

# Revolutionary thinking

# Play resist+ant-

Our unique custom touchless **variable gap** sensor maintains stable electrical output and specified linearity on mobile shafts despite variation in radial and axial movement in an application's service life.

PIHER+  
SERVICE

- + Any arc magnet diameter
- + Any air-gap distance
- + Harsh environment sealing



# Custom engineered. Variable air gap sensor.

## Main features.

- Output: analogue (ratiometric), PWM, SPI.
- Resolution: analogue - PWM: 12 bits / SPI: 14 bits.
- Linearity: +/-1% absolute (+/-0.5% absolute upon request).
- Supply voltage: 5, 12, 15V.
- Supply current: typ 8.5mA for single output/17mA for dual output.
- Voltage protection: +/-10V.
- Virtually unlimited rotational life.
- Switch output: programmable at factory.
- Mechanical rotation angle range: max 180°.
- Electrical rotation angle range: min 15°.
- Radial play: +/- 5mm (others on request).
- Axial play: +/- 7 mm (others on request).
- Redundancy: yes.
- Magnet diameter: touchless custom.
- Mounting: custom.
- Connectivity: custom.
- Sealing: custom.

- Agriculture.
- Construction & Forestry.
- Material handling.
- Lifts & Cranes.
- Marine.



## Description.

Something that is truly contactless. One magnet. One electronics module. No gears. Nothing to wear out over a lifetime.

A sensor that will deliver the same level of precision and stability throughout its life as the first day it was installed -despite extremes of vibration, shock, temperature and contamination.

Something that is easy to assemble -delivering additional cost reduction on the production line.

Something that can be fitted anywhere on the shaft, giving engineers the flexibility to be creative.

Our touchless sensor is Piher Sensors & Controls at its best, packaging its core technology -slimline magnetic Hall Effect sensing- into something truly original.



Custom touchless sensor for agriculture applications.



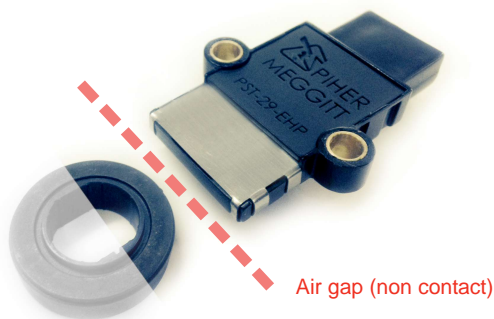
Custom touchless sensor for marine applications.

## Sensing the position, avoiding contact.

The touchless variable air gap sensor creates immunity to radial and axial play on mobile shafts where significant misalignment results in poor operational performance and labour intensive maintenance programmes.

A round or arc magnet (where 360° rotation angle is unnecessary) is attached to rotating parts of kit, such as boom loaders, skid steer buckets and hitch arms, and the electronics module to the chassis (or vice versa).

Here, Piher separates the magnet from the electronics module.



As an absolute sensor it will not lose the values even after a power failure.

All Piher sensors are compact, low-profile, yet extremely rugged and can be custom-engineered to fit existing mechanical assemblies.

## Touchless working principle

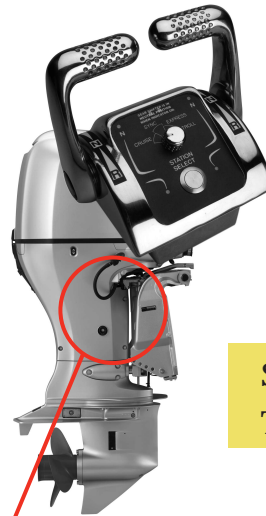
Measurement of angular position using variation of magnetic field amplitude induced by the displacement of a moving magnet has been intensively developed over the last fifteen years. However, these solutions have limits in terms of angular range and temperature influence.

The technology used by Piher is only sensitive to the flux density coplanar with the IC surface.

The angular information is computed from both vectorial components of the flux density (i.e. BX and BY) of a proprietary magnetized magnet. Then an output signal proportional to the decoded angle is produced.

# Custom engineered. Variable air gap sensor.

Typical applications examples.



Steering  
Throttle control



Rear hitch arm

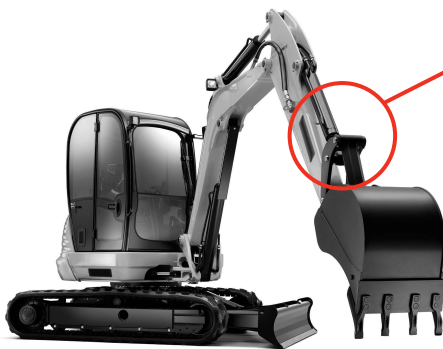


Rotary bucket shaft



Electronics module

Magnet module



Rotary boom loader shaft



Lift and shuttle  
Brake and throttle pedal



www.pihet.net  
www.meggitt.com

Information contained in and/or attached to this document may be subject to export control regulations of the European Community, USA, or other countries. Each recipient of this document is responsible to ensure that usage and/or transfer of any information contained in this document complies with all relevant export control regulations. If you are in any doubt about the export control restrictions that apply to this information, please contact the sender immediately. For any Piher International Corp. Exports, Note: All products / technologies are EAR99 Classified commodities. Exports from the United States are in accordance with the Export Administration Regulations. Diversion contrary to US law is prohibited. All trademarks and registered trademarks are the property of their respective owners.

**MEGGITT**