# OPTO 22

This product is obsolete.

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
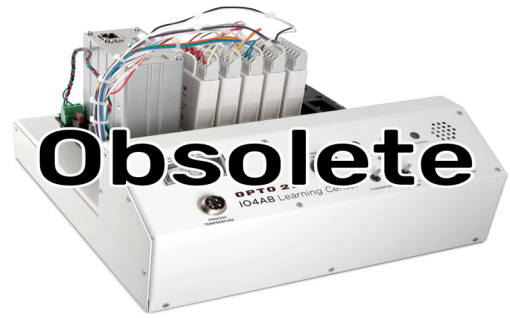
DESCRIPTION

*** This product is obsolete and no longer available. ***

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 Opto 22 analog I/O modules 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 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.

Part Numbers

Part	Description
SNAP-IO4ABLC **[Obsolete]**	**[Obsolete]** SNAP IO4AB Learning Center.

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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
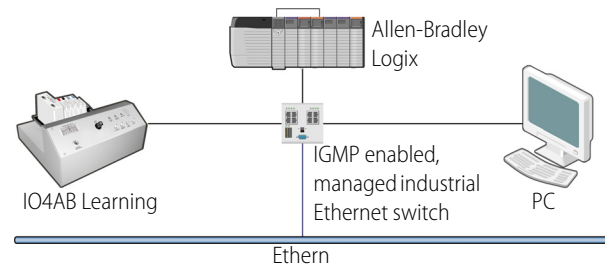- SNAP-AIV: Analog Input, Dual, ±10 or ±5 VDC (configurable)

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.

Suggested Learning Center Configuration

Allen-Bradley Logix

IGMP enabled, managed industrial Ethernet switch

IO4AB Learning

PC

Ethern

COMPUTER REQUIREMENTS

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

- A computer with a standard or mainstream processor and (at least) the minimum memory required for your version of Microsoft Windows. (Low-end CPUs are not recommended.) Additional memory may be required for some configurations.
- One of the following operating systems:
  - Microsoft® Windows® 10 Professional (32-bit or 64-bit) or Windows 11 Professional
  - (OptoOPCServer and OptoDataLink only) Windows Server® 2012 R2 and Windows Server 2008 R2

  NOTE: PAC Project cannot be installed on Windows XP or older Windows operating systems. Embedded operating systems are not tested or supported.

- Ethernet capability
- VGA or higher resolution monitor. Minimum size: 800x600 with small fonts
- Mouse or other pointing device
- (Optional) Installed Windows printer
- 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

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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.

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More about Opto 22

PRODUCTS

Opto 22 develops and manufactures reliable, easy-to-use, open standards-based hardware and software products. Industrial automation, process control, remote monitoring, data acquisition, and industrial internet of things (IIoT) applications worldwide all rely on Opto 22.

groov RIO®

groov RIO edge I/O offers a single, compact, PoE-powered industrial package with web-based configuration and IIoT software built in, support for multiple OT and IT protocols, and security features like a device firewall, data encryption, and user account control.

Standing alone, *groov* RIO connects to sensors, equipment, and legacy systems, collecting and securely publishing data from field to cloud. Choose a universal I/O model with thousands of possible field I/O configurations, with or without Ignition from Inductive Automation®, or a RIO EMU energy monitoring unit that reports 64 energy data values from 3-phase loads up to 600 VAC, Delta or Wye.

You can also use *groov* RIO with a Modbus/TCP master or as remote I/O for a *groov* EPIC system.

groov EPIC® System

Opto 22's *groov* Edge Programmable Industrial Controller (EPIC) system gives you industrially hardened control with a flexible Linux®-based processor with gateway functions, guaranteed-for-life I/O, and software for your automation and IIoT applications.

groov EPIC Processor

The heart of the system is the *groov* EPIC processor. It handles a wide range of digital, analog, and serial functions for data collection, remote monitoring, process control, and discrete and hybrid manufacturing.

In addition, the EPIC provides secure data communications among physical assets, control systems, software applications, and online services, both on premises and in the cloud. No industrial PC needed.

Configuring and troubleshooting I/O and networking is easier with the EPIC's integrated high-resolution color touchscreen. Authorized users can manage the system locally on the touchscreen, on a monitor connected via the HDMI or USB ports, or on a PC or mobile device with a web browser.

groov EPIC I/O

groov I/O connects locally to sensors and equipment. Modules have a spring-clamp terminal strip, integrated wireway, swing-away cover, and LEDs indicating module health and discrete channel status. *groov* I/O is hot swappable, UL Hazardous Locations approved, and ATEX compliant.

groov EPIC Software

The *groov* EPIC processor comes ready to run the software you need:

- Programming: Choose flowchart-based PAC Control, CODESYS Development System for IEC61131-3 compliant programs, or secure shell access (SSH) to the Linux OS for custom applications
- Node-RED for creating simple IIoT logic flows from pre-built nodes
- Efficient MQTT data communications with string or Sparkplug data formats
- Multiple OPC UA server options
- HMI: *groov* View to build your own HMI viewable on touchscreen, PCs, and mobile devices; PAC Display for a Windows HMI; Node-RED dashboard UI
- Ignition or Ignition Edge® from Inductive Automation (requires license purchase) with OPC-UA drivers to Allen-Bradley®, Siemens®, and other control systems, and MQTT communications

Older products

From solid state relays, to world-famous G4 and SNAP I/O, to SNAP PAC controllers, older Opto 22 products are still supported and working hard at thousands of installations worldwide. You can count on us for the reliability and service you expect, now and in the future.

QUALITY

Founded in 1974, 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 test each product twice before it leaves our factory rather than testing a sample of each batch, we can afford to guarantee most solid-state relays and optically isolated I/O modules for life.

FREE PRODUCT SUPPORT

Opto 22's California-based Product Support Group offers free technical support for Opto 22 products from engineers with decades of training and experience. Support is available in English and Spanish by phone or email, Monday–Friday, 7 a.m. to 5 p.m. PST.

Support is always available on our website, including free online training at OptoU, how-to videos, user's guides, the Opto 22 KnowledgeBase, and OptoForums.

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** (toll-free in the U.S. and Canada) or **+1-951-695-3000**, or visit our website at www.opto22.com.