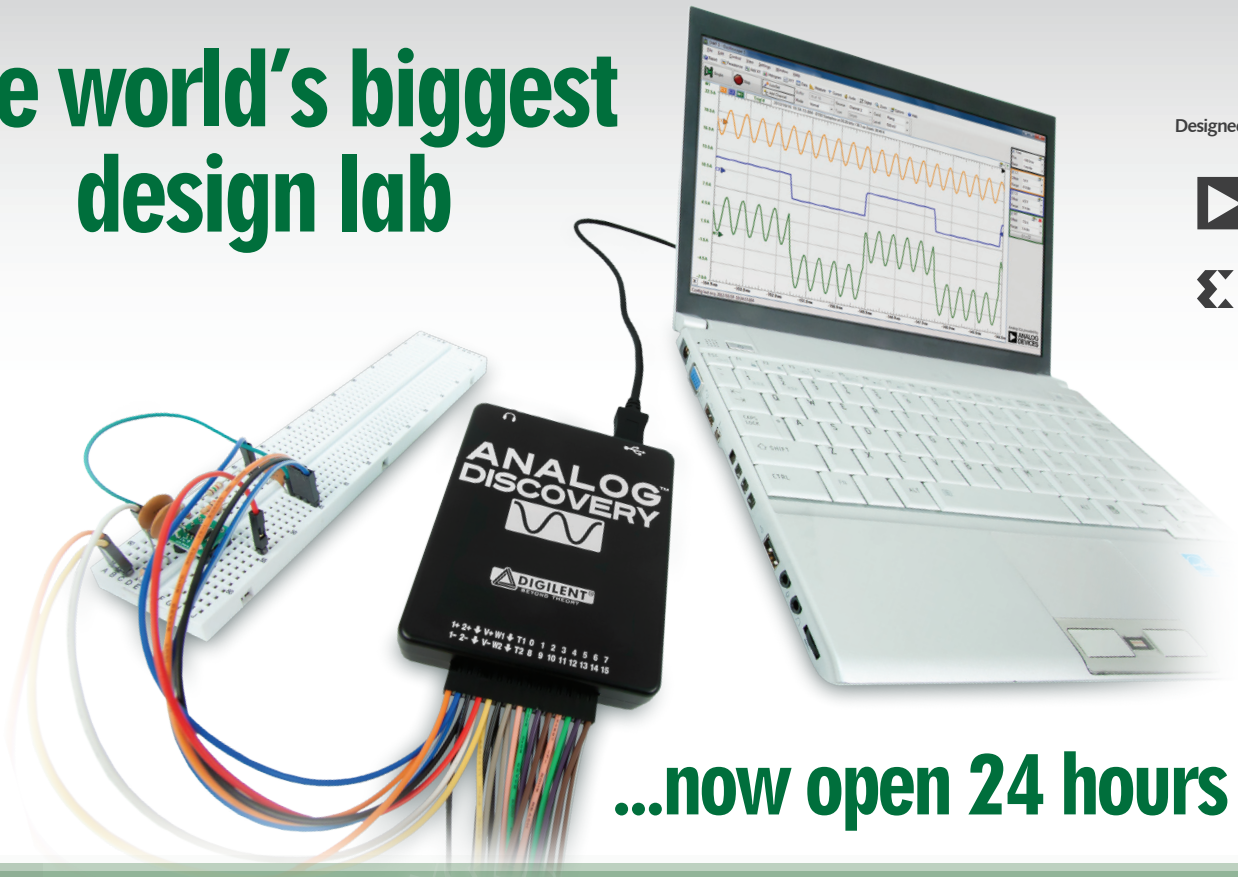
# The world's biggest design lab

Designed in cooperation with:

ANALOG DEVICES

XILINX®




## ...now open 24 hours a day!

Turn any PC into a powerful electrical engineering workstation! The USB-powered Analog Discovery lets you measure, visualize, analyze, record and control mixed signal circuits of all kinds. It's small enough to fit in your pocket, but powerful enough to replace a stack of lab equipment. Driven by the free WaveForms software, the Analog Discovery lets you build and test analog and digital circuits in virtually any environment, in or out of the lab.

### USB Powered
- Nine powerful instruments in a small, low-power package
- Built with world-class components from Analog Devices

### Two Analog Inputs
- 100MSPS, 14 bits, 5MHz bandwidth
- Time and frequency domain measurements

### Two Analog Outputs
- 100MSPS, 14-bits, 5MHz bandwidth
- Create standard and user-defined waveforms

### 16 Digital Signals
- 100MSPS Logic Analyzer and Pattern Generator
- Mixed signal viewing & cross triggering with analog

### Power Supplies
- ±5VDC, 50mA supplies for powering circuits

Now supported by MATLAB / MATLAB student edition

**$99.00**
(U.S. student price)

## Also Available:

### Analog Parts Kit (APK)

- 20+ ICs from Analog Devices
- 200+ discrete components
- Solderless breadboard
- Perfect for Circuits 1&2 classes

### Discovery BNC Adapter

- Allows the use of standard BNC-terminated probes
- Selectable AC & DC coupling

DIGILENT®
BEYOND THEORY

www.digilentinc.com/AnalogDiscovery

ANALOG DISCOVERY™

## Analog Inputs

- Two fully differential channels; 14-bit converters; 100 MSPS real-time sample rate
- 500uV to 5V/division; 1MΩ, 24pF inputs with 5MHz analog bandwidth
- Input voltages up to ±25V on each input (±50V differential); protected to ±50V
- Up to 16k samples/channel buffer length
- Advanced triggering modes (edge, pulse, transition types, hysteresis, etc.)
- Trigger in/trigger out allows multiple instruments to be linked
- Cross-triggering with Logic Analyzer, Waveform Generator, Pattern Generator or external trigger
- Selectable channel sampling mode (average, decimate, min/max)
- Mixed signal visualization (analog and digital signals share same view pane)
- Real-time FFTs, XY plots, Histograms and other functions always available
- Multiple math channels support complex functions
- Cursors with advanced data measurements available on all channels
- All captured data files can be exported in standard formats
- Scope configurations can be saved, exported and imported

## Arbitrary Waveform Generator

- Two channels; 14-bit converters; 100 MSPS real-time sample rate
- Single-ended waveforms with offset control and up to ±5 V amplitude
- 5MHz analog bandwidth and up to 16k samples/channel
- Easily defined standard waveforms (sine, triangle, sawtooth, etc.)
- Easily defined sweeps, envelopes, AM and FM modulation
- User-defined arbitrary waveforms can be defined using standard tools (e.g. Excel)
- Cross-triggering between Analog input channels, Logic Analyzer, Pattern Generator or external trigger

## Logic Analyzer

- 16 signals shared between analyzer, pattern generator, and discrete I/O
- 100 MSPS, with buffers supporting up to 16K transitions per pin
- LVCMOS logic level inputs
- Multiple trigger options including pin change, bus pattern, etc.
- Trigger in/trigger out allows multiple instruments to be linked
- Cross-triggering between Analog input channels, Logic Analyzer, Pattern Generator or external trigger
- Interpreter for SPI, I2C, UART, Parallel bus
- Captured signals can be saved and exported in standard file formats

## Digital Pattern Generator

- 16 signals shared between analyzer, pattern generator, and discrete I/O
- 100 MSPS, with buffers supporting up to 16K transitions per pin
- Algorithmic pattern generator (no memory buffers used)
- Custom pattern editor supports up to 16K transitions per pin
- 3.3V outputs
- Data file import/export using standard formats
- Customized visualization options for signals and busses

## Digital I/O

- 16 signals shared between analyzer, pattern generator, and discrete I/O
- LVCMOS (3.3 V) logic level inputs and outputs
- PC-based virtual I/O devices (buttons, switches & displays) drive physical pins
- Customized visualization options available

## Power Supplies

- Two fixed power supplies derive power from USB port
- +5V up to 50mA and -5V up to 50mA (100mA total)

## Network Analyzer

- Waveform generator drives circuits with swept sine waves up to 10MHz
- Input waveforms settable from 1Hz to 10MHz, with 5 to 1000 steps
- Settable input amplitude and offset
- Analog input records response at each frequency
- Response magnitude and phase delay displayed in Bode, Nichols, or Nyquist formats

## Voltmeters

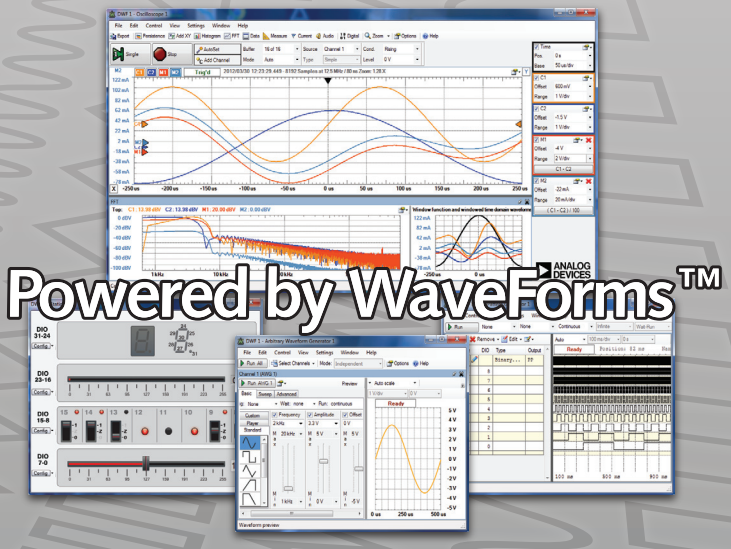
- Two independent meters (shared with Analog input channels)
- Automatic measurements include DC, AC RMS and True RMS values
- Single-ended and differential measurement capability
- Up to ±25V on each pin (±50V max peak-peak)
- Auto-range feature selects best gain range

## Spectrum Analyzer New!

- Performs FFT or CZT algorithm on analog input channels and displays power spectrum
- Frequency range adjustments in center/span or start/stop modes
- Linear or logarithmic frequency scale
- Peak tracking option finds peak power and adjusts display to keep peak in center of display
- Vertical axis supports voltage-peak, voltage-RMS, dBV and dBu display options
- Windowing options include rectangular, triangular, hamming, Cosine, and many others
- Cursors and automatic measurements including noise floor, SFDR, SNR, THD and many others
- Data file import/export using standard formats

## Other features

- USB powered; all needed cables included
- High-speed USB2 interface for fast data transfer
- Waveform Generator output can be played on stereo audio jack
- Two external trigger pins can link triggers across multiple devices
- Cross triggering between instruments
- Help screens, including contextual help
- New! Supported by MATLAB and the MATLAB student edition
- Instruments and workspaces can be individually configured; configurations can be exported

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