OPTO 22

INSTALLATION NOTE

Form 629-040920

G4RA/G4RD Brain Board

HEADER CONNECTOR FOR REMOTE I/O BUS

ADDRESS JUMPERS

BAUD JUMPERS

LOOP BACK JUMPERS

ANALOG EXPANSION CONNECTOR
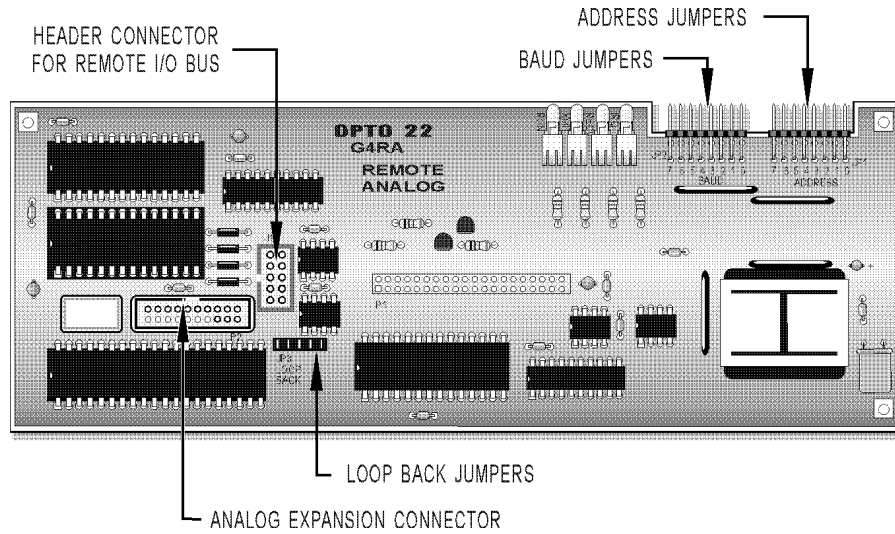
Addressing

Install a jumper where indicated by the following table to set a unique system address on each I/O brick. The factory default is address 0.

The jumper header positions are labeled **7 6 5 4 3 2 1 0**. Each address corresponds to the binary value of the address number (■ = jumper installed = 1, □ = no jumper = 0). Address 0 is the factory default.

Addr	7 6 5 4 3 2 1 0
0	X X X X X X X X
1	□ □ □ □ □ □ □ ■
2	□ □ □ □ □ □ ■ □
3	□ □ □ □ □ □ ■ ■
...	(binary of address)
255	■ ■ ■ ■ ■ ■ ■ ■

(Table continues for addresses 0–255, arranged in eight columns of 32 rows each: 0–31, 32–63, 64–95, 96–127, 128–159, 160–191, 192–223, 224–255. Each entry shows the 8-bit jumper pattern corresponding to the binary value of the address.)

■ = JUMPER INSTALLED □ = NO JUMPER

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Baud Jumper Group

Install jumpers according to the following table.

Table 1 - Remote Brick Jumpers		
Jumper	**Jumpers for use with Cyrano/FactoryFloor**	**Description**
0-3	See Table 2 - Baud Rate Jumpers	Selects the baud rate. The factory default baud rate is 115.2 KBd.
4	In	Selects the data transmission protocol. An installed jumper selects binary protocol and is the factory default. If the jumper is out, ASCII protocol is selected.
5	In	Selects the data verification method. An installed jumper selects CRC-16 and is the factory default. If the jumper is out, an 8-bit checksum is selected.
6	Out	Reserved for future use.
7	Out	Reserved for future use.

Baud Rate Jumpers

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BRICKS
REMOTE
G4A8R/G4D16R
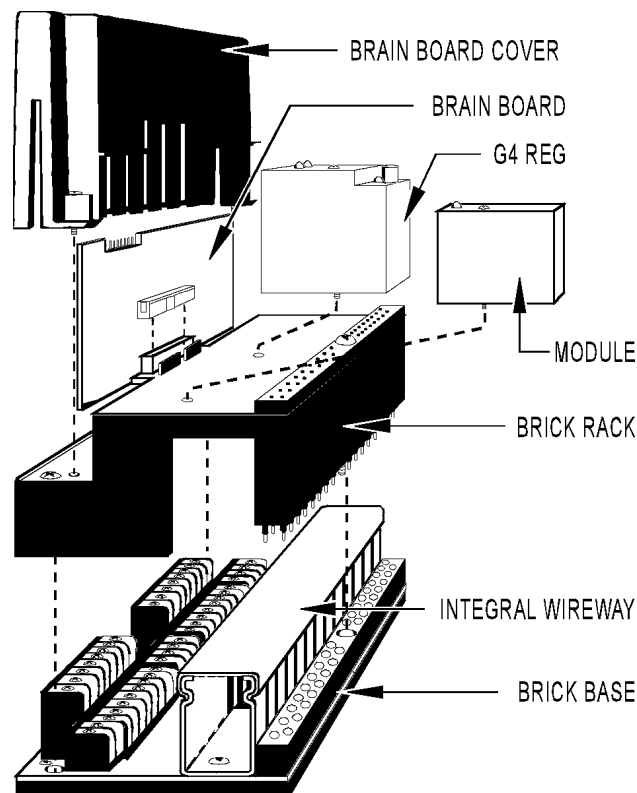
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Installation

1. Disasemble the brick unit and attach the brick base to the mounting surface.
2. Connect field and power wiring to the brick base. Refer to Form # 595, Mistic 200 System Installation Guide, for specific wiring information.

Caution: Turn OFF all power before wiring to the brick.

3. Install the brick rack.
4. Install the I/O modules, G4REG, and brain board to the brick rack.
5. Set the jumpers and connect a remote cable or SBTA communications adapter to the 10-pin header.
6. If this is physically the last brick on the remote I/O network, install jumpers on the "JP3 LOOPBACK" jumper group.
7. Attach the brain board cover.

Brick Diagram

BRAIN BOARD COVER
BRAIN BOARD
G4 REG
MODULE
BRICK RACK
INTEGRAL WIREWAY
BRICK BASE

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Power Requirements

G4A8R	
*System power consumption @ 24 VDC ± 0.1 V (Excludes analog modules)	
Terminated (last brick in the bus)	180 mA
Non-terminated (all other bricks)	180 mA
Analog expansion brick	65 mA
Typical analog module	45 mA

G4D16R	
*System power consumption @ 24 VDC ± 0.1 V (Excludes analog modules)	180 mA
Terminated (last brick in the bus)	180 mA
Non-terminated (all other bricks)	

*Note: The 24 VDC common must be tied to earth ground. When using mistic power supplies, this is handled by the power supply as long as earth ground is connected to the AC side.

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.