

# 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

## 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 [page 2](#).

Specifications begin on [page 3](#). For dimensional drawings, see [pages 28–36](#).

**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.



SNAP Analog Input Modules

## 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

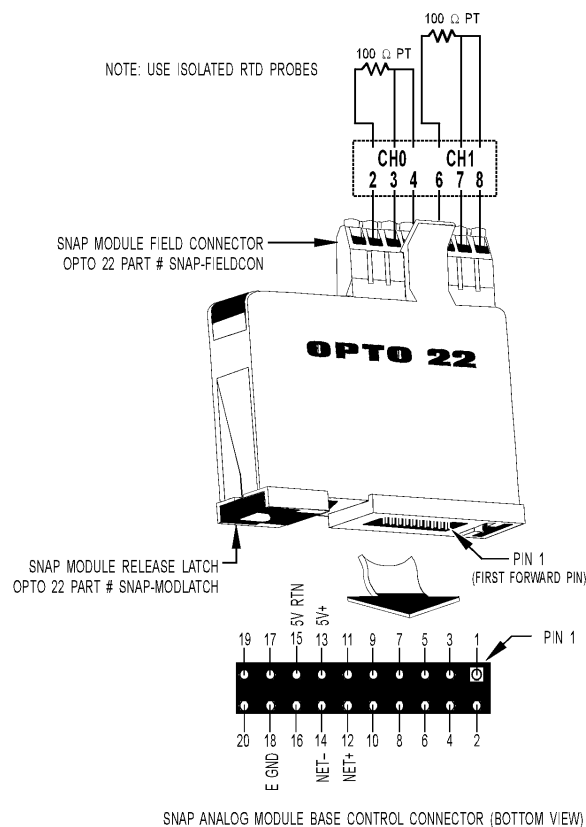
\* Factory Mutual approved

# SNAP Analog Input Modules

## RTD Input Module

### SNAP-AIRTD

See additional wiring details on the following page.



**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-AIRTD	Two-channel 100-ohm platinum RTD input

### Description

The SNAP-AIRTD module provides a nominal input range of -200° to +850° C.

Since both inputs share the same reference terminal, use isolated RTD probes.

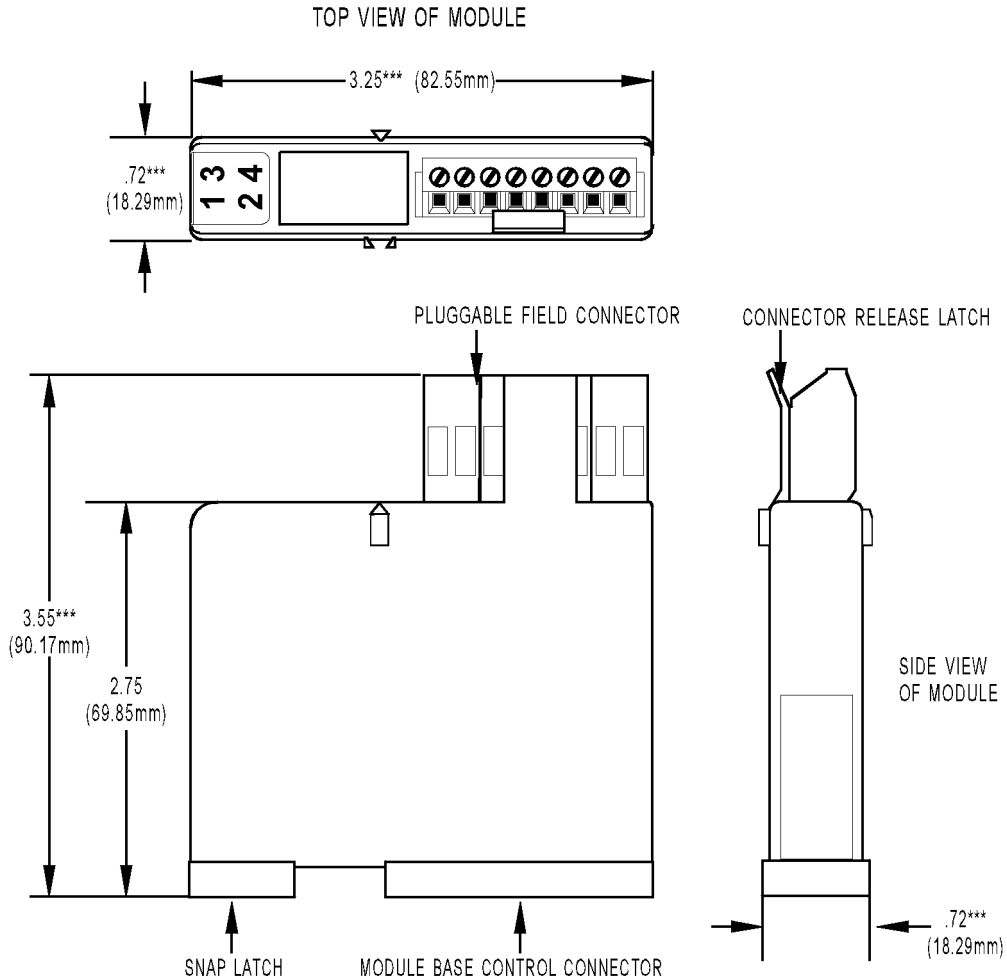
### Specifications

3-wire RTD input	100-0hm platinum; $\alpha = 0.00385$
Input Temperature Range	-200 °C to 850 °C (-328° to +1,582° F)
Span	400 ohms
Resolution (average)	0.042 °C (0.016 ohms)
Input Filtering	-3 dB @ 0.1 Hz
Input Response Time (% of span/delta temp/delta time)	63.2 %/598 °C/25 ms
Lead Compensation	Automatic when used with SNAP brains
DC Common Mode Rejection	>-120 dB
AC Common Mode Rejection	>-120 dB at 60 Hz
Excitation (typical)	1.25 mA constant current
Maximum Lead Resistance	>40 ohms single wire (all leads to be equal resistance)
Maximum Fault Voltage at Input (between any 2 field wires)	±15 V
Maximum Operating Common Mode Voltage	250 V
Accuracy From factory After using gain and offset commands	0.8 °C 0.6 °C
Isolation	1500 V
Power Requirements	5 VDC (±0.15) @ 190 mA
Operating Temperature	0 °C to 70 °C
Storage Temperature	-25 °C to 85 °C

# SNAP Analog Input Modules

## Dimensional Drawing

All Two- and Four-channel Modules



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

# SNAP Analog Input Modules

## Dimensional Drawing

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

