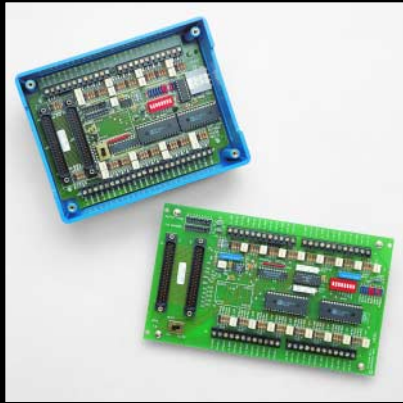


EXP-16 EXP-16/A



- Expands any analog input to 16 differential inputs
- Cold-junction compensation for thermocouples
- Open thermocouple detection
- Shunt terminals for current measurement
- Daisy-chain up to 8 boards
- Instrumentation amplifier with switch-selectable gains of 0.5, 1, 2, 10, 50, 100, 200 and 1,000
- Input filtering
- Screw terminations accepts 12 - 22 AWG wire

Ordering Information

- EXP-16** 16-channel multiplexer and signal conditioning board
- EXP-16/A** EXP-16 mounted in a plastic enclosure
- EXP-16/A-OTC** EXP-16/A with open thermocouple detection enabled

16-Channel Multiplexer and Signal Conditioning Board

Keithley's Universal Expansion Interface, EXP-16 (and EXP-16/A), is an expansion multiplexer/ amplifier system for use with DAS-8, DAS-800, DAS-16, DAS-1200, DAS-1400, and DAS-1600 Series. The DAS-8 and DAS-800 families accept up to 8 EXP-16s for a total of 128 channels of voltage measurement or 112 channels of thermocouple measurement. Each EXP-16 multiplexes 16 differential analog input channels into one analog input of the data acquisition board. Signal amplification, filtering, and conditioning is also included. Provision is made on the board for filtering, attenuation, and measuring current. All analog input connections are made on miniature screw connector strips.

Thermocouple measurements are handled easily with the EXP-16. The board includes cold-junction sensing and compensation circuitry that provides a scaling of 24.4mV/°C, corresponding to 10 bits/°C on a 12-bit A/D converter, enabling easy compensation in software. Biasing resistors are also included for open thermocouple detection. Thermocouples of different types can be mixed on one board, providing they can operate with the same gain; otherwise separate EXP-16s should be used for maximum accuracy.

ACCESSORIES AVAILABLE

C1800	EXP-16 to DAS-8 or DAS-800 or EXP-16 cable
PG-408A	Required onboard DC/DC converter for use with the DAS-16/1200/1400/1600 and DAS-8/AO
S1600	DAS-16/1200/1400/1600 to EXP-16 cable

SPECIFICATIONS

ACCEPTS THERMOCOUPLE TYPES: J, K, T, E, S, R, B.

COLD-JUNCTION COMPENSATION: 24.4mV/°C (.1°C/bit). 0.0V at 0.0°C.

GAINS	MAXIMUM INPUT OFFSET VOLTAGE DRIFT	COMMON MODE REJECTION	NONLINEARITY	SETTLING TIME
1000	1 μV/°C	125 dB	0.0005 %	50 μs*
100	2 μV/°C	125 dB	0.0005 %	15 μs*
10	12 μV/°C	110 dB	0.0007 %	13 μs*
1	120 μV/°C	90 dB	0.015 %	12 μs*

* Without standard 80Hz filter. A capacitor must be removed from the board to disable the filter.

APPLICATIONS

- Expand the number of analog inputs on any data acquisition A/D interface
- Energy management
- Signal amplification
- Signal conditioning
- Analog multiplexer

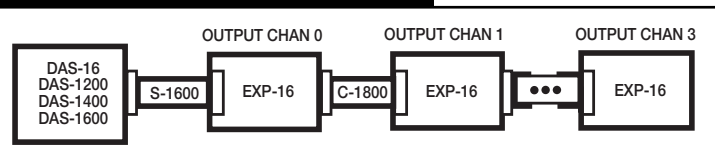
INPUT BIAS CURRENT: 2nA typ, 6nA max.
TEMPERATURE COEFFICIENT: 5ppm typ, 15ppm max.
OVERVOLTAGE PROTECTION: ±30V continuous.
COMMON MODE VOLTAGE: ±10V max.
+5V OPERATING CURRENT: 175mA typ, 250mA max (w/PG-408A). 20mA typ, 30mA max (w/o PG-408A).
±12V OPERATING CURRENT: 8mA typ, 30mA max (w/o PG-408A).
ANALOG OUTPUT VOLTAGE: ±5V max.
ANALOG OUTPUT CURRENT: 20mA max.

ENVIRONMENTAL

OPERATING TEMP RANGE: 0° to 60°C.
STORAGE TEMP RANGE: -40° to +100°C.
HUMIDITY: 0 to 90% non-condensing.

PHYSICAL

EXP-16 DIMENSIONS: 8 in L × 4.75 in W × 0.75 in H (20.3cm × 12.1cm × 1.9cm) (without standoffs).
EXP-16/A DIMENSIONS: 5.2 in L × 6.7 in W × 2.3 in H (13.2cm × 17.0cm × 5.8cm) (with enclosure).
SCREW TERMINAL WIRE SIZES: 12–22 AWG.
MOUNTING SCREWS FOR BOARD: 4–40.
BOARD STANDOFFS: ½ in.



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