



High precision guidance systems for agricultural auto-steering with MEMS

The challenge:

Autonomous driving of agricultural machines with centimeter level accuracy

Customer challenges:

The accuracy of the derived GPS data needs to be improved such that the repeatable accuracy is better than +/- 6 inches and, secondly, that changes in terrain and the tractor's exact position over the ground can be determined.

Being able to position a tractor to this degree of accuracy is impressive but there is one fundamental problem. Measurement of the GPS data really means that you know precisely where the antenna is situated, and typically this is in the centre of the cab roof.

By incorporating highly sensitive yet stable MEMS sensors together with advances in enhanced precision GPS receivers, manufacturers of high-value agricultural machinery can maintain their market position. In so doing farms can maintain profitability by improving crop yields and operating in the most efficient ways possible.

The Murata Solution:

The product:

SCC2000 Series Gyro Accelerometer Combo Sensors

How it works:

Achieving positional adjustments is an ideal application for MEMS-based accelerometers and gyroscopes.

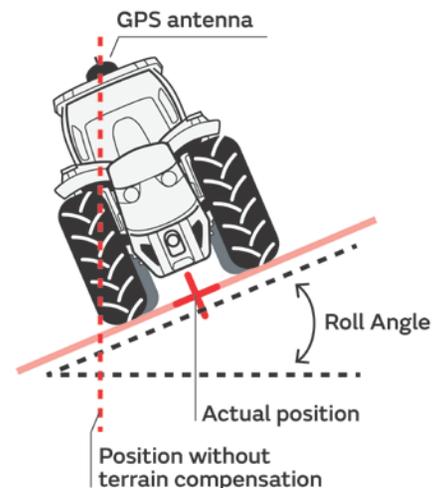
Stability, noise and immunity to mechanical shock, all of which are vital for such precision agricultural applications involving moving heavy machinery over undulating terrain. In this way the slope, direction of movement, and the change of the slope can be accurately measured. An accelerometer is used to measure the angle of inclination relative to the centre of the earth and a gyroscope is used to measure the speed that the angle changes.



Product features:

SCC2000 Series

- High temperature stability range from -40 to +125 degrees C
- Shock robustness
- Bias stability characteristics and consists of a low-g 3-axis accelerometer
- Short-term bias stability of 1°/h
- Small size: The single-chip 24-pin MEMS package measures just 15.00 x 12.10 x 4.35mm



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More info:

For further information about Murata solutions, please contact your local sales manager.

Data sheets and application notes for Murata products can be found at www.murata.com