

XENSIV™ TLx49901 sensors

Infineon's linear Hall-effect magnetic sensor ICs with analog output in 3-Pin SOT23 package

The XENSIV™ TLx49901 sensors are linear Hall-effect magnetic sensor ICs in BiCMOS technology with a ratiometric analog output, delivering stable, high-resolution position measurement in automotive and industrial applications. The sensors sense magnetic fields perpendicular to the top side, providing an output voltage that is proportional to the supply voltage and the applied magnetic field.

There are two versions available: automotive (TLE49901) and industrial (TLI49901) - each with four different factory-programmed sensitivities, providing flexibility for different designs and customer requirements.

The XENSIV™ TLx49901 are suitable for applications that require high accuracy and can operate across an extended temperature range. With temperature and stress compensation of the signal, the sensors provide high accuracy over temperature and lifetime.

The sensors incorporate low-noise performance with a large signal bandwidth up to 20 kHz. The power supply voltage ranges from 3.3 V to 5.5 V, enabling usage in a wide range of applications, including battery-powered devices. All variants are available in a compact 3-pin SOT23 surface-mount package and are pin-compatible with existing market solutions.

Typical use cases:

- HMI controls (knob, trigger, button, slider)
- Pedal and valve position sensing
- Motor commutation
- Game controller joysticks and triggers
- Drones and gimbals
- Linear and angle sensing



Key features

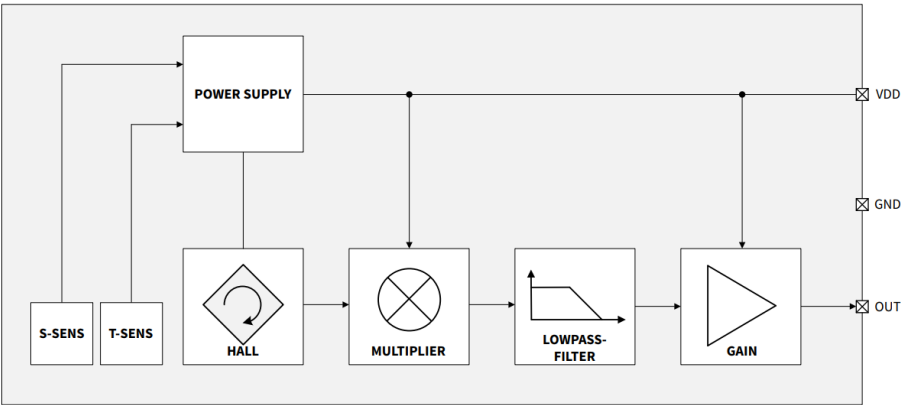
- Analog ratiometric linear Hall sensor
- 3.3 V and 5 V nominal supply
- Lowest sensitivity drift error over lifetime and temperature range
- Wide temperature range: -40°C to 125/150°C
- Best-in-class magnetic accuracy
 - Low linearity error ($\pm 0.5\%$)
 - Low drift over lifetime and temperature (± 5 to $\pm 8\%$)
- Standard SOT23-3 package
- Qualified for automotive and industrial applications

Key benefits

- Accurate magnetic field measurement for precise position feedback
- Value-optimized linear Hall sensor for flexible designs
- Low drift performance
- Good fit for trigger use cases like those in power tools, game controllers and key switches
- Ideal in extreme operating conditions

PRODUCT BRIEF

Block diagram



Product overview

Sales Name	Magnetic Range [mT]	Sensitivity Variant @5V [mV/mT]	Automotive/Industrial	Package	Ordering Code
TLE49901-1M	±45	50	Automotive	PG-SOT23-3	SP006041489
TLE49901-2M	±72	31.25	Automotive	PG-SOT23-3	SP006041498
TLE49901-3M	±90	25	Automotive	PG-SOT23-3	SP006041506
TLE49901-4M	±180	13	Automotive	PG-SOT23-3	SP006041510
TLI49901-1M	±45	50	Industrial	PG-SOT23-3	SP006041535
TLI49901-2M	±72	31.25	Industrial	PG-SOT23-3	SP006041539
TLI49901-3M	±90	25	Industrial	PG-SOT23-3	SP006041544
TLI49901-4M	±180	13	Industrial	PG-SOT23-3	SP006041548

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