

Microrad

Rugged High Accuracy Tilt Sensor



vectory
sensor systems



Microrad tilt sensor

The Vectory Sensor Systems Microrad is a rugged, versatile, very high accuracy tilt sensor / inclinometer, ideal for any kind of application where reliable, accurate tilt measurements are needed.

The Microrad consists of 3 high accuracy state-of-the art low-noise MEMS accelerometers. These are used to measure the apparent gravity to output values of pitch, roll and inclination.

Versatile: Configurable for any application

The Microrad has a full 360 degree range in both roll and pitch giving the user full freedom in how to install the tilt sensor. There is no limitations as to how the sensor should be mounted, which removes many installation issues. Setting the installation angles is easily accomplished through the Microrad configuration program, which gives a visual representation of how the tilt sensor is supposed to be installed.

A variety of industry-standard output strings are available from the sensor, such as CDL MiniTilt, TSS1, as well as a proprietary string outputting all values of interest from the Microrad. Custom strings are also available on request.

The Microrad is software configurable for both RS232, RS422 and RS485 multidrop communication.

Accurate: Low noise and drift

Every Microrad tilt sensor have been individually calibrated by Vectory Sensor Systems at our in-house calibration facility. This gives the sensor an extremely low temperature dependency on roll, pitch and inclination outputs.

The sensing elements and the signal chain within the Microrad are very low noise, giving accurate measurements.

The long-term stability of the roll, pitch and inclination outputs are within 0.05 degrees over a period of 2 years. After what we recommend to send the sensor back to us for recalibration

Responsive: Low settling time

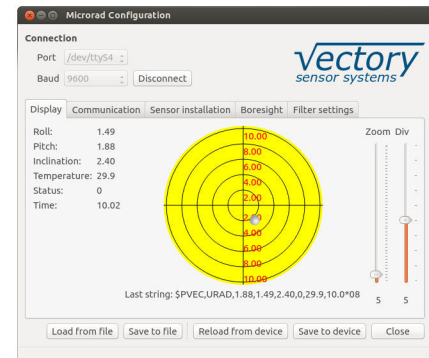
The Microrad employs MEMS sensing elements instead of the older electrolytic based tilt sensors. This means that the settling time for the sensor can be extremely low. It is completely configurable using the low-pass filter setting in the configuration program. The setting of the low-pass filter time constant is a tradeoff between rejection of disturbances due to translatory movements and how fast the sensor should react to a change in tilt. If the sensor is not going to experience any translatory movement, but only be rotated, the Microrad can be used as a dynamic tilt sensor by setting the low-pass filter time constant very low. However, for a truly dynamic sensor, where translatory movement is involved, one should look at our Horizon range of sensors.

Rugged: Built for extreme environments

Originally designed for offshore piling operations and construction, the Microrad tilt sensor has been built from the ground up with ruggedness in mind. These sensors will stand up to the harshest conditions without breaking. The accuracy of the Microrad sensors have been proven not to be influenced by shocks of at least 20G 11ms half sine and 75G 5ms half sine. A test report is available on request.

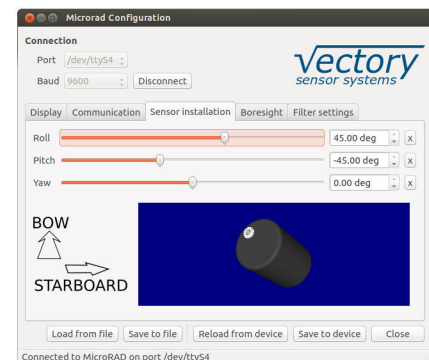
High performance

- State of the art MEMS technology
- Extremely robust sensor'
- Very low temperature drift
- Excellent long-term stability
- Low settling time



Small and low power

- Less than 0.3 W power consumption
- Less than 0.5 kg
- Housing size: 115 mm, Ø 62 mm
- Low profile: 87.5mm, Ø 62 mm



Easy to use

- Compatible with many existing sensors
- Intuitive configuration program

Specifications

- Range: 360 degrees roll and pitch
- Absolute accuracy: 0.05 deg
- Resolution: 0.001 deg
- Maximum update rate: 10 Hz (or polled)
- Output interface: RS232/422/485 multidrop
- Topside IP68 or 3000M rated housing
- Output formats: TSS1, MiniTilt, PVEC-URAD



'20g 11ms half sine, 75g 5ms half sine

Specifications subject to change without further notice

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