

# IDA100

## Digitally-Configurable Amplifier with USB and Analog Output

Sensor Solutions Source

Load · Torque · Pressure · Multi-Axis · Calibration · Instruments · Software

[www.futek.com](http://www.futek.com)

# Getting Help

## TECHNICAL SUPPORT

For more IDA100 support, please visit: <http://www.futek.com/ida/overview.aspx>



---

### SP1179-C

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**

Tel: (949) 465-0900

Fax: (949) 465-0905

**www.futek.com**

# Table of Contents

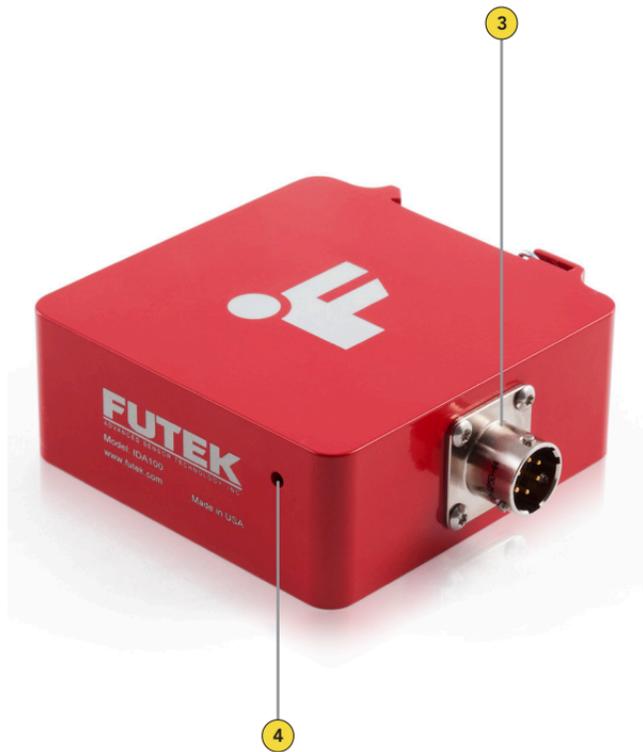
Instrument Features . . . . .	4	SENSIT Scale Method . . . . .	10
Connections . . . . .	6	SENSIT Analog Output Calibration . . . . .	12
Typical Connection Setups. . . . .	7	Shunt Adjustment and Zero Adjustment. . . . .	15
SENSIT™ Test and Measurement Software . . . . .	9	Related Accessories . . . . .	17

# Instrument Features

- USB 2.0 Communication Link
- USB Bus-Powered (5V)
- Bipolar software selectable  $\pm 5$  VDC or  $\pm 10$  VDC Output
- Operating Temperature:  $-13^{\circ}\text{F}$  to  $185^{\circ}\text{F}$  [ $-25^{\circ}\text{C}$  to  $85^{\circ}\text{C}$ ]
- Storage Temperature:  $-40^{\circ}\text{F}$  to  $257^{\circ}\text{F}$  [ $-40^{\circ}\text{C}$  to  $125^{\circ}\text{C}$ ]

- ① **USB Side:** USB 2.0 Type B Receptacle
- ② **Integrated DIN clip** for 35 mm rail
- ③ **Sensor/Output Side:** 6-pin box-mounted PT02E-10-6P
- ④ **LED Indicators:** See table on page 5





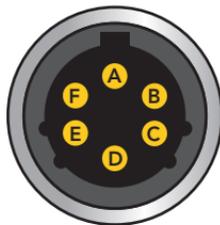
### LED INDICATORS

Blinking blue (10 Hz)	Module Auto-Calibration
Blinking blue (1 Hz)	Module Normal Operation
Green	USB Power
Red	USB Data Link

# Connections

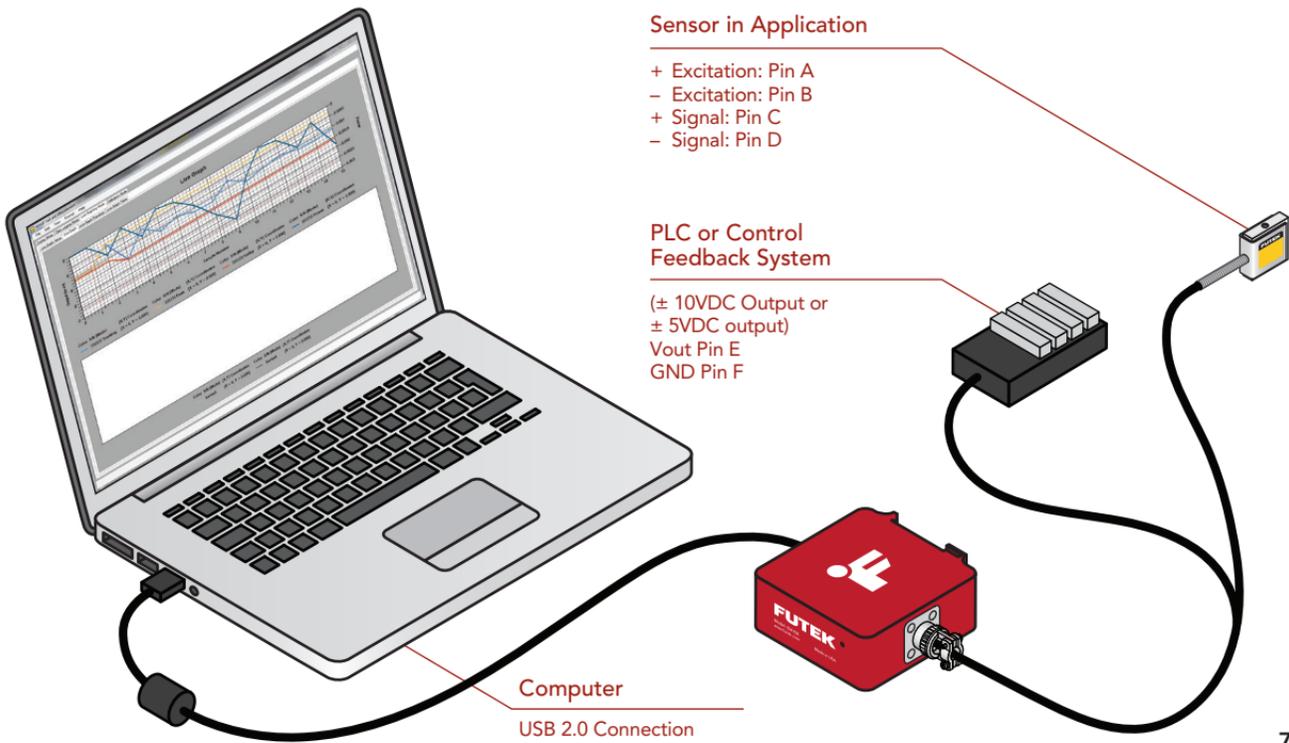
## 6-PIN BENDIX PT02E-10-6P

PIN	COLOR	DESCRIPTION
A		+ Excitation
B		- Excitation
C		+ Signal
D		- Signal
E	Green	Voltage Output
F	Black	Ground/Shield

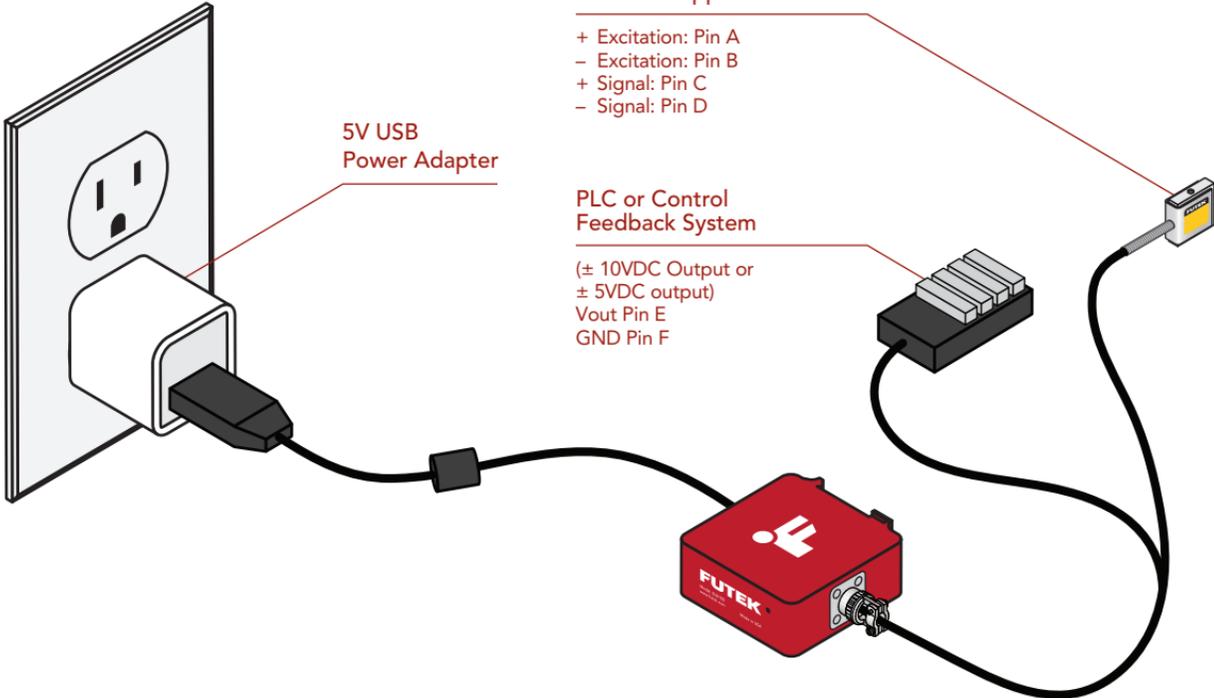


**Note:** Cable shield should be grounded on one end, either the sensor/instrument side or IDA100 side to avoid potential ground loops.

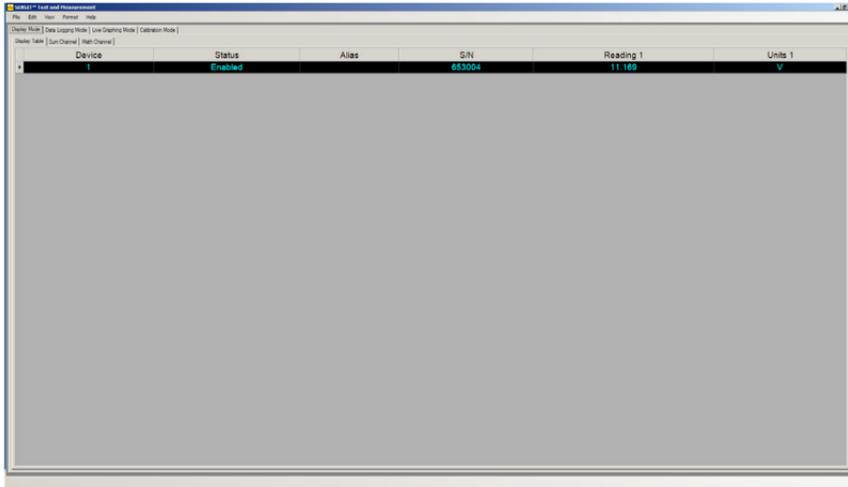
# Typical Connection Setups



# Typical Connection Setups



# SENSIT™ Test and Measurement Software



The screenshot shows the SENSIT™ Test and Measurement software interface. At the top, there is a menu bar with options: File, Edit, View, Format, Help. Below the menu bar, there are several tabs: Device Mode, Data Logging Mode, Live Graphing Mode, Calibration Mode. The main area displays a table with the following columns: Device, Status, Alias, S/N, Reading 1, and Units 1. The table contains one row of data:

Device	Status	Alias	S/N	Reading 1	Units 1
1	Enabled		653004	11.160	V

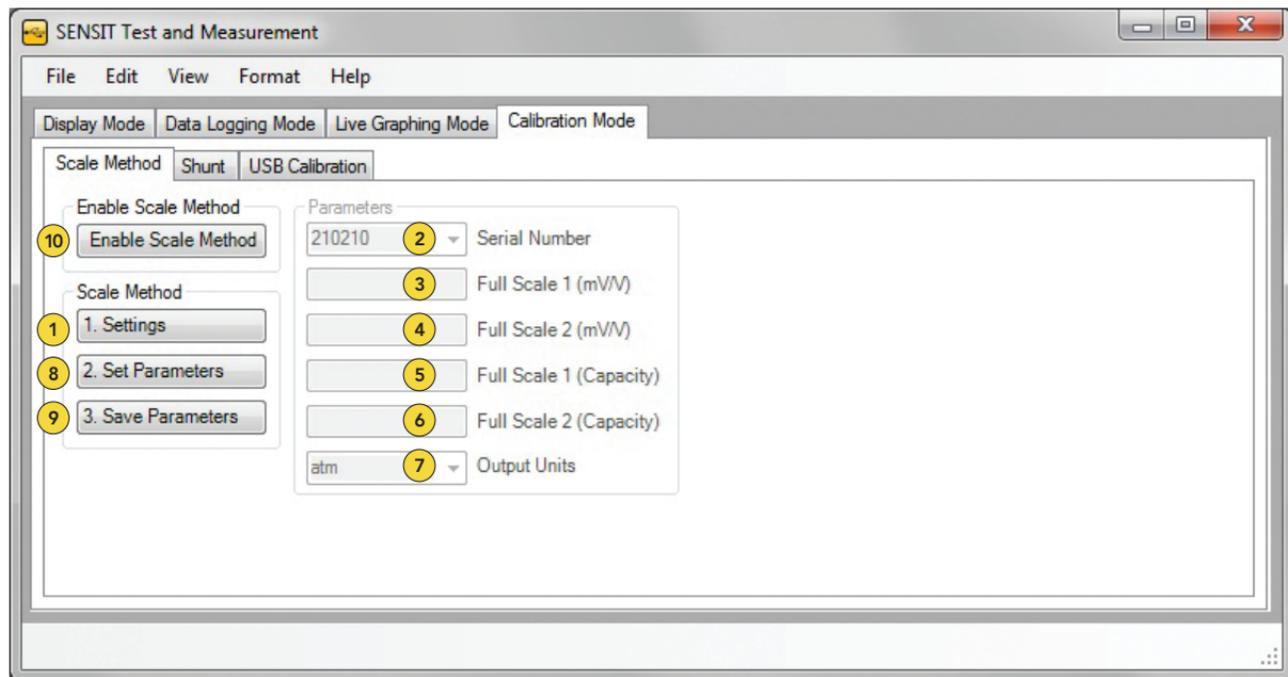
The default reading in SENSIT is the analog output voltage.

Through the use of the Scale Method, under Calibration Mode, the voltage readings can be scaled to a sensor capacity and display in an engineering unit, such as grams.

Within SENSIT the IDA100 can be used with the Data Logging Mode and Live Graphing Mode.

Right clicking on the device line will allow for additional settings, such as sampling rate.

# SENSIT Scale Method



**i** Scale Method can be used to scale a V calibrated USB device into an engineering unit.

- 1 Press Settings to enter in values.
- 2 Choose the correct serial number from the drop down list.
- 3 Enter in the positive V of your load cell. No sign is needed.  
(Enter same as negative V if not available).
- 4 Enter in the negative V of your load cell. No Sign is needed.  
(Enter same as positive V if not available).
- 5 Enter in the positive direction engineering amount for full capacity.  
No sign is needed.
- 6 Enter in the negative direction engineering amount for full capacity.  
No sign is needed.
- 7 Select the desired engineering unit from the drop down menu.
- 8 Set the entered parameters.
- 9 Save the entered parameters.
- 10 Enable the Scale Method for the selected serial number.

## TIPS ON SCALE METHOD

A SENSIT calibration and setup video can be found online at: <http://www.futek.com/sensit/videos.aspx>

An online calibration database containing a summary of the sensor's calibration can be found at: <http://www.futek.com/calibrationData.aspx>

There can be only one profile set for each serial number.

The Scale method information is stored locally onto the computer. A new Scale method will need to be done when USB is used on another computer.

# SENSIT Analog Output Calibration

Display Mode | Data Logging Mode | Live Graphing Mode | Calibration Mode

Scale Method | Shunt | IDA Calibration

**2** Sensor

Excitation: 10 VDC

Output: 1.9860 mV/V

Shunt: 30.0k Ohms

**3** Amplifier Output

Voltage ±10 VDC

Offset: 0 VDC

Current 4 - 20 mA

Offset: 4 mA

Direction: Negative

Asymmetric Compensation

Amplifier Input

Source: Sensor

Polarity: Straight

**1** Configure Apply

**5** Automatic Calibration

1. Offset w/ Fixturing Calibrate

2. Span 1 w/ Fixturing Calibrate

3. Span 2 w/ Fixturing Calibrate

4. Offset w/o Fixturing Calibrate

**6** Manual Adjustment

Offset:

Small +

Medium

Large -

Huge

Once steps 1 through 6 are complete the IDA100 Analog Output is calibrated and ready for use. The self calibration and adjustments are saved automatically.

**i** Known loads will be needed to calibrate IDA100 Analog Output. See page 14 for an illustration.



FUTEK offers traceable system calibration services and can pair your sensor with the IDA100 for a plug and play type of usage. For more information visit the FUTEK calibration web page at: <http://www.futek.com/calibration-services.aspx>

1 Click the Configure button to allow changes to calibration parameters.

### 2 Sensor

- **Excitation:** Choose 10VDC or 5VDC.
- **Output:** Enter the sensor's sensitivity, (mV/V), that will be mapped to the Voltage output. The full capacity mV/V can be found on the calibration certificate, or a nominal output on the sensor spec sheet.

### 3 Amplifier Output

- **Voltage:** Choose  $\pm 5$ VDC or  $\pm 10$ VDC
- **Direction:** Specify the initial output polarity.
- **Asymmetric Compensation:** Select this if both a positive and negative calibration will be performed.

4 Click the Apply button to set the parameters.

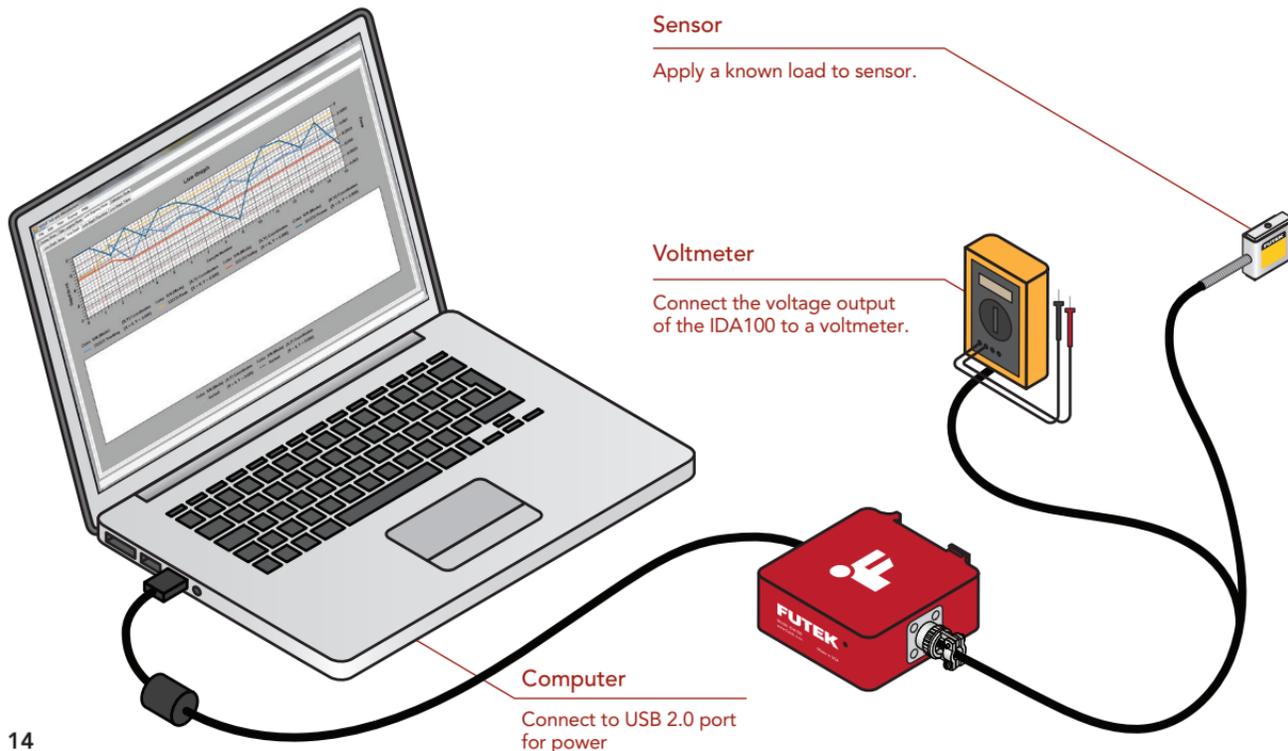
### 5 Automatic Calibration

- **Offset w/ Fixturing:** With only the fixture on the sensor click the Calibrate button to have the IDA100 self calibrate the zero.
- **Span 1 & 2 w/Fixturing:** and click the Calibrate button to have the IDA100 self calibrate the output. **Note:** Span 1 is for positive outputs and Span 2 is for negative outputs.
- **Offset w/o Fixturing:** Remove all loads and fixture from sensor and click the Calibrate button to have the IDA100 self calibrate the zero without the fixture.

### 6 Manual Adjustment

A small, medium, large, and huge positive or negative adjustment can be made to the IDA100 self calibration output performed in step 5. The adjustments will be applied to the current Automatic Calibration that has been activated through the Calibrate button.

# SENSIT Analog Output Calibration



# Shunt Adjustment and Zero Adjustment

Display Mode | Data Logging Mode | Live Graphing Mode | Calibration Mode

Scale Method | Shunt | IDA Shunt | IDA Calibration

**Warning: Adjustments made in this form directly affect the calibration settings of the device.**

### Calculation

1  Shunt Output  Extrapolated Output

Shunt Variables

2 Rated Output  mV/V

3 Bridge Resistance  Ohms

4 Excitation  Volts

5 Analog Output  Volts

6 Shunt Resistance  
  Ohms

Shunt Output

### Adjustment

7 Internal Shunt Disabled

Device SN#

Adjustment Area

8  Zero Adjustment  Span Adjustment

Adjustment Method

9  Automatic Adjustment  Manual Adjustment

Increment/Decrement

10  Small  Large  Medium  Huge

11

Current Output Reading

- 1 Choose to adjust IDA100 from a calculated Shunt Output or Extrapolated Output based on shunt results from a calibration.
- 2 Enter sensor's full mV/V output.
- 3 Enter sensor output bridge resistance.
- 4 Choose 10V or 5V excitation to sensor.
- 5 Choose IDA100 full load output of ±5VDC or ±10VDC.
- 6 Choose if internal 150K ohm resistor will be used or a chosen external resistor will be used.

- 7 Active Shunt to apply internal 150K ohm shunt.
- 8 Choose to adjust zero, no load output, or Span, output under load.
- 9 Choose to make an automated or manual adjustment to zero or span adjustments.
- 10 Incremental adjustments are available on a manual adjustment.
- 11 Click to activate auto adjust of selected zero or span.

## TIPS ON SHUNT AND ZERO ADJUSTMENT

The calculation side will provide calculated shunt results from the provided parameters.

**All adjustments made are live adjustments and do not need to be saved.**

Zero adjustments cannot be made while Shunt is active.

Span adjustments can be made from an active shunt or from an applied load on connected sensor.

Information for the calculation can be found on the sensor's calibration certificate.

Sensor should be connected for all adjustments.

## Related Accessories



**USB 2.0 HI-SPEED A/B CABLE  
(INCLUDED) WITH FERRITE CHOKES**  
Item Number: GOD04123



**6-PIN BENDIX MATING CONNECTOR  
(INCLUDED)**  
Item Number: GOD00046

10 Thomas, Irvine, CA 92618 USA

Tel: (949) 465-0900

Fax: (949) 465-0905

[www.futek.com](http://www.futek.com)

RoHS



U.S. Manufacturer