

# KasperAero Magnetic Speed Sensors

Powered by Null Zone Magnetic Sensor (NZMS) Technology

## Meeting Industry Needs for High-Precision Magnetic Speed Sensing:

Accurate and reliable speed detection is paramount across a vast array of industrial, automotive, and aerospace applications. Traditional speed sensors often struggle with precision at low speeds, susceptibility to environmental interference, or lack the durability required for harsh operating conditions. There is a growing demand for compact, rugged, ultra-reliable, and highly sensitive magnetic speed sensors.

To address this critical need, KasperAero has applied its pioneering Null Zone Magnetic Sensor (NZMS) technology to speed sensing. The NZMS combines a TMR magnetic sensor with a unique, patent-pending magnet arrangement. This innovative design enables the creation of an exceptionally precise and robust speed sensor, capable of detecting rotational speeds with unparalleled accuracy and reliability, even in challenging environments. NZMS technology redefines the possibilities for speed sensing in a wide range of applications.



## Adaptable By Design:

The sensor's magnetic field can be precisely tuned by adjusting magnet strength without altering the core sensing electronics. This allows for optimization of detection distance and sensitivity to suit specific application needs—whether that's high-resolution detection of fine gear teeth or robust sensing in noisy industrial settings.

- Modular housing options (threaded or flange mount)
- Sensing performance unaffected by oil, grease, or fluid spray
- Ideal for embedded or flush-mount configurations
- Optimized for various ferrous target geometries (e.g., gear teeth, shaft keys)

## Product Features:

- Extremely Compact
- High-Speed
- Low Cost
- Low Power Operation
- Low Noise (EMI/EMR)
- Suited to Harsh Environments
- No Moving Parts
- No Microcontrollers
- No Temperature Compensation
- No Calibration

## Industries:

- Aerospace
- Automotive
- Rail & Trucking
- Heavy Equipment
- Industrial Automation
- Defense Systems



**KasperAero**

Focused on the Fundamentals

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Kasper Aero

# KasperAero Magnetic Speed Sensors (MSS)

Applying Null Zone Magnetic Sensor (NZMS) Technology

## Applications:

- Engine RPM Sensing
- Wheel Speed Detection
- Gearbox Speed Monitoring
- Shaft Rotational Speed Measurement
- Conveyor Belt Speed Control
- Fan Speed Monitoring
- Turbine Speed Measurement
- Pump Speed Sensing



### Product Characteristics

Electrical Interface	3 Wire
Output Type	PNP, Normally Open (Digital Pulse)
Output Function	Frequency Output, Normally Open
Ferrous Only	Immune to non-ferrous metals
Sensing Principle	Null Zone Magnetic Sensing (NZMS)
Target Detection	Ferrous Targets Only (e.g., Gear Teeth)

### Electrical Data

Operating Voltage	5 - 30 VDC
Current Consumption (ON/OFF)	< 3.0 mA / < 0.8 mA
Switching Frequency DC	10KHz

### Circuit Protection

Reverse Polarity Protection	YES
Over Voltage Protection	YES
Short Circuit Protection	YES
Type of Short Circuit Protection	PULSED
Overload Protection	YES

Circuit Protection Designed to meet ISO 7637-2 and ISO 16750-2

### Performance Characteristics

Temperature Range (operating)	-40°C to 150°C
Supply Voltage, Vcc	-28V to 28V
Load Capacitance	0.01 $\mu$ F Max
Output Rise Time 10-90% (Co < 100pF)	8.0 $\mu$ S Max
Output Fall Time 10-90% (Co < 100pF)	2.0 $\mu$ S Max
Output Resistance Ro (0.25 watts)	48 $\Omega$ – 52 $\Omega$
Frequency Range	0.1 Hz to 15 kHz
ESD	2000V
EMI (20k to 1 G Hz)	100 V/M Max

### Special Features

- No Special Orientation Required
- Internal Hysteresis, Bounce Free
- Solid State Operation
- Near 0 Speed Operation
- Dynamic, Self-Adjusting