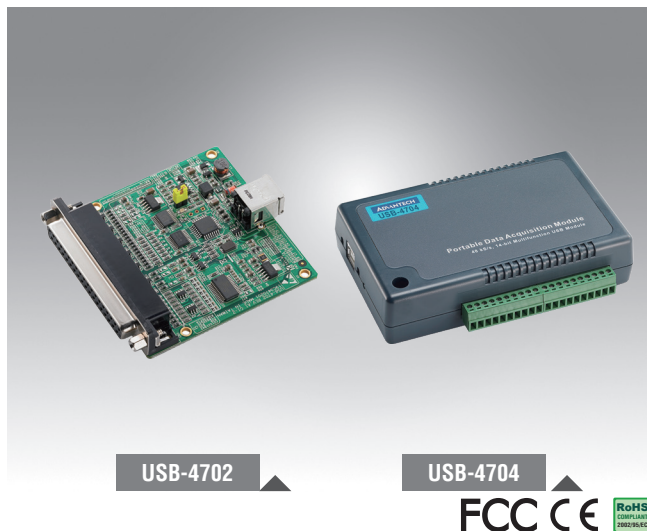


# USB-4702 USB-4704

## 10 kS/s, 12-Bit, 8-Ch Multifunction DAQ USB Module

## 48 kS/s, 14-Bit, 8-Ch Multifunction DAQ USB Module



### Features

- Supports USB 2.0
- Portable
- Bus powered
- 8 x Analog input channels
- 12-bit (USB-4702), 14-bit (USB-4704) resolution AI
- Sampling rates of up to 10 kS/s (USB-4702), 48 kS/s (USB-4704)
- 8-ch Digital input/8-ch digital output, 2-ch analog output, and 1 x 32-bit counter

### Introduction

USB-4702 and USB-4704 are low-cost USB data acquisition 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-4702 and USB-4704 DAQ modules provide an easy and efficient means of adding measurement and control capabilities to USB-capable computers. Additionally, because USB-4702 and USB-4704 draw power from the computer via the USB port, no external power connection is required, making these modules the most cost-effective solution for testing and measurement applications.

### Specifications

#### Analog Input

- Channels** 8 single ended/4 differential (software programmable)
- Resolution** USB-4702: single ended: 11 bits  
Differential: 12 bits  
USB-4704: single ended: 13 bits  
Differential: 14 bits
- Max. Sampling Rate** USB-4702: 10 kS/s max.  
USB-4704: 48 kS/s max.

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  $10k/4 = 2.5$  kS/s per channel.

- FIFO Size** 512 samples
- Overvoltage Protection** 30 Vp-p
- Input Impedance** 127 k $\Omega$
- Sampling Modes** Software, onboard programmable pacer, and external
- Input Range and Absolute Accuracy**

| Single Ended                  |          | $\pm 10$ | N/A     | N/A        | N/A     | N/A       | N/A     | N/A     | N/A      |
|-------------------------------|----------|----------|---------|------------|---------|-----------|---------|---------|----------|
| Differential                  |          | N/A      | $\pm 1$ | $\pm 1.25$ | $\pm 2$ | $\pm 2.5$ | $\pm 4$ | $\pm 5$ | $\pm 10$ |
| Absolute Accuracy (% of FSR)* | USB-4702 | 0.2      | 0.15    | 0.15       | 0.15    | 0.15      | 0.15    | 0.15    | 0.15     |
|                               | USB-4704 | 0.15     | 0.1     | 0.1        | 0.1     | 0.1       | 0.1     | 0.1     | 0.15     |

\*  $\pm 1$  LSB is added as the derivative for absolute accuracy

#### Analog Output

- Channels** 2
- Resolution** 12 bits
- Output Rate** Static update
- Output Range** 0 ~ 5 V (software programmable)
- Slew Rate** 0.7 V/ $\mu$ s
- Driving Capability** 5 mA
- Output Impedance** 51  $\Omega$
- Operation Mode** Single output
- Accuracy** Relative:  $\pm 12$  LSB  
Differential non-linearity:  $\pm 5$  LSB

#### Digital Input

- Channels** 8
- Compatibility** 3.3 V/5 V TTL
- Input Voltage** Logic 0: 0.8 V max.  
Logic 1: 2.0 V min.

#### Digital Output

- Channels** 8
- Compatibility** TTL
- Output Voltage** Logic 0: 0.4 V max. @ 4 mA (sink)  
Logic 1: 3.5 V min. @ 4 mA (source)

#### Counter

- Channels** 1
- Resolution** 32 bits
- Compatibility** 3.3 V/TTL
- Max. Input Frequency** 5 MHz

#### General

- Bus Type** USB 2.0
- I/O Connector** USB-4702: 1 x DB37, female  
USB-4704: Onboard screw terminal
- Dimensions (L x W x H)** USB-4702: 70 x 70 mm (2.76" x 2.76")  
USB-4704: 132 x 80 x 32 mm (5.2" x 3.15" x 1.26")
- Power Consumption** Typical: 5 V @ 100 mA  
Max.: 5 V @ 500 mA
- Operating Temperature** 0 ~ 55  $^{\circ}$ C (32 ~ 131  $^{\circ}$ F)
- Storage Temperature** -20 ~ 70  $^{\circ}$ C (-4 ~ 158  $^{\circ}$ F)
- Storage Humidity** 5 ~ 95% RH non-condensing

### Ordering Information

- USB-4702-AE** 10 kS/s, 12-bit, 8-ch multifunction DAQ USB module
- USB-4704-AE** 48 kS/s, 14-bit, 8-ch multifunction DAQ USB module

#### Accessories

- PCL-10137-1E** DB37 cable, 1 m
- PCL-10137-2E** DB37 cable, 2 m
- PCL-10137-3E** DB37 cable, 3 m
- ADAM-3937-BE** DB37 DIN rail wiring board
- 1960004544** Wall mount bracket
- 1960005788** VESA mount bracket