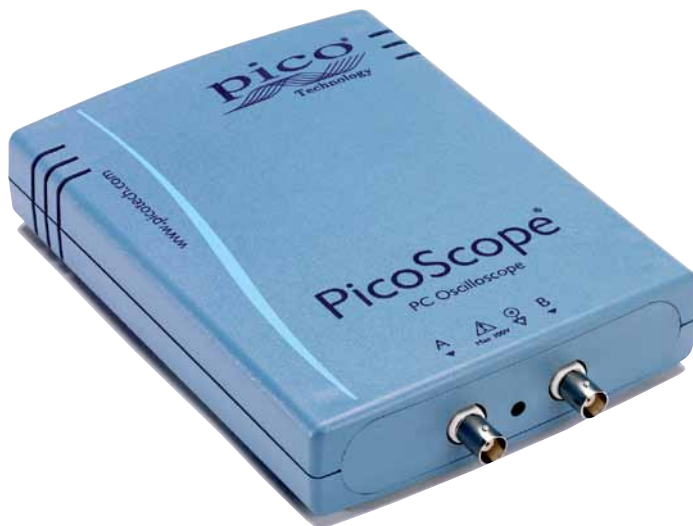


# PicoScope<sup>®</sup> 4000 Series

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**



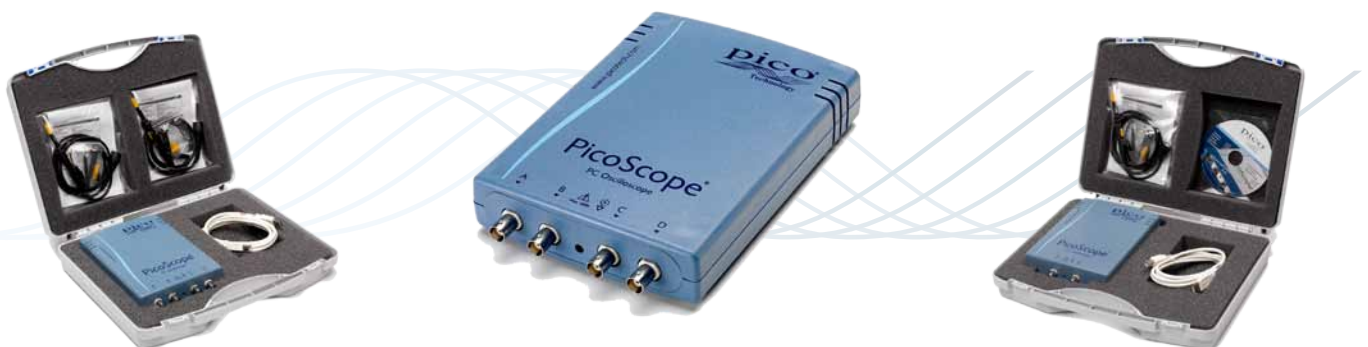
**32 MS BUFFER**  
**12-BIT**  
**IEPE**



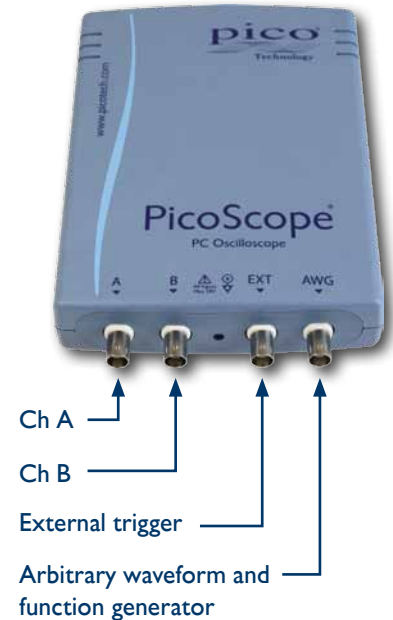
Supplied with a full SDK including example programs  
• Software compatible with Windows XP, Windows Vista  
and Windows 7 • Free Technical Support

MODEL	PicoScope 4424	PicoScope 4224	PicoScope 4224 IEPE	
<b>INPUTS</b>				
			<b>Passive Probe Mode</b>	<b>IEPE Interface Mode</b>
Number of channels	4 BNC inputs	2 BNC inputs	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
Voltage ranges	$\pm 50$ mV to $\pm 100$ V		$\pm 50$ mV to $\pm 20$ V	
Sensitivity	10 mV/div to 20 V/div		10 mV/div to 4 V/div	
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	
<b>SAMPLING</b>				
Timebases	100 ns/div to 200 s/div		100 ns/div to 200 s/div	
Maximum sampling rate (real-time)	1/2 channels: 80 MS/s 3/4 channels: 20 MS/s	80 MS/s	80 MS/s	
Buffer size	32 M samples shared between active channels		32 M samples shared between active channels	
<b>TRIGGERING</b>				
Sources	Any input channel			
Ch A, Ch B trigger types	Edge with hysteresis, pulse width, runt pulse, dropout, windowed			
EXT trigger types	Rising edge, falling edge			
<b>PERFORMANCE</b>				
Timebase accuracy	50 ppm			
DC accuracy	1% of full scale			
Trigger resolution	1 LSB (Ch A, Ch B)			
Trigger re-arm time	2.5 $\mu$ s (fastest timebase)			
<b>ENVIRONMENT</b>				
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, Windows Vista or Windows 7			
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			

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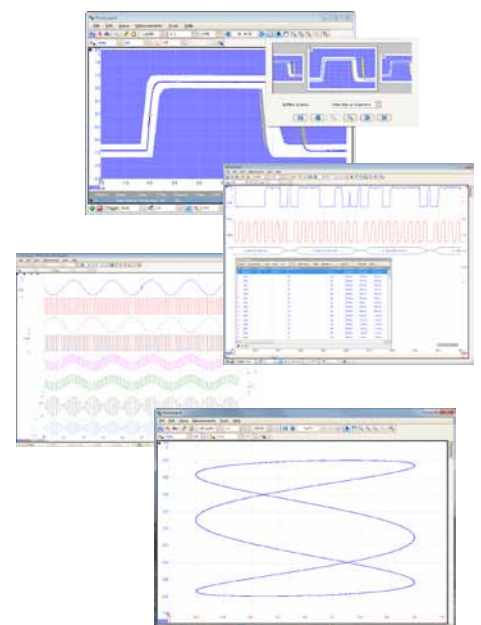


MODEL	PicoScope 4226	PicoScope 4227
<b>INPUTS</b>		
Number of channels	2 BNC inputs	
Analog bandwidth	50 MHz	100 MHz
Voltage ranges	$\pm 50$ mV to $\pm 20$ V	
Sensitivity	10 mV/div to 4 V/div	
Vertical resolution	12 bits	
Input coupling	AC or DC, software-selectable	
Input impedance	1 M $\Omega$    16 pF	
Overvoltage protection	$\pm 100$ V	
<b>SAMPLING</b>		
Timebases	100 ns/div to 200 s/div	50 ns/div to 200 s/div
Maximum sampling rate (real-time)	1 channel in use 125 MS/s	1 channel in use 250 MS/s
	2 channels in use 125 MS/s	2 channels in use 125 MS/s
Maximum sampling rate (ETS)	10 GS/s	
Buffer size	32 MS shared between active channels	
<b>TRIGGERING</b>		
Sources	Ch A, Ch B, Ext	
Ch A, Ch B trigger types	Edge, window, pulse, interval, dropout, runt, delayed	
EXT trigger types	Rising/falling edge	
<b>EXT TRIGGER INPUT</b>		
Connector	BNC	
Bandwidth	100 MHz	
Impedance	1 M $\Omega$    20 pF	
Voltage range	$\pm 20$ V	
Threshold range	$\pm 150$ mV to $\pm 20$ V	
Coupling	DC	
Overvoltage protection	$\pm 100$ V	
<b>FUNCTION GENERATOR / ARBITRARY WAVEFORM GENERATOR</b>		
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	$\pm 250$ mV to $\pm 2$ V	
Output offset range	$\pm 1$ V	
Max. combined output	$\pm 2.5$ V	
Output resistance	600 $\Omega$	
Overvoltage protection	$\pm 10$ V	
<b>PERFORMANCE</b>		
Timebase accuracy	50 ppm	
DC accuracy	1% of full scale	
Trigger resolution	1 LSB (Ch A, Ch B)	
Trigger re-arm time	1 $\mu$ s (fastest timebase, rapid trigger)	
<b>ENVIRONMENT</b>		
Temperature range	Operating: 0 $^{\circ}$ C to 45 $^{\circ}$ C For stated accuracy: 20 $^{\circ}$ C to 30 $^{\circ}$ C Storage: -20 $^{\circ}$ C to 60 $^{\circ}$ 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, Windows Vista or Windows 7	
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	

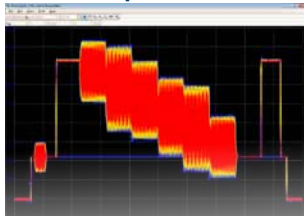


#### Additional features:

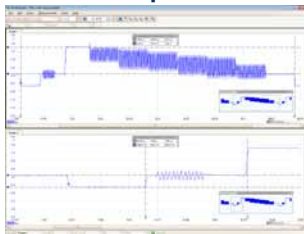
- Mask limit testing with alarms
- Serial data decoding (CAN, I<sup>2</sup>C etc.)
- Per-channel low-pass filtering
- Math channels
- Reference waveforms
- Waveform buffer with up to 10,000 segments and visual navigator
- Digital Color and Analog Intensity persistence modes
- XY mode



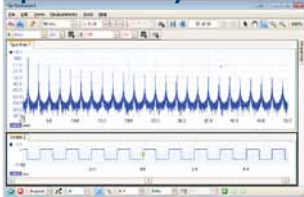
## Oscilloscope



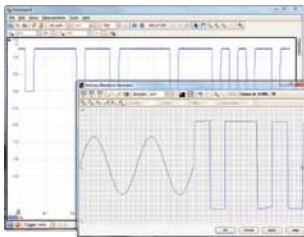
## Zoomed scope views



## 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 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
PP493	PicoScope 4424
PP492	PicoScope 4224
PP695	PicoScope 4224 IEPE
PP671	PicoScope 4226 Kit
PP672	PicoScope 4227 Kit



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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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