



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

FEATURES

- 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 LVTTTL I/O LINES PROGRAMMABLE AS INPUTS OR OUTPUTS IN GROUPS OF 4 LINES
- AVAILABLE INDUSTRIAL TEMP (-40°C TO +85°C), ROHS STANDARD

MODELS mPCIe-IDIO-8 mPCIe-IDO-8 AND mPCIe-IDIO-4

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.

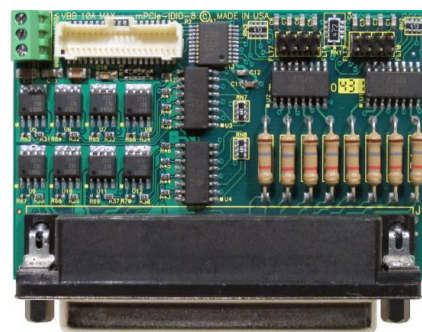
ACCESSORIES

Available accessories include:

- ADAP37M, STB-37 37-pin Screw Terminal Accessory
- mPCIe-HDW-KIT2 Mounting hardware for 2mm
- mPCIe-HDW-KIT2.5 Mounting hardware for 2.5mm

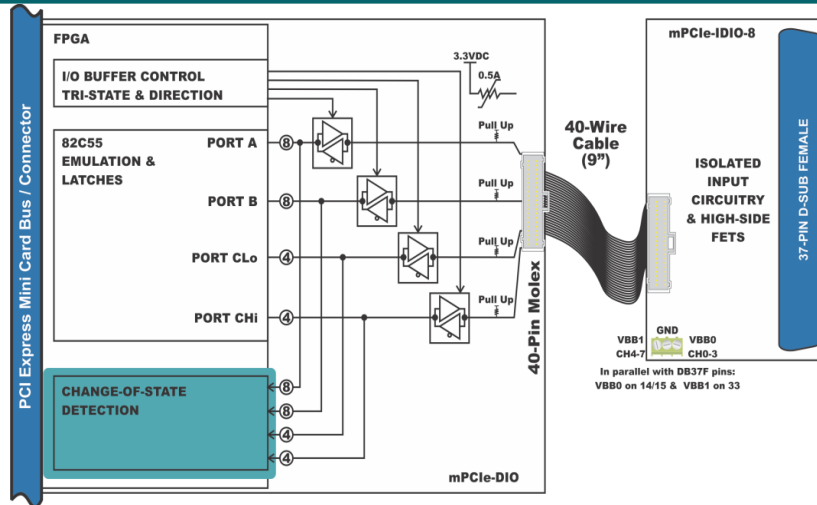
SOFTWARE

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 XP, WES7, WES8, etc. Full register-level documentation of all features ensures easy compatibility in any application environment.





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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	500V channel-to-ground and 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	Logic High 2.0V to VCCIO (3.3VDC, 5VDC tolerant) Logic Low 0V to 0.8V
Digital Outputs	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)
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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)

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).

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

Assured Systems

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