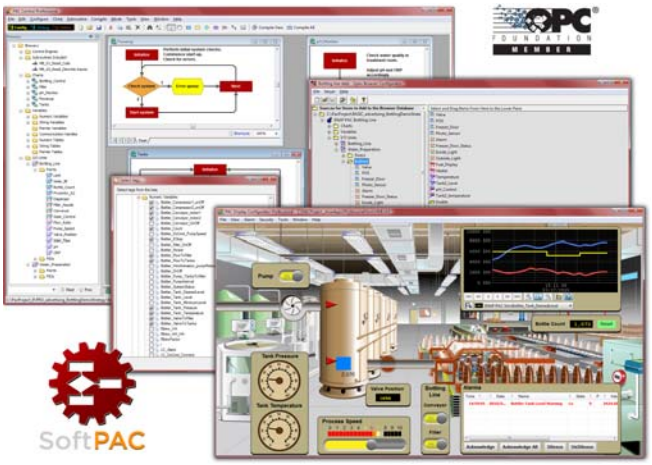
PAC Project Software Suite

Features

- Control programming, HMI development, OPC communication, and database connectivity in one integrated package
- Single tag database is shared by all components
- I/O points and variables have user-defined names; commands are in plain English
- Easy-to-use graphical interfaces for development and debugging
- Fully integrated with SNAP PAC controllers and the SNAP PAC System



PAC Project Software Suite

Description

The PAC Project Software Suite™ from Opto 22 provides the software you need for industrial automation, remote monitoring, and data acquisition applications in any field. One of four components of the SNAP PAC System™, PAC Project software is fully integrated with SNAP PAC controllers, brains, and I/O, making it easy to understand, select, buy, and apply an automation system for your needs.

Easy to use and suitable for projects from simple equipment management to full industrial control, the PAC Project Software Suite comes in two forms: PAC Project Basic™ and PAC Project Professional™.

PAC Project Basic™ is free and includes everything you need for most applications: control programming, HMI creation, and I/O configuration software.

PAC Project Professional™ adds OPC communication, database connectivity, and support for Ethernet link redundancy and controller redundancy. Legacy hardware is supported with a SNAP PAC S-series controller.

Both PAC Project Basic and PAC Project Professional include:

- **PAC Control**™ for developing control applications to run on an Opto 22 SNAP PAC controller
- **PAC Display**™ for developing human-machine interface applications (HMIs) for technicians and operators
- **PAC Manager**™ for configuring and inspecting Opto 22 SNAP PAC controllers, brains, and I/O

In addition, PAC Project Professional adds:

- **OptoOPCServer**™ for OLE for Process Control (OPC) communication with OPC 2.0 clients
- **OptoDataLink**™ for sharing SNAP PAC System data with ODBC-compliant databases
- **SoftPAC**™ for software-based programmable automation control

Individual software components of PAC Project Professional can be purchased separately.

PAC Project and its individual components are available for download from our website at www.opto22.com.

Part Numbers

Part	Description
PACPROJECTPRO	PAC Project Professional Software Suite and documentation
PACPROJECTBAS	PAC Project Basic software and documentation
PACCONTROLPRO	PAC Control Professional software and documentation
PACCONTROLBAS	PAC Control Basic software and documentation
PACDISPLAYPRO	PAC Display Professional software and documentation
PACDISPLAYBAS	PAC Display Basic software and documentation
OPTOOPCSERVER	OptoOPCServer software and documentation
OPTODATALINK	OptoDataLink software and documentation
PACMANAGER	PAC Manager software and documentation
SOFTPAC	Software-based programmable automation controller for PC-based control, with PAC Project Basic software and documentation
PACTERMSSD	PAC Terminal SSD software and documentation

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The SNAP PAC System

PAC Project is one of four components of the SNAP PAC System. The other three are:

SNAP PAC controllers. SNAP PAC programmable automation controllers run PAC Control strategies.

- SNAP PAC *R-series* controllers mount on the rack with the input/output (I/O) modules and include I/O processing and communications as well as control.
- Standalone SNAP PAC *S-series* controllers offer more power for complex distributed systems, support for legacy hardware, and redundant controller capability.
- Software-based *SoftPAC* is available for PC-based control.

Both the R-series and the S-series hardware PACs have dual, independent Ethernet network interfaces for segmented networks or Ethernet link redundancy. Wired+Wireless models can run on a wireless LAN, on a wired network, or on both at once.

R-series and S-series PACs are also ready out of the box for developers and Industrial Internet of Things (IIoT) applications, with a built-in REST API (representational state transfer application program interface). Use the language of your choice to access I/O point and variable data on the PAC.

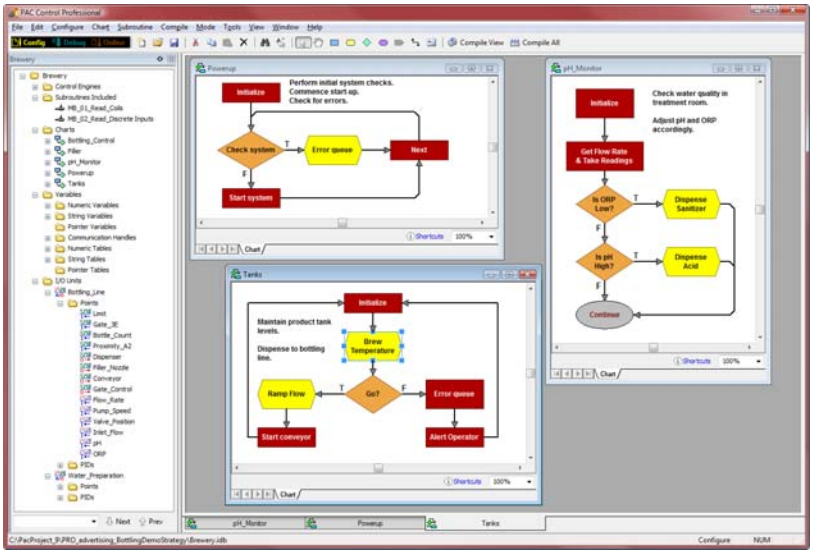
SNAP PAC brains. These I/O and communication processors provide distributed intelligence under the control of a SNAP PAC controller. For Ethernet-based networks, choose a SNAP PAC EB-series brain; for serial networks, choose an SB-series brain with an S-series controller. Both brains handle digital and analog I/O modules, and EB-series brains also support SNAP serial communication modules. Wired+Wireless EB-series brains can run on a wireless LAN, on a wired network, or on both at once.

SNAP I/O modules. Opto 22 SNAP analog, digital, and serial input and output modules can be used with the SNAP PAC System. SNAP I/O provides a wide range of signal types for any application. Modules, brains, and R-series controllers mount on SNAP PAC racks, which can hold 4, 8, 12, or 16 modules. Each module contains from 1 to 32 I/O points.

Advantages of the SNAP PAC System

The integrated software and hardware of the SNAP PAC System make it easier to understand, select, and apply an automation, monitoring, IIoT, or data acquisition system for your needs. The components all work together and the system can be easily extended as your needs grow, requiring a minimum of reprogramming and rewiring.

Software is simple to use and commands are in plain English. A single tagname database is shared by all software components, so the I/O points and data elements you define during control programming are automatically available when you're building an HMI, configuring data to send to OPC clients and databases, or using the REST API. And since you give I/O points and other data elements meaningful names that suit the way you are using them, troubleshooting and maintenance are easier.



PAC Control

PAC Control is an intuitive, flowchart-based programming and debugging tool for industrial automation, remote monitoring, and data acquisition applications. Using PAC Control, you create, download, and run control programs on a SNAP PAC standalone or rack-mounted controller.

PAC Control Basic includes all the features you need for most applications, including:

- A **Strategy Tree** that provides a graphical view of your control system configuration, including I/O points and variables
- A **comprehensive, plain-English command set**, including commands for analog process and digital sequential control, complex math, conditional branching, string handling, serial device control, PID loop control, data arrays, and other complex functions
- **Flowchart-based programming**, which lets you write control strategies visually and offers a more intuitive alternative to ladder logic programming

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PAC Project Software Suite

- **OptoScript™** programming, an optional advanced scripting language similar to C or Pascal, ideal for experienced control engineers who prefer a procedural approach to program development
- **Subroutines** for more efficient programming. Subroutines are especially useful for repeated tasks or processes that are used in multiple control strategies.
- A graphical **debugger** for stepping through a control program and its subroutines in real time

PAC Control Professional includes everything in PAC Control Basic and adds the following features:

- The ability to use redundant controllers, to create redundant Ethernet links, and to segment a control network
- Additional I/O-related data types in subroutines
- A migration path for Opto 22 FactoryFloor® customers, including support for serial-based *mistic* I/O units (requires SNAP PAC S-series controller) and a conversion utility to move older OptoControl™ 4.1 strategies to PAC Control

For a comparison of features available in PAC Control Professional and PAC Control Basic, see "PAC Project Basic and Professional Comparison" on page 7.

PAC Control Strategy

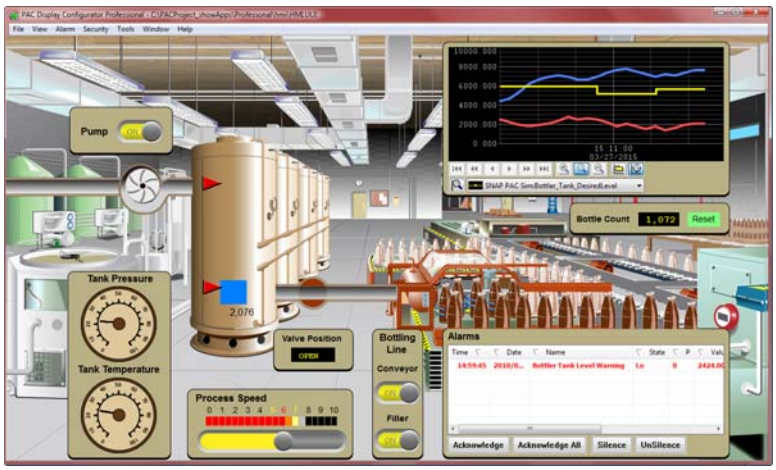
Using PAC Control on a PC, you create and debug a program (called a control *strategy*) to automate a process. You then download your strategy to the memory of a SNAP PAC controller, which runs the strategy independently of the PC. You can turn off your PC or use it for other applications while the controller runs the strategy. If desired, you can also download a second, alternate strategy to the controller and then switch rapidly between them with minimum downtime. When needed, you can easily modify the strategy in PAC Control.

A strategy is composed of a series of process flowcharts or *charts*, each of which controls one aspect of the automated process. Each chart is made up of blocks connected by arrows, which show the process flow. Each block in a chart contains one or more commands or conditions, such as *Convert Number to String* or *Start Counter* or *Chart Running?* The shape of the block indicates its function. For example, a rectangle is an action, while a diamond is a condition.

An Opto 22 SNAP PAC S-series controller can run up to 32 charts simultaneously; the SNAP PAC R-series can run up to 16 charts at once; SoftPAC can run up to 64. Many more charts can be included in the strategy.

Strategy Security

PAC Terminal SSD (Secure Strategy Download™) allows you to safely distribute a strategy and to protect it once it is downloaded to a controller. PAC Terminal SSD also can ensure that new firmware is from Opto 22 and has not been modified by anyone. PAC Terminal SSD is available from the Opto 22 website at www.opto22.com. There you will find instructions on how to register your copy of PAC Terminal SSD in order to obtain your password and software.



PAC Display

PAC Display Basic is a user-friendly HMI package for building operator interface applications to communicate with SNAP PAC controllers. PAC Display offers rich features, including alarming, trending, security, and a built-in library of 3,000 industrial automation graphics. PAC Display uses a fast, multithreaded scanning engine.

PAC Display Professional adds the capability to use redundant scanners, redundant Ethernet links, and a segmented control network on SNAP PAC controllers. PAC Display Professional can connect to legacy ioProject controllers and Ethernet-based FactoryFloor controllers running OptoControl strategies, and it can also import projects created in OptoDisplay, a part of FactoryFloor. Also, you can configure an ODBC database for logging SuperTrend, Historic Log, and Runtime Operator Logging data files.

The power of PAC Display lies in its close integration with Opto 22 controllers running control strategies. PAC Display monitors these systems to give operators, technicians, and engineers the information they need at a glance, while transferring operator instructions to the control hardware. PAC Display also displays data trends and x-y plots, logs historic data, and handles alarms.

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Key Features in PAC Display

- Close integration with SNAP PAC controllers
- Data trending and logging
- Alarming
- Library of 3,000 industrial automation graphics
- Fast, multithreaded I/O scanner
- Operator authentication and data encryption
- Affordable per-seat licensing
- No tag limits

Integration

SNAP PAC industrial controllers are programmed using PAC Control. When you build a control program, or *strategy,* using PAC Control, the database of I/O and variables you create in PAC Control is automatically shared with PAC Display. This single tagname database eliminates the need to create duplicate databases and eliminates tagname-related errors.

Ease of Use

In PAC Display you construct your operator interface, referred to as a *project,* by designing graphical objects and then linking them to tags in the corresponding PAC Control strategy. On-screen windows can combine pictures, symbols, bitmap graphics, and graphics with 3D effects. You can create graphics using built-in drawing tools, import them from other applications, or select them from the Symbol Factory, PAC Display's extensive built-in library of industrial automation graphics. Displays can also include controller-driven animations, operator-driven commands, and links to external websites and web applications such as *groov*, Opto 22's mobile operator interface tool.

Security

PAC Display lets you control access to an operator interface based on users and groups. Permissions can be defined for individual on-screen controls, and access to the interface itself can be password protected. Login and detailed usage information can be saved to an encrypted operator action log file. These security features can help applications meet U.S. FDA 21 CFR Part 11 regulations for digital data recording, storage, and handling.

SuperTrends

With PAC Display's SuperTrend feature, you can plot trends using real-time data, historical data, or both, switching between current data and previously logged data with the click of a button.

PAC Project Software Suite

With 16 available pens, you can plot 16 variables or I/O points per trend window. Point markers show you when data is actually sampled. For historical data, you simply click a point to see the exact date, time, and value when the data was scanned.

Alarming

You can view and acknowledge alarms in PAC Display, as well as see an alarm history for each alarm point. You can determine which alarm points to set up, define alarm thresholds, and choose colors for alarm states. Sound files can be added, and comments or messages can be displayed in alarm graphics while PAC Display is running.

An automatic response to an alarm can be set up to provide immediate action, such as automatically closing a valve when a specific alarm goes off. You can also set priorities for alarms, so that, for example, an operator can choose to receive only higher priority alarms during startup.

In addition, you can send the historical log of all alarms to a printer and also to a user-configurable Unicode or ASCII text file that can be easily imported for analysis into Microsoft® Excel®, Access®, or other applications.

PAC Manager

PAC Manager is a configuration and maintenance tool for:

- Assigning IP addresses
- Setting up security on Opto 22 Ethernet devices
- Upgrading firmware
- Configuring I/O points and I/O unit features
- Inspecting, reading from, and writing to devices for testing

PAC Manager includes tools for configuring multiple Ethernet devices at once. For example, if you have I/O units that use the same configuration or that all need firmware updated, you can change all of them simultaneously.

OptoOPCServer

OptoOPCServer is part of PAC Project Professional and can also be purchased separately. A fast and efficient OPC 2.0-compliant server, OptoOPCServer handles communications between multiple OPC clients and Opto 22 devices. It lets OPC client software interface with the following Opto 22 hardware:

- SNAP PAC System controllers running PAC Control strategies
- Independent SNAP PAC EB brains
- Independent legacy Ethernet-based I/O units
- Controllers running legacy ioControl™ and Ethernet-based OptoControl strategies

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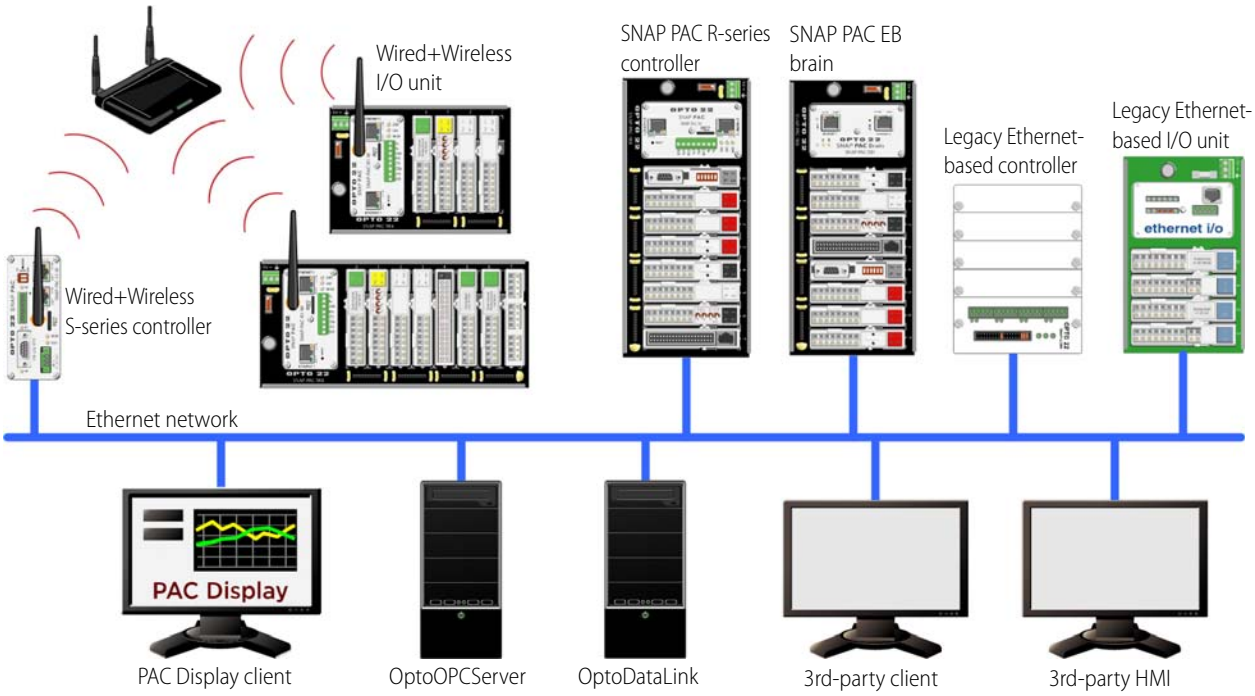
PAC Project Software Suite



OptoOPCServer can manage communication with Opto 22 devices not only for OPC clients, but also for OptoDataLink and for multiple seats of PAC Display. OptoOPCServer communicates with clients by using a report-by-exception method that reduces network traffic on industrial automation and manufacturing networks. When multiple clients need to access Opto 22 systems, OptoOPCServer efficiently helps messages flow faster.

Where multiple PCs are running the same or different PAC Display projects, OptoOPCServer works closely with PAC Display to provide fast data scanning. In fact, OptoOPCServer is the critical component for scaling up a PAC Display monitoring system for optimum performance.

Since OptoOPCServer can communicate with both the SNAP PAC System and legacy Ethernet-based Opto 22 systems, you can consolidate data from all these systems into the OPC client software of your choice.

Client software can include PAC Display (either Basic or Pro), OptoDataLink, OPC 2.0-compliant products, third-party HMI and data acquisition packages, and custom-developed software applications.

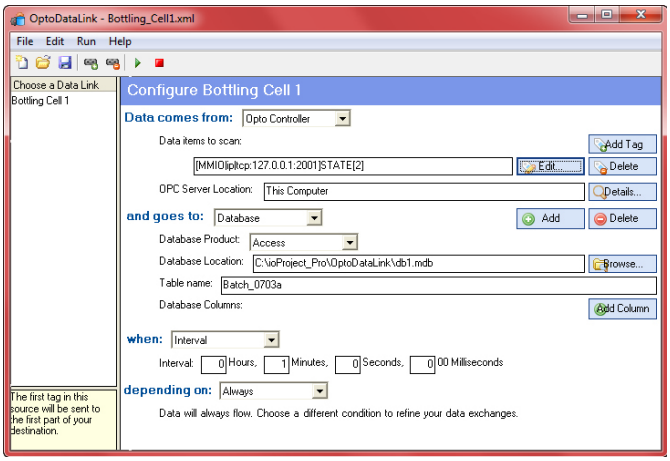
OptoOPCServer includes three software components:

- Opto Browser Configurator, which provides an easy drag-and-drop method of building OPC databases from the tag databases already created in your control strategies
- OptoOPCServer, which runs on Microsoft Windows®-based PCs
- OptoOPCServer debug monitor, for viewing the activity between OPC clients, OptoOPCServer, and Opto 22 devices

OptoDataLink

Providing data exchange with popular databases such as Microsoft SQL Server®, Microsoft Access, and MySQL®, OptoDataLink connects your SNAP PAC System with the tools used for making business decisions, bringing real-time, accurate data to decision makers.

OptoDataLink is included in PAC Project Professional and is also available for purchase separately.



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OptoDataLink transparently provides multiple connections for exchanging data. Thanks to PAC Project's single tagname database, the data elements you created when programming your PAC Control strategy—such as I/O points and variables—are automatically available for use in OptoDataLink.

Simply choose data elements from the list, and use OptoDataLink's flexible configuration tool to create a data connection, or *link,* between the data source and data destination. The data destination can be a database, an ASCII text file, or a SNAP PAC controller or brain.

SoftPAC

SoftPAC™ is a software-based programmable automation controller (PAC) designed for PC-based control. SoftPAC gives you the choice of running your control program on a computer in a Microsoft Windows environment rather than on a standalone or rack-mounted PAC.

SoftPAC is ideal for machine builders or OEMs who may already have a PC in their product or want to use one for a new design. SoftPAC can provide significant savings in hardware costs for some applications.

SoftPAC is especially useful for applications requiring:

- Extended file storage
- Frequent access to files
- Math-intensive processes
- A large number of control flowcharts running at the same time. For example, industrial engineers working with gas density calculations, solar tracking, and encryption can greatly reduce calculation time.

Using SoftPAC, you can take advantage of a PC's ability to quickly read and write to files as well as its greater space for data storage. A large refrigerated warehouse, for example, may need to log gigabytes of temperature, power, compressor, and door status data. SoftPAC handles large amounts of data with ease, because file operations are limited only by the size of the PC's hard drives and the available network volumes.

Another advantage is that SoftPAC can be run as a service. When SoftPAC runs as a service, an operator does not have to log in; the controller can start when the PC is turned on.

SoftPAC is part of PAC Project Professional and can also be purchased separately.

Computer Requirements

To use PAC Project applications with your PC, you must have the following minimum computer configuration:

- A computer with a standard or mainstream core 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)
  - Windows 8.1 Professional (32-bit or 64-bit)
  - Windows 7 Professional (32-bit or 64-bit)
  - Windows Vista® Business (32-bit only)
  - (OptoOPCServer and OptoDataLink only) Windows Server 2012 R2 and Windows Server 2008 R2

  NOTE: PAC Project will not install on Windows XP or older Windows operating systems. Embedded operating systems are not tested or supported.
- Ethernet capability.
- VGA or higher resolution monitor (Super VGA recommended). Minimum size: 800x600 with small fonts.
- Mouse or other pointing device.
- (Optional) Installed Windows printer.
- If your PAC Display Pro project accesses an M4-series controller (such as a SNAP-LCM4 or M4RTU) via an Ethernet connection, controller firmware version R4.1a or newer is required. In addition, in order to access strings or string tables, controller firmware R4.1d or newer is required.
- At least 214 MB of available hard drive space for PAC Project Basic, or 322 MB for PAC Project Professional. For PAC Display, OptoDataLink, or OptoOPCServer projects with more than 10,000 tags, at least 1,000 MB (1 GB) is recommended.

How to Obtain PAC Project

PAC Project Software Suite. Here's how you can get the PAC Project Software Suite:

- Get **PAC Project Basic** for free on the CD that comes with any SNAP PAC controller. Or download PAC Project Basic for free from the Opto 22 website at www.opto22.com. Complete documentation is included.
- Purchase **PAC Project Professional** from your local distributor and download it from our website to get started right away. Documentation is included in the download.

PAC Control Pro, PAC Display Pro, OptoOPCServer, OptoDataLink, and SoftPAC. Purchase these software applications separately or as part of the complete PAC Project Professional Software Suite. The purchase price for PAC Control Professional and PAC Display Professional is per seat. All documentation is included in the download.

NOTE: OptoOPCServer is strongly recommended for multiple seats of PAC Display and is required for OptoDataLink.

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PAC Project Software Suite

PAC Project Basic and Professional Comparison

The following table compares the features in version 9.6 of PAC Project Basic™ and PAC Project Professional™. For more information about controllers, see Opto 22 form 1677, *SNAP PAC Controller and Brain Comparison Chart*.

Feature		Basic	Pro
Included software	PAC Control™ Basic	●	●
	PAC Control Professional		●
	PAC Display™ Basic	●	●
	PAC Display Professional		●
	PAC Manager™	●	●
	OptoOPCServer™		●
	OptoDataLink™		●
	SoftPAC™		●
Control software: PAC Control			
Compatible controllers	SNAP PAC S-series standalone industrial controllers	●	●
	SNAP PAC R-series on-the-rack controllers	●	●
	SoftPAC software-based controller	●	●
Compatible brains	Built-in I/O unit (in SNAP PAC R-series controllers)	●	●
	SNAP PAC brains	●	●
	G4EB2 brains	●	●
	E1 and E2 brains	●	●
	Serial *mistic*™ brains/bricks*: B3000-B, B3000, SNAP-BRS, B100, B200, G4D16R, G4D32RS, G4A8R		●
Network	*Controller to PC:* Wired Ethernet Wireless 802.11a,b,g (Wired+Wireless controller required)	●	●
	Controller to I/O: S-series—Ethernet to EB brains and serial to SB and *mistic* brains R-series—Ethernet only. Wired+Wireless controllers support wireless networking.	●	●
	Controller to third-party devices: Ethernet or serial	●	●
	Support for Ethernet link redundancy or segmented control network		●
	Support for controller redundancy (S-series only)		●
Main features	Flowchart programming	●	●
	OptoScript programming	●	●
	Subroutines (debuggable)	●	●
	Graphical debugger	●	●
	Conversion utility for OptoControl 4.1 (and higher) strategies		●
	Support for serial *mistic* I/O units*		●
	Ethernet link redundancy (with R-series I/O units)		●
	Controller redundancy*		●
Maximum charts running at once	On SoftPAC (plus host task)	64	64
	On SNAP PAC S-series (plus host task)	32	32
	On SNAP PAC R-series (plus host task)	16	16

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Feature		Basic	Pro
Proportional-integral derivative (PID) loops	PID algorithms for Ethernet	4	4
	PID algorithm for *mistic* serial*	--	1
	Loops per SNAP PAC brain	96	96
	Loops per *mistic* brain/brick*	--	8
	Graphical tuner for Ethernet PID loops	●	●
	Graphical tuner for *mistic** PID loops		●
Ethernet link redundancy	Primary and secondary IP addresses for controllers and R-series I/O units		●
	PAC Control commands can be used to control redundancy algorithm		●
Controller redundancy*	PAC Redundancy Manager utility		●
	Checkpoint blocks and redundant/persistent tags		●
Additional toolkits**	Modbus Integration Kit (serial and TCP)	●	●
	Controller Area Network (CAN) Integration Kit	●	●
	Other Integration Kits (Allen-Bradley DF1 Integration Kit, BACnet, TL1, DNP3, IEC60870-5)	●	●
HMI software: PAC Display			
Main features	Alarming	●	●
	Trending	●	●
	Logging	●	●
	Operator authentication and login	●	●
	3000-graphic library	●	●
	Additional graphics tools for PID and embedding web pages		●
	Data logging to MySQL, Microsoft® SQL Server, and other ODBC databases		●
	Conversion utility for OptoDisplay projects		●
	Primary and secondary IP addresses for control engine		●
	Primary and secondary scanner		●
Controllers supported	SNAP PAC controllers	●	●
	Controllers running ioProject	●	●
	Controllers running FactoryFloor on Ethernet network		●
OPC server: OptoOPCServer			
OPC version	OPC 2.0-compliant		●
Database connectivity: OptoDataLink			
Databases supported	Built-in, easy data transfer to Microsoft SQL Server, Microsoft Access, MySQL, text files	***	●
PC-based control: SoftPAC			
Compatible brains	SNAP PAC (R-series and EB-series)	● ****	●
	G4EB2 brains	● ****	●

* Requires SNAP PAC S-series controller(s). See also SNAP-PAC-ROK Redundancy Option Kit.
** For more information, see Opto 22 form 1820, *Communication Tools & Protocols for Opto 22 Products Technical Note*.
*** Limited options using strategy logic if the user is an expert at database programming.
**** SoftPAC must be purchased separately.

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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 deployed worldwide.

Industrial automation, process control, building automation, industrial refrigeration, remote monitoring, data acquisition, Industrial Internet of Things (IIoT), and information technology applications all rely on Opto 22.

groov

Monitor and control your equipment from anywhere using your smartphone or tablet with groov. Build your own mobile app easily—just drag, drop, and tag. No programming or coding. Visit groov.com for more information and your free trial.

SNAP PAC System

Developer- and IIoT-ready, the SNAP PAC System connects physical assets to databases and applications using open standards. 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

SNAP PAC programmable automation controllers handle a wide range of digital, analog, and serial functions for data collection, remote monitoring, process control, and discrete and hybrid manufacturing.

For IIoT applications and easier integration with company systems, standalone and rack-mounted SNAP PACs include a built-in HTTP/HTTPS server and **RESTful API** (application program interface). The REST API gives you secure, direct access to I/O and variable data using your choice of programming languages. No middleware, protocol converters, drivers, or gateways needed.

Based on open Ethernet and Internet Protocol (IP) standards, SNAP PACs make it easier to 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 offers full-featured, cost-effective control programming, HMI (human machine interface), OPC server, and database connectivity software.

Control programming includes both easy-to-learn flowcharts and optional scripting. 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 one SoftPAC software-based controller, OptoOPCServer, OptoDataLink, options for controller 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, local PID loop control, watchdog, totalizing, and much more.

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. Analog, digital, and serial modules are mixed on one mounting rack and controlled by a SNAP PAC brain or rack-mounted PAC.

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 only testing a sample of each batch, we can 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, comprehensive 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.

Additional support is always available on our website: how-to videos, OptoKnowledgeBase, self-training guide, troubleshooting and user's guides, and OptoForums.

In addition, hands-on training is available for free at our Temecula, California headquarters, and you can register online.

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 951-695-3000, or visit our website at www.opto22.com.

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