SNAP Analog Input Modules

Features

❯ Resolution = 0.004% of nominal range

❯ Two, 4, 8, or 32 single-ended inputs per module

❯ Out-of-range indication

❯ Operating temperature 0 °C to 70 °C

❯ Factory calibrated; no user adjustment necessary

SNAP Analog Input Modules

Description

SNAP I/O analog input modules are part of Opto 22's SNAP PAC System. All of these modules mount on a SNAP PAC rack with a SNAP PAC brain or R-series controller.

A minimum number of SNAP module types support a full range of analog input requirements. These software-configurable modules handle a wide variety of signal levels. They provide high resolution (0.004% of nominal range) for precise signal levels, as well as multiple-channel packaging. All SNAP analog modules are factory calibrated and individually tested. Part numbers ending in -FM are Factory Mutual approved.

SNAP analog input modules have an on-board microprocessor to provide module-level intelligence, which makes them an ideal choice for Original Equipment Manufacturers (OEMs). For additional information about the standalone operation of SNAP analog modules, see Opto 22 form #0876, *SNAP I/O Module Integration Guide*.

Notes for legacy hardware: Some of these modules also work with older Opto 22 I/O processors (brains or on-the-rack controllers) and M-series or B-series racks. To check processor compatibility, see the table on .

For dimensional drawings, see .

IMPORTANT: Any system using analog sensors and input modules should be calibrated annually for analog signals. For I/O units on a SNAP PAC System, use the PAC Control™ commands "Calculate and Set Offset" and "Calculate and Set Gain." For other Ethernet-based I/O units, you can also use PAC Manager™ software to calculate and set offset and gain.

Part Number

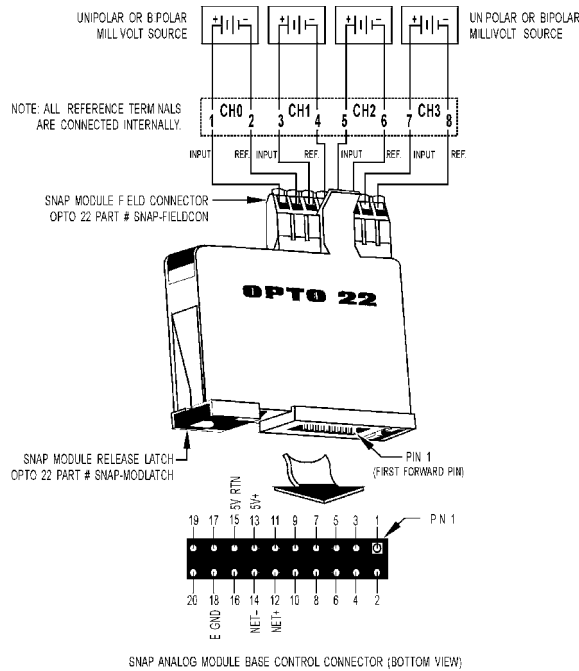| Part	Description	See page
SNAP-AIARMS	2-channel 0 to 10 amp RMS AC/DC input	3
SNAP-AIVRMS	2-channel 0 to 250 V RMS AC/DC input	4
SNAP-AIMA	2-channel analog current input, -20 to +20 mA	8
SNAP-AIMA-4	4-channel analog current input -20 to +20 mA	8
SNAP-AIMA-8	8-channel analog current input -20 to +20 mA	10
SNAP-AIMA-32 SNAP-AIMA-32-FM*	32-channel analog current input -20 to +20 mA	11
SNAP-AIRATE	2-channel 0–25,000 Hz analog rate input	14
SNAP-AIRTD	2-channel 100-ohm platinum RTD input	21
SNAP-AICTD	2-channel analog temperature input, ICTD	5
SNAP-AICTD-4	4-channel analog temperature input, ICTD	5
SNAP-AICTD-8	8-channel analog temperature input, ICTD	7
SNAP-AITM	2-channel analog type E, J, or K thermocouple or -150 to +150 mV input or -75 to +75 mV input	18
SNAP-AITM-2	2-channel analog type B, C, D, G, N, T, R, or S thermocouple or -50 to +50 mV DC or -25 to +25 mV DC input	19
SNAP-AITM-8 SNAP-AITM-8-FM*	8-channel B, C, D, E, G, J, K, N, R, S, or T thermocouple or -75 to +75 mV, -50 to +50 mV, or -25 to +25 mV input	20
SNAP-AIV	2-channel analog voltage input -10 to +10 VDC or -5 to +5 VDC	23
SNAP-AIV-4	4-channel analog voltage input -10 to +10 VDC or -5 to +5 VDC	23
SNAP-AIV-8	8-channel analog voltage input -10 to +10 VDC or -5 to +5 VDC	25
SNAP-AIV-32 SNAP-AIV-32-FM*	32-channel analog voltage input -10 to +10 VDC or -5 to +5 VDC	26
SNAP-AIMV-4	4-channel -150 to +150 mV input or -75 to +75 mV input	16
SNAP-AIMV2-4	4-channel -50 to +50 mV input or -25 to +25 mV input	17
SNAP-AIR40K-4	4-channel analog resistor/thermistor input, 40 K ohms, 20 K ohms, 10 K ohms, or 5 K ohms	13

* Factory Mutual approved

SNAP Analog Input Modules

Millivolt Input Module

SNAP-AIMV2-4

IMPORTANT: The mounting rack connector has 24 pins; the module connector has 20 pins. The extra pins on the mounting rack connector prevent misalignment of the module during installation.

Part Number	Description
SNAP-AIMV2-4	Four-channel -50 to +50 mV input or -25 mV to +25 mV input

Description

The SNAP-AIMV2-4 module provides four channels of analog to digital conversion. This module can be used only with Ethernet-based SNAP brains and on-the-rack controllers.

Each channel on the module can be configured for -50 mV DC to +50 mV DC or -25 mV DC to +25 mV DC.

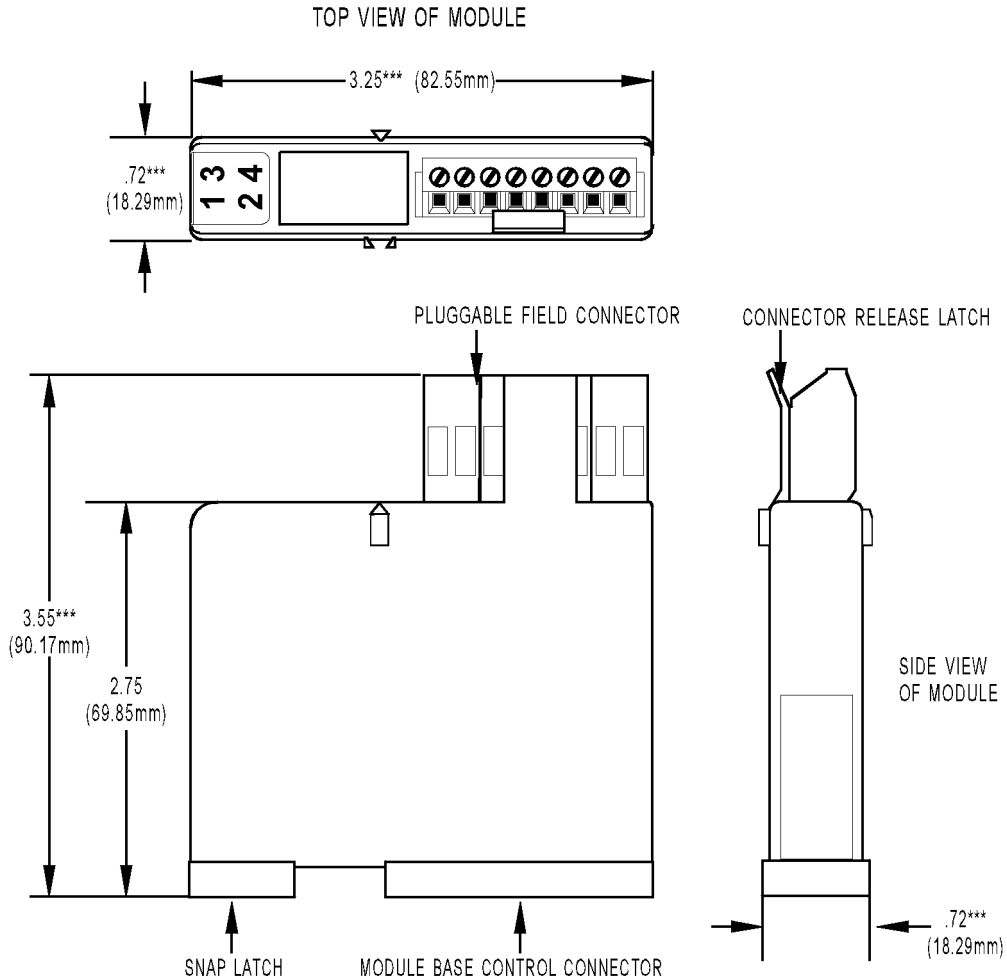Note that all inputs share the same reference terminal.

Specifications

Input Range	From -50 mV to +50 mV From -25 mV to +25m V
Resolution	2 microvolts (-50 mV to +50 mV) 1 microvolt (-25 mV to +25 m V)
Input Filtering	-3 dB @ 2.4Hz
Input Response Time (% of span/delta V/delta time)	63.2%/31.5 mV/66 ms
DC Common Mode Rejection	>-120 dB
AC Common Mode Rejection	>-120 dB @ 60 Hz
Maximum Survivable Input	±15 volts
Maximum Operating Common Mode Voltage	250 V
Accuracy at Full Scale	0.1% (50 microvolts) @ 50m V 0.2% (50 microvolts) @ 25 mV
Drift: Gain Temperature Coefficient	3 microvolts / °C
Drift: Offset Temperature Coefficient	2 microvolts / °C
Isolation	1500 V
Power Requirements	5 VDC (±0.15) @ 170 mA
Input Resistance - Single Ended	100 Megohms (each channel)
Operating Temperature	0 °C to 70 °C
Storage Temperature	-25 °C to 85 °C

Dimensional Drawing

All Two- and Four-channel Modules

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

SNAP Analog Input Modules

Dimensional Drawing

Height on Rack: All Two- and Four-channel Modules

TOP WIRE ENTRY
NOTE: CONSIDER NECESSARY
DIMENSIONS

PLUGGABLE
FIELD
CONNECTOR

SNAP PAC BRAIN

MODULE WITH RACK

MODULE

SNAP I/O
MODULE

MODULE
RETENTION
RAIL

3.70***
(93.98mm)

3.55***
(90.17mm)

SNAP
I/O RACK
BOARD

4.310****
(109.47mm)

RACK

.75***
(19.05mm)

FOR DIN CLIP ADD ADDITIONAL
.06" TO OVERALL HEIGHT

SNAP RACK DIN RAIL ADAPTER
CLIP MOUNTING OPTION

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)

SNAP RACK
BASE EXTRUSION

TOLERANCE LEGEND
★   +/− .010"
★★   +/− .020"
★★★ +/− .030"
★★★★ +/− .060"
NO ★ REFERENCE ONLY