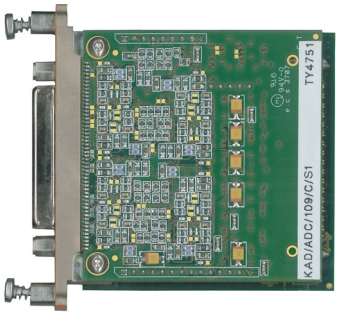
ACRA CONTROL

KAD/ADC/109/S1

8-ch. bridge A/D converter module, with voltage excitation and signal conditioning



FEATURES

- Eight full or ½-bridge, potentiometer or differential ended (D/E) input channels
- 16-bit simultaneous sampling on all channels
- High accuracy
- Programmable excitation, balance current and range per channel
- 8th order Butterworth filter with programmable cutoff frequency per channel
- Short to ground on any channel does not affect others
- Bipolar excitation and balancing before instrumentation amplifier
- Up to 24,000 samples per second per channel
- Up to 6kHz bandwidth
- Enhanced mechanical strength between motherboard and daughterboard
- High impedance per channel when powered off

APPLICATIONS

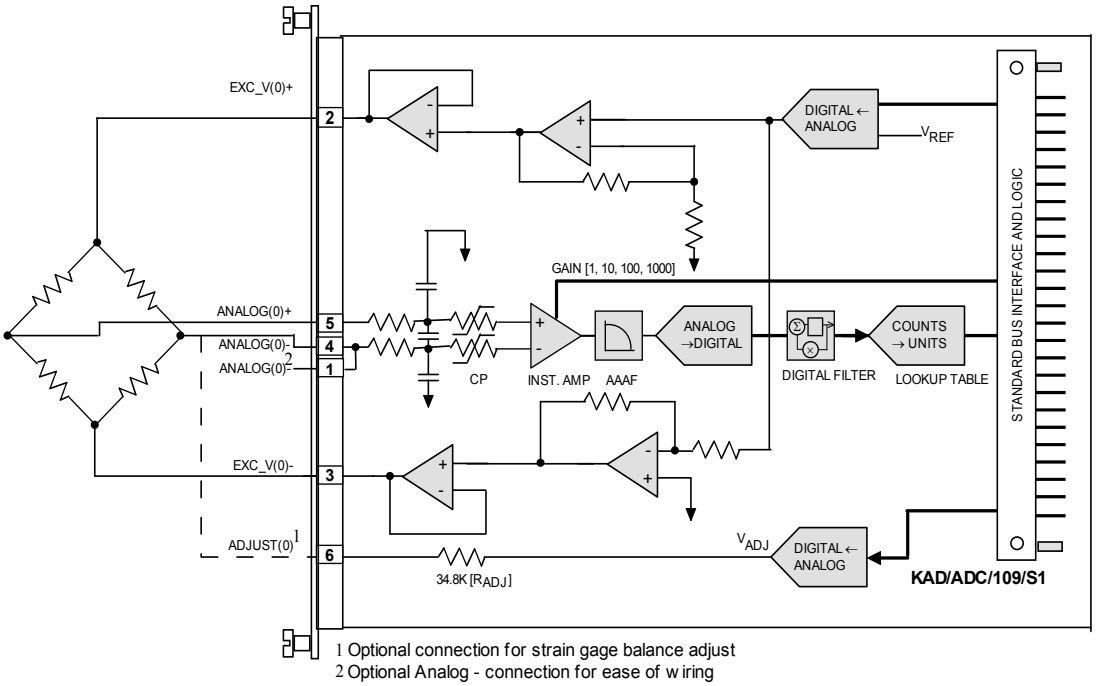
- Bridge sensors
- Differential voltage measurement
- Strain gage measurement

DESCRIPTION

The KAD/ADC/109/S1 provides independent excitation for up to eight channels. Each channel has a separate programmable amplifier, programmable filter and A/D converter.

At the heart of the KAD/ADC/109/S1 is a hard-wired state-machine that over-samples all channels at a rate between 96ksps and 192ksps and digitally filters any noise above the user programmable cutoff frequency. This is achieved using cascaded, half-band, decimate by two, fifteen tap, finite-impulse-response (FIR) filters with 32-bit coefficients followed by an 8th order Butterworth IIR filter with a default cutoff point set at a quarter of the sampling frequency.

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.



1 Optional connection for strain gage balance adjust
2 Optional Analog - connection for ease of w iring

First of eight channels on the KAD/ADC/109/S1

Selection guide and ordering information

Selection Paths

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

Ordering Information

Part Number	Description
KAD/ADC/109/C/S1	8-ch. bridge A/D converter module, with voltage excitation and signal conditioning (with 52-way double-density connector)
KAM/ADC/109/C/S1	8-ch. bridge A/D converter module, with voltage excitation and 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/109/S1 refers to both the KAD and KAM version of the module.

The KAD/ADC/109/S1 uses power from the ±7V for excitation and therefore cannot be used with the CHS/04L, CHS/05F or CHS/03F chassis.

Revision History

Revision	Differences	Status
KAD/ADC/109/C/S1	High impedance per channel when powered off, enhanced mechanical strength and improved format switching	Recommended for new programs
KAD/ADC/109/B/S1	Reduced power consumption on the ±7V power lines	Not recommended for new programs
KAD/ADC/109/S1	8 channel bridge A/D converter with excitation and signal conditioning	Not recommended for new programs

Related Products

Module	Details
KAD/ADC/109/B/S2	Has two excitation sense lines for each channel to compensate for lead resistances and internal offset-adjust
KAD/ADC/009/S1	8-ch. bridge A/D converter, with excitation and signal conditioning
KSM-500	This module is 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/HBK/002	Environmental Qualification Handbook
TEC/NOT/001	Strain gages and ideal bridges
TEC/NOT/002	Bridge balancing and shunt calibration
TEC/NOT/016	Power dissipation
TEC/NOT/017	Accuracy on KAM-500 modules
TEC/NOT/049	Power estimation

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