AN INTRODUCTION TO PC OSCILLOSCOPES

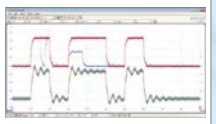
pico Technology

PICOSCOPE SOFTWARE IS SUPPLIED WITH EVERY PICO TECHNOLOGY REAL-TIME OSCILLOSCOPE.

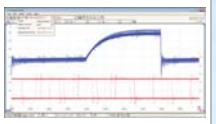
SAMPLING RATE

PC oscilloscopes work by "sampling" the input signal—measuring its value at regular intervals and storing those values in its memory. Any changes in the signal between one sample and the next are lost. So, to avoid losing important details, the sampling rate must be fast enough for the type of signal being measured. PicoScope devices are available with a wide range of sampling rates from 10 million to 5 billion samples per second (**10 MS/s** to **5 GS/s**).

PERSISTENCE MODE



Digital color mode is useful for estimating noise and jitter, and for spotting glitches.



Analog intensity mode shows the high-frequency content of a signal at slow timebases.

RECORD LENGTH

PC oscilloscopes usually store more data on each waveform than they can display on the screen. You can zoom in to see the extra data. PicoScopes have high-performance "always-on" memory that operates at full speed regardless of record length. This frees you from having to worry about the memory settings and lets you capture high-resolution data every time.

PICOSCOPE runs on Windows XP, Vista, 7 and 8, 32-bit and 64-bit. Plus beta versions for Mac OS X and Linux.

PERSISTENCE MODE
Switches to digital color or analog intensity mode. Both modes are fully configurable.

SPECTRUM MODE
Switches to spectrum analysis mode.

AUTO SETUP
Click this first to find your signal, then adjust using the other controls.

TOOLS
Custom probes, math channels, reference waveforms, serial decoding, alarms, masks and macro recorder.

TIMEBASE CONTROLS
Set the time interval across the screen, zoom factor, and record length.

BUFFER CONTROLS
PicoScope stores the most recent waveforms in a buffer. Use these controls to scan backwards and forwards through the buffer.

FLEXIBLE RESOLUTION
The PicoScope 5000 Series allows you to select hardware vertical resolution.

TRIGGER MARKER
Shows the channel, signal level and time of the trigger event. Drag to adjust.

ZOOM BUTTONS
Click to pan and zoom around the entire view. (To zoom a single channel, use the scaling buttons).

SIGNAL GENERATOR
For oscilloscopes with a built-in signal generator, this button lets you set up the output signal.

SCOPE MODE
Click to return to the normal oscilloscope display mode.

CHANNEL CONTROLS
In "Auto" mode PicoScope adjusts the input range to fit the signal. You can override this to set your own range for each channel. "DC" admits all frequencies, while "AC" filters out frequencies below about 1 hertz. "Lowpass filtering" preserves the underlying shape of the signal while eliminating high-frequency noise.

CHANNEL RULERS
Drag a colored handle from the top of the window to the level you want to measure. The ruler legend shows the measurement.

CHANNELS A TO D
These are linked to the channel controls above. Each channel corresponds to one of the BNC connectors on the PicoScope.

MATH CHANNEL
Choose from basic operations or advanced equations.

TIME RULERS
Drag a white ruler handle from left to right to mark a point on the axis. The ruler legend shows the time at each ruler and the time difference between two rulers.

STOP/START CONTROL
Click to start displaying waveforms. Click again to stop. The space bar on the keyboard has the same function.

TRIGGER MODE
AUTO displays a stable waveform when possible.
NONE always displays regardless of the waveform.
SINGLE displays a single waveform.
REPEAT displays only stable waveforms.
RAPID captures a sequence of waveforms.
ETS for repetitive waveforms.

ADVANCED TRIGGERS
Simple edge
Level dropout
Window pulse width
Window
Advanced edge
Window dropout
Interval
Pulse width
Runt and logic

TRIGGER SOURCE
Choose which channel to trigger on.

EDGE SELECT
Trigger on rising or falling edges.

THRESHOLD
Set the voltage at which the trigger operates, or drag the trigger marker.

PRETRIGGER
How much of the waveform is captured before the trigger event.

TRIGGER DELAY
How long to wait after the trigger event before capturing the waveform.

MEASUREMENTS
Click to add an automatic measurement to the measurements table, or to delete or edit one.

MIXED SIGNAL OSCILLOSCOPES
PicoScope MSOs can measure 2 or 4 analog and 16 digital channels at once. Dual logic thresholds allow you to operate with mixed logic families, and advanced triggering can be activated for analog or digital inputs or a combination of both. This icon will only apppear if you have a MSO plugged in.

RULER LEGEND
Shows measurements of all rulers on screen. Also shows difference between two rulers.

SERIAL DECODING
PicoScope can decode data from popular serial buses such as I²C, SPI or CAN so you can see the electrical waveform correlated with the transmitted data.

CHANNEL AXIS
There is a color-coded axis for each channel. Drag it up or down to position the channel.

REFERENCE WAVEFORM
Waveforms can be saved for comparison with live data.

SCALE AND OFFSET
There is a color-coded button for each channel. Click it to reveal the scale and offset controls.

MEASUREMENTS TABLE
Lists all your dynamically updated automatic measurements. Choose from dozens of time-domain and frequency-domain measurement types.

PHASE RULERS
Display phase in degrees or percent, with adjustable partitions.

UPDATES TO **PICOSCOPE** CAN BE DOWNLOADED **FREE**

THE PICOSCOPE® RANGE

PicoScope 2000 Series
Power & performance in your hand

PicoScope 2000 Series
Benchtop performance in a pocket sized scope

PicoScope 3000 Series
Deep memory
2 or 4 channel and MSO

PicoScope 4824
8 Channels

PicoScope 5000 Series
Flexible resolution

PicoScope 6000 Series
Highest performance PC scope

PicoScope 9000 Series
Sampling oscilloscope