



## PicoScope 5000E Series Webinar

# Housekeeping



Your microphone  
has been muted



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been turned off



The webinar will  
take approx. 45  
minutes

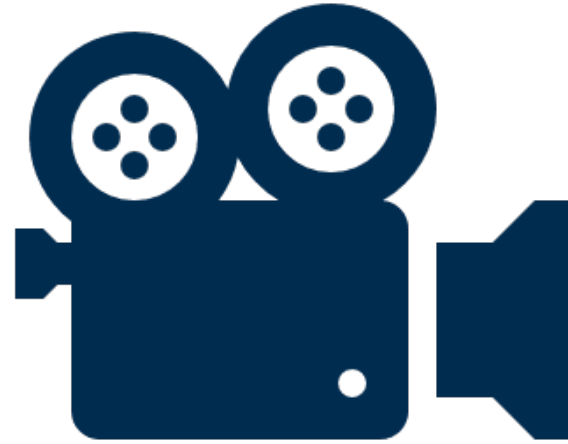


If you have any  
questions please  
use the chat pod





# Recording the session



We will be  
recording this  
session



# Aim

The aim of this session is to:

- Equip you with the technical depth and value propositions needed to position the PicoScope 5000E Series in the high-precision market successfully.



# Objectives

By the end of this session, you will be able to:

- Identify the 40x performance leap over the 5000D and the benefits of 16-bit FlexRes architecture.
- Correctly qualify customer needs using the "Precision vs. Speed" guide (5000E vs 3000E).
- Explain the long-term advantages of the PSOSPA unified platform and PicoScope 7 software.





## Overview

# PicoScope 5000E Series Overview

## *Precision where you need it*

- Up to 200 MHz, 2.5 GS/s, USB powered PC oscilloscopes and MSOs
- **60, 100 & 200 MHz** models
- **16-bit** resolution (20-bit using enhanced resolution)
- 2.5 GS/s sample rate
- 1 GS ultra-deep capture memory
- 22  $\mu$ V RMS noise floor at 20 MHz
- 73 dB SFDR and exceptional bandwidth flatness







5000E '**Plus**' Models



# 5000E 'Plus' Models

*Gain the 'speed' of the 3000E whilst keeping the 'precision' of the 5000E*

- **Sample rate** increased to **5GS/s**
- **Memory** increased from 1GS to **2GS**
- **Up to 500 MHz** bandwidth addition in 8-bit mode
- 60 MHz model gets **200 MHz** at 8-bit
- 100 MHz model gets **350 MHz** at 8-bit
- 200 MHz model gets **500 MHz** at 8-bit
  - Includes probes to match 8-bit bandwidth





5000D vs 5000E

# 5000D vs 5000E

| Specification                | 5000D                    | 5000E                      | Difference |
|------------------------------|--------------------------|----------------------------|------------|
| Channels in 16-bit mode      | 1                        | 4                          | 4 x        |
| Sample rate (16-bit)         | 62.5 MS/s                | 2.5 GS/s                   | 40 x       |
| Effective bandwidth (16-bit) | ~30 MHz (1 channel)      | Full BW (up to 4 channels) | 40 x       |
| Buffer memory (16-bit)       | 256 MS                   | 1 GS                       | 4 x        |
| Channels when USB powered    | 2                        | 4                          | 2 x        |
| Trigger type                 | Ext Trigger (Input only) | AuxIO                      |            |
| Smallest range               | 10 mV                    | 5 mV                       | 2 x        |
| Input impedance              | 1 M $\Omega$             | 1 M $\Omega$ / 50 $\Omega$ |            |
| Dimensions                   | 190 x 170 x 40 mm        | 221 x 173 x 30 mm          |            |





Low Noise

\*uses 'Full' bandwidth limit

# Low Noise

|                | Bandwidth limit ( $\pm 200$ mV range) |                     |                     |                     |
|----------------|---------------------------------------|---------------------|---------------------|---------------------|
|                | 20 MHz                                | 50 MHz              | 100 MHz             | 200 MHz             |
| 5000E          | 56 $\mu\text{V}$                      | 76 $\mu\text{V}$    | 110 $\mu\text{V}$   | 230 $\mu\text{V}$   |
| 5000D (12-bit) | 146 $\mu\text{V}$                     | 290 $\mu\text{V}^*$ | 290 $\mu\text{V}^*$ | 290 $\mu\text{V}^*$ |
| 5000D (16-bit) | 106 $\mu\text{V}$                     | N/A                 | N/A                 | N/A                 |





PSOSPA Platform Grows



# PSOSPA Platform Grows

PicoScopes newest architecture: one driver, one form factor, custom ASIC

One growing platform – every model on the same PSOSPA driver



## DEVELOPMENT

### One SDK, write once

Every psospa scope speaks **the same driver**. The automation, code and test scripts a customer builds today carry straight onto each new series – add a model to the bench without rewriting a thing.



## RACK SPACE

### One compact form factor

A single low-profile enclosure – 221 × 173 × 30 mm, < 0.7 kg – across the platform. Bench and rack layouts stay identical as the platform grows, so multi-scope and ATE stations standardise cleanly.



## CUSTOM SILICON

### Pico's first custom ASIC

The platform runs on **purpose-built Pico silicon** – the engine behind its sample rate, 16-bit precision and channel-to-channel consistency, and the foundation the whole psospa platform is built on.



# 16 is the new 12

Where resolution is the measurement, **16-bit** sees what 12-bit rounds away.

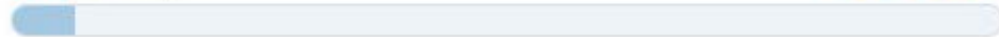
VERTICAL RESOLUTION

## 16× more levels

16-bit resolves the detail 12-bit buries

12-bit scopes

4,096 levels



16-bit scopes

65,536 levels

### Built for power integrity

Resolve a **small signal riding on a large one** — the ripple, noise and transients that 12-bit collapses inside a single quantisation step.

Where **16-bit** earns its place

Quantum Computing Control-Loop Monitoring

**Ripple Measurements**

LiDAR & Radar Sensor-Array Alignment

**3-Phase Inverter & Motor Drive**

**Magnetic Component Testing**

**Battery Management Systems**

**Amplifier Harmonic Distortion Analysis**

Ultrasound Transducer Matrix Testing

**Multi-Rail Power Integrity**

GaN / SiC Half-Bridge Converter Analysis

Smart Munitions & Guidance Validation

**ECU Power-Up & Sleep-State Transients**

Electro-Optic & Laser-Diode Pulse Characterisation

Automotive Ethernet & CAN-FD Bus Debug

**Transient Measurements**

**Ground Bounce**

ADC / DAC Chip Characterisation



PicoScope 5000E or 3000E Series

# PicoScope 5000E or 3000E Series

A quick recommendation guide · one question decides it: **precision** or **speed**

## THE PRECISION TOOL

### 5000E / 5000E+

#### Precision & dynamic range

**16-bit**

native ADC

**200 MHz**

BW @ 16-bit

**2.5 GS/s**

max sample (1 ch)

**1 GS**

memory @ 16-bit

**22  $\mu$ V**

RMS noise floor

**>73 dB**

SFDR @ 1 MHz

#### RECOMMEND WHEN THE CUSTOMER NEEDS TO...

- Make **any kind of precision measurement** — 16-bit native ADC, best vertical accuracy
- Get the **best dynamic range & lowest noise** — >73 dB SFDR, 22  $\mu$ V floor, THD / SINAD / SFDR work
- Resolve **small signals riding on large ones** — power-rail ripple, sensor & transducer outputs
- Step up to **5000E+** for flexibility — FlexRes® 8-bit to 500 MHz plus 16-ch MSO for **mixed-signal** work, at a higher price than 3000E

VS

## THE GENERAL-PURPOSE WORKHORSE

### 3000E

#### Speed, value & versatility

**8 / 10-bit**

native ADC

**500 MHz**

max analog BW

**5 GS/s**

max sample (1 ch)

**2 GS**

capture memory

**~300 MS/s**

USB streaming

**to 14-bit\***

resolution boost

#### RECOMMEND WHEN THE CUSTOMER NEEDS TO...

- Cover **everyday high-speed bench** work where you **don't need 16-bit precision**
- Capture **fast edges & timing** — 500 MHz bandwidth and 5 GS/s single-shot lead the spec
- Debug **embedded, digital & serial buses** with the 16-channel MSO option
- Keep **good dynamic range** (10-bit + boost to 14-bit\*) — solid, just not in the 5000E's precision class



## PicoScope 7 Evolution



# PicoScope 7 Evolution

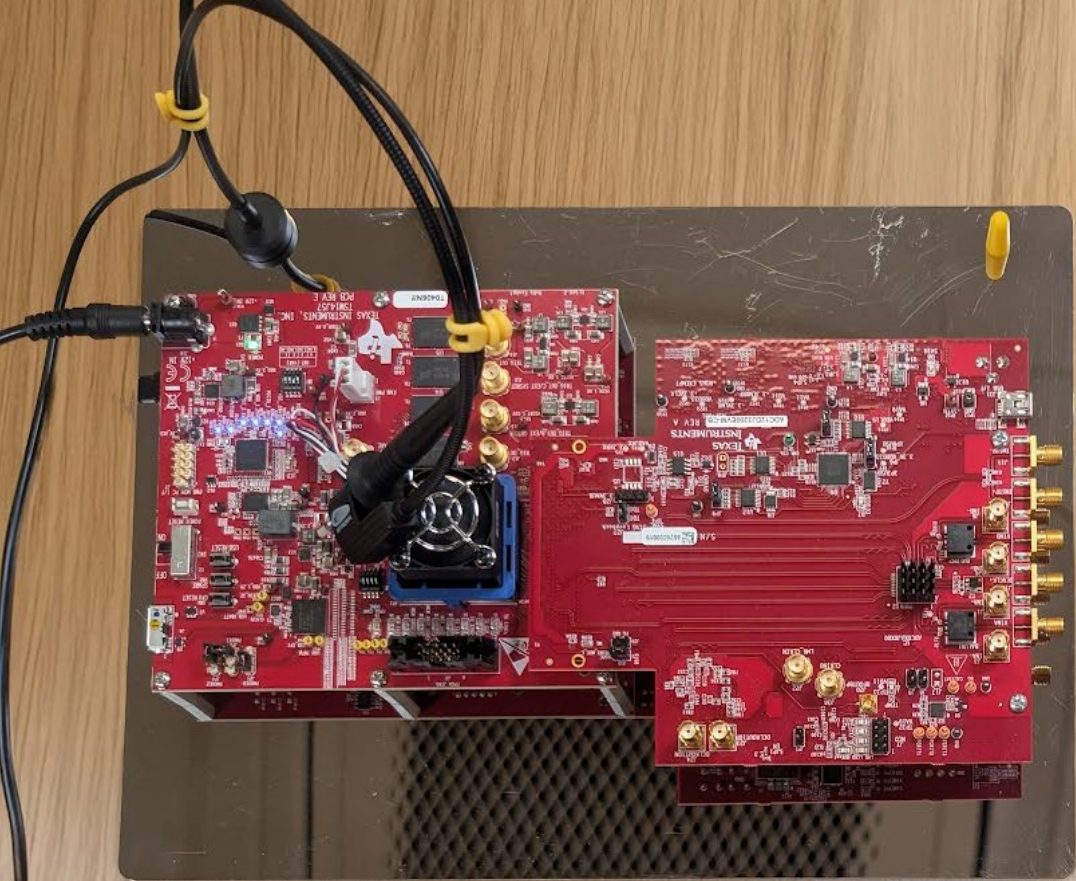
The free software platform that keeps getting better with major new features in every stable release.





Live Demonstration







Any Questions?