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A company unlike any other.

Sure, we're a hardware and software manufacturer. But we're not your cookie-cutter conglomerate. We're a family-run operation with a reputation for high-quality products and long-term support for our customers. And we've been doing it that way for over 30 years.

Since 1974, when we manufactured a complete line of solid-state relays, all the way up to 2005, when we introduced SNAP PAC controllers, we've been recognized for product reliability and our innovative approach to industrial automation.

We originated the red-black-yellow-white I/O module color scheme and developed and published the Optomux protocol. Both became industry standards. We co-founded the OPC protocol, industrial automation's universal communication technology, and then brought the world's most popular network to input/output systems with the introduction of Ethernet I/O.

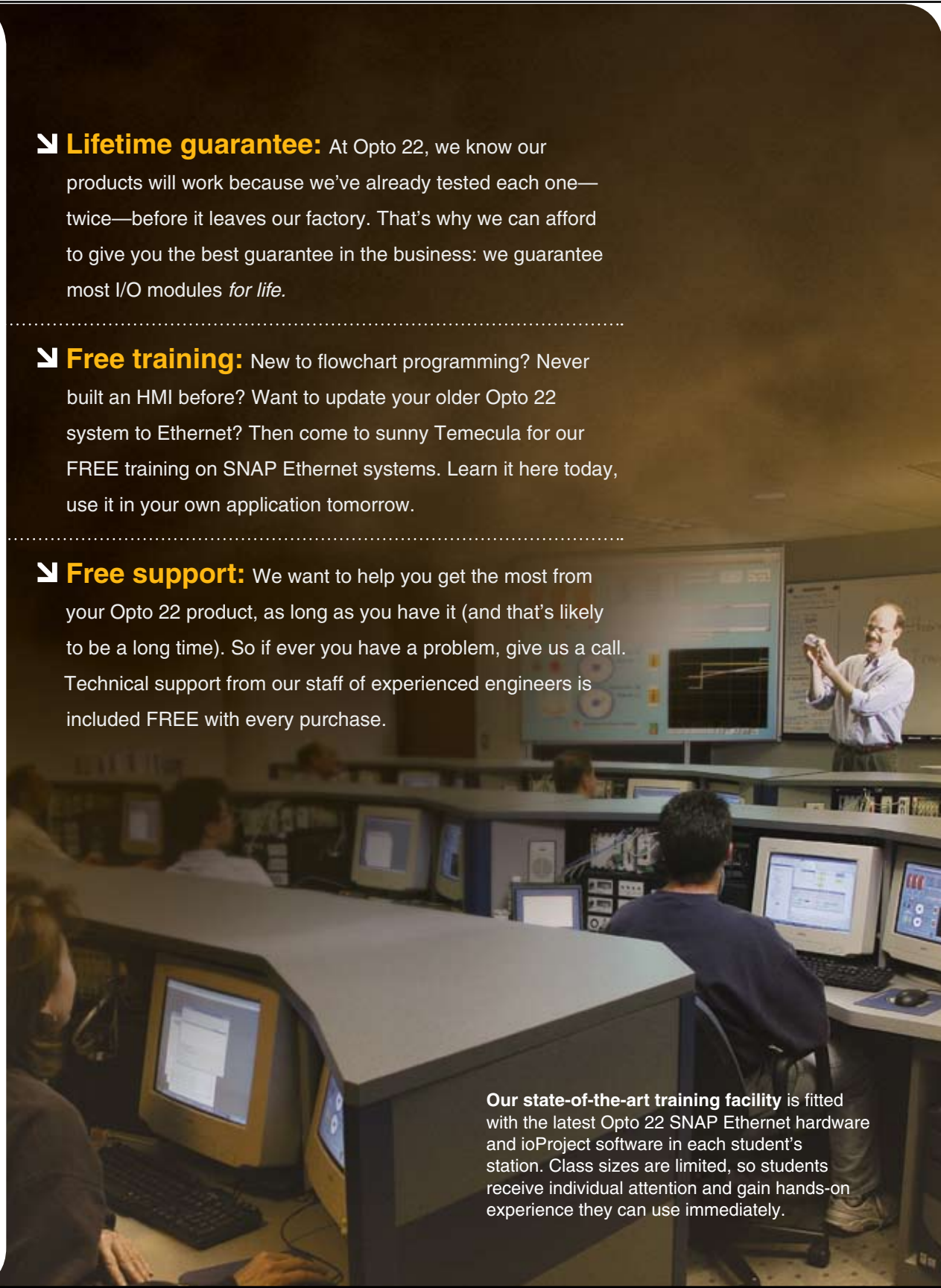
Sometimes, looking back at what you've accomplished is the best way to see where you're headed. For us, it's establishing industry-embraced standards and developing products that push the technology envelope all while standing the test of time. And continuing to do so, year after year.

▾ **Lifetime guarantee:** At Opto 22, we know our products will work because we've already tested each one—twice—before it leaves our factory. That's why we can afford to give you the best guarantee in the business: we guarantee most I/O modules *for life*.

▾ **Free training:** New to flowchart programming? Never built an HMI before? Want to update your older Opto 22 system to Ethernet? Then come to sunny Temecula for our FREE training on SNAP Ethernet systems. Learn it here today, use it in your own application tomorrow.

▾ **Free support:** We want to help you get the most from your Opto 22 product, as long as you have it (and that's likely to be a long time). So if ever you have a problem, give us a call. Technical support from our staff of experienced engineers is included FREE with every purchase.

Our state-of-the-art training facility is fitted with the latest Opto 22 SNAP Ethernet hardware and ioProject software in each student's station. Class sizes are limited, so students receive individual attention and gain hands-on experience they can use immediately.



7 reasons why choosing Opto 22 products is a snap.

Opto 22. How the industry spells "reliability." Almost every Opto 22 I/O module comes with a lifetime guarantee. How can we make that kind of promise? Because every Opto 22 product, from relays to Ethernet brains, is made at our headquarters in Temecula, California. So we have unprecedented control over the workmanship and quality. That, and we test each and every product under full load twice prior to shipping. If it doesn't pass testing, it doesn't pass through our doors.

Seamless synthesis of software and hardware.

The ioProject Software Suite was developed to work specifically with SNAP PAC controllers. Which makes every interaction—between human and software, software and hardware—totally simple. No more struggling to get communications to work, building and maintaining multiple databases or cross-reference tables. And with single tag databases, animated debugging, and picture-perfect HMI screens, you'll get more done, faster. Now that's our idea of teamwork.

One size doesn't fit all. That's why the SNAP PAC comes in two sizes: the compact, cost-effective R-series for small and distributed applications, and the S-series for larger, more complex applications. The SNAP PACs are the only programmable automation controllers that are the right size going in—and always ready to grow.

Superhuman powers of scalability. We understand that most people plan to grow their applications, so SNAP PACs were built for that precise purpose. Whether your application is best suited for the smaller SNAP PAC R-series, or

the larger and more powerful S-series, our PACs and SNAP I/O are highly modular. So you when you choose SNAP PAC, you've always got the choice to scale up. Branch out. Expand. Change. And grow.

**SNAP
PACS**

Brains that would make Einstein jealous. SNAP brains are I/O and communication processors that fit on I/O mounting racks. Together, they form an intelligent, distributed, scalable and highly flexible I/O system. Besides providing both Ethernet and serial interfaces, these brains perform control functions, loop control and event messaging. And with so much intelligence at the local I/O level, the programmable automation controller is free to deal with the bigger picture. Genius.

No matter what your application, we've got your I/O. And if we don't have it, there's a good chance it doesn't exist. Because in the automation industry, we're known for our I/O modules. Not only can we provide the most extensive selection of digital, analog and serial input and output modules of any manufacturer, we can also give you peace of mind. Because most of our I/O modules are guaranteed for life. No matter what.

We treat you like family. Maybe better. The Opto 22 family is big enough to be there when you need us, but small enough to listen and care. And to show you how serious we are about this commitment, we offer our customers training, product support, documentation and application engineering help all for free. As we like to say, with Opto 22, it's all in the family.



Powerful. Versatile. Easy.

The ioProject Software Suite includes ioControl for programming and debugging and ioDisplay for developing and running operator interfaces. Both are easy to use, highly intuitive and designed to work with SNAP PAC controllers for unequaled software and hardware integration.

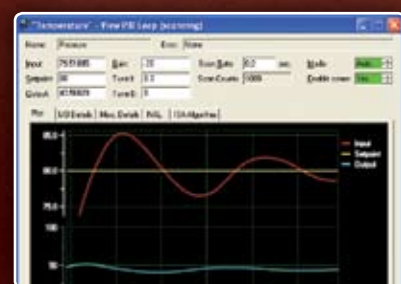
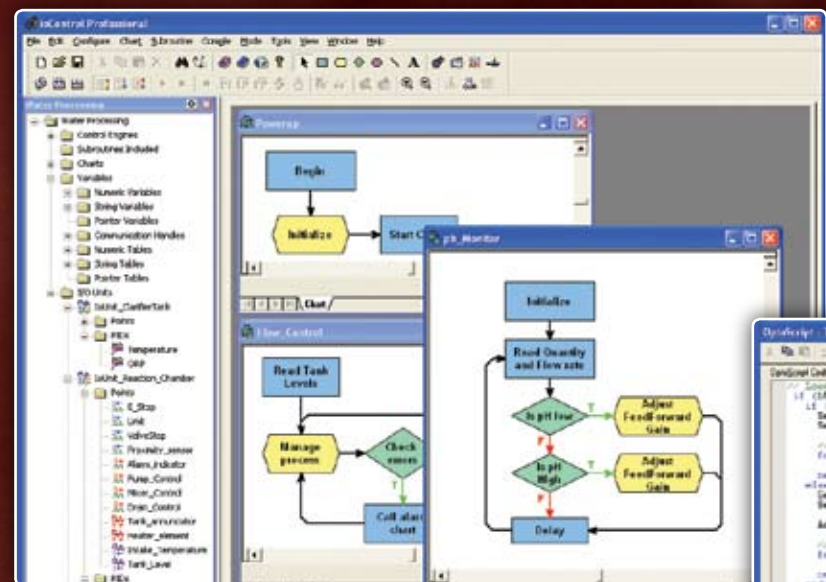
ioProject's seamless integration with the SNAP PAC hardware puts it light years ahead of its competitors. But we took simplicity and ease-of-use one step further by basing our software on a single tagname database and using a plain English command set. So commands are understandable. I/O points and control variables have meaningful names. And once tagnames are created in ioControl, they become part of ioDisplay. Enter once, use many times. Now that's one technologically advanced piece of cake.

The ioProject Software Suite comes in two levels:

- ioProject Basic, a full-featured suite included with both SNAP PAC R-series and S-series controllers.
- ioProject Professional, for those needing OPC connectivity, additional networking options, or support for legacy hardware.

ioControl

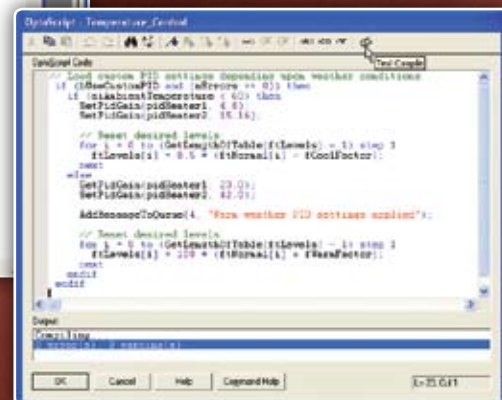
Software that speaks the same language you do: plain English.



➤ Built-in, interactive debugger makes it easy to see your program in action, including real-time PID loop tuning.

➤ Program using plain English commands. Reference meaningful tags you define. No cryptic registry entries or memory locations.

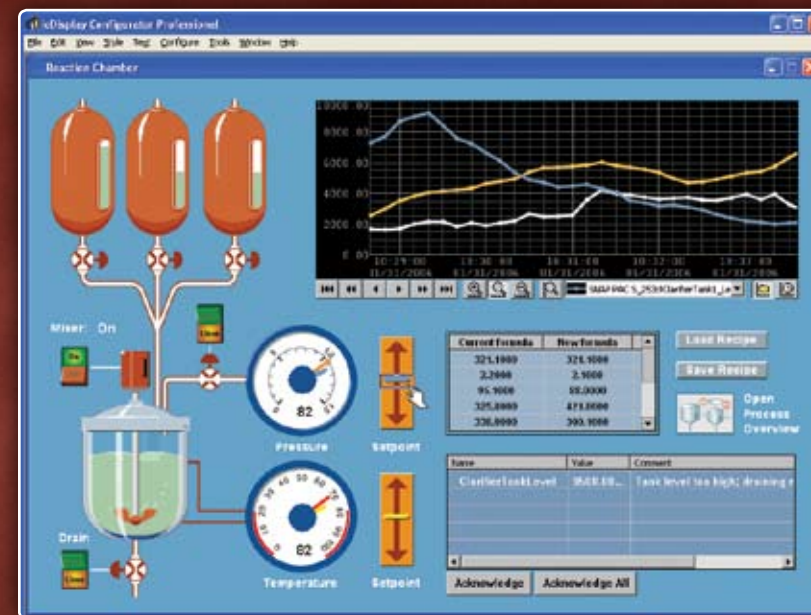
➤ Flowcharting means easy programming for novice and expert developers. And scripting offers advanced power and flexibility.



ioProject Software Suite's programming environment is ioControl—the most powerful, easy-to-use industrial automation programming suite around. ioControl offers two methods for writing your code: flowcharting and scripting. Choose one, or blend the two to tackle your toughest control and data acquisition applications. Then, the built-in animated debugger lets you watch as your program runs, so you can track every aspect of your application in real time. And cut start-up and commissioning time down to size.

ioDisplay

Finally, software that isn't hard.



➤ A single tagname database means I/O points, variables, tables and more are entered once for the entire ioProject suite.

➤ Includes alarming, trending, authentication, data encryption and the kitchen sink.

ioDisplay is the full-featured, Human-Machine Interface (HMI) component of the ioProject Software Suite. It includes alarming, trending, authentication, data encryption and much more.

And thanks to its highly intuitive environment, single tagname database, simple point-and-click tools, graphics and symbols, it's exceptionally easy to get started and master. We dare you to compare ioDisplay against HMIs costing thousands more and think you'll agree that the power, simplicity and flexibility of ioDisplay not only make it easy to use, but easy to choose.

➤ ioDisplay is a full-featured HMI that includes what you'd expect from a package costing thousands more.

➤ Tight integration across the ioProject suite reduces errors and dramatically speeds development. Plus, no more driver issues. Draw, click, connect, run.

➤ An included graphics and symbol library lets you build a realistic and beautiful interface for your application.

ioProject Basic & Professional	Basic	Pro
Control software features:		
Flowchart and OptoScript programming	✓	✓
Subroutines	✓	✓
Graphical debugger	✓	✓
Additional I/O functions	✓	✓
Import OptoControl strategies	✓	✓
Support for mystic I/O bricks*	✓	✓
HMI software features:		
Alarming	✓	✓
Realtime and historical trending	✓	✓
Operator access control and logging	✓	✓
Data encryption	✓	✓
3000-graphic library	✓	✓
Communicate with legacy controllers via Ethernet	✓	✓
Import OptoDisplay projects	✓	✓
Third-party integration:		
Modbus	✓	✓
Allen-Bradley DF1	✓	✓
Serial devices	✓	✓
OPC Server	✓	✓
Maintenance and diagnostics:		
ioManager	✓	✓
ioUtilities	✓	✓
Support for Ethernet link redundancy:		
Primary and secondary IP addressing	✓	✓
Primary and secondary data scanners	✓	✓

*Requires SNAP PAC S-series controller

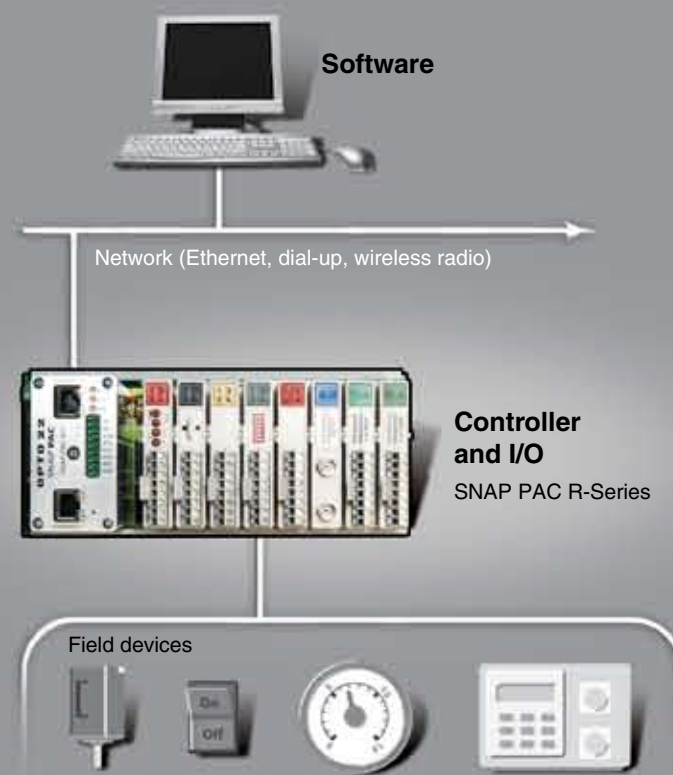
SNAP PAC family

Two PACs are better than one. So the SNAP PAC family includes two programmable automation controllers: the R-series and the S-series. Undoubtedly, one of them will address all of your industrial automation needs.

The R-series is a compact, rack-mounted controller. Just add I/O modules, and you have yourself a complete, convenient PAC package for small or distributed applications. Then there's the S-series, a standalone controller suitable for larger and more complex applications. Best of all, whether the R or the S-series is the best fit for your application, both provide powerful, real-time control to meet your industrial monitoring, data acquisition and control needs. Here's the benefit breakdown on what the SNAP PAC family can do for you and your application:

- Save money with the highest performance, lowest cost PACs on the market.
- Save time thanks to tight integration between hardware and software.
- Do more with the multi-use, multi-tasking platform—perfect for process or discrete tasks, or whatever application you can imagine.

R-series **Rack-mounted and ready to grow.**



With its small size, low cost and ability for easy and limitless expansion SNAP PAC R-series is a perfect choice for small and distributed applications.

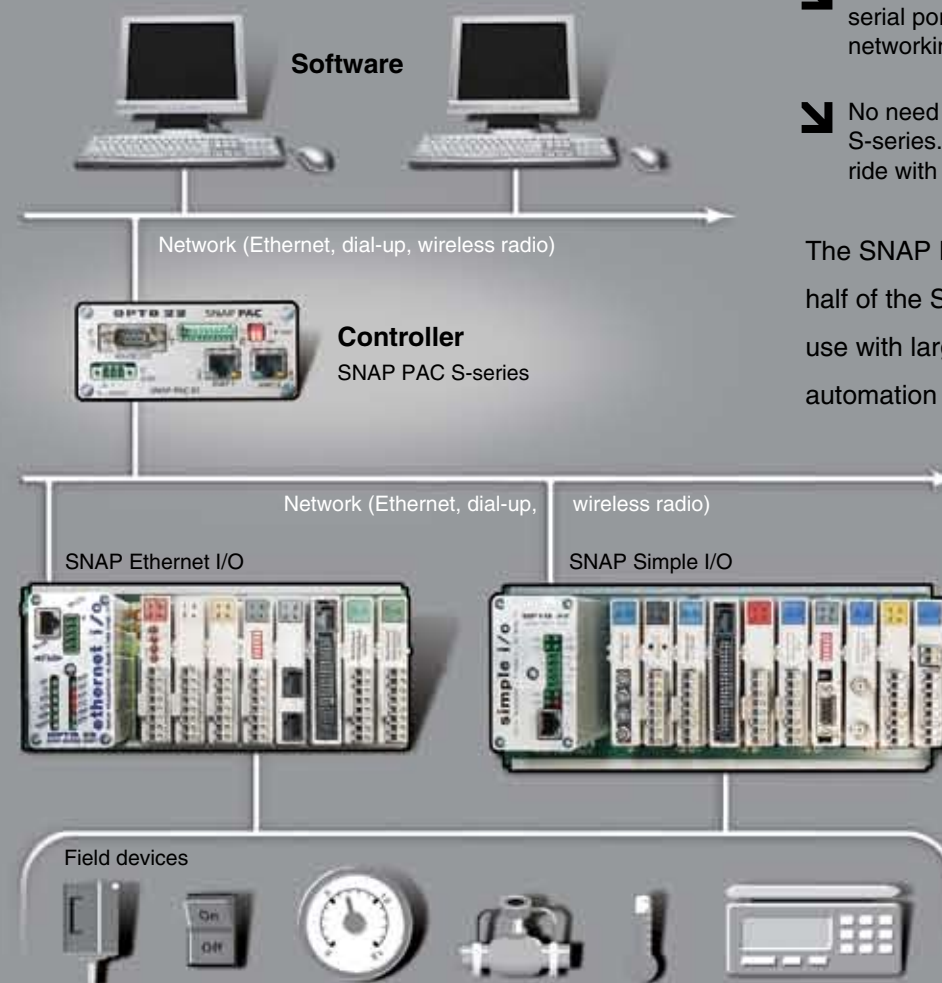
The R-series PAC is the heart of a compact and convenient I/O and controller package.

Sometimes bigger is better. That's why the R-series and SNAP I/O are designed to be completely scalable.

With us, you get what you pay for. And more. So the SNAP PAC R-series comes with the ioProject Basic Software Suite, free. No ifs, ands or buts.

Introducing a compact, multi-tasking, "on-the-rack" programmable automation controller and I/O processor in one convenient package: the SNAP-PAC R-series. This PAC mounts right on the rack with your I/O, making it ideal for smaller and distributed applications. And you'll never have to worry about outgrowing the R-series. Because it's fully compatible with the S-series programmable automation controller and SNAP components. So the R-series is easy to scale into larger applications, giving you the freedom for unlimited system expansion for your future needs. In other words, the SNAP PAC R-series offers a whole lot of bang for the proverbial buck.

S-series **"S" as in standalone. And serious points of I/O.**



Dual Ethernet interfaces and multiple serial ports give you tons of flexibility and networking options.

No need to get different I/O for your new S-series. Bring your old I/O along for the ride with built-in mistic I/O serial support.

The SNAP PAC S-series is the heavy-duty half of the SNAP PAC family, designed for use with larger, high point-count, or complex automation systems. This powerful standalone

controller works equally well in applications ranging from intricate, high-speed OEM machinery to expansive, distributed control usually requiring a traditional DCS. Combine the S-series PAC with a broad array of I/O processors, racks, and I/O modules to build the perfect system for your application that's everything you need it to be: powerful, flexible and Opto 22-reliable.

R-Series and S-Series Controllers	R-Series	S-Series
Mounting	On-the-rack	Standalone
Maximum ioControl flowcharts running simultaneously	16	32
Ethernet Interfaces	2	2
Serial Ports	1 RS-232	2 RS-232 1 RS-485
Memory (megabytes):		
Total RAM	16	32
Battery-backed RAM	2	8
Flash	8	16
Host communications:		
Ethernet (10/100 Mbps)	✓	✓
Serial using PPP and optional modem or radio	✓	✓
I/O communications:		
Ethernet (10/100 Mbps)	✓	✓
Serial (RS-485)*		✓
On-board	✓	
I/O unit compatibility:		
SNAP Ethernet I/O	✓	✓
Ethernet Optomux	✓	✓
mistic bricks*		✓
Third-party device communications:		
Ethernet	✓	✓
Serial	✓	✓
Additional features:		
FTP server/client, file system	✓	✓
Scratch Pad area	✓	✓
Realtime clock	✓	✓

* Requires ioProject Professional

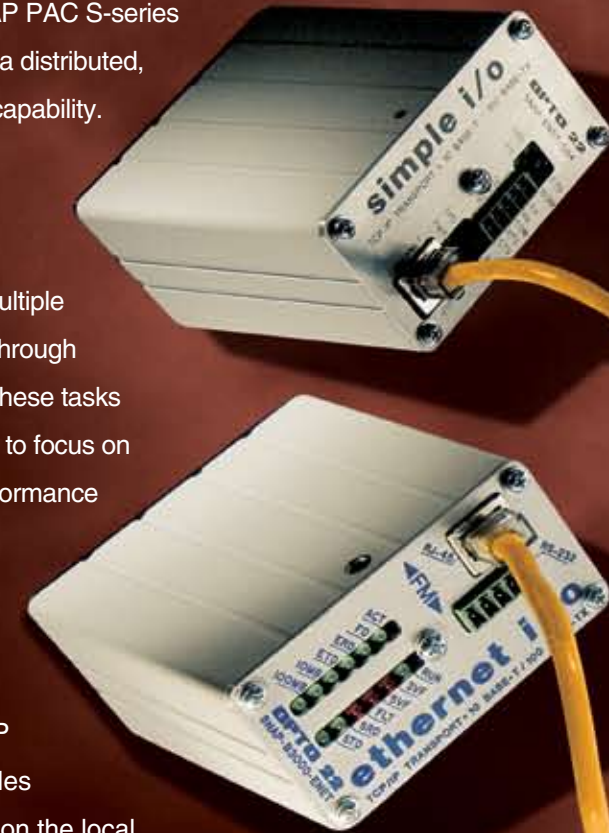
Brains
Distributed intelligence.
Now that's smart.

Opto 22 brains are intelligent processors that snap onto SNAP I/O mounting racks and open the doors for unlimited scalability. And whether you choose the SNAP PAC R-series or SNAP PAC S-series controller, simply add more brains to your system for a distributed, intelligent I/O network with almost infinite expansion capability.

SNAP brains are powerful, compact computers, they perform many tasks. On one side, they handle all communications over multiple network types using multiple protocols simultaneously. On the other, they breeze through processor-intensive local I/O tasks. And by diverting these tasks from the controller to the I/O level, you free your PAC to focus on higher-level processing and liberate your system performance from dependence on the number of I/O points. Your system runs faster and smoother, and can scale as your application grows.

So now it's just a matter of choosing between SNAP Simple I/O and SNAP Ethernet I/O. Our free pre-sales application engineering can help you decide based on the local processing tasks you want the brain to perform, such as: latching, counting, pulsing, thermocouple linearization, scaling, clamping, PID loop control, and more.

Opto 22 SNAP brains. Intelligence on command.



SNAP Simple I/O

This low-cost, Ethernet-based brain allows you to mix analog, digital, and serial I/O on a single rack.

SNAP Ethernet I/O

With advanced I/O processing capability, plus Ethernet, PPP serial port, multiple protocols and event-based functions.

SNAP Simple and SNAP Ethernet I/O Brains	Simple I/O	Ethernet I/O
Digital point on/off status	✓	✓
Digital input latching	✓	✓
High-speed counting		✓
Quadrature counting		✓
Pulse generation and measurement		✓
Watchdog timeout	✓	✓
TPO (time-proportional output)		✓
Thermocouple linearization	✓	✓
Analog minimum/maximum values	✓	✓
Analog offset and gain calibration	✓	✓
Analog scaling	✓	✓
Analog output clamping	✓	✓
Analog filter weight	✓	✓
Analog ramping		✓
High-density module support	✓	✓
Serial and Profibus communication modules	✓	✓
Events and event messages		✓
Email (SMTP client)		✓
OPC driver support	✓	✓
Security (IP filtering, port access)	✓	✓
SNMP (simple network management protocol for I/O and variables)		✓
PPP (dial-up and radio modems)		✓
Modbus/TCP	✓	✓
Number of modules per I/O unit	4, 8, 12, or 16	4, 8, 12, or 16

I/O modules
They're what we're known for.
And it's no wonder.

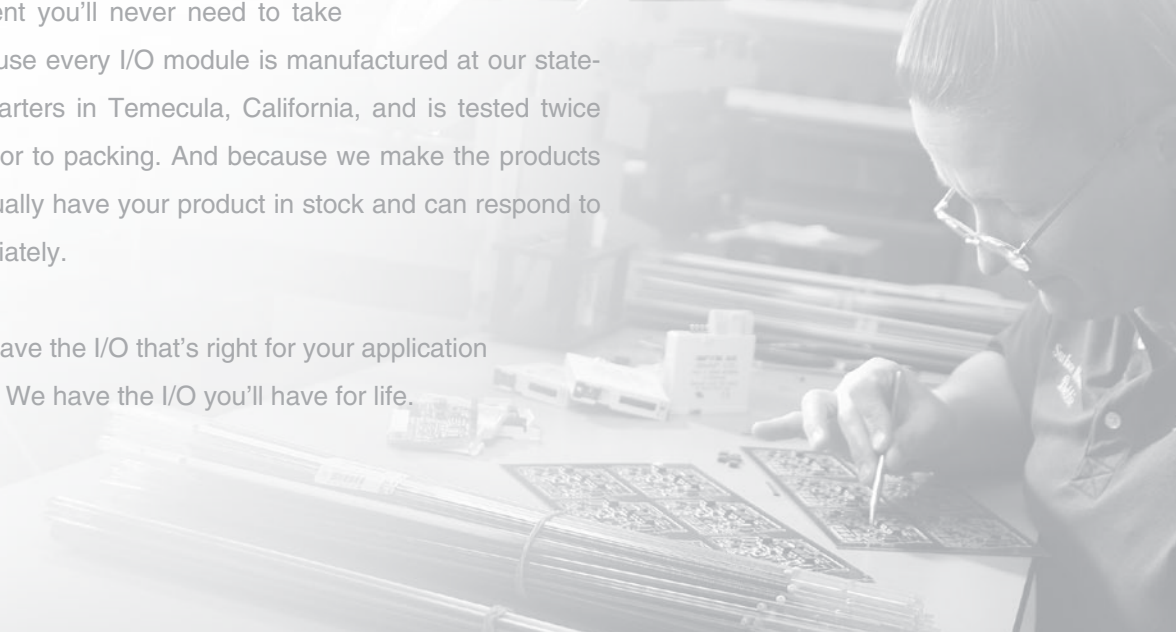
Since 1978, when we introduced the red-black-yellow-white I/O color-coding, we've been known as the leader in high-quality, exceedingly reliable input and output modules. Today, we're still the unrivaled manufacturer of the largest variety of I/O modules in the industry—over 250 variations in all, and counting.

And then there's the industry-renowned Opto 22 quality. We're proud of our heritage of quality, which is proven again every day by millions of I/O points out in the field, performing their tasks as flawlessly as they have since the day they were installed.

That's why we're able to offer something that would be unheard of at other companies: lifetime guarantees on most of our I/O modules. But we're confident you'll never need to take us up on it. Because every I/O module is manufactured at our state-of-the-art headquarters in Temecula, California, and is tested twice under full load prior to packing. And because we make the products ourselves, we usually have your product in stock and can respond to your order immediately.

So we don't just have the I/O that's right for your application when you need it. We have the I/O you'll have for life.

We offer over **250** kinds of I/O. All have wiring diagrams printed right on them for ease of installation, and most come with lifetime guarantees.





Welcome to the family.

It's not often that you get to choose your family. But given the chance, wouldn't you pick one that is supportive, helpful, knowledgeable and reliable? Then welcome to the Opto 22 family.

At Opto 22, we're there for you whenever you need us. We offer free pre-sales engineering, free ongoing technical support from a highly experienced staff of engineers, like the real-life crewmembers pictured here, and free hardware and software training at our state-of-the-art training center.

We're based at our corporate headquarters in Temecula, California. But our legendary expertise is available worldwide. With distributors, partners, support, training and engineering help all over the world, we're a family with a truly global reach. Join us.

Opto 22. Expect more. Get more. Do more.

OPTO 22

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