MODEL A5B40
MILLIVOLT-LEVEL ISOLATION AMPLIFIER WITH FILTER
OPERATING INSTRUCTIONS

1. GENERAL

Campbell Scientific's Model A5B40 Isolation Amplifier is a peripheral that provides electrical isolation for the analog inputs of CSI dataloggers. The A5B40 is designed around the Analog Devices model 5B40-03 Millivolt Input Module. A fourth-order, low-pass filter, with a 50 Hz cutoff frequency, was added to reject noise while maintaining measurement rates of up to 10 samples per second.

The A5B40 is powered by the datalogger's 12 volt output, (automatically switched to conserve power), and isolates one differential analog input. In most applications, a single A5B40 is used between an AM32 Multiplexer and the datalogger, thus providing isolation for up to 32 analog channels with a single amplifier.

When measuring thermocouples, the model A5B40 requires special datalogger PROMs. These PROMs contain special instructions used to linearize the thermocouple signals and compensate for the reference junction temperature.

2. PROM INSTALLATION

21X(L): To install OSXA5-0.1, OSXA5-1.1, or OSXA5-2.1 operating system software, simply follow the instructions as outlined in the attached document entitled "Installation of 21X Micrologger OSX PROM Update" substituting the following PROM assignments in Instruction 4:

	Location	PROM	Signature
	8	6704	24486
	7	6705	42295
OSXA5-0.1:	6	6706	13044
OSXA5-1.1:	6	6707	33417
OSXA5-2.1:	6	6708	6820

> **NOTE:** PROM numbers are labeled as Item No on each individual PROM.

3. PHYSICAL CONNECTIONS

Connections to the datalogger for the A5B40 are as follows:

A5B40	Datalogger
IN HI	Sensor HI or Mux Com HI
IN LO	Sensor LO or Mux Com LO
+12V	12V
GND	GND
OUT HI	Analog Channel HI
OUT LO	Analog Channel LO
ENABLE	Control Port or Excitation Ch.

4. MAKING MEASUREMENTS

The maximum and minimum signal inputs to the A5B40 are +100 mV and -100 mV respectively. The A5B40 applies a gain of 50 to these signal and outputs them to the datalogger as +5 V and -5 V respectively.

The control port connected to the enable terminal must be switched on prior to the Instruction making the measurement.

Measuring Millivolt Signals - Use the same instruction that you would normally use to measure the signal but remember to use an input range of 5000 mV and to apply a multiplier of 0.02 to convert to the true mV signal.

Measuring Thermocouples - Use Instruction 14 as usual, but be sure to insert the digit "8" in front of the thermocouple type code. For example, to measure a type T thermocouple, enter "81" for the type code (Parameter 4). With the preceding 8 in the code, the datalogger will automatically apply the multiplier of 0.02 to the signal before converting to degrees C.