OPTO 22

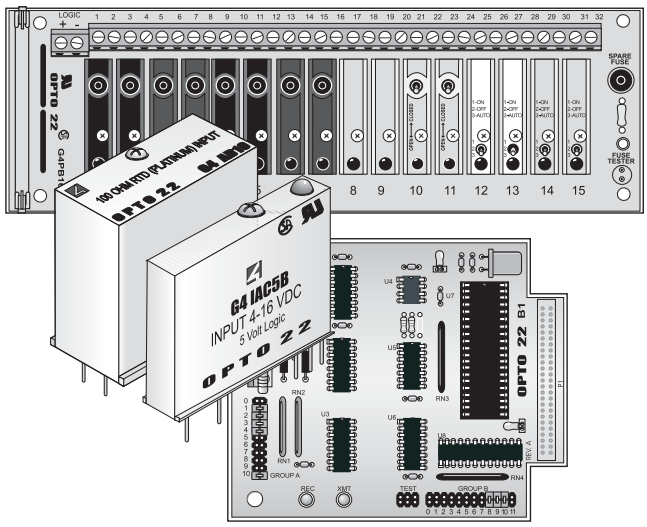
DATA SHEET

Form 1165-050120

G4 I/O Control Systems

Control systems using Opto 22 G4 I/O hardware and software are in place worldwide in a variety of industrial automation applications. This data sheet helps you determine the combination of G4 I/O equipment you need for the following applications:

- **Direct, high-speed control of hundreds of digital I/O points,** without using an Opto 22 brain.
- **Distributed control of up to 4,096 digital and/or analog I/O points,** using Opto 22 serial brains and one RS-485 link.
- **High-speed control of up to 512 digital and/or analog I/O points,** using Opto 22 Pamux brains.



In the table below, match your I/O application with the appropriate combination of Opto 22 G4 I/O hardware and software. Sample equipment configurations are shown on pages two and three of this data sheet.

If Your I/O Application Requires…	*Use This Combination of G4-Series Equipment…*			
	Software and Adapter Card	**Rack(s)**	**I/O Modules**	**Brain(s)**
• **Direct, high-speed control** of hundreds of digital I/O points. (Use the PCI-AC5 adapter card for high-speed control.)	• *PCI-AC5 and AC5 Toolkit* software (available free from Opto 22; 32-bit Windows only). • One of the following adapter cards: [1] - G4AC5 - PCI-AC5	Digital: • G4PB8 • G4PB16 • G4PB24	Any G4-series digital I/O modules.	(none required)
• **Serial control** (via brain) of multiple digital and/or analog I/O points. • **Support for up to 256 I/O units,** for a total of 4,096 I/O points on one 4,000 ft. (1,200 m.) RS-485 data link.	• *OptoDriver Toolkit* software (32-bit Windows only). • RS-485 port for serial connection to brain using one of the following adapter cards: - AC422AT - AC37 - AC24AT - AC7A/B	Digital: • G4PB8H • G4PB16H Analog: • PB4AH • PB8AH • PB16AH	Any G4-series digital I/O modules. Any G1-series (or "standard") analog I/O modules.	• B1 or B100 for digital rack. • B2 or B200 for analog rack.
• **High-speed control** (via brain) of multiple digital and/or analog I/O points. • **Access to up to 512 I/O points,** located up to 500 ft. (150 m.) away, per adapter card.	• *ISA Pamux Toolkit* or *PCI-AC51 Toolkit* software (available free from Opto 22; 32-bit Windows only). • One of the following adapter cards: [2] - AC28 - PCI-AC51	Digital: • G4PB8H • G4PB16H • G4PB32H Analog: • PB4AH • PB8AH • PB16AH	Any G4-series digital I/O modules. Any G1-series (or "standard") analog I/O modules. [3]	• B4 for G4PB32H digital rack only. • B5 for G4PB8H and G4PB16H digital racks. • B6 for analog rack.

1) Up to four G4AC5 adapter cards can be installed in one PC for up to 96 points of digital I/O. Up to 32 PCI-AC5 adapter cards can be installed in one PC for up to 1,536 points of digital I/O. **2)** Up to four AC28 adapter cards can be installed in one PC for up to 2,048 points of I/O. Up to 32 PCI-AC51 adapter cards can be installed in one PC for up to 16,384 points of I/O. **3)** Older G1-series digital I/O modules can also be used if a B1 or B100 brain is used with a PB4H, PB8H, or PB16H digital rack.

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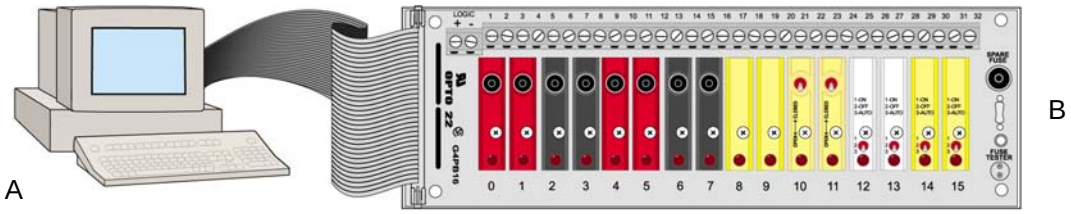
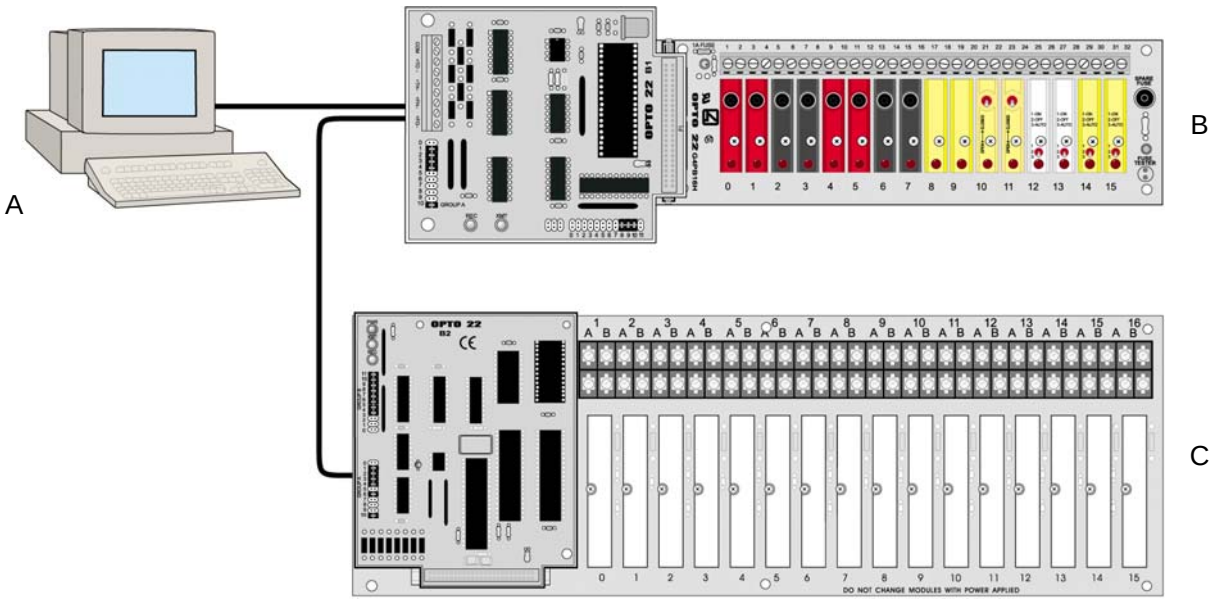
G4 I/O for Direct Digital Control

This example shows a PC (A) using the PCI-AC5 and AC5 Toolkit software and a G4AC5 adapter card connected to a G4PB16 digital rack (B) that contains eight input modules and eight output modules.



G4 I/O for Serial Digital and Analog Control

This example shows a PC (A) using the OptoDriver Toolkit software and an AC24AT adapter card connected to a G4PB16H digital rack (B) with a B1 brain board and 16 G4 digital I/O modules (eight input and eight output). Also connected to the PC via the RS-485 serial data link is a PB16AH analog rack (C) with a B2 brain board and 16 G1-series (or "standard") analog I/O modules.



G4 I/O Control Systems (continued)

G4 I/O for High-Speed Pamux Control

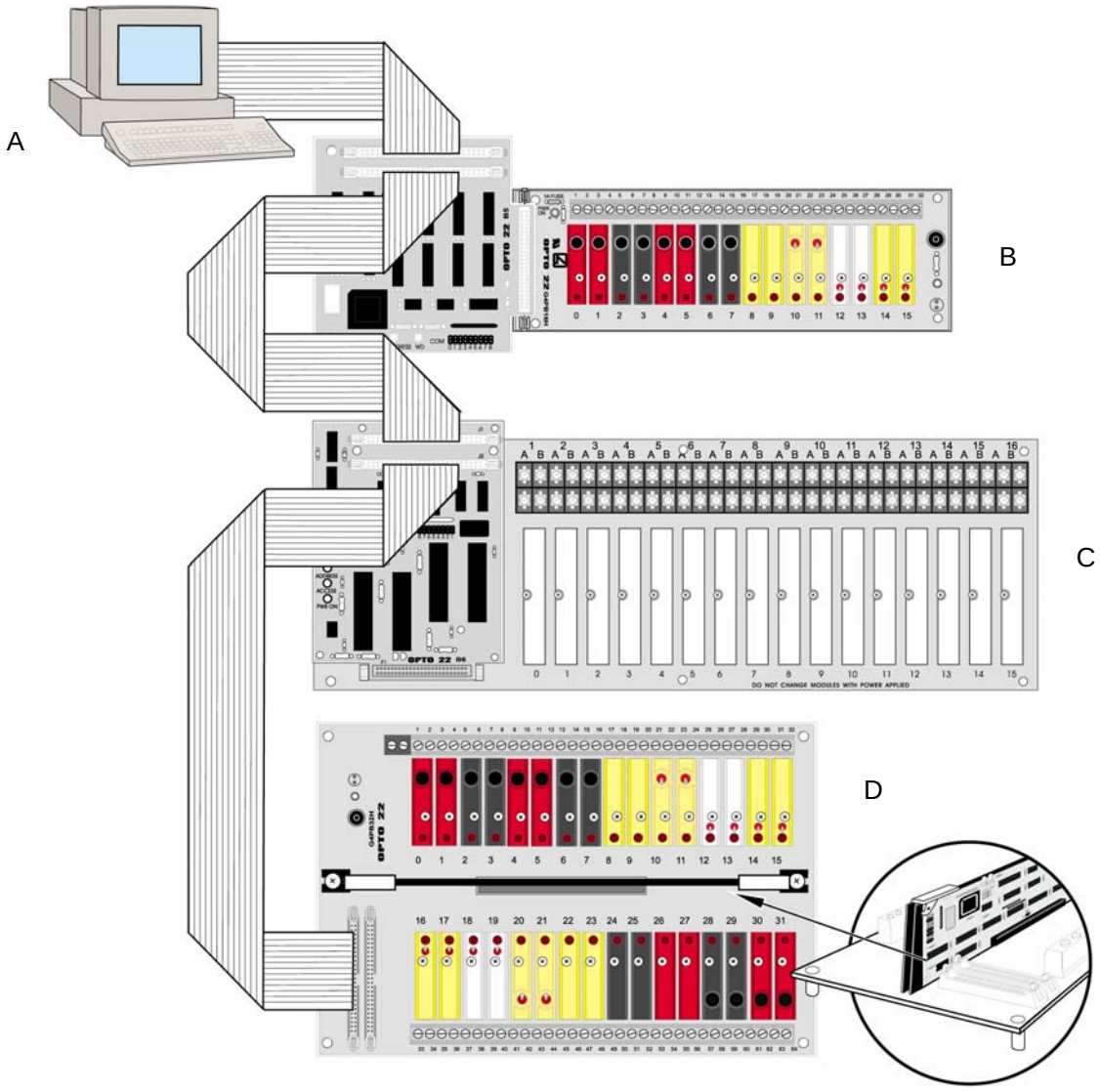
This example shows the following G4 I/O equipment:

A A PC using the ISA Pamux Toolkit software and an AC28 adapter card.

B A G4PB16H digital rack with a B5 brain board and 16 G4 digital I/O modules (eight input and eight output).

C A PB16AH analog rack with a B6 brain board and 16 G1-series (or "standard") analog I/O modules, connected to digital racks B and D via a high-speed Pamux link.

D A G4PB32H digital rack with a B4 brain board (mounted perpendicular to the rack) and 32 G4 digital I/O modules (16 input and 16 output). This rack is connected to the analog rack (C) via a high-speed Pamux link.



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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 80 million Opto 22-connected devices deployed worldwide, the company has an established reputation for quality and reliability.

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