PicoScope® 6 Software

BEGINNER'S GUIDE

Getting started with your PicoScope

Signal generator
Auto setup
Input range
Triggering
Timebase
Starting and stopping
Waveform buffering
Zooming

Software compatible with Windows XP,
Windows Vista, Windows 7 and Windows 8
Free technical support • Free updates

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Introduction

PicoScope 6 is the oscilloscope software supplied with all PicoScope® oscilloscopes. All the advertised features are included in the purchase price of your oscilloscope, so there are no expensive add-on software modules to buy later.

What devices can I use?

You can use PicoScope 6 with the following devices:

- PicoScope 2000 Series oscilloscopes
- PicoScope 3000 Series oscilloscopes
- PicoScope 4000 Series oscilloscopes
- PicoScope 5000 Series oscilloscopes
- PicoScope 6000 Series oscilloscopes
- PicoLog 1000 Series data loggers
- DrDAQ educational data logger

For the PicoScope 9000 Series, separate documentation is available on our website.

For data loggers not mentioned above, see the documentation for the PicoLog® software.

Getting started

Your PicoScope or PicoLog device is supplied with all the accessories you need to get started: software CD, USB cable and, if required, AC adaptor.

- Load the CD into your computer and allow the installation program to start. If you don't have a CD or a CD drive, download the software (it's free) from our website.
- Choose 'Install' and install the PicoScope software. (You can use PicoScope with the above-mentioned data loggers as well as with our PicoScope oscilloscopes.) A PicoScope icon will appear on your Windows desktop.
- If your device requires a separate power supply, plug it in now.
- When the installation is finished, plug your device into the computer using the USB cable supplied. Windows will indicate that the device is being installed, and then tell you when it is ready.
- Start the PicoScope software by clicking the icon on your Windows desktop:

Using PicoScope for the first time

You are now ready to begin using PicoScope. This guide will use the PicoScope 2205A ultra-compact oscilloscope as an example, but all the procedures described here are equally applicable to other PicoScope devices.

Your first view of PicoScope will look like this:
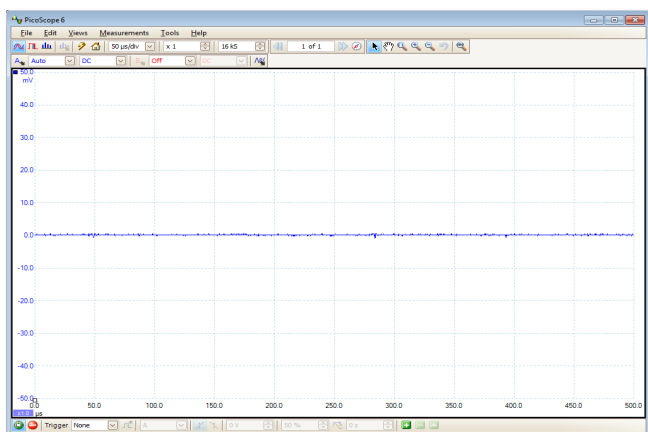
Setting up a test signal

The PicoScope 2205A has a built-in signal generator and arbitrary waveform generator. You can use this to test your scope and to familiarize yourself with the software. If your scope doesn't have a signal generator, any signal source will do: an audio output from your MP3 player, phone or PC is suitable.

- Attach one of the oscilloscope probes, supplied with your scope, to the connector marked A on the front of the scope. This connector is the channel A input.
- Remove the probe hook, if one is fitted, by pulling it away from the probe.
- Insert the probe tip into the centre of the connector marked AWG on the oscilloscope. This connector is the signal generator and arbitrary waveform generator output. Support the probe so that there is no bending force on the probe tip. Alternatively, you can use a BNC-to-BNC cable - this will give you better signal quality than a scope probe.

- Click the signal generator button in PicoScope:
- In the dialog (control box) that opens, click *Signal On*:
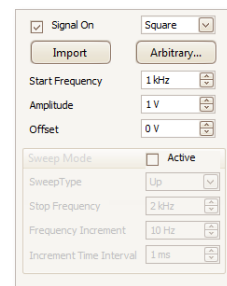


You should now see a waveform on the PicoScope display:
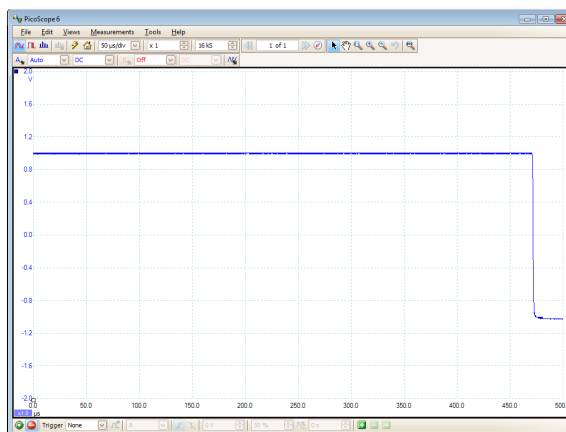
At this stage the position of the waveform is unstable because there is no trigger. We shall correct this later.

Auto setup

Before introducing some of the detailed adjustments that are possible, we will try out the Auto Setup feature. In most cases this displays a waveform on the screen that can be improved with further adjustments.

• Click the *Auto Setup* button:

PicoScope tries a number of possible settings until a waveform is displayed:
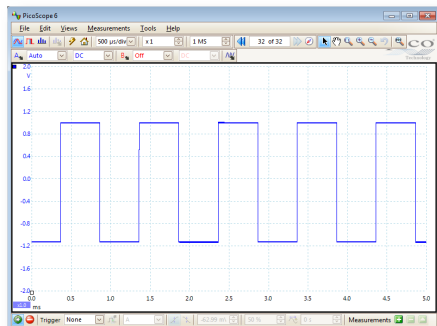
Input range

Auto Setup sets the *Input Range* control for channel A to *Auto*. This continually monitors the input signal and adjusts itself to use as much of the input range as possible. If you prefer a fixed input range, you can select one using the *Input Range* control.

• Try setting the range to ±2 V:
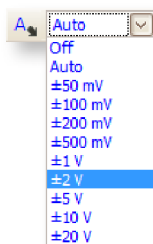
Triggering

By default, the trigger mode is *None*. This guarantees that the scope will display the input signal but does not define the horizontal position of the waveform. Triggering can be used to fix the waveform in position on the screen.

• Click the *Trigger* control in the toolbar at the bottom of the PicoScope window. This reveals a drop-down list of trigger modes.

• Choose *Auto:*
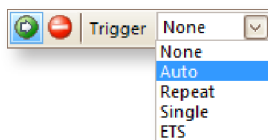
With the *Auto* trigger mode, PicoScope updates the display only when it detects a stable waveform. The display should now look like this:
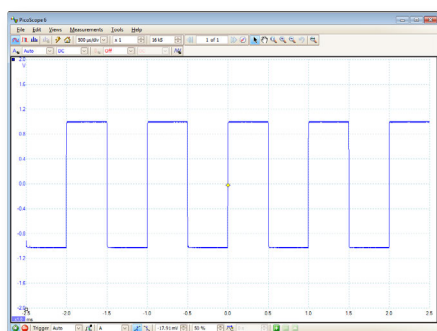
• Experiment with the other trigger modes.

Timebase

The timebase controls how much time is represented across the width of the display. The higher the signal frequency, the shorter the timebase you need.

Before experimenting with the timebase, switch the trigger type back to *Auto*.

• *Auto Setup* chose a timebase of 500 µs/div (500 microseconds per division) in order to show about five cycles of the input waveform. There are 10 divisions, so this represents 10 x 500 µs = 5 ms in total across the display.

• Change the *Collection Time* setting on the top toolbar to 1 ms/div:
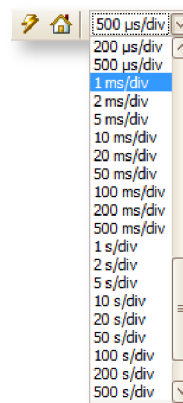
The time across the width of the display is now 10 x 1 ms = 10 ms, allowing 10 cycles to fit on the screen:
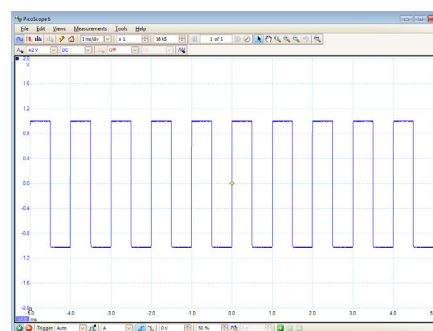
Starting and stopping

The *Start/Stop* button tells the scope when to capture data. If the waveform doesn't update when you expect it to, check that the button is in the *Running* state as shown here:

Running   Stopped

• Click the button to switch between *Running* and *Stopped* modes.

• Pressing the space bar on the keyboard has the same effect.

Waveform buffer

When capturing waveforms continually in trigger modes other than *Single,* PicoScope stores the 32 most recent waveforms in a buffer. (This number can be changed in the *Preferences* menu.)

- To recall these waveforms, use the *Previous* and *Next* buttons on the top toolbar:
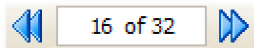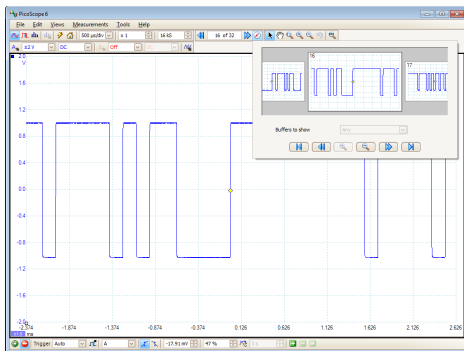

Next to these buttons is the *Buffer Overview* button:

Click this button to open the *Buffer Overview,* which allows you to scan through the stored waveforms:
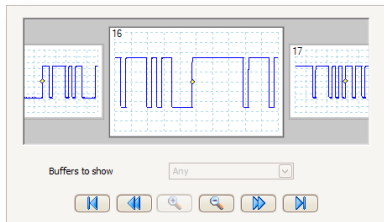
- Click one of the waveforms in the overview, and PicoScope will display it in the main view:
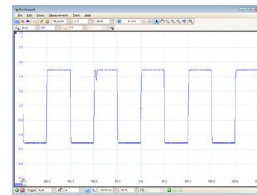

Zooming

You can magnify (or zoom) any part of the displayed waveform without changing the oscilloscope settings. This is controlled by a zooming toolbar that looks like this:
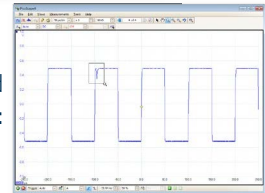

To zoom in on an arbitrary region of the waveform, click the *Windowed Zoom* button:
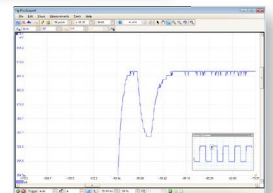
This waveform contains a small glitch that we wish to see magnified:

Draw a box around the region of interest:

PicoScope enlarges the selected region to fill the display: