Advantech
Data Acquisition Solutions

A Broad Selection of Form Factors to Satisfy All Your DAQ Needs

/ DAQ Software - DAQNavi
/ Machine Condition Monitoring Software - WebAccess/MCM
/ DAQ-embedded Computer
/ PCI /PCI Express Cards
/ USB Modules
/ Signal Conditioners
/ Communication Cards
/ PC/104 & PCI-104 Modules
/ CompactPCI
/ EtherCAT Remote I/O Module

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Advantech Data Acquisition Solutions Overview

As a leading supplier of data acquisition products worldwide, Advantech offers a wide range of I/O devices with various interfaces and functions based on PC technology, from legacy ISA to modern USB, from signal-conditioning to graphical software tools.

Advantech’s industrial I/O products are reliable, accurate, affordable, and suitable for many industrial automation applications, such as T&M (Test & Measurement) and laboratory applications such as monitoring, control, machine automation and production testing.

Signal Conditioners

Advantech signal conditioners provide sensor and signal conditioning on a per-module basis for variant type sensors or signals.

DAQ-embedded Computer

MIC-1800 series units are standalone embedded computers with integrated data acquisition modules and signal conditioning to provide digital I/O, analog I/O, and counter functions. The palm-sized design with built-in terminals is suitable for space-limited applications.
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**USB DAQ Modules**
Advantech’s USB DAQ modules are famous for user-friendly design and ability to replace traditional serial and parallel devices as they eliminate the need for external power and allow hot swapping.

**Machine Condition Monitoring Software**
WebAccess/MCM is Machine Condition Monitoring software that provides easy sensor signal acquisition, signal analysis, feature extraction, data management and interpretation, and sends alerts.

**Software Development Package**
DAQNavi, Advantech’s next-generation driver package, delivers higher performance, compatibility, and reliability through a brand new driver and SDK.

**Configurable Data Logging / Signal Analysis Software**
DataLogger helps engineers to leverage to perform data logging, recording, and display while SignalMeter includes Scope, AC Performance and DC Performance functions to assist engineers in analyzing signals.
Guaranteed Reliable Execution for Multi-Thread Programming
Multi-thread programming is now widely-used in DAQ applications. But without careful handling, it can cause unexpected problems like system crashes or data errors. Thread-safe programming technology prevents such problems. DAQNavi has thread-safe mechanisms built into its design, relieving programmers of multi-thread programming problems.

Latest Operating System Support
DAQNavi adheres to the latest Windows (32-bit and 64-bit) and Linux operating system requirements. In addition, DAQNavi software design helps programmers easily migrate their DAQ applications between OSs, without spending lots of time solving OS-compatibility issues.

Supports Multiple Programming Languages
For DAQ application development, DAQNavi supports 10 popular programming languages, including C/C++, Visual Basic, C#, VB.NET, Delphi, Qt, Borland C++ Builder (BCB), Java, MATLAB and LabVIEW. DAQNavi saves programmer development time when it is necessary to change programming languages.
LabVIEW Programming Support
LabVIEW programmers can easily build DAQ applications with DAQNavi Assistant and Polymorphic VI DAQNavi Assistant, based on LabVIEW Express VI technology, provides an intuitive wizard window that helps complete configuration programming quickly. DAQNavi Polymorphic VI delivers more programming flexibility to experienced LabVIEW programmers.

Component-based Programming
Rapidly changing application requirements challenge DAQ developers, who are pressed to shorten development times. DAQNavi delivers reusable, component-based libraries that can save up to 70% on programming code. Programmers can ignore many detailed low-level hardware settings, and concentrate on major parameter configurations. For Visual Studio, BCB and Delphi users, DAQNavi offers step-by-step wizards that complete configurations without coding.

Easy-to-Use Utility
DAQNavi provides an integrated utility, Advantech Navigator, where programmers can perform hardware configurations and functionality testing without programming. Hardware manual, software library documentation, and sample source codes are also provided. Everything necessary for DAQ programming is provided in this utility.
Jump from Fix-on-Fail to Proactive and Predictive Maintenance

WebAccess/MCM
Machine Condition Monitoring
Software

Real-time Online Condition Monitoring
- Acquires and analyzes massive quantities of dynamic signals
- Data interpretation and alarm function
- Provides data management such as storage, search, comparison, and playback

Reduce Maintenance Cost; Increase Machine Uptime
- Keeps abreast of machine condition to reduce downtime
- Monitors key component life instead of replacing parts based on a calendar or routine system

Save Development Time and Human Resources
- Easy setup without programming
- Provides plenty of algorithms for data analysis
Implement a Successful Predictive Maintenance System by Integrating Advantech’s WebAccess/MCM

WebAccess/MCM is Machine Condition Monitoring software that provides easy sensor signal acquisition, signal analysis, feature extraction, data management and interpretation, and sends alerts. Engineers or system integrators can configure settings to meet the needs of different applications.

WebAccess/MCM helps customers to quickly install Advantech’s DAQ modules and implement predictive maintenance in their factories. This helps improve equipment uptime, performance and safety, while greatly reducing maintenance costs.

User-guided Graphical Interface for Easy Setup of Machine Condition Maintenance

1. Acquire Signals from Sensors
   - Quickly configure the signal acquisition settings, such as channel, range, single ended/differential inputs, sampling rate, memory size and trigger. No programming required.

2. Optimize the Data
   - Provides multiple algorithms like FFT, IFFT, a variety of filters, smoothers, and mixers to optimize the data.

3. Extract Key Features
   - Provides various settings like the Max/Min/Median/Mean, RMS, Pulse Width/Frequency, Time, FFT Frequency to extract data features for later analysis.

4. Set up the Criteria for Machine Condition Interpretation
   - Offers simple mathematical and logical calculation settings for interpreting the features and taking actions based on the results, such as sending signals to other equipment or sending alerts to administrators.
Introduction
Advantech DataLogger is ready-to-use application software; engineers can leverage its easy-to-use interface to perform data logging, display, and recording. Without spending any time on programming, engineers benefit from flexibility to acquire and store data from various Advantech data acquisition devices for their data logging tasks.

Details
Before data logging measurements begin, engineers can do all necessary analog and digital input channel configuration using the built-in DAQNavi wizard. Step-by-step instructions help engineers easily complete related settings. In addition to actual data acquisition devices, DataLogger also offers simulated devices that let engineers test all operations before sensor signals are available.

Configuration Management by Project Files
The engineer can create and edit a project to include one or several data logging tasks. Within one project, data can be acquired and displayed from one or multiple data acquisition devices. Current input channel configurations and logging settings can be saved as a specific project file. Afterwards, the engineer can open any saved project file to load all configurations and start data logging tasks immediately.

Real-time Data Logging, Display and Recording
After data acquisition configuration is done, engineers can immediately start data acquisition and display the logging data on a real-time graph. The graph can be zoomed or panned dynamically during data logging. Engineers can decide if they want to record the data (save data into a pre-defined file) during data logging.

Historical Data Playback
Previously recorded data can be loaded back into DataLogger software and viewed through the Playback function. Zoom in, zoom out, and pan operations are also available for historical data display.

Features
- Data logging, display and recording without programming
- Instant AI, buffered AI and static DI data logging
- Intuitive hardware channel parameters configuration wizard
- Supports simulated device operation
- Save configurations into a project file for future re-use
- Real-time display with zoom and pan operation
- Supports data recording to store as file to local disk
- Recorded data playback to view historical data
- Supports both analog graph and digital graph display
SignalMeter - Signal Analysis Software

Features

- Easy to use; no programming required
- Provides DC and AC performance measurement
- Cursor measurement for signal analysis
- Enables Windows function for AC signal
- Real-time displays of frequency spectrum based on zoom and pan operations in the time domain
- Automatic amplitude, average, peak-to-peak, and frequency measurements
- Free tool

Introduction

SignalMeter is ready-to-use application software that provides three functions for Advantech DAQ devices. It includes Scope, AC Performance and DC Performance functions to assist engineers in analyzing signals. Engineers can use one configuration to control three function settings, with a simple, user-friendly interface.

Details

Data Acquisition Device Configuration

Before using SignalMeter, engineers can easily set the necessary acquisition parameters through the configuration dialog. The configuration interface includes device selection, general settings, trigger settings and start mode. Engineers can use one configuration to control the three function modes.

AC and DC Performance Mode

The AC Performance function enables automatic calculation of the SNR, THD, and SIMAD — important information for data acquisition. For a DC signal, the DC Performance function will display the RMS noise and plot a histogram. The interface is simple and easy to navigate.

Scope Mode

Scope offers simple oscilloscope features:

- Amplitude: Returns the difference between the signal high and low
- Average: This is the mean vertical level of the entire captured waveform
- Peak to Peak: Returns the difference between the extreme maximum and minimum values
- Frequency: The period is the average completion time for a cycle using the entire waveform in the capture window. Frequency is the inverse of period.

The Scope function not only shows the time and frequency domains simultaneously, but also enables synchronous zoom on the time and frequency domains.
A Palm-sized DAQ-embedded Computer for space-limited Applications

Advantech’s MIC-1800 series, MIC-1810 and MIC-1816, are industrial embedded computers and data acquisition modules integrated into a PC-based control platform. The MIC-1800 series was made palm-sized by removing some unnecessary system functions and adopting a fanless design. The built-in terminal block enables direct connection with the sensor signal line, which saves space and eliminates some wiring. Moreover, MIC-1800 series with multiple I/O channels acquires electrical signals for real-time monitoring through analog input channels; it controls workpiece motion via digital input and output channels, and uploads machine information to the Cloud via the Ethernet port for remote monitoring.

Key Features

**Compact**
The MIC-1800 series is a palm-sized, fanless DAQ embedded system that occupies only 165 x 130 x 59 mm, for easy in-cabinet placement.

**Convenient**
The built-in wiring terminals facilitate the operations without using any wiring cables or terminal boards.

**Integrated**
All the analog input, analog output, digital input, and digital output functions are integrated into each unit in the MIC-1800 series.

**Software support**
Advantech provides a free software development kit to help customers develop applications easily.

**Space Saving**

**Cost Saving**
MIC-1810  **NEW**

12-bit, 500 KS/s, 12-ch DAQ platform with Core™ i3/ Celeron® processor

**Features**
- 16 analog inputs, up to 500 KS/s, 12-bit resolution
- 2 analog outputs, up to 500 KS/s, 12-bit resolution
- Support for digital trigger and analog trigger
- 24 programmable digital I/O lines
- Two 32-bit programmable counter/timers
- Onboard FIFO memory (4k samples)
- 2 x RS-232 ports
- 2 x 10/100/1000 Base-T RJ-45 LAN ports
- 2 x USB 2.0 and 2 x USB 3.0 ports
- MIC-1810-S4A1E
  - Intel® Celeron® 1047UE Processor, 1.4GHz
- MIC-1810-S6A1E
  - Intel® Core™ i3-3217UE Processor, 1.6GHz

**Ordering Information**
- MIC-1810-S4A1E Data Acquisition Computer with Intel® Celeron® 1047UE processor
- MIC-1810-S6A1E Data Acquisition Computer with Intel® Core™ i3-3217UE processor

**Accessories**
- 1700001714 Power Cord BSMI 3P 7A 125V 18AWG 180CM
- 1702002600 Power Cord 3P UL/CSA(USA) 125V 10A 1.83M 180D
- 1700023535-01 Power Cord CCC 3P 16A 250V 183cm
- 1960077844N001 Table Mount (W x L: 130 x 175 mm)
- 2070014966 Image WES7P MIC-1810 64bit

OS Support  Windows 10  Windows 8.1  Windows 7

MIC-1816  **NEW**

16-bit, 1MS/s, 16-ch DAQ platform with Core™ i3/ Celeron® processor

**Features**
- 16 analog inputs, up to 1 MS/s, 16-bit resolution
- 2 analog outputs, up to 3 MS/s, 16-bit resolution
- Support for digital trigger and analog trigger
- 24 programmable digital I/O lines
- Two 32-bit programmable counter/timers
- Onboard FIFO memory (4k samples)
- 2 x RS-232 ports
- 2 x 10/100/1000 Base-T RJ-45 LAN ports
- 2 x USB 2.0 and 2 x USB 3.0 ports
- MIC-1816-S4A1E
  - Intel® Celeron® 1047UE Processor, 1.4GHz
- MIC-1816-S6A1E
  - Intel® Core™ i3-3217UE Processor, 1.6GHz

**Ordering Information**
- MIC-1816-S4A1E Data Acquisition Computer with Intel® Celeron® 1047UE processor
- MIC-1816-S6A1E Data Acquisition Computer with Intel® Core™ i3-3217UE processor

**Accessories**
- 1700001714 Power Cord BSMI 3P 7A 125V 18AWG 180CM
- 1702002600 Power Cord 3P UL/CSA(USA) 125V 10A 1.83M 180D
- 1700023535-01 Power Cord CCC 3P 16A 250V 183cm
- 1960077844N001 Table Mount (W x L: 130 x 175 mm)
- 2070015202 Image WES7P MIC-1816 64bit

OS Support  Windows 10  Windows 8.1  Windows 7
Complete PCI and PCI Express Card Range to Meet any Machine and Test Equipment Need

One Source for All High-precision PC-based Applications

With over 20 years of plug-in DAQ card design and manufacturing experience, Advantech has become a global leader, providing a full range of industrial data acquisition and control products. The most requested features for industrial and laboratory applications, such as monitoring, control, data acquisition, and automated testing, are included.

Key Features

BoardID Switch
The BoardID DIP switch defines each card’s unique identity when multiple identical PCI cards are installed in the same computer. BoardID switch settings easily identify and provide access to each card for hardware configuration and software programming.

High Density
High density means many input/output functions are packed onto one PCI card. In the past, customers were often forced to buy more than one card to fulfill their functions, but now they can achieve their goals with just one card. The advantages are: saved space, and more efficient installation.
New Generation Interface for DAQ: PCI Express

PCI Express is a computer expansion bus standard that was designed to replace the older PCI bus standard. The PCI Special Interest Group (PCI-SIG) preserved and developed the PCI specification and released the new PCI Express standard (PCIe 1.0a) in 2003. PCI Express delivers 30 times the bandwidth of the PCI bus, with a per-lane data rate of 250 MB/s and a transfer rate of 2.5 GT/s. This new generation interface features high speed point-to-point architecture, high throughput performance, software backward compatibility, I/O simplification, and more. In accord with this technological trend, Advantech offers a series of PCI Express data acquisition cards with the same development software as a PCI card, to satisfy a variety of automation needs.

Auto Calibration

The built-in auto-calibration circuitry corrects gain and offset errors in analog input and analog output channels, thereby eliminating the need for external equipment and user adjustments.

Keeping the Output Values after System Reset

When the system is hot reset (with no power shutoff), Advantech’s DAQ cards with this function can either retain the last digital (or analog) output values, or return to their default configurations, depending on jumper settings. This practical function eliminates any danger caused by misoperation during unexpected system resets.

DMA - Direct Memory Access

This is a method of transferring data to or from memory at a high rate without involving the CPU. DMA is the hardware/software technique that allows the highest rate of data transfer to or from RAM. DMA provides the means to read or write data at precise times, without restricting the microprocessor’s tasks.
Advantech offers multifunction DAQ cards that combine high performance signal measurement, arbitrary wave generation, digital I/O, and counter functionality. All these DAQ cards are equipped with both digital trigger and high-resolution analog trigger, so users can easily and flexibly define when to start or stop data acquisition.

Powerful PCI Express Multi-Function Data Acquisition Card

- **Waveform Generator**
- **16-bit Analog Trigger**
- **Double Clock**
- **500kS/1MS Sample Rate**
- **Flexible Trigger Option**
- **Auto-calibration**
**High-Speed PCI Express Digitizer**

PCIE-1840 can perform extremely high speed measurements with 16-bit resolution. Its four channels can all acquire signals at a 125 MS/s sampling rate, or the user can cascade all channels into a single channel, and push the sampling rate to 500 MS/s. With its re-trigger function and time-stamp ability, the user can get relative timing information when performing measurements.

**PCI Express Dynamic Signal Analyzer**

PCIE-1802, with high precision 24-bit resolution, is an ideal solution for sound, audio, and vibration measurements, as well as machine condition monitoring applications. Its high density, 8-channel analog inputs can connect to IEPE and TEDS sensors directly, and can perform simultaneous 256 kS/s sampling acquisition, with an anti-alias filter.

<table>
<thead>
<tr>
<th>Model Name</th>
<th>Analog Input</th>
<th>Analog Output</th>
<th>Digital I/O</th>
<th>Counter</th>
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<tbody>
<tr>
<td></td>
<td>Channels</td>
<td>Sampling Rate</td>
<td>Resolution</td>
<td>Channels</td>
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<tr>
<td>PCIE-1810</td>
<td>16 SE/8 DI</td>
<td>Single-ch: 800 kS/s Multiple-ch: 500 kS</td>
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<tr>
<td>PCIE-1816</td>
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<td>Single-ch: 1 MS/s Multiple-ch: 500 kS</td>
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<td>PCIE-1816H</td>
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<td>PCIE-1802L</td>
<td>4 DI</td>
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# PCI / PCI Express Cards Selection Guide

<table>
<thead>
<tr>
<th>Model Name</th>
<th>Analog Input</th>
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<tr>
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<td>Sampling Rate</td>
<td>Resolution</td>
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<tr>
<td>PCI-1710UL</td>
<td>100 KS/s</td>
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<td>PCI-1710HGU*</td>
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<td>PCI-1760U</td>
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*Note: PCI-1710HGU offers more gain options than PCI-1710U, for increased measurement accuracy.
<table>
<thead>
<tr>
<th>Model Name</th>
<th>Digital Input</th>
<th>Digital Output</th>
<th>Timer/Counter</th>
<th>Connector</th>
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<td>PCI-1710HGU*</td>
<td>16 TTL</td>
<td>16 TTL</td>
<td>1</td>
<td>68-pin SCSI</td>
</tr>
<tr>
<td>PCI-1711U</td>
<td>16 TTL</td>
<td>16 TTL</td>
<td>1</td>
<td>68-pin SCSI</td>
</tr>
<tr>
<td>PCI-1711UL</td>
<td>16 TTL</td>
<td>16 TTL</td>
<td>1</td>
<td>68-pin SCSI</td>
</tr>
<tr>
<td>PCI-1712</td>
<td>16 TTL (shared)</td>
<td>3</td>
<td>68-pin SCSI</td>
<td></td>
</tr>
<tr>
<td>PCI-1712L</td>
<td>16 TTL (shared)</td>
<td>3</td>
<td>68-pin SCSI</td>
<td></td>
</tr>
<tr>
<td>PCI-1716</td>
<td>16 TTL</td>
<td>16 TTL</td>
<td>1</td>
<td>68-pin SCSI</td>
</tr>
<tr>
<td>PCI-1716L</td>
<td>16 TTL</td>
<td>16 TTL</td>
<td>1</td>
<td>68-pin SCSI</td>
</tr>
<tr>
<td>PCI-1706U</td>
<td>16 TTL (shared)</td>
<td>2</td>
<td>68-pin SCSI</td>
<td></td>
</tr>
<tr>
<td>PCI-1742U</td>
<td>16 TTL</td>
<td>16 TTL</td>
<td>1</td>
<td>68-pin SCSI</td>
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<tr>
<td>PCI-1747U</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>68-pin SCSI</td>
</tr>
<tr>
<td>PCI-1718HGU*</td>
<td>16 TTL</td>
<td>16 TTL</td>
<td>1</td>
<td>1 x DB37, 2 x 20-pin</td>
</tr>
<tr>
<td>PCI-1713U</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>DB37</td>
</tr>
<tr>
<td>PCI-1715U</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>DB37</td>
</tr>
<tr>
<td>PCI-1714UL</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>4 x BNC</td>
</tr>
<tr>
<td>PCI-1714U/ PCIE-1744</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>4 x BNC</td>
</tr>
<tr>
<td>PCI-1720U</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>DB62</td>
</tr>
<tr>
<td>PCI-1727U</td>
<td>16 TTL</td>
<td>16 TTL</td>
<td>-</td>
<td>1 x DB37, 2 x 20-pin</td>
</tr>
<tr>
<td>PCI-1721</td>
<td>16 TTL (shared)</td>
<td>1</td>
<td>68-pin SCSI</td>
<td></td>
</tr>
<tr>
<td>PCI-1723</td>
<td>16 TTL (shared)</td>
<td>-</td>
<td>68-pin SCSI</td>
<td></td>
</tr>
<tr>
<td>PCI-1724U</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>DB62</td>
</tr>
<tr>
<td>PCI-1735U</td>
<td>32 TTL</td>
<td>32 TTL</td>
<td>3</td>
<td>5 x 20-pin</td>
</tr>
<tr>
<td>PCI-1737U</td>
<td>24 TTL (shared)</td>
<td>-</td>
<td>1 x 50-pin, 2 x 20-pin</td>
<td></td>
</tr>
<tr>
<td>PCI-1757UP</td>
<td>24 TTL (shared)</td>
<td>-</td>
<td>DB25</td>
<td></td>
</tr>
<tr>
<td>PCI-1739U</td>
<td>48 TTL (shared)</td>
<td>-</td>
<td>2 x 50-pin</td>
<td></td>
</tr>
<tr>
<td>PCI-1751</td>
<td>48 TTL (shared)</td>
<td>3</td>
<td>68-pin SCSI</td>
<td></td>
</tr>
<tr>
<td>PCI-1753</td>
<td>96 TTL (shared)</td>
<td>-</td>
<td>100-pin SCSI</td>
<td></td>
</tr>
<tr>
<td>PCI-1755</td>
<td>32 TTL (shared, high speed)</td>
<td>-</td>
<td>100-pin SCSI</td>
<td></td>
</tr>
<tr>
<td>PCI-1750U/PCIE-1730/PCIE-1730H</td>
<td>16 TTL, 16 isolated</td>
<td>16 TTL, 16 isolated</td>
<td>-</td>
<td>1 x DB37, 4 x 20-pin</td>
</tr>
<tr>
<td>PCI-1735U</td>
<td>32 TTL</td>
<td>32 TTL</td>
<td>3</td>
<td>5 x 20-pin</td>
</tr>
<tr>
<td>PCI-1737U</td>
<td>24 TTL (shared)</td>
<td>-</td>
<td>1 x 50-pin, 2 x 20-pin</td>
<td></td>
</tr>
<tr>
<td>PCI-1757UP</td>
<td>24 TTL (shared)</td>
<td>-</td>
<td>DB25</td>
<td></td>
</tr>
<tr>
<td>PCI-1739U</td>
<td>48 TTL (shared)</td>
<td>-</td>
<td>2 x 50-pin</td>
<td></td>
</tr>
<tr>
<td>PCI-1751</td>
<td>48 TTL (shared)</td>
<td>3</td>
<td>68-pin SCSI</td>
<td></td>
</tr>
<tr>
<td>PCI-1753</td>
<td>96 TTL (shared)</td>
<td>-</td>
<td>100-pin SCSI</td>
<td></td>
</tr>
<tr>
<td>PCI-1755</td>
<td>32 TTL (shared, high speed)</td>
<td>-</td>
<td>100-pin SCSI</td>
<td></td>
</tr>
<tr>
<td>PCI-1750USO</td>
<td>16 isolated</td>
<td>16 isolated</td>
<td>1</td>
<td>DB37</td>
</tr>
<tr>
<td>PCI-1733</td>
<td>32 isolated</td>
<td>-</td>
<td>-</td>
<td>DB37</td>
</tr>
<tr>
<td>PCI-1734</td>
<td>-</td>
<td>32 isolated</td>
<td>-</td>
<td>DB37</td>
</tr>
<tr>
<td>PCI-1752U/PCIE-1752</td>
<td>-</td>
<td>64 isolated</td>
<td>-</td>
<td>100-pin SCS</td>
</tr>
<tr>
<td>PCI-1754/PCIE-1754</td>
<td>64 isolated</td>
<td>-</td>
<td>-</td>
<td>100-pin SCS</td>
</tr>
<tr>
<td>PCI-1756/PCIE-1756/PCIE-1756H</td>
<td>32 isolated</td>
<td>32 isolated</td>
<td>-</td>
<td>100-pin SCS</td>
</tr>
<tr>
<td>PCI-1758UDI</td>
<td>128 isolated</td>
<td>-</td>
<td>-</td>
<td>dual 100-pin mini-SCSI</td>
</tr>
<tr>
<td>PCI-1758UDO</td>
<td>-</td>
<td>128 isolated</td>
<td>-</td>
<td>dual 100-pin mini-SCSI</td>
</tr>
<tr>
<td>PCI-1758UDIO</td>
<td>64 isolated</td>
<td>64 isolated</td>
<td>-</td>
<td>dual 100-pin mini-SCSI</td>
</tr>
<tr>
<td>PCI-1760U/PCIE-1760</td>
<td>8 isolated</td>
<td>6 x Form A, 2 x Form C</td>
<td>10 (PCI), 2 (PCIE)</td>
<td>DB37</td>
</tr>
<tr>
<td>PCI-1761</td>
<td>8 isolated</td>
<td>4 x Form A, 4 x Form C</td>
<td>-</td>
<td>DB37</td>
</tr>
<tr>
<td>PCI-1762</td>
<td>16 isolated</td>
<td>16 Relay</td>
<td>-</td>
<td>DB62</td>
</tr>
<tr>
<td>PCI-1780U</td>
<td>8 TTL</td>
<td>8 TTL</td>
<td>8</td>
<td>68-pin SCSI</td>
</tr>
<tr>
<td>PCI-1671UP</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>24-pin IEEE 488</td>
</tr>
</tbody>
</table>
PCI Express

PCIE-1730

32-ch TTL and 32-ch Isolated Digital I/O PCI Express Card

**Features**
- 16-ch isolated DI and 16-ch isolated DO
- 16-ch 5V/TTL DI and 16-ch 5V/TTL DO
- Supports DI Interrupt
- 2,500 V DC isolation protection
- High sink current on isolated output channels (500mA max./ch)

**Ordering Information**
- PCIE-1730-AE 32-ch Isolated Digital I/O PCIe Card
- PCL-10120-1E/2E 20-pin Flat Cable, 1 m/2 m
- ADAM-3920-AE 20-pin DIN-rail Flat Cable Wiring Board
- PCLD-782-BE 16-ch Isolated DI Board with 1m 20-pin Flat Cable
- PCLD-885-AE 16-ch Power Relay Board with 20p & 50p Flat Cables
- PCLD-785-AE 16-ch Relay Board with 1m 20-pin Flat Cable
- ADAM-3937-BE DB37 DIN-rail Wiring Board
- PCL-10137-1E/2E/3E DB37 Cable, 1 m/2 m/3 m

**OS Support**
- Windows 10
- Windows 8.1
- Windows 8
- Windows 7

PCIE-1730H

32-Ch TTL, 32-Ch Isolated Digital I/O PCIe Card with Digital Filter and Interrupt Function

**Features**
- 32-ch isolated DI/O (16-ch digital input, 16-ch digital output)
- 32-ch TTL DI/O (16-ch digital input, 16-ch digital output)
- High output driving capacity
- Interrupt handling capability
- Selectable digital filter time
- D-type connector for isolated input and output channels
- High-voltage isolation on output channels (2,500 VDC)

**Ordering Information**
- PCIE-1730H-AE 32-ch Isolated Digital I/O PCIe Card
- PCL-10120-1E/2E 20-pin Flat Cable, 1 m/2 m
- ADAM-3920-AE 20-pin DIN-rail Flat Cable Wiring Board
- PCLD-782-BE 16-ch Isolated DI Board with 1m 20-pin Flat Cable
- PCLD-885-AE 16-ch Power Relay Board with 20p & 50p Flat Cables
- PCLD-785-AE 16-ch Relay Board with 1m 20-pin Flat Cable
- ADAM-3937-BE DB37 DIN-rail Wiring Board
- PCL-10137-1E/2E/3E DB37 Cable, 1 m/2 m/3 m

**OS Support**
- Windows 10
- Windows 8.1
- Windows 8
- Windows 7

PCIE-1751

48-ch Digital I/O and 3-ch Counter PCI Express Card

**Features**
- Supports 5V/TTL and dry contact
- Programmable DI filter
- Keeps DIO port configuration and DO state after system reset
- Supports DI interrupt, Pattern Match and Change of States
- 3-ch counter: 32-bit, up to 10 MHz
- Event counting, frequency and pulse width measure, pulse train and PWM output

**Ordering Information**
- PCIE-1751-AE 48-ch Digital I/O and 3-ch Counter PCI Express Card
- PCL-10168-1E/2E 68-pin SCSI Shielded Cable, 1 m/2 m
- ADAM-3968-AE 68-pin DIN-rail SCSII Wiring Board
- ADAM-3968/20-AE 68-pin to 3 20-pin Box Header Board
- ADAM-3968/50-AE 68-pin to 2 50-pin Box Header Board
- PCLD-8751-AE 48-ch Isolated DI Board
- PCLD-8761-AE 24-ch Relay/Isolated DI Board
- PCLD-8762-AE 48-ch Relay Board

**OS Support**
- Windows 10
- Windows 8.1
- Windows 8
- Windows 7
## PCIE-1752
### 64-ch Isolated Digital Output PCI Express Card

**Features**
- Wide output range (5 ~ 40 V<sub>DC</sub>)
- High sink current on isolated output channels (500mA max./ch)
- 2,500 V<sub>DC</sub> isolation protection

**Ordering Information**
- PCIE-1752-AE  64-ch Isolated Digital Output PCI Express Card
- PCL-10250-1E/2E  100-pin SCSI to Two 50-pin SCSI Cable, 1 m/2 m
- ADAM-3951-BE  50-pin DIN-rail Wiring Board with LED Indicators
- PCL-101100M-1E/2E/3E  100-pin SCSI to 100-pin SCSI Cable, 1 m/2 m/3 m
- ADAM-3951-BE  100-pin DIN-rail Wiring Board

### OS Support
- Windows 10
- Windows 8.1
- Windows 8
- Windows 7

## PCIE-1753
### 96-ch Digital I/O PCI Express Card

**Features**
- Supports 5V/TTL and dry contact
- Programmable DI filter
- Keeps DIO port configuration and DO state after system reset
- Supports DI interrupt, Pattern Match and Change of State

**Ordering Information**
- PCIE-1753-AE  96-ch Digital I/O PCI Express Card
- PCL-10268-1E/2E  100-pin to Two 68-pin SCSI Shielded Cable, 1 m/2 m
- ADAM-3968-AE  68-pin DIN-rail SCSI Wiring Board
- ADAM-3968/20-AE  68-pin to 3 20-pin Box Header Board
- ADAM-3968/50-AE  68-pin to 2 50-pin Box Header Board
- PCLD-8751-AE  48-ch Isolated DI Board
- PCLD-8761-AE  24-ch Relay/Isolated DI Board
- PCLD-8762-AE  48-ch Relay Board

### OS Support
- Windows 10
- Windows 8.1
- Windows 8
- Windows 7

## PCIE-1754
### 64-ch Isolated Digital Input PCI Express Card

**Features**
- Wide input range (10 ~ 30 V<sub>DC</sub>)
- High over-voltage protection (70 V<sub>DC</sub>)
- 2,500 V<sub>DC</sub> isolation protection
- Supports DI interrupt

**Ordering Information**
- PCIE-1754-AE  64-ch Isolated Digital Input PCI Express Card
- PCL-10250-1E/2E  100-pin SCSI to Two 50-pin SCSI Cable, 1 m/2 m
- ADAM-3951-BE  50-pin DIN-rail Wiring Board with LED Indicators
- PCL-101100M-1E/2E/3E  100-pin SCSI to 100-pin SCSI Cable, 1 m/2 m/3 m
- ADAM-3951-BE  100-pin DIN-rail Wiring Board

### OS Support
- Windows 10
- Windows 8.1
- Windows 8
- Windows 7
PCI / PCI Express Cards

PCI Express

**PCIE-1756**
64-ch Isolated Digital Input/Output PCI Express Card

<table>
<thead>
<tr>
<th>Features</th>
<th>Ordering Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Wide input range (10 ~ 30 VDC) and output range (5 ~ 40 VDC)</td>
<td>• PCIE-1756-AE</td>
</tr>
<tr>
<td>• High sink current on isolated output channels (500mA max./ch)</td>
<td>• PCL-10250-1E/2E</td>
</tr>
<tr>
<td>• Supports DI interrupt</td>
<td>• ADAM-3951-BE</td>
</tr>
<tr>
<td>• High over-voltage protection (70 VDC)</td>
<td>• PCL-101100M-1E/2E/3E</td>
</tr>
<tr>
<td>• 2,500 VDC isolation protection</td>
<td>• ADAM-39100-BE</td>
</tr>
</tbody>
</table>

**OS Support**
- Windows 10
- Windows 8
- Windows 7

**PCIE-1756H**
64-Ch Isolated Digital I/O PCIe Card with Digital Filter and Interrupt Function

<table>
<thead>
<tr>
<th>Features</th>
<th>Ordering Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>• 32-ch isolated digital input</td>
<td>• PCIE-1756-AE</td>
</tr>
<tr>
<td>• 32-ch isolated digital output with wide output range (5 ~ 40 VDC)</td>
<td>• PCL-10250-1E/2E</td>
</tr>
<tr>
<td>• Interrupt handling capability</td>
<td>• ADAM-3951-BE</td>
</tr>
<tr>
<td>• Software-selectable digital filter time for all DI channels (PCIE-1756H only)</td>
<td>• PCL-101100M-1E/2E/3E</td>
</tr>
<tr>
<td>• Output status read back</td>
<td>• ADAM-39100-BE</td>
</tr>
<tr>
<td>• Retains the output settings and values after system hot reset</td>
<td></td>
</tr>
</tbody>
</table>

**OS Support**
- Windows 10
- Windows 8
- Windows 7

**PCIE-1760**
8-ch Relay and 8-ch Isolated Digital Input PCI Express Card with 2-ch Counter/Timer

<table>
<thead>
<tr>
<th>Features</th>
<th>Ordering Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Relay Type: 2 x Form C, 6 x Form A</td>
<td>• PCIE-1760-AE</td>
</tr>
<tr>
<td>• Contact Rating: 0.5 A @ 125 VAC, 1 A @ 30 VDC</td>
<td>• PCL-10137-1E/2E/3E</td>
</tr>
<tr>
<td>• 8-ch counter input and 2-ch PWM output</td>
<td>• ADAM-3937-AE</td>
</tr>
<tr>
<td>• Isolated DI supports both dry or wet contact (jumper selectable)</td>
<td></td>
</tr>
<tr>
<td>• LED indicators to show activated relays</td>
<td></td>
</tr>
<tr>
<td>• Programmable DI filter</td>
<td></td>
</tr>
<tr>
<td>• Supports DI Interrupt, Pattern Match and Change of Status</td>
<td></td>
</tr>
</tbody>
</table>

**OS Support**
- Windows 10
- Windows 8
- Windows 7

**NEW**
PCIE-1810
800 kS/s, 12-bit, 16-ch PCI Express Multifunction DAQ Card

Features
- 16-ch AI: 12-bit, 800 kS/s (single-channel), 500 kS/s (multiple-channel)
- 2-ch AO: 12-bit, 500 kS/s
- Supports both digital trigger and analog trigger (12-bit)
- 5V/TTL DIO: 24 input/output (direction programmable)
- 2-ch counter: 32-bit, up to 10 MHz
- Event counting, frequency and pulse width measure, pulse train and PWM output
- Support DI Interrupt, Pattern Match and Change of Status

Ordering Information
- PCIE-1810-AE 800 kS/s, 12-bit Multifunction Card
- PCL-10168-1E/2E 68-pin SCSI Shielded Cable, 1 m/2 m
- ADAM-3968-AE 68-pin DIN-rail SCSI Wiring Board
- PCLD-8810E-AE DIN-rail Wiring Board with CJC
- PCLD-8811-AE Low-Pass Active Filter Board

OS Support
- Windows 10
- Windows 8.1
- Windows 8
- Windows 7

PCIE-1816
1 MS/s, 16-bit, 16-ch PCI Express Multifunction DAQ Card

Features
- 16-ch AI: 16-bit, 1 MS/s (single-channel), 500 kS/s (multiple-channel)
- 2-ch AO: 16-bit, 3 MS/s
- Supports both digital trigger and analog trigger (16-bit)
- 5V/TTL DIO: 24 input/output (direction programmable)
- 2-ch counter: 32-bit, up to 10 MHz
- Event counting, frequency and pulse width measure, pulse train and PWM output
- Support DI Interrupt, Pattern Match and Change of Status

Ordering Information
- PCIE-1816-AE 1 MS/s, 16-bit Multifunction Card
- PCL-10168H-1E/2E 68-pin SCSI Shielded Cable with Noise Rejection, 1 m/2 m
- ADAM-3968-AE 68-pin DIN-rail SCSI Wiring Board
- PCLD-8810E-AE DIN-rail Wiring Board with CJC
- PCLD-8811-AE Low-Pass Active Filter Board

OS Support
- Windows 10
- Windows 8.1
- Windows 8
- Windows 7

PCIE-1816H
5 MS/s, 16-bit, 16-ch PCI Express Multifunction DAQ Card

Features
- 16-ch AI: 16-bit, 5 MS/s (single-channel), 1 MS/s (multiple-channel)
- 2-ch AO: 16-bit, 3 MS/s
- Supports both digital trigger and analog trigger (16-bit)
- 5V/TTL DIO: 24 input/output (direction programmable)
- 2-ch counter: 32-bit, up to 10 MHz
- Event counting, frequency and pulse width measure, pulse train and PWM output
- Support DI Interrupt, Pattern Match and Change of Status

Ordering Information
- PCIE-1816H-AE 5 MS/s, 16-bit Multifunction Card
- PCL-10168H-1E/2E 68-pin SCSI Shielded Cable with Noise Rejection, 1 m/2 m
- ADAM-3968-AE 68-pin DIN-rail SCSI Wiring Board
- PCLD-8810E-AE DIN-rail Wiring Board with CJC
- PCLD-8811-AE Low-Pass Active Filter Board

OS Support
- Windows 10
- Windows 8.1
- Windows 8
- Windows 7
## PCI Express Cards

### PCIE-1812 (**NEW**)  
250 kS/s, 16-Bit, 8-Ch, Simultaneous Sampling Multifunction PCI Express DAQ Card

<table>
<thead>
<tr>
<th>Features</th>
<th>Ordering Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>• 8 differential simultaneous sampling analog inputs, up to 250 kS/s, 16-bit resolution</td>
<td>• PCIE-1812-AE 250 kS/s, 16-bit, 8-ch simultaneous sampling multifunction card</td>
</tr>
<tr>
<td>• 2 analog outputs, up to 3 MS/s, 16-bit resolution</td>
<td>• PCL-101100R-1E 100-pin SCSI shielded cable, female to male, 1 m</td>
</tr>
<tr>
<td>• Full automatic calibration</td>
<td>• PCL-101100R-2E 100-pin SCSI shielded cable, female to male, 2 m</td>
</tr>
<tr>
<td>• 2 analog triggers and 2 digital triggers for analog I/O</td>
<td>• ADAM-39100-BE 100-pin DIN rail SCSI wiring board</td>
</tr>
<tr>
<td>• 32 programmable DI/Os with interrupt functions</td>
<td></td>
</tr>
<tr>
<td>• Four 32-bit programmable counters/ timers/ encoders</td>
<td></td>
</tr>
<tr>
<td>• Board ID switch</td>
<td></td>
</tr>
<tr>
<td>• Supports Microsoft® Windows 10, 8, and 7</td>
<td></td>
</tr>
</tbody>
</table>

#### OS Support
- Windows 10
- Windows 8.1
- Windows 8
- Windows 7

### PCIE-1813 (**NEW**)  
38.4 kS/s, 26-Bit, 4-Ch, Simultaneous Sampling, Universal Bridge Multifunction PCI Express Card

<table>
<thead>
<tr>
<th>Features</th>
<th>Ordering Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>• 4 simultaneous sampling analog inputs, up to 38.4 kS/s, 26-bit resolution</td>
<td>• PCIE-1813-AE 38.4 kS/s, 26-bit, 4-ch, simultaneous sampling, universal bridge input, multifunction PCI Express card</td>
</tr>
<tr>
<td>• Full, half, and quarter-bridge sensor input with built-in anti-aliasing filter</td>
<td>• PCL-101100R-1E 100-pin SCSI shielded cable, female to male, 1 m</td>
</tr>
<tr>
<td>• 2 analog outputs, up to 3 MS/s, 16-bit resolution</td>
<td>• PCL-101100R-2E 100-pin SCSI shielded cable, female to male, 2 m</td>
</tr>
<tr>
<td>• Four 32-bit programmable encoder counters/ timers/ encoder counters</td>
<td>• ADAM-39100-BE 100-pin DIN rail SCSI wiring board</td>
</tr>
<tr>
<td>• 32 programmable DI/Os with interrupt functions</td>
<td></td>
</tr>
<tr>
<td>• Board ID switch</td>
<td></td>
</tr>
<tr>
<td>• Full automatic calibration</td>
<td></td>
</tr>
<tr>
<td>• Supports Microsoft® Windows 10, 8, and 7</td>
<td></td>
</tr>
</tbody>
</table>

#### OS Support
- Windows 10
- Windows 8.1
- Windows 8
- Windows 7

### PCIE-1840  
4-ch 16-bit 125 MS/s High Speed PCI Express Digitizer

<table>
<thead>
<tr>
<th>Features</th>
<th>Ordering Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>• 4-ch simultaneous AI: 16-bit, 125 MS/s per channel</td>
<td>• PCIE-1840-AE 4-ch 16-bit 125 MS/s High Speed PCI Express Digitizer</td>
</tr>
<tr>
<td>• Cascade channels to achieve higher sampling rate 250 MS/s (2-ch only), 500 MS/s (1-ch only)</td>
<td>• PCL-1010B-1E BNC Cable, 1 m</td>
</tr>
<tr>
<td>• Non-stop data streaming capable</td>
<td>• PCLUD-8840-AE 20-pin DIN-rail HDMI Cable Wiring Board for PCIE-1802 and PCIE-1840</td>
</tr>
<tr>
<td>• 2 GB on-board memory</td>
<td>• PCL-10119-1E HDMI cable</td>
</tr>
<tr>
<td>• Onboard anti-aliasing filter</td>
<td></td>
</tr>
<tr>
<td>• 1M or 50 Ohm selectable input impedance</td>
<td></td>
</tr>
</tbody>
</table>

#### OS Support
- Windows 10
- Windows 8.1
- Windows 8
- Windows 7
**PCIE-1840L** new

4-Ch, 16-Bit, 80 MS/s Digitizer

**Features**
- 4 simultaneous analog inputs, up to 80 MHz, 16-bit resolution
- 320 MHz time-interleaved sampling
- Non-stop data streaming capabilities
- 2 GB of onboard memory
- 1M or 50 Ohm selectable input impedance
- Built-in tunable anti-aliasing filter
- AC/DC coupling support

**Ordering Information**
- PCIE-1840L-AE 4-ch 16-bit 80 MS/s High Speed PCI Express Digitizer
- PCL-1010B-1E BNC Cable, 1 m
- PCLD-8840-AE 20-pin DIN-rail HDMI Cable Wiring Board for PCIE-1802 and PCIE-1840
- PCL-10119-1E HDMI cable

**OS Support**
- Windows 10
- Windows 8.1
- Windows 8
- Windows 7

---

**PCIE-1802**

24-bit, 8-ch PCI Express Dynamic Signal Analyzer

**Features**
- 8-ch simultaneous AI: 24-bit, 216 kS/s per channel
- 6 gains settings: input ranges from ±0.2 V to ±10 V
- IEPE and TEDS smart sensors support
- 0 - 10 mA excitation, software selectable per channel
- AC or DC coupling, software selectable per channel
- digital trigger and analog trigger (24-bit)
- anti-aliasing filter
- onboard FIFO size: 4096 samples
- DC offset null adjustment
- 5V/TTL DIO: 1 input, 1 output

**Ordering Information**
- PCIE-1802-AE 216 kS/s, 24-bit, 8-ch Dynamic Signal Analyzer Card
- PCLD-8840-AE 20-pin DIN-rail HDMI Cable Wiring Board for PCIE-1802 and PCIE-1840
- PCL-108BNC-50E Mini-SCSI to 8-BNC Cable
- PCL-10119-1E HDMI Cable

**OS Support**
- Windows 10
- Windows 8.1
- Windows 8
- Windows 7

---

**PCIE-1802L** new

4-Ch, 24-Bit, 216 kS/s Dynamic Signal Acquisition PCI Express Card

**Features**
- 4 simultaneously sampled analog inputs, up to 216 kS/s
- 6 gains settings: input ranges from ±0.2 V to ±10 V
- IEPE and TEDS smart sensors support
- 0 - 10 mA excitation, software selectable per channel
- AC or DC coupling, software selectable per channel
- digital trigger and analog trigger (24-bit)
- anti-aliasing filter
- onboard FIFO size: 4096 samples
- DC offset null adjustment
- 5V/TTL DIO: 1 input, 1 output

**Ordering Information**
- PCIE-1802L-AE 216 kS/s, 24-bit, 4-ch Dynamic Signal Analyzer Card
- PCLD-8840-AE 20-pin DIN-rail HDMI Cable Wiring Board for PCIE-1802 and PCIE-1840
- PCL-104BNC-50E Mini-SCSI to 4-BNC Cable
- PCL-10119-1E HDMI Cable

**OS Support**
- Windows 10
- Windows 8.1
- Windows 8
- Windows 7
**Multifunction PCI-1710U/UL/HGU**

100 kS/s, 12-bit, 16-ch PCI Multifunction Card

**Features**
- 16 single-ended / 8 differential AI: 12-bit, 100 kS/s
- 2-ch AO: 12-bit, static update (PCI-1710U and PCI-1710HGU only)
- 5V/TTL DIO: 16 inputs, 16 outputs
- 1-ch counter: 16-bit, up to 10 MHz
- Event counting, pulse train output

**Ordering Information**
- PCI-1710U-DE 100 kS/s, 12-bit Multifunction Card
- PCI-1710UL-DE 100 kS/s, 12-bit Multifunction Card w/o AO
- PCI-1710HGU-DE 100 kS/s, 12-bit High-gain Multifunction Card (For precise small-signal measurement)
- PCLD-8710-AE DIN-rail Wiring Board with CJC
- PCL-10168-1E/2E 68-pin SCSI Shielded Cable, 1 m/2 m
- ADAM-3968-AE 68-pin DIN-rail SCSI Wiring Board
- PCLD-8810I-AE DIN-rail Wiring Board with CJC
- PCLD-8811-AE Low-Pass Active Filter Board

**OS Support**
- Windows 10
- Windows 8.1
- Windows 8
- Windows 7

---

**PCI-1711U/UL**

Entry-level 100 kS/s, 12-bit, 16-ch PCI Multifunction Card

**Features**
- 16 single-ended AI: 12-bit, 100 kS/s
- 2-ch AO: 12-bit, static update (PCI-1711U only)
- 5V/TTL DIO: 16 inputs, 16 outputs
- 1-ch counter: 16-bit, up to 10 MHz
- Event counting, pulse train output

**Ordering Information**
- PCI-1711U-CE 100 kS/s, 12-bit Multifunction Card
- PCI-1711UL-CE 100 kS/s, 12-bit Multifunction Card w/o AO
- PCLD-8710-AE DIN-rail Wiring Board with CJC
- PCL-10168-1E/2E 68-pin SCSI Shielded Cable, 1 m/2 m
- ADAM-3968-AE 68-pin DIN-rail SCSI Wiring Board
- PCLD-8810I-AE DIN-rail Wiring Board with CJC
- PCLD-8811-AE Low-Pass Active Filter Board

**OS Support**
- Windows 10
- Windows 8.1
- Windows 8
- Windows 7
- Linux

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**PCI-1712/L**

1 MS/s, 12-bit, 16-ch PCI Multifunction Card

**Features**
- 16 single-ended / 8 differential AI: 12-bit, 1 MS/s
- 2-ch AO: 12-bit, 1 MS/s (PCI-1712 only)
- 5V/TTL DIO: 16 inputs / outputs (direction programmable)
- 3-ch counter: 16-bit, up to 10 MHz
- Event counting, frequency and pulse width measure, pulse train output

**Ordering Information**
- PCI-1712-AE 1 MS/s, 12-bit Multifunction Card
- PCI-1712L-AE 1 MS/s, 12-bit Multifunction Card w/o AO
- PCLD-8712-AE DIN-rail Wiring Board for PCI-1712/L
- PCL-10168-1E/2E 68-pin SCSI Shielded Cable, 1 m/2 m
- ADAM-3968-AE 68-pin DIN-rail SCSI Wiring Board

**OS Support**
- Windows 10
- Windows 8.1
- Windows 8
- Windows 7
### PCI-1716/L
250 kS/s, 16-bit, 16-ch PCI Multifunction Card

#### Features
- 16 single-ended / 8 differential AI: 16-bit, 250 kS/s
- 2-ch AO: 16-bit, static update (PCI-1716 only)
- 5V/TTL DIO: 16 inputs, 16 outputs
- 1-ch counter: 16-bit, up to 10 MHz
- Event counting, pulse train output

#### Ordering Information
- PCI-1716-AE 250 kS/s, 16-bit Multifunction Card
- PCI-1716L-AE 250 kS/s, 16-bit Multifunction Card w/o AO
- PCLD-8710-AE DIN-rail Wiring Board with CJC
- PCL-10168H-1E/2E 68-pin SCSI Shielded Cable with Noise Rejection, 1 m/2 m
- ADAM-3968-AE 68-pin DIN-rail SCSI Wiring Board
- PCLD-8810I-AE DIN-rail Wiring Board with CJC
- PCLD-8811-AE Low-Pass Active Filter Board

#### OS Support
- Windows 10
- Windows 8

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### PCI-1706U
250 kS/s, 16-bit, Simultaneous 8-ch Universal PCI Multifunction Card

#### Features
- 8 differential AI: 16-bit, 250 kS/s for each channel (simultaneously sampling)
- 2-ch AO: 12-bit, static update (PCI-1706U only)
- 5V/TTL DIO: 16 inputs, 16 outputs
- 2-ch counter: 32-bit, up to 10 MHz
- Event Counting, pulse train output, frequency input, PWM input, PWM output

#### Ordering Information
- PCI-1706U-AE 250 Ks/s, 16-bit Simultaneous Multifunction Card
- PCL-10168H-1E/2E 68-pin SCSI Shielded Cable with Noise Rejection, 1 m/2 m
- ADAM-3968AE 68-pin DIN-rail SCSI Wiring Board

#### OS Support
- Windows 10
- Windows 8

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### PCI-1742U
1 MS/s, 16-bit, 16-ch PCI Multifunction Card

#### Features
- 16 single-ended / 8 differential AI: 16-bit, 1 MS/s
- 2-ch AO: 16-bit, static update
- 5V/TTL DIO: 16 inputs, 16 outputs
- 1-ch counter: 16-bit, up to 10 MHz
- Event counting, pulse train output

#### Ordering Information
- PCI-1742U-AE 1 MS/s, 16-bit, 16-ch Multifunction Card
- PCL-10168H-1E/2E 68-pin SCSI Shielded Cable with Noise Rejection, 1 m/2 m
- ADAM-3968-AE 68-pin DIN-rail SCSI Wiring Board
- PCLD-8710-AE DIN-rail Wiring Board with CJC
- PCLD-8810I-AE DIN-rail Wiring Board with CJC
- PCLD-8811-AE Low-Pass Active Filter Board

#### OS Support
- Windows 10
- Windows 8

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PCI / PCI Express Cards

Analog Input

**PCI-1713U**
100 kS/s, 12-bit, 32-ch Isolated Analog Input PCI Card

**Features**
- 32 single-ended / 16 differential AI: 12-bit, 100 kS/s
- 2,500 VDC isolation protection
- 4,096 onboard FIFO

**Ordering Information**
- PCI-1713U-BE 100 kS/s, 12-bit, 32-ch Isolated AI Card
- ADAM-3937-BE DB37 Cable, 1 m/2 m/3 m
- PCL-10137-1E/2E/3E DB37 DIN-rail Wiring Board

**OS Support**
- Windows 10
- Windows 8
- Windows 8.1
- Windows 7

**PCI-1714U/UL**
30/10 MS/s, 12-bit, Simultaneous 4-ch Analog Input PCI Card

**Features**
- 4 A/D converters simultaneously sampling
- 4 single-ended AI: 12-bit
  - PCI-1714UL: 10 MS/s per channel
  - PCI-1714U: 30 MS/s per channel
- Supports digital trigger
- Onboard FIFO
  - PCI-1714UL: 8,192 samples per channel
  - PCI-1714U: 32,768 samples per channel

**Ordering Information**
- PCI-1714U-BE 30 MS/s, 12-bit, Simultaneous 4-ch AI Card
- PCI-1714UL-BE 10 MS/s, 12-bit, Simultaneous 4-ch AI Card
- ADAM-3909-AE DB9 DIN-rail Wiring Board
- PCL-1010B-1E BNC to BNC Wiring Cable, 1 m
- PCL-10901-1E/3E PS/2 to DB9 Cable, 1 m/3 m

**OS Support**
- Windows 10
- Windows 8
- Windows 8.1
- Windows 7
- Linux

**PCI-1715U**
500 kS/s, 12-bit, 32-ch Isolated Analog Input PCI Card

**Features**
- 32 single-ended / 16 differential AI: 12-bit, 100 kS/s
- 2,500 VDC isolation protection
- 1,024 onboard FIFO

**Ordering Information**
- PCI-1715U-BE 500 kS/s 12-bit, 32-ch Isolated AI Card
- ADAM-3937-BE DB37 Cable, 1 m/2 m/3 m
- PCL-10137-1E/2E/3E DB37 DIN-rail Wiring Board

**OS Support**
- Windows 10
- Windows 8
- Windows 8.1
- Windows 7
- Linux
### Analog Output

#### PCI-1720U

12-bit, 4-ch Isolated Analog Output PCI Card

**Features**
- 4-ch AO: 12-bit, static update
- 2,500 V<sub>DC</sub> isolation protection
- Keeps the output settings and values after system hot reset

**Ordering Information**
- PCI-1720U-BE
- PCL-10137-1E/2E/3E
- ADAM-3937-BE

**OS Support**
- Windows 10
- Windows 8.1
- Windows 8
- Windows 7

#### PCI-1723

16-bit, 8-ch Analog Output PCI Card with 16-ch Digital I/O

**Features**
- 8-ch AO: 16-bit, static update
- Keeps the output settings and values after system hot reset
- 5V/TTL DIO: 16 input/output (direction programmable)
- Supports DI Interrupt

**Ordering Information**
- PCI-1723-AE
- PCL-10168-1E/2E
- ADAM-3968-AE

**OS Support**
- Windows 10
- Windows 8.1
- Windows 8
- Windows 7

#### PCI-1724U

14-bit, 32-ch Isolated Analog Output PCI Card

**Features**
- 32-ch AO: 14-bit, static update
- Keeps the output settings and values after system hot reset

**Ordering Information**
- PCI-1724U-AE
- PCL-10162-1E/3E
- ADAM-3962-AE

**OS Support**
- Windows 10
- Windows 8.1
- Windows 8
- Windows 7
- Linux
## PCI / PCI Express Cards

### Digital I/O & Counter

#### PCI-1730U

32-ch Isolated Digital I/O PCI Card

**Features**
- 16-ch isolated DI and 16-ch isolated DO
- 16-ch TTL DI and 16-ch TTL DO
- Support DI Interrupt
- 2,500 VDC isolation protection
- Isolated DO current: max. 300 mA / channel
- Keeps DIO port configuration and DO state after system reset

**Ordering Information**
- PCI-1730U-BE 32-ch Isolated Digital I/O PCI Card
- PCL-1020-1E/2E 20-pin Flat Cable, 1 m/2 m
- ADAM-3920-AE 20-pin DIN-rail Flat Cable Wiring Board
- PCLD-885-AE 16-ch Power Relay Board with 20p & 50p Flat Cables
- PCLD-782-BE 16-ch Isolated DI Board with 1m 20-pin Flat Cable
- ADAM-3937-BE DB37 DIN-rail Wiring Board
- PCL-10137-1E/2E/3E DB37 Cable, 1 m/2 m/3 m

**OS Support**
- Windows 10
- Windows 8
- Windows 7
- Linux

#### PCI-1733/1734

32-ch Isolated Digital Input / Digital Output PCI Card

**Features**
- PCI-1733: 32-ch isolated DI
- PCI-1734: 32-ch isolated DO
- Supports DI Interrupt (PCI-1733 only)
- 2,500 VDC isolation protection
- Isolated DO current: (PCI-1734 only) max. 200 mA / channel

**Ordering Information**
- PCI-1733-BE 32-ch Isolated Digital Input PCI Card
- PCI-1734-CE 32-ch Isolated Digital Output PCI Card
- ADAM-3937-BE DB37 DIN-rail Wiring Board
- PCL-10137-1E/2E/3E DB37 Cable, 1 m/2 m/3 m

**OS Support**
- Windows 10
- Windows 8
- Windows 7
- Linux

#### PCI-1750

32-ch Isolated Digital I/O and 1-ch Counter PCI Card

**Features**
- 16-ch isolated DI & 16-ch isolated DO
- Supports DI Interrupt
- 2,500 VDC isolation protection
- Isolated DO current: max. 200 mA / channel
- 1-ch counter: 16-bit, up to 1 MHz
- Event counting, pulse train output

**Ordering Information**
- PCI-1750-BE 32-ch Isolated DIO and 1-ch Counter PCI Card
- PCL-10137-1E/2E/3E DB37 DIN-rail Wiring Board
- ADAM-3937-BE DB37 Cable, 1 m/2 m/3 m

**OS Support**
- Windows 10
- Windows 8
- Linux
PCI-1751
48-ch Digital I/O and 3-ch Counter PCI Card

**Features**
- Supports 5V/TTL and dry contact
- Supports DI Interrupt
- Keeps DIO port configuration and DO state after system reset
- 3-ch counter: up to 10 MHz
- Event counting, pulse train output

**Ordering Information**
- PCI-1751-BE 48-ch Digital I/O and Counter PCI Card
- PCL-10168-1E/2E 68-pin SCSI Shielded Cable, 1 m/2 m
- ADAM-3968-AE 68-pin DIN-rail SCSI Wiring Board
- ADAM-3968/20-AE 68-pin SCSI to 3 20-pin Box Header Terminal
- ADAM-3968/50-AE 68-pin SCSI to 2 50-pin Box Header Terminal
- PCLD-8751-AE 48-ch Isolated Digital Input Board
- PCLD-8761-AE 24-ch Replay/Isolated Digital Input Board
- PCLD-8762-AE 48-ch Relay Board

**OS Support**
- Windows 10
- Windows 8.1
- Windows 8
- Windows 7

PCI-1752U
64-ch Isolated Digital Output Universal PCI Card

**Features**
- 2,500 VDC isolation protection
- Wide output range (5 ~ 40 VDC)
- Isolated DO current: max. 200 mA/channel
- Keeps DO state after system reset

**Ordering Information**
- PCI-1752U-BE 64-ch Isolated Digital Output Universal PCI Card
- PCL-10250-1E/2E 100-pin SCSI to Two 50-pin SCSI Cable, 1 m/2 m
- ADAM-3951-BE 50-pin DIN-rail Wiring Board with LED Indicators
- PCL-101100M-1E/2E/3E 100-pin SCSI to 100-pin SCSI Cable, 1 m/2 m/3 m
- ADAM-39100-BE 100-pin DIN-rail Wiring Board

**OS Support**
- Windows 10
- Windows 8.1
- Windows 8
- Windows 7
- Linux

PCI-1753
96-ch Digital I/O PCI Card

**Features**
- Supports 5V/TTL and dry contact
- Keeps DIO port configuration and DO state after system reset
- Supports DI interrupt, Pattern Match and Change of States

**Ordering Information**
- PCI-1753-CE 96-ch Digital I/O PCI Card
- ADAM-3968-AE 68-pin DIN-rail SCSI Wiring Board
- ADAM-3968/20-AE 68-pin SCSI to 3 20-pin Box Header Terminal
- ADAM-3968/50-AE 68-pin SCSI to 2 50-pin Box Header Terminal
- PCLD-8751-AE 48-ch Isolated Digital Input Board
- PCLD-8761-AE 24-ch Replay/Isolated Digital Input Board
- PCLD-8762-AE 48-ch Relay Board
- PCL-10268-1E/2E 100-pin to Two 68-pin SCSI Cables, 1 m/2 m

**OS Support**
- Windows 10
- Windows 8.1
- Windows 8
- Windows 7
PCI / PCI Express Cards

PCI-1756
64-ch Isolated Digital I/O PCI Card

Features
- 2,500 V_{DC} isolation protection
- 70 V_{DC} over-voltage protection for DI
- Supports DI Interrupt
- Isolated DO current: max. 200 mA / channel
- Keeps DIO port configuration and DO state after system reset

Ordering Information
- PCI-1756-BE  64-ch Isolated Digital I/O PCI Card
- PCL-10250-1E/2E  100-pin SCSI to Two 50-pin SCSI Cable, 1 m/2 m
- ADAM-3951-BE  50-pin DIN-rail Wiring Board with LED Indicators
- PCL-101100M-1E/2E/3E  100-pin SCSI to 100-pin SCSI Cable, 1 m/2 m/3 m
- ADAM-3951-BE  100-pin DIN-rail Wiring Board

OS Support
- Windows 10
- Windows 8.1
- Windows 8
- Windows 7
- Linux

PCI-1758UDI
128-ch Isolated Digital Input Universal PCI Card

Features
- 2,500 V_{DC} isolation protection
- Supports DI Interrupt
- Programmable DI filter

Ordering Information
- PCI-1758UDI-AE  128-ch Isolated DI Universal PCI Card
- PCL-101100S-1E/2E  100-pin SCSI Cable, 1 m/2 m
- ADAM-39100-AE  100-pin DIN-rail SCSI Wiring Board

OS Support
- Windows 10
- Windows 8.1
- Windows 8
- Windows 7
- Linux

PCI-1758UDO
128-ch Isolated Digital Output Universal PCI Card

Features
- 2,500 V_{DC} isolation protection
- Isolated DO current: max. 90 mA / channel
- Keeps DO state after system reset

Ordering Information
- PCI-1758UDO-AE  128-ch Isolated DO Universal PCI Card
- PCL-101100S-1E/2E  100-pin SCSI Cable, 1 m/2 m
- ADAM-39100-AE  100-pin DIN-rail SCSI Wiring Board

OS Support
- Windows 10
- Windows 8.1
- Windows 8
- Windows 7
- Linux
**PCI-1760U**
8-ch Relay and 8-ch Isolated Digital Input Universal PCI Card with 10-ch Counter/Timer

**Features**
- Relay Type: 2 x Form C, 6 x Form A
- Contact Rating: 0.5 A @ 125 VAC, 1 A @ 30 VDC
- LED indicators to show activated relays
- Programmable DI filter
- 2,500 VDC isolation protection for DI
- DI support for both wet and dry contacts
- Supports DI Interrupt, Pattern Match and Change of States
- 8-ch counter: 16-bit, up to 500 Hz for event counting
- 2-ch PWM output

**Ordering Information**
- PCI-1760U-BE
- PCL-10137-1E/2E/3E
- ADAM-3937-BE

**OS Support**
- Windows 10
- Windows 8
- Windows 7

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**PCI-1761**
8-ch Relay and 8-ch Isolated Digital Input PCI Card

**Features**
- Relay Type: 4 x Form A, 4 x Form C
- Contact Rating: 2 A @ 250 VAC, 2 A @ 30 VDC
- LED indicators to show activated relays
- 3,750 VDC isolation protection for DI
- Supports DI Interrupt

**Ordering Information**
- PCI-1761-BE
- PCL-10137-1E/2E/3E
- ADAM-3937-BE

**OS Support**
- Windows 10
- Windows 8
- Windows 7
- Linux

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**PCI-1780U**
8-ch, 16-bit Counter/Timer Universal PCI Card

**Features**
- 8-ch counter: 16-bit, up to 20 MHz
- Event counting, frequency and pulse width measure, pulse train output
- 8-ch PWM output
- 5V/TTL DIO: 8 inputs, 8 outputs
- Supports DI Interrupt
- Keeps DO state after system reset

**Ordering Information**
- PCI-1780U-AE
- PCL-10168-1E/2E
- ADAM-3968-AE

**OS Support**
- Windows 10
- Windows 8
**Compatibility Chart**

Recommended Cables, I/O Wiring Terminal Boards and Isolated Digital I/O Terminals for Connecting to Data Acquisition Products:

### PCI and PCI Express Card
**PCI/104, PCI-104 Module**

| PCI-1712/1712L |
| PCI-1718HDU/HGU |
| PCI-1727U, PCI-1730U, PCI-1730 |
| PCI-1751, PCIE-1751 |
| PCI-1753 |
| PCI-1713U, PCI-1715U |
| PCI-1720U, PCI-1733, PCI-1734, PCI-1750, PCI-1760, PCI-1761, USB-4702 |
| PCI-1784U |
| PCI-1752U, PCI-1754, PCI-1756 |
| PCIE-1752, PCIE-1754, PCIE-1756 |
| PCI-1724U, PCI-1762 |
| PCI-1737U, PCI-1739U, USB-4751/L |
| PCI-1714U/1714UL, PCIE-1744 |
| PCI-1757UP |
| PCI-1747U, PCI-1721, PCI-1723, PCI-1780U |
| PCI-1735U |
| PCI-1755 |
| PCI-1758UDI/1758UDO/1758UDIO |
| USB-4671 |
| PCM-3718H/HO/HG, PCM-3730 |
| PCM-3724, PCM-3753I |
| PCM-3725, PCM-3780, PCM-3761I |
| PCM-3810I |
| PCM-3730I |

### Cable

| PCL-10168, PCL-10168H |
| PCL-10168, PCL-10168H |
| PCL-10137 |
| PCIE-1810, PCL-10120, PCL-10121 |
| PCL-10137 |
| ADAM-3937, PCLD-880 |
| PCL-10168 |
| PCL-10268 |
| PCL-10137 |
| PCL-10137 |
| PCL-10250 |
| PCL-10162 |
| PCL-10150 |
| PCL-10137 |
| PCL-10137 |
| PCL-10168 |
| PCL-10120, PCL-10121 |
| PCL-10501+, PCL-10137, ADAM-3937 |
| PCL-101100 |
| PCL-101100S |
| PCL-10488 |
| PCL-10120, PCL-10121 |
| PCL-10150 |
| PCL-10120, PCL-10121 |
| PCL-10120, PCL-10121 |
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| PCL-10120, PCL-10121 |
| PCL-10120, PCL-10121 |
| PCL-10120, PCL-10121 |
| PCL-10120, PCL-10121 |
| PCL-10120, PCL-10121 |
| PCL-10120, PCL-10121 |
I/O Wiring Terminal Board

- PCLD-8710
- ADAM-3968, PCLD-8810I, PCLD-8810E, PCLD-8811
- PCLD-8712
- ADAM-3937, PCLD-880
- PCLD-8115, PCLD-789D
- PCL-10502+, PCL-10120, PCL-10121
- PCL-10503+, PCL-10137, ADAM-3937
- ADAM-3968
- PCLD-8751, PCLD-8761, PCLD-8762
- ADAM-3968/50
- ADAM-3968/20
- ADAM-3937, PCLD-880, PCLD-881B
- ADAM-3937
- ADAM-3951
- ADAM-3962
- ADAM-3950, PCLD-782B, PCLD-785B, PCLD-885, PCLD-7216
- ADAM-3909
- ADAM-3925
- ADAM-3968
- PCL-10502+, PCL-10120, PCL-10121
- PCL-10503+, PCL-10137, ADAM-3937
- ADAM-39100

Extension Cable

- PCL-10120
- PCL-10121

Digital I/O Terminal Board

- ADAM-3920
- PCLD-782
- PCLD-782B
- PCLD-785
- PCLD-785B
- PCLD-786
- PCLD-788
- PCLD-885
- PCLD-7216
- ADAM-3920
- PCLD-780
- PCLD-782
- PCLD-782B
- PCLD-785
- PCLD-785B
- PCLD-786
- PCLD-788
- PCLD-885
- PCLD-7216
Think Outside the Box

Portable, Robust & Versatile USB DAQ Modules

Advantech’s USB DAQ modules are known for their user-friendly designs and their ability to replace traditional serial and parallel devices, which eliminates the need for external power supplies and allows hot swapping. Through the Advantech USB DAQ series, users can easily upgrade their computing platforms with cutting-edge technologies and realize cost-effective maintenance while allowing the data acquisition devices to operate as usual. By adding industrial-grade features, including lockable cables, multiple mounting methods, and advanced detection functions, Advantech’s USB data acquisition devices are a great fit for any industrial application.

Key Features

**Lockable USB Cable**

Reliable connections are critical to automation control and online production. While the standard USB cable is designed for convenience, Advantech provides lockable USB cables that provide solid, secure connections.

**480Mbps High Speed Data Transfer**

Advanced data acquisition functions are covered. And up to 200 kS/s sampling rate, 16-bit resolution, 16-ch analog input, 48-ch digital I/O specifications, as well as interrupt, event counter, and pulse width modulation (PWM) functions are available on Advantech’s USB data acquisition modules.
Bus-powered
With no need for external power, these devices are highly mobile as they derive power from system USB ports, freeing users from the inconvenience of finding additional power sources.

Detachable Screw Terminal & On-Module Pin Assignment Index
Detachable screw terminals save space and money. Significant savings are realized by not having to buy additional cables and/or wiring boards, and extra space is saved as well. Furthermore, Advantech’s on-module pin assignment simplifies maintenance efforts and reduces incorrect connections that can put systems at risk.

Device Identification
Identification assignment of each Advantech USB DAQ module is easily made through the provided utility. This ensures that application programs control the correct modules, even if the computer is changed or the USB DAQ modules are switched or rearranged at the USB hub. This feature shortens development time for each control site and reduces duplicate programs.
USB Modules

**USB-4711A**

150 kS/s, 12-bit, 16-ch Multifunction USB Module

**Features**
- 16 single-ended / 8 differential AI: 12-bit, 150 kS/s
- 2-ch AO: 12-bit, static update
- 5V/TTL DIO: 8 inputs, 8 outputs
- 1-ch counter: 32-bit, up to 1 kHz
- Event counting, frequency measurement
- One lockable USB cable for secure connection included

**Ordering Information**
- USB-4711A-AE
- 1960004544
- 1960005788

**OS Support**
- Windows 10
- Windows 8

---

**USB-4716**

200 kS/s, 16-bit, 16-ch Multifunction USB Module

**Features**
- 16 single-ended / 8 differential AI: 16-bit, 200 kS/s
- 2-ch AO: 16-bit, static update
- 5V/TTL DIO: 8 inputs, 8 outputs
- 1-ch counter: 32-bit, up to 1 kHz
- Event counting, frequency measurement
- One lockable USB cable for secure connection included

**Ordering Information**
- USB-4716-AE
- 1960004544
- 1960005788

**OS Support**
- Windows 10
- Windows 8

---

**USB-4718**

8-ch Thermocouple Input USB Module with 8-ch Isolated Digital Input

**Features**
- 8 differential AI: 16-bit, 10 S/s
- Supports voltage, current and thermocouple inputs
- 8-ch isolated DI & 8-ch isolated DO
- 2,500 VDC isolation protection
- One lockable USB cable for secure connection included

**Ordering Information**
- USB-4718-AE
- 1960004544
- 1960005788

**OS Support**
- Windows 10
- Windows 8
# USB-4750

32-ch Isolated Digital I/O USB Module

<table>
<thead>
<tr>
<th>Features</th>
<th>Ordering Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>• 16-ch isolated DI &amp; 16-ch isolated DO</td>
<td>• USB-4750-BE 32-ch Isolated Digital I/O USB Module</td>
</tr>
<tr>
<td>• Isolated DO current: max. 200 mA / channel</td>
<td>• 1960004544 Wall Mount Bracket</td>
</tr>
<tr>
<td>• Supports DI Interrupt</td>
<td>• 1960005788 VESA Mount Bracket</td>
</tr>
<tr>
<td>• 2-ch isolated counter: 32-bit, up to 1 MHz</td>
<td></td>
</tr>
<tr>
<td>• Event counting and frequency measurement</td>
<td></td>
</tr>
<tr>
<td>• 2,500 VDC isolation protection</td>
<td></td>
</tr>
</tbody>
</table>

## OS Support

- Windows 10
- Windows 8.1
- Windows 8
- Linux

# USB-4751/L

48/24-ch Digital I/O USB Module

<table>
<thead>
<tr>
<th>Features</th>
<th>Ordering Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>• USB-4751L: 24-ch TTL DIO USB-4751: 48-ch TTL DO</td>
<td>• USB-4751-AE 48-ch Digital I/O USB Module</td>
</tr>
<tr>
<td>• Supports both dry and wet contact</td>
<td>• USB-4751L-AE 24-ch Digital I/O USB Module</td>
</tr>
<tr>
<td>• Supports DI Interrupt</td>
<td>• PCL-10150-1.2E 50-pin Flat Cable, 1.2 m</td>
</tr>
<tr>
<td>• 2-ch counter: 32-bit, up to 8 MHz</td>
<td>• ADAM-3950-AE 50-pin DIN-rail Flat Cable Wiring Board</td>
</tr>
<tr>
<td>• Event counting, frequency measurement, pulse train and PWM output</td>
<td>• PCLD-782B-AE 24-ch IDI Board w/ 20-pin &amp; 50-pin Flat Cables</td>
</tr>
<tr>
<td>• One lockable USB cable for secure connection included</td>
<td>• PCLD-785B-AE 24-ch Relay Board w/ 20-pin &amp; 50-pin Flat Cables</td>
</tr>
</tbody>
</table>

## OS Support

- Windows 10
- Windows 8.1
- Windows 8
- Linux

# USB-4761

8-ch Relay and 8-ch Isolated Digital Input USB Module

<table>
<thead>
<tr>
<th>Features</th>
<th>Ordering Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>• LED indicators to show activated relays</td>
<td>• USB-4761-BE 8-ch Relay and 8-ch Isolated DI USB Module</td>
</tr>
<tr>
<td>• Relay type: 8 x Form C</td>
<td>• 1960004544 Wall Mount Bracket</td>
</tr>
<tr>
<td>• Contact Rating: 0.25 A @ 250 VAC, 1 A @ 30 VDC</td>
<td>• 1960005788 VESA Mount Bracket</td>
</tr>
<tr>
<td>• 8-ch isolated DI with 5 - 30 VDC range</td>
<td></td>
</tr>
<tr>
<td>• Supports DI Interrupt</td>
<td></td>
</tr>
<tr>
<td>• 2,500 VDC protection for isolated DI on input channels</td>
<td></td>
</tr>
<tr>
<td>• One lockable USB cable for secure connection included</td>
<td></td>
</tr>
</tbody>
</table>

## OS Support

- Windows 10
- Windows 8.1
- Windows 8
- Linux
## USB-4702

10 kS/s, 12-bit, 8-ch Multifunction USB Module

### Features
- 8 single-ended / 4 differential AI: 12-bit, 10 kS/s
- 2-ch AO: 12-bit, static update
- 5V/TTL DIO: 8 inputs, 8 outputs
- 1-ch counter: 32-bit, up to 5 MHz
- Event counting, frequency measurement

### Ordering Information
- USB-4702-AE 10 kS/s, 12-bit, Multifunction USB Module
- PCL-10137-1E DB37 Cable, 1m
- PCL-10137-2E DB37 Cable, 2m
- PCL-10137-3E DB37 Cable, 3m
- ADAM-3937-BE DB37 DIN-rail Wiring Board

### OS Support
- Windows 10
- Windows 8.1
- Windows 8
- Windows 7
- Linux

## USB-4704

48 kS/s, 14-bit, 8-ch Multifunction USB Module

### Features
- 8 single-ended / 4 differential AI: 14-bit, 48 kS/s
- 2-ch AO: 12-bit, static update
- 5V/TTL DIO: 8 inputs, 8 outputs
- 1-ch counter: 32-bit, up to 5 MHz
- Event counting, frequency measurement
- Suitable for DIN-rail mounting

### Ordering Information
- USB-4704-AE 48 kS/s, 14-bit, Multifunction USB Module
- 1960004544 Wall Mount Bracket
- 1960005788 VESA Mount Bracket

### OS Support
- Windows 10
- Windows 8.1
- Windows 8
- Windows 7
- Linux

## USB-4620

5-port Full-speed Isolated USB 2.0 Hub

### Features
- 5 downstream USB 2.0 ports
- Compatible with USB 2.0 full-speed, USB 1.1, USB 1.0
- Up to 12 Mbps data transfer rate
- 3,000 V<sub>DC</sub> voltage isolation for each downstream port
- Suitable for DIN-rail mounting
- One lockable USB cable included
- 10 ~ 30 V<sub>DC</sub> power input (power adapter not included)

### Ordering Information
- USB-4620-AE 5-port Full-speed Isolated USB 2.0 Hub
- 96PS-A40WDIN DIN-rail Power Supply
- 1960004544 Wall Mount Bracket
- 1960005788 VESA Mounting Bracket
- 1.8 M Lockable USB 2.0 Cable with Screw Kit

### OS Support
- Windows 10
- Windows 8.1
- Windows 8
- Windows 7
- Linux
USB-4622
5-port USB 2.0 Hub

Features
• Compatible with USB 2.0 high speed, USB 2.0 full-speed, USB 1.1, USB 1.0
• Up to 480 Mbps data transfer rate
• LED indicator
• Suitable for DIN-rail mounting
• One lockable USB cable included
• 10 ~ 30 V<sub>DC</sub> power input (power adapter not included)

Ordering Information
• USB-4622-CE 5-port USB 2.0 Hub
• 96PS-A40WDIN DIN-rail Power Supply
• 1960004544 Wallmount Bracket
• 1960005788 VESA Mounting Bracket
• USB-LOCKCABLE-AE 1.8 M Lockable USB 2.0 Cable with Screw Kit

Dimensions

USB-4630
4-Port SuperSpeed Isolated USB 3.0 Hub

Features
• 2,500 VDC voltage isolation for upstream port
• 4 downstream USB 3.0 SuperSpeed ports
• Supplied by external 10 ~ 30 VDC power or by USB bus power only
• Suitable for DIN-rail mounting
• LED indicators for power-on and speed of each downstream port

Ordering Information
• USB-4630-AE 5-port USB 3.0 Hub
• 96PS-A40WDIN DIN-rail Power Supply
• 1960004544 Wallmount Bracket
• 1960005788 VESA Mounting Bracket
• 1700026157-01 1M Lockable USB 3.0 Cable
DIN-rail Mountable Signal Conditioning Modules

Compact Design with 3-way Isolation Protection and Multiple Input Types

The ADAM-3000 Series consists of the most cost-efficient, field configurable, isolation-based, signal conditioners on the market today. The modules are easily installed to protect your instruments and process signals from the harmful effects of ground loops, motor noise, and other electrical interference.

Products

ADAM-3011
Isolated Thermocouple Input Module

Specifications
- Input Type: J, K, T, E, S, R, B Type Thermocouple
- Output Type: 0~10 V

Ordering Information
- ADAM-3011-AE Isolated Thermocouple Input Module

ADAM-3013
Isolated RTD Input Module

Specifications
- Input Type: Pt or Ni Type RTD
- Output Type: 0~5 V, 0~10 V, 0~20 mA

Ordering Information
- ADAM-3013-AE Isolated RTD Input Module

ADAM-3014
Isolated DC Input/Output Module

Specifications
- Input Type: ±10 mV, ±50 mV, ±100 mV, ±0.5 V, ±1 V, ±5 V, ±10 V, 0~10 mV, 0~50 mV, 0~100 mV, 0~0.5 V, 0~1 V, 0~5 V, 0~10 V, 0~20 mA, ±20 mA

Ordering Information
- ADAM-3014-AE Isolated DC Input/Output Module
**Key Features**

**Three-way Signal Isolation**
Three-way (input/output/power) 1,000 Vdc isolation.

**Field Configurable I/O Range**
The I/O range can be configured on-site with switches inside the module.

**Easy Daisy Chain Power Wiring**
Power can be connected conveniently from adjacent modules.

**Small Dimensions & DIN-rail Mounting**
Saves space and can be easily mounted on a DIN-rail.

---

**ADAM-3016**
Isolated Strain Gauge Input Module

**Specifications**
- **Input Type:**
  - Electrical input: ±10, ±20, ±30, ±100 mV
  - Excitation voltage: 1~10 V (60 mA max.)
- **Output Type:** ±5 V, ±10 V, 0~10 V, 0~20 mA

**Ordering Information**
- ADAM-3016 Isolated Strain Gauge Input Module

---

**ADAM-3017**
External Powered IEPE Signal Conditioner

**Specifications**
- **Upper Cut-Off Frequency (for all couple settings)**
  - x1, x10 gain (-5%) 100 kHz/x100 gain (-1%) 50 kHz
- **Lower Cut-Off Frequency**
  - (-3dB, 1 MΩ load, for all gain settings)
  - DC Couple DC/AC Couple (1 μF) 0.58 Hz/AC Couple (47 μF) 0.012 Hz

**Ordering Information**
- ADAM-3017-AE External Powered IEPE Signal Conditioner

---

**PCLD-8810I/8810E**
68-pin SCSI DIN-rail Wiring Board with CJC

**Specifications**
- 16-single-ended or 8 differential AI inputs, programmable
- On-board CJC circuit for direct thermocouple measurement
- Reserved space for signal-conditioning circuit such as PCLD-8811

**Ordering Information**
- PCLD-8810I-AE 68-pin SCSI Wiring Board for PCI
- PCLD-8810E-AE 68-pin SCSI Wiring Board for PCIE

---

**PCLD-8811**
Bandwidth-Configurable Filter Board

**Specifications**
- **Offset Error ± 1 LSB**
- **Gain Error ± 1 LSB**
- **Filter Frequency** -3dB, 10Hz, 50Hz, 100Hz, 500Hz, 1KHz, 5KHz, 10KHz, 40KHz
- **Max. Input Voltage ± 10 V**
- **Input Impedance** 1G Ω / 2pF

**Ordering Information**
- PCLD-8811-AE Bandwidth-Configurable Filter Board
Diverse PCI and PCI Express Cards for Reliable Communication

OS Support
- Windows 10
- Windows 8.1
- Windows 8
- Windows 7
- Windows 10
- Linux

PCI-1602/1604
2-Port RS-232 or RS-232/422/485 PCI Communication Card

Features
- Universal PCI v2.2
- Speeds up to 921.6 kbps for extremely fast data transmission
- Supports any baud rate setting
- 2 x RS-232 or RS-232/422/485 ports
- Supported operating systems: Windows XP/7/8/10, and Linux.
- XR17V352 UART with 256-byte FIFOs
- 1KV Surge protection / 3KV Isolation protection

Ordering Information
- PCI-1604C-AE 2-port RS-232 PCI Comm. Card w/ Surge & Isolation

PCI-1602UP
2-port RS-232/422/485 Low-Profile PCI Comm. Card w/ Isolation Protection

Features
- Low-profile PCI 119.91 x 64.41 mm (low-profile MD1)
- Universal PCI v2.2
- Speeds up to 921.6 kbps for extremely fast data transmission
- 2 x RS-232/422/485 ports
- Supported operating systems: Windows XP/7/8/10, and Linux.
- Level 4 ESD protection
- 3KV Isolation protection

Ordering Information
- PCI-1602UP-CE 2-port RS-232/422/485 Low-Profile PCI Comm. Card w/ Isolation Protection
  Note: PCI-1602UP includes one DB25 to 2 x DB9 cable
Full Range of Communication Cards with Isolation Protection

Advantech provides a full range of PCI and PCI-Express cards to satisfy all automation and equipment monitoring needs. Equipped with isolation protection, Advantech’s PCI and PCI-Express cards are ideal for demanding industrial environments.

Suitable for Multiple Applications

- Factory Automation
- Machine Automation
- Distributed Monitoring and Control Systems

### PCI-1604L

**NEW**

2-port RS-232 Economical PCI Communication Card

**Features**

- Universal PCI v2.2
- Speeds up to 921.6 kbps for extremely fast data transmission
- 2 x RS-232 ports
- Supported operating systems: Windows XP/7/8/10, and Linux.
- Level 4 ESD protection
- Operating Temperature -20 ~ 60°C

**Ordering Information**

- PCI-1604L-AE 2-port RS-232 PCI Comm. Card

**OS Support**

- Windows 10
- Windows 8.1
- Windows 8
- Windows 7
- Linux

### PCI-1610/1612

4-Port RS-232 or RS-232/422/485 PCI Communication Card

**Features**

- Universal PCI v2.2
- Speeds up to 921.6 kbps for extremely fast data transmission
- Supports any baud rate setting
- 4 x RS-232 or RS-232/422/485 ports
- Supported operating systems: Windows XP/7/8/10, and Linux.
- XR17V354 UART with 256-byte FIFOs
- 1KV Surge protection / 3KV Isolation protection

**Ordering Information**

- PCI-1610B-DE 4-port RS-232 PCI Comm. Card w/Surge
- PCI-1610C-CE 4-port RS-232/422/485 PCI Comm. Card w/ Surge & Isolation Protection
- PCI-1612B-DE 4-port RS-232/422/485 PCI Comm. Card w/Surge
- PCI-1612C-CE 4-port RS-232/422/485 PCI Comm. Card w/Surge & Isolation Protection

**OS Support**

- Windows 10
- Windows 8.1
- Windows 8
- Windows 7
- Linux

Note: this series includes cable OPT4A.
Communication Cards

**PCI-1620/1622**
8-Port RS-232 or RS-232/422/485 PCI Communication Card

**Features**
- Universal PCI v2.2
- Speeds up to 921.6 kbps for extremely fast data transmission
- Supports any baud rate setting
- 8 x RS-232 or RS-232/422/485 ports
- Supported operating systems: Windows XP/7/8/10, and Linux.
- XR17V358 UART with 256-byte FIFOs
- 1KV Surge protection / 3KV Isolation protection

**OS Support**
- Windows 10
- Windows 8.1
- Windows 8

**Ordering Information**

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**PCIE-1602/1604**
2-Port RS-232 or RS-232/422/485 PCIe Communication Card

**Features**
- PCI Express bus 2.0 compliant
- Speeds up to 921.6 kbps for extremely fast data transmission
- Supports any baud rate setting
- 4 x RS-232 or RS-232/422/485 ports
- Supported operating systems: Windows XP/7/8/10, and Linux.
- XR17V352 UART with 256-byte FIFOs
- 1KV Surge protection / 3KV Isolation protection

**OS Support**
- Windows 10
- Windows 8.1
- Windows 8

**Ordering Information**
- PCIE-1604B-AE 2-port RS-232 PCIe Express Comm. Card w/Surge
- PCIE-1604C-AE 2-port RS-232 PCIe Express Comm. Card w/Surge & Isolation

---

**PCIE-1610/1612**
4-Port RS-232 or RS-232/422/485 PCIe Communication Card

**Features**
- PCI Express bus 2.0 compliant
- Speeds up to 921.6 kbps for extremely fast data transmission
- Supports any baud rate setting
- 4 x RS-232 or RS-232/422/485 ports
- Supported operating systems: Windows XP/7/8/10, and Linux.
- XR17V354 UART with 256-byte FIFOs
- 1KV Surge protection / 3KV Isolation protection

**OS Support**
- Windows 10
- Windows 8.1
- Windows 8

**Ordering Information**
- PCIE-1610B-AE 4-port RS-232 PCIe Express Comm. Card w/Surge
- PCIE-1612B-AE 4-port RS-232/422/485 PCIe Express Comm. Card w/Surge
- PCIE-1612C-AE 4-port RS-232/422/485 PCIe Express Comm. Card w/Surge & Isolation

Note: this series includes cable OPT4A.
PCIE-1620/1622
8-Port RS-232 or RS-232/422/485 PCIe Communication Card

Features
- Operates two separate CAN networks simultaneously
- High speed transmission up to 1 Mbps
- Optical isolation protection of 2.5KV
- Windows DLL library and examples included
- I/O address automatically assigned by PCI PnP
- Supports 32-bit/64-bit Windows XP/7/8/10 and Linux

Ordering Information
- OPT8C-AE      DB62 x1 to DB25 x8 Cable, 1m
- OPT8H-AE      DB62 x1 to DB9 x8 Cable, 1m
- OPT8J-AE      DB78 x1 to DB9 x8 Cable, 1m

PCI-1680U
2-Port CAN-Bus Universal PCI Card with Isolation Protection

Features
- Operates two separate CAN networks simultaneously
- High speed transmission up to 1 Mbps
- Optical isolation protection of 2.5KV
- Windows DLL library and examples included
- I/O address automatically assigned by PCI PnP
- Supports 32-bit/64-bit Windows XP/7/8/10 and Linux

Ordering Information
- PCI-1680U-BE  2-port CAN Uni-PCI COMM Card with Isolation

PCIE-1680
2-Port CAN-Bus PCIe Card with Isolation Protection

Features
- PCIe bus specification 1.2 compliant
- Operates two separate CAN networks at the same time
- High speed transmission up to 1 Mbps
- Optical isolation protection of 2.5KV
- Transmit/Receive status LED indicators
- Windows DLL library and examples included
- Supports 32-bit/64-bit Windows XP/7/8/10 and Linux

Ordering Information
- PCIE-1680-AE  2-Port CAN-Bus PCIe card with Isolation Protection
Enhance Embedded Systems with PC/104 and PCI-104 Modules

Embedded computers are at the heart of many industrial, transportation, military, and aerospace applications. Due to their compact size, expansion capabilities, reliability, anti-vibration, wide operating temperature range and high-speed throughput, PC/104 and PCI-104 are the standard form factors used in embedded computing platforms. Advantech provides a wide variety of PC/104 and PCI-104 module options, such as isolated digital I/O, analog I/O, relay, counter, and multifunction cards.

PC/104 and PCI-104 products support 104 pin, 120 pin, or both, for signal and data transmission. Each pin mates with its corresponding connector so firmly that data integrity is assured, along with a high level of vibration resistance.

Advantech Offers Comprehensive Range of DAQ and Serial Communication Cards

Embedded computers are at the heart of many industrial, transportation, military, and aerospace applications. Due to their compact size, expansion capabilities, reliability, anti-vibration, wide operating temperature range and high-speed throughput, PC/104 and PCI-104 are the standard form factors used in embedded computing platforms. Advantech provides a wide variety of PC/104 and PCI-104 module options, such as isolated digital I/O, analog I/O, relay, counter, and multifunction cards.

Key Features

Anti-Vibration
PC/104 and PCI-104 products support 104 pin, 120 pin, or both, for signal and data transmission. Each pin mates with its corresponding connector so firmly that data integrity is assured, along with a high level of vibration resistance.

Stackable for Easy Expansion
The PC/104 and PCI-104 family supports standard ISA/PCI interfaces, uses open architectures, and is easy to expand upon. The consistent form factor allows different modules to be stacked on top of one another, providing the versatility to easily expand I/O and functionality.
Compact Size
With standard dimensions of 96 x 90 mm (L x H), the design of the PC/104 and PCI-104 takes less space than traditional I/O cards and is also a perfect solution for compact embedded systems.

Wide Operating Temperature
Unlike traditional IPCs, the PC/104 and PCI-104 form factors are capable of operating in temperatures from -40~85 °C (-40~185 °F) for reliable operation in harsh environments.

Fast Read/Write Speeds
While PCI-104 products use the standard PC/104 form factor, they have dropped the ISA interface, providing more bandwidth for data transmission and allowing faster read/write speeds than traditional ISA cards.
PC/104 & PCI-104 Modules

PCI-104 Form Factors

PCM-3730I

32-ch Isolated Digital I/O PCI-104 Module

Features
- 16-ch Isolated DI and 16-ch Isolated DO
- 2,500 \( V_{DC} \) Isolation Protection
- Supports DI Interrupt
- 70 \( V_{AC} \) over voltage protection on input channels
- Isolated DO current: max. 250 mA / channel
  max. 200 mA / channel (all channel used)

Ordering Information
- PCM-3730I-AE 32-ch Isolated DI/O Module
- ADAM-3920-AE 20-pin DIN-rail Wiring Board
- PCL-10120-2E 20-pin Flat Cable, 1 m / 2 m


PCM-3753I

96-ch Digital I/O PCI-104 Module

Features
- Supports 5V/TTL and dry contact
- Keeps DIO port configuration and DO state after system reset
- Supports DI interrupt, Pattern Match and Change of States
- Wide operating temperature range (-20 ~ 70°C, -4 ~ 158°F)

Ordering Information
- PCM-3753I-AE 96-ch DI/O Module
- PCL-10150-1.2E 50-pin Flat Cable, 1.2 m
- ADAM-3950-AE 50-pin DIN-rail Flat Cable Wiring Board
- PCLD-782B-AE 24-ch Isolated DI Board with 20-pin & 50-pin Flat Cables
- PCLD-785B-AE 24-ch Relay Board with 20-pin & 50-pin Flat Cables


PCM-3761I

8-ch Relay and 8-ch Isolated Digital Input PCI-104 Module

Features
- Relay Type: 8 x Form C (SPDT)
- Contact Rating: 0.25 A @ 250 V_{AC}, 2 A @ 30 V_{DC}
- 2,500 \( V_{DC} \) isolation protection for DI
- 70 \( V_{DC} \) over voltage protection for DI

Ordering Information
- PCM-3761I-AE 8-ch Relay and 8-ch Isolated DI Module
- ADAM-3920-AE 20-pin DIN-rail Flat Cable Wiring Board
- ADAM-3950-AE 50-pin DIN-rail Flat Cable Wiring Board
- PCL-10150-1.2E 50-pin Flat Cable, 1.2 m
- PCL-10120-2E 20-pin Flat Cable, 1 m / 2 m

**PCM-3810I**  
250 kS/s, 12-bit, 16-ch Multifunction PCI-104 Module

<table>
<thead>
<tr>
<th>Features</th>
<th>Ordering Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>• 16-ch single-ended / 8-ch differential AI: 12-bit, 250 kS/s</td>
<td>• PCM-3810I-AE 250 kS/s, 12-bit Multifunction Module</td>
</tr>
<tr>
<td>• 2-ch AO: 12-bit, 250 kS/s</td>
<td>• PCL-10150-1.2E 50-pin Flat Cable, 1.2 m</td>
</tr>
<tr>
<td>• SV/TTL DIO: 16 input / output</td>
<td>• ADAM-3950-AE 50-pin DIN-rail Flat Cable Wiring Board</td>
</tr>
<tr>
<td>• 3-ch counter: 24-bit, up to 10 MHz</td>
<td></td>
</tr>
<tr>
<td>• Event counting, frequency and pulse width measure, pulse train and PWM output</td>
<td></td>
</tr>
</tbody>
</table>

**OS Support**  
- Windows 10  
- Windows 8.1  
- Windows 8  
- Windows 7  
- Linux

**PCM-3612I**  
4-port RS-232/422/485 PCI-104 Module

<table>
<thead>
<tr>
<th>Features</th>
<th>Ordering Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Automatic RS-485 data flow control</td>
<td>• PCM-3612I-AE 4-port RS-232/422/485 PCI-104 Module</td>
</tr>
<tr>
<td>• LED indicators: TX, RX</td>
<td></td>
</tr>
<tr>
<td>• Powerful and easy-to-use utility (ICOM Tools)</td>
<td></td>
</tr>
</tbody>
</table>

**OS Support**  
- Windows 10  
- Windows 8.1  
- Windows 8  
- Windows 7  
- Linux
PC/104 & PCI-104 Modules

PCM-3724
48-ch Digital I/O PC/104 Module

**Features**
- Supports 5V/TTL
- Supports DI Interrupt

**Ordering Information**
- PCM-3724-BE 48-ch Digital I/O Module
- PCL-10150-1.2E 50-pin Flat Cable, 1.2 m
- ADAM-3950-AE 50-pin DIN-rail Flat Cable Wiring Board
- PCLD-782B-AE 24-ch Isolated DI Board with 20-pin & 50-pin Flat Cable
- PCLD-785B-AE 24-ch Relay Board with 20-pin & 50-pin Flat Cable

**OS Support**
- Windows 10
- Windows 8.1
- Windows 8

PCM-3730
16-ch Isolated Digital I/O PC/104 Module

**Features**
- 8-ch Isolated DI and 8-ch Isolated DO
- 16-ch 5V/TTL DI and 16-ch 5V/TTL DO
- 2,500 VDC isolation protection for isolated DIO
- Supports DI Interrupt
- Isolated DO current: max. 200 mA / channel
  max. 150 mA / channel (all channel used)

**Ordering Information**
- PCM-3730-BE 16-ch Isolated Digital I/O Module
- PCL-10150-2E 50-pin Flat Cable, 1 m/2 m
- ADAM-3920-AE 20-pin DIN-rail Flat Cable Wiring Board
- PCLD-785B-AE 16-ch Relay Board with 20-pin & 50-pin Flat Cable
- PCLD-885-AE 16-ch Power Relay Board with 20-pin & 50-pin Flat Cable

**OS Support**
- Windows 10
- Windows 8.1
- Windows 8

PCM-3780
2-ch Counter/Timer with 24-ch Digital I/O PC/104 Module

**Features**
- 2-ch counter: 16-bit, up to 20 MHz
- 5V/TTL DIO: 24 input / output
- Supports DI Interrupt

**Ordering Information**
- PCM-3780-AE 2-ch Counter and 24-ch Digital I/O Module
- PCL-10120-1E 20-pin Flat Cable, 1 m
- PCL-10150-1.2E 50-pin Flat Cable, 1.2 m
- ADAM-3920-AE 20-pin DIN-rail Flat Cable Wiring Board
- ADAM-3950-AE 50-pin DIN-rail Flat Cable Wiring Board

**OS Support**
- Windows 10
- Windows 8.1
- Windows 8
PCM-3718H/HO/HG
100 kS/s, 12-bit, 16-ch PC/104 Multifunction Module

Features
• 16-ch single-ended / 8-ch differential AI: 12-bit, 100 kS/s
• 1-ch AO: 12-bit, 100 kS/s (PCM-3718HO only)
• 5V/TTL DIO: 16 input / output
• 1-ch counter: 16-bit (PCM-3718HO only, for event counting, frequency measure, pulse train output)

Ordering Information
• PCM-3718H-CE 12-bit Multifunction Module
• PCM-3718HG-CE 12-bit High-gain Multifunction Module
• PCM-3718HO-BE 12-bit Multifunction with AO Module
• ADAM-3920-AE 20-pin DIN-rail Flat Cable Wiring Board
• PCLD-780-BE Screw Terminal Board with Two 20-pin Flat Cables
• PCL-10120-2E 20-pin Flat Cable, 1 m / 2 m

OS Support
Windows 10, Windows 8.1, Windows 8, Windows 7, Linux

PCM-3725
8-ch Relay and 8-ch Isolated Digital Input PC/104 Module

Features
• Relay Type: 8 x Form C (SPDT)
• Relay contact rating: 30 VDC @ 1.5 A
• 2,500 VDC isolation protection for DI
• 70 VDC over voltage protection for DI

Ordering Information
• PCM-3725-BE 8-ch Relay and 8-ch Isolated DI Module
• PCL-10120-2E 20-pin Flat Cable, 1 m / 2 m
• PCL-10150-1.2E 50-pin Flat Cable, 1.2 m
• ADAM-3920-AE 20-pin DIN-rail Flat Cable Wiring Board
• ADAM-3950-AE 50-pin DIN-rail Flat Cable Wiring Board

OS Support
Windows 10, Windows 8.1, Windows 8, Windows 7

PCM-3614
4-port RS-422/485 High-speed PC/104 Module

Features
• Automatic RS-485 data flow control
• Shared IRQ settings for each ports
• LED indicators: TX, RX
• Powerful and easy-to-use utility (ICOM Tools)

Ordering Information
• PCM-3614-AE 4-port RS-422/485 High-speed Module

OS Support
Windows 10, Windows 8.1, Windows 8, Windows 7, Linux
New Generation of CompactPCI

Reliable PC-based Computing Platform for Mission-critical Applications

This industrial CompactPCI features front-end access, high shock and vibration tolerance, automatic cooling system, fault resilience, and hot swap capability. Advantech leverages 3U CompactPCI as the industrial high-end computing platform, providing Pentium® 4-grade CPU modules, 8-slot chassis, high-speed IO, and serial communication modules. Advantech is a one-stop provider for industrial CompactPCI solutions.

Selection Guide
CompactPCI

<table>
<thead>
<tr>
<th>Model</th>
<th>MIC-3106-00-AE</th>
<th>MIC-3111-00-AE</th>
<th>MIC-3121-00-AE</th>
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</thead>
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<tr>
<td>Power Type</td>
<td>ATX</td>
<td>100-240VAC</td>
<td>200-240VAC</td>
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<tr>
<td>Input Voltage</td>
<td>180W</td>
<td>1, on the right</td>
<td>300W</td>
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<tr>
<td>System Slot</td>
<td>2 Slots</td>
<td>7 Slots</td>
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</tr>
<tr>
<td>Peripheral Slot</td>
<td>32-bit 33MHz</td>
<td>32-bit 33MHz</td>
<td>32-bit 33MHz</td>
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<tr>
<td>Dimensions (W x H x D mm)</td>
<td>134 x 177 x 238</td>
<td>234 x 177 x 258</td>
<td>482 x 177 x 310</td>
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<tr>
<td>Weight (kg)</td>
<td>4.33</td>
<td>9.65</td>
<td></td>
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<tr>
<td>Temperature</td>
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<td></td>
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</tr>
<tr>
<td>Operating</td>
<td>0 ~ 50°C</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-Operating</td>
<td>-20 ~ 60°C</td>
<td></td>
<td></td>
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<tr>
<td>Vibration (5 ~ 500 Hz)</td>
<td>2Gms (without HDD)</td>
<td>2G</td>
<td>2G</td>
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<tr>
<td>Operating</td>
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<td></td>
<td></td>
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<tr>
<td>Non-Operating</td>
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<td>Shock (11ms)</td>
<td>30G</td>
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<td>Regulatory</td>
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<td>Compliance</td>
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</table>

CompactPCI CPU Options

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<th>L1</th>
<th>L2</th>
<th>H1</th>
<th>H2</th>
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<tbody>
<tr>
<td>CPU</td>
<td>Intel Atom N455, 1.66GHz</td>
<td>Intel Atom D525, 1.66GHz</td>
<td>Intel 3rd Gen. Core i3-3217UE, 1.6GHz</td>
<td>Intel 3rd Gen. Core i7-3517UE, 1.7 GHz</td>
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<tr>
<td>Memory</td>
<td>2GB On board</td>
<td>2GB On board</td>
<td>4GB On board</td>
<td>4GB On board</td>
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<td>Storage</td>
<td>1 x CompactFlash Type II 1 x 2.5&quot; SATA HDD</td>
<td>1 x CompactFlash Type II 1 x 2.5&quot; SATA HDD</td>
<td>1 x CFast 1 x 2.5&quot; SATA HDD</td>
<td>1 x CFast 1 x 2.5&quot; SATA HDD</td>
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<tr>
<td>Front I/O</td>
<td>2 x 10/100/1000 Mbps, RJ45 connector</td>
<td>2 x 10/100/1000 Mbps, RJ45 connector</td>
<td>2 x 10/100/1000 Mbps, RJ45 connector</td>
<td>2 x 10/100/1000 Mbps, RJ45 connector</td>
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<td>USB 2.0</td>
<td>3 x Type A</td>
<td>3 x Type A</td>
<td>2 x Type A</td>
<td>2 x Type A</td>
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<tr>
<td>Serial</td>
<td>2 x RS-232, DB9 connector</td>
<td>2 x RS-232, DB9 connector</td>
<td>2 x RS-232, RJ45 connector</td>
<td>2 x RS-232, RJ45 connector</td>
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<td>PSI 2</td>
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<td>1</td>
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<td>1</td>
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<td>MIC-3714/3-AE</td>
<td>MIC-3723/3-AE</td>
<td>MIC-3720-AE</td>
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<td>----------</td>
<td>--------------</td>
<td>--------------</td>
<td>--------------</td>
<td>--------------</td>
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<tr>
<td>General Spec.</td>
<td>Resolution (bit)</td>
<td>16</td>
<td>12</td>
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<td></td>
<td>Channels</td>
<td>16SE/8 Diff</td>
<td>4SE</td>
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<td>FIFO (samples)</td>
<td>1024</td>
<td>32768</td>
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<td></td>
<td>Sampling Rate (S/s)</td>
<td>250 K</td>
<td>30 M</td>
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<td>Input Ranges</td>
<td>Unipolar Inputs (V)</td>
<td>0–10, 0–5, 0–2.5, 0–1.25</td>
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<td>-</td>
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<tr>
<td></td>
<td>Bipolar Inputs (V)</td>
<td>±10, 5, 2.5, 1.25, 0.625</td>
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<td>Configurable</td>
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<td>✓</td>
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<td>Analog Input</td>
<td>Resolution (bit)</td>
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<td>-</td>
<td>16</td>
</tr>
<tr>
<td></td>
<td>Channels</td>
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<td>-</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>FIFO (sample)</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Output Range (V)</td>
<td>0–5, 0–10, ±5, ±10</td>
<td>-</td>
<td>±10, 0–20mA, 4–20mA</td>
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<tr>
<td></td>
<td>Output Rate</td>
<td>Static update</td>
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<td>Static update</td>
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<td>DMA Transfer</td>
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<td>Analog Output</td>
<td>Input Channels</td>
<td>16</td>
<td>-</td>
<td>16 (shared)</td>
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<td></td>
<td>Output Channels</td>
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<td></td>
<td>Windows 10/8/7</td>
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<td>✓</td>
<td>✓</td>
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<td>Linux</td>
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<td>✓</td>
<td>✓</td>
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<td>LabVIEW Driver</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

### Ananlog Input

#### Resolution (bit)
- 16
- 12
- 8
- 4

#### Channels
- 16
- 8
- 16
- 4

#### FIFO (sample)
- 1024
- 32768
- -

#### Sampling Rate (S/s)
- 250 K
- 30 M
- -

#### Input Ranges
- Unipolar Inputs (V)
  - 0–10, 0–5, 0–2.5, 0–1.25
  - ±10, 0–20mA, 4–20mA
  - 0–5, 0–10, ±5, ±10, 0–20mA, 4–20mA
- Bipolar Inputs (V)
  - ±10, 5, 2.5, 1.25, 0.625
  - ±5, 2.5, 1, 0.5
- Configurable
  - ✓
  - ✓
  - -

### Analog Output

#### Resolution (bit)
- 16
- 12
- 8

#### Channels
- 32
- 64
- 4 x Form A
- 4 x Form C

#### FIFO (sample)
- -
- -

#### Sampling Rate (S/s)
- -
- -

#### Isolation Voltage (VDC)
- 2,500
- 2,500
- 2,500

#### Input Ranges
- Unipolar Inputs (V)
  - 0–10, 0–5, 0–2.5, 0–1.25
  - ±10, 0–20mA, 4–20mA
  - ±5, 0–20mA, 4–20mA
- Bipolar Inputs (V)
  - ±10, 5, 2.5, 1.25, 0.625
  - ±5, 2.5, 1, 0.5

### Digital I/O

<table>
<thead>
<tr>
<th>Category</th>
<th>MIC-3716/3-AE</th>
<th>MIC-3714/3-AE</th>
<th>MIC-3723/3-AE</th>
<th>MIC-3720-AE</th>
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</thead>
<tbody>
<tr>
<td>Number of Ports</td>
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<td>Communication Interfaces</td>
<td>RS-232</td>
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<tr>
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<td>RS-422</td>
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<td>-</td>
</tr>
<tr>
<td></td>
<td>RS-485</td>
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<td></td>
<td>CAN</td>
<td>-</td>
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<tr>
<td>Protection</td>
<td>ESD (VDC)</td>
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<td></td>
<td>Isolation (VDC)</td>
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<td>-</td>
<td>2,500</td>
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<tr>
<td>Cable Connector Type</td>
<td>DB9 Male</td>
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<td>-</td>
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</table>

### TTL DIO

#### Channels
- 72
- (shared)

#### Output Current
- 24mA@0.44V
- 24mA@0.5V

#### Isolated DIO

#### Channels
- 32 (sink)
- 64

#### Isolation Voltage (VDC)
- ±10, 0–20mA, 4–20mA
- ±5, 0–20mA, 4–20mA

#### Output Range (VDC)
- 0–5, 0–10
- ±5, ±10

### Isolated DIO

#### Channels
- 5–40
- 2,500

#### Isolation Voltage (VDC)
- ±10, 0–20mA, 4–20mA
- ±5, 0–20mA, 4–20mA

### Output Range (VDC)
- 0–5, 0–10
- ±5, ±10

### Max. Sink Current
- 200mA
- 90mA
- 3A@250VAC

### Digital I/O

<table>
<thead>
<tr>
<th>Category</th>
<th>MIC-3716/3-AE</th>
<th>MIC-3714/3-AE</th>
<th>MIC-3723/3-AE</th>
<th>MIC-3720-AE</th>
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</tr>
<tr>
<td></td>
<td>RS-422</td>
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<td>RS-485</td>
<td>✓</td>
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<td>CAN</td>
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<tr>
<td>Protection</td>
<td>ESD (VDC)</td>
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<td>Isolation (VDC)</td>
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<td>2,500</td>
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<tr>
<td>Cable Connector Type</td>
<td>DB9 Male</td>
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</tr>
</tbody>
</table>
Distributed Control System with EtherCAT Remote I/O Modules

EtherCAT Slave I/O Modules for Machine Automation Solutions

The AMAX-4800 series comprises industrial EtherCAT slave modules equipped with the EtherCAT protocol. The compact size and integrated DIN-rail mounting kit ensure easy installation in cabinets. Euro type pluggable terminal blocks and LED indicators facilitate system setup and maintenance. All modules are protected by an isolation circuit for demanding industrial applications.

**AMAX-4800 Series**

- Suitable for EtherCAT networks
- Supports EtherCAT Distributed Clock (DC) mode and oSyncManager mode
- Wide input and output voltage range
- Isolation protection to 2500 VDC

**More Features**

- **Interface EtherCAT**
  - **Analog Input**: Resolution : 16 bits, Voltage input range : 0 ~ 10 V, ±10 V, Common-mode voltage range : ±275 V, Measuring error : < ±0.1%, Isolation protection : 2,500 VDC
  - **Analog Output**: Resolution : 16 bits, Voltage output range : 0 ~ 5 V, 0 ~ 10 V, ±5 V, ±10 V, Current output range : 0 ~ 20 mA, 4 ~ 20 mA, Load : > 1 kΩ (voltage output), < 625 Ω (current output), Output error : < ±0.1%, Isolation protection : 2,500 VDC

- **Isolated Digital Input**: Logic 0 : 3 V max., Logic 1 : 10 V min. (30 V max.), Protection : 2,500 VDC

- **Isolated Digital Output**: Output voltage range : 5 ~ 40 VDC, Output Current : 350mA/ch (sink) @ 25°C, Protection : 2,500 VDC

- **PhotoMOS Relay Output**: Relay type : PhotoMOS SPST(Form A), Load Voltage : 60V (AC peak or DC), Load current : 1.2A

- **Relay Output**: Relay Type : Form A, Contact Rating (resistive) : 2A@250VAC, 2A@30VDC Max., Switching Power : 500VA, 60W

- **Dimensions**: 120 mm x 120 mm x 40 mm, 168 mm x 120 mm x 40 mm (for AMAX-4855/4856/4862)

- **Operating Temperature**: -20 ~ 60°C (32 ~ 140°F)
<table>
<thead>
<tr>
<th>Category</th>
<th>AMAX-4830-AE</th>
<th>AMAX-4833-AE</th>
<th>AMAX-4834-AE</th>
<th>AMAX-4856-AE</th>
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<td>AMAX-4833-AE</td>
<td>AMAX-4834-AE</td>
<td>AMAX-4856-AE</td>
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<td><strong>Input Channels</strong></td>
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<td>32</td>
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<td><strong>Input Range</strong></td>
<td>Logic 0: 3 V max.</td>
<td>Logic 0: 3 V max.</td>
<td>Logic 1: 10 V min. (30 V max.)</td>
<td>Logic 1: 10 V min. (30 V max.)</td>
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<tr>
<td><strong>Isolation Protection</strong></td>
<td>2500Vdc</td>
<td>2500Vdc</td>
<td>2500Vdc</td>
<td>2500Vdc</td>
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<tr>
<td><strong>Load Voltage</strong></td>
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<td>5 – 40 Vdc</td>
<td>5 – 40 Vdc</td>
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<tr>
<td><strong>Load Current</strong></td>
<td>350mA/ch (sink) @ 25°C</td>
<td>350mA/ch (sink) @ 60°C</td>
<td>250mA/ch (sink) @ 25°C</td>
<td>250mA/ch (sink) @ 60°C</td>
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<td><strong>Isolation Protection</strong></td>
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<td><strong>Output Channels</strong></td>
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<tr>
<td><strong>Load Voltage</strong></td>
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<td>500 mA, 60 W</td>
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<td>1.2A/ch</td>
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<tr>
<td><strong>Response Time</strong></td>
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<td>Turn-off : 0.6ms typical</td>
<td>Turn-on : 1ms typical</td>
<td>Turn-off : 0.6ms typical</td>
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<td><strong>Input Range</strong></td>
<td>Logic 0: 3 V max.</td>
<td>Logic 0: 3 V max.</td>
<td>Logic 1: 10 V min. (30 V max.)</td>
<td>Logic 1: 10 V min. (30 V max.)</td>
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<td>2500Vdc</td>
<td>2500Vdc</td>
<td>2500Vdc</td>
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<td>60V (AC peak or DC)</td>
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<tr>
<td><strong>Isolation Protection</strong></td>
<td>1500Vdc</td>
<td>1500Vdc</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>Response Time</strong></td>
<td>Turn-on : 1ms typical</td>
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</tr>
<tr>
<td><strong>Communication Cycle Time</strong></td>
<td>100us</td>
<td>100us</td>
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</tr>
<tr>
<td><strong>Dimensions</strong></td>
<td>120 mm x 120 mm x 40 mm</td>
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<td>168 mm x 120 mm x 40 mm</td>
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<th>Category</th>
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<th>AMAX-4860-AE</th>
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<td>8</td>
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<td><strong>Input Channels</strong></td>
<td>Logic 0: 3 V max.</td>
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<td>Logic 1: 10 V min. (30 V max.)</td>
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</tr>
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Irrtum und Änderungen vorbehalten - auch ohne vorherige Ankündigung. Verwendete Hardware- und Softwarebezeichnungen, Marken sowie Firmennamen können eingetragene Warenzeichen sein und unterliegen somit den gesetzlichen Bestimmungen. / Information in this document is subject to change without prior practice. The software and hardware designations or brand names used in this text are in most cases trademarks of their respective companies and are thus subject to law.