ASSURED SYSTEMS

Isolated Digital Input & Relay Output
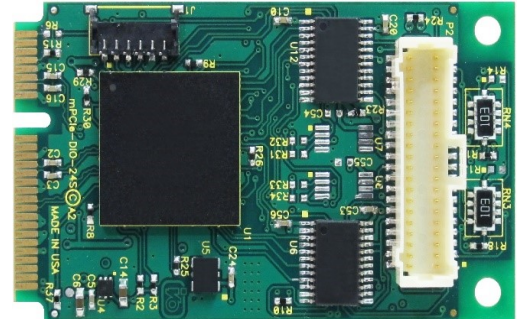## PCI Express Mini Card Data Sheet

FEATURES

MODELS MPCIE-IIRO-8 AND MPCIE-IIRO-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-37M ISOLATION MODULE
- 8 OR 4 OPTICALLY-ISOLATED NON-POLARIZED INPUTS
- 8 OR 4 ELECTROMECHANICAL 1A RELAY OUTPUTS
- AVAILABLE INDUSTRIAL TEMP (-40°C TO +85°C), ROHS STANDARD

FUNCTIONAL DESCRIPTION

The mPCIe-IIRO-8 consists of a type F1 PCI Express Mini Card (mPCIe) interface board that connects to a Mobile-ITX-sized, DB-37M 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-IIRO 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.

Outputs are 5 Form C ("Single-pole, double-throw", or SPDT) and 3 Form A (SPST) electromechanical relays capable of 1A continuous-current load.
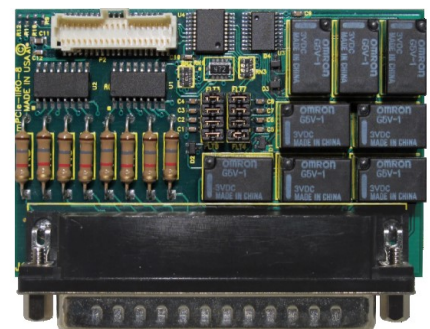
SPECIAL ORDER

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

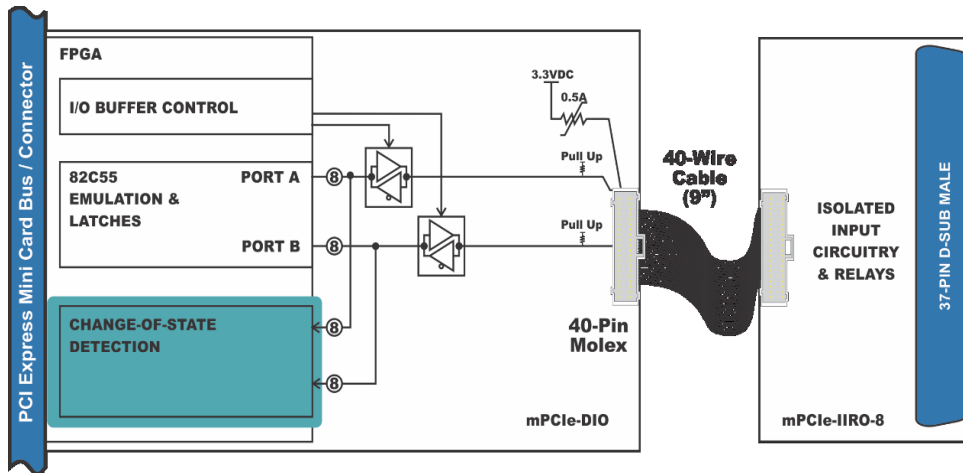| Available accessories include:	
ADAP37, STB-37	37-pin Screw Terminal Accessory
mPCIe-HDW-KIT2	Mounting hardware for 2mm
mPCIe-HDW-KIT2.5	Mounting hardware for 2.5mm

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

10623 Roselle Street, San Diego, CA 92121-1506 800 326 1649   858 550 9559 http://acces.io   *MADE IN THE USA*

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

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
Non-Filter Response	
Rise-time	10 µs
Fall-time	30 µs

Relay Outputs

Number	8 (or 4)
Type	5 Form C (SPDT) and 3 Form A (SPST), Ag with Au clad, single crossbar for mPCIe-IIRO-8; 4 Form C for mPCIe-IIRO-4
AC Load	0.5A at 125 VAC (62.5 VA max)
DC Load	1A at 24 VDC (30W max)
Switching Voltage	125 VAC, 60 VDC, max
Switching Current	1A max
Contact Resistance	100 mΩ, max
Contact Life	5 million operations, min

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 @ 730mA typ., all relays on

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	51.4 grams (+ 11.2 grams for the 9" cable)	
Size (Mobile-ITX sized)	Length	2.952"
	Width	1.772"
I/O connector	On-module	Male, D-Sub Miniature, 37-pin
	mating	Female, 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
C	Relay Common pin
NO	Relay Normally Open pin
NC	Relay Normally Closed pin

The mPCIe-IIRO Family DB-37M pinout is identical to the ACCES PCI-IIRO-8 and PCIe-IIRO-8 pinout.

DB-37M Male 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	C 7
28	NO 7	10	C 6
29	NO 6	11	C 5
30	NO 5	12	NC 4
31	C 5	13	NO 4
32	NC 3	14	C 3
33	NO 3	15	NC 2
34	C 2	16	NO 2
35	NC 1	17	C 1
36	NO 1	18	NC 0
37	C 0	19	NO 0

ORDERING GUIDE

mPCIe-IIRO-8	8 Isolated Input, 8 Relay Output mPCIe Card
mPCIe-IIRO-4	4 Isolated Input, 4 Relay Output mPCIe Card

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

Assured Systems

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US

sales@assured-systems.com

Sales: +1 347 719 4508
Support: +1 347 719 4508

1309 Coffeen Ave
Ste 1200
Sheridan
WY 82801
USA

EMEA

sales@assured-systems.com

Sales: +44 (0)1785 879 050
Support: +44 (0)1785 879 050

Unit A5 Douglas Park
Stone Business Park
Stone
ST15 0YJ
United Kingdom

VAT Number: 120 9546 28
Business Registration Number: 07699660