Standard Voltage Input Module

Features

- ❯ Single channel of optically-isolated voltage-to-digital conversion
- ❯ "T" module also includes 4,000 Vrms channel-to-channel isolation which eliminates any ground loop problems.
- ❯ Modules plug into a Standard analog I/O rack and are secured by a captive screw.

Description

The voltage input analog module provides a single channel of optically-isolated voltage-to-digital conversion. The modules offer wide nominal input and special over/under range capabilities. The "T" module also includes 4,000 Vrms channel-to-channel isolation which eliminates any ground loop problems. Modules plug into a Standard analog I/O rack and are secured by a captive screw.

Part Numbers

Part	Description
AD6	0 TO +5 VDC Input
AD6T	0 TO +5 VDC Input Isolated
AD6HS	0 TO +5 VDC Input-High Speed
AD7	0 TO +10 VDC Input
AD9T	0 TO 50 mV Input Isolated
AD11	-5 TO +5 VDC Input
AD12	-10 TO +10 VDC Input
AD12T	+10 TO -10 mV Input Isolated
AD13T	0 TO 100 mV Input Isolated

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OPTO 22

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Specifications

	AD6 AD6HS	AD6T	AD7	AD9T
Nominal Voltage Input	0 to 5 VDC	0 to 5 VDC	0 to 10 VDC	0 to 50 mVDC
Over/Under Range Capability	-.125 to 11 VDC	-.125 to 11 VDC	-.250 to 11 VDC	-.125 to 110 mVDC
Accuracy*	± 5 mV	± 5 mV	± 10 mV	± 100 mV
Power Requirements	16 mA at +15 (+/- 0.25) VDC 11 mA at -15 (+/- 0.25) VDC	35 mA at +15 (+/- 0.25) VDC 35 mA at -15 (+/- 0.25) VDC	16 mA at +15 (+/- 0.25) VDC 11 mA at -15 (+/- 0.25) VDC	35 mA at +15 (+/- 0.25) VDC 35 mA at -15 (+/- 0.25) VDC

*May be improved by the use of the "Set Offset" or "Set Gain" commands in the OPTOMUX command set.

	AD11	AD12 AD12T	AD13T
Nominal Voltage Input	-5 to + 5 VDC	-10 to 10 VDC	0 to 100 mVDC
Over/Under Range Capability	-5.25 to 11 VDC	-10.5 to 11 VDC	-.250 to 220 mVDV
Accuracy*	± 10 mV	± 20 mV	± 100 µV
Power Requirements	15 mA at +15 (+/- 0.25) VDC 12 mA at -15 (+/- 0.25) VDC	15 mA at +15 (+/- 0.25) VDC 12 mA at -15 (+/- 0.25) VDC	35 mA at +15 (+/- 0.25) VDC 35 mA at -15 (+/- 0.25) VDC

*May be improved by the use of the "Set Offset" or "Set Gain" commands in the OPTOMUX command set.

Input Response Time*	5% of scale change in 8.5 ms 63% of scale change in 165 ms
Resolution	12-bits

Isolation
  Input-to-Output
  Input-to-Analog Supply ("T" Modules)
	4,000 V_{RMS}
	4,000 V_{RMS}

Temperature
  Operating
  Storage
	0 to 70 °C
	-25 to 85 °C

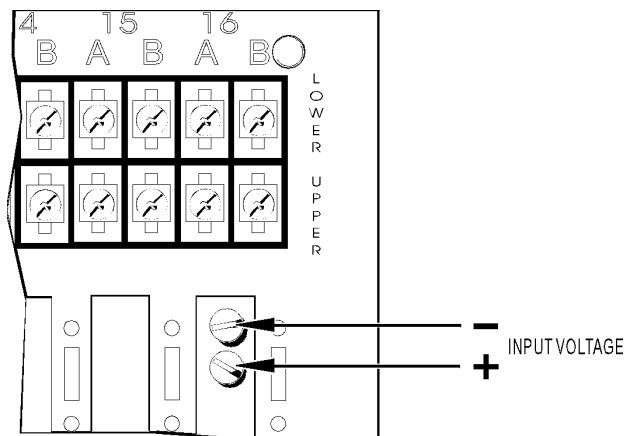*AD6HS input response 100% step change in less than 3 milliseconds.

Standard Voltage Input Module

Connections

Wiring for AD6, AD6T, AD6HS, AD7, AD11, AD12, and AD12T
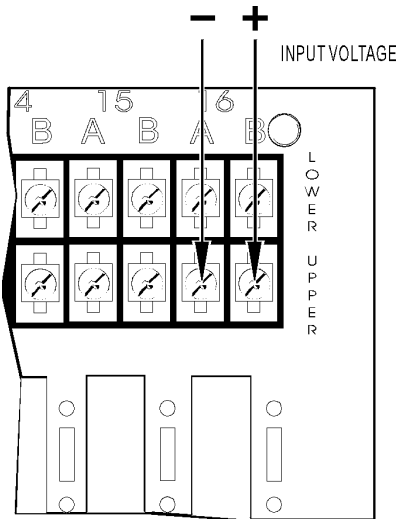
Wiring for AD9T and AD13T

More About Opto 22

Products

Opto 22 develops and manufactures reliable, flexible, easy-to-use hardware and software products for industrial automation, energy management, remote monitoring, and data acquisition applications.

OptoEMU Energy Management System

The easy-to-use OptoEMU Sensor monitors electrical energy use in your facility and delivers detailed, real-time data you can see and analyze. The Sensor can monitor energy data from pulsing meters, electrical panels or subpanels, and equipment. View energy data online using a software service or incorporate the data into your control system for complete energy management.

SNAP PAC System

Designed to simplify the typically complex process of selecting and applying an automation system, the SNAP PAC System consists of four integrated components:

- SNAP PAC controllers
- PAC Project™ Software Suite
- SNAP PAC brains
- SNAP I/O™

SNAP PAC Controllers

Programmable automation controllers (PACs) are multifunctional, modular controllers based on open standards.

Opto 22 has been manufacturing PACs for over two decades. The standalone SNAP PAC S-series and the rack-mounted SNAP PAC R-series both handle a wide range of digital, analog, and serial functions for data collection, remote monitoring, process control, and discrete and hybrid manufacturing.

SNAP PACs are based on open Ethernet and Internet Protocol (IP) standards, so you can build or extend a system easily, without the expense and limitations of proprietary networks and protocols.

PAC Project Software Suite

Opto 22's PAC Project Software Suite provides full-featured, cost-effective control programming, HMI (human machine interface) development and runtime, OPC server, and database connectivity software for your SNAP PAC System.

Control programming includes both easy-to-learn flowcharts and optional scripting. Commands are in plain English; variables and I/O point names are fully descriptive.

PAC Project Basic offers control and HMI tools and is free for download on our website, www.opto22.com. PAC Project Professional, available for separate purchase, adds

OptoOPCServer, OptoDataLink, options for controller redundancy or segmented networking, and support for legacy Opto 22 serial *mistic*™ I/O units.

SNAP PAC Brains

While SNAP PAC controllers provide central control and data distribution, SNAP PAC brains provide distributed intelligence for I/O processing and communications. Brains offer analog, digital, and serial functions, including thermocouple linearization; PID loop control; and optional high-speed digital counting (up to 20 kHz), quadrature counting, TPO, and pulse generation and measurement.

SNAP I/O

I/O provides the local connection to sensors and equipment. Opto 22 SNAP I/O offers 1 to 32 points of reliable I/O per module, depending on the type of module and your needs. Analog, digital, and serial modules are all mixed on the same mounting rack and controlled by the same processor (SNAP PAC brain or rack-mounted controller).

Quality

Founded in 1974, Opto 22 has established a worldwide reputation for high-quality products. All are made in the U.S.A. at our manufacturing facility in Temecula, California. Because we do no statistical testing and each part is tested twice before leaving our factory, we can guarantee most solid-state relays and optically isolated I/O modules for life.

Free Product Support

Opto 22's California-based Product Support Group offers free, comprehensive technical support for Opto 22 products. Our staff of support engineers represents decades of training and experience. Support is available in English and Spanish by phone or email, Monday–Friday, 7 a.m. to 5 p.m. PST.

Additional support is always available on our website: how-to videos, OptoKnowledgeBase, self-training guide, troubleshooting and user's guides, and OptoForums.

In addition, hands-on training is available for free at our Temecula, California headquarters, and you can register online.

Purchasing Opto 22 Products

Opto 22 products are sold directly and through a worldwide network of distributors, partners, and system integrators. For more information, contact Opto 22 headquarters at 800-321-6786 or 951-695-3000, or visit our website at www.opto22.com.

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