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CEO's Corner

Small signals can reveal big problems—but only if your oscilloscope can resolve them. From millivolt-level power-supply ripple to subtle sensor variations and intermittent mixed-signal faults, today's designs demand more than a recognizable waveform. The new **PicoScope 5000E Series** combines true 16-bit acquisition, an ultra-low-noise front end and deep capture memory to help engineers uncover details that lower-resolution instruments can hide.

For projects that also demand faster measurements, **PicoScope 5000E Plus models** add a switchable 8-bit mode with bandwidths up to 500 MHz and sampling rates up to 5 GS/s. Together with PicoScope 7 software, four analog channels and optional 16-channel digital acquisition, this compact USB-C instrument brings precision measurement, high-speed debugging and advanced analysis to your workstation, lab bench or field assignment.

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What's New?

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The Details That Matter

True 16-bit acquisition for demanding measurements



When evaluating a sensitive analog circuit, seeing the main waveform is only the beginning. Engineers also need to distinguish small variations, noise and distortion that can affect performance.

The PicoScope 5000E Series provides **true 16-bit resolution**, with bandwidths up to **200 MHz**, sampling rates up to **2.5 GS/s** and **1 GS of capture memory**. This combination supports detailed waveform inspection while retaining the acquisition speed and recording depth needed for practical debugging.

A 16-bit converter provides 65,536 nominal amplitude levels, compared with 256 for an 8-bit converter. Actual measurement performance also depends on noise, signal range and operating conditions, but this finer amplitude quantization provides a valuable foundation for examining low-level signals.

Low noise makes precision useful

Resolution alone does not guarantee a clear measurement. Noise in the instrument's front end can obscure the very details you are trying to examine.



The PicoScope 5000E Series pairs its high-resolution acquisition with a specified **noise floor below 22 µV RMS** and **total harmonic distortion better than –73 dB**. These characteristics help engineers investigate low-amplitude components, ripple and distortion with greater confidence.
That capability is particularly useful for:

- **Power integrity: Examine small ripple components and disturbances on DC supply rails.**
- **Sensors and instrumentation: Investigate low-level outputs and subtle changes in analog signals.**
- **Audio development: Evaluate waveform quality and distortion.**
- **Analog front ends: Inspect small signal variations through amplification and conditioning stages.**
- **Medical electronics development: Analyze sensitive analog circuitry.**
- **Mixed-signal debugging: Relate analog disturbances to digital activity and intermittent faults.**

Follow a problem across four channels

Four analog inputs let you observe related signals together—for example, a supply rail, a sensor output, an amplifier output and a control signal. Viewing these relationships in one acquisition can help reveal where a disturbance begins and how it propagates through a design.



The result: more context around the signal, with the amplitude detail needed to investigate what went wrong.

Switch from Precision to Speed



Two acquisition modes. One versatile instrument.

Some measurements call for maximum amplitude detail. Others require more bandwidth to investigate fast transitions and higher-frequency activity.

The **PicoScope 5000E Plus Series** addresses both needs with selectable 16-bit and 8-bit operation. Use 16-bit mode for sensitive analog measurements, then switch to 8-bit mode when higher bandwidth and faster sampling are the priority.

In high-speed mode, Plus models offer:

- **Bandwidths up to 500 MHz**
- **Sampling rates up to 5 GS/s**
- **Capture memory up to 2 GS**

This flexibility allows the same instrument to support precision analog evaluation and faster debugging as a project moves through development and validation.

Choose the bandwidth combination for your work

Model Family	Bandwidth in 16-bit Mode	Bandwidth in 16-bit Mode
5000E Plus 60MHz	60MHz	200MHz
5000E Plus 100MHz	100MHz	350MHz
5000E Plus 200MHz	200MHz	500MHz

Maximum bandwidth, sampling rate and memory depend on the selected model, acquisition mode and configuration.

Deep memory preserves the bigger picture



A short capture can show an event without revealing what caused it. Longer records help engineers examine the sequence before and after a fault, especially when an anomaly appears infrequently.

Standard models provide **1 GS of capture memory**, while Plus models offer **up to 2 GS in 8-bit mode**. Deep memory supports longer acquisition windows at high sample rates, helping preserve the detail needed to examine brief events within a larger record.

Capture a startup sequence, investigate a disturbance during a control cycle or examine activity surrounding a communication error. Then zoom into the relevant part of the waveform to inspect the details.

Add digital visibility with MSO models

The series is available in **four-channel analog** and **four-analog-plus-16-digital-channel MSO** configurations. MSO models help engineers correlate digital states with analog behavior. Observe control lines alongside supply rails, sensor outputs or other analog signals to investigate whether digital activity coincides with an unexpected disturbance.

Seven instruments in one compact platform

The PicoScope 5000E Series combines:

1. Oscilloscope
2. FFT spectrum analyzer
3. 200 MS/s, 14-bit arbitrary waveform generator
4. Function generator
5. Frequency counter
6. Protocol analyzer
7. Logic analyzer on MSO models

Generate a test signal, observe the circuit's response and examine its frequency content using one integrated platform.

Turn Captures into Answers



PicoScope 7 expands your analysis capabilities

The hardware captures the signal. **PicoScope 7 software** helps you interpret it, measure it and turn repeatable checks into a more efficient workflow.

The software includes **more than 40 serial protocol decoders**, allowing engineers to examine supported communications alongside the underlying waveforms. This helps connect a decoded transaction with the electrical behavior occurring at the same time.

Additional capabilities include:

- **Advanced math channels to derive useful signals from captured waveforms.**
- **Automated measurements, including power analysis, to quantify circuit behavior.**
- **DeepMeasure for detailed analysis across captured waveform cycles.**
- **Measurement and mask limit testing to identify results outside defined limits.**
- **Actions for code-free test automation.**

These tools support both exploratory debugging and repeatable validation. Once you identify the measurement that matters, you can use automated analysis and limit testing to check it more consistently.

A portable scope with room to see more

The PicoScope 5000E Series connects through **SuperSpeed USB 3.0 using a USB Type-C connection** and uses your computer for display and analysis.

The compact format makes it convenient to move between workstations or bring to equipment under test. Your PC's display provides room to examine waveforms, decoded data and measurement results, while the software interface supports detailed inspection of complex captures.

Lifetime software upgrades help extend the platform's capabilities as PicoScope software develops.

Build the instrument into your own workflow



For engineers who need custom acquisition or analysis, **PicoSDK** provides access through Pico Technology's multi-series API.

Supported development environments include **C, C#, C++, Python, MATLAB and LabVIEW**. This gives teams a route to incorporate the oscilloscope into custom applications, research setups and automated measurement systems.

Built on more than 30 years of Pico innovation

For more than three decades, Pico Technology has developed PC-based test and measurement instruments using a software-driven approach. The PicoScope 5000E Series continues that approach by combining compact hardware with the processing, display and analysis capabilities of a computer.

For engineering teams, the appeal is practical: a portable instrument that can address sensitive analog measurements, mixed-signal investigation and—on Plus models—higher-speed debugging.

Find the right PicoScope 5000E for your next design

Choose a standard model for true 16-bit measurements at bandwidths up to 200 MHz. Select a Plus model when your work also requires switchable high-speed acquisition up to 500 MHz. Add MSO capability when digital timing and analog behavior need to be examined together.

Contact Saelig Company, Inc. for help selecting the PicoScope 5000E configuration that fits your application, along with current pricing and availability.

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