

Dynamic under pressure

Endevco's piezoresistive pressure sensors offer accurate and reliable performance at pressure extremes.

For several decades, Endevco's brand pressure sensors have been addressing demanding test environments for automobiles, trains, aircraft and weapons. The MEMS sensing elements are designed for extremely high output and high resonance combined with exceptional linearity and hysteresis performance. Whether your application calls for measurement of 1 psi or 20,000 psi, a light wind or an explosive blast, Endevco has a pressure sensor that will give you the data you need.

Miniature piezoresistive pressure transducers are designed to measure both dynamic and static pressure to a high degree of accuracy. MEMS sensing elements feature a unique diaphragm design manufactured at Endevco's US based MEMS facility, resulting in a range of pressure sensors with an extremely high output signal and high resonant frequency, as well as extraordinary linearity and repeatability, and virtually no hysteresis.

All models feature internal temperature compensation to provide stable performance over temperature. Absolute pressure sensors are available in ranges as low as 0–15 psia and as high as 0–2000 psia, with gage/differential sensor models available in ranges as low as 0–1 psig and as high as 0–20,000 psig. All units are shipped in specially designed electrostatic discharge (ESD) packaging, to reduce the potentially harmful effects of static electricity on critical components, as well as to further support customer in-house ESD control procedures.

Applications:

- › Hypersonic, transonic and "quiet flow" wind tunnel testing
- › Jet airflow fields and inlet pressure
- › Turbulent airflow measurements
- › Process control
- › Vehicle Transmission Testing
- › Blast testing
- › Automotive airbag inflation testing
- › Rocket motor analysis
- › Vehicle transmission testing
- › Hydraulics measurements



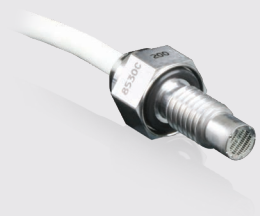
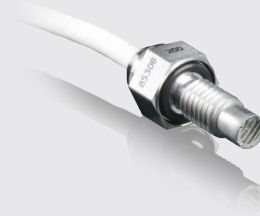
Gage pressure transducers



| Model number | 8507C | 8510B | 8510C | 8511A |
|-------------------------------|---|---|---|--|
| Description | Gage High sensitivity Temp compensation | Gage Vent tube Temp compensation | Gage High resonance Temp compensation | Rugged Gage High pressure Temp compensation |
| Full scale pressure psig | 1 / 2 / 5 / 15 | 200 / 500 / 2000 | 15 / 50 / 100 | 5000 / 10,000 / 20,000 |
| Sensitivity mV/psi | 200 / 100 / 60 / 20 | 1.5 / 0.6 / 0.15 | 15 / 4.5 / 2.25 | 0.1 / 0.05 / 0.025 |
| Resonance frequency kHz | 55 / 70 / 85 / 130 | 320 / 500 / 900 | 180 / 320 / 500 | greater than 1000 |
| Non linearity (typ) %FSO | 1.5 / 1.0 / 0.5 / 0.2 | 0.25 / 0.25 / 0.25 | 0.15 / 0.1 / 0.1 | 1.2 / 2.5 / 2.5 |
| Operating temperature °C [°F] | -54 to +107 [-65 to +225] | -54 to +121 [-65 to +250] | -54 to +121 [-65 to +250] | -54 to +121 [-65 to +250] |
| Burst pressure psi | 20 / 40 / 100 / 150 | 1000 / 2500 / 10,000 | 75 / 250 / 400 | 20,000 / 30,000 / 40,000 |
| Face diameter mm (in) | 2.34 (0.092) | 3.86 (0.152) | 3.86 (0.152) | 8.13 (0.320) |
| Weight gram | 0.3 | 2.3 | 2.3 | 11 |
| Mounting method | RTV bond | 10-32 UNF-2A | 10-32 UNF-2A | 3/8-24 UNF-2A |
| Screen | "A" screen | "A" screen | "A" screen | No screen |
| Cable P/N | 22409 | 24328-3 | 24328-3 | 24328-3 |
| Accessories | --- | EHR93, O-ring, viton EHR96, O-ring, fluorosilicone | EHR93, O-ring, viton EHR96, O-ring, fluorosilicone | 22688, gasket, copper 22686 washer, high pressure |

| Options | | | | |
|---|------|------|------|------------------|
| Input voltage variable | ---- | Yes | Yes | ---- |
| 2.5V calibration | ---- | N/A | N/A | ---- |
| 5V calibration | M6 | N/A | N/A | ---- |
| No vent tube | ---- | M1 | M1 | ---- |
| No vent tube, no screen | ---- | ---- | M2 | ---- |
| Metric thread | N/A | M5 | M5 | ---- |
| No screen | ---- | M7 | M7 | Std |
| Integral connector | ---- | ---- | ---- | ---- |
| Integral connector, no vent tube, hole inside | ---- | M37 | M37 | M37 |
| "A" screen, black grease | ---- | M8 | M8 | M1 (star screen) |
| "B" screen | ---- | M11 | M11 | ---- |
| "B" screen, black grease | ---- | M43 | ---- | M8 |
| Gel | ---- | M41 | M4 | ---- |
| No screen, gel | M8 | ---- | M41 | ---- |

Absolute pressure transducers



| Model number | 8515C | 8530B | 8530C |
|--|---|---|---|
| Description | 0.03 inch thin Surface mount High sensitivity | Absolute High resonance Temp compensation | Absolute High sensitivity Temp compensation |
| Full scale pressure psia | 15 / 50 | 200 / 500 / 1000 / 2000 | 15 / 50 / 100 |
| Sensitivity mV/psi | 13.3 / 4.0 | 1.5 / 0.6 / 0.3 / 0.3 | 15 / 4.5 / 2.25 |
| Resonance frequency kHz | 180 / 320 | 750 / 1000 / →1000 / →1000 | 180 / 320 / 500 |
| Non linearity (typ) %FSO | 0.2 | 0.2 | 0.15 / 0.1 / 0.1 |
| Operating temperature °C (°F) | -54 to +121 [-65 to +250] | -54 to +121 [-65 to +250] | -54 to +121 [-65 to +250] |
| Burst pressure psi | 75 / 250 | 800 / 2000 / 4000 / 4000 | 75 / 250 / 400 |
| Face diameter mm (in) | 6.35 (0.25) | 3.86 (0.152) | 3.86 (0.152) |
| Weight gram | 0.08 | 2.3 | 2.3 |
| Mounting method | RTV bond | 10-32 UNF-2A | 10-32 UNF-2A |
| Screen | "B" screen | "A" screen | "A" screen |
| Cable P/N | EW862 | 24328-3 | 24328-3 |
| Accessories | 30042, mounting pad | EHR93, O-ring, viton EHR96, O-ring, fluorosilicone | EHR93, O-ring, viton EHR96, O-ring, fluorosilicone |
| Options | | | |
| Input voltage variable | ---- | Yes | Yes |
| 2.5V calibration | M33 | N/A | N/A |
| 5V calibration | M39 | N/A | N/A |
| No vent tube | ---- | ---- | ---- |
| No vent tube, no screen | ---- | ---- | ---- |
| Metric thread | N/A | M5 | M5 |
| No screen | ---- | M6 | M59 |
| Integral connector | ---- | M37 | M37 |
| Integral connector, no vent tube, hole inside | ---- | ---- | ---- |
| "A" screen, black grease | M32 | M9 | M1 |
| "B" screen | Std | ---- | M58 |
| "B" screen, black grease | ---- | M8 | M2 |
| Gel | M35 | ---- | M35 |
| No screen, gel | ---- | ---- | ---- |

Option descriptions

- › All units come standard with 10V calibration. Other voltages are available and should be specified at the time of order to ensure accurate calibration.
- › All units are supplied with a 30 inch integral cable. Longer lengths should be specified at the time of order, subject to the following guidelines: for lengths less than 10 feet, in increments of 1 foot; for lengths greater than 10 feet, in increments of 5 feet. The M37 or integral connector option comes standard with a 3027A-120 cable assembly.
- › Black grease is added to protect the piezoresistive gages from light, particularly the flash of light which is common with blast testing applications.
- › Gel is added to improve water resistance, enabling the sensors to be used in a wet environment for as long as 4 hours, or a humid environment for as long as 8 hours. The sensors will stop functioning when they become thoroughly wet, but will work again once allowed to dry for 24 hours.
- › All sensors come with internal temperature compensation to provide stable performance over temperature. Most models are compensated between 0°F and 200°F (-18°C to +93°C). Upon request, this range can be modified to better suit your application to any 200°F range that is inside the normal operating range of the sensor. The model 8540 is our high temperature sensor and it has internal temperature compensation from -30°F to 500°F (-34°C to +260°C).



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