

LabJack

Published on *LabJack* (<https://labjack.com>)

[Home](#) > [Support](#) > [Datasheets](#) > [Accessories](#) > EI-1040

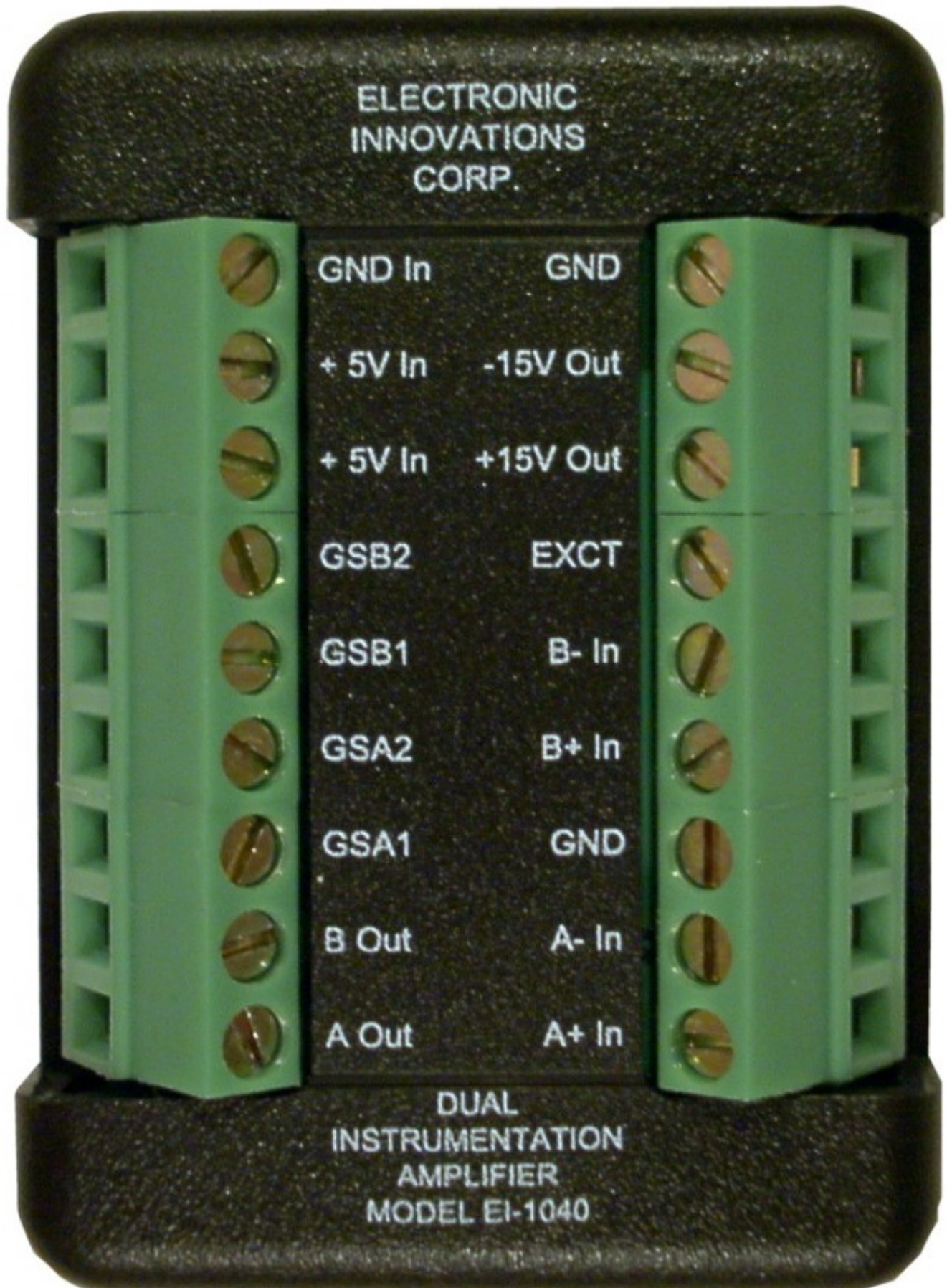
EI-1040 Datasheet

[Log in](#) or [register](#) to post comments

[EI1040 Dual Instrumentation Amplifier](#)

Stock: In Stock

Price: \$126.00



[Click here to order!](#)

Description

Description

The EI-1040 is a dual programmable gain instrumentation amplifier with a precision reference output for bridge excitation. Gains are digitally selected at values of 1, 10, 100, and 1000. Four TTL or CMOS- compatible address lines individually select the amplifier gains.

The EI-1040 is a common accessory for the LabJack U12. For the U3 or UE9 the LJTick-InAmp is more commonly used. The U6/T7 have an in-amp built-in, but if an external in-amp is needed the LJTick-InAmp is usually the best choice.

Applications of this device are for signal conditioning and amplification of low-level signals such as thermocouples and transducers. This device is also used in conditioning signals to be transmitted over a long distance to single ended receivers.

The EI-1040 requires +5 volts DC at a nominal 0.1 amp. An internal DC to DC converter supplies an output of +15 and -15 volts nominal. The EI-1040 consists of 2 Burr-Brown/TI PGA204 amplifiers and one DCP010515DPB DC to DC converter.

A 4.096 volt reference is provided for connection to a bridge or other device requiring excitation. The maximum allowable current draw from this source is 5 ma.

The EI-1040 can be attached to the LabJack by simply connecting the power and amplifier outputs to the LabJack. When connecting the EI-1040 to the LabJack, the LabJack should be powered down prior to making the connection. After the connection is made then the combination can be powered up.

The gain of the EI-1040 can be programmed by the LabJack by connecting the gain select inputs GSA1, GSA2, GSB1, and GSB2 to the LabJack digital outputs. The configuration for the gain select is shown below:

Gain	Terminal GSA1 or B1	Terminal GSA2 or B2
1	0	0
10	1	0
100	0	1
1000	1	1

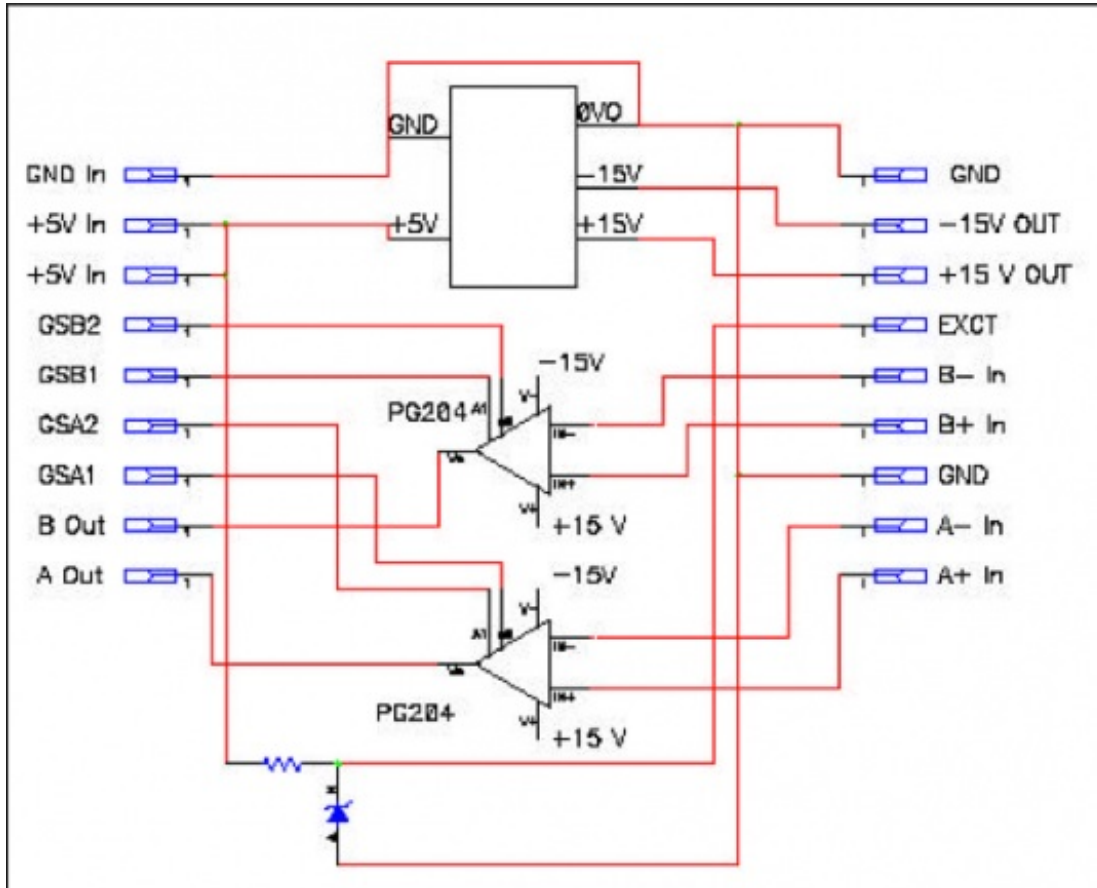
0 => -15 to +0.8 volts => **GND In**, GND, or a DIO set to output-low.

1 => +2 to +15 volts => **+5V In**, VS from LabJack, or a DIO set to output-high.

Example: To set channel B to a gain of x100, you can jumper GSB1 to GND In and jumper GSB2 to +5V In.

It should be noted that when the EI-1040/LabJack is powered from limited power sources such as notebook computers, bus-powered hubs, etc., there may not be enough current to supply both devices. A message from the computer should tell the user of this condition.

A functional block diagram of the EI-1040 is shown below.



The following table describes the function of the EI-1040 terminals:

Table 1. EI - 1040 terminal information

Label	Description	Label	Description
GND In	Power Source Ground	GND	Signal Ground
+5 In	5 Volt From Power Source	-15V Out	-15 Volt User at 8 mA*
+5 In	Spare 5 Volt Terminal	+15V Out	+15 Volt User at 8 mA*
GSB2	Gain State B2	EXCT	4.096 Volt for Excitation **
GSB1	Gain State B1	B- In	B Amp Minus Input
GSA2	Gain State A2	B+ In	B Amp Plus Input

Label	Description	Label	Description
B Out	B Amplifier Output	A- In	A Amp Minus Input
A Out	A Amplifier Output	A+ In	A Amp Plus Input

* Worst case current availability - actual current availability may be greater

** Current availability is 3 mA max

The instrumentation amplifiers used are Texas Instruments/ Burr Brown PGA204 parts. The specifications for these parts can be obtained on Internet at:

<http://www.ti.com/lit/ds/symlink/pga204.pdf>

Typical applications for this unit include: SIGNAL CONDITIONER, THERMOCOUPLE AMPLIFIER, STRAIN GAUGE AMPLIFIER, DATA ACQUISITION APPLICATIONS, SIGNAL FILTER, AUDIO AMPLIFIER, MICROPHONE AMPLIFIER

For Technical Support Contact:

ELECTRONIC INNOVATIONS CORP

3333 S. WADSWORTH BLVD. UNIT A104

LAKEWOOD CO 80227

Phone: 303-987-2441

Fax: 303-980-6581

Email: jk@designcircuit.com

Web: www.designcircuit.com

Declaration of Conformity

Manufacturers Name: LabJack Corporation

Manufacturers Address: 3232 S Vance St STE 200, Lakewood, CO 80227 USA

Declares that the product

Product Name: EI-1040

Model Number: EI1040

conforms to the following Product Specifications:

EMC Directive: 89/336/EEC

EN 55011 Class A

EN 61326-1: General Requirements

EN 61000-4-2: 1995

EN 61000-4-3: 1995

and is marked with CE.
