# ANALOG DISCOVERY™

# Mixed-Signal Oscilloscopes 2025-2026 Catalog





DIGILENT®
Part of the **NI** Product Family

EMERSON™

# ANALOG DISCOVERY

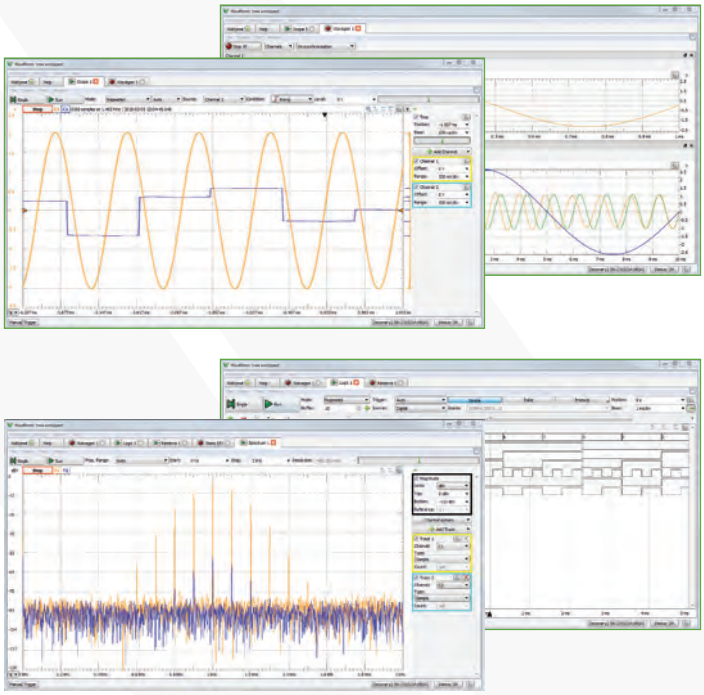
Digilent's Analog Discovery product line offers a range of compact, versatile, and powerful test and measurement devices designed to meet the needs of students, hobbyists, and professional engineers alike. The Analog Discovery 3 represents a small-but-mighty entry point to Analog Discovery products, combining a dual-channel oscilloscope, waveform generator, logic analyzer, power supplies, and multiple other instruments into a single portable unit, all controlled through the intuitive WaveForms software.

For more advanced applications, the Analog Discovery Pro 2000, 3000, and 5000 series expand capabilities with higher sampling rates, deeper memory, more analog and digital channels, and features like Linux Mode and Ethernet streaming. These Pro models are suited for professional-grade signal analysis and benchtop replacement, offering flexibility and precision in a compact form factor. Altogether, the Analog Discovery family provides a scalable solution for hands-on electronics work, from classroom learning to complex engineering tasks.

| Product | Analog Input | Analog Output | Digital Input | Digital Output | Analyzer and Full Protocol Support | Power Supplies | OS Support |
|---|---|---|---|---|---|---|---|
| Analog Discovery 3 | 2 Channel,14-bit, 125 MS/s, ±25 V, 30 MHz+ bandwidth with BNC Adapter | 2 Channel, 14-bit, 125 MS/s, ±5 V | 16 Channel, 125 MS/s, 3.3 V CMOS, 5 V tolerant | 16 Channel, 125 MS/s, 3.3 V CMOS | Spectrum, Network, Impedance, SPI, I2C, UART, etc. | -0.5 to -5 V, 0.5 to 5 V, 600 mW over USB, 2.4 W via ext power | Windows, Mac, Linux |
| Digital Discovery | N/A | N/A | 32 Channel, 800 MS/s, 1.2 V to 3.3 V CMOS, 5 V tolerant | 16 Channel, 100 MS/s, 1.2 V to 3.3 V CMOS | SPI, I2C, UART, CAN, AVR Programming, etc. | 1.2 to 3.3 V, 200 mA current total | Windows, Mac, Linux |
| Analog Discovery Studio | 2 Channel,14-bit, 100 MS/s, ±25 V, 30 MHz+ bandwidth with BNC Adapter | 2 Channel, 14-bit, 100 MS/s, ±5 V | 16 Channel, 100 MS/s, 3.3 V CMOS, 5 V tolerant | 16 Channel, 100 MS/s, 3.3 V CMOS | Spectrum, Network, Impedance, SPI, I2C, UART, etc. | -0.5 to -5 V, 0.5 to 5 V, each at 2.1 W, ±12 V at 0.2 A, 5 V and 3.3 V at 1 A | Windows, Mac, Linux |
| Analog Discovery Pro ADP2230 | 2 Channel, 14-bit, 125 MS/s, ±25 V, 50 MHz+ bandwidth | 1 Channel, 14-bit, 125 MS/s, ±5 V | 16 Channel, 125 MS/s, 3.3 V CMOS, 5 V tolerant | 16 Channel, 125 MS/s, 3.3 V CMOS | Spectrum, Network, Impedance, SPI, I2C, UART, etc. | -0.5 V to -5 V, 0.5 V to 5 V, each at 3 W | Windows, Mac, Linux |
| Analog Discovery Pro ADP3450 | 4 Channel, 14-bit, 125 MS/s, ±25 V, 55 MHz+ bandwidth | 2 Channel, 14-bit, 125 MS/s, ±5 V | 16 Channel, 125 MS/s, 1.2 V to 3.3 V CMOS, 5 V tolerant | 16 Channel, 125 MS/s, 1.2 V to 3.3 V CMOS | Spectrum, Network, Impedance, SPI, I2C, UART, etc. | 1.2 to 3.3 V, 300 mA current total | Windows, Mac, Linux |
| Analog Discovery Pro ADP5470 / ADP5490 | 4 Channel, 8-bit, 1.5 / 2 GS/s per channel, 40 $V_{PP}$, 350 / 500 MHz bandwidth | 1 Channel, 14-bit, 125 / 200 MS/s, ±12 V | 32 Channel, 1 GS/s, 0 V to 5 V Input | Static I/O only | Spectrum, Network, Impedance | 0 to 6 V up to 3 A, 0 to 25 V up to 1 A, 0 to -25 V up to 1 A | Windows |

# WaveForms

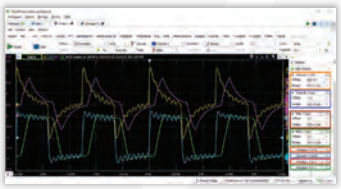
Supported by Windows, macOS, and Linux



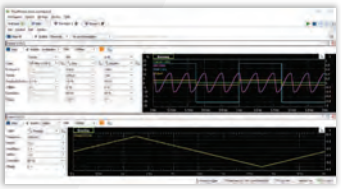
All of our Test and Measurement devices come with the multi-instrument software application, WaveForms. It seamlessly connects our Analog Discovery products and the Digital Discovery with full Windows, macOS, and Linux support.

Designed with a clean, easy-to-use graphical interface for each instrument, WaveForms makes it easy to acquire, visualize, store, analyze, produce and reuse analog and digital signals. And as an added perk, it's FREE for all to download and use.

### Oscilloscope



### Arbitrary Waveform Generator



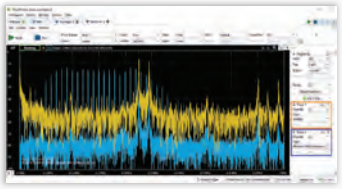
### Power Supplies

### Voltmeter

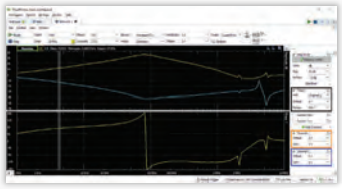
### Logic Analyzer

### Digital Pattern Generator

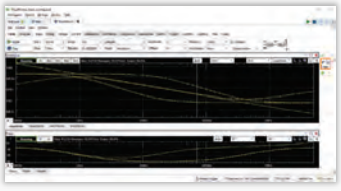
### Spectrum Analyzer



### Network Analyzer

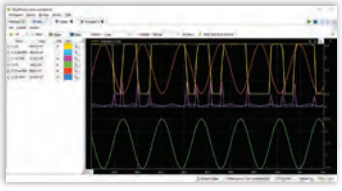


### Impedance Analyzer



### Protocol Analyzer

### Data Logger



### Virtual I/O

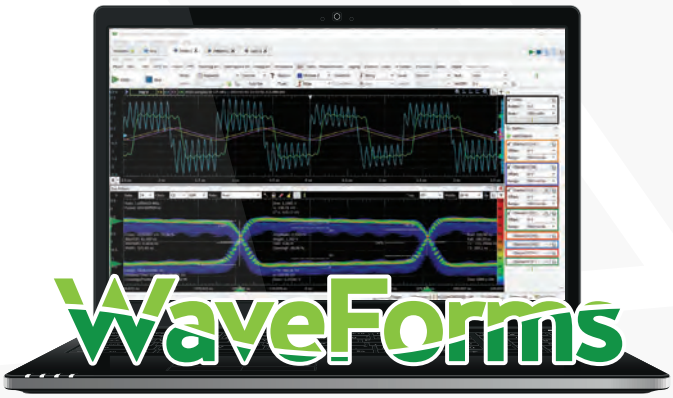
# Discover More.

## ANALOG DISCOVERY 3

The **Analog Discovery 3** is a digital oscilloscope, logic analyzer, waveform generator, pattern generator, and much more. Using the flexible WaveForms software (supported by Windows, Mac, and Linux), the Analog Discovery 3 can be used in the lab, in the field, or even at home - you're no longer tied down to a traditional benchtop and stacks of expensive test instruments.

### Mixed-Signal USB Oscilloscope:

- Two differential channels with 14-bit resolution at up to 125 MS/s per channel with a +/-25 V input range, 30+ MHz bandwidth with BNC Adapter
- FFT, Spectrogram, Eye Diagram, XY Plot views, and more




### Arbitrary Waveform Generator:

- Two channels with 14-bit resolution at up to 125 MS/s per channel with a +/-5 V output range, 12 MHz bandwidth with BNC Adapter
- Standard waveforms, amplitude and frequency modulated signals, direct playback from analog inputs, custom waveforms, and more

### Logic Analyzer and Pattern Generator:

- 16 digital I/O channels at up to 125 MS/s per channel
- SPI, I2C, UART, CAN, JTAG, ROM logic, custom protocols, and more


### Programmable Power Supplies:

- 0.5 V to 5 V and -0.5 V to -5 V, up to 2.4 W per channel

### Additional Features:

- Additional software instruments including Spectrum Analyzer, Network Analyzer, Impedance Analyzer plus many more!
- SDK for hardware control in C, C++, Python, & other languages
- Support for LabVIEW and MATLAB
- Plus more than we can list!

# Maximum Utility, Minimum Footprint.

## ANALOG DISCOVERY™ PRO ADP2230


The **Analog Discovery Pro (ADP2230)**™ is a mixed signal oscilloscope (MSO) designed for professional engineers. It features analog inputs, analog output, and digital I/O, all operating at up to 125 MS/s. Users can both receive and generate digital signals to test and analyze data from various devices while simultaneously powering those systems with its robust power supply. The feature-packed design allows the ADP2230 to perform the functions of several test and measurement devices and can replace a stack of traditional instruments.

With the free WaveForms software, users can view and capture complex data, perform spectral and network analysis, and quickly retrieve large amounts of data. WaveForms leverages the ADP2230's deep buffer memory, allowing hundreds of millions of samples to be stored and streamed back to the host computer. WaveForms' friendly user interface has the feel of traditional benchtop oscilloscopes.


### Analog Inputs:

- Two BNC input channels with 14-bit resolution and up to ±25 V input range
- 50+ MHz bandwidth, up to 125 MS/s per channel
- On-device buffering of 64 MS per channel by default, up to 128 MS per channel

### Analog Output:

- One BNC output channel with 14-bit resolution, ±5 V output range
- 15 MHz bandwidth, up to 125 MS/s per channel

### Digital I/O:

- 16 dynamically configurable 3.3 V CMOS digital input/output channels
- Up to 125 MS/s per channel
- On-device buffering up to 128 MS per channel

### Power Supplies:

- Two programmable power supplies (0.5 V to 5 V, -0.5 V to -5 V)
- Up to 1 A or 3 W per channel
- Integrated hardware readback of system temperature, voltage rail outputs, & sourced current

### Software Support:

- WaveForms, Digilent's free software application for Windows, Mac, and Linux
- WaveForms SDK for custom applications and scripting through C/C++, Python, C#, Visual Basic
- LabVIEW and MATLAB support

### Additional Features:

- Adjustable system clock and external clocking
- USB 3.0 support for rapid data streaming
- Advanced triggering and cross triggering between instruments and devices, including Dual Mode support
- Internal hardware loopbacks allow for both the recapture of analog outputs and the output of filtered and unfiltered analog input signals
- Optional standard waveform generator control over the two programmable power supplies

# ANALOG DISCOVERY PRO

## 3000 SERIES

## Portable High Resolution Mixed Signal USB Oscilloscopes


FRONT


BACK

## What is the Analog Discovery Pro 3000 Series?

Devices in the **Analog Discovery Pro 3000 series** provide the utility of professional benchtop equipment with the flexibility of a portable instrument. With myriad choices available for test and measurement devices, adding to your benchtop can be a daunting task, especially sorting through which features on your new instrument are included versus what you'll need to pay extra for. With the ADP3450, every listed feature is an included feature, making it an investment that will last — at a price without surprises.

## Introducing Linux Mode

Linux Mode provides an on-device terminal-based operating system that, when combined with WaveForms SDK, is a flexible starting point for all kinds of custom tests and applications. Running embedded on the device itself or via WaveForms, engineers and measurement enthusiasts alike can take advantage of data streaming via Ethernet, and the on-device storage to capture buffers of millions of samples.

Powered By WaveForms

## Key Features:

### Analog Inputs

- Four BNC input channels with 14-bit resolution and up to ±25 V input range
- 55+ MHz bandwidth, 125 MS/s, 0.5 GS/s with oversampling
- On-device shared buffering of 128 MS among analog inputs

### Digital Channels

- 16 dynamically configurable digital input/output with LVCMOS 1.2 V to 3.3 V
- On-device buffering up to 64 MS per channel

### Analog Outputs

- Two BNC output channels with 14-bit resolution and ±5 V output range
- 15 MHz bandwidth @ -3 dB, 125 MS/s

### Additional Features

- Embedded Linux Mode
- Flexible USB or Ethernet connectivity

# ANALOG DISCOVERY PRO

## 5000 SERIES


## All-In-One Mixed Signal Oscilloscope, Function Generator, Power Supply, & DMM

Bolster your benchtop with the biggest, baddest, and boldest Analog Discovery yet! The **Analog Discovery Pro 5000 Series** devices, the **ADP5470** and **ADP5490**, are Digilent's most ambitious mixed signal oscilloscopes to date, bringing higher sample rates, wider bandwidth, and more power to your benchtop. Each ADP 5000 Series device sports an integrated CAT II Digital Multimeter, three programmable power supplies, a dedicated trigger line, and arbitrary waveform generator to complement the mixed signal oscilloscope. With 34 digital inputs operating at 1 GS/s working in tandem with the analog system, the rugged 5000 Series devices provide a range of bandwidths and sample rates for analog inputs to fit your needs – from a base of 100 MHz at 1 GS/s, to 350 MHz at 1.5 GS/s, all the way up to 500 MHz at 2 GS/s.

Driven by Digilent's free WaveForms software and with everything included with a one-time purchase of the hardware, the Analog Discovery Pro 5000 Series is more than just a tool – it's analysis uncompromised.

## Higher Sample Rate and Bandwidth

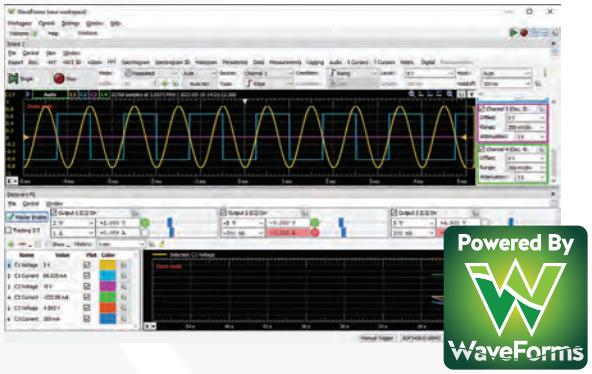
Designed to combine a complete set of instruments into a singular device, ADP 5000 Series devices are flexible and programmable mixed-signal oscilloscopes. Each has two or four analog input channels with bandwidth and sample rates ranging from 100 MHz at 1 GS/s up to 500 MHz at 2 GS/s. All devices in the series feature 34 digital channels with 1 GS/s inputs, a tri-output programmable power supply capable of up to 25 V, an external trigger, Waveform Generator, and a built-in DMM.

## The Ultimate All-In-One Test System

The Analog Discovery Pro 5000 Series feature a variety of trigger options. Instruments within WaveForms can be cross-triggered by activated an oscilloscope capture based on the start of the Waveform Generator. In addition, external signals can trigger events using the dedicated external trigger input/output. Digilent's free WaveForms software provides these configurable features in the instruments themselves, or for more control or automation in one of the available scripting interfaces.

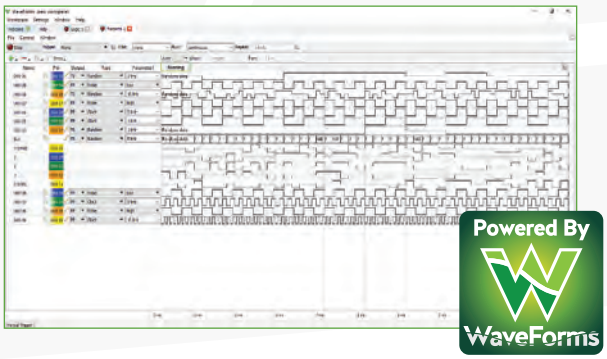
***Note:*** *The ADP 5000 Series devices are Windows® only.*

# DISCOVERY POWER SUPPLY DPS3340


The **Discovery Power Supply** is a flexible, programmable, three-channel power supply that can deliver up to ±15 V at 0.5 A and up to 3 A on the +5 V supply. Connection to WaveForms provides the ability to vary the voltage and current manually or automatically by scripts in the application or custom applications built in the WaveForms SDK.

# DIGITAL DISCOVERY


## A High-speed, Multi-channel USB Embedded Development Tool for Applications

The **Digital Discovery** is a combined Logic Analyzer, Protocol Analyzer, and Pattern Generator instrument that was created to be the ultimate embedded development companion. Designed with flexibility in mind, the Digital Discovery has selectable voltage levels, output drive, channel number, and sample rate. One portable device provides access to advanced features to debug, visualize, and simulate digital signals for a wide range of embedded projects. Its digital inputs and outputs can be connected to a circuit using the included MTE cables or breadboard wires.

For designs that require speeds up to 800 MS/s, the High-Speed Adapter and impedance-matched probes can be used to connect the inputs and outputs for more advanced projects. The Digital Discovery is driven by the free WaveForms software and can be configured to any combination of power supplies, logic analyzer, pattern generator, static inputs and outputs, and protocol analyzer.