

Piezoresistive Pressure Transducer

**ENDEVCO
MODEL
8530B-
2KM37**

Model 8530B-2KM37

- 2000 psia (136 bar) Full Scale
- Detachable Cable
- 600 mV Full Scale Output
- Absolute Reference



Actual size

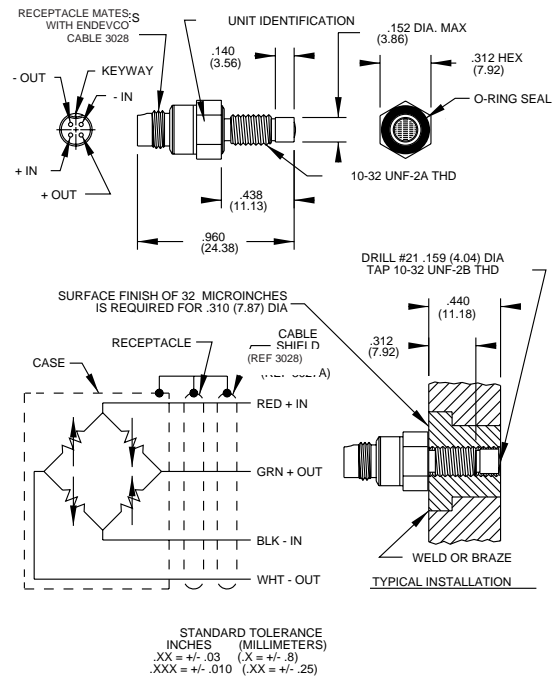
DESCRIPTION

The ENDEVCO® Model 8530B-2KM37 is a miniature, high sensitivity piezoresistive transducer for measuring dynamic pressure. The transducer is designed with a miniature receptacle to allow for detachment of the Model 3028 Cable Assembly. This pressure transducer is designed specially for automotive brake line pressure measurements in Anti-lock Brake System (ABS) studies. Full scale output is 600 mV, with an overload capability and a wide frequency response.

ENDEVCO pressure transducers feature an active four-arm strain gage bridge diffused into a sculptured silicon diaphragm for maximum sensitivity and wideband frequency response. Self-contained hybrid temperature compensation provides stable performance from 0°F to +200°F (-18°C to +93°C)*, with a wide operating temperature range from -65°F to +250°F (-54°C to +121°C). ENDEVCO transducers also feature excellent linearity, high shock resistance, and high stability during temperature transients.

ENDEVCO Model 136 Three-Channel System, Model 4428A or 4430A Signal Conditioner, or OASIS 2000 Computer-Controlled System are recommended as signal conditioner and power supply.

* Option X: 40°F to 140°F (5°C to 60°C)



SPECIFICATIONS

CERTIFIED PERFORMANCE: All specifications assume +75°F (+24°C) and 10 Vdc excitation unless otherwise stated. The following parameters are 100% tested. Calibration data, traceable to the National Institute of Standards and Technology (NIST), is supplied.

	Units	8530B-2KM37
RANGE	psia	2000
SENSITIVITY [1]	mV/psi	0.3 ± 0.1
	mV/bar	4.41 ± 1.47
COMBINED: NON-LINEARITY, NON-REPEATABILITY, PRESSURE HYSTERESIS [2]	% FSO RSS Max	1.00
Non-Linearity, Independent	% FSO Typ	0.2
Non-Repeatability	% FSO Typ	0.1
Pressure Hysteresis	% FSO Typ	0.1
ZERO MEASURAND OUTPUT [3]	mV Max	± 10
ZERO SHIFT AFTER 1.5X RANGE	± % 1.5X FSO Max (Typ)	0.2 (0.1)
THERMAL ZERO SHIFT		
From 0°F to +200°F (-18°C to +93°C)	± % FSO Max	3
From 40°F to 140°F (5°C to 60°C)	± % FSO Max	3 X- Option
THERMAL SENSITIVITY SHIFT		
From 0°F to +200°F (-18°C to +93°C)	± % Max	4
From 40°F to 140°F (5°C to 60°C)	± % Max	4 X- Option

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SPECIFICATIONS—continued

TYPICAL PERFORMANCE CHARACTERISTICS: The following parameters are established from testing of sample units.

	Units	8530B-2KM37
RESONANCE FREQUENCY	Hz	>1 000 000
NON-LINEARITY AT 1.5X RANGE	% 1.5X FSO	2.0
THERMAL TRANSIENT RESPONSE PER ISA-S37.10, PARA. 6.7, PROCEDURE I	psi/°F	0.04
	psi/°C	0.07
PHOTOFLASH RESPONSE [4]	Equiv. psi	20
WARM-UP TIME [5]	ms	1
ACCELERATION SENSITIVITY	Equiv. psi/g	0.0002
BURST PRESSURE (Diaphragm)	psia Min	4000

ELECTRICAL

FULL SCALE OUTPUT	600 ± 200 mV at 10.0 Vdc
SUPPLY VOLTAGE [6]	10.0 Vdc recommended, 18 Vdc maximum
ELECTRICAL CONFIGURATION	Active four-arm piezoresistive bridge
POLARITY	Positive output for increasing pressure
RESISTANCE	
Input	2000 ± 800 ohms
Output	1600 ± 500 ohms
Isolation	100 megohms minimum at 50 Volts; pins to case
NOISE	5 microvolts rms typical, dc to 50 000 Hz; 50 microvolts rms maximum, dc to 50 000 Hz

MECHANICAL

CASE, MATERIAL	Stainless steel (17-4 PH CRES)
ELECTRICAL CONNECTIONS	Endevco Model 3028-120 (Supplied)
DEAD VOLUME (+) PORT	0.0003 cubic inches (0.005 cc)
MOUNTING/TORQUE	10-32 UNF-2A threaded case 0.438 inch (11.12mm) long/15 ± 5 lbf-in (1.7 ± 0.6 Nm)
WEIGHT	2.3 grams (without cable)

ENVIRONMENTAL

MEDIA [7] [8]	Clean dry gas and brake line fluids
TEMPERATURE	-65°F to +250°F (-54°C to +121°C)
VIBRATION	1000 g pk
ACCELERATION	1000 g
SHOCK	20 000 g, 100 microsecond haversine pulse
HUMIDITY	Isolation resistance greater than 100 megohms at 50 volts when tested per MIL-STD-202E, Method 103B, Test Condition B.

CALIBRATION DATA

Data supplied for all parameters in Certified Performance section. Optional calibrations available for all parameters in Typical Performance section.

ACCESSORY

EHR93	O-RING, VITON
3028-120	CABLE ASSEMBLY

OPTIONAL ACCESSORIES

EHR96	O-RING, FLUOROSILICONE
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NOTES

- 1 psi = 6.895 kPa = 0.069 bar.
- FSO (Full Scale Output) is defined as transducer output from 0 to + full scale pressure, which is typically 600 mV.
- Zero Measurand Output (ZMO) is the transducer output with 0 psia applied.
- Per ISA-S37.10, Para. 6.7, Proc. II
- Warm-up time is defined as elapsed time from excitation voltage "turn on" until the transducer output is within ± 1% of reading accuracy.
- Use of excitation voltages other than 10.0 Vdc requires manufacture and calibration at that voltage since thermal errors increase with high excitation voltages.
- Internal seals are epoxy and are compatible with clean dry gas media and brake line fluids. Media in measurand port is exposed to CRES, Parylene C, epoxy and the VITON O-Ring. Not suitable for use with high pH or low pH liquids, long term exposure to water, or exposure to solvents which may attack epoxies.
- O-Ring, Parker No. 5-125, compound V747-75 (VITON) is supplied unless otherwise specified on purchase order. Fluorosilicone O-ring for leak-tight operation below 0°F available on special order.
- Maintain high levels of precision and accuracy using Endevco's factory calibration services. Call Endevco's inside sales force at 800-982-6732 for recommended intervals, pricing and turn-around time for these services as well as for quotations on our standard products.

Continued product improvement necessitates that Endevco reserve the right to modify these specifications without notice. Endevco maintains a program of constant surveillance over all products to ensure a high level of reliability. This program includes attention to reliability factors during product design, the support of stringent Quality Control requirements, and compulsory corrective action procedures. These measures, together with conservative specifications have made the name Endevco synonymous with reliability.