OPTO 22

DATA SHEET

Form 1109-061016

Part Number	Description
SNAP-PDPRS64	Profibus-DP Digital Slave Brain

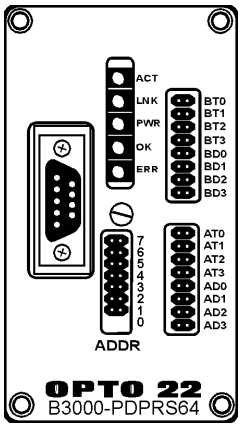
Description

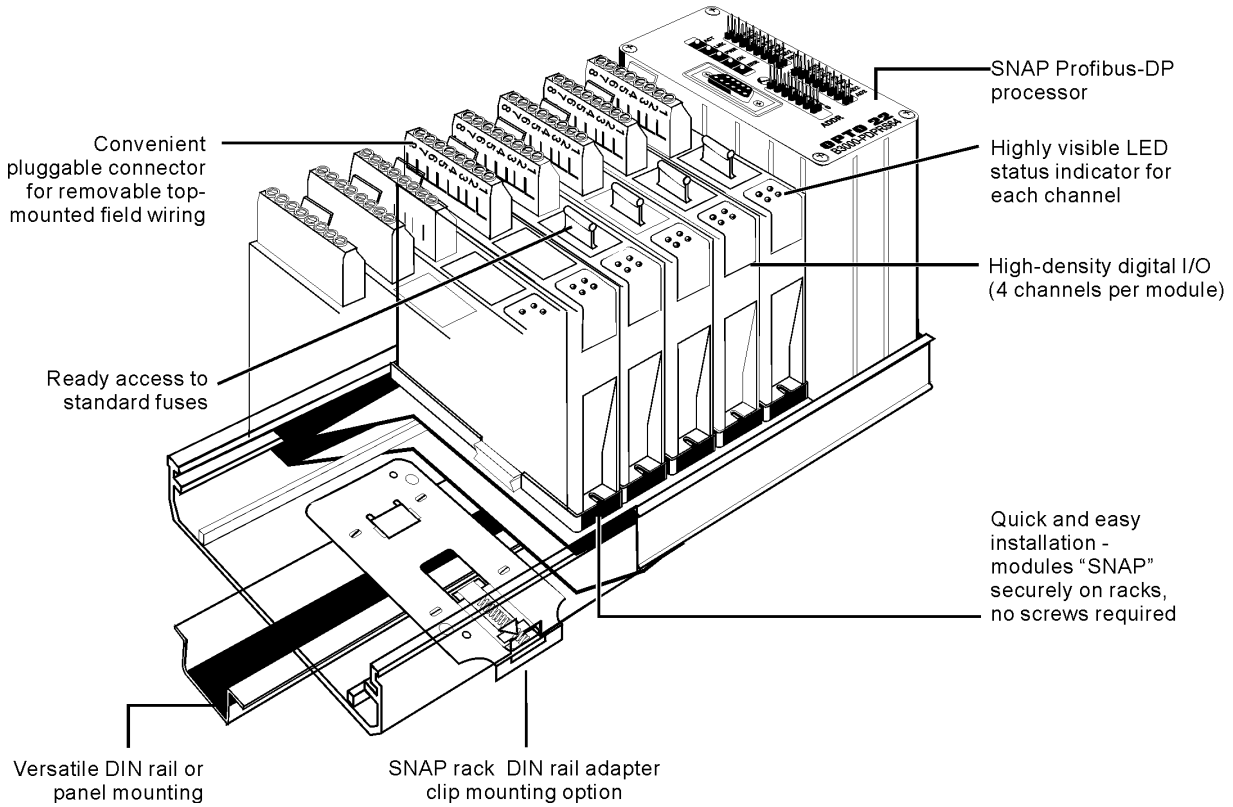
With the SNAP Profibus-DP brain, you can use state-of-the-art Opto 22 digital I/O hardware with your existing Profibus DP-compatible controller. The SNAP Profibus-DP brain is one of Opto 22's high-performance, intelligent processors designed to meet your distributed control needs. It is capable of controlling up to 64 channels of digital I/O, configured as inputs or outputs in banks of eight channels.

The SNAP Profibus-DP brain and its I/O mounting rack, the SNAP-D64RS, work with any Profibus-DP master device. The brain communicates to a Profibus-DP master via a 9-pin D-shell connector according to the Profibus DP network standard. Auto-negotiated baud rates of up to 12 Mbaud are supported. Functions include digital input and output read and write.

The .GSD file for the SNAP-PDPRS64, required by Profibus, is provided on an included disk or can be downloaded from our Web site at www.opto22.com.

SNAP-PDPRS64 Top Cover

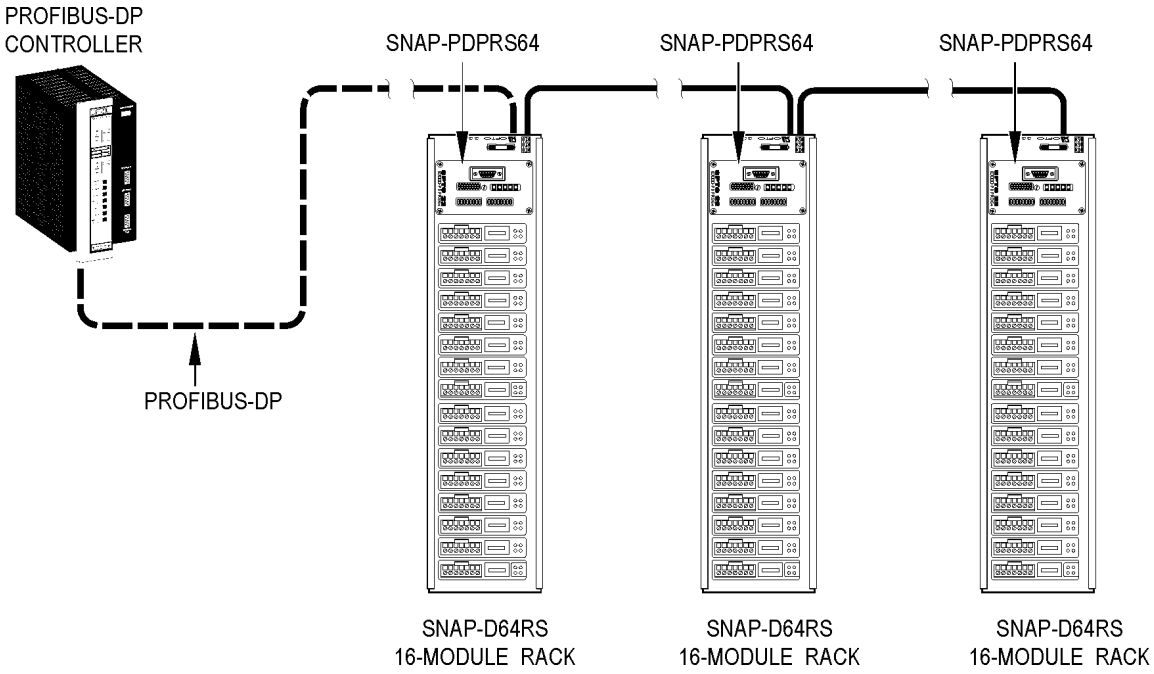




Description (Continued)

SNAP-PDPRS64 System Architecture

The SNAP Profibus-DP brain connects to the SNAP-D64RS I/O mounting rack, which can hold up to 16 SNAP digital modules, providing 64 channels of I/O. The I/O on the SNAP Profibus-DP brain is divided into eight groups, each with eight channels of I/O. All the channels in one group must be either inputs or outputs.



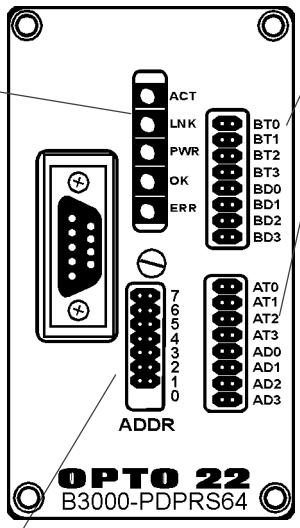
Specifications

Power Requirements	5.0 VDC ± 0.1 VDC at 1.3 A max. (includes fully-populated rack with brain)
Operating Temperature	0° to 70° C, 95% humidity, non-condensing
Communications Interface	9-pin D-shell connector, Profibus-DP standard pinout
Data Rates	Automatically detected baud rates up to 12 Mbaud
Range	Per Profibus-DP network standard (speed-dependent)
LED Indicators	Activity, Link status, Power, Normal operation, Error
Options: Jumper Selectable	Direction information (input or output), Profibus-DP address

Specifications

Address and I/O Selection Jumpers, LED Descriptions

Top View



LED Descriptions

LED	Description
ACT	Processor currently transmitting or receiving data
LNK	Traffic on network
PWR	Power on processor (at least 4.75 VDC)
OK	Brain configuration matches software configuration
ERR	Error

Address Jumpers

For address jumper settings, see the chart on page 5.

I/O Selection Jumpers

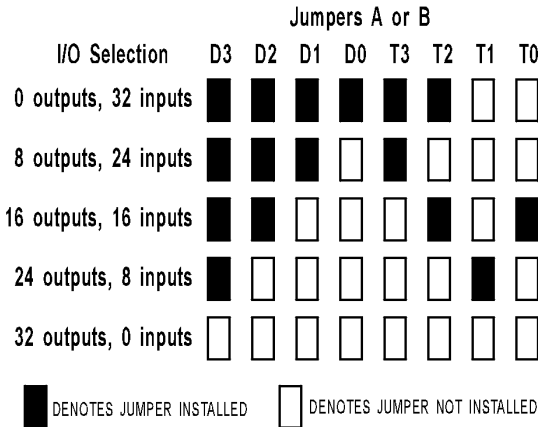
The B3000-PDPRS64 brain is capable of addressing a maximum of 64 channels of digital I/O and has no analog capability.

I/O on this brain is divided into eight groups, each with eight channels of I/O. All the channels in one group must be either inputs or outputs. See the following page for a diagram of the I/O rack.

Jumpers AT0 through AD3 control input and output selection for the first four groups on the rack (I/O modules in positions 0–7). Jumpers BT0 through BD3 control input and output selection for the last four groups on the rack (I/O modules in positions 8–15).

Both sets of I/O selection jumpers work in the same way. AT and BT jumpers set port type bits; AD and BD jumpers set port directional bits. The combination of type and directional jumpers determines the number of inputs and outputs on the A half or the B half of the rack. On either half, output modules are placed in the lower-numbered positions and input modules in the higher-numbered positions.

The following diagram shows jumper positions for the possible combinations of inputs and outputs. See the following page for an example.



Specifications

SNAP Digital I/O Mapping

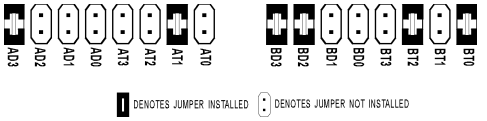
I/O Selection Example

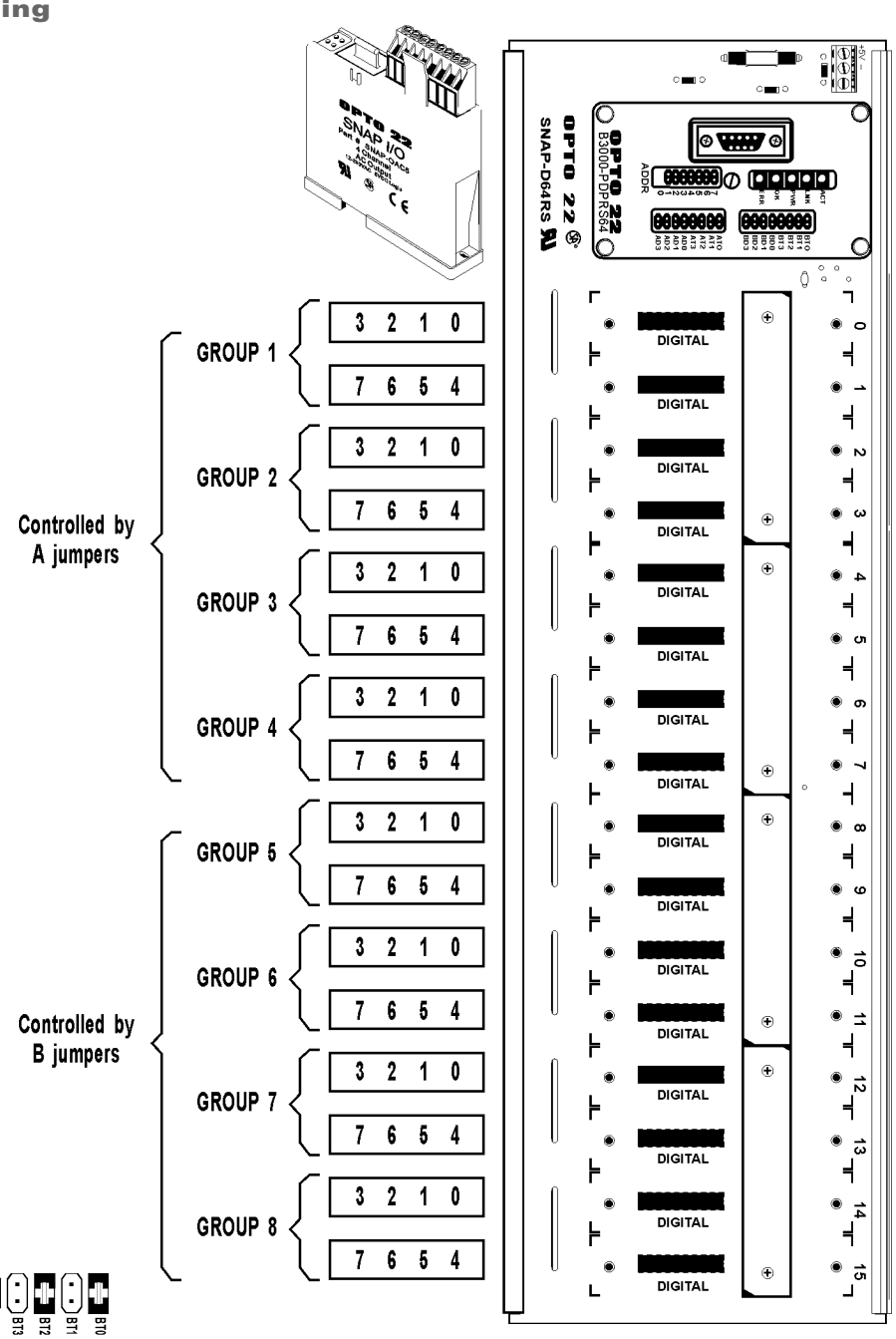
Suppose you need a total of 40 output points and 24 input points on the rack. You decide to place 24 outputs and 8 inputs in positions 0–7 (the A half of the rack). That leaves 16 outputs and 16 inputs to go in positions 8–15 (the B half of the rack).

Since outputs must go in the lower-numbered positions on each half, you place the modules as follows:

Position	Module	I/O Points
0	output	A half: 24 outputs and 8 inputs
1	output	
2	output	
3	output	
4	output	
5	output	
6	input	
7	input	
8	output	B half: 16 outputs and 16 inputs
9	output	
10	output	
11	output	
12	input	
13	input	
14	input	
15	input	

For this example, you would set the I/O selection jumpers like this:





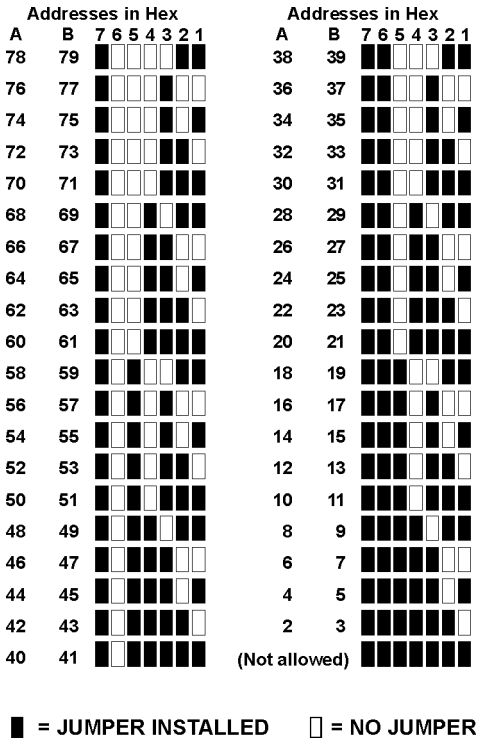
Specifications

Address Jumpers

As shown in the SNAP rack diagram on the previous page, the 64 digital channels are divided into two 32-channel subunits, A and B. Each subunit has a unique address. The A subunit always has an even-numbered address, and the B subunit automatically takes the next odd-numbered address. Use the following chart to assign addresses to the subunits.

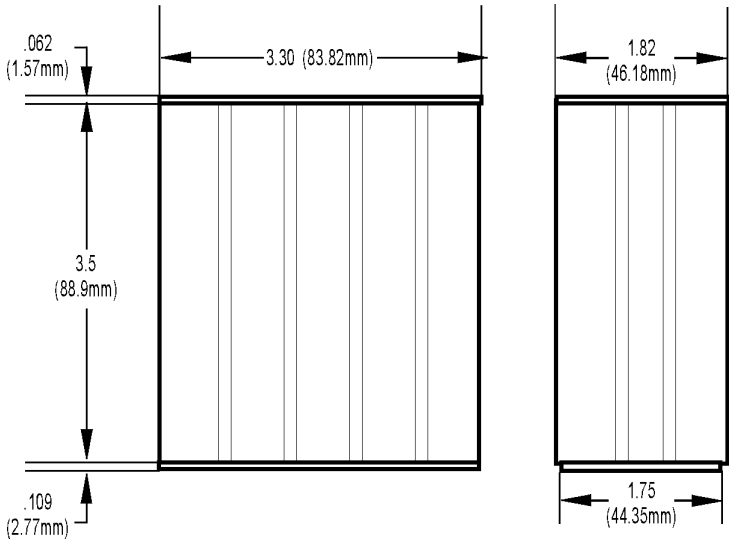
NOTES: Jumper position 0 is set by default and therefore not visible on the brain. Address 0 (all jumpers IN) is not a valid Profibus slave address, so the first two available addresses are 2 and 3.

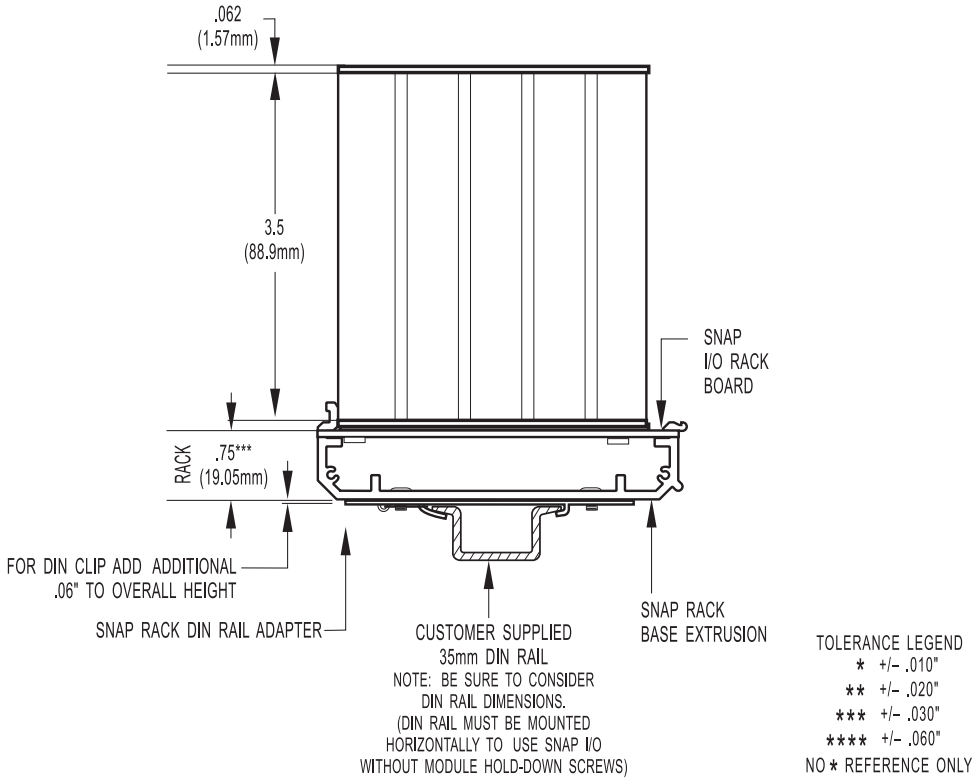
All addresses are shown in hex format.



Dimensions

SNAP-PDPRS64 Profibus-DP Brain





Assembly

BRAIN

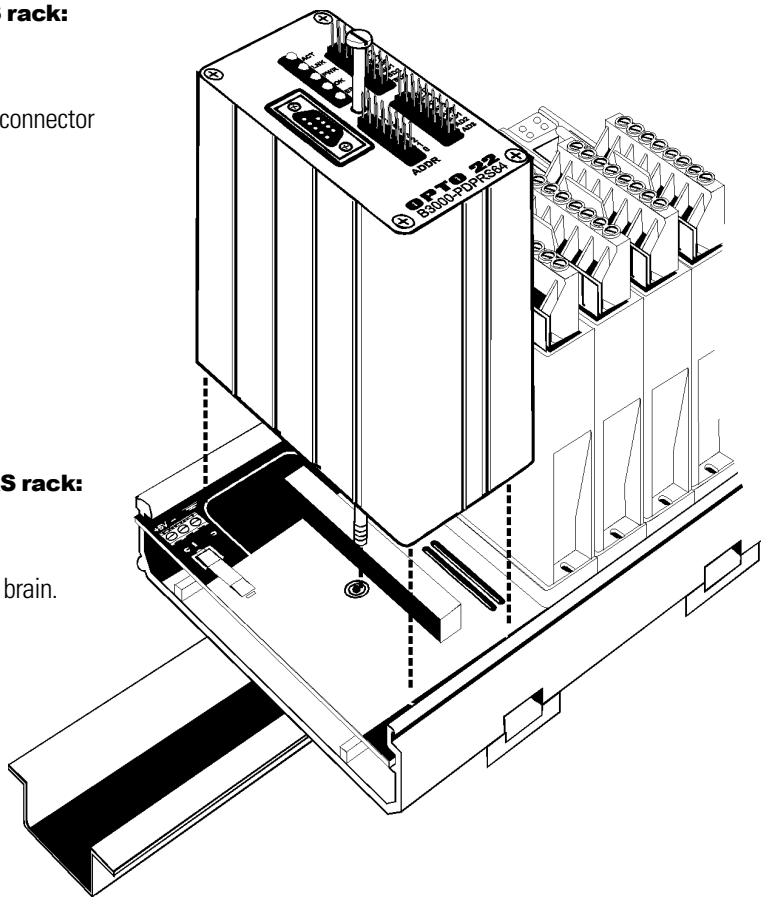
To install the brain onto the SNAP-D64RS rack:

1. Turn off power to the rack assembly.
2. Align the brain connector with the mating connector on the mounting rack.
3. Seat the brain onto the connector.
4. Use the integral hold-down screw to secure the brain in position.

   DO NOT OVERTIGHTEN!

To remove the brain from the SNAP-D64RS rack:

1. Turn off power to the rack assembly.
2. Loosen the integral hold-down screw on the brain.
3. Pull up on the brain.



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.

www.opto22.com

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