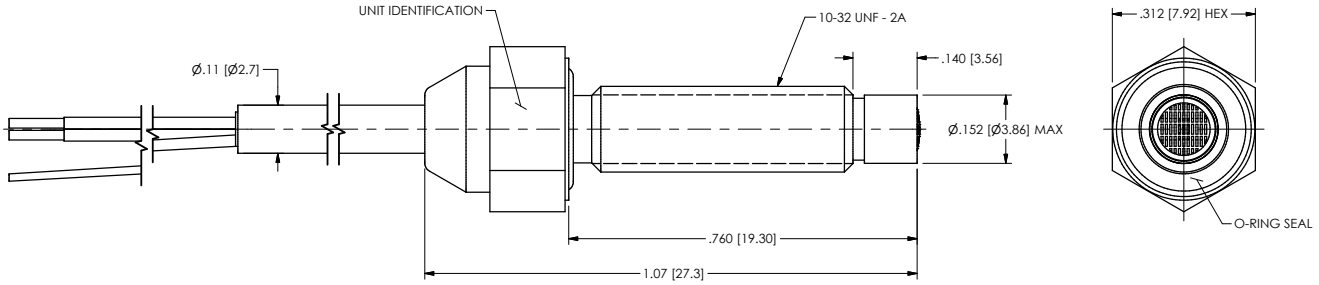
ENDEVCO
AN AMPHENOL COMPANY

Piezoresistive pressure transducer

Model 8530CM67 -15, -50, -100



Key features

- 15, 50 and 100 psia ranges
- 225 mV full scale
- Absolute reference

Description

Model 8530CM67 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 225 mV with high overload capability and high frequency response. It is available in ranges from 15 psia to 100 psia.

Endevco pressure transducers feature a four-arm strain gage bridge ion implanted into a unique sculptured silicon diaphragm for maximum sensitivity and wideband frequency response. Endevco transducers also feature excellent linearity (even to 3X range), high shock resistance, and high stability during temperature transients.

8530CM67 is temperature compensated to provide stable performance over the temperature range of -30°F to 170°F (-34°C to +77°C) and includes a protective gel coating to mitigate short term moisture exposure. 8530CM67 also includes a longer probe length of 0.75" compared to the 0.44" of the standard 8530C.

Piezoresistive pressure transducer | Model 8530CM67 -15, -50, -100

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	-15	-50	-100
Range	psia	0–15	0–50	0–100
Sensitivity	mV/psi typ (min)	15.0 (9.3)	4.5 (2.8)	2.25 (1.4)
Combined: non-linearity, non repeatability, pressure hysteresis [1]	% FSO RSS max	0.5	0.4	0.4
Non-linearity, independent	% FSO typ	0.15	0.1	0.1
Non-repeatability	% FSO typ	0.1	0.1	0.1
Pressure hysteresis	% FSO typ	0.1	0.1	0.1
Zero measurand output [2]	mV max	±20	±20	±20
Zero shift after 3X range	±% 3X FSO max	0.2	0.2	0.2
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	3	3	3
Resonance frequency	Hz	180 000	320 000	500 000
Non-linearity at 3X range	% 3X FSO	1	1	1
Zero shift with mounting torque	% FSO	0.2	0.5	0.5
Thermal transient response per	psi / ˚F	0.003	0.003	0.01
ISA-S37.10, PARA. 6.7, procedure I [3]	psi / ˚C	0.005	0.005	0.018
Photoflash response [4]	equiv psi	0.1	0.3	0.6
Warm-up time [5]	ms	1	1	1
Acceleration sensitivity	equiv. psi/g	0.00015	0.00015	0.00015
Burst pressure (diaphragm)	psia min	75	250	400
Case pressure [6]	psia min	1000	1000	1000

Electrical	
Full scale output	225 mV typical (140 mV minimum) at 10.0 Vdc
Supply voltage	10.0 Vdc recommended, 15 Vdc maximum
Electrical configuration	Active four-arm piezoresistive bridge
Polarity	Positive output for increasing pressure
Resistance	
Input	2600 ohms typical, 1700 ohm minimum
Output	1500 ohms typical, 2200 ohms maximum
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 ETFE insulated leads, braided shield, silicone jacket, 30 ±6 in (760 ±150 mm)
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	Internal seals are epoxy compatible with clean dry gas media. Media is exposed to CRES, ceramic, silicon, Parylene C, epoxy, silicone rubber, and the O-Ring. For use in water or corrosive media, contact the factory for modifications and installation precautions which may be taken to extend service life
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

Calibration data

ISO17025 Calibration includes: range, sensitivity, non-linearity, non-repeatability, hysteresis, zero measurand output, zero shift after 3X range, thermal zero shift and thermal sensitivity shift.

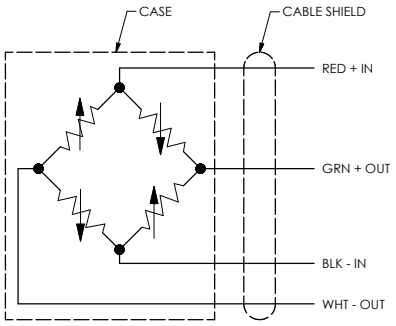
Accessories		
Product	**Description**	**8530CM67**
EHR93	O-ring, Viton	Included
EHR96	O-ring, fluorosilicone for leak tight operation below 0°F (18°C)	Optional
24328-3/XXX	4 conductor shielded cable, white	Optional

Notes

1. FSO (Full Scale Output) is defined as transducer output change from 0 psia to + full scale pressure.
2. Zero Measurand Output (ZMO) is the transducer output with 0 psia applied.
3. Significantly higher thermal transient errors occur if the excitation voltage exceeds 10 Vdc. For sensitive phase change studies, many users reduce the excitation to 5 Vdc or even 1 Vdc.
4. Per ISA-S37.10, Para. 6.7, Proc. II. The metal screen partially shields the silicon diaphragm from incident radiation. Accordingly, light incident at acute angles to the screen generally increases the error by a factor of 2 or 3.
5. Warm-up time is defined as elapsed time from excitation voltage "turn on" until the transducer output is within ±1% of reading accuracy.
6. Case pressure identifies media containment pressure in the event of diaphragm rupture.
7. 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.

8530CM67 – XXX – YYY – E

- E: Excitation voltage (if no voltage is specified the default is 10 Vdc) D=5 Vdc
- YYY: Cable length in inches (ie 8530CM67-100-120 has a length of 120 inches) If no dash number is specified the default is 30 inches. For lengths ≤ 10 ft specify 1 ft increments (12", 24"...120") For lengths ≤ 10 ft specify 5 ft increments (180", 240"...etc)
- XXX: Pressure range (psia) -15, -50, -100
- 8530CM67: Basic model number



ENDEVCO
AN AMPHENOL COMPANY
10869 NC Highway 903, Halifax, NC 27839 USA
endevco.com | sales@endevco.com | 866 363 3826