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ScienceWorkshop 750 with USB Interface

CI-7650

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Key Features:

- USB Interface
- Designed for Advanced Placement and College Physics
- Real-time Oscilloscope Capable
- Built-in Function Generator

PASCO's 750 Interface is the measurement center for the modern physics laboratory. Using a computer and the 750 Interface, students can measure force, position, temperature, pressure, angular velocity, acceleration, current, magnetic field and more. Each 750 Interface includes a built-in function generator and real-time oscilloscope mode.

Seven Input Channels:

With the 750, all 7 channels may be used simultaneously. There are no limitations on what combinations of sensors can be used. Analog and digital inputs may be mixed in any combination.

- **Four Digital Channels** -- Use up to 4 Photogates or 2 Rotary Motion Sensors, a photogate and Motion Sensor II, or any other combination.
- **Three Analog Channels** -- Max sample rate of 250,000 Hz when using a single channel.

Features:

- **250,000 Hz Sampling Rate** -- Sample at 250,000 samples per second on a single analog channel. Students will see a true, real-time oscilloscope and incredibly responsive sound sensor data.

- **Built-in 1.5 W Function Generator** -- Any experiment requiring a frequency up to 50 KHz and 1.5 watt (300 mA) output can be run without additional power amplification. Output current and voltage can be monitored internally by the 750 Interface.
- **20 KHz oscilloscope** -- With the 750's increased sampling rate, the oscilloscope becomes a real-time scope with refresh rates up to 40 frames per second.
- **Reduced Noise and More Accurate Data** -- When sampling at rates less than 100 samples per second, circuit noise can be visible on a data graph. The 750 Interface, however, provides 8X oversampling to reduce noise and provide smoother data curves.

Unique Characteristics:

- **Ports** -- 4 Digital, 3 Analog, 1 Output
- **Connection** -- USB
- **Data Sampling** -- Simultaneous Analog and Digital Recording
- **Analog Rates** -- Up to 250,000 samples/sec (20 KHz Oscilloscope)
- **Digital Rates** -- 0.1 msec digital timing accuracy (1 mm resolution for Motion Sensor)
- **Function Generator** -- 0-50 KHz, 1.5 W (300 mA) output
- **Power Amp Compatible**
- **Designed for** -- Advanced Placement and College Physics

Specifications:

Power	-- 12 VDC to 20 VDC at 2 A, 2.1 mm jack
Digital Channels	-- 4 identical channels, TTL compatible (8 mA max. drive current) -- Maximum input logic transition time: 500 ns -- Edge sensitive-sampled at 10 KHz. (1 μ s res. for Motion Sensor)
Analog Input Channels	-- 3 identical channels with differential inputs and 1 MOhm impedance -- ± 10 V maximum usable input voltage range (± 12 V absolute input voltage range) -- 3 voltage gain settings on each analog channel: 1, 10, and 100 -- Small signal bandwidth up to the ADC: 1 MHz for a gain of 1, 800 KHz for a gain of 10, and 120 KHz for a gain of 100; input amplifier slew rate: 1.2 V/ μ s
Electrostatic Discharge (ESD) protected	-- Both digital and analog inputs have ESD protection.
12-Bit Analog to Digital Conversion	-- 5 inputs: channels A-C, analog output voltage and current. -- Voltage resolution at ADC input: 4.88 mV (.488 mV at a gain of 10, 0.049 mV at a gain of 100) -- Current measurement resolution: 244 μ A, (1 V = 50mA) mA -- Offset voltage accuracy < ± 3 mV. (For measuring full-scale voltages the total error is less than ± 15 mV, accounting for the gain error in the input amplifier.) -- Sample rate range: once every 3,600 seconds (250 KHz) (Conversion time for consecutive channels in a burst is 2.9 μ s.)

-- 8X oversampling for better accuracy at sample rates less than or equal to 100 Hz.

Analog Output

-- DC value ranges: -4.9976 V to +5.0000 V in steps of 2.44 mV
-- Accuracy at the DIN connector: (± 3.6 mV $\pm 0.1\%$ full scale)
-- Peak-to-peak amplitude adjustment ranges for AC waveform: 0 V to ± 5 V in steps of 2.44 mV
-- AC waveform frequency ranges: 0.001 Hz-50 KHz, $\pm 0.01\%$
-- Maximum amplified output at the banana jacks: about 300 mA at ± 5 V, current limited at 300 mA ± 12 mA

750 Interface Bundles (USB):

For complete solutions, choose one of the Physics 750 Bundles PASCO has designed. Each bundle provides the tools for conducting standards-based activities and exploring numerous science concepts. Available bundles:

- Entry Physics 750 Bundle (CI-7603)
- Intermediate Physics 750 Bundle (CI-7604)
- Standard Physics 750 Bundle (CI-7605)

For most classrooms, we recommend 1 bundle per 2-4 students or lab group.

750 Interface Experiments:

Available experiment collections for the 750 Interface include:

- Physics Teacher's Guide, Vol. 1 (CI-7013) and Student Manual, Vol. 1 (CI-7014). [See experiments.](#)
- Physics Teacher's Guide, Vol. 2 (CI-7015) and Student Manual, Vol. 2 (CI-7016). [See experiments.](#)
- Physics Electronic Workbook CD, Vol. 1 (CI-6876)
- Physics Electronic Workbook CD, Vol. 2 (CI-6882)
- Physics Experiment Web CD, Vol. 2 (CI-6877A)

Other Products:

One copy of PASCO's starter software, DataStudio Lite, comes free with each shipment. We highly recommend upgrading to a full license to get all the power of [DataStudio](#).

For more information or to contact a PASCO representative, send e-mail to [Customer Support](#), or call 800-772-8700 (in US) or 916-786-3800.

Prices and specifications subject to change without notification.

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