OPTO 22

DATA SHEET

Form 261-050517

Description

The PCI-AC5, AC5, and G4AC5 adapter cards provide an interface between personal computers and Opto 22 digital I/O mounting racks, for direct connection to input/output points.

The AC5 and G4AC5 are compatible with ISA bus-based PCs. The PCI-AC5 is compatible with computers that feature a 33 MHz Peripheral Component Interconnect (PCI) bus. The PCI-AC5 offers expanded operation with the faster PCI interface, using high speed 32-bit memory access for high throughput. The PCI-AC5 is about 100 times as fast as the AC5 in accessing I/O using the free Opto 22 PCI-AC5/AC5 Toolkit. The PCI-AC5 also has jumperless configuration and four LEDs for debugging or indicating application status.

The AC5 and G4AC5 adapter cards can control up to 24 I/O points on a single mounting rack. The PCI-AC5 adapter card, with two 50-wire ribbon cable interfaces, can control up to 48 I/O points.

Six-foot ribbon cables are supplied with each adapter card to connect the card to the I/O rack. The PCI-AC5 comes with two 50-wire ribbon cables with header

Part Number	Description
PCI-AC5	PCI bus adapter card with two 6-ft. cables to I/O racks with header connectors
AC5	ISA bus adapter card with 6-ft. cable to I/O rack with edge connector
G4AC5	ISA bus adapter card with 6-ft. cable to I/O rack with header connector
ADAPTERCARDTOOLKITCD	PCI-AC5/AC5 Developer Toolkit, including driver and applications

PCI-AC5 ADAPTER CARD
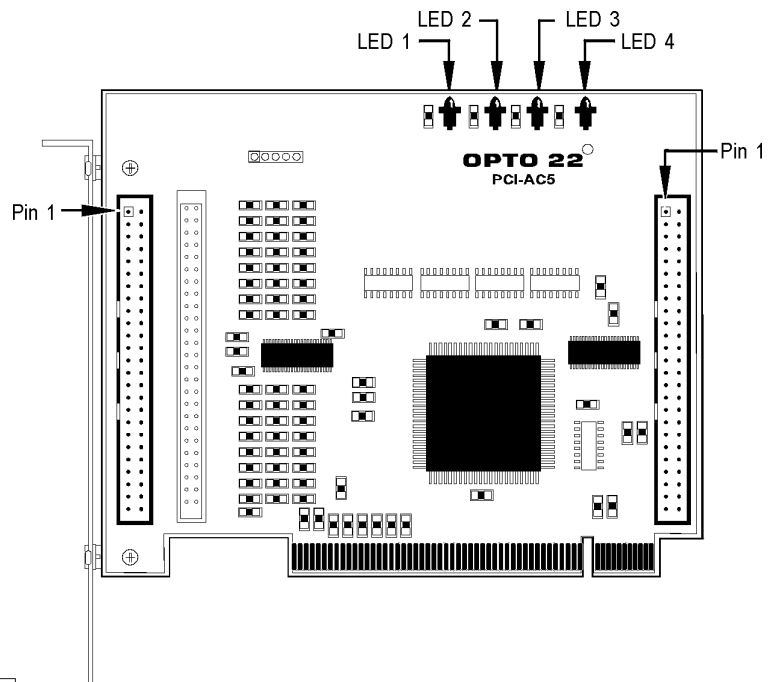
AC5 OR G4AC5 ADAPTER CARD
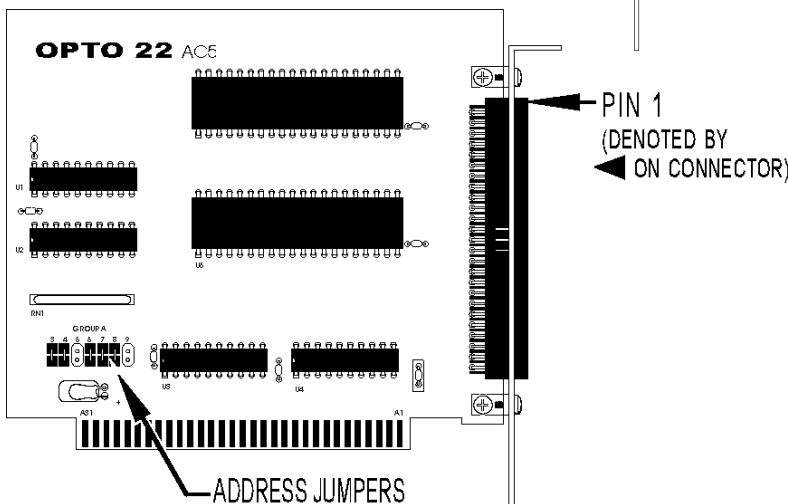
Features

- Provides direct connection to a wide variety of I/O mounting racks.
- Bidirectional I/O lines allow any combination of input and output modules.
- Includes six-foot interface cable.

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INTERFACES
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PC ADAPTER CARD

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Description (continued)

connectors. Edge-connector cables are available for purchase if needed.

The G4AC5 and AC5 part numbers include identical adapter cards but come with different cables. The cable included with the G4AC5 connects the card to racks with header connectors (such as the G4PB24). The cable included with the AC5 connects the card to racks with edge connectors (such as the PB16A). For complete rack compatibility information, see page 3 of this data sheet.

Free with all three adapter cards is the PCI-AC5/AC5 Toolkit. The toolkit is included on the Opto 22 Adapter Card Toolkits CD (part number ADAPTERCARDTOOLKITCD), shipped with the cards, and can also be downloaded from our Web site. The developer toolkit includes sample applications, utility applications, and the PCI-AC5/AC5 driver for 32-bit Microsoft® Windows®. The toolkit supports both Microsoft Visual Basic® and Visual C++®. Up to 64 AC5/G4AC5 and PCI-AC5 devices are supported by the driver.

For adapter card installation instructions and detailed information on using the toolkit, see Opto 22 form #1211, *PCI-AC5 and AC5 User's Guide*.

Requirements

- An external 5 VDC power supply is required at the I/O mounting rack. This power cannot be provided by the adapter card. Opto 22 recommends the use of an Opto 22 SNAP PS5 or an isolated supply for this purpose.
- A software driver is required to access the adapter card.

Specifications

	PCI-AC5	AC5 and G4AC5
Interface	PCI	ISA
Number of I/O points controlled	48	24
Power requirements	5 VDC @ 600 mA	5 VDC @ 600 mA
Bus compatibility	32-bit, 33 MHz PCI 2.1 specification	ISA
Toolkit compatibility	Microsoft Windows 95/98/Me, Windows NT/2000	Microsoft Windows 95/98/Me, Windows NT/2000
Jumpers	None; PCI configured	Seven; used to configure base address
LEDs	Four	None
Operating temperature Storage Temperature	0° to 70° C -30° to 85° C	0° to 70° C -30° to 85° C

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Rack Compatibility Information

The following table lists Opto 22 racks that are compatible with the PCI-AC5, AC5, and G4AC5 adapter cards and racks that can be modified to work with these adapter cards.

Warning: DO NOT USE the racks listed as NOT compatible; doing so may cause damage to the computer.

AC5 Compatible (Edge Connectors)	PCI-AC5 & G4AC5 Compatible (Header Connectors)	PCI-AC5 & G4AC5 Compatible only if Modified	Not Compatible; DO NOT USE
PB8 PB16A PB16C PB24 PB24Q	G4PB8 G4PB16 G4PB24 PB24HQ SNAP-D6M SNAP-D6MC SNAP-D6MC-P SNAP-D12M SNAP-D12MC SNAP-D12MC-P	G4PB16J* G4PB16K* G4PB16L* PB4H* PB8H* PB16H* PB16HC* PB16J* PB16K* PB16L* PB16HQ* SNAP-D8M** SNAP-D8MC** SNAP-D8MC-P**	G4PB8H G4PB16H G4PB16HC

* Modification required to use these racks: Remove the jumpers to pins 1 and 49. (These jumpers are labeled JP1 and JP2 on racks G4PB16J, G4PB16K, and G4PB16L.) The jumpers can be de-soldered or clipped.
Warning: If these jumpers are not removed, then the power-on LED will be lit regardless of the actual 5-volt power status. This can result in a false power-on indication and may cause damage to the computer.

** Modification required to use these racks: Remove the JP1 and JP2 jumpers.
Warning: Failure to remove the jumpers may cause damage to the computer.

Products

Opto 22 produces a broad array of reliable, flexible hardware and software products for industrial automation, remote monitoring, enterprise data acquisition, and machine-to-machine (M2M) applications.

SNAP Ethernet Systems

Based on the Internet Protocol (IP), SNAP Ethernet systems offer flexibility in their network connectivity and in the software applications they work with. The physical network may be a wired Ethernet network, a cellular wireless network, or a modem. A wide variety of software applications can exchange data with SNAP Ethernet systems, including:

- Opto 22's own ioProject™ suite of control and HMI software
- Manufacturing resource planning (MRP), enterprise management, and other enterprise systems
- Human-machine interfaces (HMIs)
- Databases
- Email systems
- OPC client software
- Custom applications
- Modbus/TCP software and hardware.

SNAP Ethernet system hardware consists of controllers and I/O units. Controllers provide central control and data distribution. I/O units provide local connection to sensors and equipment.

SNAP OEM Systems

Opto 22 SNAP OEM I/O systems are highly configurable, programmable processors intended for OEMs, IT professionals, and others who need to use custom software with Opto 22 SNAP I/O modules.

Linux® applications running on these systems can read and write to analog, simple digital, and serial I/O points on SNAP I/O modules using easily implemented file-based operations. Applications can be developed using several common development tools and environments, including C or C++, Java, and shell scripts.

M2M Systems

Machine-to-machine (M2M) systems connect your business computer systems to the machines, devices, and environments you want to monitor, control, or collect data from. M2M systems often use wireless cellular communications to link remote facilities to central systems over the Internet, or to provide monitoring and control capability via a cellular phone.

Opto 22's Nvio™ systems include everything you need for M2M— interface and communications hardware, data service plan, and Web portal—in one easy-to-use package. Visit nvio.opto22.com for more information.

Opto 22 Software

Opto 22's ioProject and FactoryFloor® software suites provide full-featured and cost-effective control, HMI, and OPC software to power your Opto 22 hardware. These software applications help you develop control automation solutions, build easy-to-use operator interfaces, and expand your manufacturing systems' connectivity.

Quality

In delivering hardware and software solutions for worldwide device management and control, Opto 22 retains the highest commitment to quality. We do no statistical testing; each product is made in the U.S.A. and is tested twice before leaving our 160,000 square-foot manufacturing facility in Temecula, California. That's why we can guarantee solid-state relays and optically-isolated I/O modules *for life*.

Product Support

Opto 22's Product Support Group offers comprehensive technical support for Opto 22 products. The staff of support engineers represents years of training and experience, and can assist with a variety of project implementation questions. Product support is available in English and Spanish from Monday through Friday, 7 a.m. to 5 p.m. PST.

Opto 22 Web Sites

- www.opto22.com
- nvio.opto22.com
- www.internetio.com (live Internet I/O demo)

Other Resources

- OptoInfo CDs
- Custom integration and development
- Hands-on customer training classes.

About Opto 22

Opto 22 manufactures and develops hardware and software products for industrial automation, remote monitoring, enterprise data acquisition, and machine-to-machine (M2M) applications. Using standard, commercially available Internet, networking, and computer technologies, Opto 22's input/output and control systems allow customers to monitor, control, and acquire data from all of the mechanical, electrical, and electronic assets that are key to their business operations. Opto 22's products and services support automation end users, OEMs, and information technology and operations personnel.

Founded in 1974 and with over 85 million Opto 22-connected devices deployed worldwide, the company has an established reputation for quality and reliability.

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