

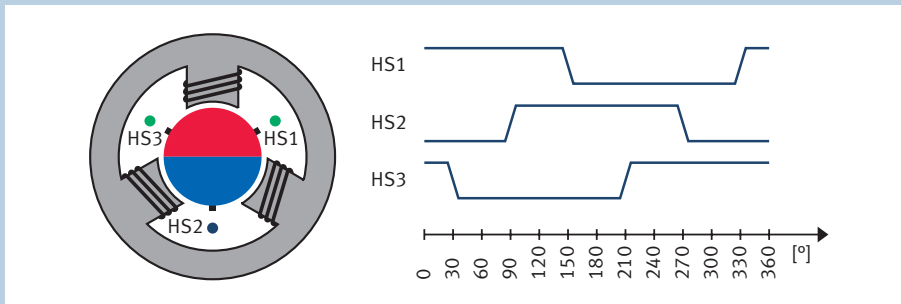


Position Sensors for Brushless DC

Hall Switches and Angle Sensors for Highest Energy Efficiency

The market for electric motors is becoming increasingly dominated by brushless DC (BLDC) motors. These motors provide major advantages compared to conventional brushed motors: greater efficiency, longer life cycles, compact design, higher power density, less noise and improved reliability. Powerful feedback sensors are required to sense the rotor position for efficient control. Our new generation of Hall Switches and angle sensors provide energy efficient and powerful motor control.

Block Commutation



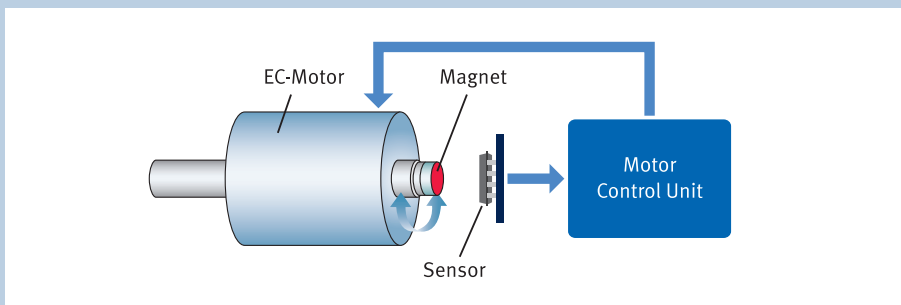
Sensors

- 3 Hall Switches

Benefits

- Easy implementation
- Significant efficiency improvement over brushed
- Failsafe operation
- Long lifetime
- Instant start-up

Field Oriented Control



Sensor Implementation

- One Angle Sensor
- End of shaft magnet

Benefits

- Highest efficiency
- Small form factor
- Continuous torque control
- Ripple free, silent operation
- Instant start-up
- Wear free operation

Benefits

Hall Switches

- Reduction of system power consumption
- Reduced system size
- Removal of protection devices
- Reliable system operation
- Increased motor efficiency

Angle Sensors

- Highest efficiency due to precise position sensing
- Suitable for highly dynamic systems
- Failsafe sensor operation – self check
- Small form factor

Application Fields of BLDC Motors

- Pumps
- Fans
- Power & garden tools
- E-Bikes & scooter
- Power closing systems
- Home appliances
- Air conditioning systems
- Medical equipment



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Hall Switches Key Features

- Small current consumption (1.6mA)
- 3.0V up to 32V operating supply voltage
- Reverse polarity protection (-18V)
- Active error compensation
- High ESD performance up to 7kV HBM
- Small SMD package SOT23
- Leaded package

Hall Switches

Product	Type	ATV	Industrial	Package
TLI4961-1M	2mT Latch	–	●	SOT23
TLI4961-1L	2mT Latch	–	●	Leaded Package
TLE4961-1M	2mT Latch	●	–	SOT23
TLE4961-1L	2mT Latch	●	–	Leaded Package
TLE4968-1M	1mT Bipolar Latch	●	–	SOT23
TLE4968-1L	1mT Bipolar Latch	●	–	Leaded Package

Angle Sensors Key Features

- Integrated MR (magneto resistive) technology
- Supply voltage 3.3 or 5.0V
- On chip temperature
- Integrated angle calculation and calibration
- Multiple interfaces for easy implementation
- Wide temperature range -40 to +150°C
- 8-pin SMD package (PG-DSO-8)

Angle Sensors

Product	Description
TLE5009 Family	GMR Angle Sensor with analog output of sine-/cos-bridges
TLE5109 Family	AMR Angle Sensor with analog output of sine-/cos-bridges
TLE5012B Family	GMR Angle Sensor with integrated angle calculation and multiple selectable digital interfaces

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