OPTO 22

DATA SHEET
Form 1373-040813

Part Number	Description
SNAP-IT-1U8E	Standard rack-mounted monitoring unit for analog, digital, and serial physical assets. Includes SNAP Ethernet brain.
SNAP-IT-1U8U	Standard rack-mounted monitoring unit for analog, digital, and serial physical assets. Includes SNAP Ultimate brain.
SNAP-IT-1UC-XX	Custom rack-mounted monitoring unit for analog, digital, and serial physical assets.

Description

The SNAP-IT™ rack-mount unit is a packaged solution for connecting essential physical assets with computer software applications using standard networks. Once these physical assets are attached to a network through the SNAP-IT unit, you can acquire data from them, automate or control them, and remotely monitor them.

SNAP-IT-1U units are ideal for use in controlled environments. Typical applications include:

- Acquiring raw material, product, and service data and storing it in an enterprise database
- Monitoring and controlling temperature, humidity, and security in server rooms
- Turning fans, lights, pumps, and generators on or off
- Remotely monitoring equipment line voltage and current draw
- Controlling access to doors and equipment.

With SNAP-IT-1U, you get a standard 1U rack-mount housing with a SNAP Ultimate or SNAP Ethernet brain, an eight-module mounting rack, and a power supply, all built in and prewired. All you add are the analog, digital, and special-purpose input/output modules you need for your specific application. Just snap the modules into the rack and wire them to sensors, actuators, and transmitters through the easy-access wiring connectors at the rear of the unit.

Your choice of a SNAP Ethernet or SNAP Ultimate brain is determined by the level of programmability you need.

- **Choose a SNAP Ethernet brain** for monitoring and simple event/reactions. A Microsoft® Windows®-based utility program for configuration is included.
- **Choose a SNAP Ultimate brain** for full, flowchart-based control. ioControl™ development software and utilities are included with your purchase. ioControl provides an English-language, graphical interface for developing control programs, plus a powerful scripting language. Also available is ioDisplay™, a PC-based human-machine interface (HMI) with trending and alarming, for just $99 per seat. ioDisplay is fully integrated with ioControl.

No matter which brain you choose, you can also communicate with the SNAP-IT-1U unit using Modbus/TCP, OLE for Process Control (OPC), Linux® applications, or applications you develop in Visual Basic® or Visual C++® using our free Driver Toolkit.

Each SNAP-IT unit comes with two communication ports:

- A 10/100 Mbps Fast Ethernet port for Category 5 or better UTP cable with a standard RJ-45 connector
- An RS-232 serial port for use with a modem (for PPP).

These physical communication methods support popular network protocols TCP/IP and UDP/IP. Data protocols including SNMP, SMTP, FTP, IEEE 1394-based protocol, and Modbus/TCP are supported as well.

SNAP-IT-1U is certified for use with Computer Associates' Unicenter® and compatible with other enterprise management systems using SNMP, including Hewlett-Packard's OpenView® and IBM's Tivoli®.

The unit's flexibility allows multiple methods of communication simultaneously. For example, a SNAP-IT-1U unit can respond to commands from a Modbus master, send an SNMP trap to an enterprise management system, and carry out instructions from a C++ application—all at once.

SNAP-IT-1U units can monitor and control *analog, digital,* and *serial* data from electrical, mechanical, and electronic devices.

- Analog devices are devices that have a range of possible

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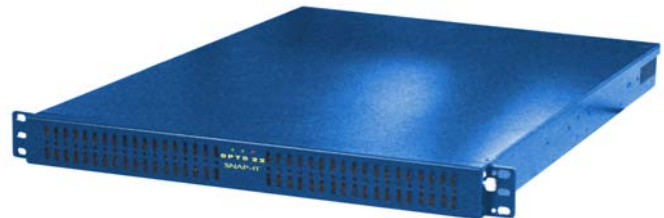
values, such as temperature or pressure sensors.
- Digital devices can be either on or off. Dry contacts and door sensors are examples of digital devices.
- Serial devices, such as chart recorders, barcode readers, and Wiegand security devices, communicate by sending ASCII characters via a serial port.

Digital modules can switch or sense loads up to 120 V. Solutions are available for applications requiring higher loads; please contact us for more information.

The standard 1U box accommodates RS-485 and Wiegand serial modules. Contact us for options if you need RS-232 modules .

SNAP-IT products protect sensitive computer electronics from the potentially hazardous field signals of real-world devices with both transformer and optical isolation.

NOTE: SNAP-IT products packaged for panel mounting and suitable for use in interior or exterior industrial environments are described in Opto 22 form #1239, the SNAP-IT Panel Mount Unit data sheet.

If you need a SNAP-IT unit for use with a wireless LAN, see Opto 22 form #1269, the SNAP-IT Wireless LAN data sheet.

Specifications

Communications	
Data Protocols	SNMP, SMTP, Modbus/TCP, FTP, IEEE 1394-based protocol
Network Protocols	TCP/IP, UDP/IP, PPP
Serial Port	RS-232. Default rate is 19,200 Kbd; baud rate is soft-selectable from 2400 to 115,200 Kbd.
Ethernet Port	10/100 Mbps Fast Ethernet, using Category 5 or superior solid UTP cable with RJ-45 connector
Other Specifications	
Dimensions	19-inch rack-mount enclosure, 1U. 17.25" (43.82 cm) W, 1.75" (4.45 cm) H, 23.5" (59.69 cm) D
Power Supply	UL rated 120–250 VAC; manufacturer rated 100–250 VAC (Other options available by special order.)
Power Loads	Digital modules can sense or switch AC loads to 120 V. Custom versions of the SNAP-IT-1U are available for applications requiring higher loads.
Power Consumption	30 W
Temperature	0° to 55° C operating, -30° to 85° C storage
Humidity	0–95% humidity, non-condensing

LED Indicators

LEDs are provided for troubleshooting purposes. Simply swing the front door down to see the following LEDs:
- Standard LEDs on the brain (see the SNAP Ethernet or SNAP Ultimate brain data sheet for details)
- 5 V power indicator for mounting 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 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.