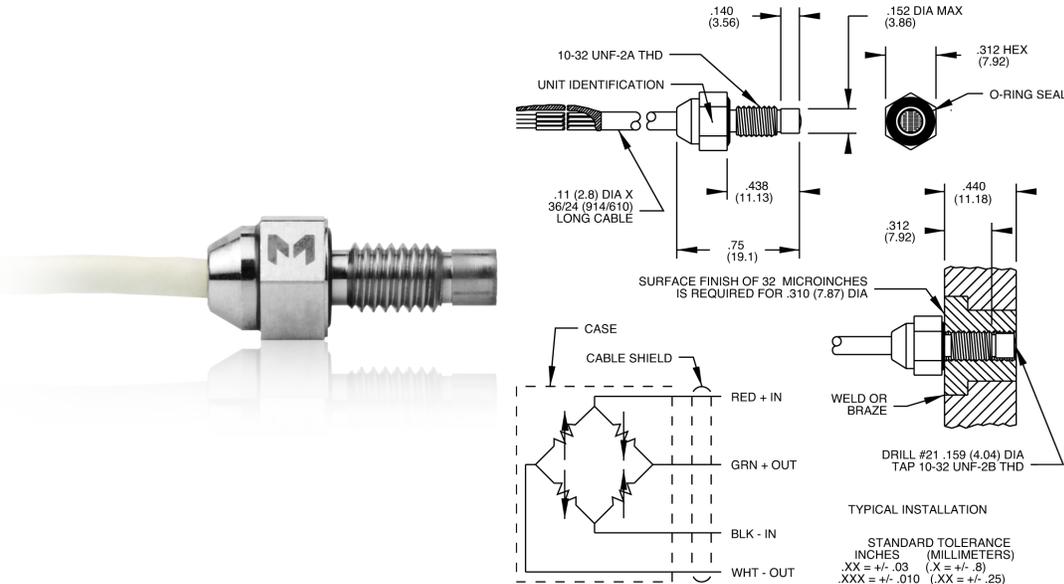


Endevco®

# Piezoresistive pressure transducer

## Model 8530B -200, -500, -1000



### Key features

- 200, 500 and 1000 psia ranges
- Absolute reference
- 300mV full scale output
- Rugged, miniature

Model 8530B is a miniature, high sensitivity piezoresistive pressure transducer for measuring absolute pressure. The volume behind the diaphragm is evacuated and glass sealed to provide an absolute pressure reference. Full scale output is 300 mV with high overload capability and high frequency response. It is available in ranges from 200 psia to 1000 psia. See model 8530C for lower pressure ranges.

Endevco brand 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 over the temperature range of 0°F to 200°F (-18°C to +93°C). Endevco brand transducers also feature excellent linearity and provide stable performance over the temperature range of -65°F to +250°F (-54°C to +121°C). Meggitt's Endevco brand transducers also feature excellent linearity (even to 3X range), high shock resistance, and high stability during temperature transients.

Recommended electronics for signal conditioning and power supply are the Endevco brand model 126 and 136 general purpose three channel conditioners, ultra low noise 4430A conditioner, or the 4990A-X (Oasis) multi-channel rack mount system.

## Meggitt Sensing Systems

### Our measurement product competencies:

Piezoelectric accelerometers | Piezoresistive accelerometers | Isotron accelerometers | Variable capacitance accelerometers | [Pressure transducers](#) | Acoustic sensors | Electronic instruments | Calibration systems | Shakers | Modal hammers | Cable assemblies

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### Specifications

The following performance specifications conform to ISA-RP-37.2 (1964) and 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.

| Dynamic characteristics                                             | Units                 | -200       | -500       | -1000            |
|---------------------------------------------------------------------|-----------------------|------------|------------|------------------|
| Range                                                               | psia                  | 0-200      | 0-500      | 0-1000           |
| Sensitivity [1]                                                     | mV/psi                | 1.5 ±0.5   | 0.6 ±0.2   | 0.3 ±0.1         |
| Combined: non-linearity, non repeatability, pressure hysteresis [2] | % FSO RSS max         | 0.50       | 0.50       | 1.0              |
| Non-linearity, independent                                          | % FSO typ             | 0.2        | 0.2        | 0.2              |
| Non-repeatability                                                   | % FSO typ             | 0.1        | 0.1        | 0.1              |
| Pressure hysteresis                                                 | % FSO typ             | 0.1        | 0.1        | 0.1              |
| Zero measurand output [3]                                           | mV max                | ±20        | ±20        | ±20              |
| Zero shift after 3X over range                                      | ±% 3X FSO max [typ]   | 0.2 (0.05) | 0.2 (0.05) |                  |
| after 2.5X over range                                               | ±% 2.5X FSO max [typ] |            |            | 0.2 (0.1)        |
| Thermal zero shift                                                  |                       |            |            |                  |
| From 0 to 200°F (-18°C to +93°C)                                    | ±% FSO max            | 3          | 3          | 3                |
| Thermal sensitivity shift                                           |                       |            |            |                  |
| From 0 to 200°F (-18°C to +93°C)                                    | ±% max                | 4          | 4          | 4                |
| Resonant frequency                                                  | Hz                    | 750 000    | 1 000 000  | > 1 000 000      |
| Non-linearity at 3X over range                                      | % 3X FSO              | 1.5        | 2.0        | 2.0 @ % 2.5X FSO |
| Thermal transient response per                                      | psi / °F              | 0.02       | 0.02       | 0.04             |
| ISA-S37.10, PARA. 6.7, procedure I                                  | psi / °C              | 0.04       | 0.04       | 0.07             |
| Photoflash response [4]                                             | equiv psi             | 5          | 10         | 20               |
| Warm-up time [5]                                                    | ms                    | 1          | 1          | 1                |
| Acceleration sensitivity                                            | equiv. psi/g          | 0.0003     | 0.0002     | 0.0002           |
| Burst pressure (diaphragm)                                          | psia min              | 800        | 2000       | 4000             |
| Case pressure [6]                                                   | psia min              | 1000       | 5000       | 5000             |

#### Electrical

|                          |                                                                                       |
|--------------------------|---------------------------------------------------------------------------------------|
| Full scale output        | 300 ±100 mV at 10.0 Vdc                                                               |
| Supply voltage [7]       | 10.0 Vdc standard, 18 Vdc maximum                                                     |
| Electrical configuration | Active four-arm piezoresistive bridge                                                 |
| Polarity                 | Positive output for increasing pressure                                               |
| Resistance               |                                                                                       |
| Input                    | 2000 ±800 ohms                                                                        |
| Output                   | 1500 ±600 ohms                                                                        |
| Isolation                | 100 megohms minimum at 50 Volts, leads to case, leads to shield, shield 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)                                                     |
| Cable, integral      | Four conductor No. 32 AWG Teflon insulated leads, braided shield, silicone jacket  |
| 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 (cable weighs 9 grams/meter)                                             |

#### Environmental

|                  |                                                                                                                   |
|------------------|-------------------------------------------------------------------------------------------------------------------|
| Media [8] [9]    | Clean dry gas. Contact factory for protective modifications for other media.                                      |
| Temperature [10] | -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 data [11]

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

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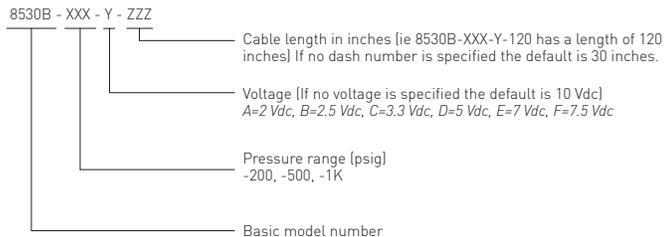
### Accessories

| Product | Description                       | 8530B    |
|---------|-----------------------------------|----------|
| EHR93   | O-ring, Viton                     | Included |
| EHR96   | O-ring, fluorosilicone            | Optional |
| 24328-3 | 4 conductor shielded cable, white | Optional |

### Notes

- 1 psi = 6.895 kPa = 0.069 bar.
- FSO (Full Scale Output) is defined as transducer output change from 0 to + full scale pressure.
- 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.
- Case pressure identifies media containment pressure in the event of diaphragm rupture.
- Please specify the excitation voltage you will use and we will calibrate at that voltage for highest accuracy. See model definition.
- Internal seals are epoxy and are compatible with clean dry gas media. 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 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.
- Units can be compensated over any 200°F (93°C) span from -65°F to +250°F (-54°C to +121°C) on special orders.
- Maintain high levels of precision and accuracy using Meggitt's factory calibration services. Call Meggitt'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.

### Model definition



### Other options

- M5 Metric thread
- M6 No screen
- M8 "B" screen, black grease - ITAR
- M9 "A" screen, black grease - ITAR
- M37 Integral connector
- M57 No screen, gel

### Contact

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Continued product improvement necessitates that Meggitt reserve the right to modify these specifications without notice. Meggitt 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. 022715

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