

AIIS-1750

32-Channel Isolated Digital I/O Card

Startup Manual

Packing List

Before installation, please ensure that the following items have been included in your shipment:

- 1 x AIIS-1750 card
- 1 x Quick start user manual

If any of the above items are missing or damaged, contact your distributor or sales representative immediately.

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 such cases, users are required to correct the interference at their 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 type of cable is available from Advantech. Please contact your local supplier for ordering information.

Overview

The AIIS-1750 offers isolated digital input and output channels with up to 2,500 V_{DC} isolation protection, making them ideal for industrial applications that require high-voltage isolation. Additionally, the AIIS-1750 features a digital filter on each channel.

For more information about this or other Advantech products, please visit our website at

<http://www.advantech.com>

For technical support and services, visit

<https://www.advantech.com/support/>

This startup manual is for AIIS-1750.

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Specifications

Isolated Digital Input

Number of Channels	16 (bi-directional)
Optical Isolation	2,500 V _{DC}
Opto-Isolator Response Time	100 μs
Overvoltage Protection	70 V _{DC}
Input Voltage	VIH (max.) 50 V _{DC}
	VIH (min.) 5 V _{DC}
	VIL (max.) 2 V _{DC}

Isolated Digital Output

Number of Channels	16
Optical Isolation	2,500 V _{DC}
Output Voltage Open Collector	5 ~ 40 V _{DC}
Sink/Source Current	500 mA max./channel

General

I/O Connector Type	37-pin box header	
Dimensions	96 x 102 mm (3.8 x 4.0 in)	
Power Consumption	Typical	+3.3 V @ 280 mA +12 V @ 330 mA max.
	Max..	+3.3 V @ 420 mA +12 V @ 400 mA
Temperature	Operating	0 ~ 50 °C (32~ 122 °F) (refer to IEC 60068)
	Storage	-20 ~ 70 °C (-4 ~ 158 °F)
Relative Humidity	5 ~ 95% RH non-condensing (refer to IEC 60068-2-3)	
Certification	CE/FCC	

Quick Start

Digital Filter Time

Digital Filter Time [sec.] = $2^n / (8 \times 10^6)$, n = setting data (0 - 20)

Setting Data (n)	Digital Filter Time	Setting Data (n)	Digital Filter Time	Setting Data (n)	Digital Filter Time
0 (00h)	The filter function is not used.	7 (07h)	16 μ sec	14 (0Eh)	2.048 msec
1 (01h)	0.25 μ sec	8 (08h)	32 μ sec	15 (0Fh)	4.096 msec
2 (02h)	0.5 μ sec	9 (09h)	64 μ sec	16 (10h)	8.192 msec
3 (03h)	1 μ sec	10 (0Ah)	128 μ sec	17 (11h)	16.384 msec
4 (04h)	2 μ sec	11 (0Bh)	256 μ sec	18 (12h)	32.768 msec
5 (05h)	4 μ sec	12 (0Ch)	512 μ sec	19 (13h)	65.536 msec
6 (06h)	8 μ sec	13 (0Dh)	1.024 msec	20 (14h)	131.072 msec

Pin Assignments

IDI 0	1	IDI 1
IDI 2	2	IDI 3
IDI 4	3	IDI 5
IDI 6	4	IDI 7
IDI 8	5	IDI 9
IDI 10	6	IDI 11
IDI 12	7	IDI 13
IDI 14	8	IDI 15
EGND	9	EGND
COM0	10	EGND
IDO 0	11	IDO 1
IDO 2	12	IDO 3
IDO 4	13	IDO 5
IDO 6	14	IDO 7
IDO 8	15	IDO 9
IDO 10	16	IDO 11
IDO 12	17	IDO 13
IDO 14	18	IDO 15
COM1	19	

Pin Use Description

IDI_n (n = 0 ~ 15): isolated digital input

IDO_n (n = 0 ~ 15): isolated digital output

COM 0 and 1:

Free wheeling common diode for IDO

Every 8 output channels share 1 COM pin

EGND: external ground for IDO and IDI

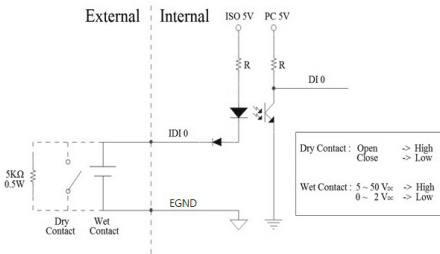
Connections

Isolated Digital Input

Each of the 16 isolated digital input channels accepts dry contacts or 5 ~ 50 V_{DC} voltage inputs. All 16 input channels share 3 ground pins.

Warning! Be careful when connecting the digital input cables. Never apply a negative voltage to an isolated input pin as this may damage the AIIS-1750 card.

Note for wet contacts: Malfunctions may occur in cases where the internal resistance of a voltage source under wet contacts is significant (>5 kΩ). It is advisable to connect a parallel 5 kΩ, 0.5 W resistor to avoid a voltage rise inside the voltage source. The following figure shows how to connect an external input source to one of the card's isolated input channels.



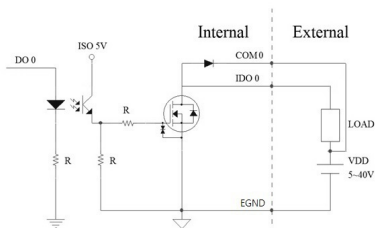
Isolated Digital Output

Each of 16 isolated digital output channels is equipped with a Darlington transistor. Every 8 output channels share common collectors and integral suppression diodes for inductive loads.

Channels 0 ~ 7 use COM0, and channels 8 ~ 15 use COM1 as a common pin.

Note: If external voltage (5 ~ 40 V) is applied to an isolated output channel (IDO 0 ~ IDO 15) while the channel is in use, the current will flow from the external voltage source to the card. Take care to ensure that the current through each GND pin does not exceed 500 mA.

The figure below shows how to connect an external output load to the card's isolated outputs.



Installation

Software Installation

The product's user manual, drivers, and programming SDK are available on the Advantech website (accessible via the link below). Simply search the product name "AIIS-1750".

<http://support.advantech.com.tw>

The screenshot shows the Advantech website's support page. At the top, there is a navigation bar with the Advantech logo and the tagline 'Enabling an Intelligent Planet'. Below the navigation bar, there is a 'Support & Download' section. The main content area features a banner for 'AdvantechCare Extended Warranty Service' with the tagline 'A better way to protect your products with budget'. Below the banner, there is a 'Support for Your Products' section with a keyword search bar and a 'Quick Service' sidebar. The sidebar includes links for 'Register My Product', 'Open Service Request', 'Create a FAQ', 'Check My Risk', 'Check Warranty', 'Download Manuals', and 'Check Product Status'.