

SNAP SSI (SERIAL SYNCHRONOUS INTERFACE) MODULE

Features

- > For motion control applications using linear or rotary transducers
- > Dual, isolated serial synchronous interface (SSI) inputs
- > Software configurable



SNAP SSI Module

DESCRIPTION

The SNAP-SCM-SSI module provides two individually isolated serial synchronous interface (SSI) inputs for acquiring data from linear or rotary transducers used in motion control.

The module can decode both binary and Gray Code, and is software configurable to set clock speed, frame length, delay time between data samples, and other parameters.

SNAP SSI modules mount alongside analog, digital, and other serial modules on any SNAP PAC rack with a SNAP PAC brain (EB or SB) or R-series controller. The brain or controller processes the data from the module and can communicate the data to other parts of an Opto 22 SNAP PAC System™ or to another system (such as a Modbus® system or an OPC client).

SNAP PAC racks accommodate up to 4, 8, 12, or 16 I/O modules, with a maximum of 8 serial modules (including SSI modules) on any one rack. Because the SNAP-SCM-SSI module is mounted on these standard racks with other SNAP I/O modules, you can use the combination of analog, digital, and serial modules required by your application at the location where they are needed.

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.

NOTE: SSI modules require a SNAP PAC brain (either EB or SB) or R-series controller with firmware version 8.5c or newer. These modules do not work with legacy brains or controllers.

Configuration

You use PAC Manager, a free software utility, to configure the SNAP-SCM-SSI. PAC Manager 9.0 or newer is required.

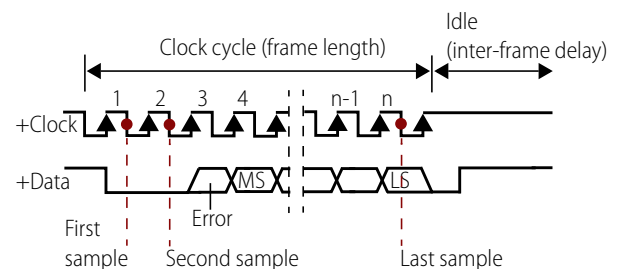
PAC Manager is available for download from the Support section of our website, www.opto22.com.

To install, configure, and use the SNAP-SCM-SSI, see form #1931, the *SNAP SSI (Serial Synchronous Interface) Module User's Guide*, available on our website.

How the SNAP-SCM-SSI Samples Data

The SSI module outputs a high clock signal during idle, and it samples SSI data on falling edges of the clock, starting after the first rising edge. See the following diagram.

Example of data sample with out-of-range error bit



Part Numbers

| Part | Description |
|--------------|--|
| SNAP-SCM-SSI | SNAP 2-Channel Serial Synchronous Interface Module |

SPECIFICATIONS

| | |
|---------------------------------|---|
| Maximum SSI clock frequency | 2.5 MHz |
| Channel-to-channel isolation | 1500 VAC |
| Logic supply voltage | 5.0 VDC |
| Logic supply current | 200 mA DC |
| Compatible I/O processors | SNAP PAC R-series controllers and SNAP PAC EB or SB brains with firmware 8.5c or newer |
| Number of ports per module | 2 |
| Max. number of modules per rack | 8 |
| Max. data resolution | 24 bits |
| Maximum cable length | 500 feet at 200kHz using twisted-pair, 24-gauge shielded cable with an additional pair for common (three pairs total) |
| Operating temperature | -20 to 60 °C |
| Storage temperature | -30 to 85 °C |
| 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 | 30 months from date of manufacture |

PINS FOR EACH PORT

| Pin | Use |
|-----|-------------------|
| 1 | Clock + |
| 2 | Clock - |
| 3 | Data - |
| 4 | Data + |
| 5 | Excitation common |

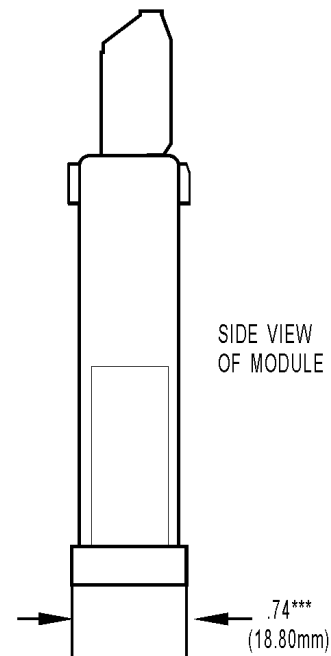
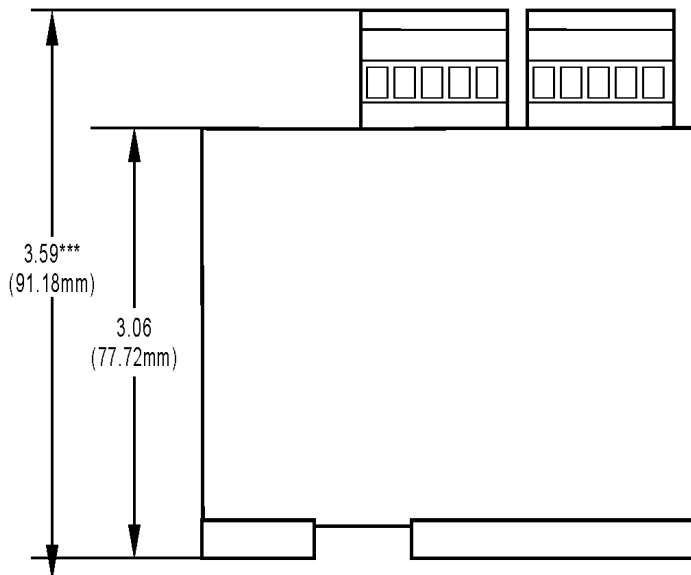
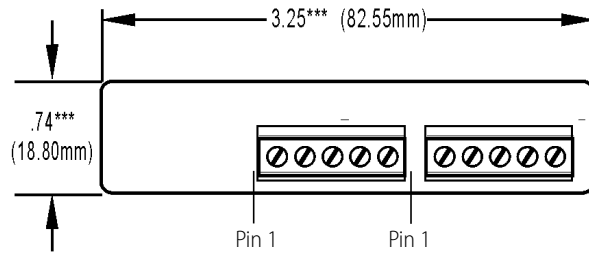
See diagram on [page 3](#) for location of pin 1.

Use twisted-pair, 24-gauge shielded cable with an additional pair for common (three pairs total).

For complete installation information, see form #1931, the *SNAP SSI (Serial Synchronous Interface) Module User's Guide*, available on our website.

DIMENSIONS

SNAP-SCM-SSI Serial Synchronous Interface Module



TOLERANCES LEGEND
 * +/- .010" ** +/- .020"
 *** +/- .030" **** +/- .060"
 NO * REFERENCE ONLY

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 processor with gateway functions, and software that meets the needs of your automation and IIoT applications.

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, swing-away cover, and LEDs indicating module health and digital channel status.

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

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, 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 color touchscreen. Authorized users can manage the system locally on the touchscreen or on a monitor connected via the HDMI or USB ports.

groov EPIC Software

Software included in the *groov* EPIC controller:

- PAC Control engine to run PAC Control strategies and PAC Display projects
- CODESYS Runtime engine to run IEC61131-3 compliant programs built with CODESYS Development System

- Optional access to the Linux operating system through a secure shell (SSH) to download and run custom applications
- *groov* View for building your own device-independent HMI, viewable on the touchscreen, PCs, and mobile devices.
- 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

Older products

From solid state relays (our first products) to world-famous G4 and SNAP I/O, to SNAP PAC controllers, older Opto 22 products are still supported and still doing the job at thousands of installations worldwide. You can count on us to give you 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, 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 [free online training](#) at OptoU, how-to [videos](#), [user's guides](#), the Opto 22 KnowledgeBase, troubleshooting tips, and [OptoForums](#). In addition, instructor-led, hands-on [Premium Factory 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.