SNAP ISOLATED ANALOG INPUT MODULES

Features

- Channel-to-channel isolation
- Rugged packaging and convenient pluggable wiring. Accepts 22 to 14 AWG wire.
- Factory calibrated; no user adjustment necessary
- Operating temperature -20 °C to 70 °C



SNAP Isolated Analog Input Modules

DESCRIPTION

SNAP I/O isolated analog input modules provide two or more channels isolated from each other, thereby eliminating problems caused by ground loop currents. These isolated analog modules are part of Opto 22's SNAP PAC System and mount on SNAP PAC racks with an I/O processor (brain or on-the-rack controller). SNAP isolated analog input modules are compatible with all SNAP PAC brains and rack-mounted controllers.

Since many SNAP analog input modules are software-configurable and handle a wide variety of signal levels, a small number of modules can support a wide range of input requirements. Modules provide high resolution for precise signal levels, and all SNAP analog modules are factory calibrated. Dimensional drawings start on page 14.

SNAP analog input modules have an on-board microprocessor to provide module-level intelligence, making them an ideal choice for original equipment manufacturers (OEMs). For more information about standalone SNAP analog modules, see the *SNAP I/O Module Integration Guide* (form 876).

SNAP racks have a retention rail locking system. Use two 4-40 by ½-inch standard machine screws to hold each module securely in position on the SNAP rack (recommended torque: 4 inch pounds [0.45 Newton meters]).

Notes for legacy hardware: Most isolated analog input modules can be used with SNAP Simple, SNAP Ethernet, SNAP Ultimate, and SNAP *mistic* brains such as the serial B3000, and with M-series or B-series mounting racks. For exceptions, see individual module descriptions.

Isolation

All SNAP analog input modules are isolated from all other modules and from the I/O processor. In addition, the modules in this data sheet have all channels isolated from each other. Channel-to-channel isolation gives you freedom from ground-loop problems even on grounded devices connected to channels on the same module.

Transformer isolation prevents ground loop currents from flowing between field devices and causing noise that produces erroneous readings. Ground loop currents are caused when two grounded field devices share a connection, and the ground potential at each device is different.

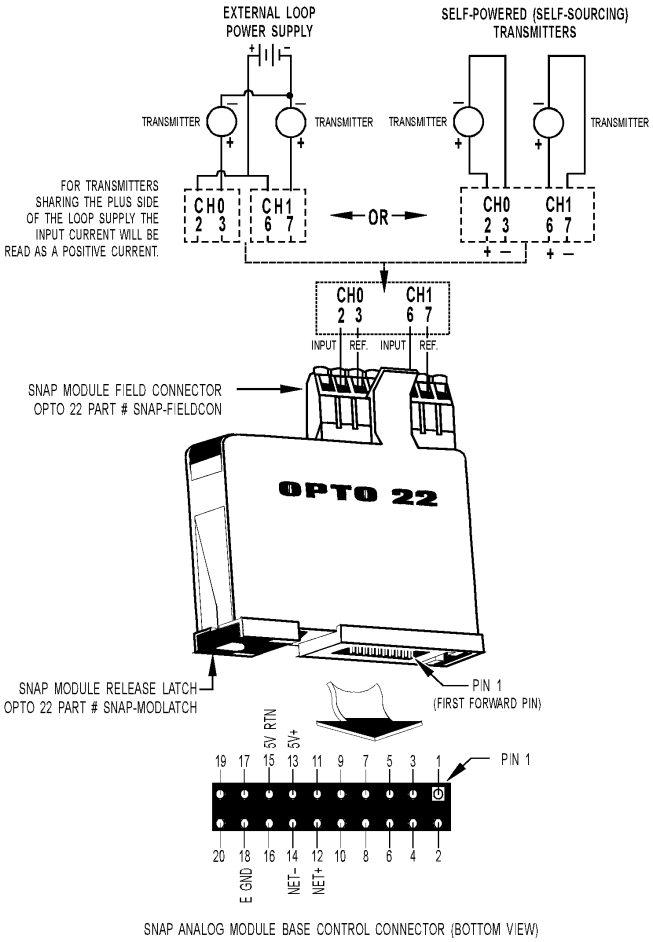
Isolation also provides protection for sensitive control electronics from industrial field signals.

Part Numbers

Part	Description
SNAP-AIARMS-i	Isolated two-channel 0–0 amp RMS AC/DC input
SNAP-AIVRMS-i	Isolated two-channel 0–250 V RMS AC/DC input
SNAP-AIMA-i	Isolated two-channel analog current input -20 mA to +20 mA
SNAP-AIMA-iSRC	Isolated two-channel analog current input -20 mA to +20 mA, with loop sourcing
SNAP-AIMA2-i	Isolated two-channel analog current input -1 mA to +1 mA
SNAP-AIRATE-HFi	Isolated two-channel analog frequency input, 2 Hz to 500 kHz or 20 Hz to 500kHz
SNAP-AITM-i	Isolated two-channel analog type E, J, or K thermocouple or ±150 mV or ±75 mV input
SNAP-AITM2-i	Isolated two-channel analog type B, C, D, G, N, T, R, or S thermocouple or ±50 mV or ±25 mV input
SNAP-AITM-4i	Isolated four-channel analog type B, C, D, E, G, J, K, N, R, S, or T thermocouple or ±150 mV, ±75 mV, ±50 mV, or ±25 mV input
SNAP-AIV-i	Isolated two-channel analog voltage input ±10 VDC or ±5 VDC
SNAP-AIV2-i	Isolated two-channel analog voltage input ±100 VDC or ±50 VDC

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ISOLATED CURRENT INPUT MODULE -20 MA TO +20 MA



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.

Description

The SNAP-AIMA-i module provides an input range of -20mA to +20mA. The SNAP-AIMA-i has two channels that are isolated from each other. This module DOES NOT supply loop excitation current. See page 5 for a loop sourcing model.

Part Number	Description
SNAP-AIMA-i	Isolated two-channel analog current input -20 mA to +20 mA

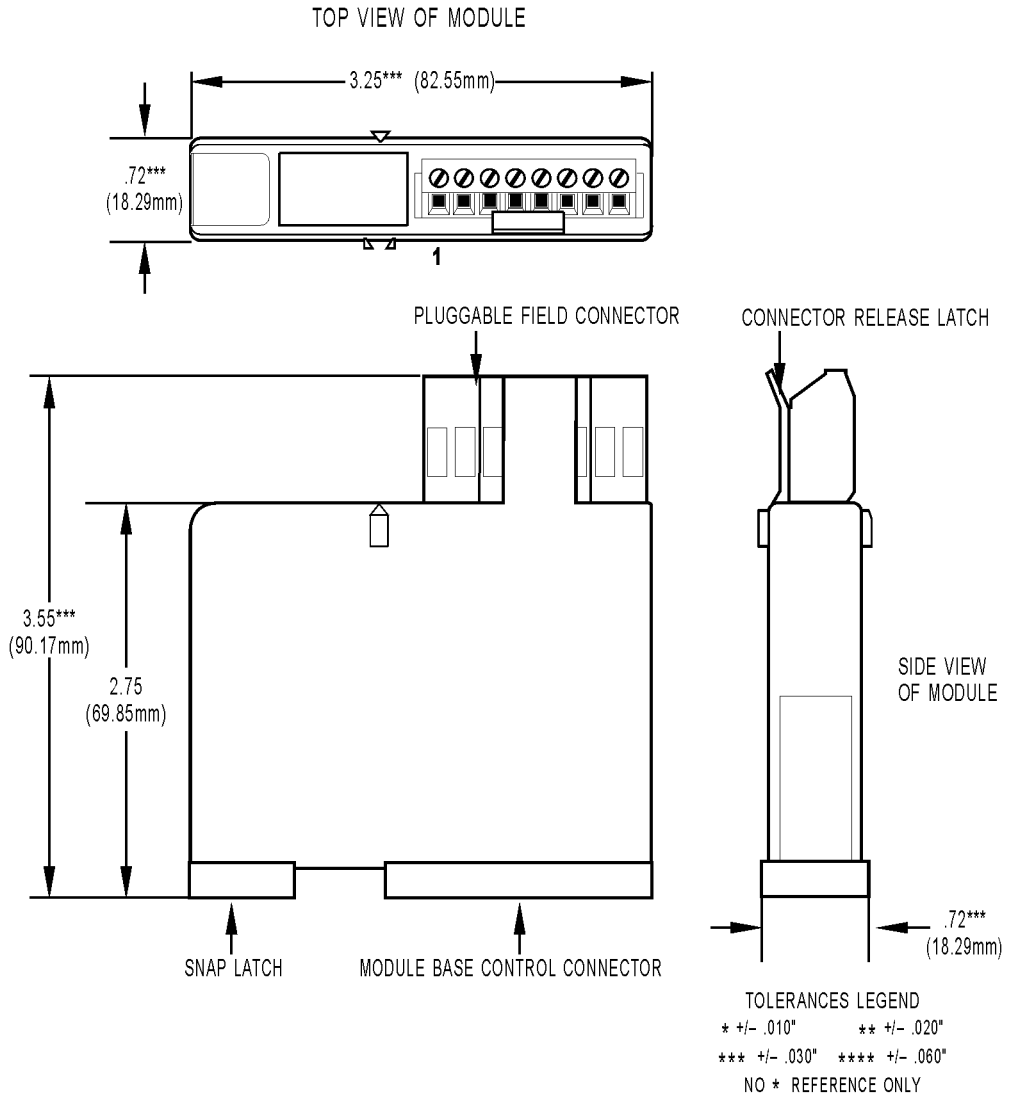
Specifications

Input Range	-20 mA to +20 mA
Maximum Over Range	± 10% (= ± 27500 counts)
Resolution	0.8 µA
Input Response Time (% of span/delta I/delta time)	99.9 %/19.9 µA/10 mS
Data Freshness	11 ms
DC Common Mode Rejection	>-120 dB
AC Common Mode Rejection	>-120 dB @ 60 Hz
Maximum Survivable Input	36 mA or 9 VDC
Maximum Operating Common Mode Voltage	250 V
Accuracy	0.05% (10 µA)
Isolation: Optical	4000 V
Isolation: Transformer	1500 V
Isolation: Channel to Channel	250 V continuous (1500 V transient)
DRIFT: Gain Temperature Coefficient	30 PPM/ °C
DRIFT: Offset Temperature Coefficient	15 PPM/ °C
Power Requirements	5 VDC (±0.15) @ 200 mA
Input Resistance - Single Ended	200 ohms (each channel)
Ambient Temperature: Operating Storage	 -20 °C to 70 °C -40 °C to 85 °C
Humidity	5-95%, non-condensing
Torque, hold-down screws	Not to exceed 1 in-lb (0.11 N-m)
Torque, connector screws	5.22 in-lb (0.59 N-m)
Wire size range	22 to 14 AWG
Agency Approvals	UL, CE, RoHS, DFARS; UKCA
Warranty	Lifetime

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DIMENSIONAL DRAWING

All Modules Except SNAP-AITM-i, SNAP-AITM2-i, SNAP-AITM-4i, SNAP-AIMA-iSRC,



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