# 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 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.

## 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<br>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<br>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<br>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 |

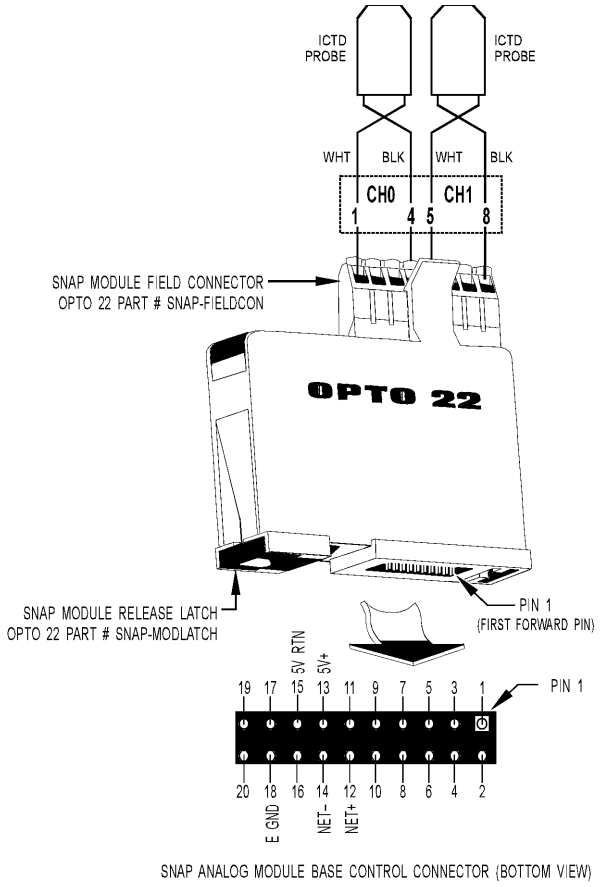
* Factory Mutual approved

# SNAP Analog Input Modules

## ICTD Temperature Input Module, Two or Four Channels

### SNAP-AICTD (Two channels)

Four-channel module wiring is shown on the next page.




SNAP ANALOG MODULE BASE CONTROL CONNECTOR (BOTTOM VIEW)

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-AICTD | Two-channel analog temperature input, ICTD |
| SNAP-AICTD-4 | Four-channel analog temperature input, ICTD |

### Description

SNAP-AICTD and SNAP-AICTD-4 modules provide temperature input data from any industry-standard Integrated Circuit Temperature Device (ICTD). The SNAP-AICTD has two channels, and the SNAP-AICTD-4 has four channels. The four-channel module can be used only with Ethernet-based SNAP brains and on-the-rack controllers.

The simple two-wire connections are made to the pluggable terminal strip on top of the module. Up to 2,000 feet of ordinary hook-up wire is used to connect the sensor to the input terminal strip.

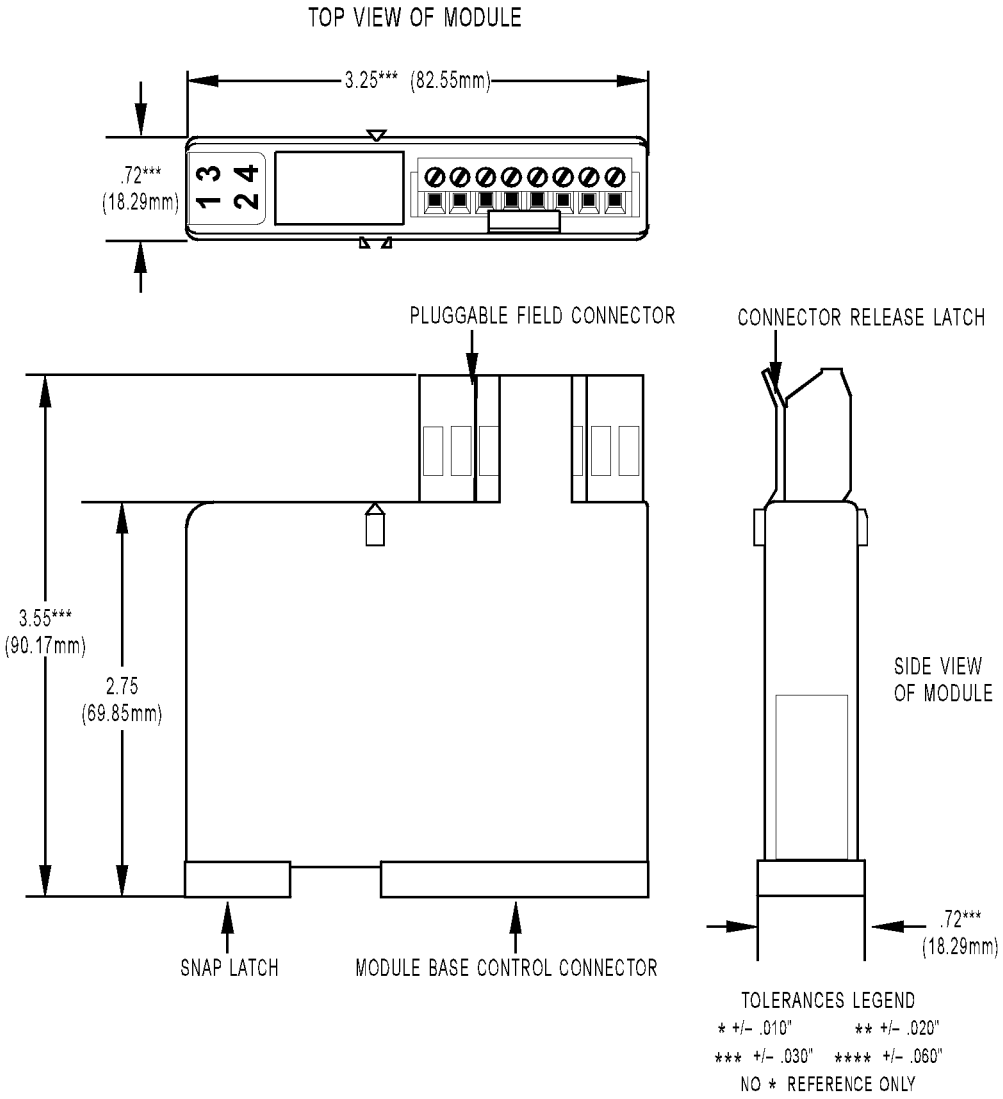
Both modules are compatible with all industry-standard ICTD probes, including the AD-590 family from Analog Devices and Opto 22's part number ICTD.

### Specifications

| | |
|---|---|
| Input Range with ICTD Probe | -40 °C to +100 °C |
| Module Input Range<br>Zero Scale<br>Full Scale | <br>-273 °C<br>+150 °C |
| Resolution | 0.017 °C |
| Accuracy with ICTD Probe | ±0.8 °C |
| Sensitivity | 1.0 mA/ °C |
| DC Common Mode Rejection | >-120 dB |
| AC Common Mode Rejection | >-120 dB @ 60 Hz |
| Maximum Operating Common Mode Voltage | 250 V |
| Isolation | 1500 V |
| Power Requirements | 5 VDC (± .015 ) @ 150 mA |
| Operating Temperature | 0 °C to 70 °C |
| Storage Temperature | -25 °C to 85 °C |

## Dimensional Drawing

### All Two- and Four-channel Modules



## Dimensional Drawing

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