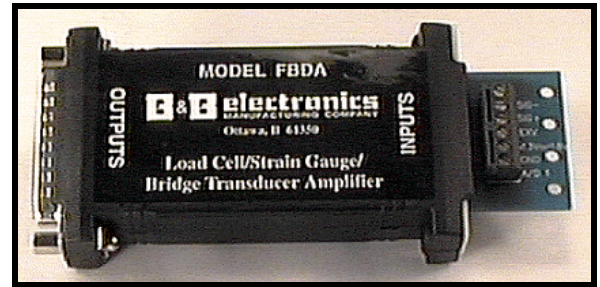


Strain Gauge/Load Cell/Bridge Amplifier Model FBDA



Description

The FBDA is a signal conditioning module that amplifies the signals from full-bridge transducer sensors. This module is used in conjunction with a data acquisition module to monitor the voltages produced by **Strain Gauges, Load Cells, Pressure Sensors**, and other **Full-Bridge Transducer Sensors**. The FBDA module has a number of gain settings to accommodate a wide variety of sensor output voltages. In addition, the FBDA has an adjustable excitation voltage that is required by transducer sensors. The FBDA is pin compatible with B&B Electronics' SDAXX, SPDA, and ADIO12 data acquisition modules.

Features

- Conditions **strain gauge, load cell, pressure sensor**, and other **Full-Bridge Transducer Sensor** signals.
- Gains of 25, 40, 80, and 220-1000.
- Variable excitation voltage (0.5VDC to 11VDC) available.
- 0 to 440mV Input Voltage Range.
- 0V to 11V Output Voltage Range.
- Pin compatible with B&B Electronics' SDAXX and ADIO12 modules.

Connections

The FBDA module requires two types of connections. The sensor, power supply and excitation voltage connections are made using terminal blocks. In order to read the voltage that the FBDA amplifies, an A/D converter is needed. An A/D converter is connected using a DB-25 (male) connector. This DB-25 (male) connector is pin compatible with most of B&B Electronics' data acquisition modules, so you can simply plug the two modules together and the A/D connections are complete. Table 1 shows the terminal block functions, and Table 2 contains the pin assignments for the DB-25 (male) connector.

Table 1: Terminal Block Assignments

Terminal Block Name	Function	I/O
SIG+	Positive Signal Lead	Input
SIG-	Negative Signal Lead	Input
EXV	Variable Excitation Voltage	Output
A/D 1	A/D Converter channel	Input
+13V	Power Supply Connection	Input
GND	Power Supply Connection	Input

NOTE: A/D 1 is connected straight through to DB-25 pin #9. Voltages between 0 and 5VDC can be read with an A/D converter using this terminal block (useful for calibrating the excitation voltage). No signal conditioning circuitry is used on this A/D channel. It is connected directly to the data acquisition module.

Table 2: DB-25 (Male) Connector Pin Assignments

DB-25 Pin #	Function	DB-25 Pin #	Function
1	GND	14	-----
2	-----	15	-----
3	-----	16	-----
4	-----	17	Connected to 18
5	-----	18	Connected to 17
6	-----	19	GND
7	GND	20	-----
8	Vout	21	-----
9	A/D 1	22	-----
10	-----	23	-----
11	-----	24	-----
12	-----	25	-----
13	-----		

1. ----- denotes no connection.
2. The conditioned sensor signal is available on DB-25 Pin # 8 and is labeled Vout.
3. DB-25 Pin # 9 is connected straight through to Terminal Block A/D 1. This provides access to a second A/D channel. No signal conditioning circuitry is used on this A/D channel.
4. DB-25 Pins 17 and 18 are internally loop to each other in the FBDA module to provide +5V to REF+ in the SDAXX line of data acquisition modules.
5. DB-25 Pin # 19 provides 0V to REF- in the SDAXX line of data acquisition modules.

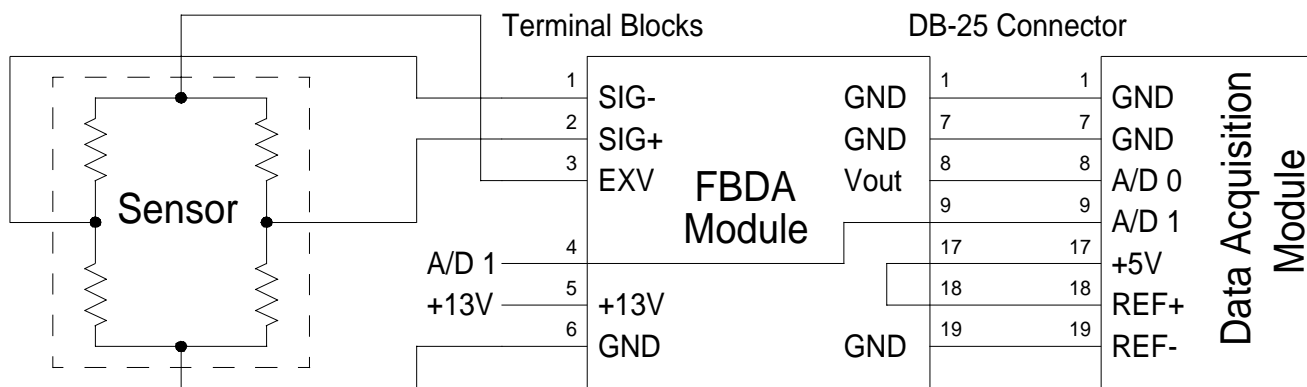


Figure 1: Required Connections for FBDA

Specifications

- Size: .8 x 2.2 x 0.9"
- Maximum Input Voltage: 440mV (using gain = 25)
- Output Voltage Range: 0.003V to 11VDC
- Gain Selections: 25, 40, 80, 220-1000
- Maximum Gain Error: 5% of gain setting max. (depends on calibration)
- Excitation Voltage: 0.5 to 11VDC
- Input Offset Voltage: 150µV maximum
- Input Offset Voltage Drift: 1.5µV/ °C
- Operating Temp. Range: 0°C to 70°C
- Power Requirements: 13 to 18VDC @ 10mA (does not include current draw from Excitation Voltage)

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Phone: (815) 433-5100
Office Fax: (815) 433-5105
Tech Fax: (815) 433-5104
Sales Fax: (815) 433-5109



Home Page: www.bb-elec.com
E-mail: orders@bb-elec.com
support@bb-elec.com
catrqst@bb-elec.com