

# I/O Communication Solutions

## Introduction

With increasing information requirement and IT technologies progression, data processing is one of the most important issue in industrial systems today. People are facing an environment with diverse data formats, interfaces and protocols. How to integrate and harmonize various data resources and access timely, accurate and reliable data goes to be the key to success.

IEI industrial data collection solution comprises most advanced communication technologies to offer a powerful data processing platform. We provide multiport serial and CAN communication cards which makes it easy to manage diverse data input devices. In addition, our industrial communication I/O modules give most agile way to integrate various audio, video, information analog/digital data I/O interface and RFID function into any control, monitoring and surveillance system.

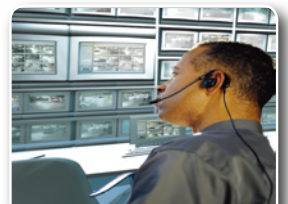
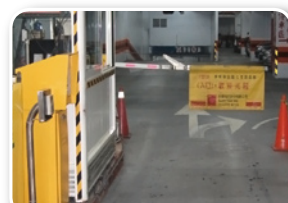
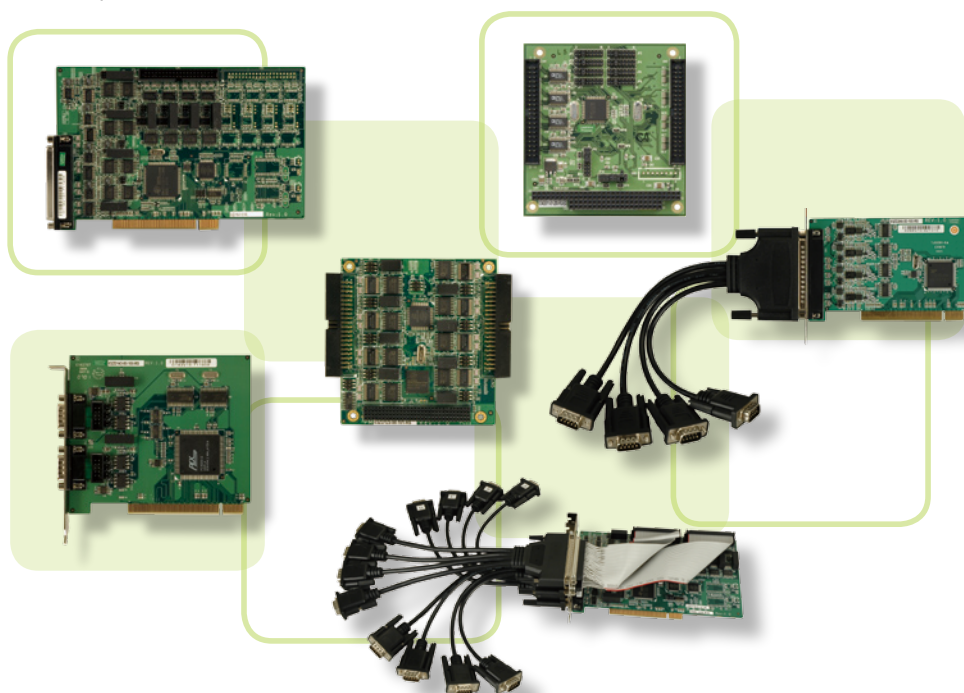
IEI provides the most flexible, reliable and affordable industrial data collection solutions which enables more simple and efficient data processing experience.

## Application

- PC-based POS devices
- PC-based postal machines
- PC-based ATMs
- PC-based lottery machines
- PC-based kiosks
- Multipoint data acquisition
- Industrial control
- Factory automation
- Embedded industrial machines
- Remote serial device control
- SCADA systems

### Low-Profile PCI Marketplace:

- POS (Point-of-Sale) system builders use the low-profile dual serial card!
- Low-profile PCI cards — parallel and serial — are great for all-in-one systems like the IBM NetVista X40.
- Low-profile cards fit in 2U industrial rack-mount servers.



1  
Industrial  
Computing  
Solutions

2  
Embedded  
Computing  
Solutions

3  
Industrial Data  
Collector  
and Controller

4  
Video  
Capture  
Solutions

5  
I/O  
Communication  
Solutions

6  
Panel  
Solutions

7  
ORing  
Network  
Communication

8  
Power Supply/  
Peripherals

# Multiport Serial Communication Card

## Introduction

- IEI provides multiport the serial communication cards to enhance the serial communication functions of your system. A variety of interfaces are provided in the IEI multiport serial communication card, such as PCI, PCI-104, or PC/104 interface, for easy integration into your existing system.
- Most IEI multiport serial communication cards come in a low profile version or high protection version. The high protection version is designed with higher ESD and isolated protections for harsh environments, and the low profile version is a cost-effective solution and provides general protections.
- The new IEI multiport serial communication hardware design provides shared IRQ support, higher data transmission speed up to 921.6 Kbps, and larger FIFO buffer (256 bytes) for transmitter and receiver of each channel. The IEI multiport serial communication card software comprises of diversified OS drivers and testing utilities.

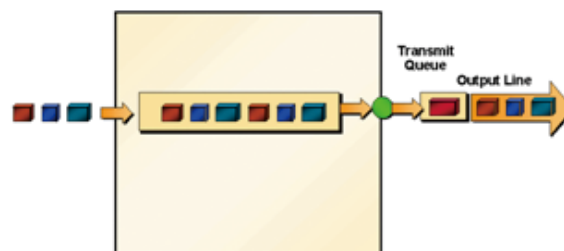
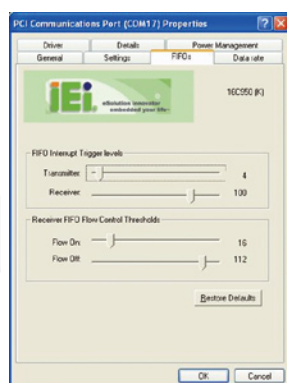


Model Name	PMS-400L	PMS-400	PMS-800	PMS-1200	PM-2004	PM-2008	PM-1004	PM-1028-4	PM-1028-8
Bus Interface	PCI	PCI	PCI	PCI	PCI-104	PCI-104	PC / 104	PC / 104	PC / 104
Ports	4	4	8	12	4	8	4	4	8
Protection	ESD	±15 KV	±15 KV	±15 KV	±15 KV	±15 KV	-	-	-
	Isolation		3000 VDC	3000 VDC	3000 VDC	1000 VDC	1000 VDC	-	-
Driver support		Windows® 2000, Windows® XP, Windows® XPe and Linux			Windows® 2000, Windows® XP, Windows® XPe and Linux		Windows® NT, Windows® 2000, Windows® XP, Windows® CE and Linux		



### Share IRQ Benefit:

- Reserve more resources for system devices.
- Easy to programm each COM port.
- Reduce system integration time.



FIFO is the default queuing algorithm in some instances, thus requiring no configuration. FIFO queuing makes no decision about packet priority; the order of arrival determines bandwidth, promptness, and buffer allocation. FIFO queuing was a necessary first step in controlling data traffic.

## Introduction

Sometimes devices might be damaged or disturbed by currents flow when there exist ground voltage gap between connected devices. IEI industrial solutions equip with opto-isolator which protects your devices against up to 2000 Volts ground loops attack to ensure operation stability

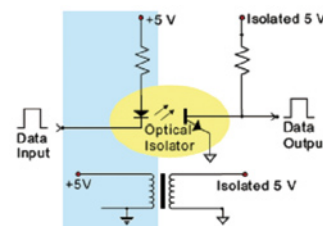
### ESD / Isolated protection



#### IEI Provides :

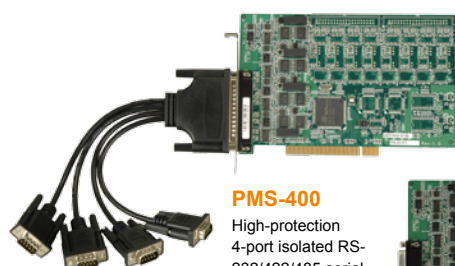
1. On-board 15 KV ESD protection
2. Isolated 3000 VDC protection

An integrated circuit (IC) connected to external ports is susceptible to damaging electrostatic discharge (ESD) pulses from the operating environment and peripherals. Additional protection can violate stringent signaling requirements, leaving design engineers with the need to balance performance and reliability.



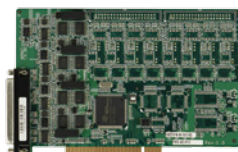
# PMS-400/800/1200

High-protection 4-port, 8-port or 12-port isolated RS-232/422/485 serial communications PCI card



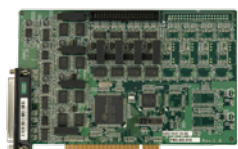
## PMS-400

High-protection 4-port isolated RS-232/422/485 serial communications PCI card



## PMS-800

High-protection 8-port isolated RS-232/422/485 serial communications PCI card



## PMS-1200

High-protection 12-port isolated RS-232/422/485 serial communications PCI card



## Features

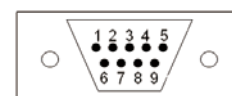
1. PCI v2.1 interface
2. mPCI954+16C954 UART Controller
3. Support shared IRQ
4. Individual jumper selections for RS-232/422/485
5. Data transmission speeds up to 921.6 Kbps
6. 128-byte deep FIFO per transmitter and receiver
7. On-board 15 KV ESD protection
8. Isolated 3000 VDC DC protection
9. Powerful and easy-to use utility
10. Windows® 2000, Windows® XP, Windows® XPe and Linux driver support



## Pin Definition

	RS-232	RS-422	RS-485
1	DCD	RX-	Data-
2	RxD	RX+	Data+
3	TxD	TX-	
4	DTR		
5	GND		
6	DSR		
7	RTS	TX+	
8	CTS		
9	RI		

## Connector



4 x DB-9 male connector to DB-37 male connector with 150 mm 28AWG cable  
P/N ( 32000-088800-RS )



DB-37 female flat cable  
P/N ( 32000-076000-RS )



Every DB-37 female flat cable with connector cable can support four RS-232/422/485

## Specifications

Model Name	<b>PMS-400-R10</b> <b>PMS-800-R10</b> <b>PMS-1200-R10</b>
Bus Interface	PCI ver. 2.1 interface
I/O controller	mPCI954+16C954 UART Controller
Number of Ports	4-port (PMS-400-R10) / (PMS-400L-R10) 8-port (PMS-800-R10) 12-port (PMS-1200-R10)
Data Bits	5,6,7,8
Stop Bits	1, 1.5, 2
Parity	None, Even, Odd
Speed	50 bps ~ 921.6 kbps
Connectors	4, 8 or 12 male DB-9 connectors
ESD protect (Human Body Mode)	±15 KV
Isolation Protection	3000 VDC
Driver Support	Windows® 2000, Windows® XP, Windows® XPe and Linux
Temperature	Operating: -5°C ~ 65°C ( 23°F ~ 149°F)
Humidity	Operating: 5% ~95 non-condensing
Dimension	122 mm x 185 mm

## Packing List

- 1 x 4-port, 8-port or 12-port RS-232/422/485 serial communications PCI card
- 1 x COM port cable with 4xDB-9 connector (P/N: 32000-088800-RS) for PMS-400-R10
- 2 x COM port cable with 4xDB-9 connector (P/N: 32000-088800-RS) for PMS-800-R10
- 1 x Flat cable (P/N: 32200-076000-RS) for PMS-800-R10
- 3 x COM port cable with 4xDB-9 connector (P/N: 32000-088800-RS) for PMS-1200-R10
- 2 x Flat cable (P/N: 32200-076000-RS) for PMS-1200-R10
- 1 x Mini Jumper Pack
- 1 x Utility CD
- 1 x QIG

## Ordering Information

Part No.	Description
PMS-400-R10	High-protection 4-port isolated RS-232/422/485 serial communications PCI card
PMS-800-R10	High-protection 8-port isolated RS-232/422/485 serial communications PCI card
PMS-1200-R10	High-protection 12-port isolated RS-232/422/485 serial communications PCI card

1  
Industrial  
Computing  
Solutions

2  
Embedded  
Computing  
Solutions

3  
Industrial Data  
Collector  
and Controller

4  
Video  
Capture  
Solutions

5  
I/O  
Communication  
Solutions

6  
Panel  
Solutions

7  
ORing  
Network  
Communication

8  
Power Supply/  
Peripherals



# PMS-400L/410L

Low-profile 4-port non-isolated RS-232/422/485 serial communications PCI card

## Features

### PMS-400L

1. PCI v2.1 interface with RoSH compliance
2. 16C950 UART Controller
3. Support Shared IRQ
4. Individual Jumper selections for RS-232/422/485
5. Data transmission speed up to 921.6Kbps
6. 128-byte deep FIFO per transmitter and receiver
7. Driver support Windows 2000/XP/2003 and Linux

### PMS-410L

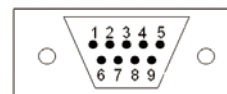
1. PCI v2.1 interface with RoSH compliance
2. Exar Universal (3.3V/5V) PCI Bus Quad UART
3. Each UART has 64-byte TX and RX FIFOs
4. Individual jumper selections for RS-232/422/485
5. Up to 6.125Mbps Data Rate
6. Programmable TX and RX FIFO trigger level and FIFO level counters
7. Automatic RTS/CTS or DTR/DSR hardware flow control
8. Automatic RS-485 direction control output with selectable turn-around delay
9. Driver support Windows CE/2000/XP/2003 and Linux



## Pin Definition

	RS-232	RS-422	RS-485
1	DCD	RX-	Data-
2	RxD	RX+	Data+
3	TxD	TX-	
4	DTR		
5	GND		
6	DSR		
7	RTS	TX+	
8	CTS		
9	RI		

## Connector



4 x DB-9 male connector to DB-37 male connector with 150 mm 28AWG cable  
P/N ( 32000-088800-RS )



DB-37 female flat cable  
P/N ( 32000-076000-RS )



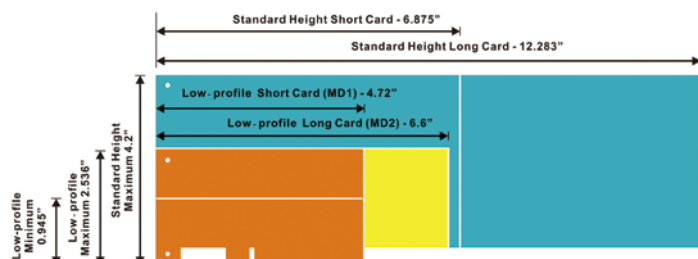
Every DB-37 female flat cable with connector cable can support four RS-232/422/485

## What are low-profile PCI cards?

Low-profile PCI cards are simply PCI cards based on a new card size standard. The low-profile PCI standard was developed to standardize the design of PCI cards used in small-footprint systems. Low-profile PCI cards follow the design guidelines of the PCI Special Interest Group, the organization that sets standards for the PCI bus generally.

Low-profile PCI cards follow the "PCI Local Bus Specification, Revision 2.2" or later, but in addition adopt the form factor requirements of the new "PCI Engineering Change Notice —Low Profile PCI Card". Designed as a collaborative effort by the PCI Special Interest Group and companies including IBM and Intel, the low-profile PCI standard limits the height of low-profile PCI cards to a maximum of 2.5 inches/60 mm —about 60% of the height of standard PCI cards.

As well as defining a maximum height for cards designated as "low-profile", the low-profile PCI specification also outlines two low-profile PCI card lengths —short (called "MD1") and long ("MD2"). An MD1 low-profile card has a maximum length of 4.72" (119.91 mm). An MD2 card is longer than an MD1 card, but not longer than 6.6" (167.64 mm). Both MD1 and MD2 cards can be no higher than 2.536" (64.41 mm) and can be as short as 0.945" (24 mm). The diagram below compares low-profile PCI card sizes with standard height PCI card sizes.



## Packing List

- 1 x 4 port RS-232/422/485 serial communications PCI card
- 1 x COM port cable with 4xDB-9 connector (P/N: 32000-088800-RS)
- 1 x Mini Jumper Pack
- 1 x Utility CD
- 1 x QIG

## Ordering Information

Part No.	Description
PMS-400L-R10	Low-profile 4-port non-isolated RS-232/422/485 serial communications PCI card
PMS-410L-R10	Low-profile 4-port non-isolated RS-232/422/485 serial communications PCI card support WinCE

1

Industrial Computing Solutions

2

Embedded Computing Solutions

3

Industrial Data Collector and Controller

4

Video Capture Solutions

5

I/O Communication Solutions

6

Panel Solutions

7

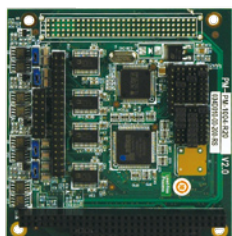
ORing Network Communication

8

Power Supply/Peripherals

# PM-1004/1028-4/1028-8

4-port non-isolated RS-232/422/485 serial communication  
PCI/104 module



**PM-1004**

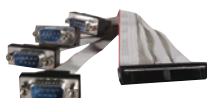


**P/N: 32200-026800-RS**  
Shipped with 4-port RS-422/485  
connection cable

4-port/8-port non-isolated RS232 serial communication  
PC/104 modules



**PM-1028**



**P/N: 32200-025400-RS**  
Shipped with 4-port RS-232  
connection cable

## Features

1. PC/104 form factor
2. 16C554 UART controller
3. Four jumper selectable RS-232 or RS-422/485 serial communication ports
4. Supports shared IRQ or independent IRQ mode
5. Jumper selectable interrupt level
6. MAX. baud rate: 921.6kb/s
7. Windows® NT, Windows® 2000, Windows® XP, Windows® CE and Linux driver support

## Specifications

	PM-1004	PM-1028-4	PM-1028-8
Bus Interface	PC/104		
Number of Ports	4-port	4-port	8-port
Interrupt Level	3, 4, 5, 7, 9, 10, 11, 12		
Chipset	TI 16C554A		
Baud Rate	921.6 Kbps (max.) at 14.745MHz clock input		
Serial Port	16C550-compatible UARTs		
Connectors (40-pin; 2.54 box header)	4-port RS-232/ RS-422/RS-485 x 1	4-port RS-232 x 1	4-port RS-232 x 2
Power Consumption	+5V@0.6A (max.)		
Temperature Operating	0°C ~ 60°C		
Dimensions	96 mm x 90 mm		
Driver Support	Windows®NT, Windows®2000, Windows®XP, Windows®CE and Linux		

## Packing List

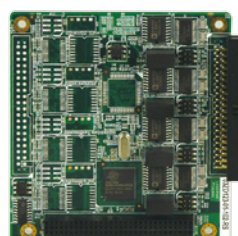
- 1 x 4-port non-isolated RS-232/422/485 serial communications PC/104 module
- 1 x 4-port RS-422/485 connection cable (P/N: 32200-026800-RS)
- 1 x Utility CD
- 1 x RS-232 Cable (P/N: 32200-025400-RS)
- 1 x Mini jumper pack

## Ordering Information

Part No.	Description
PM-1004-R20	4-port non-isolated RS-232/422/485 serial communications PC/104 module

# PM-2004/2008

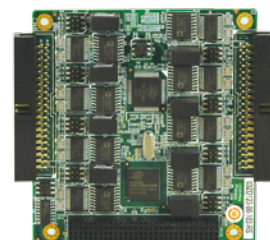
4 port / 8 port isolated RS-232/422/485 serial communications  
PCI-104 module



**PM-2004**



4 x DB9 connector



**PM-2008**



Flat Cable

## Features

1. PCI-104 form factor
2. mPCI954+16C954 UART Controller
3. 4 port / 8 port Isolated RS-232/422/485
4. Support Shared IRQ
5. PCI Revision 2.1 compliant
6. Isolated protection
7. 128-byte deep FIFO per transmitter and receiver

## Specifications

	PM-2004			PM-2008		
Bus Interface	PC/104					
Number of Ports	4-port			8-port		
Data Bits	5, 6, 7, 8					
Stop Bits	1, 1.5, 2					
Parity	None, Even, Odd					
Speed (bps)	50 ~ 921.6 K					
Connectors	1 x COM port cable with 4 x DB9 connector			2 x COM port cable with 4 x DB9 connector		
	RS232	RS422	RS485	RS232	RS422	RS485
Max Speed (bps)	250K	4M	4M	250K	4M	4M
ESD Protect (Human Body Mode)	±15KV	±15KV	±15KV	±15KV	±15KV	±15KV
IEC-1000-4-2 Contact Discharge	±8KV	±8KV	±8KV	±8KV	±8KV	±8KV
IEC-1000-4-2 Air Discharge	±15KV	±8KV	±8KV	±15KV	±8KV	±8KV
Isolated Protection (Vrms)	2500	2500	2500	2500	2500	2500
Signals	Full Function	2/4 Wired	4 Wired	Full Function	2/4 Wired	4 Wired
Power Consumption	5V@0.45A					
Temperature Operating	-5°C ~ 65°C (23°F ~ 149°F)					
Humidity Operating	5% ~ 95% non-condensing					
Dimensions	96 mm x 90 mm					
Driver Support	Windows®2000, Windows®XP, Windows®XP and Linux					

## Packing List

- 1 x PCI-104 8-Port Isolated RS-232/422/485 Module
- 2 x COM port cable with 4xDB9 connector (P/N: 32000-088800-RS)
- 2 x Flat Cable (P/N: 32200-076000-RS)
- 1 x Mini Jumper Pack
- 1 x Utility CD
- 1 x QIG

## Ordering Information

Part No.	Description
PM-2008-R10	8-port isolated RS-232/422/485 serial communications PCI-104 module

1  
Industrial  
Computing  
Solutions

2  
Embedded  
Computing  
Solutions

3  
Industrial Data  
Collector  
and Controller

4  
Video  
Capture  
Solutions

5  
I/O  
Communication  
Solutions

6  
Panel  
Solutions

7  
ORing  
Network  
Communication

8  
Power Supply/  
Peripherals

# CAN Communication Card

## Introduction

The Control Area Network (CAN) is a serial bus system, originally developed by Bosch for use in automobiles, and now is increasingly being used in industrial automation. IEI CAN communication cards offer the connectivity of the Control Area Network (CAN) to your system. With built-in CAN controllers, the IEI CAN provides bus arbitration and error detection with an automatic transmission repeat function. This drastically reduces the chance of data loss and ensures system reliability. and are suitable for networking intelligent I/O devices such as sensors or actuators of machines or plants. and on-board optical isolators along with additional protection design protect your system and equipment against damage from ground loops and electrostatic discharge (ESD) pulses, which increase system reliability in harsh environments.

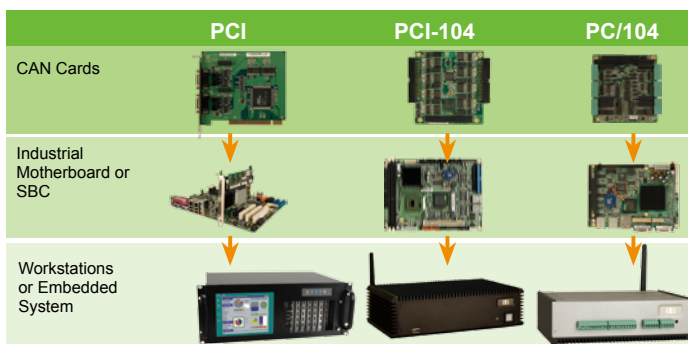
## Selection Guide



Model Name		IPCI-1680	PM-1680	PM-3001	PM-3004
Bus Interface		PCI	PCI-104	PC/104	PC/104
CAN Communication Interfaces	Ports	2	2	2	2
	Isolated Protection	3000 VDC	3000 VDC	3000 VDC	3000 VDC
Digital Input	Input Channel	-	-	8 x Isolated DI	8 x Isolated DI
	Isolated Protection	-	-	2000 VDC	2000 VDC
Digital Output	Output Channel	-	-	8 x Isolated DO	8 x Isolated DO
	Isolated Protection	-	-	2000 VDC	2000 VDC
Analog Input	Input Channel	-	-	-	2 x AI ( Thermocouple )
	Resolution	-	-	-	16-bit
	Voltage Input	-	-	-	-
Driver Support		Windows® 2000, Windows® XP, Windows® XPe and Windows® CE 5.0			

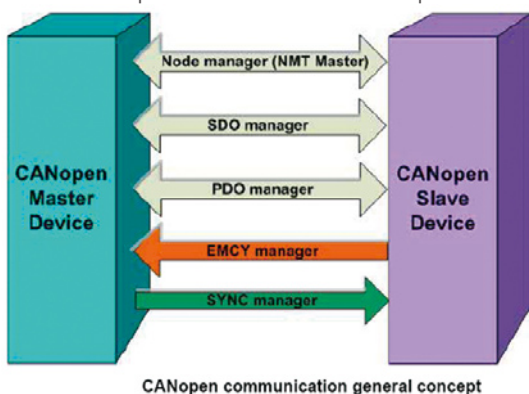
## Application

IEI provides PCI, PCI-104, and PC/104 CAN communication cards for integrating into IEI single board computers, IEI workstations, and IEI embedded systems which support, PCI-104, or PC/104 interface.

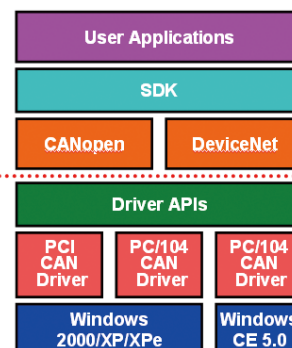
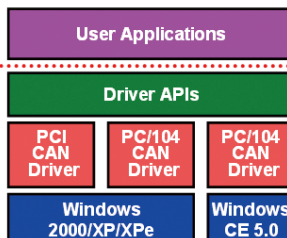


### Free CANopen SDK Support Now !

ICP CANopen Master DLL Library provides users to establish CANopen communication network rapidly. It is special for IEI IPCI-1680-CBM /PM-1680-CBM card. Using the library, most of the CANopen communication protocols will be handled by the library function automatically. Therefore, it can help users reduce the complexity of developing a CANopen master interface, and let users to ignore the CANopen protocol detail technology information. The library mainly supports the predefined master-slave connection set, which include some useful functions to control the CANopen slave device in the CANopen network.

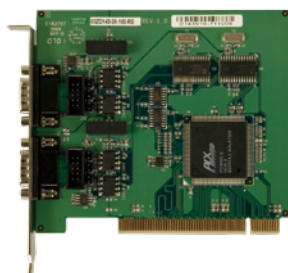


CANopen communication general concept



# IPCI-1680-CBM

2-port isolated protection CAN communication bus PCI card support CANopen



**CANopen**  
Bundle CANopen AP

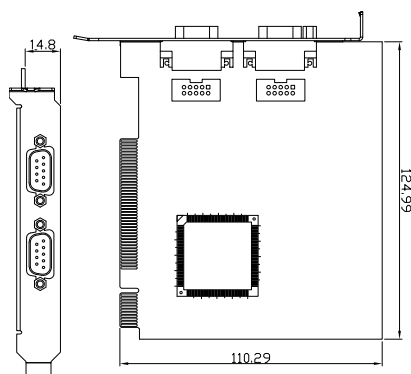
## Features

1. PCI Revision 2.2 compliant
2. Two independent CAN bus communication ports.
3. Compatible with CAN Specifications 2.0
4. On-board optical isolation protection 2500Vrms on CAN side.
5. Programmable transfer rate up to 1 Mbps.
6. Jumper settings for dual ports select 120  $\Omega$  terminator resistor.
7. Support CANopen protocol follow CiA DS-301 and support CiA DS-401

## Specifications

Bus Interface	PCI Revision 2.2 compliant
Number of Ports	2-port
CAN controller	Philips SJA1000T
CAN transceiver	Philips PCA82C251
Signal Support	CAN_H, CAN_L
Speed ( bps )	1 Mbps
Connectors	DB-9 male on bracket or dual 2 x 5 pin internal 2.54 pitch box header
Isolated Protection	2500Vrms on CAN side
Power consumption	5 V @ 400 mA
Temperature:	Operating: -5°C~ 65°C ( 23°F~ 149°F)
Humidity	Operating: 5% ~95% Non-condensing
Drive Support	Windows® XP / Windows® XP Embedded / Windows® CE 5.0
CANopen communication	Support NMT/EMCY/SYNC/SDO/PDO/Error Control protocols Follow CiA DS-301 and support CiA DS-401 Support 10K,20K,50K,125K,250K,500,800K,1M bps Transfer Rate

## Dimensions ( Unit : mm )



## Packing List

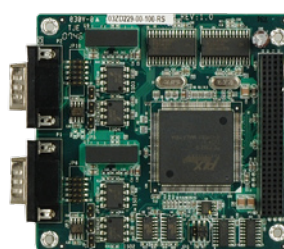
- 1 x IPCI-1680-CBM CAN Bus PCI Card
- 1 x Mini Jumper Pack
- 1 x Utility CD ( Bundle CANopen software)
- 1 x QIG

## Ordering Information

Part No.	Description
IPCI-1680-CBM-R10	2-port isolated protection CAN communication bus PCI card support CANopen

# PM-1680-CBM

2-port isolated protection CAN communication bus PCI-104 module support CANopen



**CANopen**  
Bundle CANopen AP

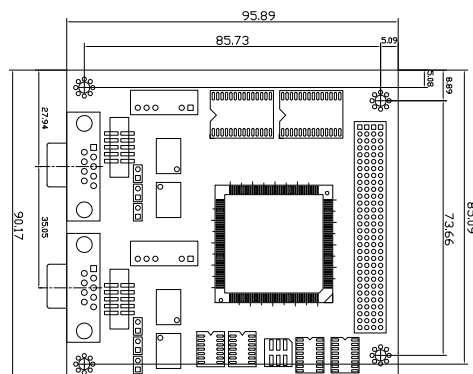
## Features

1. Interface PCI-104 Module
2. Two independent CAN bus communication ports.
3. Compatible with CAN Specifications 2.0
4. On-board optical isolation protection 2500Vrms on CAN side.
5. Programmable transfer rate up to 1 Mbps.
6. Jumper settings for dual ports select 120  $\Omega$  terminator resistor.

## Specifications

Bus Interface	PCI-104
Number of Ports	2-port
CAN controller	Philips SJA1000T
CAN transceiver	Philips PCA82C251
Signal Support	CAN_H, CAN_L
Speed ( bps )	1 Mbps
Connectors	Port #1 output is connected to two 9pin d-sub connectors, one is male and the other is female. Port #2 output is connected to one 2x5 header.
Isolated Protection	2500Vrms on CAN side
Power consumption	5 V @ 400 mA
Temperature	Operating: -5°C~ 65°C ( 23°F~ 149°F)
Humidity	Operating: 5% ~95% Non-condensing
Drive Support	Windows® XP / Windows® XP Embedded / Windows® CE 5.0
CANopen communication	Support NMT/EMCY/SYNC/SDO/PDO/Error Control protocols Follow CiA DS-301 and support CiA DS-401 Support 10K,20K,50K,125K,250K,500,800K,1M bps Transfer Rate

## Dimensions ( Unit : mm )



## Packing List

- 1 x PM-1680-CBM CAN Bus PCI-104 Module
- 1 x Mini Jumper Pack
- 1 x Utility CD ( Bundle CANopen software)
- 1 x QIG

## Ordering Information

Part No.	Description
PM-1680-CBM-R10	2-port isolated protection CAN communication bus PCI-104 module support CANopen

1  
Industrial  
Computing  
Solutions

2  
Embedded  
Computing  
Solutions

3  
Industrial Data  
Collector  
and Controller

4  
Video  
Capture  
Solutions

5  
I/O  
Communication  
Solutions

6  
Panel  
Solutions

7  
ORing  
Network  
Communication

8  
Power Supply/  
Peripherals



# I/O Communication Module

## Introduction

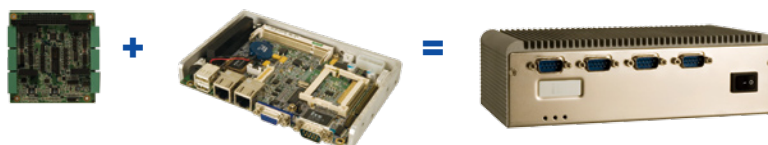
- The IEI PM I/O module series enables you to turn your single board computer (SBC) into a PC-based data acquisition and control system. Data acquisition and control systems generally perform one or more input and output functions such as analog input, analog output, digital input, digital output, counter/timer, and industrial field bus communication. IEI PM series I/O modules have the following features:
  - ◆ Analog Inputs
  - ◆ Digital Inputs and Outputs
  - ◆ Counter/Timer
  - ◆ CAN bus communication
- These days the PC-based data acquisition and control system products like industrial SBC and I/O modules have become increasingly reliable, accurate, and affordable. PC-based data acquisition and control systems are now widely used in industrial and laboratory applications such as monitoring, control, data acquisition and automated testing.

## IEI PM Series Solution

- IEI PM industrial I/O solutions provide both I/O boards and corresponding off-the-shelf best-fit single board computers (SBC), embedded chassis, and embedded systems. The following guide is provided to help you to build up your data acquisition system:

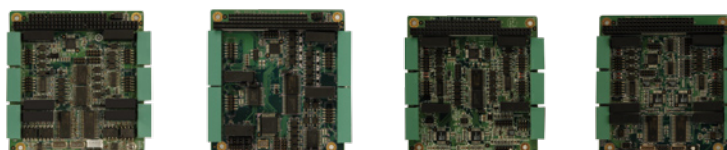
### Step 1 : Decide the type of I/O

- **PM-3001** : 2 x CAN, 8 x DI, 8 x DO
- **PM-3002** : 16 x DI, 16 x DO, including 4 x 16-bit counter and 1 x Max. 100KHz timer
- **PM-3003** : 8 x DI, 8 x DO, 2 x AI
- **PM-3004** : 2 x CAN, 8 x DI, 8 x DO, 2 x AI



### Step 2 : Hardware Platform selection

- IEI KAMIO Series RISC-based SBC



### Step 3 : Embedded Chassis selection

- IEI EBC-1000G embedded chassis for WAFER series SBC

### Step 4 : Software Support

- Embedded OS and Drivers : Supports Windows® XP Embedded or Windows® CE 5.0.
- SDK : Software Development Kits (SDK) for Windows® XP, Windows® XPe and Windows® CE 5.0 application software programming, and demo source code is provided.
- Diagnostic Utility : Utility for testing I/O modules.
- Modbus Support : IEI provides Modbus Servers for PM Series I/O modules to turn your device into a Modbus device and thus can easily communicate and integrate with any SCADA (Supervisory Control And Data Acquisition) software and system.

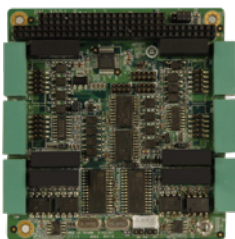


Model Name		PM-3001	PM-3002	PM-3003	PM-3004
Bus Interface		PC / 104	PC / 104	PC / 104	PC / 104
CAN Communication Interfaces	Ports	2	-	-	2
	Isolated Protection	3000 VDC	-	-	3000 VDC
Digital Input	Input Channels	8 x Isolated DI	16 x Isolated DI	8 x Isolated DI	8 x Isolated DI
	Isolated Protection	2000 VDC	2000 VDC	2000 VDC	2000 VDC
Digital Ouput	Ouput Channels	8 x Isolated DO	16 x Isolated DO	8 x Isolated DO	8 x Isolated DO
	Isolated Protection	2000 VDC	2000 VDC	2000 VDC	2000 VDC
Counter / Timer (DI / DO)	Channels	-	4 / 4	-	-
	Resolution	-	16-bit	-	-
	Time Base	-	100 / 10 / 1 kHz , 100 Hz	-	-
Analog Input	Input Channels	-	-	2 x AI ( Thermocouple )	2 x AI ( Thermocouple )
	Resolution	-	-	16-bit	16-bit
	Voltage Input	-	-	±5 V	±5 V
				±2.5 V	±2.5 V
				0~2.5 V	0~2.5 V
				0~5 V	0~5 V
Driver Support		Windows® 2000, Windows® XP, Windows® XPe and Windows® CE 5.0			



# PM-3001

PC/104 module with two isolated CAN, eight isolated DI and eight isolated DO

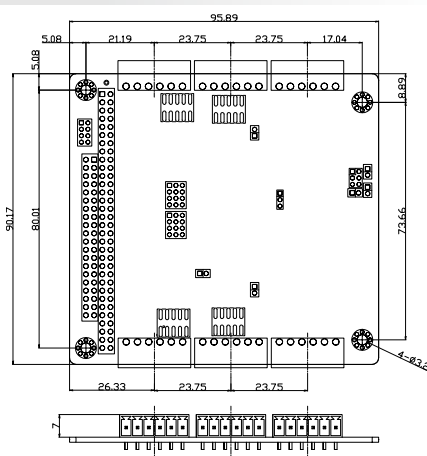


## Specifications

### System Hardware

- ◆ Bus Interface
  - PC/104
- ◆ Digital Input Signals
  - 8-port isolated digital input
  - 2000 VDC isolated protection
  - 2000 VDC ESD protection
  - 70 VDC over-voltage protection
  - 0 VDC ~ 50 VDC input range & 10 kHz speed
  - Dry contact levels (0: GND, 1: Open)
  - Wet contact levels (0: +2V Max, 1: +4V ~ +50V)
- ◆ Digital Output Signals
  - 8-port Isolated Digital Output
  - 2000 VDC isolated protection
  - 2000 VDC ESD protection
  - 200 mA max/channel sink current
  - 5 VDC ~ 30 VDC output range and 10 kHz speed
- ◆ CAN Communication Interface
  - 2-channel Isolated CAN
  - Compatible with CAN specifications 2.0
  - 3000VDC isolated by photo coupler for dual ports.
- ◆ Power
  - Power Input: 5 VDC (2.5 W minimum)
- ◆ Environmental
  - Operating Temperature: 0°C ~ 60°C
  - Humidity: 5% ~ 85% RH without condensation
- ◆ Driver Support
  - Windows® 2000, Windows® XP, Windows® XPe and Windows® CE 5.0

## Dimensions (Unit : mm)



## Packing List

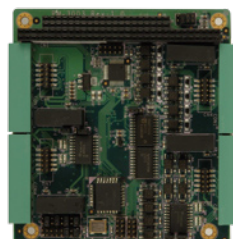
- 1x PM-3001
- 1x Utility CD including SDK, utilities, and technical documentations
- 1x Screw kit

## Ordering Information

Part No.	Description
PM-3001-R10	PC/104 module with two isolated CAN, eight isolated DI and eight isolated DO

# PM-3002

PC/104 module with a four channel counter/timer, 16 isolated DI and 16 isolated DO

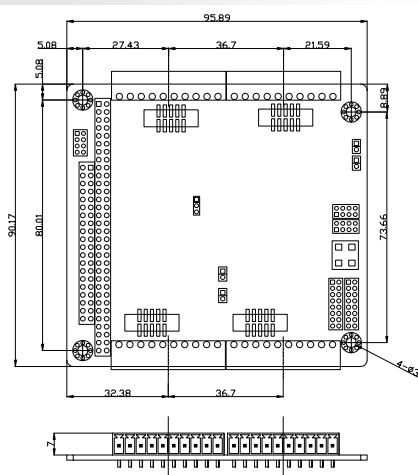


## Specifications

### System Hardware

- ◆ Bus Interface
  - PC/104
- ◆ Digital Input Signals
  - 2000 VDC isolated protection
  - 2000 VDC ESD protection
  - 70 VDC over-voltage protection
  - 0 VDC ~ 50 VDC input range & 10 kHz speed
  - Dry contact levels (0: GND, 1: Open)
  - Wet contact levels (0: +2V Max, 1: +4V ~ +50V)
- ◆ Digital Output Signals
  - 16-port isolated digital output
  - 2000 VDC isolated protection
  - 2000 VDC ESD protection
  - 200 mA max/channel sink current
  - 5 VDC ~ 30 VDC output range and 10 kHz speed
- ◆ Counter / Timer
  - 4x 16-bit:
    - Counter source: DI6 & DI7, DI14&DI15
    - Pulse output: DO6 & DO7, DO14&DO15
  - Can be cascaded as one 64-bit counter/timer, Down counting, preset counting value, interrupt handling, Timer
  - time base: 100/10/1 kHz, 100 Hz
- ◆ Power
  - Power Input: 5 VDC (2.5 W minimum)
- ◆ Environmental
  - Operating Temperature: 0°C ~ 60°C
  - Humidity: 5% ~ 85% RH without condensation
- ◆ Driver Support
  - Windows® 2000, Windows® XP, Windows® XPe and Windows® CE 5.0

## Dimensions (Unit : mm)



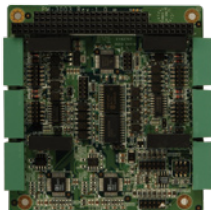
## Packing List

- 1x PM-3002
- 1x Utility CD including SDK, utilities, and technical documentations
- 1x Screw kit

## Ordering Information

Part No.	Description
PM-3002-R10	PC/104 module with a four channel counter/timer, 16 isolated DI and 16 isolated DO

**PC/104 module with eight isolated DI and eight isolated DO and two channel AI**

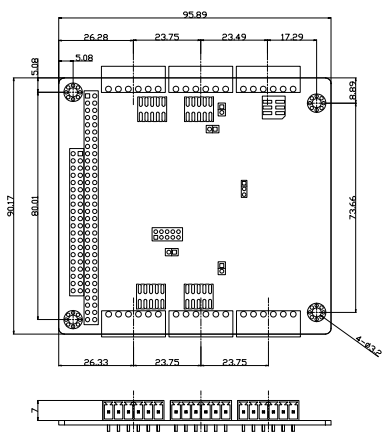


## Specifications

## System Hardware

- ◆ Bus Interface  
PC/104
- ◆ Digital Input Signals  
8-port Isolated Digital Input
  - 2000 VDC isolated protection
  - 2000 VDC ESD protection
  - 70 VDC over-voltage protection
  - 0 VDC~ 50 VDC input range & 10 kHz speed
  - Dry contact levels (0: GND, 1: Open)
  - Wet contact levels (0: +2V Max, 1: +4V ~ +50V)
- ◆ Digital Output Signals  
8-port isolated digital output
  - 2000 VDC isolated protection
  - 2000 VDC ESD protection
  - 200 mA max/channel sink current
  - 5 VDC ~ 30 VDC output range and 10 kHz speed
- ◆ Analog Input Signals  
2-ch Thermocouple Inputs
  - JKE type
  - Input range:  $\pm 5\text{ V}$ ,  $\pm 2.5\text{ V}$ ,  $0\sim 2.5\text{ V}$ ,  $0\sim 5\text{ V}$
- ◆ Power  
Power Input: 5 VDC (2.5 W min.)
- ◆ Environmental  
Operating Temperature:  $0\sim 60^{\circ}\text{C}$   
Humidity: 5 % ~ 85 % RH without condensation
- ◆ Driver Support  
Windows® 2000, Windows® XP, Windows® XPe and Windows® CE 5.0

### Dimensions ( Unit : mm )



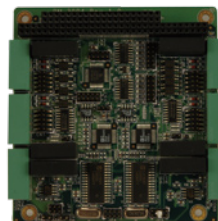
## Packing List

1x PM-3003
1x Utility CD including SDK,utilities, and technical documentations
1x Screw kit

## Ordering Information

Part No.	Description
PM-3003-R10	PC/104 module with eight isolated DI and eight isolated DO and two channel AI

**PC/104 module with two isolated CAN , eight isolated DI and eight isolated DO and two channel AI**

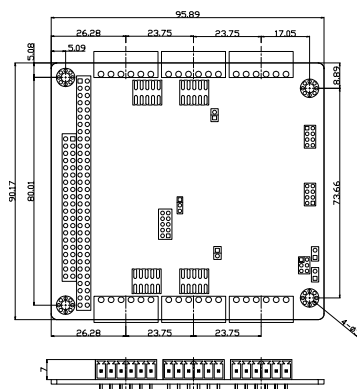


## Specifications

## System Hardware

- ◆ Bus Interface  
PC/104
- ◆ Digital Input Signals  
8-port Isolated Digital Input
  - 2000 VDC isolated protection
  - 2000 VDC ESD protection
  - 70 VDC over-voltage protection
  - 0 VDC ~ 50 VDC input range & 10 kHz speed
  - Dry contact levels (0: GND, 1: Open)
  - Wet contact levels (0: +2V Max, 1: +4V ~ +50V)
- ◆ Digital Output Signals  
8-port isolated digital output
  - 2000 VDC isolated protection
  - 2000 VDC ESD protection
  - 200 mA max/channel sink current
  - 5 VDC~ 30 VDC output range and 10 kHz speed
- ◆ Analog Input Signals  
2-ch Thermocouple Inputs
  - JKTE type
  - Input range:  $\pm 5\text{ V}$  ,  $\pm 2.5\text{ V}$  ,  $0\sim 2.5\text{ V}$  ,  $0\sim 5\text{ V}$
- ◆ CAN Communication Interface  
2-ch Isolated CAN
  - Compatible with CAN specifications 2.0
  - 3000 VDC isolated by photo coupler for dual ports.
- ◆ Power  
Power Input: 5 VDC (4.5 W min.)
- ◆ Environmental  
Operating Temperature:  $0^{\circ}\text{C} \sim 60^{\circ}\text{C}$   
Humidity: 5 % ~ 85 % RH without condensation
- ◆ Driver Support  
Windows® 2000, Windows® XP, Windows® XPe and Windows® CE 5.0

### Dimensions (Unit : mm)



## Packing List

1x PM-3004
1x Utility CD including SDK,utilities, and technical documentations
1x Screw kit

## Ordering Information

Part No.	Description
PM-3004-R10	PC/104 module with two isolated CAN , eight isolated DI and eight isolated DO and two channel AI