



IAC200

1-4 Channel Summing Junction Box

Drawing Number: EM1067-B

Sensor Solutions Source

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

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Getting Help

TECHNICAL SUPPORT

For more IAC200 support, please visit: <https://www.futek.com/summing-junction-box>

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RoHS



U.S. Manufacturer

Setup Guide

The setup steps on the following pages involve placing a known load on each sensor and adjusting the output down so each sensor has the same output under the same load.

The result of the setup will be a summed signal of all connected sensors with the electrical output at the lowest sensor adjusted down to and will reach its full electrical output change when all sensors are fully loaded.

For example, four 444.8 N sensors are adjusted to have the same 1.98 mV/V when 444.8 N is applied. The final summed output will be 1.98 mV/V at 1779.2 N (444.8 N on each sensor).

For amplified versions, voltage, or current, an extra step will be needed to set up the amplifier using the final summed signal that will go into the amplifier. In the above example, it would mean setting up an amplifier to a sensor with 1.98 mV/V output at its fully loaded 1779.2 N capacity.

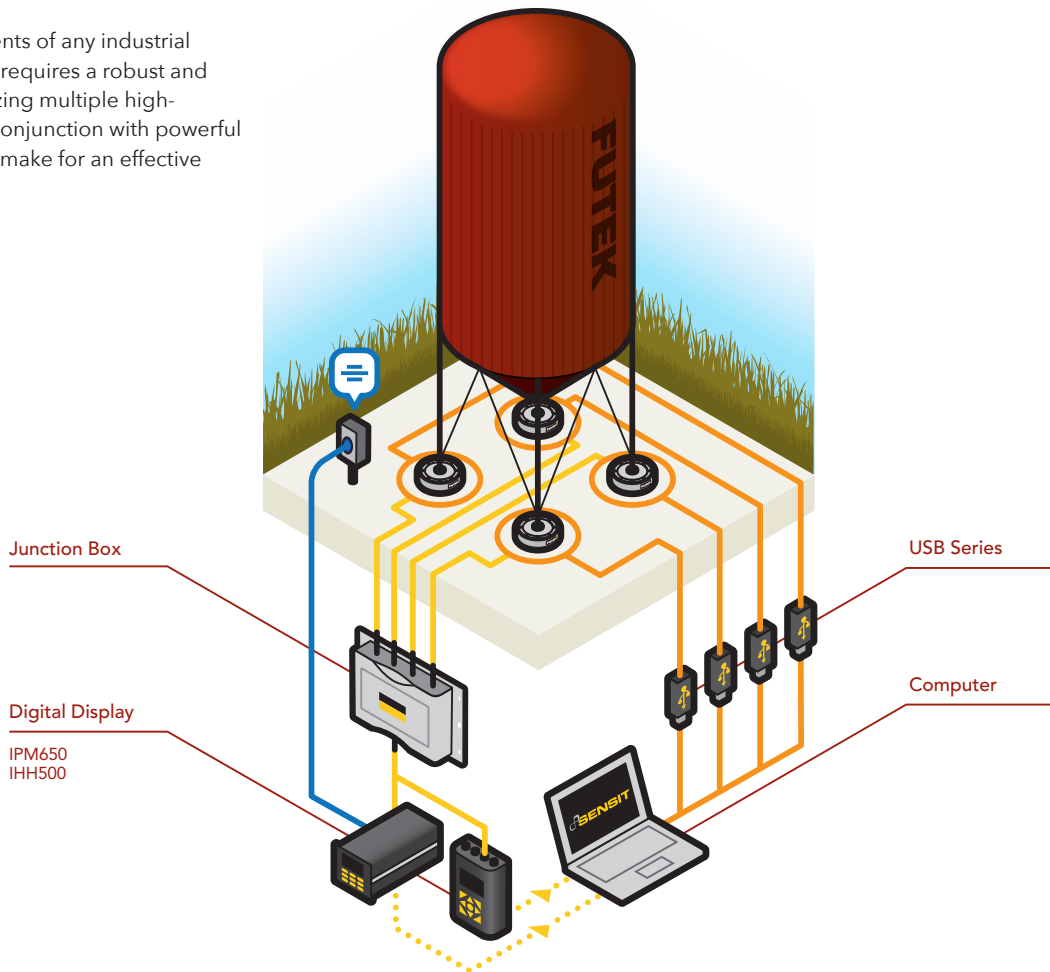
SETUP TIPS

A system calibration at FUTEK will help save time, confusion, and potential damage by providing a plug-and-play experience with certification. Standard NIST and A2LA calibration requests are started online at: <https://www.futek.com/recalibrationterms>

Solutions are available at FUTEK to connect your IAC200 to the computer or an instrument with a readout. View FUTEK instruments at: <https://www.futek.com/store/instruments>

The **spec sheet for the IAC200** contains the wiring, DIP switch locations, and power level information.

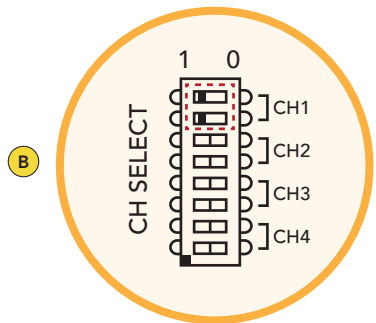
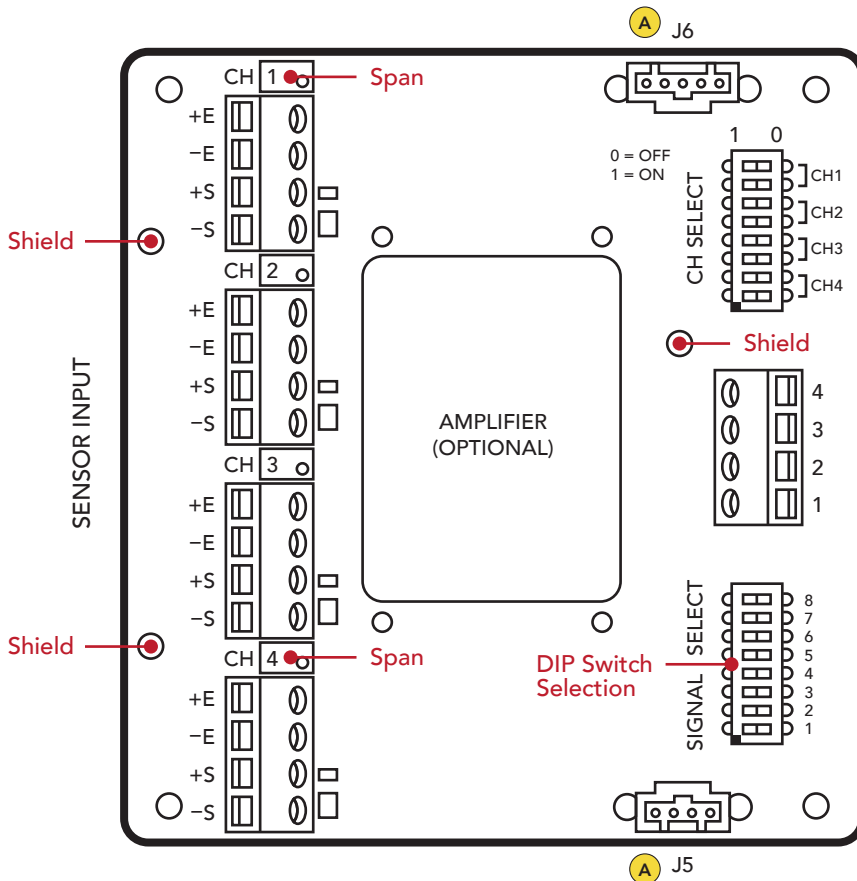
Measuring the contents of any industrial tank, silo, or hopper requires a robust and precise system. Utilizing multiple high-capacity sensors in conjunction with powerful instrumentation can make for an effective platform.



Configuration

Remove bottom cover of IAC200 to gain access to the IAC200 board. Connections to the IAC200 board from sensors and IAC200 output are routed to the board through black passthrough connections.

- A** If present, for amplified IAC200, disconnect the ribbon cable from the center amplifier to the IAC200 board on connection J6. (Applies to [FSH04736](#) Voltage output and [FSH04737](#) Current output versions.)
- B** Enable one sensor channel at a time by placing both DIP switches to the ON position for the channel and the rest in the OFF position. As each sensor is adjusted its channel will need to be turned on and the prior channel turned off.
- C** Set the output of the IAC200 for S (mV/V) for direct sensor passthrough. It will later be necessary to reconfigure the signal select to V (VDC) for [FSH04736](#) amplified voltage version and I (mA) for [FSH04737](#) amplified current version.



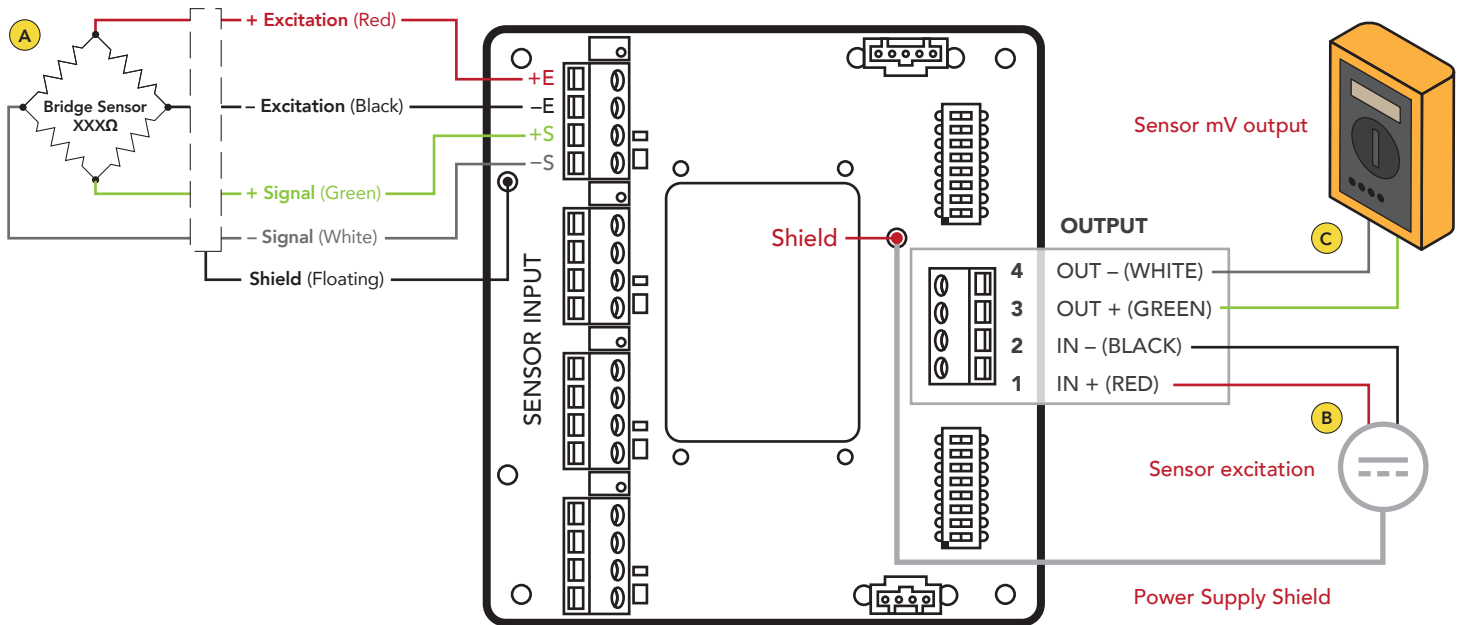
DIP SWITCH SELECTION: SIGNAL SELECT

	1	2	3	4	5	6	7	8
► S (mV/V)	1	0	1	1	0	0	1	0
V (VDC)*	0	1	1	0	1	0	0	1
I (mA)*	0	1	1	0	0	1	0	1

* Use with amplifier option only

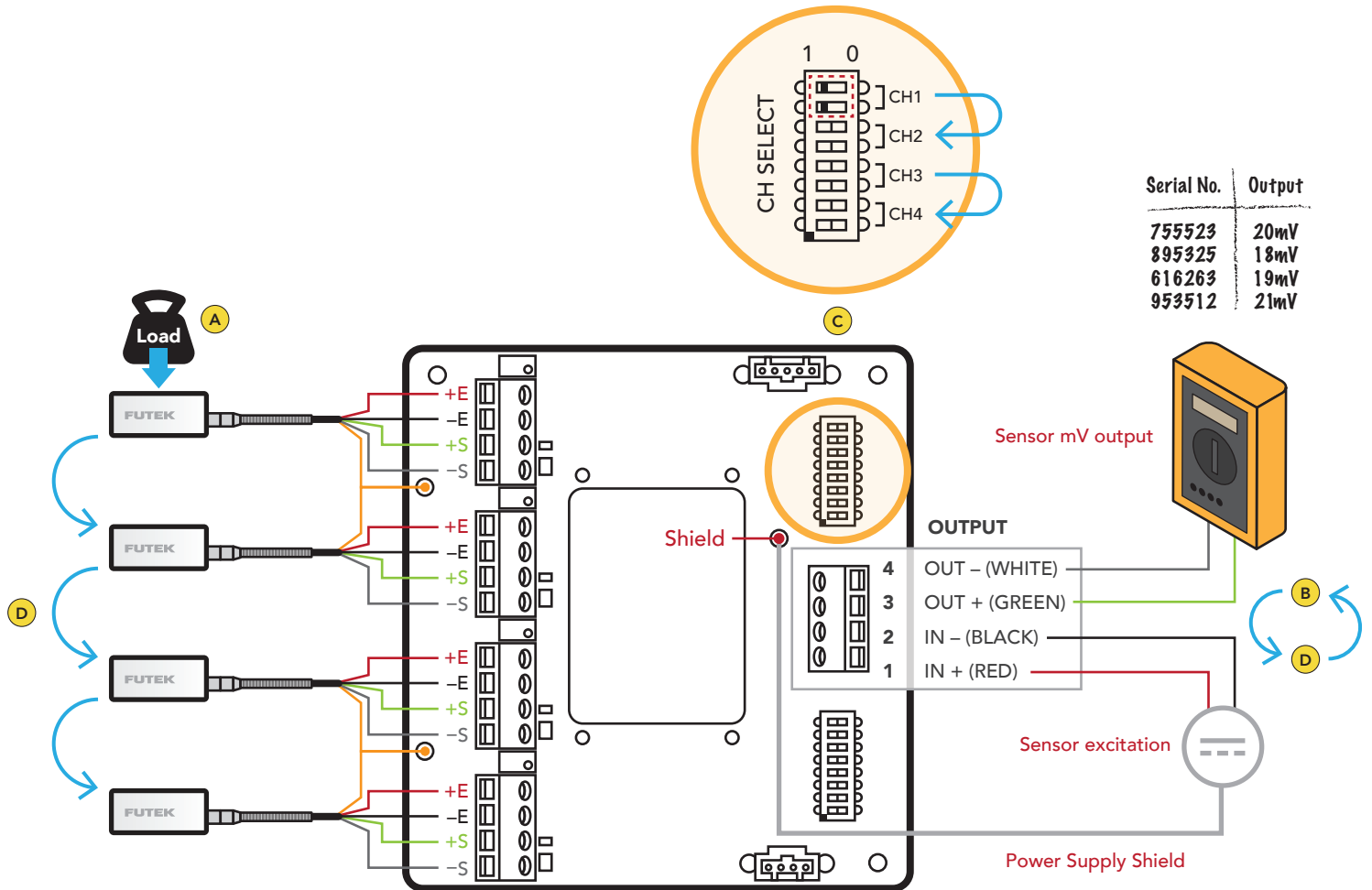
Wiring

- A** Connect each sensor to the IAC200. +/- Excitation will be power to the sensor and +/- Signal will be the output from each sensor to the IAC200. Refer to the [sensor spec sheet online](#) for the sensor's wiring.
- B** Connect power supply to IAC200 for sensor excitation. Refer to the [sensor spec sheet online](#) for max excitation.
- C** Connect Voltage meter to IAC200 output. Direct sensor output will be in mV.



Measurement

- A** Place a known load on the first sensor. Load does not have to be the full capacity of the sensor.
- B** Record mV output on Voltmeter. Full capacity mV output level is a product of the sensor mV/V rating and excitation.
- C** Adjust Channel Select for next channel ON and switch OFF prior channel.
- D** Continue to process until all sensor individual outputs are known under the same load.



Adjustment

A Observe lowest recorded output from connected sensors.

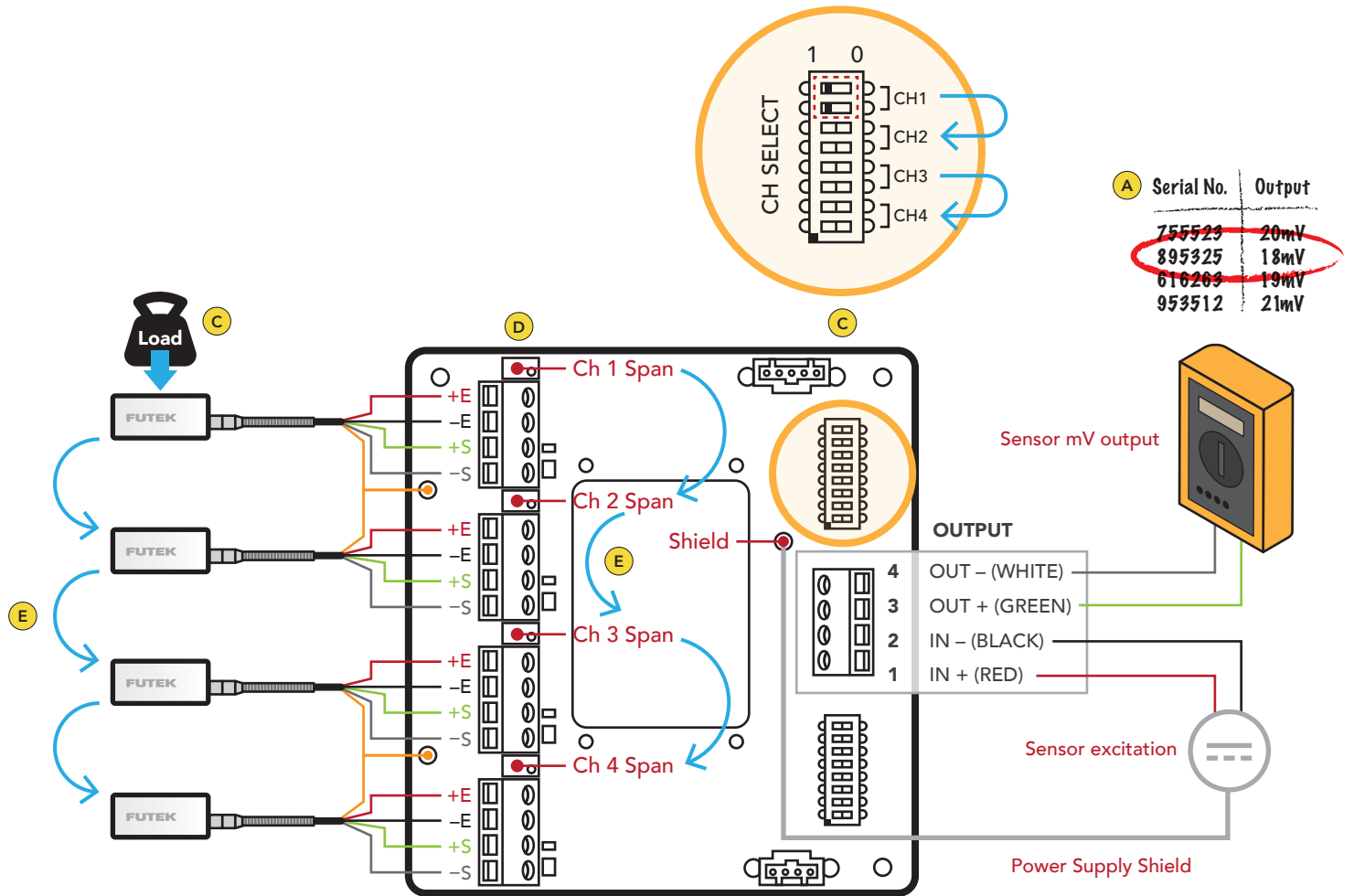
Serial No.	Output
755523	20mV
895325	18mV
616263	19mV
953512	21mV

B Set Channel Select DIP switches to first Channel ON and all other Channels OFF.

C Apply known load to the first sensor.

D Adjust SPAN potentiometer to adjust sensor mV output down, under load, while observing the sensor output until output is equal to lowest recorded output. Span potentiometer can only adjust outputs down.

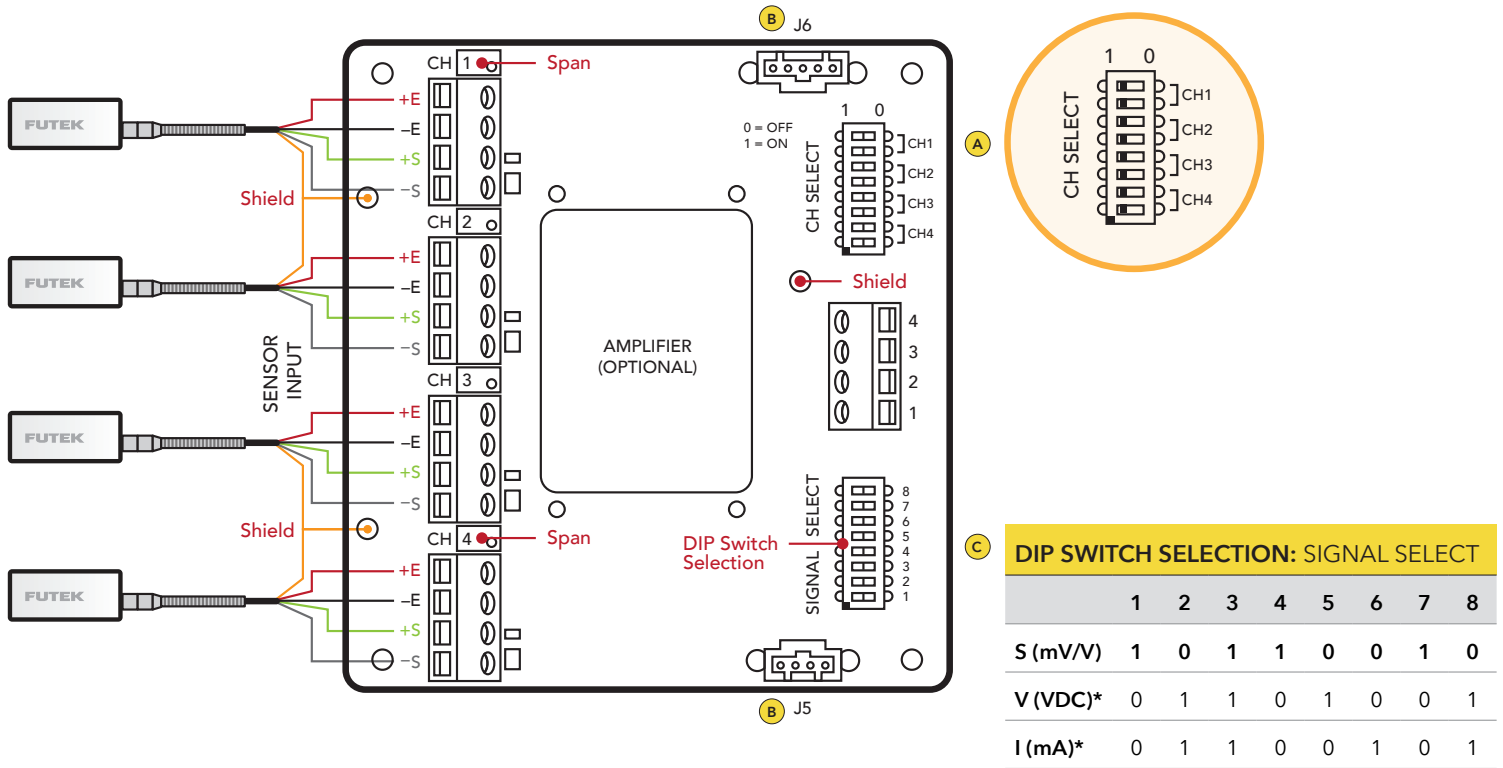
E Continue process of Channel Select DIP Switches, applied known load, and adjustment of mV output down on each sensor until each sensor has the same mV output under the sample applied load. To ensure best performance re-check the output of each sensor while under load and re-adjust if necessary.



Setup Finalization

- A** Set Channel Select DIP switches ON for all Channels with a connected sensor. Output of IAC200 will now be one signal of all connected sensors into one output with the same mV output level that each sensor has been adjusted down to. The combined output will now reach the set mV output when all sensors are fully loaded.
- B** If present, re-connect the ribbon cable from the center amplifier to the IAC200 board on connection J6.
- C** Set the output of the IAC200 to S (mV/V) for non-amplified IAC200, V (VDC) for voltage amplified IAC200 and I (mA) for current amplified IAC200. FSH04735 is non-amplified S (mV/V), FSH04736 is V (VDC), FSH04737 is I (mA) amplified current version.

- D Additional amplified setup:**
 - The combined one mV output from all sensors will be the input to the amplifier.
 - To assist with amplifier setup instructions, convert the adjusted one mV output of all connected sensors into mV/V by dividing the mV output by the supply voltage used during the setting of the one mV output. This will be the one mV/V combined signal going into the amplifier.
 - Refer to the [FUTEK online support page](#) of the IAA amplifier for further instructions on how to set up the attached amplifier.
 - [A Video of the IAA amplifier series is available on the FUTEK website.](#)
 - IAA100 for Amplified IAC200 Voltage V(VDC) [FSH04736](#)
 - IAA200 for Amplified IAC200 Current I(mA) [FSH04737](#)
 - For legacy IAC200 see the [FUTEK online CSG110 amplifier webpage](#) for setup support.



* Use with amplifier option only