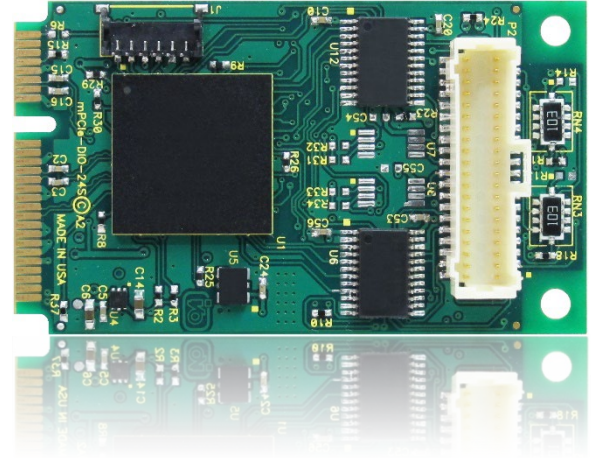


### FEATURES

### MODELS M.2-IIRO-8, M.2-IIRO-4, mPCIe-IIRO-8 & mPCIe-IIRO-4

- M.2 CARD 2260/2280 SIZE, WITH B & M KEYS
- PCI EXPRESS MINI CARD (mPCIe) TYPE F1
- LATCHING I/O CONNECTOR
- 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 +70°C), RoHS STANDARD



### FUNCTIONAL DESCRIPTION

The M.2-IIRO-8 and M.2-IIRO-4 starts with a 2260/2280 size M.2 card, while 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.

These 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.

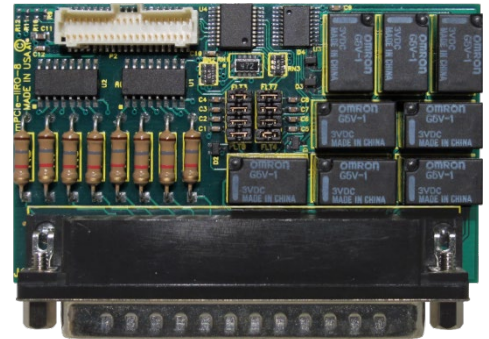
### SPECIAL ORDER

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

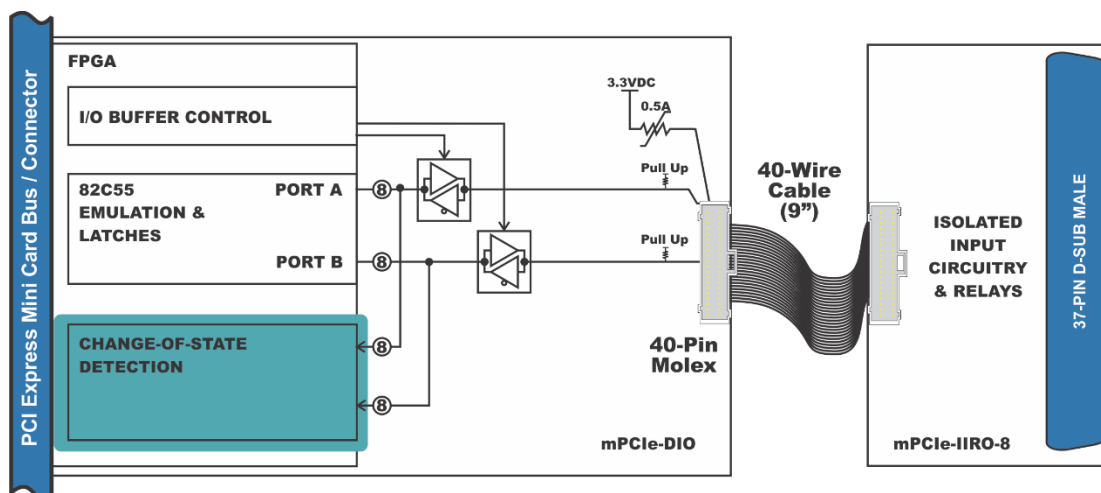
Available accessories include:

- ADAP37F-MINI 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.



### PC Interface

PCI Express Mini Card	Type F1 "Full Length"
M.2 Card	2260/2280 size with B & M keys

### 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 70°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
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### 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
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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

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

The M.2 and mPCIe-IIRO Family DB-37M pinout is identical to the ACCES PCI-IIRO-8 and PCIe-IIRO-8 pinout.

### ORDERING GUIDE

mPCIe-IIRO-8	8 Isolated Input, 8 Relay Output mPCIe Card
mPCIe-IIRO-4	4 Isolated Input, 4 Relay Output mPCIe Card
M.2-IIRO-8	8 Isolated Input, 8 Relay Output M.2 Card
M.2-IIRO-4	4 Isolated Input, 4 Relay Output M.2 Card

*Add -T to your model # for Industrial Temperature Option (-40° to 70°C)*