OPTO 22

RACKS
CLASSIC INTEGRAL DIGITAL
INPUT

DATA SHEET

page 1/5

Form 732-010119

Description

| Part Number	Description
G4PB16J	G4 DC Input 4-16 VDC, 16-Channel Integral
G4PB16K	G4 DC Input 16-28 VDC, 16-Channel Integral

The G4PB16J and G4PB16K DC input racks provide 16 channels of optically-isolated inputs for sensing on/off DC voltage levels by a B1, B5, or B100 brain board, or any ISA bus-compatible computer with an Opto 22 G4AC5 adapter card. Their compact size and design yields a substantial space and cost savings over other 16-channel I/O boards. All input channels are identical on each board and are ideal for applications that need to monitor several 4-16 VDC signals (model G4PB16J) or 16-28 VDC signals

(model G4PB16K). On-board LED indicators display each channel's on/off status.

Typical applications for the integrated DC input racks include sensing the presence or absence of voltage from sources such as BCD devices, TTL level devices, thumbwheel switches, and barcode readers.

Control connections are easily made to a 50-pin header connector. Barrier strips with screw terminals provide the field and rack power connections. The logic supply is fused with a 1A fuse.
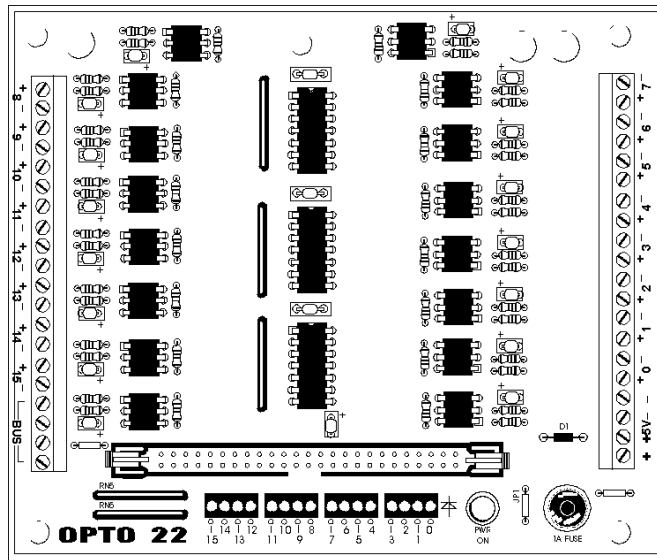
Features

- 16 optically-isolated inputs
- Small footprint design, resulting in reduced mounting space
- 4,000 V_{rms} optical isolation
- Compatible with Optomux® B1, Pamux® B5, and Mistic® B100 brain boards
- Operating temperature: -30° C to 70° C

OPTO 22

DATA SHEET

Form 732-010119

Specifications

Table 1: General Specifications

	Units	PB16J	PB16K
Input line voltage	VDC	4–16	16–28
Input current: @ Minimum voltage range @ Maximum voltage range	mA @ VDC mA @ VDC	3.3, 4 16, 16	3.4, 16 6.3, 28
Isolation: Input-to-output Channel-to-channel	VRMS Continuous VRMS	4,000 300	4,000 300
Input-to-output capacitance	pF/channel	8	8
Turn-on-time	ms	2.5	3
Turn-off-time	ms	3.5	4.5
Logic supply voltage	VDC	4.5–6	4.5–6
Logic supply current	mA @ VDC	190, 5	190, 5
Temperature: Operating Storage	° C ° C	-30 to +70 -30 to +85	-30 to +70 -30 to +85

Mounting

Mount the G4PB16J/K in an enclosure or to a panel using the mounting standoffs shown in the figure.

Table 2: Channel Positions and Field Terminals

Module Position	Control (Header Connector)	Field (Terminal Strip)
0	47	-0 and +0
1	45	-1 and -1
2	43	-2 and +2
3	41	-3 and +3
4	39	-4 and +4
5	37	-5 and +5
6	35	-6 and +6
7	33	-7 and +7
8	31	-8 and +8
9	29	-9 and +9
10	27	-10 and +10
11	25	-11 and +11
12	23	-12 and +12
13	21	-13 and +13
14	19	-14 and +14
15	17	-15 and +15
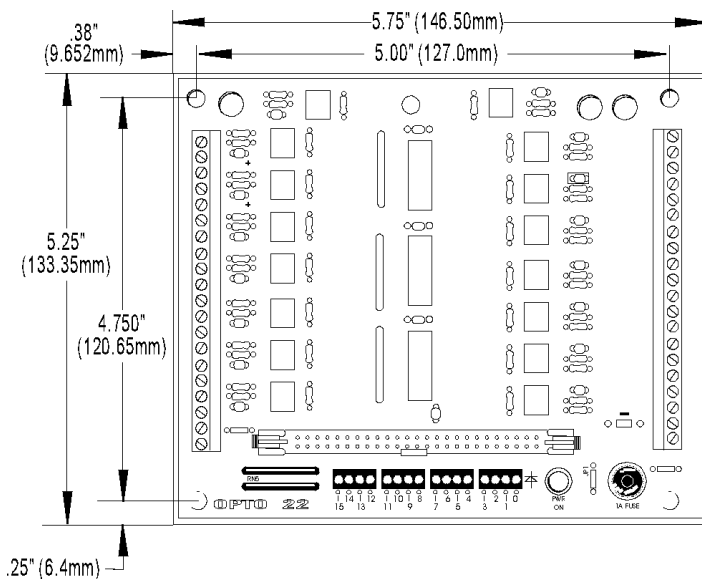
Even pins on the control connector are connected by etch to 5V return.

OPTO 22

RACKS
CLASSIC INTEGRAL DIGITAL
### INPUT

DATA SHEET

page 3/5

Form 732-010119

Connections

CONNECTING FIELD WIRING

Caution: TURN OFF POWER to the G4PB16J/K before connecting or removing field wiring.

The figure below shows the location of the field wiring terminals on the G4PB16J/K mounting racks and the layout of the terminal points as they relate to each channel. Field wiring terminals accept up to 10 AWG wire. Refer to the figures on page 4 for schematics of the mounting racks.

Each channel has a positive (+) and negative (–) terminal. Connect the positive wire from your field device to the channel's positive terminal, and then connect the negative wire to the negative terminal. Table 1 on the following page lists the channel numbers, their respective field terminals, and pinouts to the header connector.

DIGITAL CHANNEL #
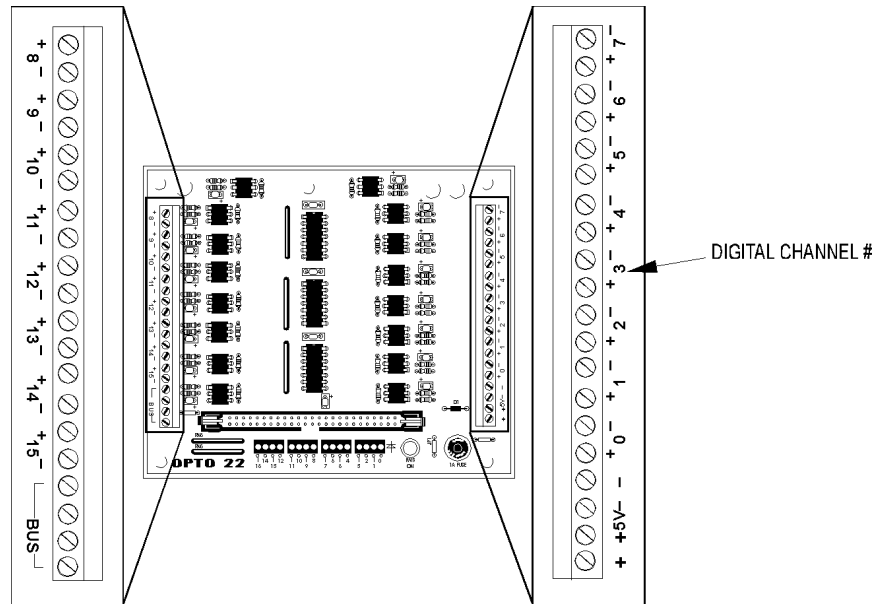
Bus Terminals

The four terminals labeled "BUS" are tied together and are not electrically connected to anything else on the mounting rack. They may be used to provide additional terminals for bussing power, ground, or a common connection to multiple channels on the mounting rack.

Opto 22 • 43044 Business Park Drive • Temecula, CA 92590-3614 • Phone: (951) 695-3000 • (800) 321-OPTO • Fax: (951) 695-3095 • www.opto22.com

Inside Sales: (800) 321-OPTO • Product Support: (800) TEK-OPTO • (951) 695-3080 • Fax: (951) 695-3017 • E-mail: sales@opto22.com

RACKS
CLASSIC INTEGRAL DIGITAL
INPUT
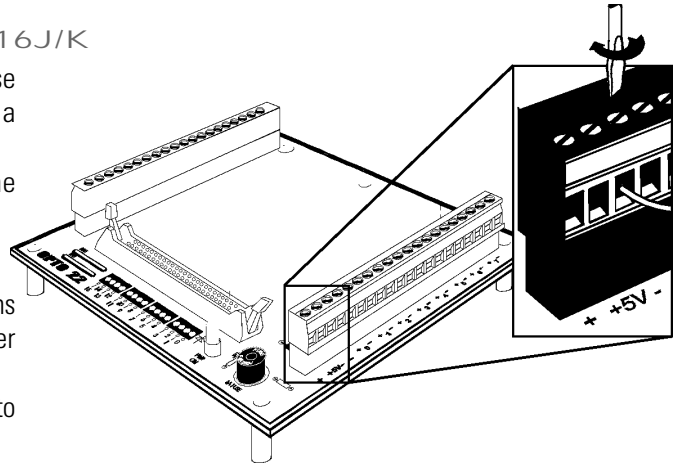
OPTO 22

DATA SHEET

page 4/5

Form 732-010119

Connections
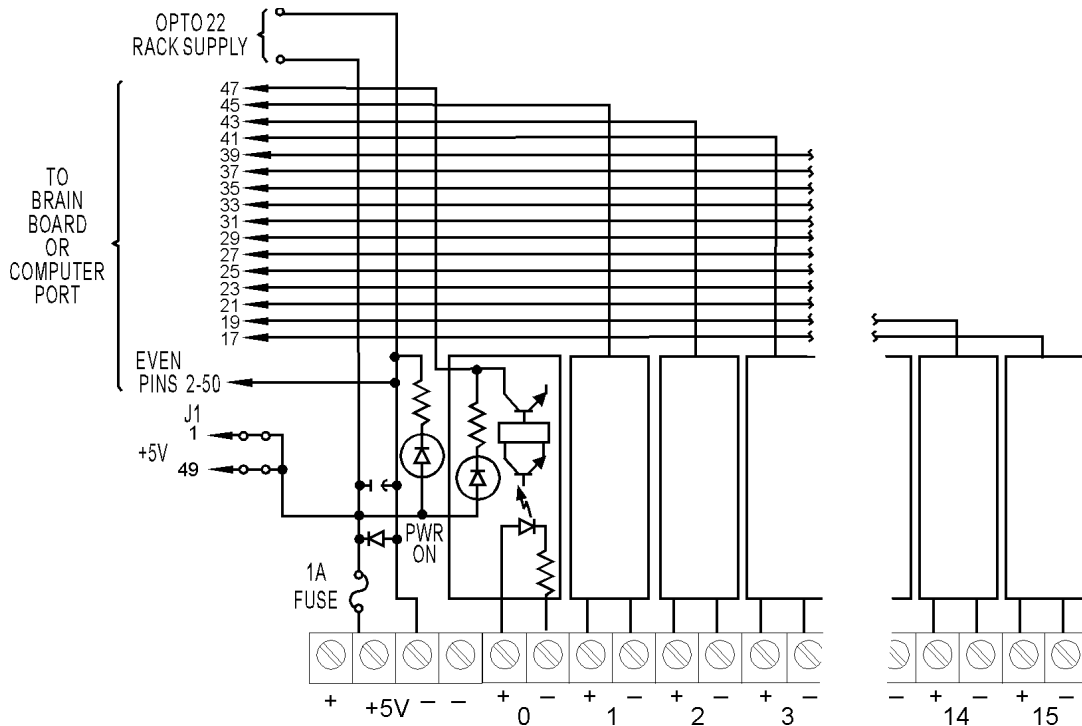
CONNECTING POWER TO THE G4PB16J/K

The G4PB16J/K racks require 190 mA at 5 VDC. These requirements are in addition to the power required by a brain board if you are using one.

Follow the instructions below to wire power to the mounting rack.

1. Verify that the power supply is turned off.
2. Make sure all power supply terminal block connections are completely open by turning the screws counter clockwise.
3. Prepare each power supply wire, being careful not to strip back the insulation too far.
4. Refer to the figure above and insert the power supply's +5V wire into one of the "+" terminals and the power supply's "–" wire into one of the "–" (GND) terminals.
5. Tighten each wire by turning the power terminal screw clockwise. Make sure the terminal block is clamping the wire and not the insulation.

Schematics

Opto 22 • 43044 Business Park Drive • Temecula, CA 92590-3614 • Phone: (951) 695-3000 • (800) 321-OPTO • Fax: (951) 695-3095 • www.opto22.com

Inside Sales: (800) 321-OPTO • Product Support: (800) TEK-OPTO • (951) 695-3080 • Fax: (951) 695-3017 • E-mail: sales@opto22.com

OPTO 22

DATA SHEET

Form 732-010119

Assembly

ATTACHING A BRAIN BOARD OR PC CONNECTION

The G4PB16J/K boards work with B1, B5, or B100 brain boards. They can also be controlled directly by an IBM PC using an Opto 22 G4AC5 adapter card and a 50-pin ribbon cable.

Align the brain board or cable header connector with the header connector on the G4PB16J/K board as shown in Figure 7. If you are connecting a 50-pin ribbon cable, the connector keys should match up. Firmly press the header connectors together until the locking tabs clamp down on the brain board or cable.
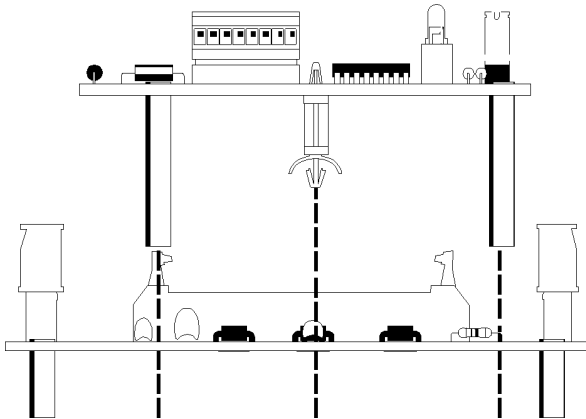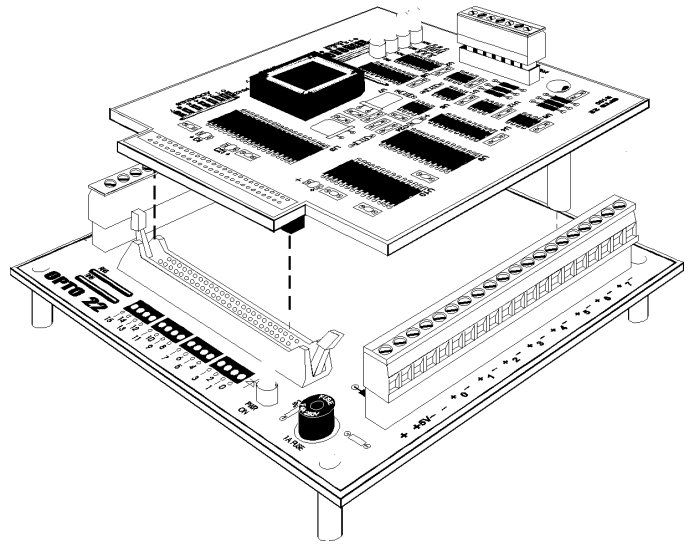
If you are attaching a B100 to a G4PB16J/K mounting rack, you must first attach a plastic, removable standoff to the brain board as shown in the figure above. Continue by installing the brain board to the mounting rack as described above and as shown in the figure to the left.

LED INDICATORS

The figure to the right shows the LEDs found on the G4PB16J/K mounting racks. Three LED indicator groups on the mounting racks are used to indicate the status of each channel. A lit LED indicates the channel is on. An unlit LED indicates the channel is off.

A separate "PWR ON" LED is used to indicate that power is applied to the mounting rack. A lit LED indicates power is on. An unlit LED indicates power is off. The G4PB16L rack also has a "FUSE TESTER" LED indicator. A lit LED indicates the fuse inserted in the "FUSE TEST" fuse socket is good. An unlit LED indicates the fuse is bad and should not be used.
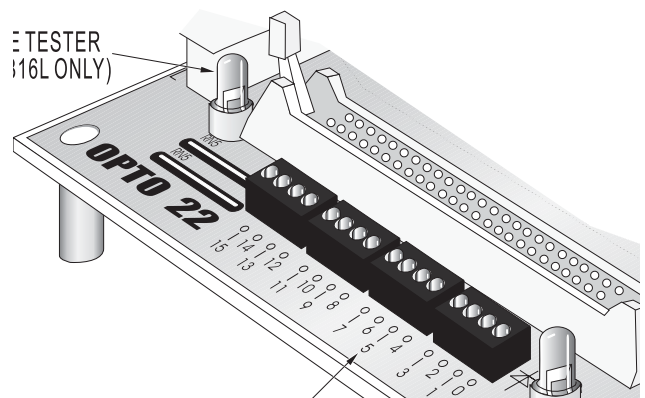
Products

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.