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**New YouTube Videos**

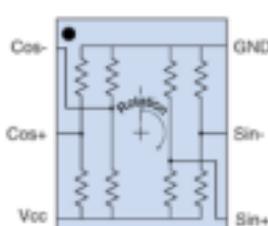
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**Document Updates**

- [AAT101 Full-Bridge Angle Sensor datasheet](#) (see story at right)
- [Analog Sensor Datasheet](#) (includes new high-field magnetometer sensor, and chock-full of new application tips)
- [AFL-Series Ultrasensitive Low-Voltage Magnetic Switch Datasheet](#) (added AFL006 ultrasensitive magnetic switch)
- [Sensor Catalog](#) (added AAT101 full-bridge angle sensor and AFL006 ultrasensitive magnetic switch)

**Full-Bridge TMR Angle Sensor**

The new AAT101-10E Full-Bridge TMR Angle Sensor is a high-output magnetic sensor for angle measurements based on rotating magnetic fields.



The new sensor has two full-bridge push-pull outputs for double the signal. The full-bridge configuration allows direct replacement of Hall effect sensors for larger outputs and lower power.

The sensors provide sine and cosine signals defining the angle of rotation. Outputs are proportional to the supply voltage, and peak-to-peak amplitudes are much larger than conventional sensors.

Key AAT101 features include:

- Full-bridge differential outputs
- 400 mV/V peak-to-peak output sensitivity
- 625 kΩ device resistance for low power and battery operation
- Sine and cosine outputs for direction detection
- 1.5% max. nonsinusoidality error
- Ultraminiature 2.5 mm x 2.5 mm x 0.8 mm TDFN6

Because they are resistive devices with no active components, AAT-Series sensors have no minimum supply voltage and can be powered from single-cell batteries.

There are now five members of the groundbreaking AAT Angle Sensor family:

Part Number	Config.	Typ. Output (ea. output p-p)	Min. Field	Typ. Device Resistance
<a href="#">AAT001-10E</a>	Half bridge	200 mV/V	30 Oe	1.25 MΩ
<a href="#">AAT003-10E</a>	Half bridge	200 mV/V	30 Oe	40 KΩ
<a href="#">AAT006-10E</a>	Half bridge	200 mV/V	15 Oe	1.5 MΩ
<a href="#">AAT009-10E</a>	Half bridge	200 mV/V	30 Oe	6 MΩ
<b>*NEW*</b> <a href="#">AAT101-10E</a>	Full bridge	400 mV/V	30 Oe	625 kΩ

All five part types are in stock and available for immediate delivery.

**Buy Online**  
\$9.95 shipping

**Evaluation Kit**

The [AG934-07E Evaluation Kit](#) includes a circuit board with an AAT101 angle sensor, a cylindrical horseshoe magnet, and easy connections.

This video uses the evaluation kit to demonstrate the remarkable AAT101 signal levels:

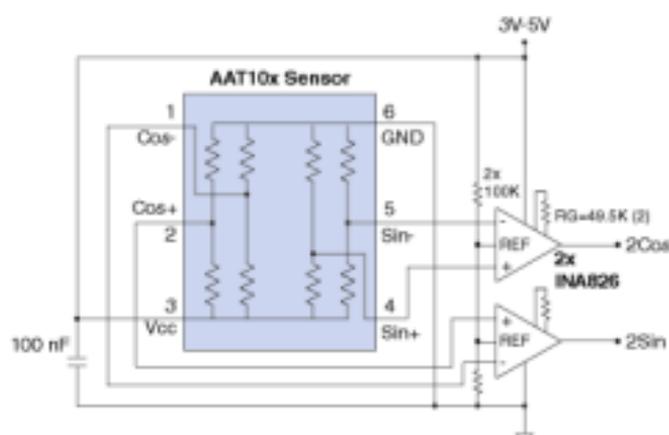


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**Reference Circuit: Simple Full-Bridge Sensor Amplifier**

AAT101 Angle Sensors have high output signals without amplification, but if single-ended signals higher amplitude are needed, instrumentation amplifiers can minimize parts count.

The gain can be limited to about two to avoid saturating the amplifiers:

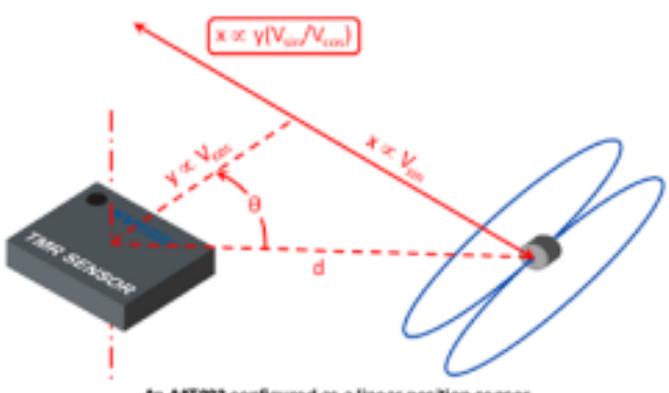


AAT101 with 2x instrumentation amplifiers.

**Applications Corner**

**Linear Position Sensing with an AAT Sensor**

[AAT-Series](#) Tunneling Magnetoresistance (TMR) sensors are normally used as angle sensors, but they can be used in a configuration like this for linear displacement:



An AAT003 configured as a linear position sensor.

Displacement corresponds to the angle from the sensor to the magnet, and is proportional to the ratio of the two sensor outputs. In this example, a microcontroller does the simple ratio calculation. A low-impedance AAT003 sensor is used for microcontroller compatibility.

A [YouTube Video](#) shows a live demonstration and the sensors' remarkable linearity, and includes a sample microcontroller program.

Micron-scale resolution over a linear range of more than 0.25 inches is practical with small, inexpensive magnets. Larger or stronger magnets can be used for a wider linear range, and if exact linearity isn't needed, just one sensor output is needed with no math.

This linear position configuration is ideal for electronically-adjustable magnetic switch points.

AAT sensors have a important advantages for linear position sensing:

- Repeatable, with very low hysteresis.
- Because the measurement is based on an angle, the output doesn't depend on magnet strength.
- Self-referencing—the output is zero when the magnet is centered.
- Wide linear sensing range.

[AAT003](#) sensors are in stock for immediate delivery.

**Buy Online**  
\$9.95 shipping