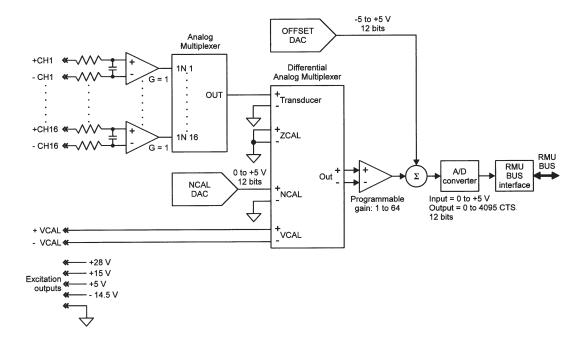
Technical Bulletin

MSC1000-029

Analog Multiplexer Module (16 Channel)

Airborne Data Acquisition Products



DESCRIPTION

The MSC1000-029 is a 16 channel analog multiplexer for use with higher level analog signals. This module is a fully programmable unit with the following salient features:

FEATURES

- Each channel is independently programmable via DASM software.
- Factory set input filters
- Auto balance for amplifier offset
- 7 programmable gains (1 to 64)
- Programmable offset in 2.44 mV increments from -5V to +5V
- Four excitation voltages (+28V, +14.5 V, +12 V, and -14.5V)
- ZCAL, NCAL, and VCAL.
- Overvoltage protected to ±32 VDC.
- Nominal channel accuracy of 0.5%



ELECTRICAL SPECIFICATIONS

Excitation (Per Module)

- Four voltage sources (+28V, +14.5V, +12V, and -14.5V)
- Total RMU excitation at full load: 1.0 A minimum for positive supplies, 250 mA minimum for negative supplies.
- Total RMU excitation current limit: 1.3 A maximum for positive supplies, 300 mA maximum for negative supplies.
- Accuracy: ±1% of selected value for the +14.5V, +12V, and -14.5V supplies, ±3% for the +28V supply.
- Load regulation: ±3% from no load to full load

Input Characteristics (Per Channel)

- Full scale range equals 5VPP differential
- Interfaceable with isolated sources
- Input impedance: 1 Megohm minimum
- AC CMR at a gain of 1 is 70 db at 400 Hz with a 1 Kohm unbalance
- Overvoltage protection to ±32V

Gains (Per Channel)

- Program selectable gains of 1, 2, 4, 8, 16, 32, and 64.
- Gain accuracy: ±0.5% of selected value
- Gain temperature stability: ±0.25% of selected value
- Linearity: ±0.1% BSL

Channel Offset (Per Channel)

- Program selectable in 2.44 mV steps from -5VDC to +5VDC referenced to output
- Channel offset stability ±0.25% FS
- Single pole RC filter (lowest frequency 10 Hz) designated by dash number: -xyz where x = most significant digit
 - y = lease significant digit
 - z = number of zeroes

Cal Types

- NCAL: Channel input is connected to NCAL DAC (0 to 5V in 1.22 mV increments). Accuracy at channel output: ±0.5% FS, ±0.75% at a gain of 64. Temperature stability at the channel output: ±0.5% FS.
- VCAL: Channel inputs are connected to system VCAL
- ZCAL: Channel inputs are connected to signal ground.

Balance (Per Channel)

- Algorithm type: Amplifier offset
- Balance Algorithm accuracy: ±0.5% FS

Sample and Hold (Per Channel)

- Occurs on word only
- Maximum sample rate: 42 K samples per second.

Output (One A/D per module)

A 5 volt full scale analog signal at a gain of one (1), converted to 12 bit digital word (1.22 mV/bit)



L-3 Communications Telemetry-East 47 Friends Lane, P.O. Box 328 • Newtown, PA 18940-0328 Telephone: (215) 497-8000 • Fax: (215) 968-3214 E-Mail: sales/mktg@te.L-3com.com • www.L-3com.com/te

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