

## SNAP SERIAL COMMUNICATION MODULES

### Features

- > SNAP-SCM-232: Two RS-232 serial ports with optional RTS/CTS flow control
- > SNAP-SCM-485-422: Two RS-485 2-wire serial ports or one RS-485/422 4-wire serial port
- > Individually isolated ports, Baud rates to 115 K Baud
- > Connection accessories provided
- > Works with the SNAP PAC System
- > Up to eight serial modules per rack

### DESCRIPTION

The SNAP-SCM-232 and SNAP-SCM-485-422 serial communication modules are part of the SNAP PAC System. They conveniently provide two channels of serial data at a remote Ethernet location.

Many applications require digital, analog, and serial data to provide a complete solution. Traditionally, either separate serial network cabling is required for the serial devices, or an expensive data processor or PC must be used just to interface with the serial devices.

SNAP serial communication modules eliminate this problem by providing two channels of high-speed, isolated serial communications packaged in the compact SNAP module form.

- The **SNAP-SCM-232** interfaces to auxiliary serial equipment via two RJ-45 plug-in data connectors, providing two RS-232 serial ports. The module also supports optional RTS/CTS flow control.
- The **SNAP-SCM-485-422** uses the standard SNAP removable top-mounted connector for easy wiring of two 2-wire RS-485 ports or one 4-wire RS-485/422 port. The module has convenient top switches for termination and bias.

LED indicators are provided on each module to indicate Transmit and Receive on each port.

Both SNAP serial communication modules work with SNAP PAC Ethernet-based brains and rack-mounted controllers, both standard wired models and Wired+Wireless™ models. (They do not work with serial-based SNAP PAC brains.) These modules snap into Opto 22 SNAP PAC mounting racks right beside digital and analog modules, to provide the mix of analog, digital, and serial channels you need at any location.

Typical applications include interfacing with printers, scales, chart recorders, and barcode systems. Using the SNAP-SCM-232 or SNAP-SCM-485-422 as a converter, these non-Ethernet devices can be connected to an Ethernet network and be available for control, monitoring, or data acquisition by any authorized PC or other device on the network.



**SNAP-SCM-232**



**SNAP-SCM-485-422**

With the SNAP-SCM-232, two short (12-inch), unshielded twisted-pair cables and two DB9 (male) adapters are included for easy connection to all types of RS-232 devices.

SNAP racks have a retention rail locking system. Use two 4-40 by 1/2-inch standard machine screws to hold each module securely in position on the SNAP rack.

For details on using these modules, see Opto 22 form #1191, the SNAP Serial Communication Module User's Guide.

**Notes for legacy hardware:** These SNAP serial communication modules can also be used with SNAP Simple, SNAP Ethernet, and SNAP Ultimate brains on an M-series or B-series rack. SNAP-SCM-232 modules offering RTS/CTS flow control were manufactured in June 2003 or more recently and require I/O processor firmware version 5.0 or newer. The SNAP-SCM-485-422 also requires firmware 5.0 or newer. An older module part number, SNAP-SCM-485, supported 2-wire RS-485 only.

### Part Number

Part	Description
SNAP-SCM-232	SNAP Two-channel RS-232 serial communication module
SNAP-SCM-485-422	SNAP Two-channel RS-485 (two-wire) or one-channel RS-485/422 (four-wire) serial communication module

## SPECIFICATIONS

Baud rates	300–115,200*
Channel-to-channel isolation	750 V <sub>RMS</sub>
Logic supply voltage	5.0 VDC
Logic supply current	250 mA DC
Number of ports per module	2 (1 if SNAP-SCM-485-422 in 4-wire mode)
Max. number of modules per rack**	8
Maximum cable length, point-to-point (SNAP-SCM-232)	50 feet
Maximum cable length, multidrop (SNAP-SCM-485-422)	1,000 feet at 115,200 Kbd
Processor compatibility	SNAP PAC R-series controllers and SNAP PAC EB brains, both standard wired and Wired+Wireless models. Also SNAP-B3000-ENET, SNAP-ENET-RTC, SNAP-ENET-S64, SNAP-UP1-ADS, and SNAP-UP1-M64.
Operating temperature	-20 to 70 °C
Storage temperature	-30 to 85 °C
Torque, hold-down screws	Not to exceed 1 in-lb (0.11 N-m)
Torque, connector screws	5.22 in-lb (0.59 N-m)
Agency Approvals	UL, CE, RoHS, DFARS; UKCA ATEX (SNAP-SCM-485-422 only) NEBS (SNAP-SCM-232 only)
Warranty	30 months

\* Module performance is limited by the number of serial modules on the SNAP rack. Each rack backplane provides approximately 2.5 Mbps of bandwidth.

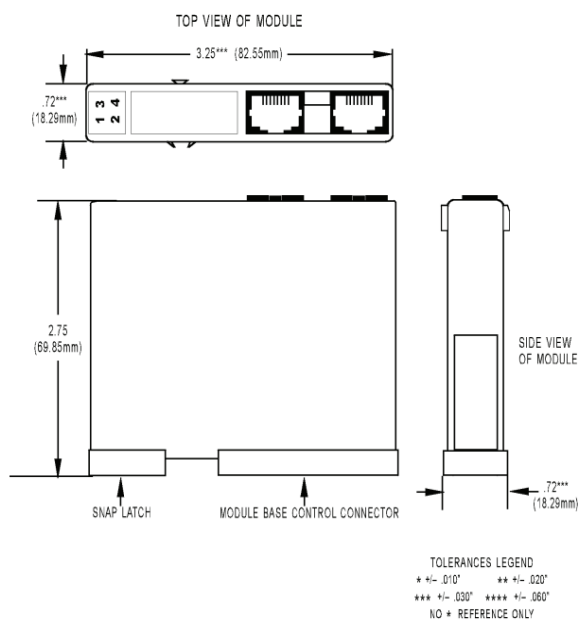
\*\* Maximum number of modules per rack assumes a 4A power supply (for example, SNAP-PS5).

LED indicators

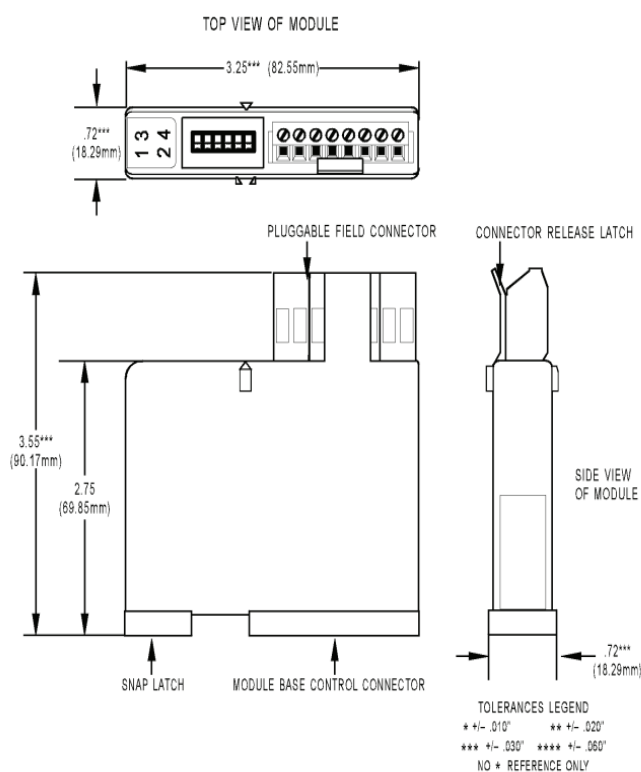
1	TX port A
2	TX port B
3	RX port A
4	RX port B

## DIMENSIONS

### SNAP-SCM-232 Serial Communication Module



### SNAP-SCM-485-422 Serial Communication Module



## PRODUCTS

Opto 22 develops and manufactures reliable, easy-to-use, open standards-based hardware and software products. Industrial automation, process control, remote monitoring, data acquisition, and industrial internet of things (IIoT) applications worldwide all rely on Opto 22.

### groov RIO®

*groov RIO edge I/O* offers a single, compact, PoE-powered industrial package with web-based configuration and IIoT software built in, support for multiple OT and IT protocols, and security features like a device firewall, data encryption, and user account control.

Standing alone, *groov RIO* connects to sensors, equipment, and legacy systems, collecting and securely publishing data from field to cloud. Choose a universal I/O model with thousands of possible field I/O configurations, with or without Ignition from Inductive Automation®, or a *RIO EMU energy monitoring unit* that reports 64 energy data values from 3-phase loads up to 600 VAC, Delta or Wye.

You can even write an IEC 61131-3 compliant control program to run on *groov RIO*, using CODESYS. You can also use *groov RIO* with a Modbus/TCP master or as remote I/O for a *groov EPIC* system.

### groov EPIC® System

Opto 22's *groov Edge Programmable Industrial Controller (EPIC) system* gives you industrially hardened control with a flexible Linux®-based processor with gateway functions, guaranteed-for-life I/O, and software for your automation and IIoT applications.

#### groov EPIC Processor

The heart of the system is the *groov EPIC* processor. 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, and online services, both on premises and in the cloud. No industrial PC needed.

Configuring and troubleshooting I/O and networking is easier with the EPIC's integrated high-resolution color touchscreen. Authorized users can manage the system locally on the touchscreen, on a monitor connected via the HDMI or USB ports, or on a PC or mobile device with a web browser.

#### groov EPIC I/O

*groov I/O* connects locally to sensors and equipment. Modules have a spring-clamp terminal strip, integrated wireway, swing-away cover, and LEDs indicating module health and discrete channel status. *groov I/O* is hot swappable, UL Hazardous Locations approved, and ATEX compliant.

#### groov EPIC Software

The *groov EPIC* processor comes ready to run the software you need:

- Programming: Choose flowchart-based PAC Control, CODESYS Development System for IEC61131-3 compliant programs, or secure shell access (SSH) to the Linux OS for custom applications
- Node-RED for creating simple IIoT logic flows from pre-built nodes
- Efficient MQTT data communications with string or Sparkplug data formats
- Multiple OPC UA server options
- HMI: *groov View* to build your own HMI viewable on touchscreen, PCs, and mobile devices; PAC Display for a

Windows HMI; Node-RED dashboard UI

- Ignition or Ignition Edge® from Inductive Automation (requires license purchase) with OPC-UA drivers to Allen-Bradley®, Siemens®, and other control systems, and MQTT communications

### Older products

From solid state relays, to world-famous G4 and SNAP I/O, to SNAP PAC controllers, older Opto 22 products are still supported and working hard at thousands of installations worldwide. You can count on us for the reliability and service you expect, now and in the future.

## 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 afford to 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 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 [free online training](#) at OptoU, how-to [videos](#), [user's guides](#), the Opto 22 KnowledgeBase, and [OptoForums](#).

## 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](http://www.opto22.com).



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