FUTEK
ADVANCED SENSOR TECHNOLOGY, INC.

Quick Start Guide

IAA300

Differential Strain Gauge Amplifier

Sensor Solutions Source
Load · Torque · Pressure · Multi-Axis · Calibration · Instruments · Software

www.futek.com

Getting Help

TECHNICAL SUPPORT

For more IAA300 support, please visit: http://www.futek.com/iaa/support.aspx

SP1177

10 Thomas, Irvine, CA 92618 USA
Tel: (949) 465-0900
Fax: (949) 465-0905

www.futek.com

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Logic Board Configuration

SW (1) Excitation

SW (2) Polarity

SW (3) Gain

SW (4) Bandwidth

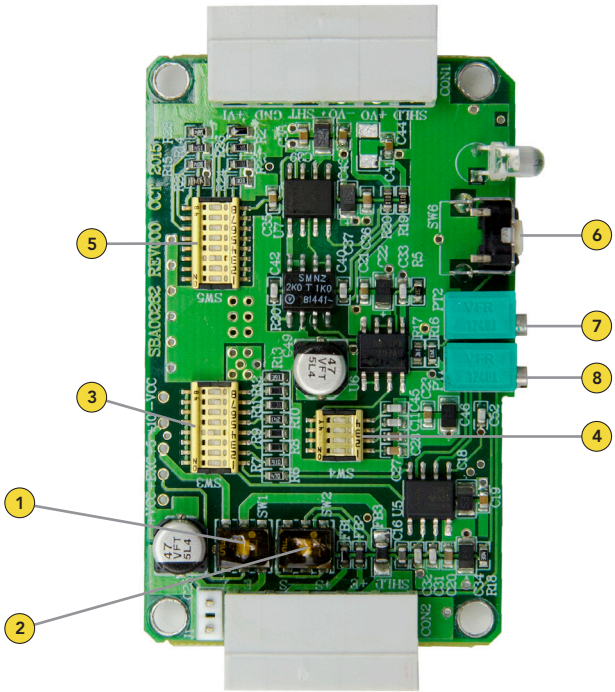
SW (5) Shunt Selection

SW (6) Shunt Button

SW (7) Span

SW (8) Zero

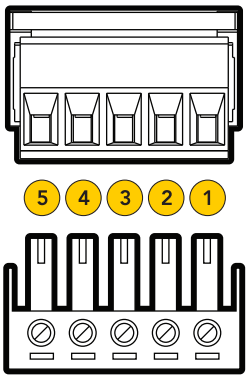
Note: Remove the magnetic cover to gain access to the logic board.



Sensor Side Connections

IMPORTANT NOTE: Do not connect the device to the power supply when the power supply is already on.

SENSOR SIDE	
PIN #	**WIRING CODE**
1	SHIELD
2	+ EXCITATION[1]
3	+ SIGNAL
4	– SIGNAL
5	– EXCITATION[1]

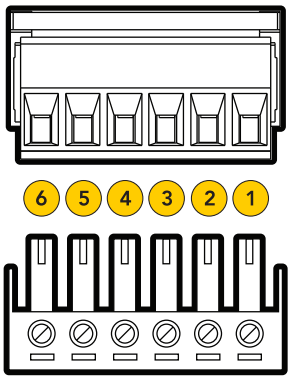


[1] For 6 wire sensors, connect +SENSE to +EXCITATION and –SENSE to –EXCITATION.
Note: Sensor cable shield connections should be grounded on one end, either the sensor side or the IAA sensor input side, to avoid potential ground loops.

Power Side Connections

IMPORTANT NOTE: Do not connect the device to the power supply when the power supply is already on.

POWER SIDE	
PIN #	**WIRING CODE**
1	+ Vin
2	Gnd
3	Shunt
4	+ Vout
5	– Vout
6	Shield



Power is 12.5VDC to 26VDC.

Note: Output is differential. Do not connect – Vout to ground. Cable shield should be grounded on one end, either the IAA power side or instrument side to avoid potential ground loops.

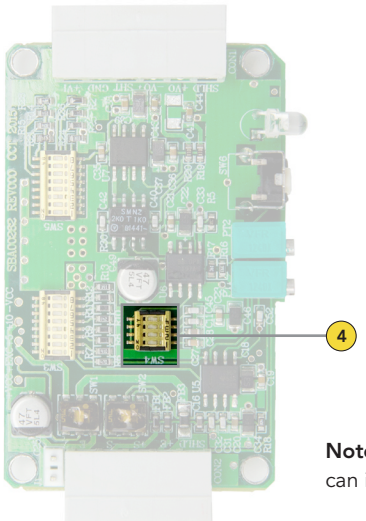
Bandwidth Setup

IMPORTANT NOTE: Do not connect the device to the power supply when the power supply is already on.

SW4 BANDWIDTH				
1	2	3	4	**BANDWIDTH (Hz)**
▲	▼	▼	▼	100
▼	▲	▼	▼	1,000
▼	▼	▲	▼	10,000[2]
▼	▼	▼	▲	25,000[3]
▼	▼	▼	▼	50,000[4]

SW4 can be used to set the bandwidth from 100 Hz to 50,000 Hz. Confirm the bandwidth is appropriate for your application.

[2] Only for sensitivity of 1.0 mV/V or greater
[3] Only for sensitivity of 1.5 mV/V or greater
[4] Only for sensitivity of 2.0 mV/V or greater



Note: Increasing the bandwidth can increase the overall noise.

Setup Steps

IMPORTANT NOTE: Do not connect the device to the power supply when the power supply is already on.

1. Set SW 1 down for 10 VDC excitation or up for 5 VDC excitation. By default the IAA amplifier is set to 10 VDC at FUTEK.
2. Set the gain DIP switch (SW3) to the appropriate gain level. By default the gain is set with switch 4 up for a 2 mV/V sensor. (*Use our online gain setting Excel sheets on the FUTEK support webpage to find the appropriate gain DIP switch setting for your sensor's mV/V output.)*
3. With the sensor and IAA amplifier completely connected apply the 12.5 to 26 VDC.
4. With no load on the sensor adjust the Zero potentiometer until the output is as close to 0 VDC as possible.
5. With a known load placed on the sensor adjust the Span potentiometer to as close to the appropriate output level as possible. For example, 10 VDC for a full load output.
6. Remove the load and reconfirm the zero load output, and then reapply the known load and re-confirm the span output.

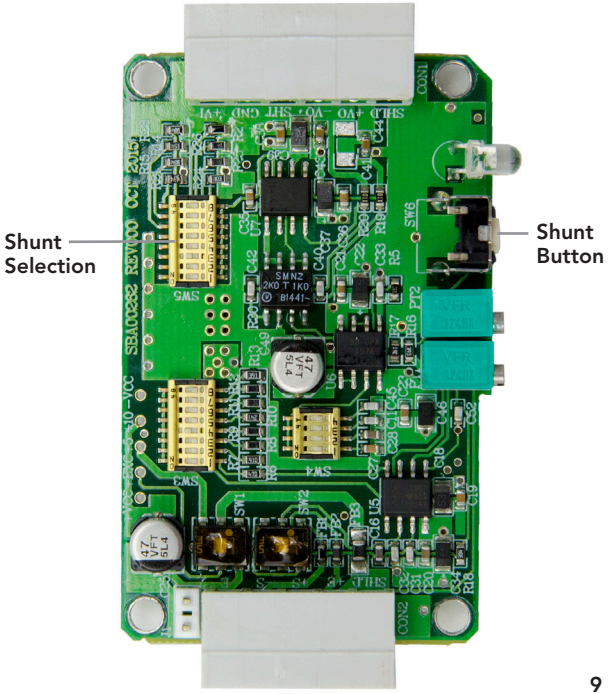
Note: Adjusting the Span will affect any system calibrations. Adjusting the zero will not.

FUTEK's online calibration tool allows you to retrieve a summary of your sensor's calibration data: **http://www.futek.com/calibrationData.aspx**

Calibrating using Shunt:

1. Hold down the Shunt button.
2. Adjust the Span of the IAA amplifier until the output correlates with the value chosen for the shunt.

A remote shunt is available on the power connection side, and can be activated with 5 to 26 VDC.



The online Shunt calculator on the FUTEK website can be used to calculate an estimated result from a shunt resistance, or to calculate a resistance needed for a certain sensor output value when shunted.
http://www.futek.com/shuntcalc.aspx

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