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Find the *Measurement Computing / IOtech ADC488/16* at our website: *Click HERE*

ADC488/16A™ & ADC488/8SA™

IEEE 488 A/D Converter with Digital I/O

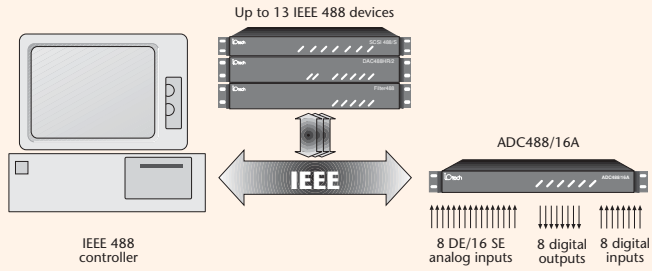
Features

- **Provides 16-bit A/D conversion at up to 100,000 samples/s**
- **Offers 16 single-ended or 8 differential analog inputs, expandable using master/slave configuration**
- **Provides ±1, ±2, ±5, and ±10 VFS programmable input ranges**
- **Features continuous throughput to the IEEE 488 bus at 200 Kbytes/s (100,000 16-bit readings/s)**
- **Offers memory expansion up to 8 Mbytes (4 Msamples)**
- **Analog inputs isolated from ground by 500 VCM**
- **Includes eight TTL-compatible digital inputs and eight TTL digital outputs**
- **LabVIEW® examples available**

The ADC488/16A™ enables high-speed, high-resolution, analog voltage measurements via the IEEE 488 bus.



ADC488/16A provides many of the features found in expensive digital oscilloscopes



High Resolution

The ADC488/16A features 16-bit resolution, 96 dB dynamic range, and 33 µV/bit sensitivity (at ±1V range). More expensive scopes and waveform recorders typically provide only 8- or 12-bit resolution. By contrast, the ADC488/16A lets you detect even small variations in signals with large voltage ranges without having to constantly reconfigure range and gain settings.

Wide Bandwidth

With a 100-kHz sample rate, the ADC488/16A can capture repetitive signals with bandwidths up to 50 kHz and transients as fast as 20 µs. Scan intervals from 10 µs to 50s provide the flexibility to meet both high-speed transient and low-speed data logging applications. Because the ADC488/16A can function as both a high-speed, digital voltmeter (DVM) and a low-speed, digital storage oscilloscope (DSO), it lets you acquire a wide range of signals with a *single* device.

Triggering

The ADC488/16A offers a selection of programmable trigger sources, such as analog input level, external TTL input*, IEEE 488 Group Execute Trigger (GET), and IEEE 488 TALK commands. Each trigger source can initiate either single-shot or continuous acquisition modes.

Pre-Trigger & Trigger Delay

The ADC488A pre-trigger function can store data in up to 100 percent of available memory and is ideally suited for analyzing cause-and-effect situations. The trigger-delay command suspends actual data acquisition, from the "real" trigger point to an "effective" trigger point in memory by up to 8,000 scans.

Memory Expansion

The ADC488A series features a standard 4 Kbyte internal memory buffer, which is optionally expandable by 8 Mbytes. This buffer can be used either to store data locally to free the host computer for other tasks, or as FIFO to double buffer data for continuous high-speed throughput to the IEEE 488 bus. Since the buffers are field-installable, they provide the ability to add memory as needed.

* External TTL trigger mode input clock frequency cannot exceed 40 kHz

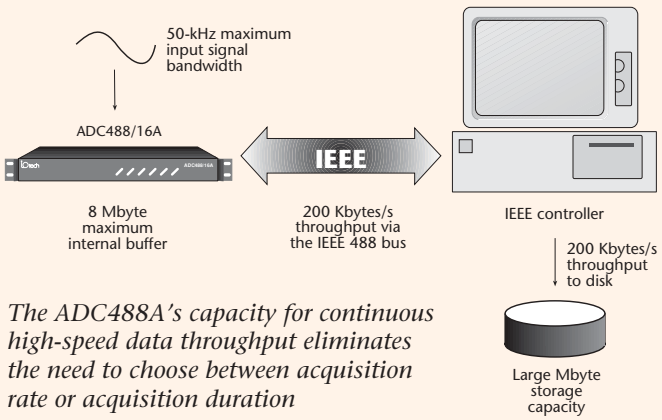
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ADC488/16A™ & ADC488/8SA™

Specifications & Ordering Information

High-Speed Throughput

The ADC488A can output data continuously to the IEEE 488 bus and to disk at 200 Kbytes/s, permitting its use in long-term, high-speed data acquisition applications that exceed the storage capacity of its internal memory modules*. Thus you can use the inexpensive mass-storage of your PC or IEEE 488 controller for large amounts of data that previously required either expensive mini or mainframe computers.



The ADC488A's capacity for continuous high-speed data throughput eliminates the need to choose between acquisition rate or acquisition duration

Isolation

All ADC488A analog circuitry is optically isolated from the digital control logic, the IEEE 488 bus, and the AC power line by up to 500 VCM. This reduces the risk of damage to the ADC488A and the controlling computer from signals with extreme ground differences. It also shields the ADC488A's 16-bit circuitry from the potentially high noise environment of the controlling computer, resulting in quieter and more accurate analog measurements.

Master/Slave Support

Up to four "slave" ADC488As can be attached to a single master ADC488A to expand input capacity to either 80 single-ended or 40 differential channels. A dedicated high-speed trigger line ensures that all slave units are triggered within 250 ns of the master.

Support Software

The ADC488A series is easy to program using a series of ASCII instructions. Because no specific language driver is required, the ADC488A works with Visual Basic®, C/C++, LabVIEW® and any other programming language which has the capability to send and received data over the IEEE 488 bus.

* At the maximum 100-kHz sample rate, the standard 4 Kbyte buffer stores only 20 ms of data; the largest 8 Mbyte buffer stores 40 seconds of data

Specifications

Analog

Number of Channels: 16 single-ended or 8 differential inputs
Conversion Rate: 100-kHz sampling, 16-bit successive approximation A/D
Conversion Time: 8.1 µs typ
PGA Range/Resolution/Accuracy:

Range	Resolution		Accuracy (% of VFS)
±1V	16 bit	33 µV/bit	±(0.02%)
±2V	16 bit	66 µV/bit	±(0.02%)
±5V	16 bit	166 µV/bit	±(0.02%)
±10V	16 bit	333 µV/bit	±(0.02%)

Maximum Allowable Input: 25V p-p max
Temperature Coefficient: (±0.002% ±100 µV)/°C; 0° to 20°C and 30° to 50°C
A/D Acquisition Time: 1.8 µs typ
A/D Aperture Time: 25 ns typ
A/D Aperture Uncertainty: 0.25 ns typ
Common Mode Rejection: >70 dB from DC to 100 Hz
Common Mode Input Voltage: 13V max, 10^5 V-Hz
Channel-to-Digital Low Isolation: 250V max, 10^5 V-Hz
Connector: DB25 male connector; mating connector supplied

Digital I/O

Number of Inputs: 8 bits, TTL-level compatible
Number of Outputs: 8 bits, TTL-level compatible
Connector: 20-pin card-edge; mating connector supplied

IEEE 488 Interface

Implementation: SH1, AH1, T6, TE4, L4, LE4, SR1, PP0, RL0, DC1, DT1, C0, and E1
Programmable Parameters: Single-ended/differential configuration, buffer location, scan group, digital output, buffer mode, output format, trigger mode, scan interval, EOI, trigger level, SRQ mask, scan count, configurations, channel, pre-trigger, and terminators
Data Transfer Speed: >200 Kbytes/s (uncompensated raw binary)
Connector: Standard IEEE 488 connector with metric studs

General

Storage: 2 Ksample (4 Kbyte) buffer standard; 4 Msample (8 Mbyte) optional
Indicators: LEDs for Talk, Listen, SRQ, Error, Test, and Power
Power: 105 to 125 or 210 to 250 VAC, 50/60 Hz; 20 VA max
Environment: 0° to 50°C; 0 to 95% RH, non-condensing to 35°C; linearly derate 3% RH/°C from 35° to 50°C
Controls: Power switch, external DIP switch for IEEE 488 address
Dimensions: 425 mm W x 203 mm D x 45 mm H (16.75" x 8" x 1.75")
Weight: 3.2 kg (7 lbs)

Ordering Information

Description	Part No.
IEEE 488 analog to digital converter including 2 analog input connectors; a digital I/O port connector; and rack-mount kit	ADC488/16A
Same as above except with simultaneous sample & hold, and 8 differential inputs	ADC488/8SA

Accessories & Cables

4 Msample (8 Mbyte) memory option	MEMX7
Shielded IEEE 488 cable, 6 ft.	CA-7-3

For complete information on accessories and cables, visit **www.iotech.com/acc**

Related Products

Hardware

DAC488HR/4	p. 299
Personal488 Series	p. 307

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