Appendix for PC/104-*plus* modules

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1 Introduction

1.1 Introduction of PC/104-plus

PC/104-*plus* is a special bus architecture designed for embedded systems. A third connector opposite the PC/104 connectors supports the PCI bus. Basically the electrical specifications of the PC/104-*plus* bus are compliant with the PCI signals, except 64-bit extensions, JTAG, PRSNT, and CLKRUN signals. The mechanical specifications are changed to a "module stack" configuration; please refer to the figure shown below. According to the specifications of PC/104-*plus*, PC/104-*plus* modules are installed and configured by switching CLK, IDSEL, INT, REQ and GNT signals through multiplexers to the appropriate connections.

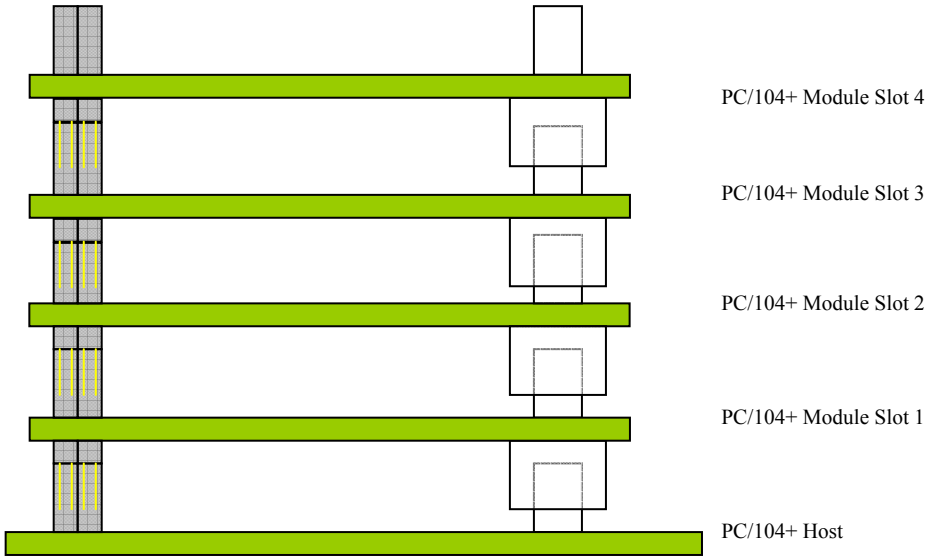


Figure 1: PC/104-plus module stack

Rotary switch on PCM-9112+ is used for these signals switching, please refer to section 2.4 for details in this appendix.

1.2 Specifications for PCM-7230+

- **Isolated Digital I/O (DIO)**
  - Optical isolated input channels
  - Numbers of channel: 16 digital inputs
  - Input voltage: up to 24Vdc
    - Logic "L": 0-0.8V
    - Logic "H": 3-24V
  - Input resistance: 1.2kΩ @ 0.5W
  - Isolated voltage: 2500Vrms
  - Throughput: 10kHz
  - Optical isolated output channels:
    - Numbers of channels: 16 digital outputs
    - Output type: Darlington transistors

        - Output Voltage: open collector $5V_{DC}$ (min.), up to $35V_{DC}$ (max.)
    - Sink current:
        - 500mA max @ 100% duty, for one of the 8 transistor devices ON
        - 268mA @ duty 10% for all transistors devices ON
        - 90mA @ duty 50% for all transistors devices ON
          (Note: the pulse width is 25ms for one duty cycle.)
    - Interrupt sources: Channel 0 and channel 1 of the digital input channels
- **General Specifications**
    - Connector: 20-pin 2.54mm Dual Row Box Header
    - Operating Temperature: 0° C to 60° C
    - Storage Temperature: -20° C to 80° C
    - Humidity: 5 to 95%, non-condensing
    - Power Consumption: +5 V @ 270mA (typical)
    - Dimension: Compact size: 95.9mm(L) X 90.2mm(H)

1.3 Supported Software

The software support is exactly the same as the PCI-7230. Please refer to section 1.4 of the PCI-7230 manual for detailed information.

2 Installation procedures for PC/104-*plus* DAQ modules:

2.1 What's Included

In addition to this appendix, the package includes the following items:

- PCM-7230+ DAQ modules
- Manual & Software Utility CD-ROM

If any of these items is missing or damaged, contact the dealer from whom you purchased the product. Save the shipping materials and carton to ship or store the product in the future.

2.2 Unpacking

The card contains electro-static sensitive components that can be easily be damaged by static electricity.

The card should be handled on a grounded anti-static mat. The operator should be wearing an anti-static wristband, grounded at the same point as the anti-static mat.

2.3 Module Layout

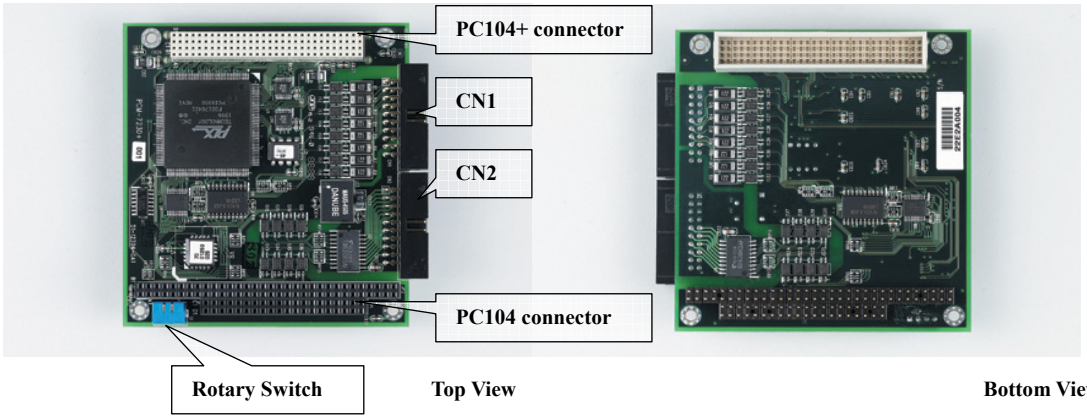


Figure 2: PCM-9112+ DAQ module layout

2.4 PC/104-plus configuration

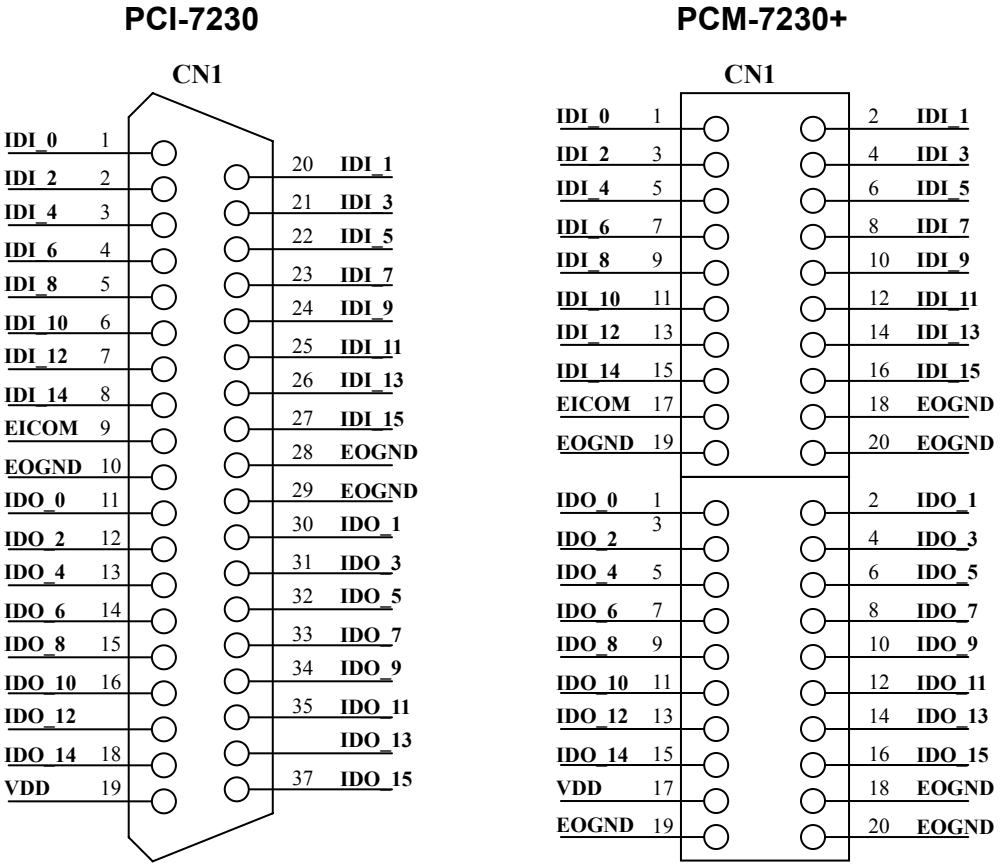
A rotary switch on the PCM-7230+ is used for switching the appropriate CLK, IDSEL, INT, REQ and GNT signals from the PCI bus. If the PCM-9112+ card is inserted in a position nearest to the PC/104-*plus* motherboard, the switch must be set to 0 or 4. For signal stability, the rotary switch should be set to the appropriate position with respect to the module slot. The module stack order was shown in Figure 1. According to PC/104-*plus* specification, module slots 3 and 4 share REQ2/GNT2, hence they cannot both have bus-mastering devices.

Rotary Switch Position	Module Slot	CLK	IDSEL	INT	REQ	GNT
0	1	CLK0	IDSEL0	INTA	REQ0*	GNT0*
1	2	CLK1	IDSEL1	INTB	REQ1*	GNT1*
2	3	CLK2	IDSEL2	INTC	REQ2*	GNT2*
3	4	CLK3	IDSEL3	INTD	REQ2*	GNT2*
* Only for Bus Master cards						

Table 1: Rotary switch settings

2.5 Jumper Settings

Connector pin assignment comparison between PCI-7230 and PCM-7230+



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Note: Register format, operation theorem, and C/C++ Libraries of PCM-7230+ are the same as those of the PCI-7230, please refer to chapter 3 and 4 of the PCI-7230 manual for detailed information.

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   - Please ensure the use of properly licensed software with our systems. ADLINK does not condone the use of pirated software and will not service systems using such software. ADLINK will not be held legally responsible for products shipped with unlicensed software installed by the user.
   - For general repairs, please do not include peripheral accessories. If peripherals need to be included, be certain to specify which items you sent on the RMA Request & Confirmation Form. ADLINK is not responsible for items not listed on the RMA Request & Confirmation Form.

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   - Damage caused by fire, earthquakes, floods, lightening, pollution, other acts of God, and/or incorrect usage of voltage transformers.
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   - Damage caused by leakage of battery fluid during or after change of batteries by customer/user.
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   - This warranty is not transferable or extendible.
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