

Product Overview

NSM301X is a contactless angle sensor that provides high-accuracy angle position measurement with wide temperature range from -40°C to 125°C.

NSM301X senses the magnetic field strength which is generated by the two-pole magnet based on an integrated Hall element array and converts the magnetic field strength into angular position of the magnet through the internal DSP. NSM301X provides different outputs include analog voltage, PWM, OWI, SPI, UWW.

The NSM301x provides SPI and OWI interfaces for signal path configuration. The output characteristics of NSM301x can be configured according to users' requirement (such as output interface, gain, clamping values, output filter, etc.).

The chip supports 3.3V, 5V power supply voltage (different power supply versions).

Key Features

- 14-bit Analog output DAC/ 12-bit PWM output
- The internal automatic gain compensation circuit can compensate for the gain loss caused by the temperature characteristics and the installation position tolerance in the Z direction of the magnet.
- Support four segment linear fitting
- $\pm 0.2^\circ$ accuracy after four-segment calibration
- SON digital output to judge the strength of magnetic field with programmable threshold
- Abnormal diagnosis function
- Differential Hall sensor for stray field suppression
- SPI and OWI programmable interface
- NOVOSENSE innovative 'Spin Current' technology for offset temperature drift suppression
- Operating temperature: -40°C ~ 125°C
- AEC-Q100 reliability standard: Grade 1
- RoHS & REACH Compliant
- Lead-free component, suitable for lead free soldering profile: 260°C, MSL3

Applications

- Rotary angle position measurement
- Valve rotation angle measurement
- Accelerator pedal angle sensor
- Contactless rotary switch button
- Replace the traditional knob type sliding rheostat
- Home printer
- Hand-held marking machine
- Industrial steering gear angle sensor

Device Information

Part Number	Package	Power Supply	Version
NSM3011A-DSPR	SOP8	5V	Industrial
NSM3011A-Q1SPR	SOP8	5V	Auto
NSM3012A-DSPR	SOP8	5V	Industrial
NSM3012A-Q1SPR	SOP8	5V	Auto
NSM3013A-DSPR	SOP8	5V	Industrial
NSM3013A-Q1SPR	SOP8	5V	Auto
NSM3011B-DSPR	SOP8	3.3V	Industrial
NSM3011B-Q1SPR	SOP8	3.3V	Auto
NSM3012B-DSPR	SOP8	3.3V	Industrial
NSM3012B-Q1SPR	SOP8	3.3V	Auto