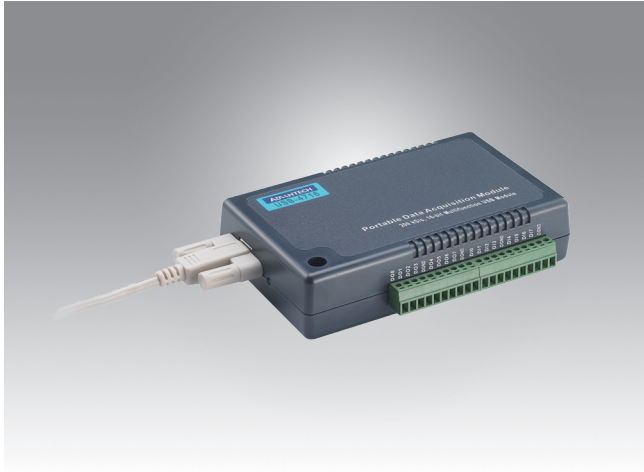# USB-4716

200 kS/s, 16-Bit, 16-Ch Multifunction DAQ USB Module

Features

- Supports USB 2.0
- Portable
- Bus powered
- 16 x Analog input channels
- 16-bit resolution analog input
- Up to 200 kS/s sampling rate
- 8-ch Digital input/8-ch digital output, 2-ch analog output, and 1 x 32-bit counter
- Detachable screw terminal on modules
- Suitable for DIN rail mounting
- 1 x Lockable USB cable included for connection security

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Introduction

The USB-4700 series comprises plug-and-play DAQ modules that can be installed without opening the chassis; simply plug in the modules to access collected data. Reliable and rugged enough for industrial applications, yet sufficiently affordable for home systems, USB-4700 series modules provide an easy and efficient means of adding measurement and control capabilities to USB-capable computers.

USB-4716 offers 16 single-ended/8 differential analog inputs with 16-bit resolution, up to 200 kS/s throughput, 16 digital I/Os, 1 user counter, and 2 16-bit analog outputs. Additionally, because USB-4716 draws power from the computer via the USB port, no external power connection is required, making this module a most cost-effective solution for diverse testing and measurement applications.

Specifications

Analog Input

- **Channels** — 16 Single ended/ 8 differential (software programmable)
- **Resolution** — 16 bits
- **Max. Sampling Rate** — 200 kS/s (for USB 2.0)

Note: The sampling rate of each channel is influenced by the number of used channels. For example, if 4 channels are used, the sampling rate will be 200k/4 = 50 kS/s per channel.

- **FIFO Size** — 1,024 samples
- **Overvoltage Protection** — 30 Vp-p
- **Input Impedance** — 1 GΩ
- **Sampling Modes** — Software, onboard programmable pacer, or external
- **Input Range and Absolute Accuracy**

Single Ended	N/A	0 ~ 10	0 ~ 5	0 ~ 2.5	0 ~ 1.25
Differential	±10	±5	±2.5	±1.25	±0.625
Absolute Accuracy (% of FSR)*	0.015	0.03	0.03	0.05	0.1

* ±1 LSB is added as the derivative for absolute accuracy

Analog Output

- **Channels** — 2
- **Resolution** — 16 bits
- **Output Rate** — Static update
- **Output Range** — (V, software programmable)

Internal Reference	Unipolar	0 ~ 5 , 0 ~ 10
	Bipolar	±5, ±10

- **Slew Rate** — 0.125 V/µs
- **Driving Capability** — 5 mA
- **Output Impedance** — 0.1 Ω max.
- **Operation Mode** — Single output
- **Accuracy** — Relative: ±1 LSB

Digital Input

- **Channels** — 8
- **Compatibility** — 3.3 V/5 V/TTL
- **Input Voltage** — Logic 0: 1.0 V max.
  Logic 1: 2.0 V min.

Digital Output

- **Channels** — 8
- **Compatibility** — 3.3 V/TTL
- **Output Voltage** — Logic 0: 0.4 V max.
  Logic 1: 2.4 V min.
- **Output Capability** — Sink: 6 mA (sink)
  Source: 6 mA (source)

Event Counter

- **Channels** — 1
- **Compatibility** — 3.3V/TTL
- **Max. Input Frequency** — 1 kHz

General

- **Bus Type** — USB 2.0
- **I/O Connector** — Onboard screw terminal
- **Dimensions (L x W x H)** — 132 x 80 x 32 mm (5.2" x 3.15" x 1.26")
- **Power Consumption** — Typical: 5 V @ 360 mA
  Max.: 5 V @ 450 mA
- **Operating Temperature** — 0 ~ 60 °C (32 ~ 158 °F)
- **Storage Temperature** — -20 ~ 70 °C (-4 ~ 158 °F)
- **Operating Humidity** — 5 ~ 85% RH non-condensing
- **Storage Humidity** — 5 ~ 95% RH non-condensing

Ordering Information

- **USB-4716-AE** — 200 kS/s, 16-bit, 16-ch multifunction DAQ USB module

Accessories

- **1960004544** — Wall mount bracket
- **1960005788** — VESA mount bracket

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