Manuals+ — User Manuals Simplified.

FUTEK IAA105 Digitally Configurable Analog Voltage Amplifier User Guide

Contents

FUTEK IAA105 Digitally Configurable Analog Voltage Amplifier

Product Information

Specifications

- Model: IAA105
- Manufacturer: Sensor Solutions Source
- Website: **www.futek.com**
- Power/Output Connections: USB-C

Layout

The product has a front view and a side view. The front view includes a 2 DIN Clip, the sensor side, the power/output side, the LED indicator, and the USB-C Power/Communication port. The side view shows the sensor wiring and the power/output wiring.

Sensor Wiring

The sensor side of the product has a PIN layout for wiring:

PIN	WIRING CODE	PIN FUNCTIONALITY
3	+S	+ Signal

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/Output Wiring

The power/output side of the product has a PIN layout for wiring:

PIN	WIRING CODE	PIN FUNCTIONALITY	COLOR
1	CHASSIS Shield	Orange	
2	VIN	Power Supply	Red
3	GND	Power Ground	Black
4	GND	Output Ground	Blue
5	VOUT	Output Signal	Green

Note: For Sensors with Shield, use Pin 1 (Chassis) of 'Power/Output Connections' for Shield Connection.

LED Indication

The product has LED indicators for different functionalities:

- Solid Green LED: Normal operation mode
- Blinking Red LED: Fault condition detected
- Blinking when advertising and solid when paired/connected
- **Note:** The device will continue advertising upon startup and it automatically shuts off if not paired within 3 minutes. Power cycle to restart.

Product Usage Instructions

Step 1: Layout Setup

1. Attach the product using the 2 DIN Clip to the desired location.
2. Ensure proper sensor wiring by connecting the sensor cable to the sensor side of the product.
3. Connect the power supply and output device to the power/output side of the product using the specified pin wiring.
4. Make sure the USB-C Power/Communication port is accessible for power and communication purposes.

Step 2: Power On and Calibration

1. Power on the product by supplying the required power to the VIN pin.
2. Observe the LED indicator. A solid green LED indicates normal operation mode.
3. If a fault condition is detected (blinking red LED), refer to the troubleshooting section in the user manual or contact technical support.
4. To calibrate the product, access the settings menu by pressing the corresponding button(s) on the front side of the product.
5. Choose between automatic or manual calibration mode based on your requirements.
6. Enter the necessary information such as sensitivity, max excitation, offset, and span values. Refer to the user manual for guidance on these values.
7. Save the calibration settings and exit the settings menu.

FAQ

Q: Where can I find technical support for the IAA105?
A: For technical support, please visit **http://www.futek.com/iaa/support.aspx**.

Q: Can I modify the design and specifications of the product?
A: FUTEK reserves the right to modify its design and specifications without notice. For complete terms and conditions, please visit **http://www.futek.com/salesterms**.

Q: What are the LED indications on the product?
A: The product has a solid green LED for normal operation mode, a blinking red LED for a fault condition, and a blinking LED when advertising and solid when paired/connected.

Q: How long does the device advertise upon startup?
A: The device will continue advertising upon startup, but it automatically shuts off if not paired within 3 minutes. Power cycle the device to restart the advertising process.

Q: How can I restore the device from a factory-calibrated profile?
A: To restore the device from a factory-calibrated profile, use the "Restore Backup" option in the settings menu. This enables restoration from a Factory (mV/V) or system-calibrated profile.

Getting Help

TECHNICAL SUPPORT
For more IAA105 support, please visit: **http://www.futek.com/iaa/support.aspx**

SM1004
FUTEK reserves the right to modify its design and specifications without notice.
Please visit **http://www.futek.com/salesterms** for complete terms and conditions.

10 Thomas, Irvine, CA 92618 USA
futek@futek.com
www.futek.com


Layout

Front View　　　**Side View**
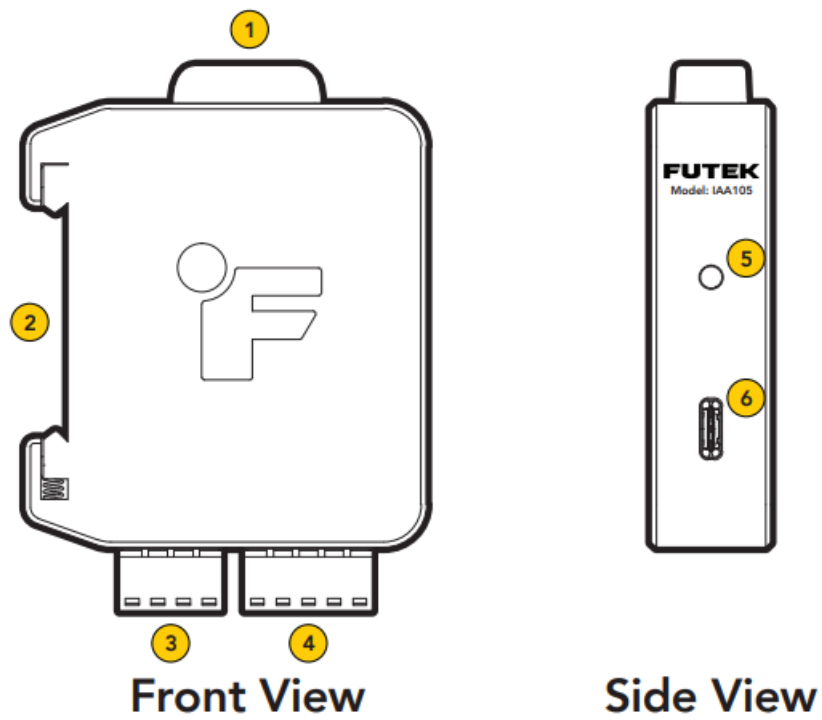
1. Module with integrated Bluetooth® wireless technology
2. DIN Clip
3. Sensor Side
4. Power/Output Side
5. LED Indicator
6. USB-C Power/Communication

Sensor Wiring

SENSOR SIDE (item #GOD04252)		
PIN	WIRING CODE	PIN FUNCTIONALITY
1	+ E	+ Excitation
2	– S	– Signal
3	+ S	+ Signal
4	– E	– Excitation

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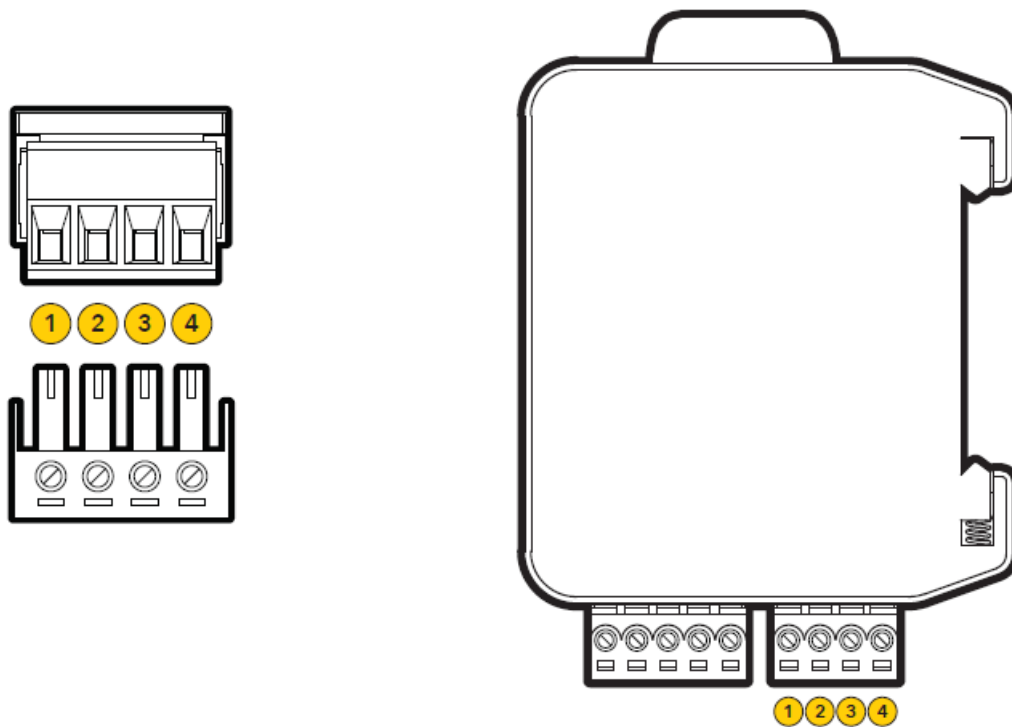
Sensor cable shield connections should be grounded on one end, either the sensor side or the IAA sensor input side, to avoid potential ground loops.

Power/Output Wiring

POWER/OUTPUT (item #GOD04253)			
PIN	WIRING CODE	PIN FUNCTIONALITY	COLOR
1	CHASSIS	Shield	Orange
2	VIN	Power Supply	Red
3	GND	Power Ground	Black
4	GND	Output Ground	Blue
5	VOUT	Output Signal	Green

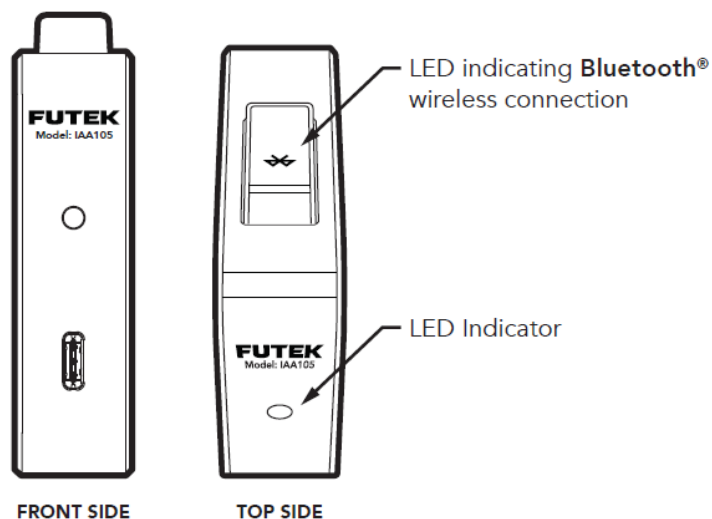**Note:** For Sensors with Shield, use Pin 1 (Chassis) of 'Power/Output Connections' for Shield Connection.

For information on effective chassis techniques, please visit: **www.futek.com/support**
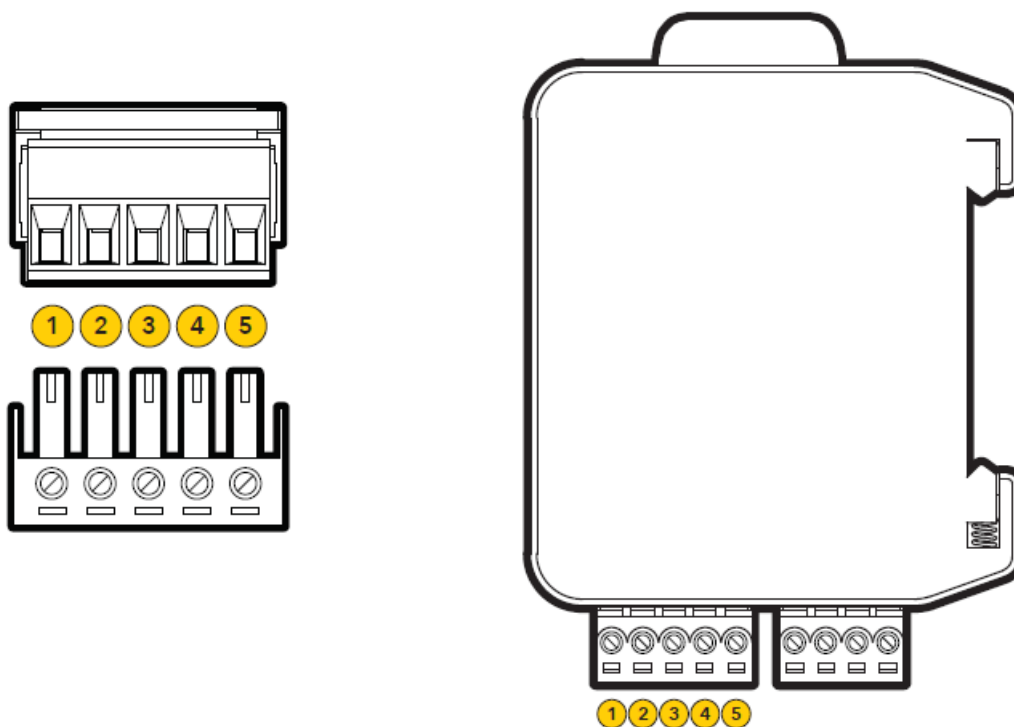
Power:

- 5 VDC to 30 VDC or USB Powered
- Power Consumption: 1.2 W (max) (Instrument Only)
- Inrush Current: 400 mA (max)

LED Indication

FRONT SIDE   TOP SIDE

LED INDICATORS	
Color	**Functionality**
Solid Green LED	Normal operation mode
Blinking Red LED	Fault condition detected
Green LED indicating **Bluetooth®** wireless communication status	Blinking when advertising and solid when paired/connected

Note: The device will continue advertising upon startup and it automatically shuts off if not paired within 3 minutes. Power cycle to restart.

A fault condition (Open/Short Circuit and/or Temperature Out of Operating Range) is indicated by a blinking red LED.

SENSIT® Lite App
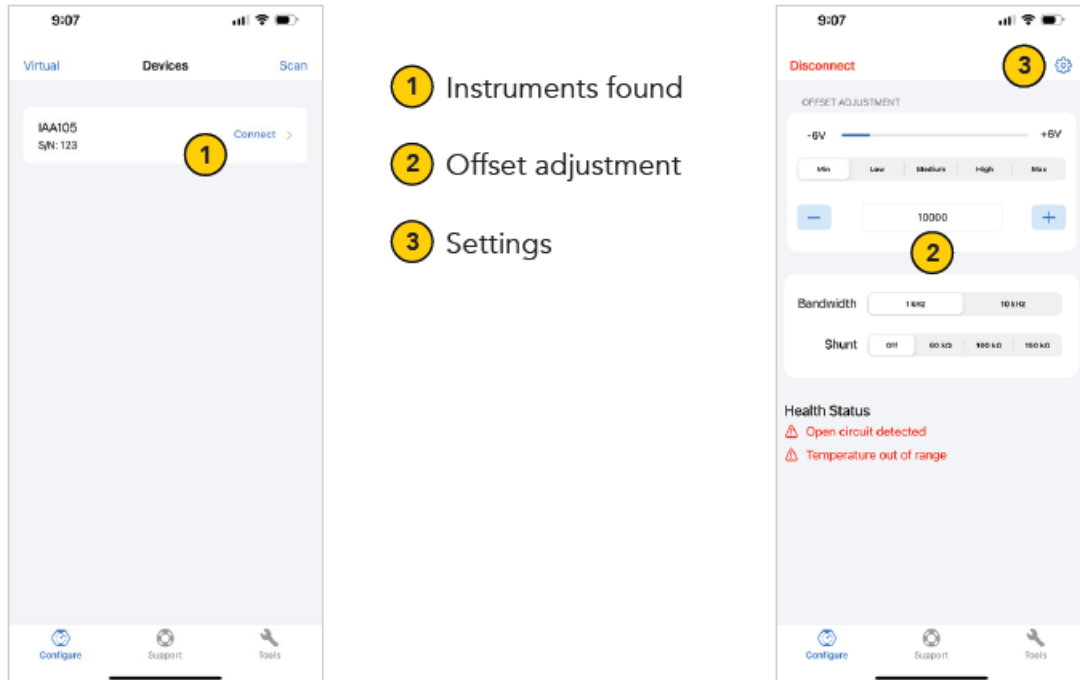
1. Instruments found
2. Offset adjustment
3. Settings

Health Status Notes:

- Open circuit detected / Short circuit detected – Possible open between ± excitation wires.
- Temperature out of range –

The amplifier is monitoring temperatures that are at or above the specified operating temperature as listed on the amplifier spec sheet.

- A zero offset adjustment can be made to account for any fixtures and will not affect the calibrated span.
- The output of the IAA105 must be monitored while adjusting.

SENSIT® Lite App
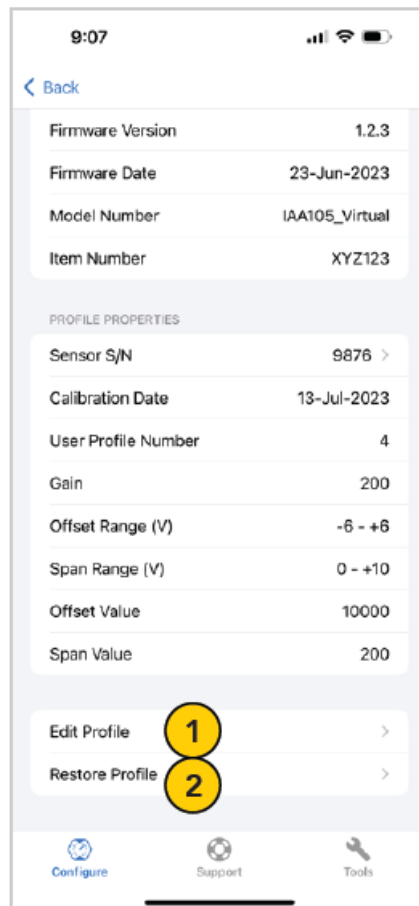
1. Edit Profile:

   Allows adjustments to an exisiting profile or creates a new profile.

2. Restore Backup:

   Enables restoration from a Factory (mV/V) orsystem-calibrated profile.

   - Should the sensor and amplifier be calibrated as a system at FUTEK,adjustments to the calibration profile is not required.
   - A system calibration can be started on the FUTEK website at:
     https://www.futek.com/recalibrationterms

SENSIT® Lite App—Profile Setup
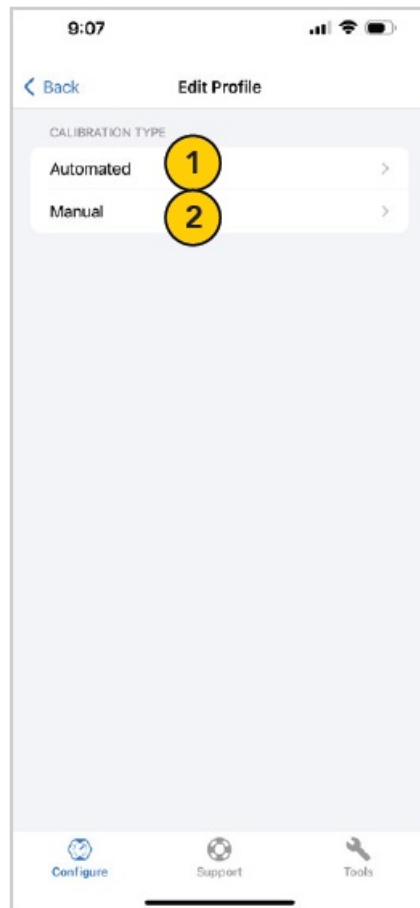
1. Automatic:

    Allows a profile to be setup by typing in basic sensor and desired output information.

2. Manual:

    Allows further custom adjustments of calibration settings.

SENSIT® Lite App—Automatic Profile Setup

1. Sensitivity (mV/V):

    Enter the sensor's mV/V rated output for when the sensor is fully loaded.

2. Max Excitation (V):

    Enter max excitation to be supplied to the sensor.

3. Offset (V):

    Enter the desired zero output level. Typically, 0 V.

4. Span (V):

    Enter the desired amount of voltage change from Offset (V).
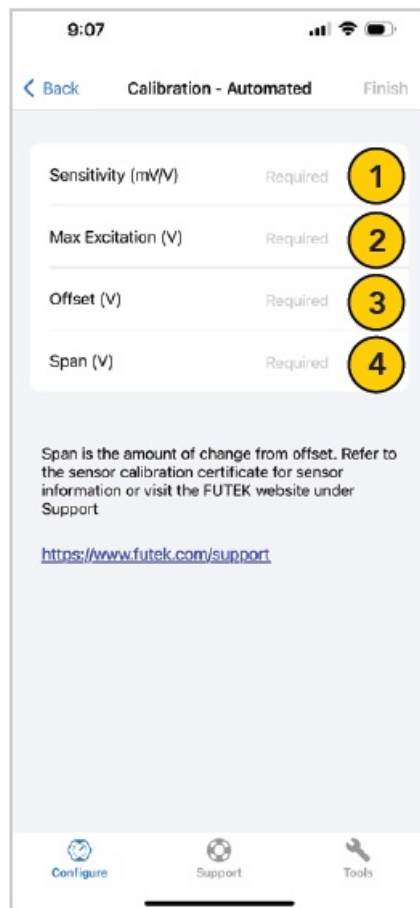
- The calibration certificate lists the rated output of the sensor.
- The sensor spec sheet will list the max voltage recommended for a sensor.

SENSIT® Lite App—Manual Profile Setup

1. Gain:

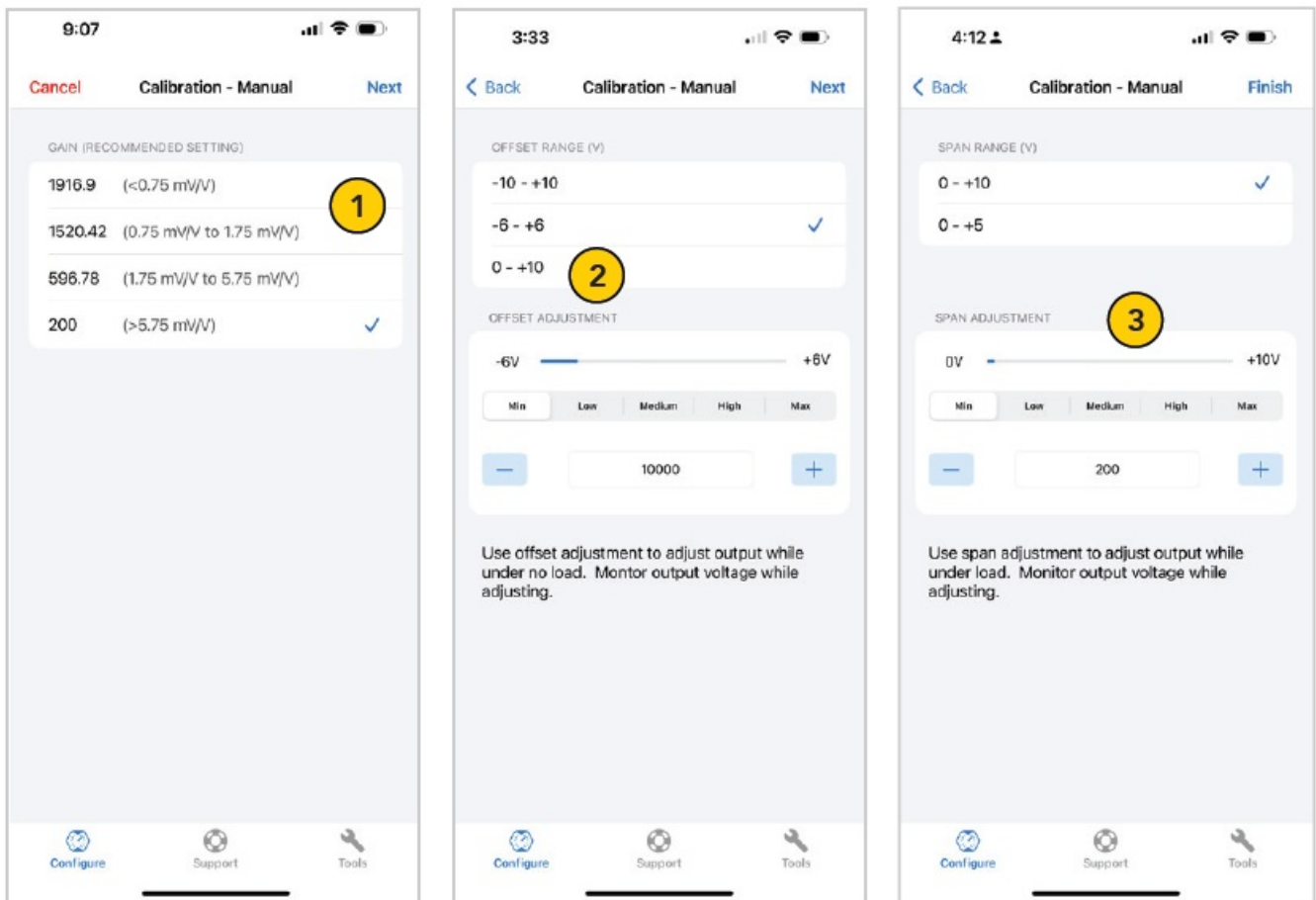   Gain is listed by recommended sensor mV/V rated output range.
2. Offset Range:

   Offset range determines the range the offset adjustment will be made over.
3. Span:

   Span range determines the range the span adjustment will be made over.

- The calibration certificate lists the rated output of the sensor.
- The sensor spec sheet will list the max voltage recommended for a sensor.
- The output of the IAA105 must be monitored while adjusting.

10 Thomas, Irvine, CA 92618 USA **futek@futek.com**
www.futek.com

Documents / Resources

FUTEK Quick Start Guide IAA105 Digitally Configurable Analog Amplifier With SENSIT Lite App	**FUTEK IAA105 Digitally Configurable Analog Voltage Amplifier** [pdf] User Guide IAA105 Digitally Configurable Analog Voltage Amplifier, IAA105, Digitally Configurable Analog Voltage Amplifier, Configurable Analog Voltage Amplifier, Analog Voltage Amplifier, Voltage Amplifier

References

- **Load Cell | Torque Sensors | Force Measurement Solutions | FUTEK**
- **Support**
- **Support**
- **Home - FUTEK Advanced Sensor Technology**
- **User Manual**