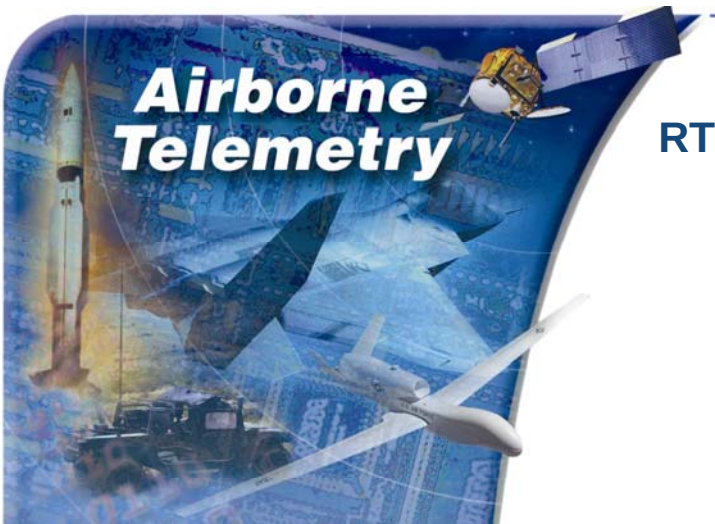


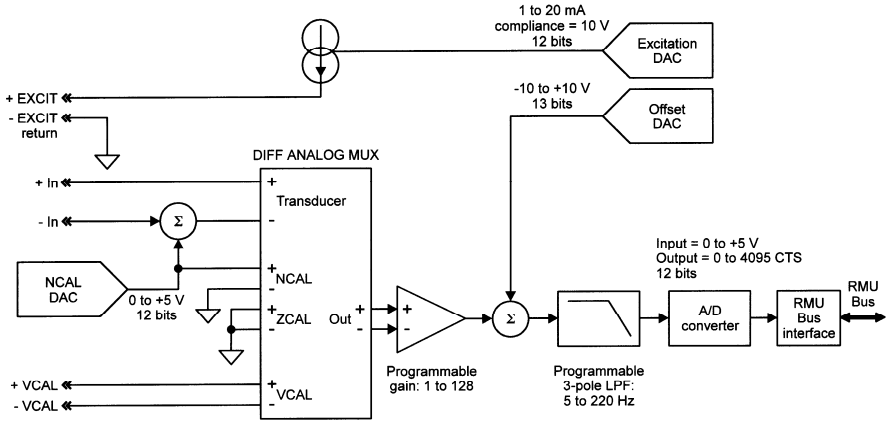
MSC1000-002
RTD Conditioning Module (2 Channel)
Airborne Data Acquisition Products

FEATURES

- **Each channel is independently programmable via DASM software**
- **Balance type is selectable as: amplifier offset or manual balance.**
- **8 gains (1 to 128)**
- **6 pole pre-sample filter with selectable passband (7 to 220 Hz)**
- **Programmable input offset in 2.44 mV steps from 0 to -5V.**
- **Programmable excitation in 4.88 µA steps from 1 to 20 mA DC.**
- **ZCAL, NCAL, and VCAL.**
- **Sample and hold per channel.**
- **Overvoltage protected to ±32VDC**
- **Nominal channel accuracy of 0.5%**

L3 communications
Telemetry & RF Products

Excellence You Can Measure



DESCRIPTION

The MSC1000-002 is a fully programmable signal conditioning module designed to interface to Resistive Temperature Devices (RTD) sensors (between 40 and 3000 ohms) which require constant current rather than constant voltage. This module has the following features:

ELECTRICAL SPECIFICATIONS

Excitation (Per channel)
- Programmable in steps of 4.88 µA from 1 to 20 mA DC
- Accuracy: 0.5% of selected value
- Load regulation:±0.5% of selected value from no load to full load (5V)
- Stability: ±0.25% of selected value over temperature
- Compliance voltage: 10V minimum

Input Characteristics (Per Channel)
- Input impedance: 1 Megohm minimum
- ACCMR at a gain of 1 is 37 db minimum 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, 64, and 128.
- Gain accuracy: ±0.5% of selected value
- Gain temperature stability: ±0.75% of selected value, including effects of excitation drift
- Linearity:±0.1% BSL

Channel Offset
- Program selectable in 2.44 mV steps from -10VDCto +10VDCreferenced to output
- Any signal between -7.5 and +12.5 Volts (referenced to output) can be offset to half scale output.
- Referenced to input offset is program selectable in 1.22 mV steps from 0V to -5V.
- Channel offset stability ±0.5% FS over temperature at a gain of 32

Pre-Sample Filter (Per Channel)
- Program selectable pass band frequencies of 15, 30, 60, 120, 240, 480, 960, and 1920 Hz.
- Within the passband, inter-channel correlation is ±1.5% maximum
- Within the passband, the amplitude response is flat to within 1.2% PP
- Attenuation at four times the passband frequency is 30db minimum
- 3 pole response

Cal Types
- NCAL: NCAL DAC connected to channel input 0 to 5 Volts, 1.22 mV increments. Accuracy is ±1 mV, referenced to input. Temperature stability is ±1 mV, referenced to input.
- VCAL: Channel inputs are connected to system VCAL.
- ZCAL: Channel inputs are connected to signal ground.

Balance (Per Channel)
- Algorithm is program selectable from amplifier offset, or manual balance.
- Balance Algorithm accuracy: ±0.5% full scale

Sample and Hold (Per Channel)
- Program selectable on minor frame, on major frame, or on word.

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

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