USB-4702

10 kS/s, 12-bit Multifunction USB Module

Packing List

Before installation, please make sure that you have:
- USB-4702 USB Module x 1
- Shielded USB 2.0 Cable (1.8m) x 1
- Driver CD
- Startup Manual

If anything is missing or damaged, contact your distributor or sales representative immediately.

User Manual

For more detailed information on this product, please refer to the USB-4702 User Manual on the CD-ROM (PDF format).

Documents\Hardware Manuals\USB\USB-4702

Declaration of Conformity

FCC Class A

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause interference in which case the user is required to correct interference at his own expense.

CE

This product has passed the CE test for environmental specifications when shielded cables are used for external wiring. We recommend the use of shielded cables. This kind of cable is available from Advantech. Please contact your local supplier for ordering information.

Overview

USB-4702 is a 12-bit multifunction module with 10 kS/s maximum sampling rate. It provides 8 single-ended/4 differential AI channels along with 2 AO channels. It also offers 16 TTL DI/O channels for on-off control applications. Besides, one 32-bit counter channel is available onboard.

Notes

Installation

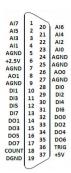#### Software Installation

Hardware Installation

After the device driver installation is completed, you can now go on to install the USB-4702 module in any USB port that supports the USB 1.1/2.0 standard, on your computer.

Please follow the steps below to install the module on your system:

1. Touch the metal part on the surface of your computer to neutralize the static electricity that might be in your body.
2. Plug your USB module into the selected USB port. Use of excessive force must be avoided; otherwise the module might get damaged.

ADVANTECH
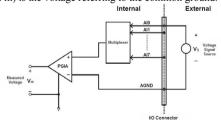
Pin Assignments

Signal Name	Reference	Direction	Description
AI<0…7>	AGND	Input	Analog Input Channels 0 through 7.
AO0, AO1	AGND	Output	Analog Input Channels 0 and 1.
AGND	-	-	Analog Ground.
DI<0…7>	DGND	Input	Digital Input Channels 0 through 7.
DO<0…7>	DGND	Output	Digital Output Channels 0 through 7.
DGND	-	-	Digital Ground.
COUNT	DGND	Input	Counter Input.
TRIG	DGND	Input	A/D External Trigger.
+2.5V	AGND	Output	2.5V DC Voltage Output.
+5V	AGND	Output	5V DC Voltage Output.

Input Connections

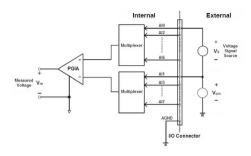### Analog Input - Single-ended Channel Connections

The single-ended input configuration has only one signal wire for each channel, and the measured voltage (Vm) is the voltage referring to the common ground.

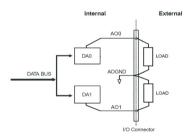### Analog Input - Differential Channel Connections

The differential input channels operate with two signal wires for each channel, and the voltage difference between both signal wires is measured. On USB-4702, when all channels are configured to differential input, up to 4 analog channels are available.

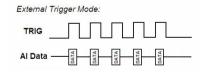## Input Connections (Cont.)

Analog Output Connections

USB-4702 provides two analog output channels, AO0 and AO1. The figure below shows how to make analog output connections on USB-4702.

External Trigger Source Connection

In addition to pacer triggering, USB-4702 also allows external triggering for A/D conversions. A low-to-high edge coming from TRIG will trigger an A/D conversion on the USB-4702 board.

Note!: Don't connect any signal to the TRIG pin when the external trigger function is not being used.

Note!: If you use external triggering for A/D conversions, we recommend you choose differential mode for all analog input signals, so as to reduce the cross-talk noise caused by the external trigger source.