SNAP PAC Motion Control Subsystem

Features

- Extensive programmability and PC functionality at the I/O level
- Support for multiple processes, high-speed compiled code, and diverse programming languages
- Connection accessories provided
- Works with SNAP PAC R-series controllers and SNAP PAC EB-series brains
- Up to eight serial modules per rack
- Compact and rugged units suitable for deployment in harsh environments

Description

The easy-to-use SNAP PAC Motion Control Subsystem provides an integrated hardware and software toolset for controlling multi-axis stepper motors. The subsystem consists of:

- SNAP Motion Control host communication modules (SNAP-SCM-MCH16)
- SNAP Motion Control breakout boards (SNAP-SCM-BB4)
- OptoMotion command set, a free library of motion commands.

The **SNAP-SCM-MCH16** motion control host module is a serial communication module that links up to four SNAP-SCM-BB4 motion control breakout boards with a SNAP PAC I/O unit. When mounted on an I/O unit and connected to a breakout board, a single SNAP-SCM-MCH16 module allows a SNAP PAC controller running a PAC Control™ programming strategy to control up to 16 stepper motors. The module snaps into an Opto 22 SNAP PAC mounting rack right beside digital and analog modules. LED indicators are provided to indicate Transmit and Receive on each port.

Each **SNAP-SCM-BB4** breakout board is equipped with a Magellan™ processor chip set that outputs pulse and direction signals for up to four stepper motor systems. You can daisy-chain up to four breakout boards connected to a single module. The module's external connector provides lines to power one breakout board; additional boards require a separate power source. The SNAP-SCM-BB4 breakout board is designed to be mounted using a DIN-rail system.

The **OptoMotion** library of motion commands supports many of the Magellan™ Motion Processor commands. These commands are entered in a PAC Control strategy as text strings using the Transmit String and Receive commands or the TransmitReceiveString command in OptoScript. The OptoMotion commands give you the ability to define and acquire motion process data such as position, velocity, acceleration, breakpoints, interrupts, and time intervals. In addition, you can execute motion-related actions such as smooth stops, stepping, and position adjustments.

Part Numbers

Part	Description
SNAP-SCM-MCH16	Single channel RS-422 (four wire) motion control communication module
SNAP-SCM-BB4	SNAP Motion Control Breakout Board, 4 axes, Stepper
SNAP-RACKDIN	SNAP rack DIN-rail adapter clip
SNAPRACKDINB	SNAP rack DIN-rail adapter clip, 25-pack

OPTO 22

SNAP PAC Motion Control Subsystem

Module Specifications

|	
Baud rates	115,200
Parity	Even
Data bits	8 only
Logic supply voltage	5.0 to 5.2 VDC
Logic supply current	250 - 1000 mA DC
Number of ports per module	1
Maximum number of modules per rack	8
Maximum cable length, multi-drop	1,000 feet at 115,200 Baud
I/O processor (brain or on-the-rack controller) compatibility	SNAP-PAC-R1, SNAP-PAC-R2, SNAP-PAC-EB1, or SNAP-PAC-EB2
Operating temperature	0 to 70 °C
Storage temperature	-30 to 85 °C

Module LEDs

LED	Indicates
1	Program LED
2	TX
3	Power Supply Fault
4	RX

Breakout Board Specifications
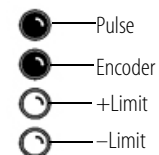
Power Requirements	8-24 VDC @ 250mA
Operating Temperature	0 to 70 °C
Relative Humidity	95%, non-condensing

Breakout Board LEDs

Power and Serial LEDs

Serial

TX — RX

+3.3V — +5V

Power

Power and Serial LEDs

Axis LEDs

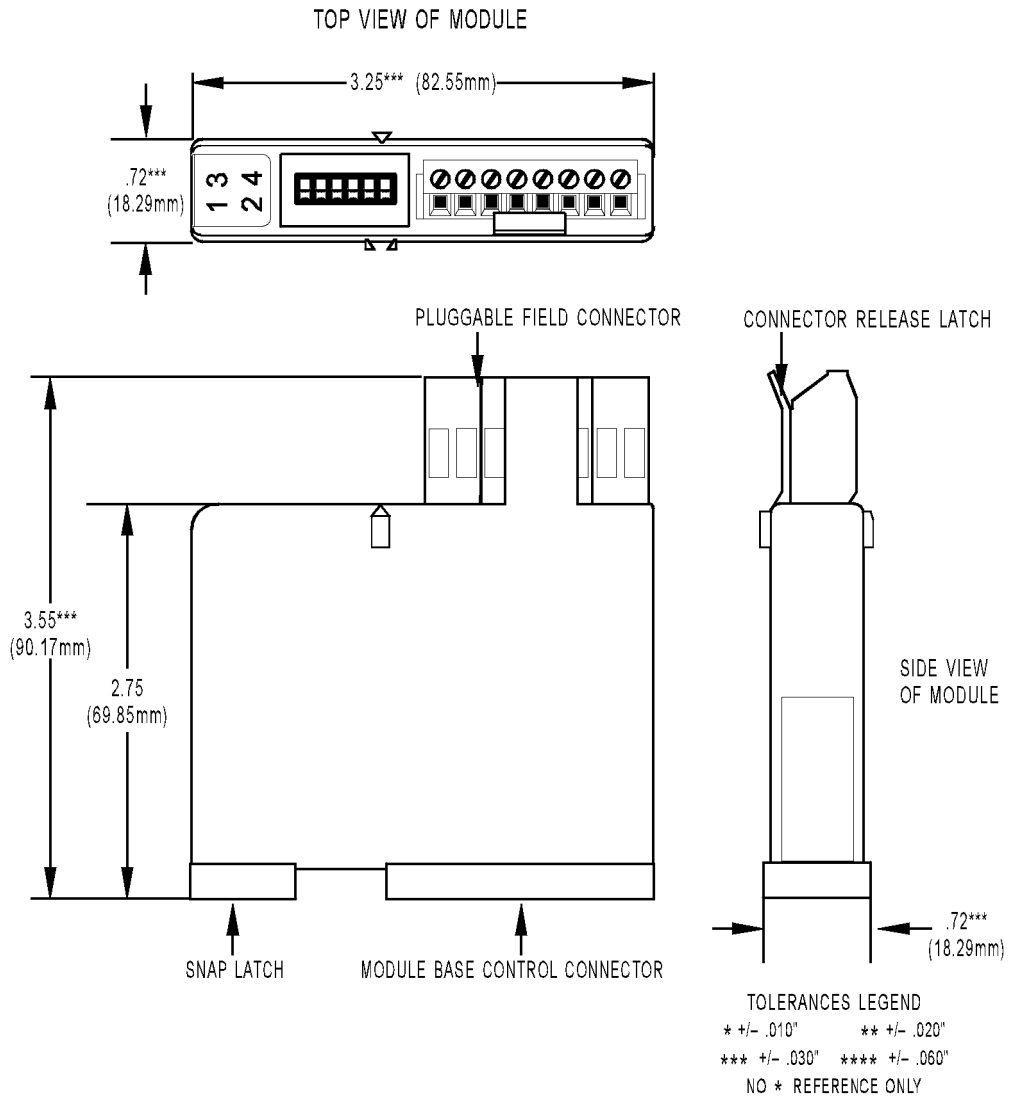### Axis LEDs

Pulse

Encoder

+Limit

−Limit
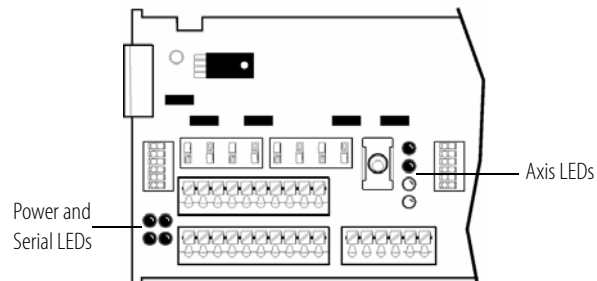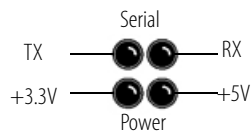
Calculating Power Requirements

When you assemble a SNAP rack that includes a SNAP-SCM-MCH16, you need to calculate the power requirements to make sure that the rack's power supply is adequate for the combined current needed by the brain or controller and all the I/O modules. For more information and power requirements worksheets, see the *SNAP I/O Wiring Guide* (form #1403) as well as the wiring appendices in the the *SNAP PAC Brain User's Guide* (form #1690) and the *SNAP PAC R-Series Controller User's Guide* (form #1595).

SNAP PAC Motion Control Subsystem
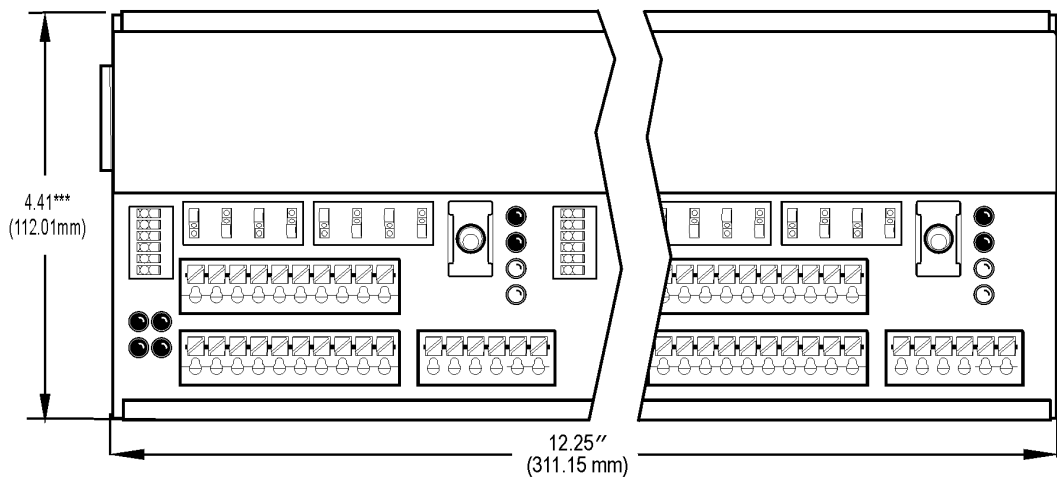
Dimensional Drawings

SNAP-SCM-MCH16 Motion Control Module

TOP VIEW OF MODULE

3.25*** (82.55mm)

.72***
(18.29mm)

1 3
2 4

PLUGGABLE FIELD CONNECTOR

CONNECTOR RELEASE LATCH

3.55***
(90.17mm)

2.75
(69.85mm)

SIDE VIEW
OF MODULE

SNAP LATCH

MODULE BASE CONTROL CONNECTOR

.72***
(18.29mm)

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

Dimensional Drawings (cont)

SNAP-SCM-BB4 Breakout Board

4.41*** (112.01mm)

12.25″ (311.15 mm)

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

1.97max (50.03mm)

1.20max (30.48mm)

.75*** (19.05mm)

FOR DIN CLIP ADD ADDITIONAL .06" OVERALL HEIGHT

SNAP RACK DIN RAIL ADAPTER CLIP MOUNTING OPTION

SNAP RACK BASE EXTRUSION
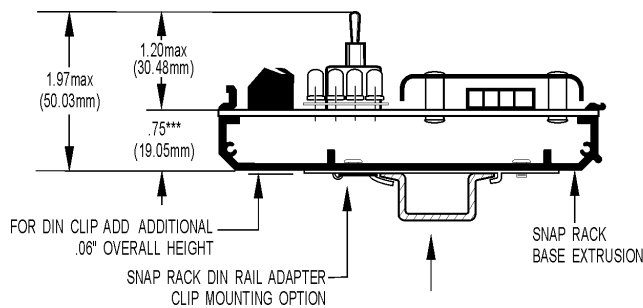
CUSTOMER SUPPLIED 35mm DIN RAIL
NOTE: BE SURE TO CONSIDER DIN RAIL DIMENSIONS. (DIN RAIL MUST BE MOUNTED HORIZONTALLY TO USE SNAP I/O WITHOUT MODULE HOLD-DOWN SCREWS)

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