

FEATURES

- 16 full or 1/2-bridge, potentiometer or differential-ended (D/E) input channels
- Simultaneous sampling 16-bit A/D for each channel
- High accuracy (up to 0.01% FSR typical)
- Programmable input range and balance current per channel
- Eight excitation outputs from four programmable Digital/Analog (D/A) converters
- 8th order Butterworth filter with programmable cutoff frequency per channel
- Short to ground on any channel does not affect others
- Up to 12,000 samples per second per channel
- Up to 3kHz bandwidth
- Bipolar excitation and balancing before instrumentation amplifier
- Enhanced mechanical strength between motherboard and daughterboard
- High impedance per channel when powered off

APPLICATIONS

- High impedance bridge sensors
- Differential voltage measurement
- Strain gage measurement

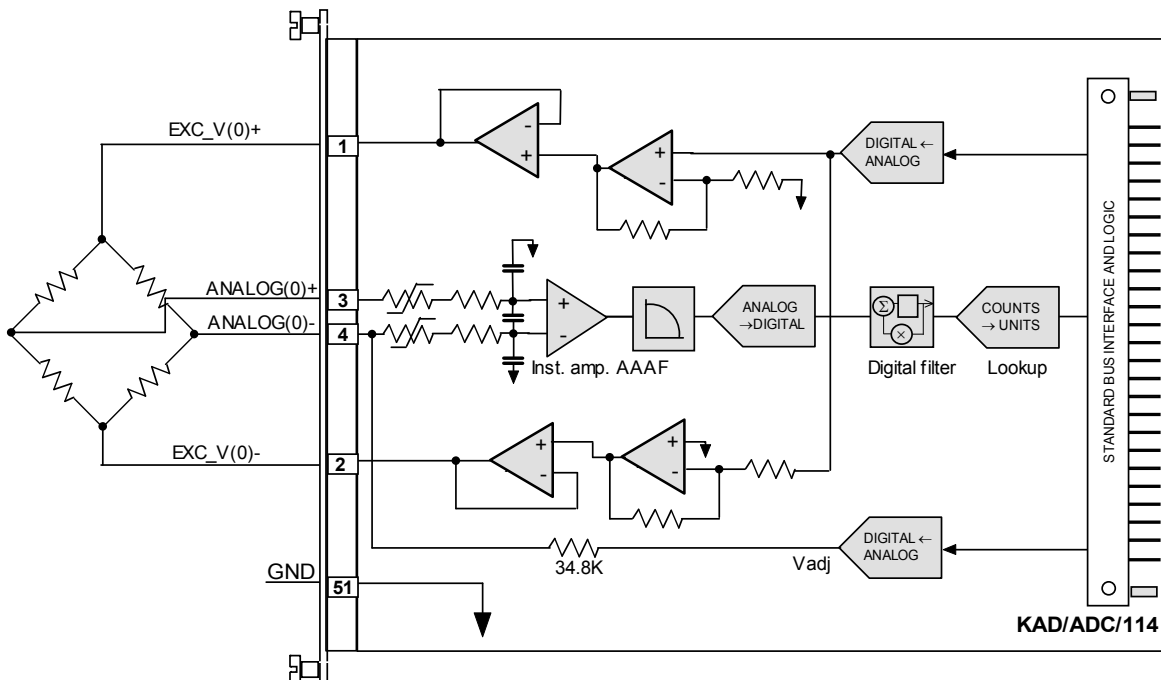
DESCRIPTION

The KAD/ADC/114 is used to condition and digitize up to 16 differential-ended analog channels. At the heart of the KAD/ADC/114 is a hard-wired state-machine that oversamples all channels at a rate between 48ksps and 96ksps and digitally filters any noise above the user-programmable cutoff frequency.

This is achieved using cascaded, half-band, finite-impulse-response (FIR) filters followed by an 8th order Butterworth IIR filter with a default cutoff point set at one quarter of the sampling frequency ($f_c=f_s/4$). All signals are sampled simultaneously. Thus, when several channels are sampled at different sampling rates, at the start of an acquisition cycle all channels will be aligned.

Excitation on the KAD/ADC/114 is programmable using four D/A converters, each of which is connected to two pairs of drivers. If more than eight excitations are required, each excitation output can be connected to two bridges.

The KAD/ADC/114 is available with three different input ranges ($\pm 10V$, $\pm 1V$, $\pm 100mV$). The input range must be specified when ordering.



First of 16 channels on the KAD/ADC/114

Selection guide and ordering information

Selection Paths

Airborne Data Acquisition → KAM-500 → Modules → Analog → Bridge

Ordering Information

Part Number	Description
KAD/ADC/114/10V	16-ch. bridge A/D converter with voltage excitation, balancing & signal conditioning (with 52-way double-density connector)
KAD/ADC/114/1V	16-ch. bridge A/D converter with voltage excitation, balancing & signal conditioning (with 52-way double-density connector)
KAD/ADC/114/100M	16-ch. bridge A/D converter with voltage excitation, balancing & signal conditioning (with 52-way double-density connector)
KAM/ADC/114/10V	16-ch. bridge A/D converter with voltage excitation, balancing & signal conditioning (with 51-way micro-miniature connector)
KAM/ADC/114/1V	16-ch. bridge A/D converter with voltage excitation, balancing & signal conditioning (with 51-way micro-miniature connector)
KAM/ADC/114/100M	16-ch. bridge A/D converter with voltage excitation, balancing & signal conditioning (with 51-way micro-miniature connector)

By default, the standard mating connector (CON/KAD/002/CP for KAD modules; ACC/CON/008/04 for KAM modules) is included with each module in the shipment. Its part number will be added to the Confirmation of Order unless an alternative option is specified (see the *Cables* data sheet). In this data sheet, KAD/ADC/114 refers to both the KAD and KAM version of the module. The KAD/ADC/114 uses power from the $\pm 7V$ for excitation and therefore can not be used with CHS/04L, CHS/05F or CHS/03F. If the maximum excitation current is drawn from each channel, then the maximum number of KAD/ADC/114s per chassis is limited to five.

Revision History

Revision	Differences	Status
KAD/ADC/114	First release	Recommended for new programs

Related Products

Module	Details
KAD/ADC/120	12-ch. bridge A/D converter with voltage excitation & signal conditioning
KAD/ADC/118	12-ch. bridge A/D converter with voltage excitation, balancing & signal conditioning
KAD/ADC/014/D	16 channel bridge A/D converter with voltage excitation and signal conditioning
KSM-500	These modules are supported by the KSM-500 suite of software tools

Related Documentation

Document	Details
DOC/DBK/001	KAM-500 Databook
DOC/MAN/018	KSM-500 Databook
DOC/GBK/002	Environmental Qualification Handbook
TEC/NOT/001	Strain gages and ideal bridges
TEC/NOT/002	Bridge balancing and shunt calibration
TEC/NOT/017	Accuracy on KAM-500 modules
TEC/NOT/016	Power dissipation
TEC/NOT/049	Power estimation

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