

# SNAP SSI (Serial Synchronous Interface)

## Features

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

## 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.

**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 comes on a CD with every SNAP PAC brain and controller and is also available for download from the Support section of our website, [www.opto22.com](http://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.

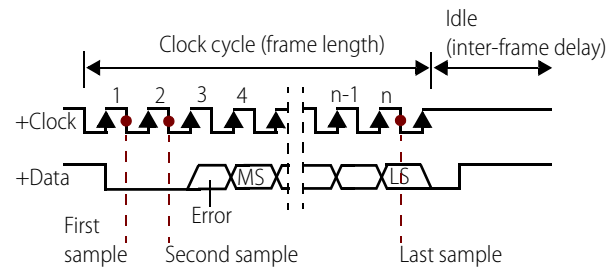


SNAP SSI Module

## 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 |

# SNAP SSI (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           | 0 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.

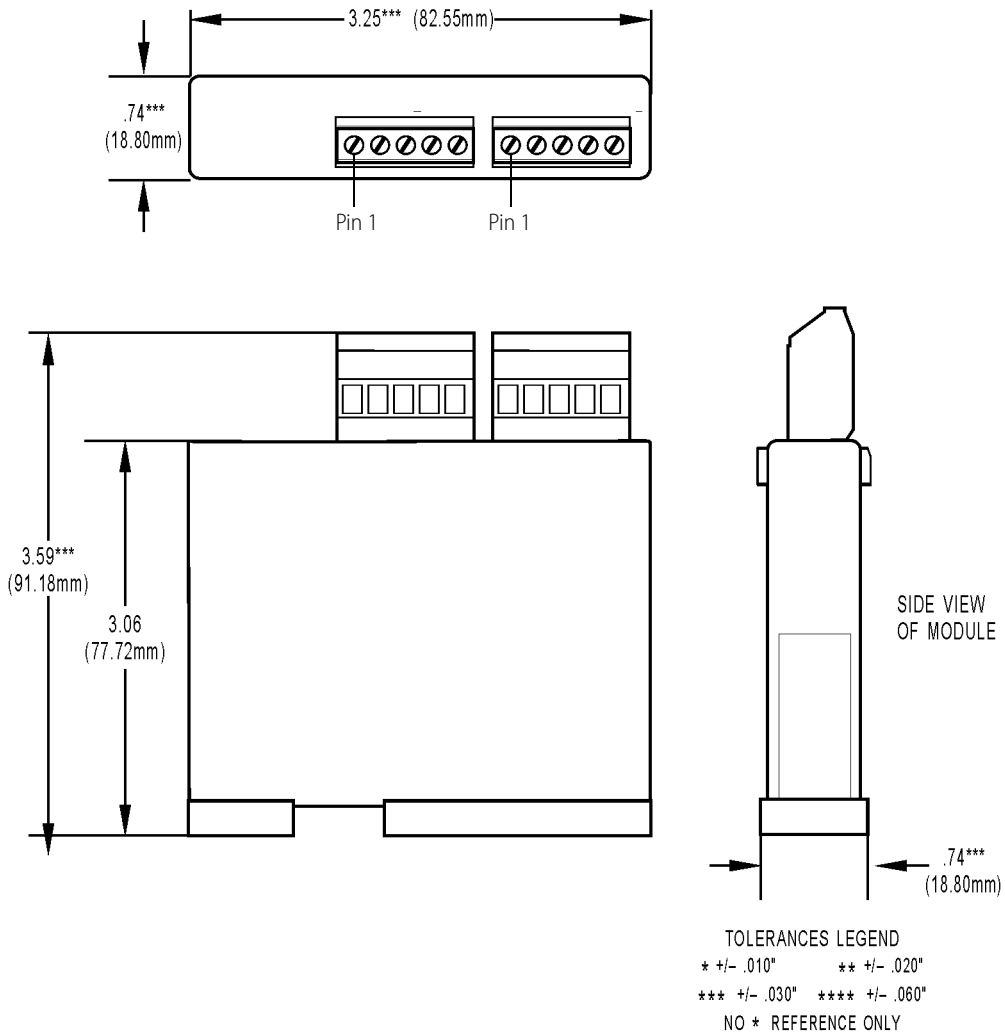
Use twisted-pair, 24-gauge shielded cable with an additional pair for common (three pairs total).

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

# SNAP SSI (Serial Synchronous Interface) Module

## Dimensions

### SNAP-SCM-SSI Serial Synchronous Interface Module



# 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.

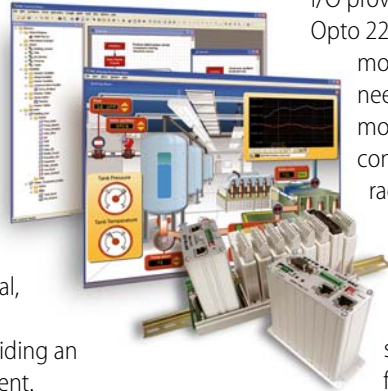
SNAP PACs are based on open Ethernet and Internet Protocol (IP) standards, so you can build or extend a system without the expense and limitations of proprietary networks and protocols.

### 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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