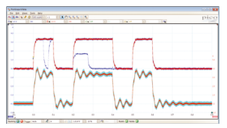
AN INTRODUCTION TO PICOSCOPE®

pico® Technology

PICOSCOPE 6 SUPPORTS ALL PICO TECHNOLOGY REAL-TIME OSCILLOSCOPES AND IS FREE TO DOWNLOAD

SAMPLING RATE
PC oscilloscopes work by *sampling* the input signal—measuring it at regular intervals and storing the 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.



SPECTRUM MODE
The spectrum analyzer in PicoScope is of the Fast Fourier Transform (FFT) type which, unlike a traditional swept spectrum analyzer, has the ability to display the spectrum of a single, non-repeating waveform.

CAPTURE MEMORY
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" capture 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.

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.

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

CHANNELS
These are linked to the channel controls above. Each channel corresponds to one of the PicoScope input connectors.

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

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 them.

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

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

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

SPECTRUM MODE
Switches to PicoScope's dedicated FFT 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.

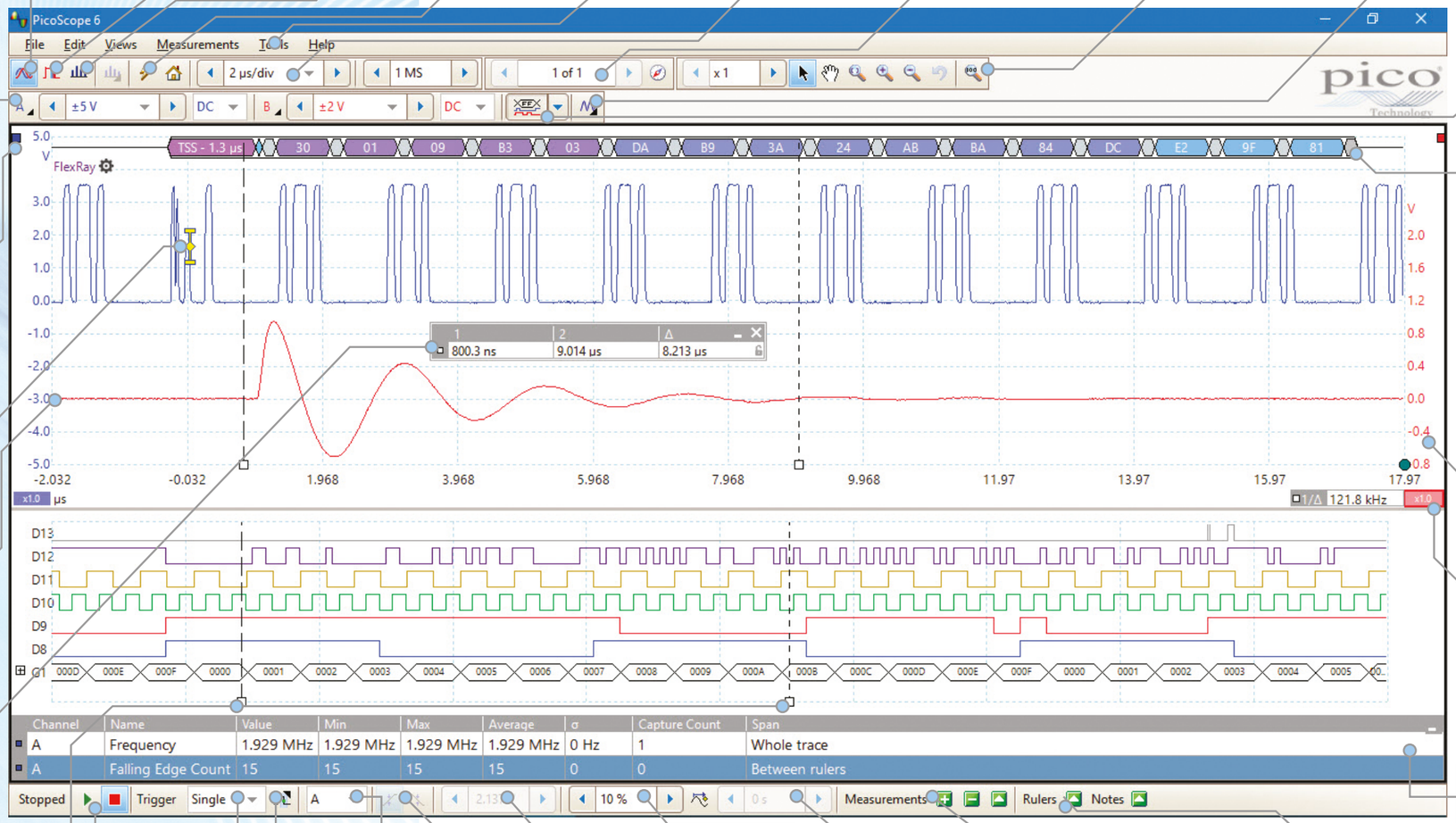
TIMEBASE CONTROLS
Set the collection time across the screen and the number of samples to record.

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

FLEXIBLE RESOLUTION
The PicoScope 4444, 5000 Series and 6000 Series allows you to select vertical hardware resolution.

ZOOM BUTTONS
Click to pan and zoom around the entire view.

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



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 boosts the sampling rate for repetitive waveforms.

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.

PRE-TRIGGER
How much of the waveform is captured before the trigger event.

TRIGGER DELAY
How long to wait after the capture before enabling the next trigger event.

ADVANCED TRIGGERS
Edge, Level dropout, Window dropout, Window, Pulse width, Runt, Interval, Window pulse width, Logic

MIXED-SIGNAL OSCILLOSCOPES
PicoScope MSOs can measure up to 8 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.

SERIAL DECODING
PicoScope can decode: 1-Wire, ARINC 429, BroadR-Reach, CAN and CAN FD, DALI, DCC, DMX512, Ethernet 10Base-T and 100Base-TX, FlexRay, I²C, I²S, LIN, PS/2, Manchester, MODBUS, SENT, SPI, UART and USB 1.1 protocols.

CHANNEL AXIS
Each channel has a color-coded axis. Drag it up or down to position the channel.

SCALE AND OFFSET
Each channel has a color-coded button. Click it to reveal the scale and offset controls.

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

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

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

REFERENCE WAVEFORMS
Waveforms can be saved and displayed for comparison with live data.

MATH CHANNELS
Basic operations to advanced equations.

PICOSCOPE 6
Runs on Windows 10 32-bit and 64-bit.
Beta versions for macOS and Linux.

UPDATES TO PICOSCOPE ARE FREE TO DOWNLOAD

THE PICOSCOPE RANGE

PicoScope 2000 Series Benchtop performance in a pocket-sized scope

PicoScope 3000 Series Fast sampling with deep memory 2 or 4 channels and MSO

PicoScope 4444 differential oscilloscope

PicoScope 4000A 2, 4 or 8 channels

PicoScope 5000D Series with FlexRes®

PicoScope 6000 Series High-performance PC scopes

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