Displacement Sensor Integration (Potentiometer technology) with BeanDevice® AN-V

August 2020 - Shimon Abadi V1.0
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Displacement Sensor Design and specifications

Beanair is proposing two different design:

Sensor with spring return (integrated inside the sensor body for better waterproofness)

Sensor with ball joint

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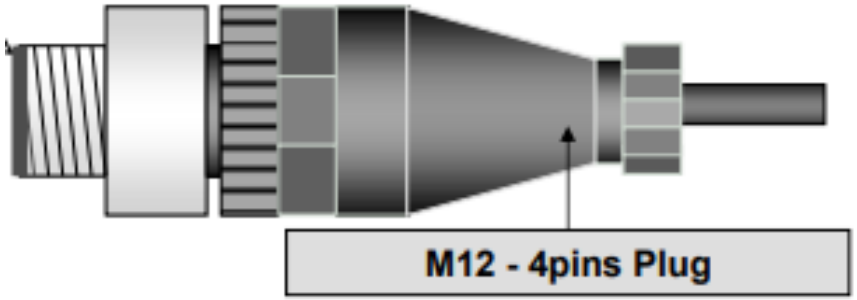
Sensor with spring return specification

Technical specifications	
Measurement stroke	10 to 100 mm
Linearity	±%0,2 (75-100 mm), ±%0,5 (<75 mm)
Repeatability	< 0,01 mm
Resolution	Infinite
Resistance	2 kOhm: 10 ... 50 mm 5 kOhm: 75 ... 100 mm
Resistance tolerance	± %20
Recommended cursor current	<1 µA
Electrical connections	Connector or 1 m cable output
Displacement speed	< 5 m/s
Mechanical life	100 million movement
Case dimensions	Ø18 mm
Case material	Anodized aluminium
Rod material	Stainless steel
Rod diameter	Ø5 mm
Mechanical fixing	Variable brackets
IP degree	IP 65
Operating temperature	-20°C ... +80°C
Storage temperature	-30°C ... +90°C

The spring return is integrated inside the sensor body for better waterproofness)

Option for IP67 sensor

Sensor Wiring code



M12-4 Pins Wiring code

PIN1 (Pwr+): Sensor power supply

PIN4 (Sens+): Sensor signal + input

PIN2 (Sens-): Do not connect

PIN3 (Gnd): Electrical Ground

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Sensor configuration from BeanScape® software

Potentiometer sensors comes with a signal output which is ratio-metric, i.e. for a sensor power supply of 10 VDC the signal output is 0 to 10VDC

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Summary of your configuration:

Recommended Sensor Power Supply :

1. 5VDC (low power operation) or 10VDC (more resolution)

2. DAQ Polarity: Unipolar

3. Sensor warm-up time : 40ms (default value)

4. Conversion Assistant (if sensor powered with 5VDC) :

0V => 0mm

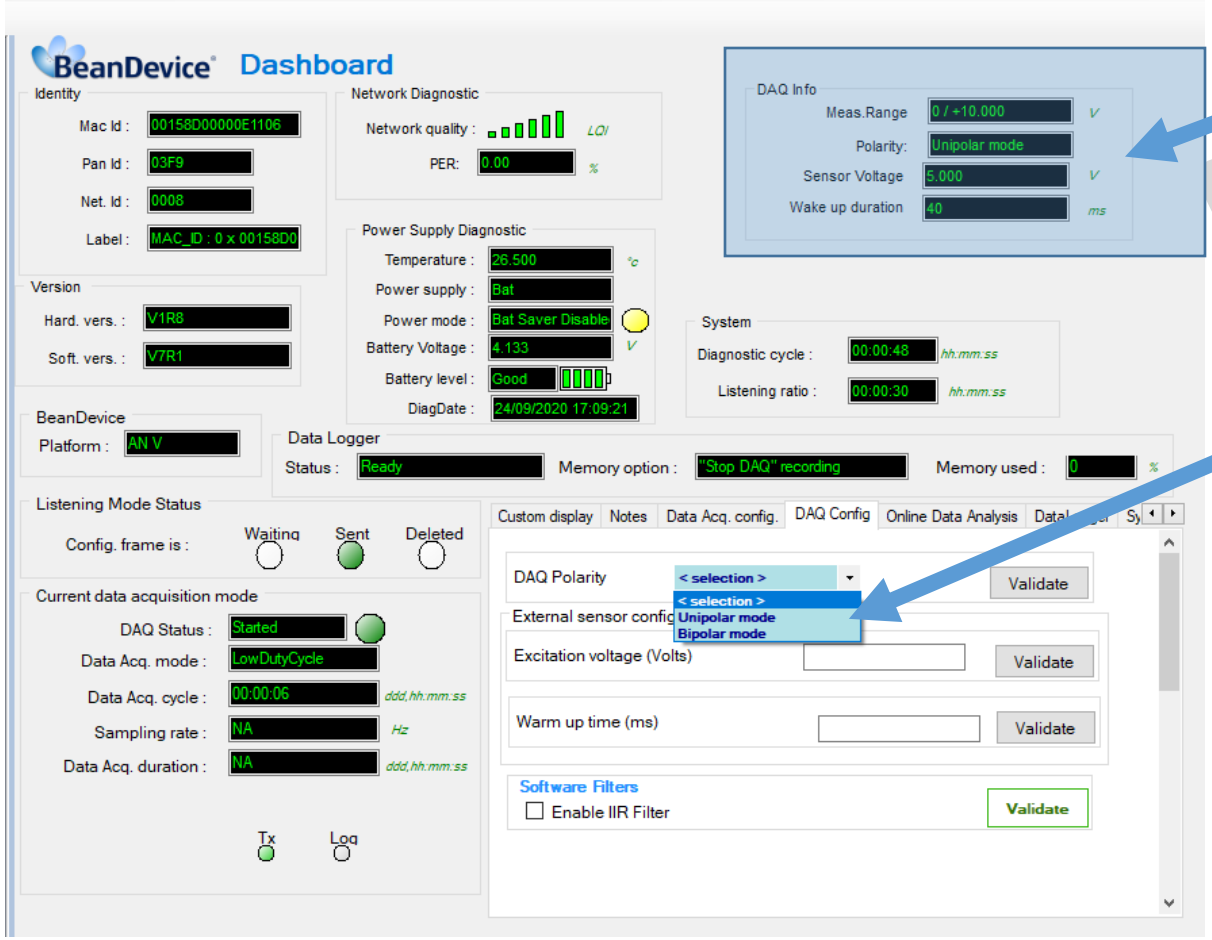
5V => Sensor_Sroke mm

Conversion Assistant (if sensor powered with 10VDC) :

0V => 0mm

10V => Sensor_Sroke mm

Sensor configuration from BeanScape® software



DAQ status is displayed here (you can check it after validating your new configuration)

Choose Unipolar on DAQ Polarity then click on validate

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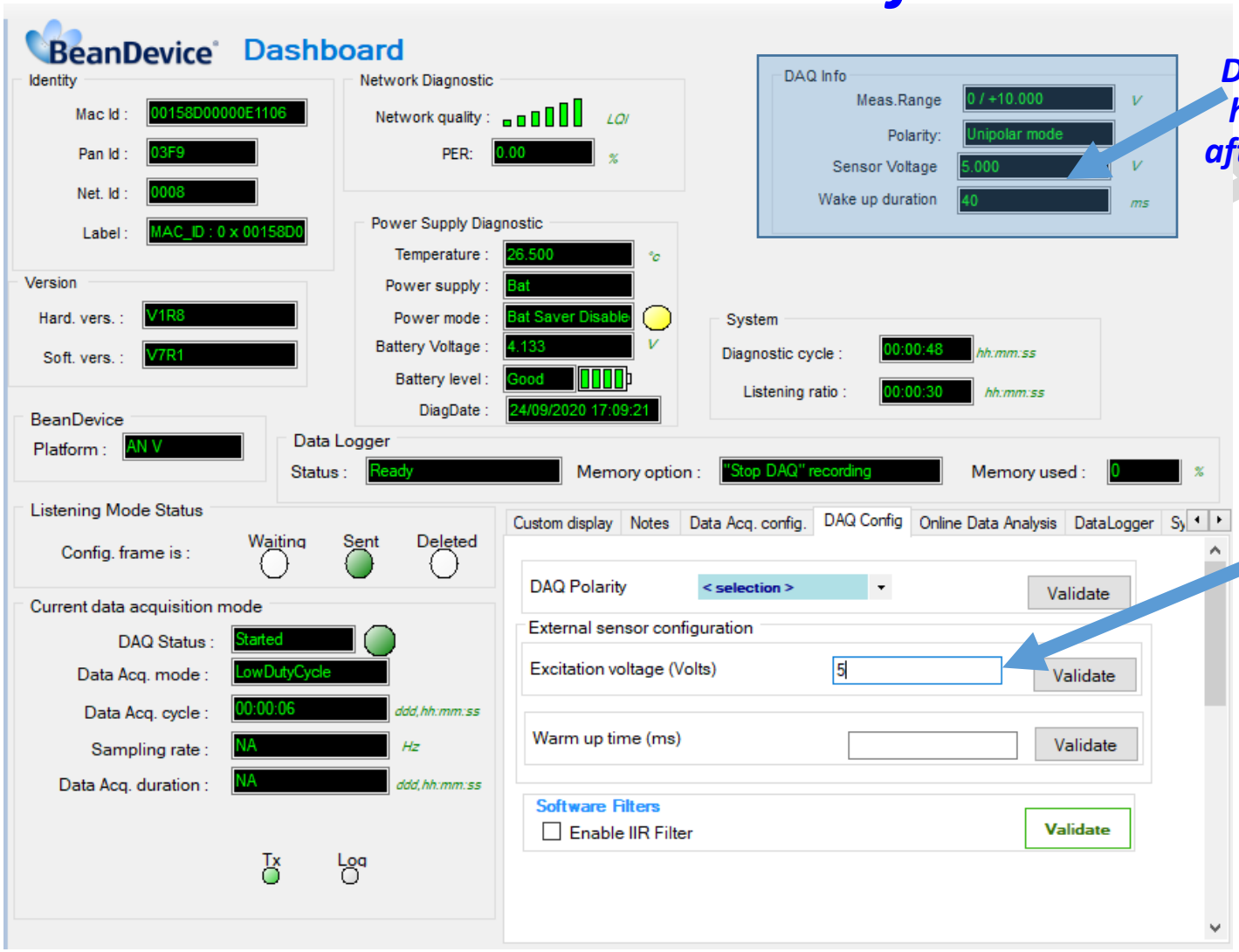
Sensor configuration from BeanScape® software



DAQ status is displayed here (you can check it after validating your new configuration)

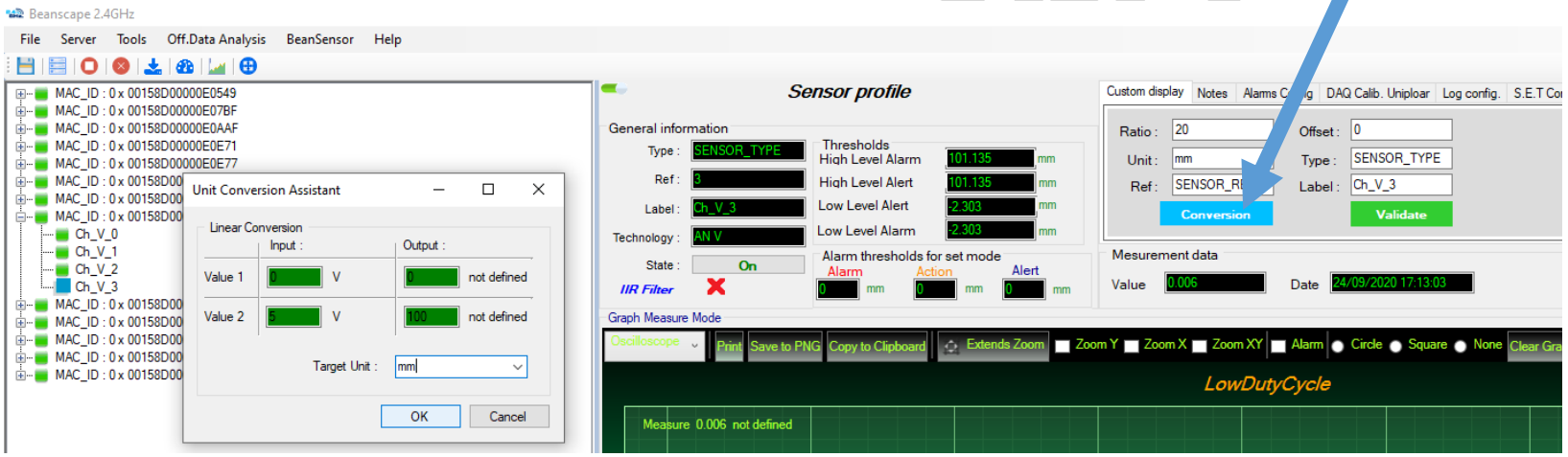
Enter an excitation Voltage of 5VDC for your sensor

Sensor configuration from BeanScape® software

Use the conversion Assistant.
if sensor stroke is 100mm and sensor power supply 5VDC):

0 V => 0 mm (sensor probe fully out)
5 V => 100 mm (sensor probe fully in)

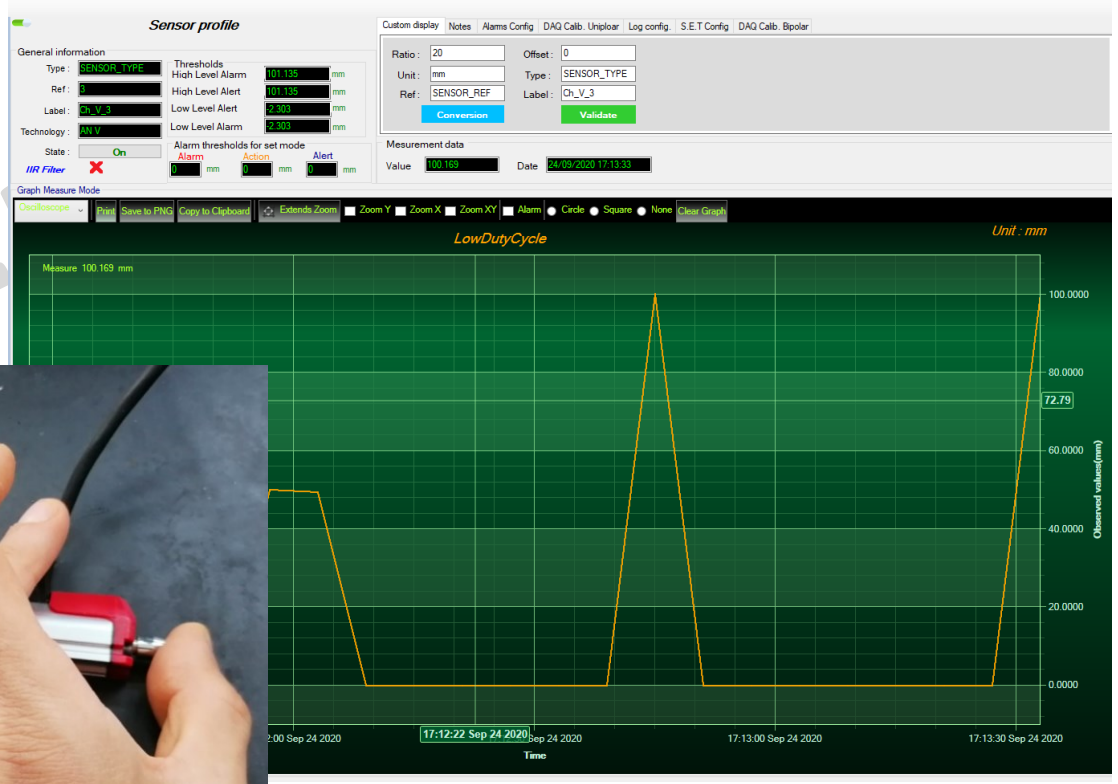
Click on conversion assistant

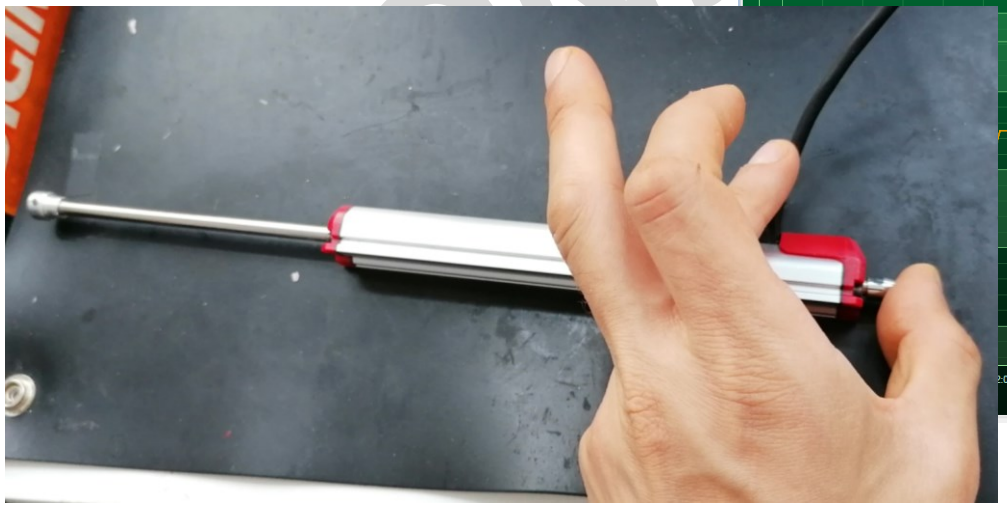


<u>if sensor stroke is 100mm and sensor power supply 10VDC):</u>
0 V => 0 mm (sensor probe fully out)
10 V => 100 mm (sensor probe fully in)

Check your settings

Example of a 100 mm stroke sensor : When the sensor probe is fully in, you should have approx. 100 mm. To provide a good reading on the sensor full scale, the real stroke can be a bit higher than the stroke displayed on the datasheet. In our example we can go up to 100.169 mm but only the measurements between [0mm and 100 mm] are tested, calibrated and warranted.





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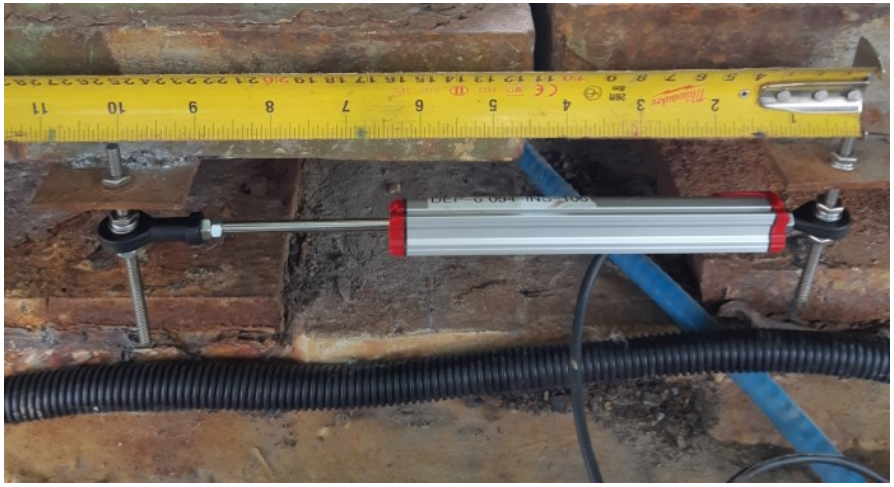
Sensor Installation on the field