USB-4750

32-channel Isolated Digital I/O USB Module

Packing List

Before installation, please make sure that you have received the following:

- USB-4750 Module with DIN-rail mounting kit
- Shielded USB 2.0 Cable (1.8 m)
- Companion DVD (DLL driver included)
- 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-4750 User Manual on the DVD (PDF format). CD:\Documents\Hardware Manuals\USB\USB-4750

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

The Advantech USB-4750 is a powerful data acquisition (DAS) module for the USB port. It features a unique circuit design and complete functions for data acquisition and control.

Specifications

Isolated Digital Input

Number of Input Channels	16
Interrupt Inputs	2 (IDI0,IDI8)
Optical Isolation	2500 V_{DC}
Optical Isolator response time	50 us
Input Voltage	V_{IH}(max.) = 60 V_{DC} V_{IH}(min.) = 5 V_{DC} V_{IL}(max.) = 2 V_{DC}

Isolated Digital Output

Number of Output Channels	16
Optical Isolation	2500 V_{DC}
Optical Isolator response time	50 us
Supply Voltage	5~40 V_{DC}
Sink Current	200 mA max. /channel

Counter / Timer

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Channels	2 independent
Resolution	32-bit counters (low 16bit by hardware and high 16bit by firmware)
Base Clock	External 1MHz max. 2 independent program-mable clock sources
Frequency Measurement	Input frequency from 0.1Hz to 1MHz

General Specifications

I/O Connector Type	10-pin screw terminal*4
Dimensions	132 x 80 x 32 mm (5.2" x 3.2" x 1.3")
Power Consumption	+5V @ 350 mA (max.)
Temperature	Operating: 0 ~ +60℃ (32 ~ 140°F) Storage: -20 ~ +70℃ (-4 ~ 158°F)
Relative Humidity	5 – 95° % RH non-condensing (refer to IEC 68-2-3)
Certification	CE / FCC

Notes

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Hardware Installation

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. Hold the module only by its edges. Plug the module firmly into place. Use of excessive force must be avoided; otherwise the module might get damaged.

Pin Assignments
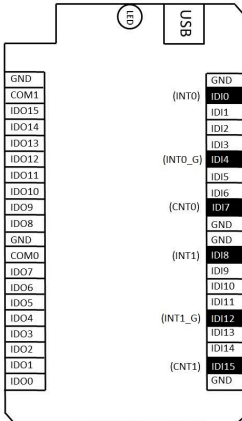
Signal	Ref.	Direction	Description
IDI<0~15>	GND	Input	Isolated digital input channels.
INT<0,1>	INT_G	Input	Interrupt trigger sources.
INT<0,1>_G	-	-	Gate for interrupt pins
CNT<0,1>	GND	Input	Isolated input counters.
IDO<0~15>	GND	Output	Isolated digital output channels.
COM<0,1>	-	-	Common pins for connecting inductive loads of isolated output channels.
GND	-	-	Ground.

NOTES:

IDI0 shares the same pin with INT0

IDI4 shares the same pin with INT0_G

IDI7 shares the same pin with CNT0

IDI8 shares the same pin with INT1

IDI12 shares the same pin with INT1_G

IDI15 shares the same pin with CNT1

LED Definitions

The USB Module is equipped with an LED indicator to show the current status of the device. When you plug the USB device into the USB port, the LED indicator will blink five times and then stay lit to indicate that it is on. Please refer to the following table for detailed LED indicator status information.

LED Status	Description
ON	Device ready to work
OFF	Device not ready to work
Slow Blinking (5 times)	Device initializing
Fast Blinking	Device working

Isolated Digital I/O Connections

Dry/Wet Contact Support for Digital Input

Each digital input channel accepts either dry contact or 5 ~ 60 V_{DC} wet contact inputs. Dry contact capability allows the channel to respond to changes in external circuitry (e.g., the closing of a switch in the external circuitry) when no voltage is present in the external circuit. The following figure shows external circuitry with both wet and dry contact components, connected as an input source to one of the card's digital input channels.
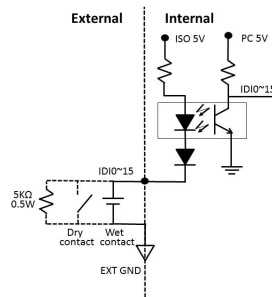
Isolated Digital Output Connections

Each of 8 isolated digital output channels comes equipped with a Darlington transistor. Every 8 output channels share common collectors and integral suppression diodes for inductive loads. Channels 0 ~ 7 use COM 0, and channels 8 ~ 15 use COM 1 as a common pin. If an external voltage (5 ~ 40 V) is applied to an isolated output channel (IDO 0 ~ IDO 15) while it is being used as an output channel, the current will flow from the external voltage source to the card. Please take care that the current through each IDO channel not exceed 200 mA. The following figure shows how to connect an external output load to the card's isolated outputs.