HIGHLAND TECHNOLOGY

V460 current source and analog measurement module

Features

- Includes 16-channel, multiplexed, programmable constant-current source and precision analog-to-digital converter
- Capable of measuring nearly any mixture of resistive-, bridge- or semiconductor-type sensors, using 4-wire connections
- Ideal for cryogenic applications using mixed sensor types
- Ultrastable programmable constant current source: 1 µA, 10 µA, 100 µA, 1 mA source currents
- 16-bit ADC includes programmable gain differential amplifier, autozeroing, and programmable digital noise filtering
- All parameters are fully programmable for each channel
- Fully self-scanning without processor intervention: conditioned data is presented in transparent dual-port memory registers
- Reads sensor voltage drop directly; includes engineering unit conversion for common silicon diode and RTD type temperature sensors

The V460 is a VME-based versatile source/measurement unit. It includes a programmable constant-current source, a precision programmable gain 16-bit analog-to-digital converter, and a 4-wire, 16-channel analog multiplexer. An internal microprocessor supervises channel scanning according to user loaded parameters, reporting sensor voltage drops or, for selected sensor types, engineering-unit data.

The V460 is ideal for precision temperature measurement, using mixed resistive and diode sensor types. The programmable current sources and low duty-cycle scanning assure low sensor self-heating. Programmable digital filtering allows selectable rejection of AC line hum and other noise sources.

The V460 can measure resistances from 5.12 Megohms full scale (with 78 ohm resolution) to 80 ohms full scale (with 1.22 milliohm resolution); voltages from 5.12 volts full scale to 80 mV full scale may be measured, with resolution to 1.22 microvolts. Extensive internal self-tests help assure accurate measurements.

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Specifications : V460 current source and analog measurement module

FUNCTION	16 channel VME current source and analog measurement module
DEVICE TYPE	16-bit VME register-based slave: A16:D16:D08(EO) Implements 64 16-bit registers at switch selectable addresses in the VME 16 bit addressing spaces
CHANNELS	16 channels, 4-wire sensor connections
INPUTS	Less then 1000 MΩ DC leakage current less then 200 pA Inputs are not isolated from circuit common
ADC	16 bits, programmable 0/+5.12 volts or ±5.12 volts full scale; programmable preamplifier gains of 1, 4, 16, and 64 magnify full-scale span to 80 mV (LSB resolution 1.22 µV) Accuracy ±0.01% ±25 PPM/K The ADC is monotonic to 16 bits
RESISTANCE	Resistance measurements are accurate to ±0.01% ±30 PPM/K for ISRC >1 µA
SCAN RATE	Typically 20 ms per channel; full scan of 16 channels requires less than 400 ms Certain programmable options may increase scan times
CURRENT SOURCE	Per-channel programmable to 0, 1 µA, 10 µA, 100 µA and 1 mA Accuracy ±0.01% ±25 PPM/K, except 1 µA current is ±0.04% ±50 PPM/K
LINEARIZATION	Includes engineering units conversion for Lakeshore cryo-diode sensors and ISO 385 curve platinum RTDs (100Ω or 1000Ω)
FILTERING	Per-channel programmable digital lowpass filtering provides selectable time constants up to 128 samples Sample timing and filtering are optimized for 50/60 Hz hum rejection
OPERATING TEMPERATURE	-20 to +70°C; extended MIL/COTS ranges available
CALIBRATION INTERVAL	One year
POWER	Standard VME supplies: +5 volts, 1.5 A nominal +12 volts, 50 mA nominal (plus load current) -12 volts, 50 mA nominal (plus load current)
CONNECTORS	Two front panel female D37 connectors
INDICATORS	Three LEDs, VME access, sensor SCAN performed and PASS/FAIL self-test
PACKAGING	6U single-wide VME module
CONFORMANCE	ANSI/VITA 1-1994 (R2002) VMEbus spec