & Portable RF Signal Synthesizer - AS 108

- 300 kHz to 8 GHz operation
- -15 dBm to +15 dBm dynamic range
- Fast 55 us frequency settling time to 10 ppm
- Fast amplitude settling, < 25 us to 1 dB and < 200 us to 0.1 dB
- -100 dBc/Hz phase noise at 1 GHz and 10 -100 kHz offset typical
- FM,  $\varnothing$ M and AM modulation, internal 10 - 5000 Hz sine or external input
- Use sweep lists to emulate schemes such as QPSK, QAM, ASK, FSK
- User defined 'from power-up' stand-alone operation mode
- External Ref Clock I/O and Trigger I/O
- USB controlled from PC and display or tablet (MS Windows) , Linux or Mac to follow
- Supports multi-unit operation with trigger synchronised modulation sweeps, hops and lists
- SDK programming examples Lab View, C, C#, Python, Matlab
- Suited to bench, field or system integration applications



## Differential picosecond pulse generators - PG911 and PG914

- Integral 50  $\Omega$  SMA(f) Step Recovery Diode outputs
- < 60 ps transition time
- Dual 2.5 to 6 V variable amplitude outputs
- $\pm 1$  ns in 1 ps steps timing deskew
- 200 ns to 4  $\mu$ s pulse width
- 1  $\mu$ s to 1 s internal clock period
- < 3 ps RMS jitter relative to external trigger
- -20 dB 10 GHz SMA(m-f) attenuator included with Step Recovery Diode outputs
- External 50  $\Omega$  N(m) positive and negative Tunnel Diode pulse heads
- < 40 ps transition time
- Dual > 200 mV fixed amplitude outputs
- $\pm 200$  ps in 1 ps steps timing deskew
- Inter-series N(f) – SMA(m) adapter included with Tunnel Diode pulse heads



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