

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.

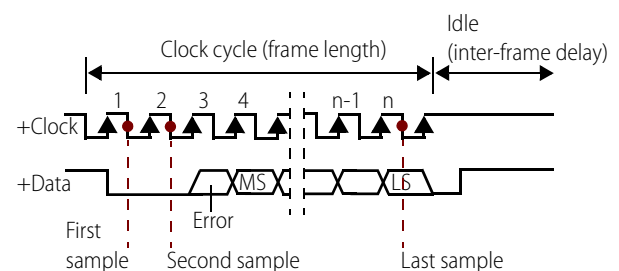
PAC Manager is available for download from the Support section of our website, www.opto22.com.

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	Not to exceed 1 in-lb (0.11 N-m)
Torque, connector screws	5.22 in-lb (0.59 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

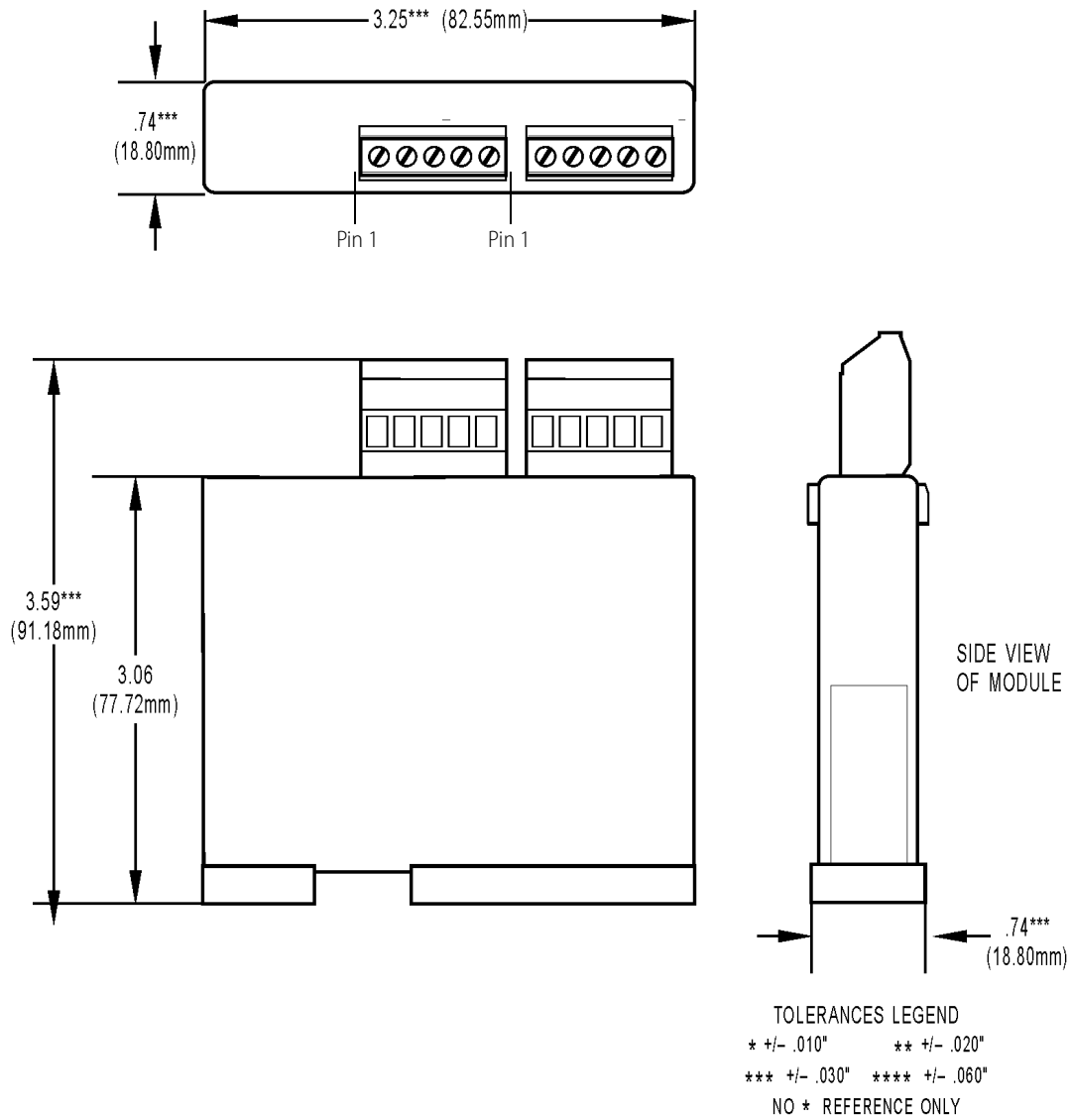
See diagram on [page 3](#) for location of pin 1.

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



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 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.

