

# Advantech USB Data Acquisition Series



## Introduction

USB data acquisition products are becoming very popular in the field. Many customers in Asia have utilized our plug-in data acquisition, motion control and communication cards to develop machines, and then distribute them to China, Thailand, Vietnam ... and so forth. So far the machine builders needed to bring many tools & spare parts to the end-customer for after service work.

Now we offer a better solution, Engineers can just use a Notebook and a USB data acquisition module to do the job. Because all the specifications are the same, engineers can directly evaluate the program and troubleshoot on their notebooks.

Besides, the embedded controller is well proved by several industrial applications, and now can provide faster fanless low-power CPU with USB 2.0 interface. The idea is coming to separate computing platform and data acquisition interface into two parts.

The technology of computing platform is always changing. People can enjoy high-stability and high-performance computing platform by leverage those latest embedded technology, also to save the maintenance cost and system upgrade effort.

On the other hand, the data acquisition and control interface technology is not changing frequently. Most of the time those interface will comes together with cable and terminal board, engineer intend to keep the same configuration to provide the stable and reliable data acquisition and control system. That means its life cycle is longer than computing platform, and engineer can reduce the effort by maintain two parts separately.

The transmission rate of USB 2.0 is 480Mb/s, which can provide the same performance as general purpose PCI-bus data acquisition and control cards. With Advantech's innovative designed on the screw-type USB connection cable, the Advantech USB-based data acquisition and control modules are the next generation solution for industrial test and measurement applications.

## Portable, Easy to Install & Use

### The Key Benefits of USB DAQ Modules Are:

- **Plug & Play**
  - Advantech USB data acquisition series features the plug & play function that users can install/setup the devices and ready to go within seconds.
- **Single Cable Connection with PC**
  - The USB series connects to the user's host system via a shielded USB cable and are powered through this cable, which saves users from the annoying wiring and extra accessory costs.
- **Best Companion for Notebook**
  - The bus-powered design and compact size make Advantech USB data acquisition series the best mate for the notebook.

## Features

- USB 2.0 Hub and data acquisition & control modules
- Full family extend compatible with PCI-bus data acquisition & control cards
- Versatile mounting methods – wall, panel, DIN-rail, and VESA
- Palm sized and bus-powered
- Wiring terminal on modules
- Ready-to-Use software & drivers
  
- **480 Mb/s Transmission Rates**
  - High speed data transmission realizes the high-performance and high-accuracy on the USB data acquisition.

## Design Concepts

- **Efficient**
  - Advantech USB data acquisition series needs no external power source and can get rid of the power cord and adapters, give users the most convenience on the field side applications.
- **Portable**
  - The palm-sized and light-weight USB data acquisition series is suitable for hand carry when you travel to exhibitions or business shows.
- **Fast**
  - 480Mbps data transmission rate is 20000 times faster than traditional RS-485 based I/O, make the USB series possible to achieve heavy-loaded tasks.
- **Integrated**
  - All the analog input, analog out, digital input, and digital output functions are integrated into the USB series. Users can get multiple functions by getting only module on hand.
- **Convenient**
  - The built-in wiring terminals facilitate the operations without using any wiring cables or terminal boards.



Efficient



Portable



Speedy



Integrated



Convenient

## Extending Benefits to PCI Card Users

Our concept is to keep same specification as our existed PCI-bus data acquisition cards.

- Same specifications and drivers as PCI cards
- For R&D, easy to develop and diagnose the system
  - The same H/W and S/W between development and run-time
  - Save time and effort on simulation and troubleshooting

USB Module	PCI Card	Functions
USB-4716	PCI-1716	200kS/s, 16-bit multifunction
USB-4750	PCI-1750	32-ch Isolated Digital IO
USB-4751	PCI-1751	48-ch TTL Digital IO
USB-4761	PCI-1761	8-ch Relay and 8-ch Isolated DI
USB-4671	PCI-1671UP	GPIB device

\*Note: For more detailed specifications, please refer to the respective product pages.

## Mounting Scheme of USB DAQ Modules

Advantech has provides versatile mounting methods to fit the demand in the field.

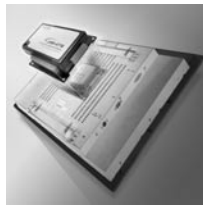
- **Wall/panel mount**
  - The wallmount kit can help users hang their modules on the wall or other flat surfaces.
- **DIN-rail mount**
  - Advantech's USB DAQ modules come with a bracket that facilitates the DIN-rail mounting onto some streamlined system with Industry standards
- **VESA mount**
  - The VESA bracket can mount the USB data acquisition module to the VESA-ready appliances, such as Advantech's touch panel computers (TPC series) and the flal panel monitors (FPM series).



**DIN-rail Mounting**



**Panel/Wall**



**VESA Mounting**

## Lockable USB Connector

The standard USB cable is designed for easy plug and remove, but it's not suitable in industrial application. However the USB 2.0 is one of the high-speed and high-reliable extension interface, Advantech invest R&D effort to provide screw-type USB connection cable. With this innovative cable, the USB-based data acquisition module can be connected firmly.



**Robust & Anti-vibration**

Advantech also provide another innovated accessory for make the other end of USB cable can be connected to UNO and TPC's USB port firmly. We provide the complete embedded data acquisition and control solution.

## Software Support for the USB DAQ Series

Advantech has provides five software solution for USB-based data acquisition and control modules.

- **WaveScan**
  - Wavescan is a real-time waveform display utility capable of displaying on the screen and storing the incoming data into users' HDD. In the Version 2.0, moreover, Wavescan extend its support list to all our PCI cards. The ActiveDAQ-based design concept gives more flexibility to the users by designing their own Wavescan edition.
- **ActiveDAQ Pro**
  - ActiveDAQ Pro is a collection of ActiveX controls for performing I/O operations within any compatible ActiveX control container, such as Visual Basic, Delphi, etc. You can easily perform the I/O operations through properties, events and methods. With ActiveDAQ Pro, you can perform versatile I/O operations to control your Advantech devices.
- **LabVIEW driver**
  - Advantech 32-bit LabVIEW drivers enable you to use Advantech plug-in I/O cards with LabVIEW software. The LabVIEW driver forms an interface between Advantech DA&C device DLL drivers, which contain all the relevant functions to control Advantech plug-in I/O cards and the LabVIEW software. LabVIEW driver forms a VI (virtual instrument) in the LabVIEW package, which enables other applications to be used in conjunction with Advantech plug-in I/O cards
- **DLL driver**
  - For Windows programmers, Advantech provides the complete set of Windows platform DLL drivers and OCX support for Windows 2000 and XP.
- **GeniDAQ**
  - Advantech GeniDAQ is a 32-bit Microsoft Windows-based graphical application software for data acquisition. It supports Windows NT and Windows 95/98, as well as Windows CE for Runtime applications. This software features multi-threaded technology for optimizing application performance, OPC (OLE for Process Control) standard compliant driver interface for connecting diverse I/O devices, and TCP/IP networking for integrating real time data between Windows NT and Windows CE platforms.