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ENDEVCO
AN AMPHENOL COMPANY

Piezoresistive pressure transducer

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

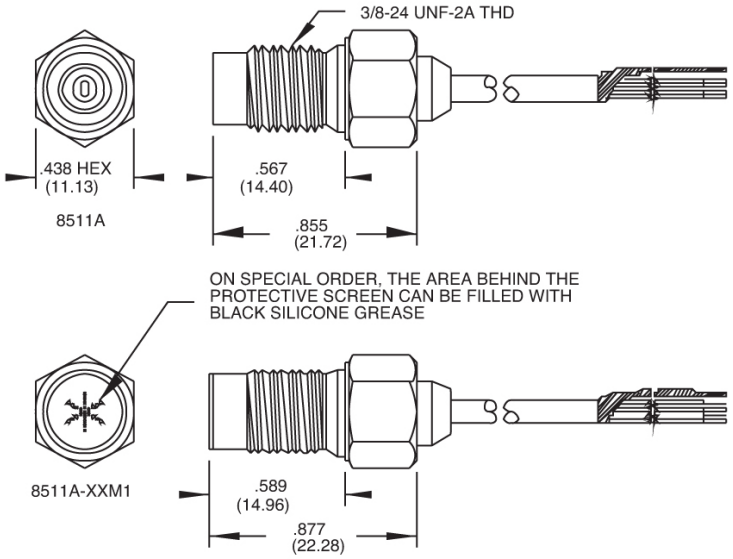




Image of M8 option

Key features

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

Description

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.

Piezoresistive pressure transducer | Model 8511A -5K, -10K, -20K

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	-5K	-10K	-20K
Range	psig	0-5000	0-10 000	0-20 000
Positive sensitivity	mV/psi typical	0.1	0.05	0.025
Combined: non-linearity, non-repeatability, pressure hysteresis	% FSO RSS max	1.5	3	3
Non-linearity, independent	% FSO max	1.2	2.5	2.5
Non-repeatability	% FSO max	0.5	0.5	0.5
Pressure hysteresis	% FSO max	1	1	1
Zero measurand output	mV max	±25	±25	±25
Zero shift after 2.5x range	±% 2.5X FSO max	0.1	0.2	[1]
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	>1 000 000	>1 000 000	>1 000 000
Non-linearity at 2.5x range	% 2.5X FSO	0.3	0.8	[1]
Warm-up time [2]	ms	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	
Supply voltage	10.0 Vdc standard, 18 Vdc maximum
Polarity	Positive output for increasing pressure into (+) port
Resistance	
Input	2000 ohms typical
Output	1500 ohms typical
Isolation	100 megohms minimum at 50 Volts; leads to case, leads to shield, shield to case
Mechanical	
Case, material	Stainless steel
Cable, integral	Four conductor No. 32 AWG Teflon® insulated leads, braided shield, silicone jacket
Dead volume (+) port	0.004 cubic inches (0.06 cc)
Mounting	3/8-24 UNF-2A threaded case 0.567 inch (14.4 mm) long
Torque	Torque 12 +/-2 lbf-ft (16 +/-2 Nm) for 5K and 10K; 25 +/-4 lbf-ft (34 +/-5 Nm) for 20K
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	-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
ISO17025 Calibration includes: range, sensitivity, non-linearity, non-repeatability, hysteresis, zero measurand output, thermal zero shift and thermal sensitivity shift.

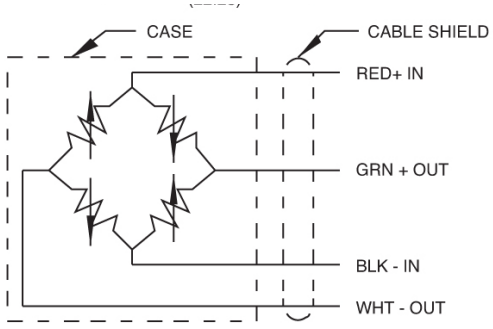
Accessories		
Options	**Description**	**8511A**
22688	Copper gasket (-5K, -10K)	Included
22686	Washer, high pressure (-20k)	Included
M1	"Star" screen and black grease	Optional
M8	"B" screen and black grease	Optional
M37	Integral connector, no vent tube,hole on side	Optional

Notes

1. 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.
2. Overrange is limited to 40,000 psi for the 8511A-20K
3. Warm-up time is defined as elapsed time from excitation voltage "turn on" until the transducer output is the ±1% of reading accuracy.
4. Model number definition:

8511A - XXX - ZZZ - E

- Excitation voltage (omit for standard 10 Vdc)
  D = 5 Vdc
- Cable length in inches (ie 8511A-5K-120 has a length of 120 inches)
  If no dash number is specified the default is 30 inches.
- Pressure range (psig)
  -5K, -10K, -20K
- Basic model number



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

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