

### Description

OptoGSM I/O from Opto 22 integrates standard wireless GSM/GPRS networks and proven Opto 22 input/output (I/O) technology to provide a low-cost, flexible solution for remote monitoring and control.

Part of Opto 22's family of machine-to-machine (M2M) products, OptoGSM I/O is ideal for monitoring locations with 12 or fewer sensors. Monitoring typically may include:

- Temperature and pressure
- Doors, fans, lights, pumps, and generators
- Liquid level and flow
- Equipment line voltage and current draw.

In addition to real-time monitoring, simple on/off control can also be performed remotely or be triggered automatically when pre-defined events occur.

OptoGSM I/O integrates the following components:

- Opto 22 G4-SE-4A8D input/output rack—accommodates the GSM-based remote communications unit from Sony Ericsson Mobile Communications (USA) Inc., and

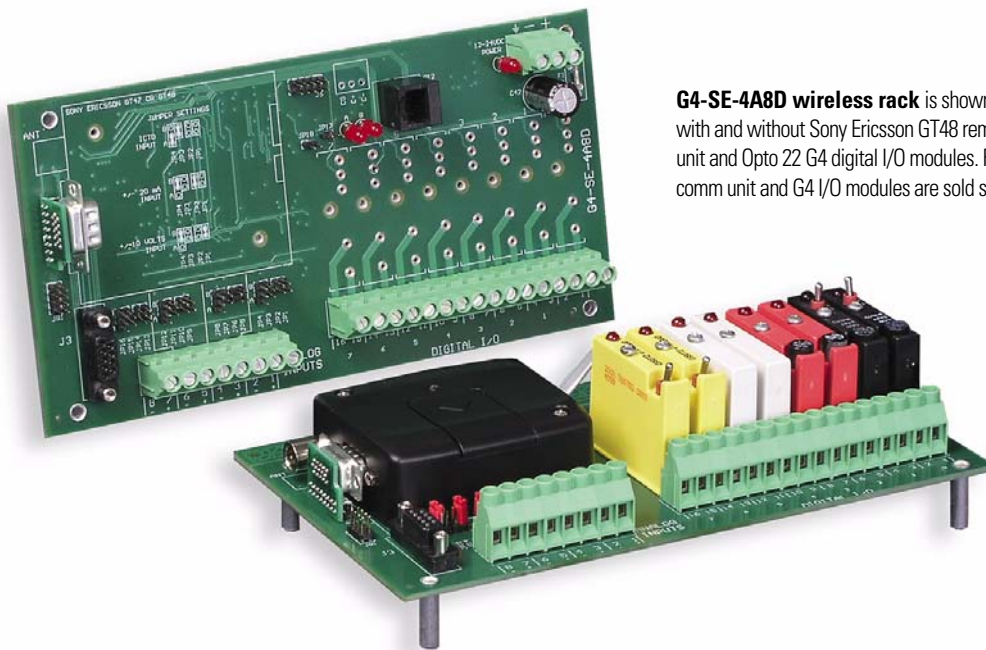
supports up to eight G4 digital I/O modules, AC or DC. A 24 VDC power supply is required.

- Sony Ericsson GT47 or GT48 remote comm unit—for communication over 900/1800 MHz (GT47) or 850/1900 MHz (GT48) GSM networks.
- Four analog inputs (embedded on the rack)—each input is configurable for current, voltage, or ICTD (temperature probe) signals.
- Opto 22 G4 digital I/O modules—digital I/O modules compatible with the G4-SE-4A8D rack are available for a wide range of signal types.

Industry-standard Opto 22 G4 digital modules are plug compatible and available worldwide. Sony Ericsson remote comm units and Opto 22 G4 I/O modules are purchased separately from the G4-SE-4A8D wireless rack.

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Part Number	Description
G4-SE-4A8D	Programmable analog/digital input/output rack for remote monitoring of business assets
RC-SENA-GT48SA	Sony Ericsson GT48 remote comm unit for operation on user-designated 850/1900 MHz GSM networks
ANTENNA	External antenna for Sony Ericsson GT48 remote comm unit



**G4-SE-4A8D wireless rack** is shown here both with and without Sony Ericsson GT48 remote comm unit and Opto 22 G4 digital I/O modules. Remote comm unit and G4 I/O modules are sold separately.

### Description (cont.)

#### Signal Inputs and Outputs

OptoGSM I/O has four built-in, single-ended analog inputs and supports up to eight digital inputs or outputs. (Digital input and output modules can both be on the same rack.)

Each analog input has  $\pm 25,000$  counts resolution, is configurable for -20 mA to +20 mA, -10 VDC to +10 VDC, and ICTD inputs, and supports alarm latching.

Digital inputs and outputs are provided by Opto 22 G4 digital I/O modules (5V logic modules only), either AC or DC, which are purchased separately as required for your application. Opto 22 G4 digital I/O modules offer optical isolation, which provides 4,000 volts of transient (4,000 volts for 1 ms) protection against real-world industrial field signals. Digital input modules used with OptoGSM I/O support alarm latching.

Available from distributors worldwide, Opto 22 G4 digital modules are guaranteed for life. For specifications and detailed descriptions on the G4 I/O modules for use with OptoGSM I/O, visit our Web site, [www.opto22.com](http://www.opto22.com).

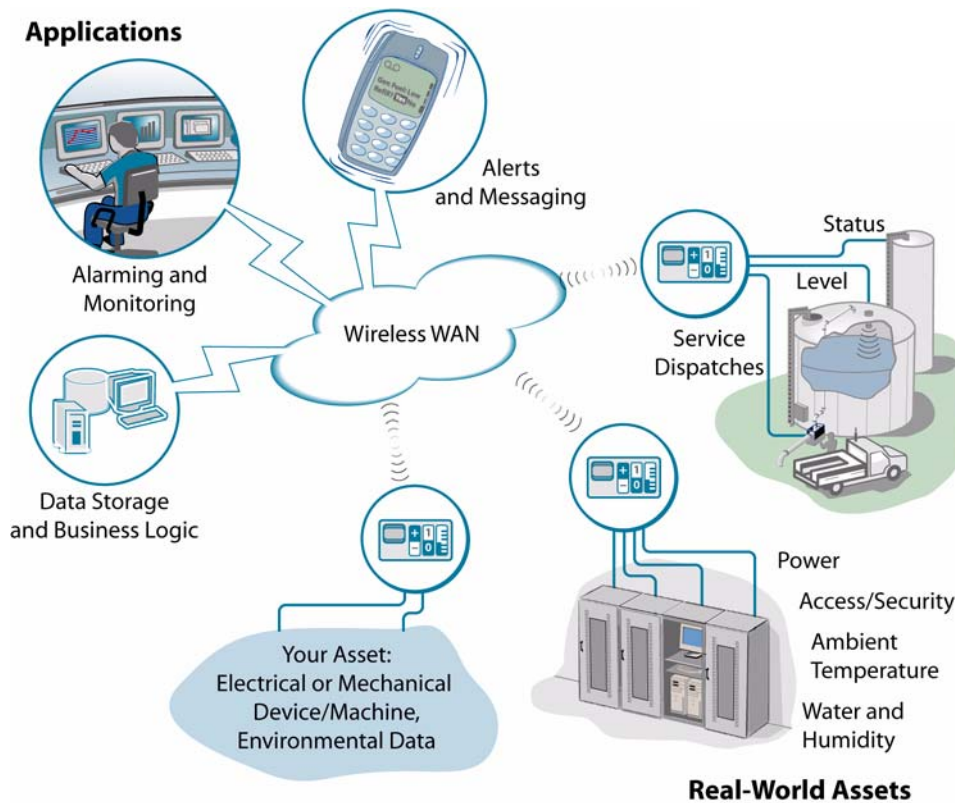
#### GSM Network Communication

After installing a Sony Ericsson GT47 or GT48 remote comm unit and installing a SIM card with service from a wireless carrier, the OptoGSM I/O unit is ready for TCP/UDP and SMS communication on standard wireless GSM/GPRS networks.

Sony Ericsson GT48 remote comm units are used primarily on GSM networks within the United States and are available from Opto 22. Sony Ericsson GT47 remote comm units for operation on 900/1800 MHz GSM networks must be purchased from your local Sony Ericsson representative.

(cont.)

### M2M Architecture



## Description (cont.)

**Programmable Remote Comm Unit**

OptoGSM I/O uses the Sony Ericsson remote comm unit and its programmable scripting engine to provide I/O-level intelligence and control for a wide variety of applications. Programming the remote comm unit requires the OptoGSM I/O Developer's Kit; see Opto 22 form 1510 for information.

**OptoGSM I/O and the Nvio™ Starter Kit**

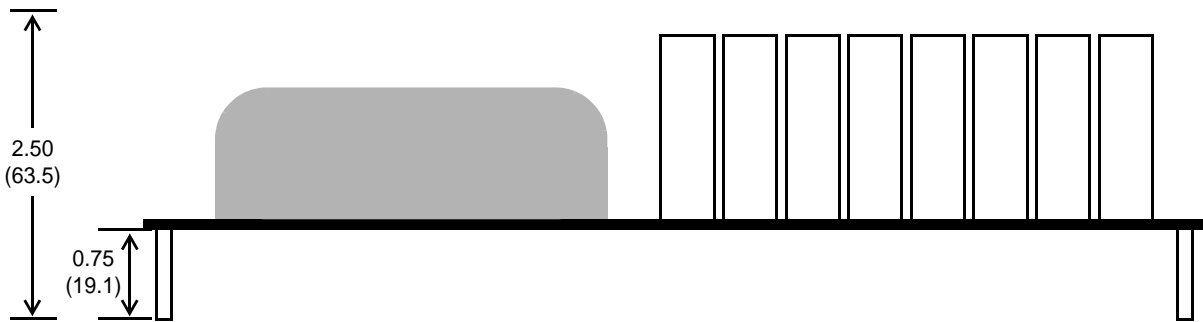
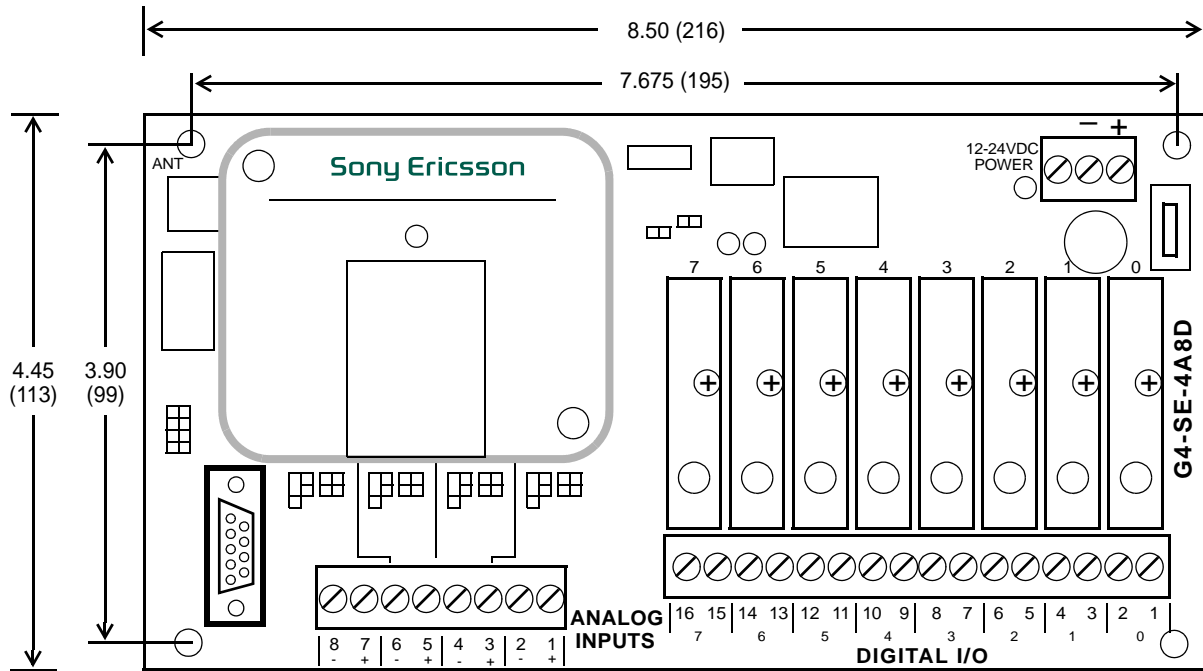
OptoGSM I/O components are used in the Nvio Starter Kit, a turnkey system that integrates all the elements needed to monitor and manage remote devices so you can quickly evaluate or implement an M2M application.

This packaged solution combines device interface and wireless communications hardware (OptoGSM I/O rack, G4 digital I/O, and the Sony Ericsson GT48 remote comm unit); wireless service on a nationwide network; and data logging, graphing, and event-based messaging capabilities—everything you'd otherwise need to acquire and integrate yourself to build a remote M2M application. See Opto 22 form 1504 for more information.

## Specifications

Wireless Communication	TCP/UDP and SMS over GSM/GPRS networks through Sony Ericsson GT47 or GT48 remote comm unit (sold separately)
Digital I/O	Supports up to 8 Opto 22 G4 digital input or output modules, AC or DC (5 V logic modules only). Alarm latching supported for digital inputs.
Analog I/O	4 built-in single-ended analog inputs. Each input: <ul style="list-style-type: none"> <li>• is configurable for <math>\pm 10</math> VDC, <math>\pm 20</math> mA, or ICTD input</li> <li>• has <math>\pm 25,000</math> counts resolution</li> <li>• supports alarm latching.</li> </ul>
Power Requirements	12–24 VDC
Power Consumption	150 mA @ 24 VDC with rack fully populated
Operating Temperature	-10° to +55° C
Storage Temperature	-40° to +85° C
Operating Humidity	20–75% non-condensing
Storage Humidity	5–95% non-condensing

### Dimensional Drawings



For rack mounting, 0.75 in. (19.1 mm) standoffs use #6 screws. Height shown is with installed G4 I/O modules and Sony Ericsson GT47 or GT48 remote comm unit; these items must be purchased separately from the rack.

## 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](http://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](http://www.opto22.com)
- [nvio.opto22.com](http://nvio.opto22.com)
- [www.internetio.com](http://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.