SNAP IO4AB Learning Center

Features

▶ Complete package of fully functional Opto 22 hardware and software including EtherNet/IP™ Configurator

▶ Full, step-by-step assembly and configuration instructions

▶ Four-lesson, self-guided tutorial on setting up and using implicit messaging between the IO4AB Learning Center's I/O unit and your own Allen-Bradley® controller

▶ FREE technical support and pre-sales engineering

Description

The SNAP IO4AB Learning Center delivers a complete package for learning to configure and use implicit messaging via EtherNet/IP between an Allen-Bradley Logix controller and Opto 22's intelligent remote SNAP I/O™.

Not just a sample, the SNAP IO4AB Learning Center includes the field-proven, real hardware and software used by Opto 22 customers all over the world.

With the SNAP IO4AB Learning Center and EtherNet/IP Configurator you can explore the following:

• Setting up communications between Opto 22 intelligent remote I/O and RSLogix™ 5000 and run a program

• Using remote I/O intelligence for counting and pulsing for a direct output

• Setting a communication watchdog

• Using an Opto 22 analog I/O modules and to read scaled analog inputs and write a clamp value to an analog output

• Configuring and running a distributed PID loop in the Opto 22 intelligent remote I/O

After you've explored their capabilities, you can continue to use the same hardware and software to take advantage of Opto 22's *distributed intelligence* in your own application. With distributed intelligence, a controller (such as an Allen-Bradley PLC), handles overall control but certain functionality can be configured and run at the I/O level, thus reducing logic programming as well as CPU scan time. The I/O's own onboard processor (called a *brain*) has the intelligence to handle a wide range of functions, which reduces the load on the controller. Since these functions run locally on the I/O unit, they continue to run even if communication to the controller is lost.

While other manufacturer's devices may report only states and counts, our intelligent remote I/O can provide sophisticated functions. Distributed functions handled by Opto 22 I/O include all of the following:

• PID loop control (up to 96 loops)

• Analog scaling

• Offset and gain

• Analog ramping

• Output clamping

• Filter weight

• Minimum and maximum values

• Engineering unit conversion

• Thermocouple linearization

• Temperature conversion

• Quadrature counting

• Input latching

• Pulse generation and measurement

• High-speed counting (up to 20 kHz)

• Frequency and period measurement

• Digital and analog totalizing

• Watchdog timeout

• Time-proportional output

SNAP IO4AB Learning Center Guide

The content of our popular SNAP IO4AB product demonstration is now available in a self-paced, four-lesson tutorial, which is included with the SNAP IO4AB Learning Center. Step-by-step instructions guide you in assembling your hardware, configuring your I/O unit

Part Numbers

Part	Description
SNAP-IO4ABLC	SNAP IO4AB Learning Center, *SNAP IO4AB Learning Center User's Guide* (printed), *EtherNet/IP for SNAP PAC Protocol Guide* (pdf), and EtherNet/IP Configurator.

and points, creating data assemblies to enable Allen-Bradley Logix controllers to communicate with remote Opto 22 I/O, and using some of the many features available with Opto 22's distributed intelligence.

Learning Center Software

The SNAP PAC Learning Center includes Opto 22's EtherNet/IP Configurator software. Use this software with your system as part of the Learning Center or deployed in your application to configure modules and points, create input and output assemblies, and download a configuration to an Opto 22 device.

Learning Center Hardware

SNAP-PAC-EB1

The SNAP-PAC-EB1 brain is an I/O and communications processor that works well as intelligent remote I/O with Allen-Bradley Logix systems. The SNAP-PAC-EB1 provides local intelligence that frees the controller for supervisory tasks.

The SNAP-PAC-EB1 provides high-speed digital functions for use with 4-channel digital I/O, plus processing for analog and serial I/O modules.

SNAP-PAC-RCK8 Mounting Rack

The SNAP-PAC-RCK8 rack mounts the controller and up to a total of eight SNAP digital, analog, and serial modules.

SNAP I/O Modules

- SNAP-IDC5D: Digital DC Input, 2.5–28 VDC, 5 VDC Logic
- SNAP-ODC5SRC: Digital DC Output, 5–60 VDC Source, 5 VDC Logic
- SNAP-AOV-27: Analog Output, Dual, -10 to +10 VDC
- SNAP-AICTD: Analog Input, Dual, ICTD Temperature
- SNAP-AIV: Analog Input, Dual, ±10 or ±5 VDC (configurable)

Learning Center Load Panel

Two toggle switches, two momentary switches, one SonAlert buzzer, three LEDs, one DC panel meter, one potentiometer, and one temperature sensor are included in the load panel.
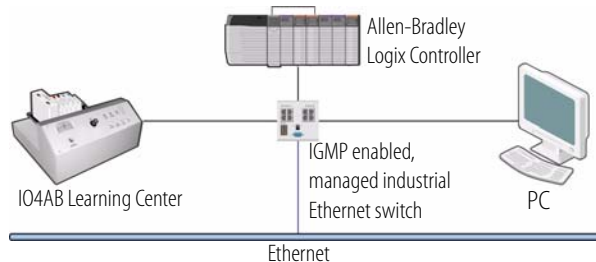
Power Cable

Input voltage range for the Learning Center is 120–300 VAC. The appropriate power cable is included, based on your location (U.S., international, or UK); if you need to specify a different cable, please call Opto 22 at 800-321-6786 (toll-free in the U.S.) or 951-695-3000.

SNAP IO4AB Learning Center

Suggested Learning Center Configuration

Allen-Bradley Logix Controller

IGMP enabled, managed industrial Ethernet switch

IO4AB Learning Center

PC

Ethernet

Computer Requirements

To use the SNAP IO4AB Learning Center with your PC, you must have the following minimum computer configuration:

- A computer with at least the minimum processor required for your version of Microsoft Windows (1 GHz Pentium®-class or better recommended) and Ethernet capability
- VGA or higher resolution monitor (Super VGA recommended). Minimum size: 800x600 with small fonts.
- Mouse or other pointing device
- Installed Windows printer (optional)
- Microsoft Windows Vista® Business (32-bit), Windows XP (with Service Pack 2 or higher), or Windows 2000® (with Service Pack 4) workstation operating system. Microsoft Windows server and 64-bit versions of Windows workstation operating systems are not supported.
- At least 1 GB RAM for Windows Vista, or at least 512 MB for Windows XP or Windows 2000
- At least 89 MB of available hard drive space

Additional Requirements

In order to do the lessons provided with the IO4AB Learning Center, you will also need:

- RSLogix 5000 software, version V13 or later installed on your computer
- Allen-Bradley controller that supports EtherNet/IP with an Ethernet adapter module connected to the network
- IGMP enabled, managed industrial Ethernet switch

Learning Center Product Support

Opto 22's product support services are available to assist you with any problems relating to your work with the Learning Center. Call **(800) 832-6786** or **(951) 695-3080**, or email support@opto22.com. Product support is free.

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.
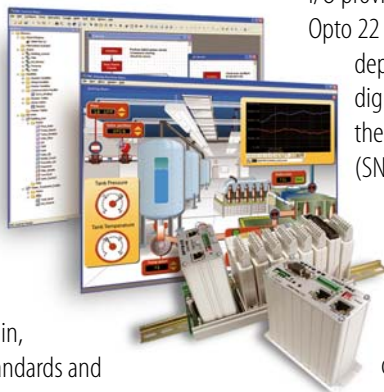
SNAP PAC Brains

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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