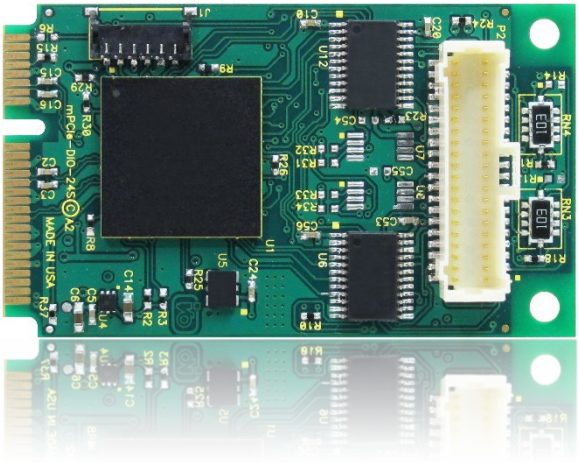
Isolated Digital Input & FET Output PCI Express Mini Card Data Sheet

Features

Models mPCIe-IDIO-8 mPCIe-IDO-8 and mPCIe-IDIO-4



- PCI Express Mini Card (mPCIe) type F1, with latching I/O connectors
- Change-of-State (CoS) detection IRQ generation
- 9" cable (228mm), standard
- Panel-mountable DB-37F Isolation Module
- 8 or 4 optically-isolated non-polarized inputs up to 31VDC/AC
- 8 or 4 fully protected high-side FET outputs switch from 5 to 34VDC at up to 2A
- 8 LVTTL I/O lines programmable as inputs or outputs in groups of 4 lines
- Available Industrial Temp (-40°C to +85°C), RoHS standard

Functional Description

The mPCIe-IDIO-8 consists of a type F1 PCI Express Mini Card (mPCIe) interface board that connects to a Mobile-ITX-sized, DB-37F Isolation Module via an included 9" cable. That module is designed to be easily panel-mounted in any application environment. It uses the high speed PCI Express bus to transfer digital data to and from the card. The digital I/O is compatible with 8255 PPI chips making it easy to program. This allows for simple and trouble-free migration from other ACCES PCI and PCI Express digital I/O cards, but also provides for advanced features enabled by the onboard FPGA logic.

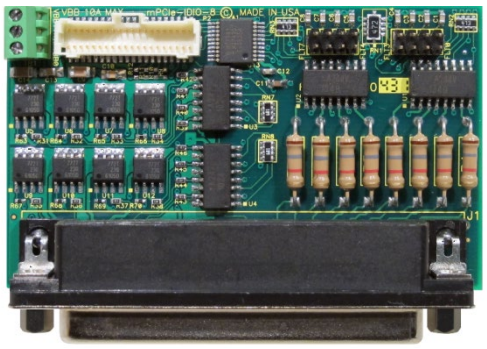
The mPCIe-IDIO cards are well suited to complex environments, mitigating otherwise challenging ground-loops, high-common-mode, and transient voltage spikes common in electrically-noisy industrial or factory locations. The broad voltage compatibility and high current outputs allows use in a wide range of applications.

The non-polarized inputs support both AC and DC, and configuration jumpers allow 4.7ms input filters to be enabled per-channel, as desired – required for AC use. The Isolated Inputs support voltages from 3 to 31 VDC/VAC RMS [40Hz to 10000Hz], as well as standard 12/24 AC control transformer signals.

The outputs are fully protected High-Side Power MOSFETs capable of switching from 5 to 34VDC at up to 2A continuous-current load with 10A max current allowed (VBB0 = 5A, VBB1 = 5A).

Special Order

Please contact ACCES with your precise requirement. Examples of special orders would be conformal coating, custom software or product labelling, and more. We will work with you to provide *exactly* what is required.



Accessories

Available accessories include:	
ADAP37M-MINI, STB-37	37-pin Screw Terminal Accessories
mPCIe-HDW-KIT2	Mounting hardware for 2mm
mPCIe-HDW-KIT2.5	Mounting hardware for 2.5mm

Software

The card is supported for use in most operating systems and includes a free DOS, Linux, and Windows 2000/XP/2003/Vista/7/8/10 compatible software package. This package contains sample programs and source code in Visual Basic, Delphi, and Visual C++ for Windows. Also provided is a graphical setup program in Windows. Linux support includes installation files and basic samples for programming from user level via an open source kernel driver. Third party support includes a Windows standard DLL interface usable from the most popular application programs, and includes LabVIEW 8.5+ VIs. Embedded OS support includes Windows XPe, WES7, WES8, etc. Full register-level documentation of all features ensures easy compatibility in any application environment.

ACCES I/O PRODUCTS, INC.

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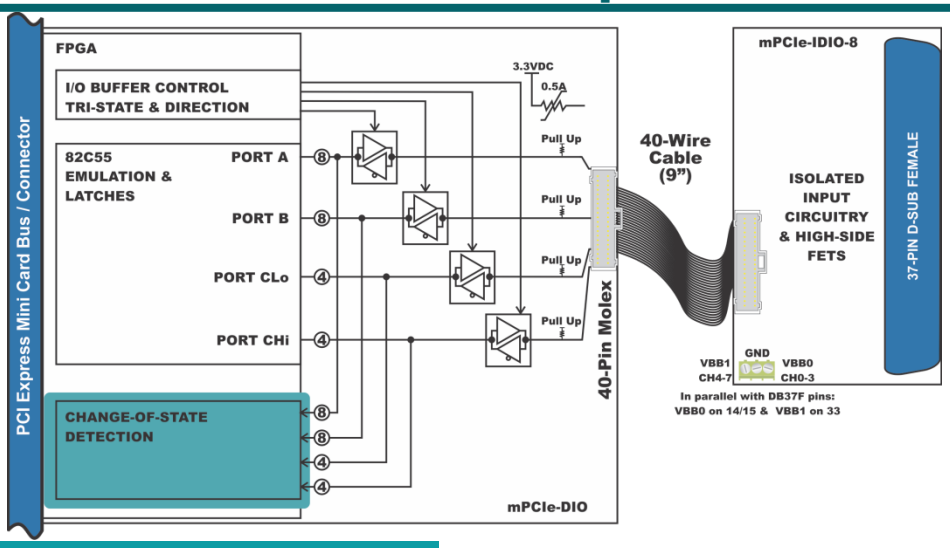

PC Interface

PCI Express Mini Card	Type F1 "Full Length"

Note: Device's connector violates component height restrictions

Isolated Inputs

Number		8 (or 4)
Type		Non-polarized, optically isolated from each other and from the computer (CMOS compatible)
Voltage		3 to 31 DC or AC RMS (40 to 10000Hz)
Isolation		300V channel-to-ground & 150V channel-to-channel
Resistance		1.8KΩ in series with opto-coupler
Filter Response	Rise-time	4.7 ms
	Fall-time	4.7 ms
No-Filter	Rise-time	10 µs
	Fall-time	30 µs

FET Outputs & Digital I/O Lines

Number		8 (or 4)
Type		High Side Power MOSFET Switch. Protected against short-circuit, over-temp, ESD; drives inductive loads.
Voltage Range		5-34VDC recommended (customer supplied) for continuous use, 40VDC absolute maximum
Current Rating		2A maximum
Turn On time		90µsec (typical)
Turn Off time		110µsec (typical)
Digital Inputs 8 or 4 LVTTL	Logic High	2.0V to VCCIO (3.3VDC, 5VDC tolerant)
	Logic Low	0V to 0.8V
Digital Outputs 8 or 4 LVTTL	Logic High	2.0V (min) 24mA source
	Logic Low	0.55V (max) 24mA sink

Environmental

Temperature	Operating	0°C to 70°C (order "-T" for -40° to 85°C)
	Storage	-65° to 150°C
Humidity		5% to 95%, non-condensing
Power required		+3.3VDC @ 360mA (typical)

Physical

mPCIe board characteristics		
Weight		6.2 grams
Size	Length	50.95mm (2.006")
	Width	30.00mm (1.181")
I/O connector	On-card	Molex 501190-4017 40-pin latching
	mating	Molex 501189-4010

Isolation Module characteristics		
Weight		38.2 grams (+ 11.2 grams for the 9" cable)
Size (Mobile-ITX sized)	Length	2.952"
	Width	1.772"
I/O connector	On-module	Female, D-Sub Miniature, 37-pin
	mating	Male, D-Sub Miniature, 37-pin

Signal Definitions	
Signal	Meanings
IN A	Non-Polarized Isolated Input "A" Side
IN B	Non-Polarized Isolated Input "B" Side
OUT +	FET Output pin
RETURN	OUT - for all FETs (0-7)*
VBB 0	Compliance Voltage for FETs 0-3*
VBB 1	Compliance Voltage for FETs 4-7*
LVTTL I/O	Digital I/O pin (3.3VDC, +5VDC tolerant)
GND**	Mandatory Ground return connection for LVTTL I/O lines

Signals noted with an * are present both on the DB37F connector, *and* a 3 position screw terminal for connecting the external 5 to 34VDC power supply. Total amperage allowed is 10A (VBB0 = 5A, VBB1 = 5A).

** The GND connection in pin 9 is required to use the LVTTL I/O lines on pins 10-13 and 28-31. Connect this point to the ground reference of the external device. Damage will result if this pin is not connected when trying to use the LVTTL DIO lines, voiding the warranty.

DB-37 Female Pinout			
1	IN A 7		
2	IN A 6	20	IN B 7
3	IN A 5	21	IN B 6
4	IN A 4	22	IN B 5
5	IN A 3	23	IN B 4
6	IN A 2	24	IN B 3
7	IN A 1	25	IN B 2
8	IN A 0	26	IN B 1
9	GND	27	IN B 0
10	LVTTL 0	28	LVTTL 4
11	LVTTL 1	29	LVTTL 5
12	LVTTL 2	30	LVTTL 6
13	LVTTL 3	31	LVTTL 7
14	VBB 0*	32	RETURN*
15	VBB 0*	33	VBB 1*
16	OUT + 0	34	OUT + 4
17	OUT + 1	35	OUT + 5
18	OUT + 2	36	OUT + 6
19	OUT + 3	37	OUT + 7

Ordering Guide

mPCIe-IDIO-8	8 Isolated Input, 8 FET Output mPCIe Card
mPCIe-IDO-8	8 FET Outputs mPCIe Card
mPCIe-IDIO-4	4 Isolated Input, 4 FET Output mPCIe Card

Add –T to your model # for Industrial Temperature Option (-40° to 85°C)