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
e  - 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.
- FIFO Size: 512 samples
- Overvoltage Protection: 30 Vp-p
- Input Impedance: 127 kΩ
- Sampling Modes: Software, onboard programmable pacer, and external
- Input Range and Absolute Accuracy

<table>
<thead>
<tr>
<th>Differential</th>
<th>Single Ended</th>
<th>N/A</th>
<th>N/A</th>
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</thead>
<tbody>
<tr>
<td>Res.</td>
<td>±0.1%</td>
<td>±1%</td>
<td>±1.25%</td>
<td>±2.5%</td>
<td>±5%</td>
<td>±10%</td>
<td>±20%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Absolute</td>
<td>N/A</td>
<td>±0.1%</td>
<td>±0.15%</td>
<td>±0.15%</td>
<td>±0.15%</td>
<td>±0.15%</td>
<td>±0.15%</td>
<td>±0.15%</td>
<td>±0.15%</td>
</tr>
<tr>
<td>Accuracy (% of FSR)*</td>
<td>USB-4702</td>
<td>0.2</td>
<td>0.15</td>
<td>0.15</td>
<td>0.15</td>
<td>0.15</td>
<td>0.15</td>
<td>0.15</td>
<td>0.15</td>
</tr>
<tr>
<td></td>
<td>USB-4704</td>
<td>0.15</td>
<td>0.1</td>
<td>0.1</td>
<td>0.1</td>
<td>0.1</td>
<td>0.1</td>
<td>0.15</td>
<td>0.15</td>
</tr>
</tbody>
</table>

* ±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/µs
- Driving Capability: 5 mA
- Output Impedance: 51 Ω
- Operation Mode: Single output
- Accuracy: Relative: ±12 LSB
  - Differential non-linearity: ±5 LSB

**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)
- Max. Input Frequency: 5 MHz

**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 °C (32 – 131 °F)
- Storage Temperature: -20 – 70 °C (-4 – 158 °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

All product specifications are subject to change without notice.