

# SNAP Simple Brain

## Features

- 10/100 Mbps Fast Ethernet network connectivity
- Use SNAP analog, digital, and serial modules in any position on a single 16-module mounting rack
- Simultaneous communication using Modbus/TCP, OPC, and other applications you develop.

## Description

**NOTE:** Although fully supported and still in production, this is a legacy product and not recommended for new designs. For new designs, the **SNAP-PAC-EB2 brain** offers similar capabilities plus several additional features.

Opto 22 SNAP Simple I/O™ is a low-cost solution that brings you Ethernet/TCP communications as well as analog, simple digital, and serial capability on the same mounting rack.

Used for high-density commercial and industrial applications and for remote monitoring applications with high I/O point counts, a SNAP Simple I/O unit consists of a SNAP-ENET-S64 brain mounted on a SNAP M-series rack with SNAP I/O™ modules. These analog, standard digital, high-density digital, and serial modules can be mounted in any position on the rack (8 serial modules maximum).

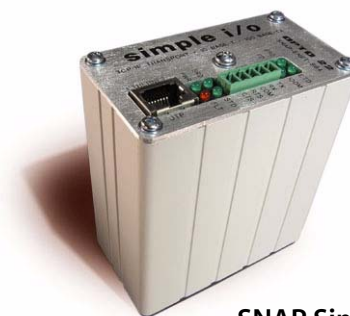
SNAP Simple I/O can act as part of a SNAP control system, or it can act as an independent I/O unit. As a distributed I/O unit in a SNAP control system, SNAP Simple I/O is controlled by a SNAP PAC, SNAP-LCE, or SNAP Ultimate controller.

As an independent I/O unit, SNAP Simple I/O communicates using Modbus/TCP, OptoOPCServer, or applications you develop using the free OptoMMP Communication Toolkit. The brain also supports data streaming.

The SNAP-ENET-S64 brain provides both 10 and 100 Mbps Fast Ethernet compatibility, with automatic speed negotiation and a standard RJ-45 twisted-pair connector. The brain also includes a serial port for programming and diagnostics.

Simple I/O brain functions include the following:

- **Digital**—Input latching, on/off status, and watchdog timer.
- **Analog**—Thermocouple linearization (32-bit floating point for linearized values), minimum/maximum values, offset and gain, scaling, time-proportional output, filter weight, output clamping, and watchdog timer.



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- **Serial**—Ability to send and receive ASCII strings to and from attached serial devices, such as chart recorders and barcode readers.

Each SNAP standard digital module contains four input or four output points. SNAP high-density digital modules provide 32 inputs or outputs per module. The number of points on each SNAP analog or serial module varies depending on the module.

**Notes for legacy products:** The SNAP Simple brain can be used with newer SNAP PAC racks as well as legacy M-series racks. It can be used with the current PAC Project or legacy ioProject software suites, although some features in PAC Project are not supported by this brain. For important information on mixing legacy and current products, see Opto 22 form #1688, the *SNAP PAC System Migration Technical Note*.

For a detailed comparison of SNAP Simple brains with other SNAP brains, see Opto 22 form #1693, *Legacy and Current Product Comparison and Compatibility Charts*

All documents are available on our website, [www.opto22.com](http://www.opto22.com). The easiest way to find one is to search on its form number.

## Part Numbers

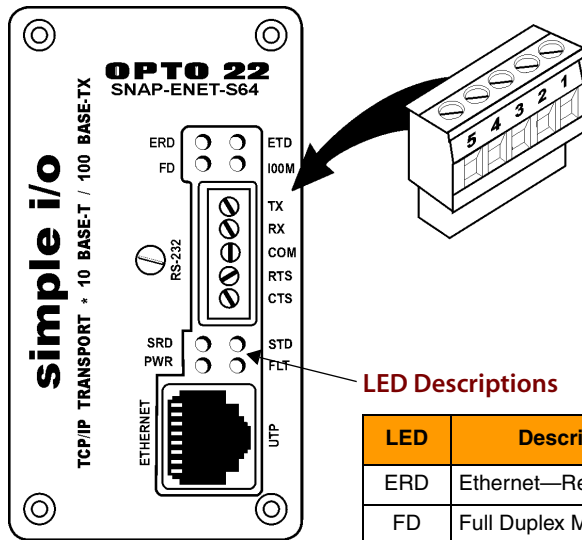
Part	Description
SNAP-ENET-S64	SNAP Simple Ethernet I/O Brain, Analog/Simple Digital/Serial

## Description (continued)

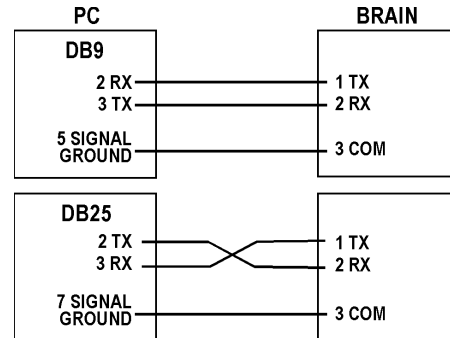
## Specifications

Power Requirements	5.0 VDC ± 0.1 VDC at 1.2 A maximum (does not include module power requirements)
Operating Temperature	0 °C to 70 °C
Storage Temperature	-40 °C to 85 °C
Humidity	0–95% humidity, non-condensing
Network Interface	IEEE 802.3 network, 10Base-T and 100Base-TX
Serial Port	RS-232 (for programming and diagnostics only)
Serial Data Rates	Default is 19,200 kBd; baud rate is soft-selectable from 2400 to 115,200 kBd.
Maximum Ethernet Segment Length	100 meters with Category 5 or superior UTP. For 100 Mbps at this distance, use Category 5 or superior solid UTP.
Jumpers (Internal)	Boot to kernel/boot to loader Reset to factory defaults

### Serial Connector Pinouts



### RS-232 Serial Cable



LED	Description
ETD	Ethernet—Transmit Data
100M	Ethernet Link Detection at 100 Mbps
STD	Serial—Transmit Data
FLT	Microprocessor Status or Fault

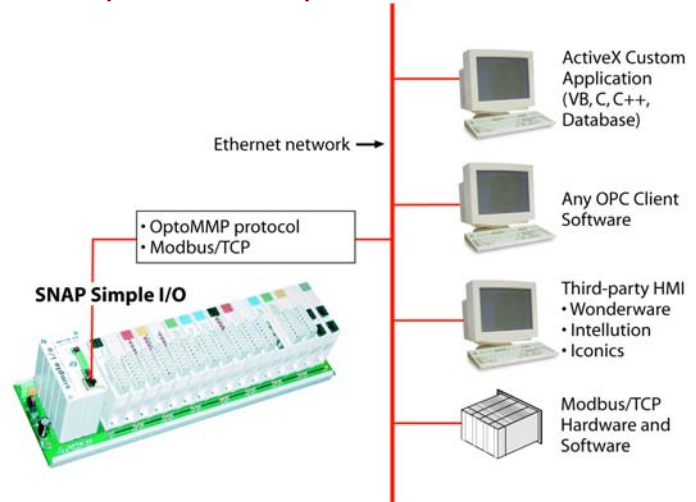
# SNAP Simple Brain

## System Architecture

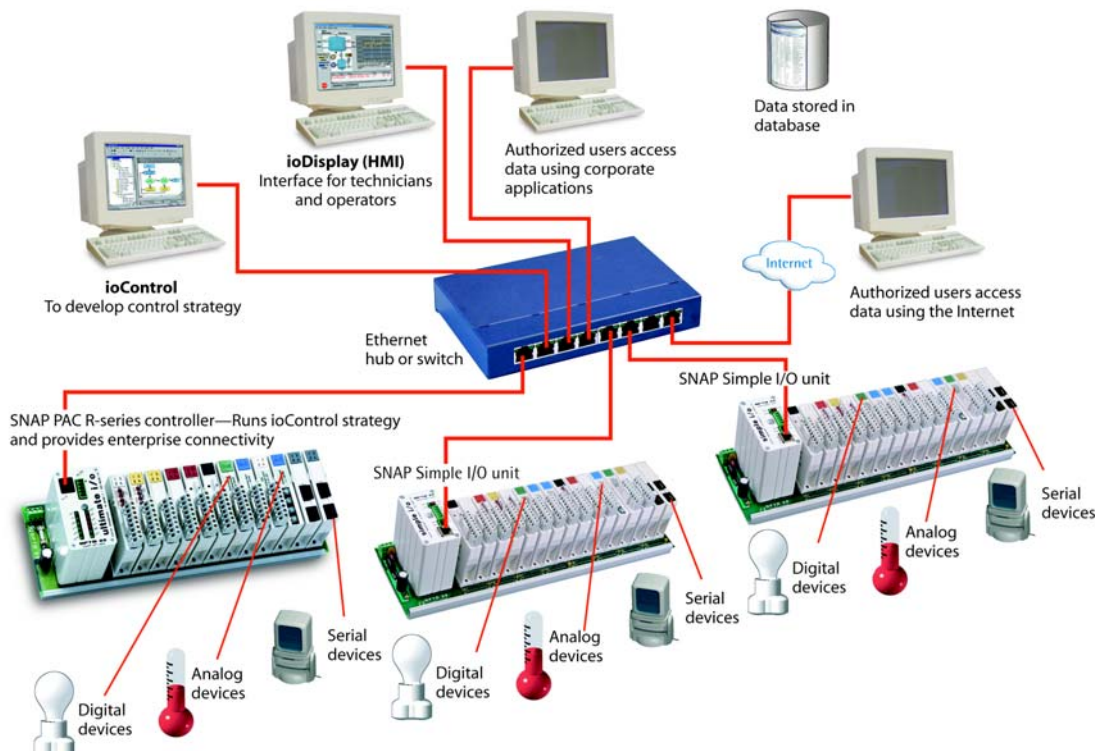
The SNAP-ENET-S64 is shown with a SNAP-M64 mounting rack and standard SNAP I/O modules (analog, digital, and serial).

See Notes for legacy products on [page 1](#).

### SNAP Simple I/O as an Independent I/O Unit



### SNAP Simple I/O as Part of a SNAP PAC Control System

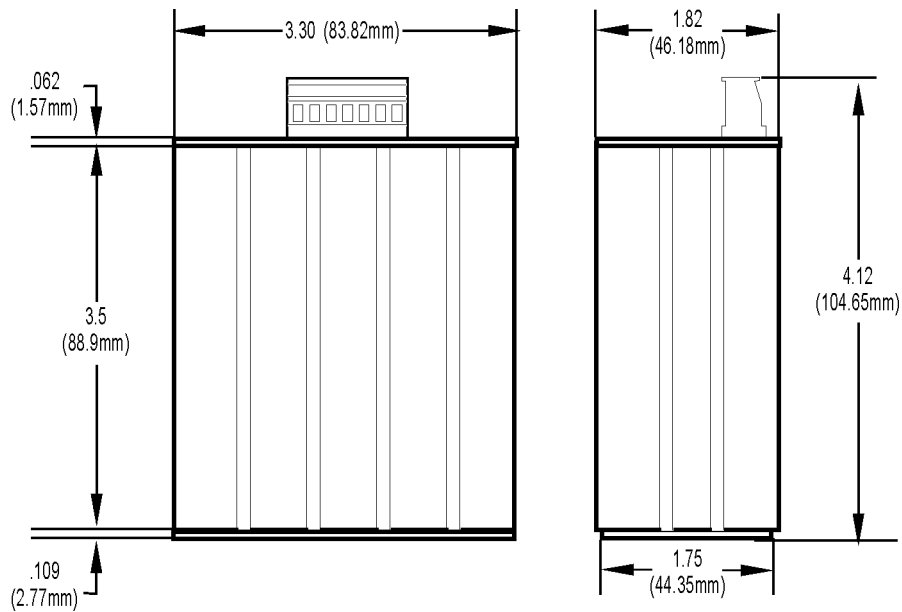
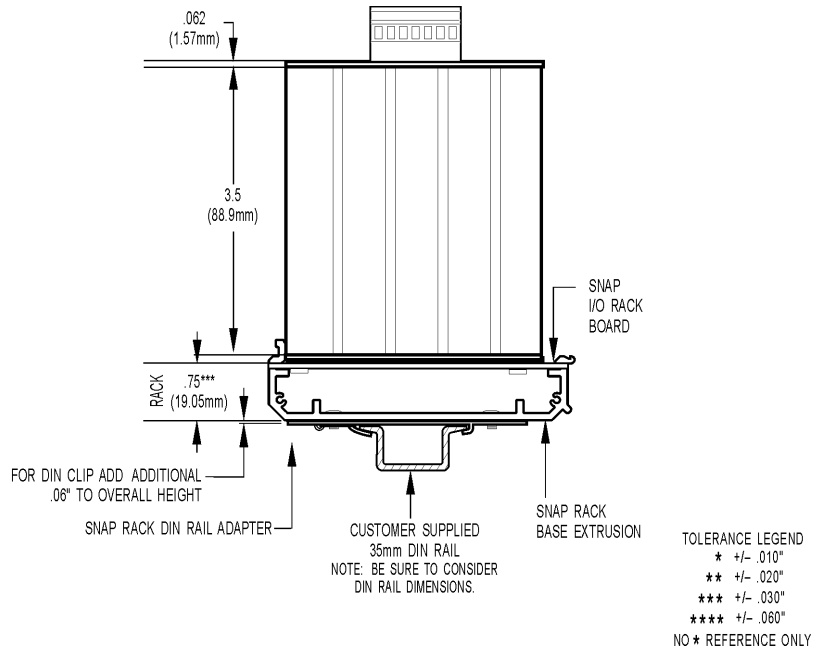


# SNAP Simple Brain

**OPTO 22**

**SNAP Simple Brain**

## Dimensional Drawing



DATA SHEET  
Form 1452-070723

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# More About Opto 22

## Products

Opto 22 develops and manufactures reliable, flexible, easy-to-use hardware and software products for industrial automation, remote monitoring, and data acquisition applications.

### SNAP PAC System

Designed to simplify the typically complex process of understanding, selecting, buying, and applying an automation system, the SNAP PAC System consists of four integrated components:

- SNAP PAC controllers
- PAC Project™ Software Suite
- SNAP PAC brains
- SNAP I/O™

### SNAP PAC Controllers

Programmable automation controllers (PACs) are multifunctional, multidomain, modular controllers based on open standards and providing an integrated development environment.

Opto 22 has been manufacturing PACs for many years. The latest models include the standalone SNAP PAC S-series and the rack-mounted SNAP PAC R-series. Both handle a wide range of digital, analog, and serial functions and are equally suited to data collection, remote monitoring, process control, and discrete and hybrid manufacturing.

SNAP PACs are based on open Ethernet and Internet Protocol (IP) standards, so you can build or extend a system without the expense and limitations of proprietary networks and protocols.

### PAC Project Software Suite

Opto 22's PAC Project Software Suite provides full-featured and cost-effective control programming, HMI (human machine interface) development and runtime, OPC server, and database connectivity software to power your SNAP PAC System.

These fully integrated software applications share a single tagname database, so the data points you configure in PAC Control™ are immediately available for use in PAC Display™, OptoOPCServer™, and OptoDataLink™. Commands are in plain English; variables and I/O point names are fully descriptive.

PAC Project Basic offers control and HMI tools and is free for download on our website, [www.opto22.com](http://www.opto22.com). PAC Project Professional, available for separate purchase, adds OptoOPCServer, OptoDataLink, options for Ethernet link redundancy or segmented networking, and support for legacy Opto 22 serial *mistic*™ I/O units.

### SNAP PAC Brains

While SNAP PAC controllers provide central control and data distribution, SNAP PAC brains provide distributed intelligence for I/O processing and communications. Brains offer analog, digital, and serial functions, including thermocouple linearization; PID loop control; and optional high-speed digital counting (up to 20 kHz), quadrature counting, TPO, and pulse generation and measurement.

### SNAP I/O

I/O provides the local connection to sensors and equipment. Opto 22 SNAP I/O offers 1 to 32 points of reliable I/O per module, depending on the type of module and your needs. Analog, digital, serial, and special-purpose modules are all mixed on the same mounting rack and controlled by the same processor (SNAP PAC brain or rack-mounted controller).

## Quality

Founded in 1974 and with over 85 million devices sold, Opto 22 has established a worldwide reputation for high-quality products. All are made in the U.S.A. at our manufacturing facility in Temecula, California. Because we do no statistical testing and each part is tested twice before leaving our factory, we can guarantee most solid-state relays and optically isolated I/O modules for life.

## Free Product Support

Opto 22's Product Support Group offers free, comprehensive technical support for Opto 22 products. Our staff of support engineers represents decades of training and experience. Product support is available in English and Spanish, by phone or email, Monday through Friday, 7 a.m. to 5 p.m. PST.

## Free Customer Training

Hands-on training classes for the SNAP PAC System are offered at our headquarters in Temecula, California. Each student has his or her own learning station; classes are limited to nine students. Registration for the free training class is on a first-come, first-served basis. See our website, [www.opto22.com](http://www.opto22.com), for more information or email [training@opto22.com](mailto:training@opto22.com).

## Purchasing Opto 22 Products

Opto 22 products are sold directly and through a worldwide network of distributors, partners, and system integrators. For more information, contact Opto 22 headquarters at 800-321-6786 or 951-695-3000, or visit our website at [www.opto22.com](http://www.opto22.com).

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