SNAP-DNP-ASDS Brain

Features

- Cirrus CS89712 processor with 75 MHz ARM720 CPU core with MMU
- 16 MB RAM, 8 MB flash; 512 KB battery-backed SRAM
- Linux®-based embedded operating system
- 10 Mbps Ethernet network connectivity
- Battery-backed realtime clock
- Compact and rugged unit suitable for deployment in harsh environments.

SNAP-DNP-ASDS Brain

Description

SNAP DNP I/O from Opto 22 is an open and expandable DNP slave hardware device for use with DNP3-based SCADA systems. A low-cost alternative to remote telemetry units (RTUs), SNAP DNP I/O systems provide a non-proprietary, standards-based way to bring critical utility assets under the scope of a DNP3 SCADA network.

SNAP DNP I/O uses a broad array of industry standard, optically isolated analog and digital modules to connect to power transformers, motor operators, circuit breakers, and other critical utility systems, linking this equipment to master SCADA stations over standard Ethernet networks via the DNP3 protocol.

SNAP DNP I/O systems offer reduced software costs, easy system expansion, and operational savings for a wide range of applications such as:

- Monitoring, control, and data acquisition from remote electrical and other utility equipment
- Interoperability between multi-vendor devices
- Integration of legacy equipment into a DNP system.

SNAP-DNP-ASDS

Opto 22's SNAP-DNP-ASDS is a compact ARM-based processor (or "brain") that mounts on standard Opto 22 SNAP mounting racks and interfaces with a mix of Opto 22 analog and digital SNAP I/O modules. (High-speed hardware counters and latches are not supported for digital I/O.) The brain uses an embedded Linux operating system, and includes ports for RS-232 serial and 10 Mbps Ethernet links.

Configuration

Settings for the SNAP-DNP-ASDS brain, I/O modules, and DNP database are configured using instructions contained in text files you can create in word processors, text editors, and other applications. These configuration files are then downloaded to the brain using tftp file transfer applications available in Microsoft® Windows®, Linux, and other operating systems.

SNAP I/O Modules

The SNAP-DNP-ASDS brain works with Opto 22's family of digital and analog SNAP I/O modules, which are available for a wide range of current and voltage signals. Each SNAP digital module contains four input or four output points. SNAP analog modules used with a SNAP DNP I/O brain contain either two points or four points, depending on the module. Visit the Opto 22 Web site for complete information and data sheets on all SNAP I/O modules.

I/O Mounting Racks

The SNAP-DNP-ASDS brain connects to standard SNAP B-series I/O mounting racks, which are available with 4, 8, 12, or 16 positions for Opto 22 SNAP I/O modules. On these racks, analog modules can be placed in any position, while digital modules can be placed in any of the first eight positions. Because of the rack's flexibility in handling digital and analog modules, you can install the modules that fit your needs.

Part Numbers

Part	Description
SNAP-DNP-ASDS	SNAP DNP I/O Brain

Opto 22 • 43044 Business Park Drive • Temecula, CA 92590-3614 • www.opto22.com
SALES 800-321-6786 • 951-695-3000 • FAX 951-695-3095 • sales@opto22.com • **SUPPORT** 800-835-6786 • 951-695-3080 • FAX 951-695-3017 • support@opto22.com

Specifications

Embedded Operating System	Linux-based (Linux 2.4 kernel)
Processor	Cirrus CS89712 • 75 MHz ARM720 CPU core with MMU • 10 Mbps Ethernet • UART • SDRAM controller • Jumper-selectable boot ROM for "fail-safe" boot to download flash
Memory	16 MB RAM; 8 MB flash memory; 512 KB battery-backed SRAM
Clock	Battery-backed realtime clock
Network Interface	IEEE 802.3 network; 10Base-T with RJ-45 connector
Serial Port	RS-232 with RTS/CTS; uses RJ-45 connector with standard Digi/ConnectTech pinout
Power Requirements (*does not include SNAP I/O module power requirements)*	5.0 VDC ± 0.1 VDC Typical current loads: • 120 mA idle • 240 mA at powerup
Operating Temperature	0 °C to 60 °C
Storage Temperature	-40 °C to 85 °C
Humidity	0–95% humidity, non-condensing

RS-232 Serial Connector Pinouts

RJ-45 Pin	Color	Signal	DB-9 Pin1
1	Blue	(none)	(none)
2	Orange	RTS	7
3	Black	GND	5
4	Red	TxD	2
5	Green	RxD	3
6	Yellow	GND	(none)
7	Brown	CTS	8
8	White or Gray	(none)	(none)

[1] Pin number for female DB-9 connector on RJ-45 to DB-9 adapter.

LED Descriptions

LED	Description
RUN	Normal Operation (software configurable)
STX	Serial—Transmit Data
SRX	Serial—Receive Data
LAN	Network Activity
LINK	Network Link Detection

Opto 22 SNAP-DNP-ASDS brain shown with analog and digital SNAP I/O modules on a SNAP mounting rack. Modules and rack are sold separately.

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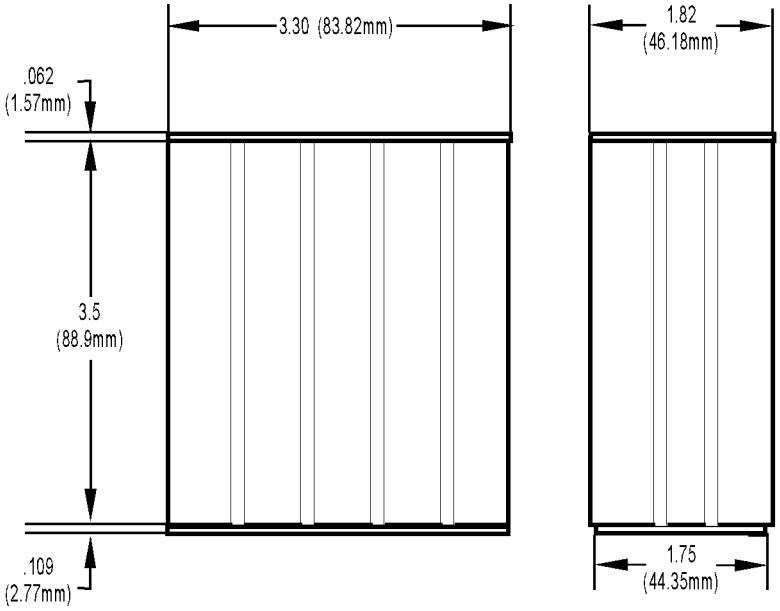
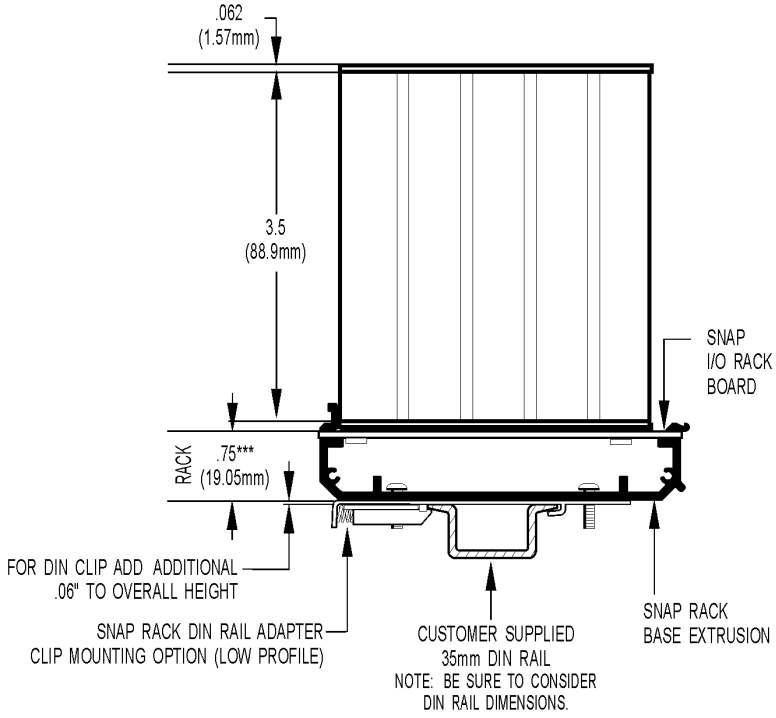
SNAP-DNP-ASDS Brain

Dimensions

The dimensions of the SNAP-DNP-ASDS brain are identical to Opto 22 SNAP Ultimate and SNAP Ethernet brains.





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. 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, for more information or email 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.

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