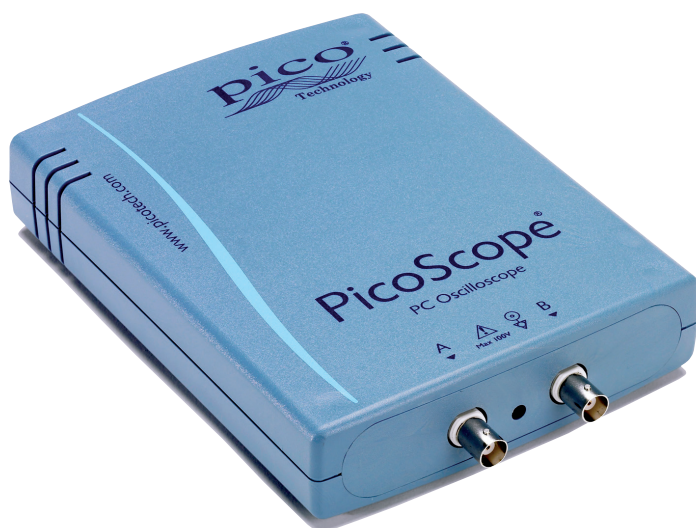


# PicoScope<sup>®</sup> 4000 Series

HIGH-PRECISION USB OSCILLOSCOPES

Speed, precision and detailed capture



32 MS buffer  
12-bit resolution  
80 to 250 MS/s sampling  
20 to 100 MHz bandwidth  
2 or 4 channels  
2 channel IEPE model  
USB powered



32 MS BUFFER  
**12-BIT**  
**IEPE**



Supplied with a full SDK including example programs  
• Software compatible with Windows XP, Windows Vista,  
Windows 7 and Windows 8 • Free technical support

MODEL	BANDWIDTH	CHANNELS	SAMPLING	BUFFER MEMORY	EXT TRIG	AWG
PicoScope 4424	20 MHz	4	80 MS/s	32 MS	No	No
PicoScope 4224	20 MHz	2	80 MS/s	32 MS	No	No
PicoScope 4224 IEPE	20 MHz	2	80 MS/s	32 MS	No	No
PicoScope 4226	50 MHz	2	125 MS/s	32 MS	Yes	Yes
PicoScope 4227	100 MHz	2	250 MS/s	32 MS	Yes	Yes

MODEL	PicoScope 4424	PicoScope 4224	PicoScope 4224 IEPE
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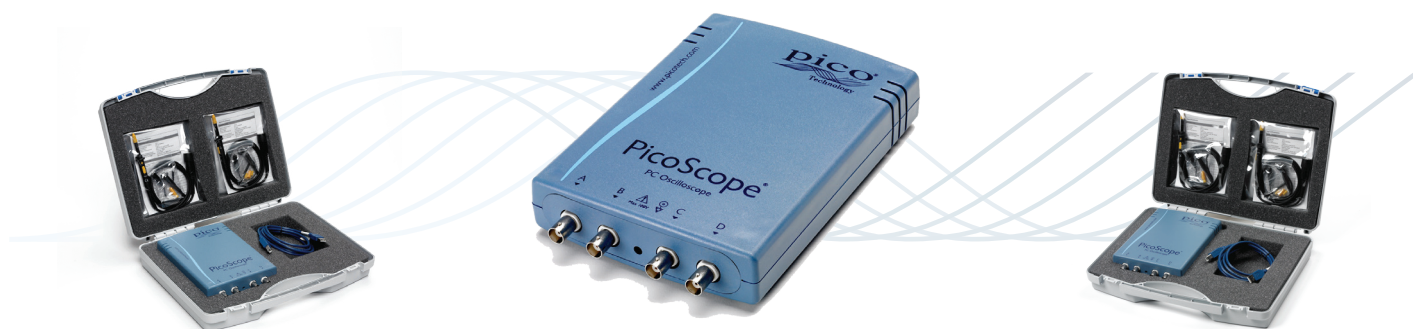
INPUTS				
Number of channels	4 BNC inputs	2 BNC inputs	Passive Probe Mode	IEPE Interface Mode
			2 BNC inputs	2 BNC inputs
Analog bandwidth	20 MHz (10 MHz on $\pm 50$ mV range)		DC to 20 MHz	1.6 Hz to 20 MHz
			(10 MHz on $\pm 50$ mV range)	
Voltage ranges	$\pm 50$ mV to $\pm 100$ V in 11 ranges		$\pm 50$ mV to $\pm 20$ V in 9 ranges	
Sensitivity	10 mV/div to 20 V/div		10 mV/div to 4 V/div	
Graphing frequency measurement	20 Hz, 200 Hz, 2 kHz, and 20 kHz ranges			
Vertical resolution	12 bits (up to 16 bits with resolution enhancement)		12 bits (up to 16 bits with resolution enhancement)	
Input coupling	AC or DC, software-controlled		AC or DC, software-controlled	
Input impedance	1 M $\Omega$    22 pF		1 M $\Omega$    22 pF	1 M $\Omega$    1 nF
Overvoltage protection	$\pm 200$ V		$\pm 100$ V	

SAMPLING			
Timebases	100 ns/div to 1000 s/div		100 ns/div to 1000 s/div
Maximum sampling rate (real-time)	1/2 channels: 80 MS/s*	80 MS/s	80 MS/s
	3/4 channels: 20 MS/s		
	*To achieve the best sampling rate across two channels, choose one channel from A or B, and one from C or D.		
Buffer size	32 MS shared between active channels		32 MS shared between active channels

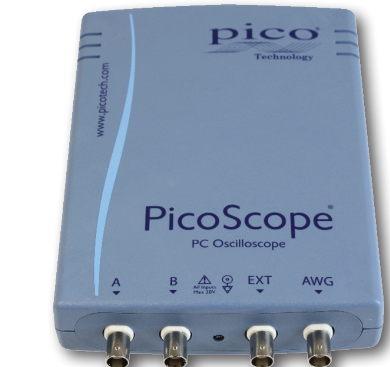
TRIGGERING				
Sources	Any input channel			
Modes	None, single, repeat, auto, rapid			
Trigger types	Rising edge, falling edge, edge with hysteresis, pulse width, runt pulse, dropout, windowed			

PERFORMANCE				
Timebase accuracy	50 ppm			
DC accuracy	1% of full scale			
Trigger resolution	1 LSB			
Trigger re-arm time	2.5 $\mu$ s (fastest timebase)			

ENVIRONMENT				
Temperature range	Operating: 0 °C to 45 °C			
	For stated accuracy: 20 °C to 30 °C			
	Storage: -20 °C to 60 °C			
Humidity range	Operating: 5% to 80% RH, non-condensing			
	Storage: 5% to 95% RH, non-condensing			
PC connection	USB 2.0. Compatible with USB 1.1			
PC operating system	Windows XP (SP3), Windows Vista, Windows 7 and Windows 8 (not Windows RT). 32-bit and 64-bit versions.			
Power supply	5 V @ 500 mA max. from USB port			
Dimensions	200 mm x 140 mm x 38 mm including connectors			
Weight	< 500 g			



MODEL	PicoScope 4226	PicoScope 4227
INPUTS		
Number of channels	2 BNC inputs	
Analog bandwidth	50 MHz	100 MHz
Voltage ranges	±50 mV to ±20 V in 9 ranges	
Sensitivity	10 mV/div to 4 V/div	
Vertical resolution	12 bits	
Input coupling	AC or DC, software-controlled	
Input impedance	1 MΩ    16 pF	
Overvoltage protection	±100 V	
SAMPLING		
Timebases	100 ns/div to 1000 s/div	50 ns/div to 1000 s/div
Maximum sampling rate (real-time)	1 channel: 125 MS/s	1 channel: 250 MS/s
	2 channels: 125 MS/s	2 channels: 125 MS/s
Maximum sampling rate (ETS)	10 GS/s	
Buffer size	32 MS shared between active channels	
TRIGGERING		
Sources	Ch A, Ch B, Ext	
Modes	None, single, repeat, auto, rapid	
Ch A, Ch B trigger types	Edge, window, pulse, interval, dropout, runt, delayed	
EXT trigger types	Rising edge, falling edge	
EXT TRIGGER INPUT		
Connector	BNC	
Bandwidth	100 MHz	
Impedance	1 MΩ    20 pF	
Voltage range	±20 V	
Threshold range	±150 mV to ±20 V	
Coupling	DC	
Overvoltage protection	±100 V	
FUNCTION GENERATOR / ARBITRARY WAVEFORM GENERATOR		
Connector	BNC	
Function generator frequency range	DC to 100 kHz	
Function generator waveforms	Sine, square, triangle, ramp, sin(x)/x, Gaussian, half-sine, white noise, DC level	
Buffer size	8192 samples	
DAC update rate	20 MS/s	
DAC resolution	12 bits	
Bandwidth	100 kHz	
DC accuracy	1%	
Output range	±250 mV to ±2 V	
Output offset range	±1 V	
Max. combined output	±2.5 V	
Output resistance	600 Ω	
Overvoltage protection	±10 V	
PERFORMANCE		
Timebase accuracy	50 ppm	
DC accuracy	1% of full scale	
Trigger resolution	1 LSB (Ch A, Ch B)	
Trigger re-arm time	1 μs (fastest timebase, rapid trigger)	
ENVIRONMENT		
Temperature range	Operating: 0 °C to 45 °C For stated accuracy: 20 °C to 30 °C Storage: −20 °C to 60 °C	
Humidity range	Operating: 5% to 80% RH, non-condensing Storage: 5% to 95% RH, non-condensing	
PC connection	USB 2.0. Compatible with USB 1.1	
PC operating system	Windows XP (SP3), Windows Vista, Windows 7 and Windows 8 (not Windows RT). 32-bit and 64-bit versions.	
Power supply	5 V @ 500 mA max. from USB port	
Dimensions	200 mm x 140 mm x 38 mm including connectors	
Weight	< 500 g	
Compliance	EU EMC and LVD Standards RoHS and WEEE, FCC Rules Part 15 Class A	



Ch A

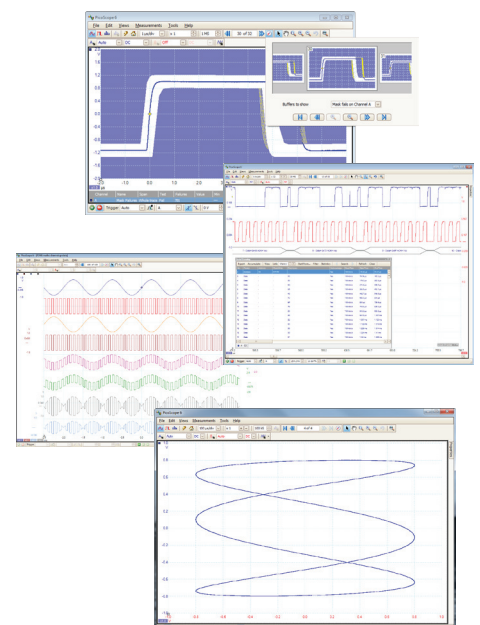
Ch B

External trigger

Arbitrary waveform and function generator

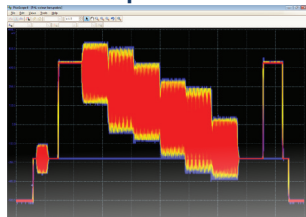
#### Additional features:

- Mask limit testing with alarms
- Serial data decoding (CAN, I<sup>2</sup>C etc.)
- Per-channel low-pass filtering
- Math channels
- Reference waveforms
- Waveform buffer with up to 10,000 segments and visual navigator
- Digital Color and Analog Intensity persistence modes
- XY mode

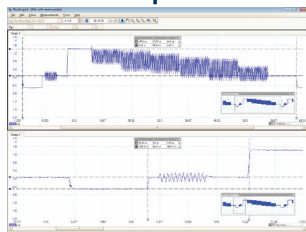




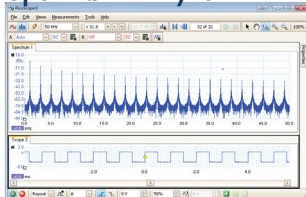
## Oscilloscope



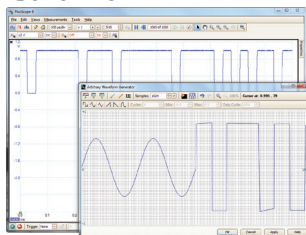
## Zoomed scope views



## Spectrum analyzer



## Arbitrary Waveform Generator



## All-in-one instruments

The PicoScope 4000 Series PC Oscilloscopes are extremely versatile, with an oscilloscope and spectrum analyzer included in every model.

## PicoScope 4224 IEPE

The 2-channel IEPE version is compatible with industry-standard IEPE accelerometers and microphones, making it suitable for a variety of measurement applications including noise and vibration analysis.

## Convenience and speed

The PicoScope 4000 Series scopes obtain their power from the USB 2.0 interface, so there's no need for an external power supply. The USB port also delivers high-speed data to your PC to give you a responsive, high-resolution display. With sampling ranges from 80 MS/s to 250 MS/s, the 4000 Series scopes are some of the fastest USB-powered 12-bit scopes around.

## Deep memory

The 32 M sample buffer is 'always on'. There is never a compromise between buffer size and waveform update rate, because the PicoScope 4000 Series always maximises both at the same time. Now you can capture every waveform with full detail without having to think about it.

## Advanced software

The scopes are bundled with the latest version of PicoScope for Windows. PicoScope is easy to use and can export data in a variety of graphical, text and binary formats. Also included are Windows drivers and example programs.

## Arbitrary Waveform Generator

The PicoScope 4226 and 4227 come with an AWG/Function generator with a frequency range of 100 kHz, 12-bit resolution, and a 8192 sample buffer.

## Ordering Information

ORDER CODE	PART DESCRIPTION	GBP	USD*	EUR*
PP493	PicoScope 4424	799	1319	967
PP492	PicoScope 4224	499	824	604
PP695	PicoScope 4224 IEPE	599	989	725
PP671	PicoScope 4226 Kit	699	1154	846
PP672	PicoScope 4227 Kit	899	1484	1088

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\*Prices are correct at the time of publication. Please contact Pico Technology for the latest prices before ordering.

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