

**PERFORMANCE SPECIFICATION
TRIAxIAL ANGULAR RATE SENSOR
(Model 7330-XXX-ZZZ)**

Document Number	Rev	Date	Entered by	Description of Change	Change Accountable Engineer	ECO
77588	NR	8/24/23	NAD	Initial Release of Performance Specification Triaxial Angular Rate Sensor for Model 7330-XXX-ZZZ	HX	53059

1.0 DESCRIPTION

The ENDEVCO® Model 7330 is a tri-axial angular rate sensor that features three angular rate sensors packaged in a compact enclosure. This tri-axial angular rate sensor is designed specifically for automotive safety testing and other system designs in harsh shock and vibration environments requiring accurate measurement of angular velocity. The 7330 sensor features various full angular rate ranges including ± 100 , ± 500 , ± 1500 , ± 6000 , ± 8000 , ± 12000 and ± 18000 deg/sec, and provides full scale voltage output of $\pm 2V_p$.

2.0 CHARACTERISTICS

All specifications assume +75°F (+24°C) and +7 Vdc excitation unless otherwise stated. The following parameters are 100% tested.

	Units	-100	-500	Range Dash Number -1K5	-6K	-8K	-12K	-18K
RANGE	deg/sec	± 100	± 500	± 1500	± 6000	± 8000	± 12000	± 18000
2.1 SENSITIVITY ($\pm 15\%$)	mV/deg/sec	20	4	1.333	0.333	0.25	0.167	0.111
2.2 ZERO MEASURAND OUTPUT	mV	± 100	± 100	± 100	± 100	± 100	± 100	± 100
2.3 NON-LINEARITY (MAX)	%FSO	± 0.5	± 0.5	± 0.5	± 0.5	± 0.5	± 0.5	± 0.5

3.0 PERFORMANCE

The following parameters are established from testing of sample units.

3.1 FREQUENCY RESPONSE (+1dB/-3dB, ref 100 Hz)	Hz	0-1000	0-1000	0-1000	0-1000	0-1000	0-2000	0-2000
3.2 CROSS AXIS SENSITIVITY	%	<1	<1	<1	<1	<1	<1	<1
3.3 THERMAL ZERO SHIFT (MAX) -40°C to +105°C, ref. 24°C (-40°F to 221°F, ref. 75°F)	%FSO	± 2.5	± 2.5	± 2.5	± 2.5	± 2.5	± 2.5	± 2.5
3.4 THERMAL SENS SHIFT (MAX) -40°C to +105°C, ref. 24°C (-40°F to +221°F, ref. 75°F)	%	± 2.0	± 2.0	± 2.0	± 2.0	± 2.0	± 2.0	± 2.0
3.5 RESIDUE NOISE (PASSBAND)	mV RMS	12.0	3.2	2.5	2.1	2.1	1.8	1.8

4.0 ELECTRICAL

4.1	EXCITATION VOLTAGE	5 to 16 Vdc
4.2	CURRENT DRAIN	6 mA max each rate sensor axis, 18mA max total.
4.3	OUTPUT IMPEDANCE	200 ohms max
4.4	MAXIMUM EXCITATION VOLTAGE WITHOUT DAMAGE	20 Vdc
4.5	COMMON MODE VOLTAGE	(±5%) 2.5 Vdc
4.6	FULL SCALE OUTPUT VOLTAGE	(±15%) ±2 Vpk
4.7	INSULATION RESISTANCE (@100Vdc)	>100 MΩ
4.8	WARM-UP TIME (to within 1% of final output value)	<100 ms
4.9	INFLUENCE OF LINEAR ACCELERATION	0.1 deg/sec/g typical

5.0 PHYSICAL

5.1	WEIGHT (typical)	15 grams (without cable)
5.2	CASE MATERIAL	Anodized aluminum alloy.
5.2.1	CABLE TYPE	12x #32AWG Cond PFA Insulated, Braided Shield, White PU Jacket
5.3	MOUNTING/TORQUE	2x #4-40 or M3 Mounting Screw/ 6 lb-in (0.68 N-m)

6.0 ENVIRONMENTAL

6.1	ACCELERATION LIMITS (in any direction)	
6.1.1	SHOCK LIMIT	5000g
6.2	TEMPERATURE	
6.2.1	OPERATING RANGE	-40°F to +221°F (-40°C to +105°C)
6.2.2	STORAGE RANGE	-40°F to +221°F (-40°C to +105°C)
6.3	HUMIDITY	IP67

7.0 CALIBRATION DATA

7.1	SENSITIVITY (Measured with +7 Vdc excitation)	Measured at 100 deg/s for -100, 500deg/s for -500, 1500 deg/s for -1K5, and 3000 deg/s for -6K, -8K, -12K and -18K.
7.2	ZERO MEASURAND OUTPUT	Measured at +7 Vdc excitation and room temperature
7.2.1	NON-LINEARITY (Measured with +7 Vdc excitation)	Measured within range -100 ~ +100 deg/s for -100, -500 ~ +500 deg/s for -500, -1500 ~ +1500 deg/s for -1K5, and -3000 ~ +3000 deg/s for -6K, -8K, -12K and -18K.

8.0 ACCESSORIES

8.1 SUPPLIED
EH866
EHW289

4-40 X 1 1.4 Socked Head Cap Screw, 2X
#4 Flat Washer, 2X

9.0 NOTES

[1] Model Number Definition:

