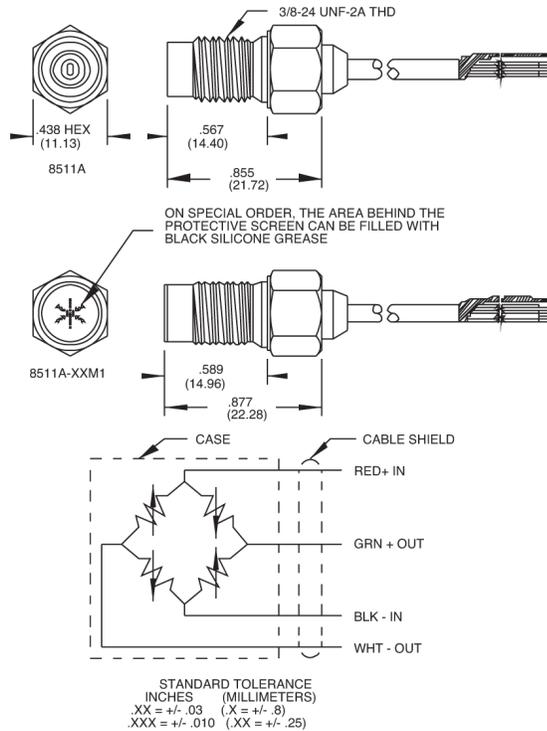


Endevco®

Piezoresistive pressure transducer

Model 8511A -5K, -10K, -20K



Model 8511A is a rugged, piezoresistive pressure transducer for high pressures. It has a 3/8-inch mounting thread and is available in ranges from 5000 to 20 000 psig.

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 over the wide temperature range of 0°F to 200°F (-18°C to +93°C). Endevco transducers also feature excellent linearity, high shock resistance, and high stability during temperature transients.

8511A is widely used for high pressure applications such as studies of structural loading by shock waves resulting from explosive blasts, pulsations in hydraulic and combustion systems. For harsh environments where there is particle impingement, an optional version is available with a protective screen and a black silicone grease coating which further reduces photoflash sensitivity and provides an effective thermal barrier for short duration high temperature service.

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

Key features

- 5000, 10 000, 20 000 psig ranges
- Rugged
- High sensitivity
- Temperature compensated

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

MEGGITT
smart engineering for
extreme environments

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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	-5K	-10K	-20K
Range [1]	psig	0-5000	0-10 000	0-20 000
Positive sensitivity [1]	mV/psi	0.100 ±0.033	0.050 ±0.017	0.025 ±0.008
Combined: non-linearity, non-repeatability, pressure hysteresis [2]	% FSO RSS typical	1.5	3.0	3.0
Non-Linearity, Independent	% FSO typical	1.2	2.5	2.5
Non-Repeatability	% FSO typical	0.5	0.5	0.5
Pressure Hysteresis	% FSO typical	1.0	1.0	1.0
Zero measurand output [3]	mV Max	±25	±25	±25
Zero shift after 2x range	±% 2X FSO Max	0.1	0.2	[4]
Thermal zero shift				
From 0°F to 200°F (-18°C to +93°C)	±% FSO Max	3	3	3
Thermal sensitivity shift				
From 0°F to 200°F (-18°C to +93°C)	±% Max	4	4	4
Resonance frequency	Hz 1.5	>1 000 000	>1 000 000	>1 000 000
Non-linearity at 3x range [4]	% 3X FSO	0.3	0.8	[4]
Photoflash response [5]	Equiv. psi -5k	12	25	50
Warm-up time [6]	ms 20v	1	1	1
Acceleration sensitivity	Equiv. psi/g	0.001	0.002	0.003
Burst pressure (diaphragm)	psi Min	20 000	30 000	40 000

Electrical

Full scale output	500 mV typical (270 mV min) 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 into (+) port
Resistance	
Input	2000 ohms min
Output	1000 min
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
Cable, integral	Four conductor No. 32 AWG Teflon® insulated leads, braided shield, silicone jacket. 30 ±3 in (760 ±76mm)
Dead volume (+) port	0.004 cubic inches (0.06 cc)
Mounting/torque	3/8-24 UNF-2A threaded case 0.567 inch (14.4 mm) long/12 ±2 lbf-ft (16 ±2 Nm)
Weight	11 grams (cable weighs 9 grams/meter)

Environmental

Media	Media in (+) measurand port is exposed to nickel-iron alloy, Parylene C and epoxy. Internal seals are epoxy and are compatible with clean dry gas media.
Temperature [8]	-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. External case is sealed with epoxy. Circuit within case, vented through cable, is coated with Parylene C.

Calibration data

A calibration certificate is supplied with each unit.