

## WIEGAND SENSORS

### Self-powered Magnetic Sensing for Metering Applications



Wiegand sensors provide bipolar magnetic sensing with a pulsed output, making them ideal for low-power counting/metering applications.

➤ **Consistent Energy at Low-Frequencies**

Guaranteed minimum energy level independent of magnetic field change frequency

➤ **Millions of Pulses, no Reduction in Energy**

Pulse energy is unaffected by repeated and continuous use over time

➤ **Zero Mechanical Wear**

No mechanical elements & non-contact sensing

➤ **High Signal-to-Noise Ratio**

High slew rate & pulse voltage provide superior SNR to other magnetic sensor technologies

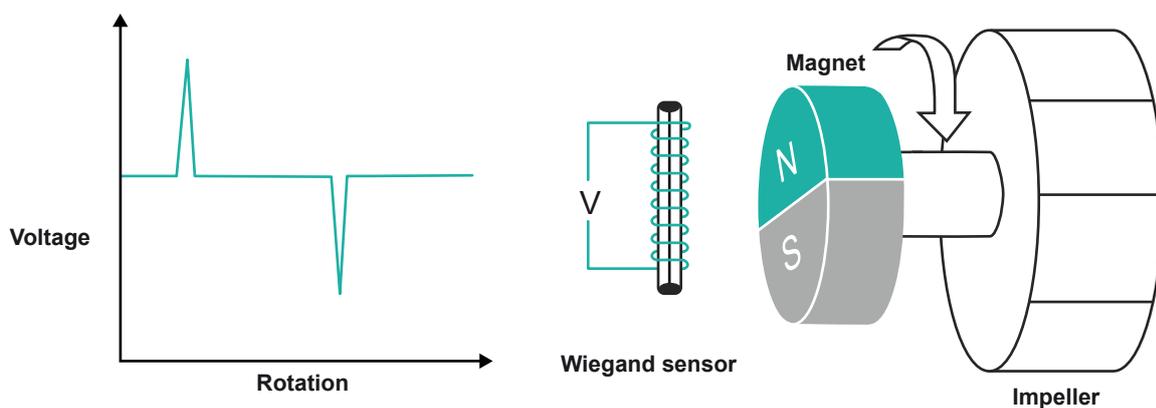
➤ **High Triggering Frequency**

Consistent pulse width means events can be differentiated at frequencies up to 30kHz

➤ **Self-powered Sensing**

No electrical energy is required to generate signals

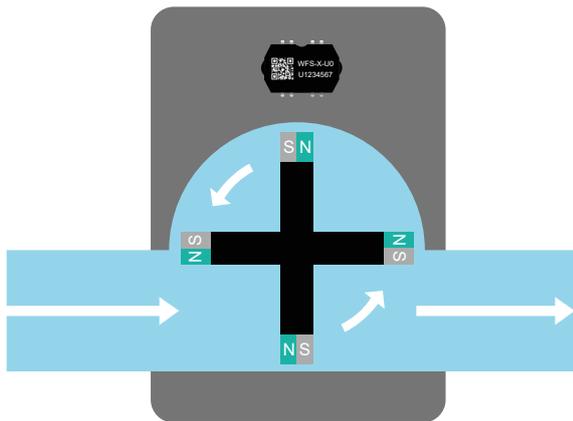
In metering applications, a permanent magnet can be mounted on the meter's rotating shaft, close to a Wiegand sensor. As the shaft turns, the rotation of the magnetic field triggers abrupt polarity reversals in the Wiegand wire, inducing electric current pulses in the copper coil. As the strength and duration of each current pulse is independent of how quickly or slowly shaft rotates, Wiegand sensors provide much higher signal-to-noise ratios than other analog magnetic sensors (e.g., Hall effect sensors). This ensures that the meter's counter circuit receives clear and unambiguous signals with each rotation of the shaft.



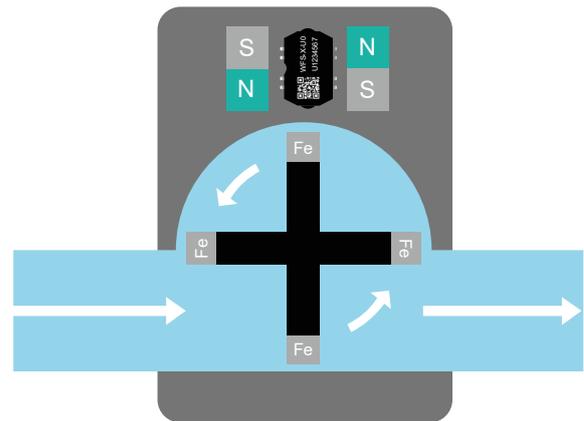
Implementation in Flow-metering Application

## Practical Implementation

Wiegand sensors offer a combination of functionality, with a single pulse used either for magnetic sensing, or to power ultra-low power electronics, or even both. Alternatively, successive pulses can be stored to offset the energy demand of circuits. The pulse energy generated is consistent regardless of the frequency or speed of the field change - distinguishing the process from that of other inductive and magnetic technologies - and can be achieved in a variety of implementations. A changing magnetic field can be achieved a number of ways in flow metering, including magnets embedded in the impeller, or a ferromagnetic impeller influencing a static magnet. This presents a simple method to digitize existing mechanical counter systems, especially those with magnetic coupling.



Magnets are imbedded into the rotor

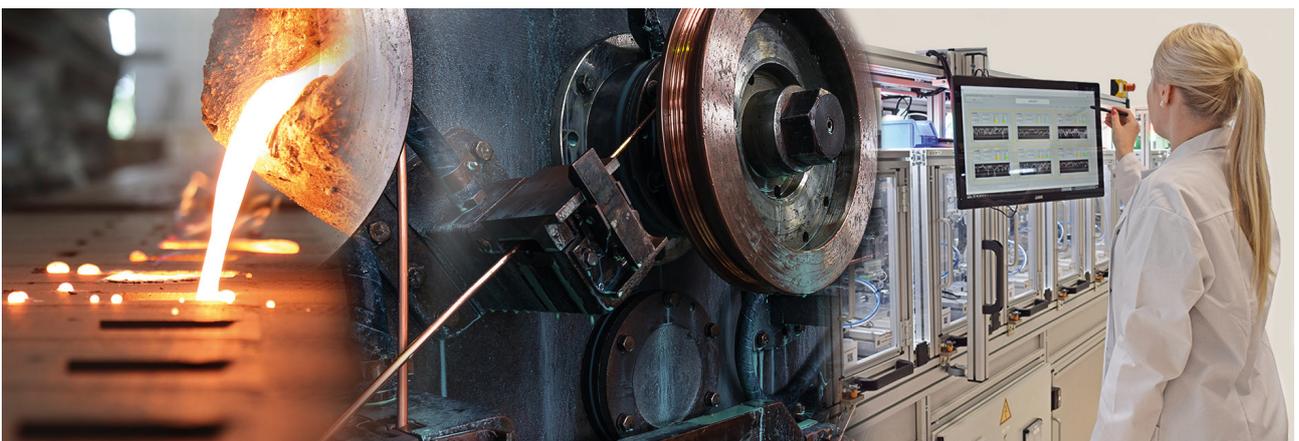


Ferromagnetic body is embedded into the rotor

(Images for illustrative purposes and may not be mechanically accurate)

## The Wiegand Experts

UBITO builds on the significant expertise and over 15 years' experience of its 'sister' brand POSITAL manufacturing Wiegand wire and sensors in industrial automation. Leveraging on the existing stable supply chain and consistent production quality, UBITO now brings Wiegand Technology to a wide range of new solutions, applications, and industries.



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