

SNAP pH/ORP 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

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 have a retention rail locking system. Use two 4-40 by ½-inch standard machine screws to hold each module securely in position on the SNAP rack.



SNAP-pH/ORP

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 and B3000-B 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

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 μ V when configured -1.00 V to +1.00 V 20 μ 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	-20 to 70 $^{\circ}$ C
Storage	-40 to 85 $^{\circ}$ C
Humidity	5-95%, non-condensing
Torque, hold-down screws	4 in-lb (0.45 N-m)
Torque, connector screws	5.26 in-lb (0.6 N-m)
Agency Approvals	CE, RoHS, DFARS
Warranty	Lifetime

PRODUCTS

Opto 22 develops and manufactures reliable, easy-to-use, open standards-based hardware and software products.

Industrial automation, process control, building automation, industrial refrigeration, remote monitoring, data acquisition, and industrial internet of things (IIoT) applications worldwide all rely on Opto 22.

groov EPIC® System

Opto 22's *groov* Edge Programmable Industrial Controller (EPIC) system is the culmination of over 40 years of experience in designing products for the automation industry.

groov EPIC gives you an industrially hardened system with guaranteed-for-life I/O, a flexible Linux®-based controller with gateway functions, and software for your IIoT application or any application.

groov EPIC I/O

I/O provides the local connection to sensors and equipment. *groov* I/O offers up to 24 channels on each I/O module, with a spring-clamp terminal strip, integrated wireway, and swing-away cover.

Opto 22 I/O is so reliable, we can afford to guarantee it for life. *groov* I/O is hot swappable, UL Hazardous Locations approved, and ATEX compliant.

groov EPIC Controller

The heart of the system is the *groov* EPIC controller. 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, online services, and more, both on premises and in the cloud.

Configuring and troubleshooting I/O and networking is easier with the EPIC's integrated high-resolution touchscreen. Authorized users can see your *groov* View HMI locally on the touchscreen or on a monitor connected via the HDMI or USB ports.

groov EPIC Software

Software includes:

- Flowchart-based PAC Control for control programming, or build your own custom application with optional secure shell access
- *groov* View for building and viewing your own device-independent HMI
- Node-RED for creating simple logic flows from pre-built nodes

- Ignition Edge® from Inductive Automation®, with OPC-UA drivers to Allen-Bradley®, Siemens®, and other control systems, and MQTT/Sparkplug communications for efficient IIoT data transfer

groov Edge Appliance

Visualization, data handling, and connectivity in a compact, industrial box: that's the *groov* Edge Appliance. Included are:

- *groov* View for building and viewing operator interfaces on PCs and mobile
- Node-RED for building simple logic flows
- Ignition Edge® from Inductive Automation®, for OPC-UA drivers and MQTT/Sparkplug IIoT communications



Older products

From solid state relays (our first products) to world-famous G4 and SNAP I/O, to SNAP PAC controllers, Opto 22 products last a long time. You can count on us to give you the reliability and service you expect.



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 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.

Support is always available on our website, including how-to videos, user's guides, the Opto 22 KnowledgeBase, troubleshooting tips, and OptoForums. In addition, free hands-on training is available 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 **+1-951-695-3000**, or visit our website at www.opto22.com.