SNAP-SCM-CAN2B Communication Module

Features

> Receives data packets from a Controller Area Network

> Standard top-mounted connector for easy wiring

> Baud rates to 1 Mbps

> Up to eight SNAP-SCM-CAN2B modules per rack

> PAC Project integration kit available

> 30-month warranty

SNAP-SCM-CAN2B Module

Description

The SNAP-SCM-CAN2B is a high-speed serial communications module that provides one input for acquiring data from a Controller Area Network (CAN). This module does not transmit.

The SNAP-SCM-CAN2B module is designed for use with Opto 22's SNAP PAC R-series controllers and SNAP PAC EB-series brains, both the standard wired models and the Wired+Wireless™ models. 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).

NOTE: The R-series controller or EB-series brain must have firmware version 9.2a or newer. This module does not work with legacy brains or controllers.

The SNAP-SCM-CAN2B module snaps into Opto 22 SNAP PAC mounting racks, right beside other SNAP I/O modules, to provide the mix of analog, digital, and serial channels you need at any location. It uses the standard SNAP removable top-mounted connector for easy wiring. LEDs indicate CAN bus activity on the port, as well as power and operation status.

SNAP racks use a retention rail locking system that holds modules securely to the rack. Normally, a hold-down screw is not required. However, for applications that require additional module security, each module has provisions for two 4-40 by ½-inch standard machine screws to hold each module in position on the SNAP rack.

Configuration

Configuration of the SNAP-SCM-CAN2B module to receive data is normally done in PAC Control using example charts from the Opto 22 CAN Integration Kit for PAC Project™ (part number PAC-INT-CAN, a free download from our website). The integration kit supports CAN protocols J1939, NMEA 2000, and ISO 11783.

Using PAC Control, you import the integration kit's example charts into your PAC Control strategy, and then modify the examples as necessary to enable your Opto 22 SNAP PAC System (equipped with one or more SNAP-SCM-CAN2B modules) to receive from a CAN network only the data you need.

For information on using the integration kit, see form 1983, the *CAN Integration Kit for PAC Project Guide*.

Some configuration can also be done in PAC Manager. For information on installing and configuring the module in PAC Manager, see form 1191, *Serial Communications Module User's Guide*. PAC Manager 9.2a or newer is required.

PAC Project comes on a CD with every SNAP PAC brain and controller. Both PAC Project and the integration kit are available for download from the Product section of our website, www.opto22.com.

Part Number

Part	Description
SNAP-SCM-CAN2B	Serial communications module receiving CAN packets

OPTO 22

SNAP-SCM-CAN2B Communication Module

Specifications

Baud rates	10–1000 Kbps*
Logic supply voltage	5.0 VDC
Logic supply current	250 mA DC
Number of ports per module	1
Max. number of modules per rack**	8
Processor compatibility	SNAP PAC R-series controllers and SNAP PAC EB brains, both standard wired and Wired+Wireless models, with firmware 9.2a or newer.
Operating temperature	-20 to 70 °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, FM, RoHS, DFARS
Warranty	30 months from date of manufacture

* 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 an Opto 22 SNAP power supply and SNAP rack.

SNAP-SCM-CAN2B Communication Module

LEDs

LED	Type	Indicates
1	CAN Bus Activity	Communication activity with the CAN controller. This LED illuminates when the CAN controller is configured or when a CAN packet is accepted by the module.
2	STATUS	2 Blinks: SNAP-SCM-CAN2B firmware has started. 5 Blinks: firmware error. 8 Blinks: CAN Controller error.
3	POWER	Power is applied to the module.
4	ERROR	Error on the CAN bus. See below.

SNAP-SCM-CAN2B Error Codes. The #4 LED indicates an error on the CAN bus. See the *OptoMMP Protocol Guide*, form 1465, for the memory map addresses required to access the error codes. Reading the error code from the memory map clears the error. Possible error codes include the following:

Error Codes	Description
0	Error—Active State. The SNAP-SCM-CAN2B has received less than 96 errors.
-1	Error—Active State. The SNAP-SCM-CAN2B has received 96 or more errors but less than 128 errors.
-2	Receiver Overflow. A CAN packet was dropped. This happens when the SNAP-SCM-CAN2B can't keep up with the traffic on the CAN bus. This means the internal buffer on the CAN2B module is full. This could happen if the strategy isn't reading the data fast enough or too many serial modules are on the rack. To resolve it you can configure the Data Masks and Filters to receive less CAN packets, reduce the number of serial modules on the rack, or increase the frequency the strategy reads the module.
-3	Error—Passive State. The SNAP-SCM-CAN2B has received 128 or more errors but less than 255 errors.

Pins for Each Port

Pins 1-4 are in parallel to pins 5-8. V+ is not used by the module.

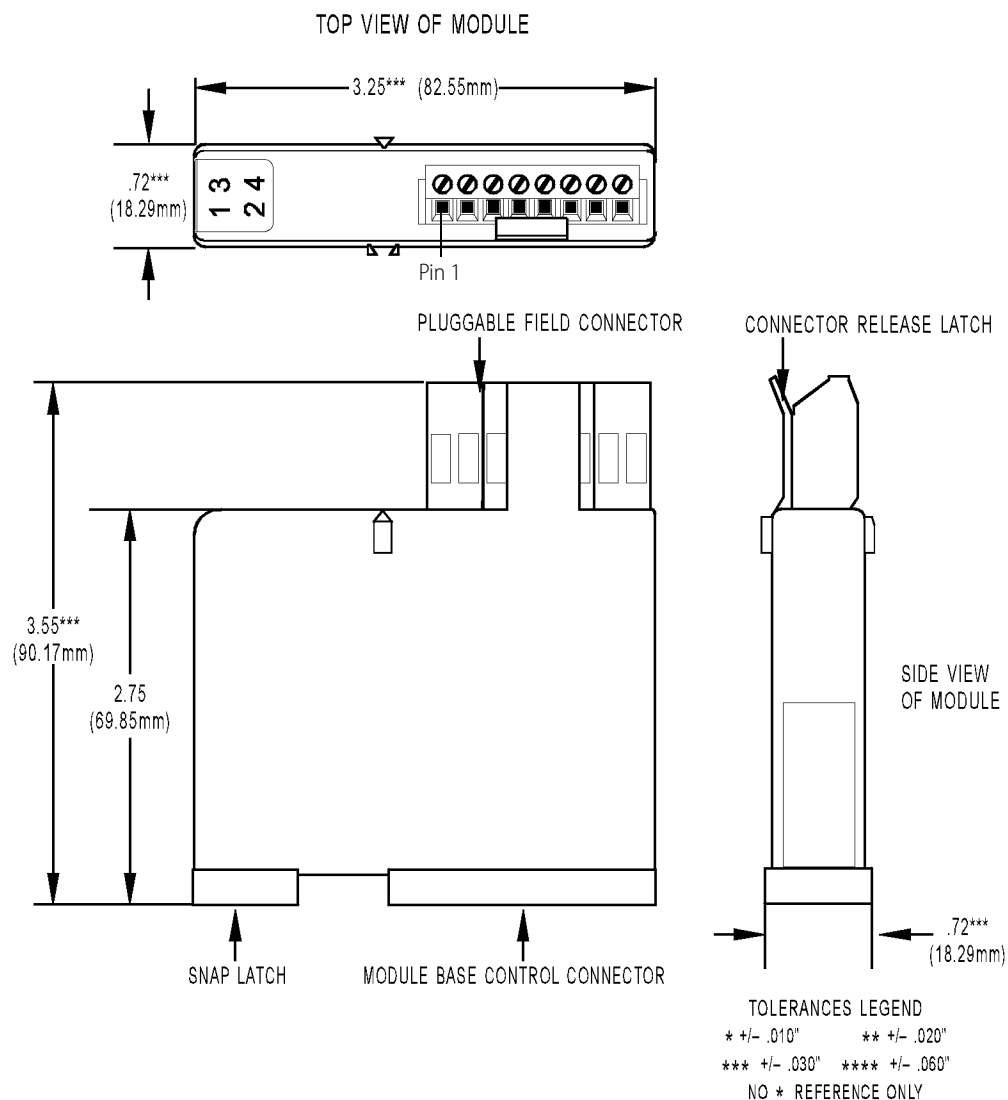| Pin	Use
1,5	V +
2,6	CAN +
3,7	CAN –
4,8	GND

See diagram on for location of pin 1.

For complete installation information, see form 1191, the *SNAP Serial Communication Modules User's Guide*, available on the Opto 22 website.

Buffer

The SNAP-SCM-CAN2B has a 16 KB buffer. CAN packet sizes range from 6-13 bytes. This buffer stores between 1260 and 2730 CAN packets. Only the newest packets will be kept. If the buffer is full and a new packet is received, the oldest packet will be dropped from the buffer.

Dimensions

TOP VIEW OF MODULE

3.25*** (82.55mm)

.72*** (18.29mm)

1 3
2 4

Pin 1

PLUGGABLE FIELD CONNECTOR

CONNECTOR RELEASE LATCH

3.55*** (90.17mm)

2.75 (69.85mm)

SNAP LATCH

MODULE BASE CONTROL CONNECTOR

SIDE VIEW OF MODULE

.72*** (18.29mm)

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

More About Opto 22

Products

Opto 22 develops and manufactures reliable, flexible, easy-to-use hardware and software products for industrial automation, energy management, remote monitoring, and data acquisition applications.

groov

groov puts your system on your mobile device. With zero programming, you can build mobile operator interfaces to monitor and control systems from Allen-Bradley, Siemens, Schneider Electric, Modicon, and many more. Web-based *groov* puts mobile-ready gadgets at your fingertips. Tag them from your existing tag database, and they automatically scale for use on any device with a modern web browser. See groov.com for more information and your free trial.

SNAP PAC System

Designed to simplify the typically complex process of selecting 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, modular controllers based on open standards.

Opto 22 has been manufacturing PACs for over two decades. The standalone SNAP PAC S-series, the rack-mounted SNAP PAC R-series, and the software-based SoftPAC™ all handle a wide range of digital, analog, and serial functions for 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 easily, without the expense and limitations of proprietary networks and protocols. Wired+Wireless™ models are also available.

PAC Project Software Suite

Opto 22's PAC Project Software Suite provides full-featured, cost-effective control programming, HMI (human machine interface) development and runtime, OPC server, and database connectivity software for your SNAP PAC System.

Control programming includes both easy-to-learn flowcharts and optional scripting. 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. PAC Project

Professional, available for separate purchase, adds one SoftPAC, OptoOPCServer, OptoDataLink, options for controller 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, and serial 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, 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 only 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. Our staff of support engineers represents 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.

Additional support is always available on our website: how-to videos, OptoKnowledgeBase, self-training guide, troubleshooting and user's guides, and OptoForums.

In addition, hands-on training is available for free 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 or 951-695-3000, or visit our website at www.opto22.com.