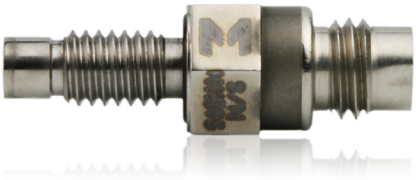
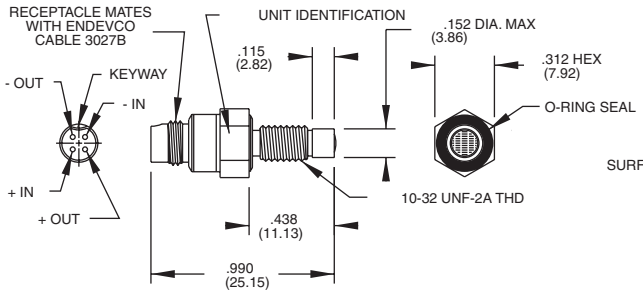
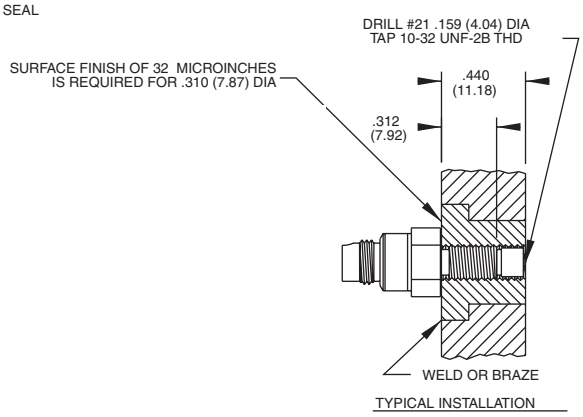
ENDEVCO
AN AMPHENOL COMPANY

Piezoresistive pressure transducer

Model 8530BM37







STANDARD TOLERANCE
INCHES (MILLIMETERS)
.XX = +/- .03 (.X = +/- .8)
.XXX = +/- .010 (.XX = +/- .25)

Key features

- 200, 500, 1000 and 2000 psia full scale ranges
- Absolute reference
- High resonance frequency
- 10 foot detachable cable included

Description

The Endevco® model 8530BM37 is a miniature, high sensitivity piezoresistive transducer for measuring absolute pressure. The transducer is designed with a miniature receptacle to allow for detachment of the model 3027B-120 cable assembly. This pressure transducer is ideal for automotive brake line pressure measurements in Anti-lock Brake System (ABS) studies. With broad frequency response and excellent overload capability, the 8530BM37 suits many applications where a rugged, high performance sensor is needed.

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.

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The following performance specifications are typical values, referenced at +75°F (+24°C) and 100 Hz, unless otherwise noted. Calibration data, traceable to National Institute of Standards and Technology (NIST), is supplied.

Specifications

Dynamic characteristics	Units	-200	-500	-1K	-2K
Range	psia	0–200	0–500	0–1000	0–2000
Sensitivity	mV/psi	1.5 ±0.5	0.6 ±0.2	0.3 ±0.1	0.3 ±0.1
Combined: non-linearity, non repeatability, pressure hysteresis [1]	% FSO RSS max	1	1	1	1
Non-linearity, independent	% FSO typ	0.2	0.2	0.2	0.2
Non-repeatability	% FSO typ	0.1	0.1	0.1	0.1
Pressure hysteresis	% FSO typ	0.1	0.1	0.1	0.1
Zero measurand output [2]	mV max	±20	±20	±20	±20
Thermal zero shift From 0 to 200˚F (-18˚C to +93˚C)	±% FSO max	3	3	3	3
Thermal sensitivity shift From 0 to 200˚F (-18˚C to +93˚C)	±% max	4	4	4	4
Resonance frequency	Hz	750 000	1 000 000	> 1 000 000	> 1 000 000
Thermal transient response per ISA-S37.10, PARA. 6.7, procedure I	psi / ˚F psi / ˚C	0.02 0.04	0.02 0.04	0.04 0.07	0.04 0.07
Photoflash response [3]	equiv psi	5	10	20	20
Warm-up time [4]	ms	1	1	1	1
Acceleration sensitivity	equiv. psi/g	0.0003	0.0002	0.0002	0.0002
Burst pressure (diaphragm)	psia min	800	2000	4000	4000
Case pressure [5]	psia min	1000	5000	5000	5000

Electrical	
Full scale output	300 ±100 mV (-100, -500 and -1K) or 600 ±200 mV (-2K) 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
Input resistance	2000 ±800 ohms
Output resistance	1600 ±500 ohms
Isolation resistance	100 megohms minimum at 50 Volts, leads 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 3027B-120 (supplied)
Dead volume (+) port	0.0003 cubic inches (0.005 cc)
Mounting/torque	10-32 UNF-2A threaded case 0.438 inch (11.12 mm) long / 15 ±5 lbf-in (1.7 ±0.6 Nm)
Weight	2.3 grams (without cable assembly)

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 V when tested per MIL-STD-202E, method 103B, test condition B

Calibration	
Calibration data	Calibration includes: range, sensitivity, non-linearity, non-repeatability, hysteresis, zero measurand output, zero shift after 3X range, thermal zero shift and thermal sensitivity shift.

Accessories		
Options	**Description**	**8530BM37**
EHR93	O-ring, Viton	Included
3027B-120	10 foot cable assembly with mating 4-pin connector on one end and pigtails on the other	Included
3027B/XXX	Mating cable assembly, define length in inches	Optional
EHR96	O-ring, Fluorosilicone	Optional

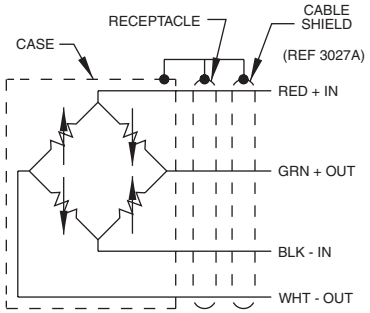
Notes

1. FSO (Full Scale Output) is defined as transducer output change from 0 to + full scale pressure.
2. Zero Measurand Output (ZMO) is the transducer output with 0 psia applied.
3. Per ISA-S37.10, Para. 6.7, Proc. II.
4. Warm-up time is defined as elapsed time from excitation voltage "turn on" until the transducer output is within ±1% of reading accuracy.
5. Case pressure is the media containment pressure in the event of diaphragm rupture.
6. Use of excitation voltages other than 10.0 Vdc requires manufacture and calibration at that voltage since thermal errors increase with high excitation voltages.
7. 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.
8. O-ring, Parker 5-125, compound V747-75 (Viton®) is supplied unless otherwise specified on purchase order. Fluorosilicone O-ring, for leak tight operation below 0°F is available on special order.
9. Maintain high levels of precision and accuracy using Endevco's factory calibration services. Call Endevco's inside sales force at 866-ENDEVCO for recommended intervals, pricing and turn-around time for these services as well as for quotations on our standard products.

Model number definition:

8530B M37 – XXX – Y

- Y: Protection option
  1 = Screen only
  2 = Screen and black grease
  3 = Black grease only
  4 = No screen, no black grease
- XXX: Full scale range in psia
  -200 = 200 psia
  -500 = 500 psia
  -1K = 1000 psia
  -2K = 2000 psia
- M37: Modifier
- 8530B: Basic model number



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