TARS-IMU Sensors for Pile Drivers
An Application Note

Background
Most construction and development projects should begin on a solid foundation. In some situations, steps must be taken to help ensure this foundation is strong enough to support the structures being developed. When the soil is not conducive to good footing, a technique called Pile Driving can be implemented. This is a situation in where large piles are driven into the ground, sometimes down to the bedrock. These piles help to transfer the load of the structure down to more solid ground thus ensuring a solid and reliable foundation.

Figure 1. Pile Foundations Add Strength and Stabilization

Solution
The Honeywell Transportation Attitude Reference System, or TARS-IMU, is a packaged sensor array designed to report vehicle angular rate, acceleration, and attitude data for demanding applications in industries such as heavy-duty, off-highway transportation.

TARS-IMU enables autonomous vehicle characteristics and enhances efficiency and productivity by reporting key data required to automate and monitor movements of vehicle systems and components. The sensor

Features and Benefits
• Enhanced performance from IMU offers reporting of vehicle angular rate, acceleration and inclination (6 degrees of freedom)
• Ruggedized PBT thermoplastic housing design enables it to be used in many demanding applications and environments (IP67- and IP69K-certified)
• Advanced filtering of raw sensor data to minimize unwanted noise and vibrations, improving positioning accuracy
• Optional metal guard for added protection
• Supports 5 V and 9 V to 36 V vehicle power systems
• Operating temperature of -40°C to 85°C [-40°F to 185°F]
• Reduced power consumption
• Small form factor
This assistance will be found more often as the industry moves toward some fully autonomous systems.

The Honeywell TARS-IMU can be a key component as it provides and reports key vehicle and implement data. With six degrees of freedom (See Figure 2), the TARS-IMU reports key movement data such as angular rate, acceleration, and inclination. Furthermore, the TARS-IMU is equipped with customizable data filters; it can be tuned to reduce extraneous noise and vibration that would otherwise distort the valuable data.

TARS-IMU utilizes a robust packaging design (IP67/IP69K) that makes it more resilient to the rigors of the construction industry. In addition, a wide operating temperature range of -40 °C to 85 °C [-40 °F to 185 ºF] makes it ready for use in many demanding tool and implement applications.

**WARNIng**

**IMProPER INSTALLATION**

- Consult with local safety agencies and their requirements when designing a machine control link, interface and all control elements that affect safety.
- Strictly adhere to all installation instructions.

Failure to comply with these instructions could result in death or serious injury.

**Warranty/Remedy**

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For more information

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Honeywell Advanced Sensing Technologies
830 East Arapaho Road
Richardson, TX 75081
sps.honeywell.com/ast

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