

ASR001 Derating for Pre-production Release

The pre-production release of the ASR001 has the following parameters derated from the production release.

Overvoltage Protection

The ASR001 is equipped with robust overvoltage circuitry to prevent damage to the part in reverse and over-bias conditions. Maximum overvoltage is limited to 22 V in the preproduction release.

Parameter	Min.	Max.	Units
Supply voltage	-12	24 22	Volts

Analog Output

The ASR001 can generate a V_{DD} proportioned analog output with a voltage value that indicates the angle. The maximum analog output swing is in to within 150 millivolts from each supply rail in the pre-production release of the ASR001. The analog output will also show an overflow condition if the preset clipping limits are reduced below 150 mV.

Parameter	Symbol	Min.	Typ.	Max.	Units	Test Condition
Low-level analog output voltage	V_{OL}	0		50 150	mV	$I_L = -50 \mu A$
High-level analog output voltage	V_{OH}	$V_{DD}-0.05$ $V_{DD}-0.150$		V_{DD}	V	$I_L = 50 \mu A$

Sensor Accuracy

Factory-programmed analog signal conditioning for offset, phase and amplitude correction is combined with a temperature sensor to produce unprecedented accuracy and precision. The pre-production release of the ASR001 has reduced accuracy. A register timing problem may also produce an intermittent output error of approximately 22 angular degrees at angular multiples of approximately 22.5°.

Parameter	Symbol	Min.	Typ.	Max.	Units	Test Condition
Digital Output						
Angular accuracy, fixed bias ¹	θ_{min}			± 0.5 ± 4 ± 2 ± 5	Angular Degrees	25°C $T_{min} \leq T \leq T_{max}$
Angular accuracy, variable bias ² ASR001 ASR001A ASR001B ASR001C	θ_{min}			± 3.5 ± 7 ± 3.5 ± 7 ± 3.5 ± 7 ± 3.5 ± 7	Angular Degrees	$T_{min} \leq T \leq T_{max}$
Analog Output						
Angular accuracy, fixed bias ¹	θ_{min}			± 0.5 ± 7 ± 2 ± 8	Angular Degrees	25°C $T_{min} \leq T \leq T_{max}$
Angular accuracy, variable bias ² ASR001 ASR001A ASR001B ASR001C	θ_{min}			± 5 ± 12 ± 3.5 ± 10 ± 3.5 ± 10 ± 3.5 ± 10	Angular Degrees	$T_{min} \leq T \leq T_{max}$

Specification Notes:

1. “Fixed Bias” means a fixed airgap between the bias magnet and sensor so the magnitude of the magnetic field at the sensor is constant. The highest accuracy is obtained using fields closest to factory calibration.
2. “Variable Bias” means the magnitude of the magnetic field at the sensor can vary across the specification range.

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NVE Corporation
11409 Valley View Road
Eden Prairie, MN 55344-3617 USA
Telephone: (952) 829-9217
Fax: (952) 829-9189
www.nve.com
e-mail: sensor-info@nve.com

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