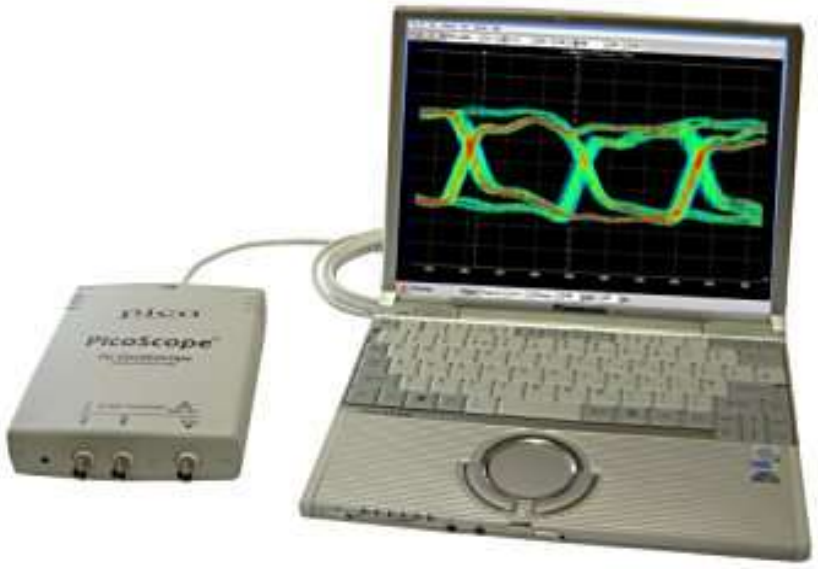
pico® Technology Limited

PicoScope™ 3000

Quick start guide



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Included with your PicoScope...

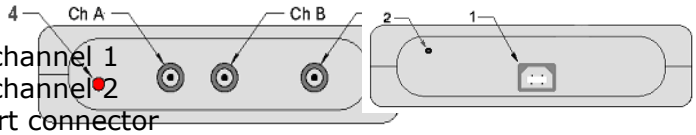
Your PicoScope 3000 package contains the following components:
1 PicoScope 320x series oscilloscope
1 USB cable
1 Pico Software CD
1 Power adapter (UK, EU or US – selected at time of ordering)
1 Installation guide
1 Quick start guide

PicoScope 3000 Quick start...

1) Do not connect the PicoScope 3000 to the PC until software has been installed.
2) Insert CD which should automatically start Pico the installation application
3) Follow the links to install software

4) Follow the instructions on the screen to install PicoScope
5) Restart the PC
6) Click on "PicoScope" in the Windows Start menu to begin using PicoScope 3000. If you are using a scope probe and PicoScope, you should see a small 50Hz or 60Hz mains signal in the oscilloscope window when you touch the scope probe tip with your finger.

Connector diagram



Ch A) Input channel 1
Ch B) Input channel 2
1) USB port connector
2) 12Vdc 500mA power input
3) External trigger / Signal generator
4) LED. When lit, indicates the PicoScope 3000 series oscilloscope is sampling data

PicoScope 3000 overview

Oscilloscopes in the new PicoScope 3000 series all feature a high-speed USB 2.0 interface, together with impressive sampling rates, high bandwidths and a large buffer memory. PicoScope oscilloscopes simply connect to the USB port on any standard Windows based PC, making full use of the PCs' processing capabilities, large screens and familiar graphical user interfaces.

PicoScope oscilloscopes are supplied with the following software:

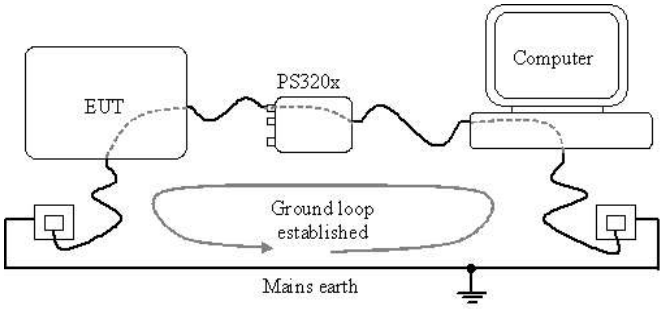
- PicoScope software (oscilloscope, spectrum analyser, meter).
- PicoLog data acquisition software that transforms your PC into a high-speed data logger.
- Pico programming libraries to interface with the instrument using 3rd party software such as C, Visual Basic (MS Excel using VBA), Delphi, Agilent VEE and LabVIEW.

Powering the PS3000

The PS320x PC Oscilloscope is normally powered from the USB port of the computer. If however the computer and the equipment under test (EUT) are both referenced to the same ground, a "ground loop" may be established. This may degrade the DC accuracy and noise performance when measuring small signals.

Typically a ground loop is established when the PS320x is connected to a mains powered computer and is used to measure a signal on another mains powered device. In this case the ground loop is established through mains earth, as illustrated below:

The majority of laptop power supplies (chargers) are floating and have no ground reference, if however connecting your grounded laptop power supply does cause noise/offset issues you can either use the oscilloscope with the laptop running on its batteries or alternatively power the PS320x using the supplied mains adaptor.



Most mains powered desktop PCs are referenced to mains earth, so if you observe offsets or additional noise when measuring small signals we recommend you power the PS320x using the supplied mains adaptor.

If required, the mains adaptor should be plugged into the socket on the back of the PS320x (near the USB socket). It can be safely connected / disconnected during operation without risk of damage to the PS320x.

PicoScope 3000 specifications

PicoScope	3204	3205	3206
Bandwidth	50 MHz	100 MHz	200 MHz
Sampling rate (repetitive signals)	2.5 GS/s	5 GS/s	10 GS/s
Sampling rate (single shot)	50 MS/s	100 MS/s	200 MS/s (single channel) 100 MS/s (dual channel)
Channels	2 + Ext trigger		
Scope timebases	5 ns/div to 50 s/div	2 ns/div to 50 s/div	1 ns/div to 50 s/div
Timebase accuracy	50 ppm	50 ppm	50 ppm
Spectrum ranges	0 to 25 MHz	0 to 50 MHz	0 to 100 MHz
Dynamic range	50 dB		
Signal generator	Fixed 1 KHz square wave	Fixed amplitude, Variable frequency sine/square/triangle wave with single/dual slope sweep options. Maximum frequency 1 MHz.	
Trigger modes	Free Run, Auto, Repeat, Single and Save To Disk On Trigger		
Pre/post trigger	-100% to +100%		
Buffer size	256 KB	512 KB	1 MB
Resolution	8 bits		
Accuracy	±3%		
Ranges	10 mV to 2 V/div		
Input impedance	1 MΩ		
PC Interface	USB 2.0 (USB 1.1 compatible)		
Power supply	Either from USB port or power supply * (see "Powering the PicoScope 3000" section)		

PicoScope features

The PicoScope 3000 series PC oscilloscopes incorporate PicoScope software that turns your PC into an oscilloscope and spectrum analyser.

- 20 Automatic Measurements, min, max, standard deviation, pass/fail limits
- XY Scope cursors
- Spectrum analyser (sine, square and triangle), with sweep function
- Multiple screen display modes inc. Digital Colour, analog persistence and more
- Save data as Text file, BMP and JPG
- Runs on Pentium or equivalent PC with at least 32MB RAM, 10MB disk space
- Microsoft Windows 98 SE, ME, Microsoft Windows 2000, XP or later.
- USB 1.1 compliant port minimum. USB 2.0 compliant port recommended. Must be connected direct to the port or a powered USB hub. Will not work on a passive hub.

PicoLog features

PicoLog is a powerful but flexible data acquisition program for collecting, analysing and displaying data over long or short periods of time. Data can be viewed both during and after data collection in spreadsheet or graphical format. If required, the data can also be exported to other applications such as Excel.

Software Drivers

For users who wish to write their own software or use our products with 3rd party software, we provide a range of software drivers and examples free of charge. Drivers are included for the following versions of Windows: 98SE, ME, 2000 and XP.
Programming examples are supplied for C, Delphi and Visual Basic. There is support for 3rd party packages including LabVIEW, Agilent VEE and Excel.