MOS-1110Y-0101E Isolated 16 DI/8 DO, 1-Ch, DB37, PCIe I/F

User Manual

The MOS-1110Y-0101E is a 16-channel isolated digital input and 8-channel isolated digital output card for the PCI Express bus.

The MOS-1110Y-0101E's isolated digital input channels are ideal for digital input in noisy environments or with floating potentials.Each isolated digital input supports both dry contact and wet contact, designated by jumper settings, so that it can easily interface with other devices. Moreover, MOS-1110Y-0101E also offers counter input channels.

This manual gives you inspection and installation of hardware and drivers.

1. Packing List

MOS-1110Y-0101E

- MOS-1110Y miniPCIe card
- I/O Plate card
- Wire cable
- Startup Manual x 1

Note: If any of these items are missing or damaged, please contact your distributor or sales representative immediately.

2. Initial Inspection

You should find the following items inside the shipping package:

- MOS-1110Y miniPCIe card
- I/O Plate card
- Wire cable
- Startup Manual x 1

The MOS-1110Y-0101E card harbors certain electronic components vulnerable to electrostatic discharge (ESD). ESD could easily damage the integrated circuits and certain components if preventive measures are not carefully paid attention to. Before removing the card from the antistatic plastic bag, you should take following precautions to ward off possible ESD damage:

- Touch the metal part of your computer chassis with your hand to discharge static electricity accumulated on your body. Or one can also use a grounding strap.
- Touch the anti-static bag to a metal part of your computer chassis before opening the bag.
- Take hold of the card only by the metal bracket when removing it out of the bag.

After taking out the card, first you should:

Inspect the card for any possible signs of external damage (loose or damaged components, etc.). If the card is visibly damaged, please notify our service department or our local sales representative immediately. Avoid installing a damaged card into your system.

Also pay extra caution to the following aspects to ensure proper installation:

- Avoid physical contact with materials that could hold static electricity such as plastic, vinyl and Styrofoam.
- Whenever you handle the card, grasp it only by its edges. DO NOT TOUCH the exposed metal pins of the connector or the electronic components.

Note!

Keep the anti-static bag for future use. You might need the original bag to store the card if you have to remove the card from PC or transport it elsewhere.

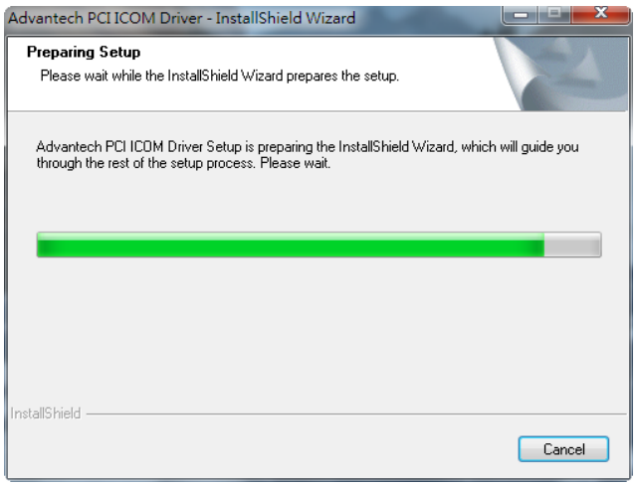
3. Installation & Setup

3.1 Driver Installation

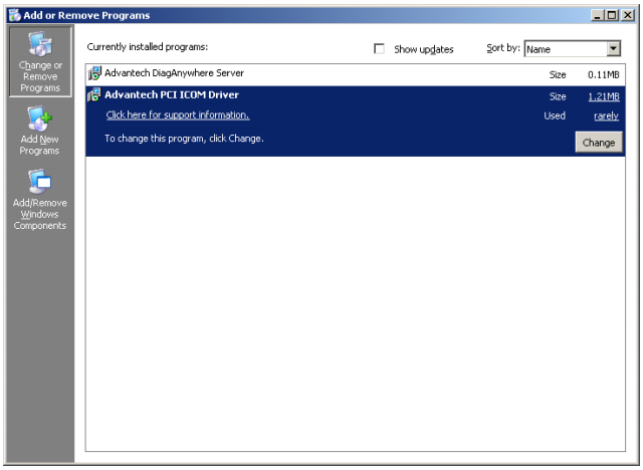
For MOS-1110 driver download, please visit Advantech website:

http://support.advantech.com/Support/SearchResult.aspx?keyword=MOS-1110Y-0101E&searchtabs=BIOS,Certificate,Datasheet,Driver,Firmware,Manual,Online%20Training,Software%20Utility,Utility,FAQ,Installation,Software%20API,Software%20API%20Manual,3D%20Model

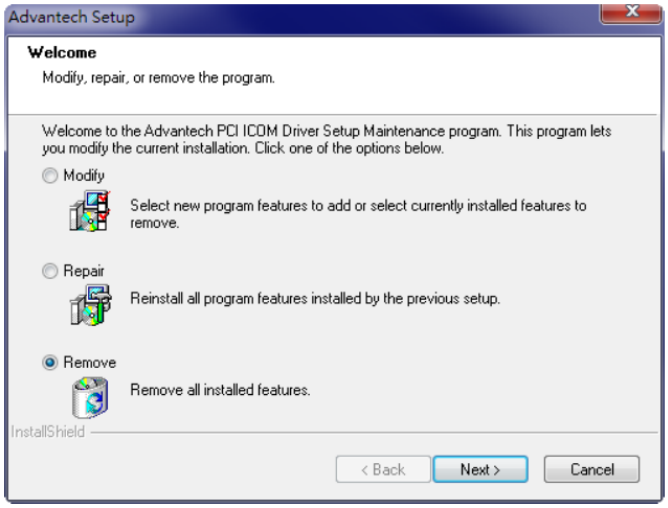
1. Download and double click the .exe file from the website, then the driver will begin to setup.



2. In the Control Panel, click **Advantech PCI ICOM Driver** then uninstall.



3. Choose "Remove" then click "**Next**" then start to remove all installed components.



3.2 Hardware Installation

After the device driver installation is completed, you can now go on to install the MOS-1110Y-0101E card in any mini-PCIe slot on your computer. Follow the steps below to install the card on your system.

1. Turn off your computer and unplug the power cord and cables. TURN OFF your computer before installing or removing any components on the computer.
2. Remove the cover of your computer.
3. Remove the screws from the base plate and lift to remove.
4. Insert the mini-PCIe card and secure the screws.
5. Remove the screws to remove the blanking plate.
6. Insert the MOS Module through the blanking plate hole and secure the screws. Attach the MOS Module to the mini-PCIe card with the cable.
7. Replace the cover of your computer chassis. Re-connect the cables you removed in step 2.
8. Plug in the power cord and turn on the computer.

After the MOS-1110Y-0101E card is installed, you can verify whether it is properly installed on your system through the Device Manager:

1. Access the Device Manager through Control Panel/System/Device Manager.
2. The device name of the MOS-1110Y-0101E should be listed on the Device Manager tab.

After your card is properly installed on your system, you can now configure your device using the Advantech Navigator after you install DAQNavi on your computer. (DAQNavi API Download Link: http://support.advantech.com/Support/SearchResult.aspx?keyword=DAQNavi&searchtabs=BIOS,Certificate,Datasheet,Driver,Firmware,Manual,Online%20Training,Software%20Utility,Utility,FAQ,Installation,Software%20API,Software%20API%20Manual,3D%20Model&select_tab=Software%20API)

4. Signal Connections

4.1 Switch and Jumper Settings

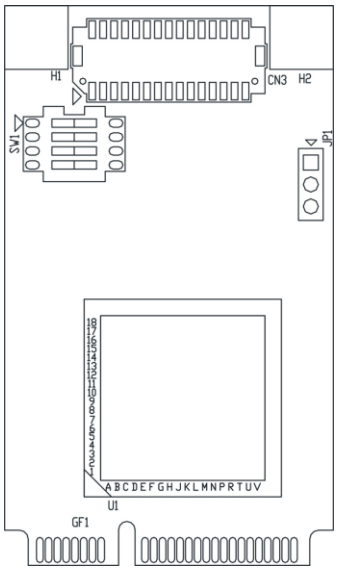


Figure 4.1: Card Connector, Jumper and Switches

And following table shows jumper setting and board ID setting of MOS-1110Y-0101E.

Table 4.1: Summary of Jumper Settings

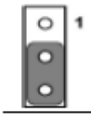
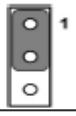
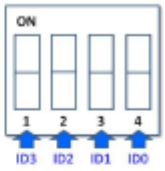
Jumper Name		Function Description
JP1		Load default while reset (default)
		Keeps the last status after reset (enabled)

Table 4.2: Board ID setting (SW1)

ID3	ID2	ID1	ID0	Board ID
1	1	1	1	0
1	1	1	0	1
1	1	0	1	2
1	1	0	0	3
1	0	1	1	4
1	0	1	0	5
1	0	0	1	6
1	0	0	0	7
0	1	1	1	8
0	1	1	0	9
0	1	0	1	10
0	1	0	0	11
0	0	1	1	12
0	0	1	1	13
0	0	0	1	14
0	0	0	0	15



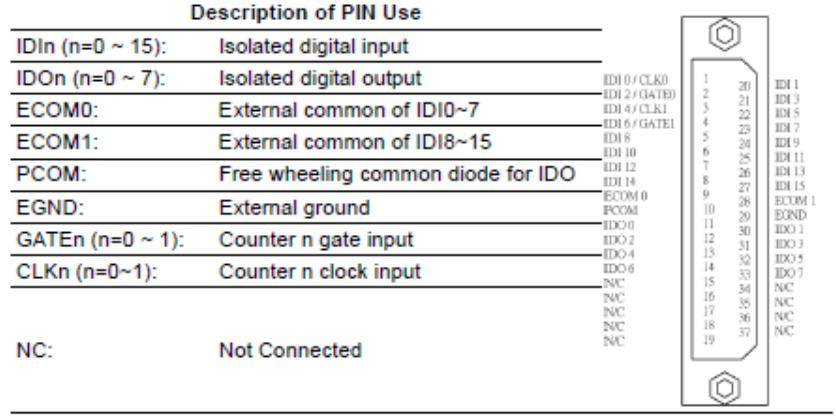
4.2 Signal connections

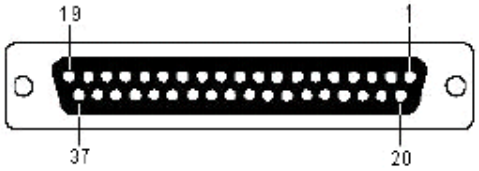
4.2.1 Pin Assignment

The following tables and figures show the pin assignments of CN1 connector on the bracket to the modular card. If you see two ports or above, it will use the same pin definition of this one.

Table 4.3: MOS-1110Y-0101E Pin Definition on iDoor Bracket

Description of PIN Use	
IDIn (n=0 ~ 15):	Isolated digital input
IDOn (n=0 ~ 7):	Isolated digital output
ECOM0:	External common of IDI0~7
ECOM1:	External common of IDI8~15
PCOM:	Free wheeling common diode for IDO
EGND:	External ground
GATEn (n=0 ~ 1):	Counter n gate input
CLKn (n=0~1):	Counter n clock input
NC:	Not Connected





Isolated Digital Input

Each of the 16 isolated digital input channels accept voltages from 0 to 30 V. Every eight input channels share one external common. (Channels 0 ~ 7 use ECOM0. Channels 8 ~ 15 use ECOM1.) The following figure shows how to connect an external input source to the card's isolated inputs.

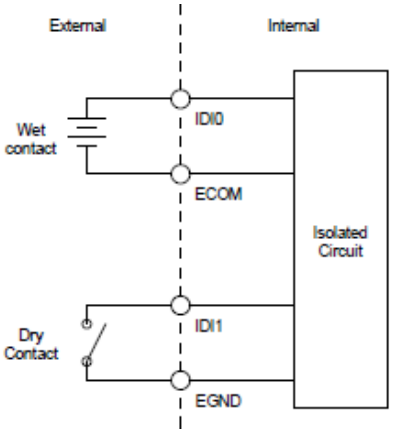


Figure 4.2 Isolated DI Connection

Isolated Digital Output

If the external voltage source (5~40 V) is connected to each isolated output channel (IDO) and its isolated digital output turns on (200 mA max./ch), the card's current will sink from the external voltage source. DB37 provides one EGND pin for IDO connections.

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

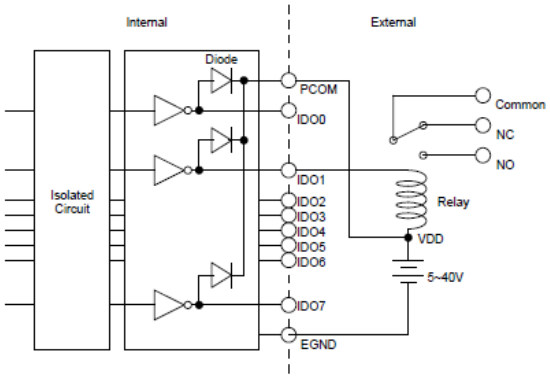


Figure 4.3 Isolated Digital Output Connection

5. Appendix

5.1 Specifications

Isolated Digital Input

Input Channels	16
Input Voltage	Logic 0: 3 V max. (0 V_{DC} min.)
	Logic 1: 10 V min. (30 V_{DC} max.)
Input Current	10 V_{DC} @ 2.97 mA
	20 V_{DC} @ 6.35 mA
	30 V_{DC} @ 9.73 mA
Interrupt Capable Ch.	2 (IDI0, IDI8)
Isolation Protection	2,500 V_{DC}
Overvoltage Protection	70 V_{DC}
ESD Protection	4KV (Contact), 8KV (Air)
Opto-Isolator Response	50 us

Counter

Channels	2
Resolution	32 bit
Max. Input Frequency	1 KHz

Isolated Digital Output

Output Channels	8
Output Type	MOSFET
Isolation Protection	2,500 V_{DC}
Output Voltage	5 ~ 30 V_{DC}
Sink Current	100 mA max./channel
Opto-isolator Response	50 us

General

I/O Connector Type	37-pin D-Sub female	
Dimensions	Module	51 x 30 x 12.4mm
	I/O Plate	81 x 19.4 x 41mm
Power Consumption	Typical	+3.3V @ 400 mA
	Max	+3.3V @ 520 mA
Temperature	Operation	-20~60°C(-4~140°F)
	Storage	-40~85°C(-40~185°F)
Relative Humidity	5~90%RH non-condensing	
Certification	CE certified	

5.2 Block Diagram

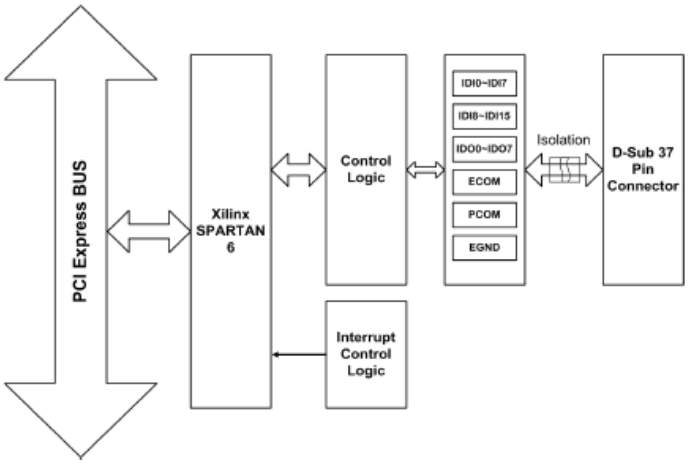


Figure 5.1: MOS-1110Y Block Diagram