

# SNAP pH/ORP Input Module

## Features

- Two differential inputs per module
- 250 V common mode operation
- Channel-to-channel isolation
- 10% over/underrange; out-of-range indication
- Rugged packaging
- Powered by a single 5 VDC supply
- Factory calibrated; no user adjustments necessary



SNAP-pH/ORP

## Description

The SNAP-pH/ORP module provides two isolated channels of high-impedance voltage input, either -1.00 to +1.00 volts or -0.50 to +0.50 volts.

The module is ideal for differential voltage measurements and is used with pH or oxidation reduction potential (ORP) probes for monitoring bodies of water such as holding tanks, swimming pools, and cooling towers.

Input connections for the SNAP-pH/ORP are made through standard BNC connectors conveniently located on the top of the module. The two channels are isolated from each other; they do not share any field connection.

SNAP racks use a retention rail locking system that holds modules securely to the rack. Normally, a hold-down screw is not required. However, for applications that require additional module security, each module has provisions for two 4-40 by 1/2-inch standard machine screws to hold each module in position on the SNAP rack.

## Supported Opto 22 Systems

As part of the SNAP PAC System, the SNAP-pH/ORP module snaps into Opto 22 SNAP PAC mounting racks and works with all SNAP PAC brains and rack-mounted controllers, including Wired+Wireless™ models. SNAP-pH/ORP modules can be used in PAC Control strategies and can also be configured using PAC Manager.

**Notes for legacy products.** The SNAP-pH/ORP also works with SNAP Ultimate and SNAP Ethernet brains (firmware version 5.1 or newer required) and with serial B3000 brains. The module can also be mounted on a SNAP M-series or B-series rack. For more information, see Opto 22 form #1693, *Legacy and Current Product Comparison and Compatibility Charts*.

## Part Numbers

Part	Description
SNAP-pH/ORP	Isolated two-channel high impedance -1.00 V to +1.00 V or -0.50 V to +0.50 V analog input module

## SNAP pH/ORP Input Module

### Specifications:

Input Range	-1.00 V to +1.00 V for ORP probes -0.50 V to +0.50 V for pH probes
Resolution	40 $\mu$ V when configured -1.00 V to +1.00 V 20 $\mu$ V when configured -0.50 V to +0.50 V
Data Freshness (Maximum)	126 ms (63 ms per channel) when configured -1.00 V to +1.00 V 251 ms (125.5 ms per channel) when configured -0.50 V to +0.50 V
Input Filtering	-3 dB @ 2.4 Hz
DC Common Mode Rejection	>-120 dB
AC Common Mode Rejection	>-120 dB at 60 Hz
Maximum Survivable Input	$\pm$ 100 VDC or peak AC
Maximum Operating Common Mode Voltage	250 VDC or peak AC
Accuracy (% full scale)	0.05% when configured -1.00 V to +1.00 V 0.05% when configured -0.50 V to +0.50 V
Gain Temperature Coefficient	30 PPM/ $^{\circ}$ C
Offset Temperature Coefficient	15 PPM/ $^{\circ}$ C
Power Requirements	5 VDC ( $\pm$ 0.15) at 170 mA
Input Resistance (Differential)	>10 Tera Ohms (each channel)
Ambient Temperature:	
Operating	0 to 70 $^{\circ}$ C
Storage	-25 to 85 $^{\circ}$ C

# 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](http://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](http://www.opto22.com), for more information or email [training@opto22.com](mailto: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](http://www.opto22.com).

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