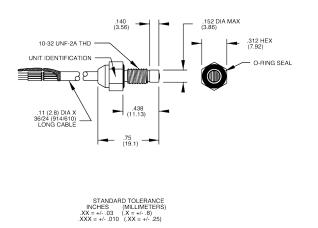
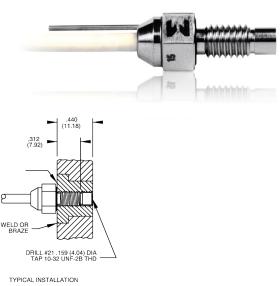


# **Piezoresistive pressure transducer** Model 8510C -15, -50, -100





### **Key features**

- □ 15, 50 and 100 psig ranges
- 225mV full scale output
- Rugged, miniature
- Gage

## Description

Model 8510C is a rugged, miniature, high sensitivity piezoresistive pressure transducer. Its high sensitivity combined with high resonance makes it ideal for measuring dynamic pressure. It has a 10-32 mounting thread, 0.15 inch (3.8 mm) face diameter and is available in ranges from 15 psi to 100 psi. The model 8510B is available for lower and higher pressure ranges.

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. Self-contained hybrid temperature compensation provides stable performance over the temperature range of 0°F to 200°F (-18°C to +93°C).

Endevco transducers also feature excellent linearity (even to 3X range), high shock resistance, and high stability during temperature transients.

8510C is designed for a wide variety of aerospace, automotive and industrial measurements which require a combination of small size, high sensitivity, and wideband frequency response. Typical applications include process control, jet engine inlet pressure measurements and wind tunnel flow measurements. Its vent tube may be connected to a standard reference manifold or used for differential pressure measurements.

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



## Piezoresistive pressure transducer | Model 8510C -15, -50, -100

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.

ange [1]     psig     0-15     0-50     0-100       castive sensitivity [2]     mV/psi typ (nin)     15.0 (9.3)     4.5 C.8)     2.25 (1.4)       combined: concilinearity, non-repeatability,     mV psi typ (nin)     15.0 (9.3)     4.5 C.8)     2.25 (1.4)       resure hysteresis     % FSO typ     0.15     0.1     0.1     0.1       Non-repeatability     % FSO typ     0.1     0.1     0.1     0.1       Pressure hysteresis     % FSO typ     0.2 (0.02)     2.2 (0.02)     2.0 (0.02)     2.0 (0.02)     2.0 (0.02)       error shift after 3X range     ±% 3X FSO max     3     3     3     3       from 0F for 4.2007 F (187 to +93°C)     ±% max     3     3     3     3     3       from 0F and +2007 F (187 to +93°C)     ±% max     3     3     3     3     3     3       from 0F and +2007 F (187 to +93°C)     ±% max     3     3     3     3     3     3     3     3     3     3     3     3     3     3     3     3     3	ynamic characteristics	Units	-1	-2	-5	
Positive sensitivity [2] mV/psi typ (min) 15.0 (9.3) 4.5 (2.8) 2.25 (1.4) Combined: non-linearity, non-repeatability, Dressure hysteresis % FSO typ 0.15 0.1 0.1 Non-inearity, independent % FSO typ 0.11 0.1 0.1 Pressure hysteresis % FSO typ 0.1 0.1 0.1 Pressure hysteresis % FSO typ 0.1 0.1 0.1 Pressure hysteresis % FSO typ 0.2 (0.02) 2.2 (0.02) 0.2 (0.02) Ear on advanced output [3] mV max ± 20 ± 20 ± 20 ± 20 ± 20 ± 20 ± 20 ± 2		psig	0–15	0-50	0–100	
Combined: non-finearity, non-repeatability,     Variability, independent     % FSO RSS max     0.50     0.40     0.40       Non-finearity, 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 nessurand output [3]     mV max     ±20     ±20     ±20     ±20     ±20     0.2 (0.02) </td <td></td> <td></td> <td></td> <td></td> <td></td>						
pressure hysteresis % FSO RSS max 0.50 0.40 0.40 Non-inserity, independent % FSO Typ 0.15 0.1 0.1 0.1 Pressure hysteresis % FSO typ 0.11 0.1 0.1 0.1 Pressure hysteresis % FSO typ 0.10 0.1 0.1 0.1 Pressure hysteresis % FSO typ 0.20 2.00.20 0.2 (0.02) 0.2 (0.02) Zero shift after 3X range #% 3X FSO max (typ) 0.2 (0.02) 0.2 (0.02) 0.2 (0.02) Thermal zero Shift from 07 to +2007 (-18°C to +93°C) #% FSO max 3 3 3 3 Resonance frequency Hz 180 000 320 000 500 000 Non-linearity at 3X range % 3X FSO 1.0 1.0 1.0 1.0 Non-linearity at 3X range % 3X FSO 1.0 1.0 1.0 Thermal transitivity shift From 07 and +2007 (-18°C to +93°C) #% max 3 3 3.0 Resonance frequency Hz 180 000 320 000 500 000 Photofiash response for park 5.7 procedure 1[4] psi/C 0.005 0.005 0.003 0.01 Thermal transitivity at 3X range % 3X FSO 1.0 1.0 1.0 Thermal transitivity by psi/F 0.003 0.003 0.01 ExiAS 37.1 0.0 park 5.7 procedure 1[4] psi/C 0.005 0.005 0.005 Burst pressure (diaphragm/reference side) [7] psi/R 0.00015 0.00015 0.00015 0.00015 Burst pressure (diaphragm/reference side) [7] psi/m 7,5/300 250/300 400/300 Electrical Electrical Electrical Electrical Diversity Existence with screen on it) Resistance Input 226 mV typical (140 mV minimum) at 10.0 Vdc Supply voltage [8] 10.0 Vdc standard, 15 Vdc maximum Electrical Configuration Active four-am piezoresistive bridge Polarity Positive output for increasing pressure into (+) port (end with screen on it) Resistance Input 2600 ohms typical, 1700 ohms minimum I Stolaton 100 megohims minimum at Sto volts; leads to case, leads to shield, shield to case Noise S microvalts rms typical, dcto 50 000 Hz; 50 microvolts rms maximum, dc to 50 000 Hz Wethencial Electrical Configuration Active four-am piezoresistive bridge Polarity 2.3 grams (cable weighs 9 grams/meter) Electrical Configuration 100 megohims minimum 30 volts; leads to case, leads to shield, shield to case Noise S microvalts rms typical, dcto 50 000 Hz; 50 microvolts rms maximum, dct to 50 000 Hz Workincial Case material Stainless steel (17.4 PH CRES) Cable,	• • •	, po: 9p ()				
Non-insentify, 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 [3]     mV max     ±20     ±20     ±20     2.20       Zero shift after SX range     ±% SK FSO max (typ)     0.2 (0.02)     0.2 (0.02)     0.2 (0.02)       Thermal sensitivity shift      3     3     3       Form 0F F and +200F (-18°C to +93°C)     ±% max     3     3     3       Resonance frequency     Hz     180 000     320 000     500 000       Non-insenity at 3X range     % 3X FSO     1.0     1.0     1.0       Itermail transions thifty     pi/C     0.005     0.003     0.003       Itermail transions trivity     Equiv. psi     1.1     1     1       Acceleration sensitivity     Equiv. psi/g     0.00015     0.00015     0.00015       Usert pressure (eighabragm/reference side) [7]     pi min     75/300     250 / 400/300       E		% FSO RSS max	0.50	0.40	0.40	
Non-repeatability     % FSO $typ$ 0.1     0.1     0.1       Pressure hysteresis     % FSO $typ$ 0.1     0.1     0.1       Zero shift after 3X range     #% 3X FSO max     3     3     3       Themal zero shift						
Pressure hysteresis% FSO typ0.10.10.10.1Zero mesurand output [3]mV max $\pm 20$ $\pm $		21				
Zero mesurind output [3]     mV max     ±20     ±20     ±20       Zero shift after 3X range     ±% 3X FSO max (typ)     0.2 (0.02)     0.2 (0.02)     0.2 (0.02)       Thermal zero shift     **     FSO max     3     3     3       Thermal sensitivity shift     **     FSO max     3     3     3       Resonance frequency     Hz     180 000     320 000     500 000       Non-lineerity at X range     % 3X FSO     1.0     1.0     1.0       Thermal sensitivity shift     5     0.003     0.003     0.01       Thermal transient response per     psi/F     0.003     0.005     0.02       Fbotofiash response [5]     Equiv, psi/g     0.00015     0.00015     0.00015       Ruederation sensitivity     Equiv, psi/g     0.00015     0.00015     0.00015       Burst pressure (diaphragm/reference side) [7]     psi min     75/300     250/300     400/300       Electrical     0.010 vGc standard, 15 VGc maximum     10.0 Vdc     standard, 15 VG maximum     10.0 Vdc       Standeg [8]     10.0 Vdc standard, 15 Vdc maxim						
Zero shift   ±% 3X FSO max (typ)   0.2 (0.02)   0.2 (0.02)   0.2 (0.02)     Thermal zero shift   **   FSO max   3   3     Thermal sensitivity shift   *   *   *     from 0°F 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   1.0   1.0   1.0     Thermal transient response per   psi/°F   0.003   0.003   0.01     TSA 537.10, para. 6.7, procedure I [4]   psi/°C   0.005   0.005   0.02     Photofiab response [5]   Equiv. psi   0.1   0.3   0.6     Warn-up time [6]   ms   1   1   1     Acceleration sensitivity   Equiv. psi/g   0.00015   0.00015   0.00015     Burst pressure (diaphragm/reference side) [7]   psi min   10.0 Vdc   tsinst pressure into (+) port (end with screen on it)     Electrical   225 mV typical (140 mV minimum) at 10.0 Vdc   tsinst pressure into (+) port (end with screen on it)     Suppt youtage [8]   10.0 Vdc standardr, 15 Vdc maximum   tsinsinstance	-	• •				
Thermal zero shift from OF to +200T (:18°C to +93°C) ±% FSO max 3 3 3 Thermal sensitivity shift from OF and +200T (: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 1.0 1.0 1.0 1.0 Thermal transient response per psi/F 0.003 0.003 0.003 0.01 15A-537.10, para, 6.7, procedure I [4] psi/C 0.0055 0.002 Photoflash response [5] Equiv. psi 0.1 0.3 0.6 Warm-up time [6] ms 1 1 1 1 Receleration sensitivity Equiv. psi/F 0.00015 0.00015 0.000015 Burst pressure (diaphragm/reference side) [7] psi min 75/300 250/300 400/300 Electrical Full scale output 225 mV typical (140 mV minimum) at 10.0 Vdc Supply voltage [8] 10.0 Vdc standard, 15 Vdc maximum Electrical configuration Active four-arm piezoresistive bridge Polarity Positive output for increasing pressure into (+) port (end with screen on it) Resistance Input 2600 ohms typical, 1700 ohms minimum Output 1500 ohms typical, 1200 ohms maximum Isolation 100 megohms minimum 50 volts; leads to case, leads to shield, shield to case Noise 5 microvolts rms typical, 220 ohms maximum, act to 50 000 Hz Mechanical Case material Cashed to No. 32 AWG Teffon <sup>®</sup> insulated leads, braided shield, shield to case 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) 2.3 grams (cable weighs 9 grams/meter) Environmental characteristics Media [9] Temperature [10] [11] -65°F to +250°F (.54°C to +121°C) Vibration 1000 g pk Acceleration 500 olig pk Acceleration 500 00 g, 100 microsecond haversine pulse Humidity is the distion resistance greater than 100 megohms at 50 volts when tested per MIL-STD-202E, for the four site outputs at 50 volts when tested per dHL-STD-202E, for the site output for microsecond haversine pulse Humidity is the site output for microsecond haversine pulse	1					
from 0°F to ±200°F (18°C to +93°C)     ±% FSO max     3     3     3       Thermal sensitivity shift     5     3     3     3       Resonance frequency     Hz     180 000     200 000     500 000       Non-linearity at 3X range     % XFSO     1.0     1.0     1.0       Thermal transient response per     psi/F     0.003     0.005     0.02       Photoflash response (5)     Equiv. psi     0.1     0.3     0.6       Warm-up time [6]     ms     1     1     1       Acceleration sensitivity     Equiv. psi     0.0015     0.0015     0.0015       Burst pressure (diaphragm/reference side) [7]     psi min     75/300     250/300     400/300       Electrica     225 mV typical (140 mV minimum     10.0 Vdc     5     0.0015     0.0015     0.0015       Electrica (50)     10.0 Vdc standard, 15 Vdc maximum     10.0 Vdc     5     0.0015     0.0015     0.0015       Electrica (50)     100 for stipical, 1200 ohms minimum     1500 ohms typical, 2200 ohms sysilead to case, leads to shield, shield to case     100 vdc standard, 150 dc case, leads	5		0.2 (0.02)	0.2 (0.02)	0.2 (0.02)	
Thermal sensitivity shift from OF and +200F (18°C to +93°C) $\pm$ % max 3 3 3 000 500 000 Non-linearity at 3X range % 3X FSO 1.0 1.0 1.0 1.0 Thermal transient response per psi/F 0.003 0.003 0.01 SA-537.10, para. 6.7, procedure 1 [4] psi/°C 0.005 0.005 0.002 Photofiash response [5] Equiv. psi 0.1 0.3 0.6 Warm-up time [6] ms 1 1 1.1 Acceleration sensitivity Equiv. psi/g 0.00015 0.00015 0.00015 Burst pressure (diaphragm/reference side) [7] psi min 75/300 250/300 400/300 Electrical Electrical Configuration Active four-arm piezoresistive bridge Polarity Postive output for increasing pressure into (+) port (end with screen on it ) Resistance Input 2600 ohms typical, 1700 ohms minimum Isolation 100 megohms minimum at 50 volts; leads to case, leads to shield, shield to case Noise 5 microvolts rms typical, d to 50 000 Hz; 50 microvolts rms maximum, dt to 50 000 Hz Sondouts the start of 0.003 cubic inches (0.003 cubic inche		+% ESO max	3	3	3	
from 0°F and +200°F (-18°C to +93°C) $\pm$ % max     3     3     3     3       Resonance frequency     Hz     180 000     320 000     500 000       Non-linearity at Xr ange     % 3X FSO     1.0     1.0     1.0       Thermal transient response per     psi/F     0.003     0.003     0.01       ISA-S37.10, para. 6.7, procedure I [4]     psi/F     0.005     0.005     0.02       Photoflash response [5]     Equiv. psi     0.1     0.3     0.6       Warm-up time [6]     ms     1     1     1       Acceleration sensitivity     Equiv. psi/g     0.0015     0.0015     0.00015       Burst pressure (diaphragm/reference side) [7]     psi min     75/00     250/300     400/300       Electrical     252     S000     Active four-arm piezoresistive bridge     Input     Input     Input       Feldrical configuration     Active four-arm piezoresistive bridge     Isolatine     Isolatine     Isolatine       Input     2600 ohms typical, 1700 ohms minimum     Isolatine site four-arm piezoresistive bridge     Isolatin case, leads to case, leads to shield,		±/6130 max	5	5	5	
Resonance frequency     Hz     180 000     320 000     500 000       Non-linearity at 3X range     % 3X FSO     1.0     1.0     1.0       Non-linearity at 3X range     % 3X FSO     1.0     0.03     0.003     0.01       ISA-S37.10, para. 6.7, procedure 1 [4]     psi/C     0.005     0.005     0.02       Photoflash response [5]     Equiv. psi     0.1     1     1     1       Acceleration sensitivity     Equiv. psi/g     0.0015     0.00015     0.00015       Burst pressure (diaphragm/reference side) [7]     psi min     75/300     250/300     400/300       Electrical      10.0 Vdc standard, 15 Vdc maximum     1     1     1       Supply voltage [8]     10.0 Vdc standard, 15 Vdc maximum     100 Vdc standard, 15 Vdc maximum     1     1     1     1       Resistance     Input     2600 ohms typical, 1700 ohms minimum     0.00 Vdc standard, 15 Vdc maximum     1     1     1     1     1     1     1     1     1     1     1     1     1     1     1     1     1	5	+% max	3	3	3	
Non-linearity at 3X range% 3X FSO1.01.01.01.0Thermal transient response perpsi/F0.0030.0030.011SA-S37.10, para. 6.7, procedure [14]psi/C0.0050.0050.02Photoflash response [5]Equiv. psi0.10.30.6Warm-up time [6]ms111Acceleration sensitivityEquiv. psi/G0.000150.000150.00015Burst pressure (diaphragm/reference side) [7]psi min75/300250/300400/300ElectricalElectrical 25 mV typical (140 mV minimum) at 10.0 VdcSupply voltage [8]10.0 Vdc standard, 15 Vdc maximumElectrical configurationActive four-arm piezoresistive bridgePolarityPositive output for increasing pressure into (+) port (end with screen on it)ResistanceInput2600 ohms typical, 1700 ohms minimumOutputStainless steel (17-4 PH CRES)Case materialStainless steel (17-4 PH CRES)Case materialStainless steel (17-4 PH CRES)Cable, integral4 conductor No. 32 AWG Telfon® insulated leads, braided shield, silicone jacketDead volume (+) port0.000 dubic inches (0.005 cc)Mounting torque1Case						
Thermal transient response per ISA-S37.10, para. 6.7, procedure I [4]     psi/°C     0.003     0.003     0.01       ISA-S37.10, para. 6.7, procedure I [4]     psi/°C     0.05     0.005     0.02       Warm-up time [6]     ms     1     1     1     1       Acceleration sensitivity     Equiv. psi     0.0015     0.00015     0.00015       Burst pressure (diaphragm/reference side) [7]     psi min     75/300     250/300     400/300       Electrical      225 mV typical (140 mV minimum) at 10.0 Vdc     50/300     400/300       Supply voltage [8]     10.0 Vdc standard, 15 Vdc maximum     50/50/300     400/300       Polarity     Positive output for increasing pressure into (+) port (end with screen on it)     Kesistance       Input     2600 ohms typical, 1700 ohms minimum     50     500 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     50 000 Hz;       Case material     Stainless steel (17.4 PH CRES)     50     50 000 Hz;     50 100 Hz;     50 100 Hz;     50 100 Hz;     50 100 Hz;       Cable, integral     4 conducto						
ISA-S37.10, para. 6.7, procedure I [4]     psi/C     0.005     0.005     0.02       Photoflash response [5]     Equiv. psi     0.1     0.3     0.6       Warm-up time [6]     ms     1     1     1       Acceleration sensitivity     Equiv. psi/g     0.00015     0.00015     0.00015       Burst pressure (diaphragm/reference side) [7]     psi min     75/300     250/300     400/300       Electrical     225 mV typical (140 mV minimum) at 10.0 Vdc     50/300     400/300       Electrical configuration     Active four-arm piezoresistive bridge     -     -       Polarity     Positive output for increasing pressure into (+) port (end with screen on it)     Resistance       Input     2600 ohms typical, 1700 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     4 conductor No. 32 AWG Teflor* insulated leads, braided shield, silicone jack to 0.003 cubic inches (0.005 c)       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						
Photoflash response [5]     Équiv. psi     0.1     0.3     0.6       Warm-up time [6]     ms     1     1     1       Acceleration sensitivity     Equiv. psi/g     0.00015     0.00015     0.00015       Burst pressure (diaphragm/reference side) [7]     psi min     75/300     250/300     400/300       Electrical      225 mV typical (140 mV minimum) at 10.0 Vdc     500/300     400/300       Electrical      225 mV typical (140 mV minimum) at 10.0 Vdc     500/300     400/300       Electrical      10.0 Vdc standard, 15 Vdc maximum     500/50     500/50     500/50     500/50     500/50     500/50     500/50     500/50     500/50     500/50     500/50     500/50     500/50     500/50     500/50     50/50						
Warm-up time [6]     ms     1     1     1       Acceleration sensitivity     Equiv. psi/g     0.00015     0.00015     0.00015       Burst pressure (diaphragm/reference side) [7]     psi min     75/300     250/300     400/300       Electrical       250/300     400/300       Electrical      225 mV typical (140 mV minimum) at 10.0 Vdc         Full scale output     225 mV typical (140 mV minimum) at 10.0 Vdc          Supply voltage [8]     10.0 Vdc standard, 15 Vdc maximum           Electrical configuration     Active four-arm piezoresistive bridge            Polarity     Positive output for increasing pressure into (+) port (end with screen on it)                                     <	· · · · · · · · · · · · · · · · · · ·					
Acceleration sensitivity     Equiv. psi/g     0.00015     0.00015     0.00015       Burst pressure (diaphragm/reference side) [7]     pin min     75/300     250/300     400/300       Electrical     250 mV typical (140 mV minimum) at 10.0 Vdc     50/300     400/300       Electrical configuration     Active four-arm piezoresistive bridge     50/300     50/300     400/300       Polarity     Positive output for increasing pressure into (+) port (end with screen on it)     50/300     50/300     50/300     50/300     50/300     50/300     50/300     50/300     400/300     50/300     400/300     50/300<						
Burst pressure (diaphragm/reference side) [7] psi min 75/300 250/300 400/300 Electrical Full scale output 225 mV typical (140 mV minimum) at 10.0 Vdc Supply voltage [8] 10.0 Vdc standard, 15 Vdc maximum Electrical configuration Active four-arm piezoresistive bridge Polarity Polarity Positive output for increasing pressure into (+) port (end with screen on it) Resistance Input 2600 ohms typical, 1700 ohms minimum Output 1500 ohms typical, 2200 ohms maximum Isolation 100 megohms minimum at 50 volts; leads to case, leads to shield, shield to case 5 microvolts rms typical, 2200 ohns maximum Isolation 100 megohms minimum at 50 volts; leads to case, leads to shield, shield to case 5 microvolts rms typical, dc to 50 000 Hz; 50 microvolts rms maximum, dc to 50 000 Hz Mechanical Case material Case m						
Electrical     Full scale output   225 mV typical (140 mV minimum) at 10.0 Vdc     Supply voltage [8]   10.0 Vdc standard, 15 Vdc maximum     Electrical configuration   Active four-arm piezoresistive bridge     Polarity   Positive output for increasing pressure into (+) port (end with screen on it)     Resistance   Input     Input   2600 ohms typical, 1700 ohms 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     Case material   Stainless steel (17-4 PH CRES)     Cable, integral   4 conductor No. 32 AWG Teffone <sup>®</sup> insulated leads, braided shield, silicone jacket     Dead volume (+) port   0.003 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 characteristics     Media [9]   Temperature [10] [11]     "Gesteration   1000 g     Shock   20 000 g, 100 microsecond haversine pulse  <	5					
Full scale output   225 mV typical (140 mV minimum) at 10.0 Vdc     Supply voltage [8]   10.0 Vdc standard, 15 Vdc maximum     Electrical configuration   Active four-arm piezoresistive bridge     Polarity   Positive output for increasing pressure into (+) port (end with screen on it)     Resistance   Input     Dutput   1500 ohms typical, 1700 ohms 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     Case material   Stainless steel (17-4 PH CRES)     Cable, integral   4 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 characteristics   Media [9]     Temperature [10] [11]   -65'F to +250'F (-54'C to +121'C)     Vibration   1000 g pk     Acceleration   1000 g     Shock   20 000 g, 100	Burst pressure (diaphragm/reference side) [7]		75/300	250/300	400/300	
Supply voltage [8]10.0 Vdc standard, 15 Vdc maximumElectrical configurationActive four-arm piezoresistive bridgePolarityPositive output for increasing pressure into (+) port (end with screen on it)ResistanceInputInput2600 ohms typical, 1700 ohms minimumOutput1500 ohms typical, 2200 ohms maximumIsolation100 megohms minimum at 50 volts; leads to case, leads to shield, shield to caseNoise5 microvolts rms typical, dc to 50 000 Hz; 50 microvolts rms maximum, dc to 50 000 HzMechanicalCase materialStainless steel (17-4 PH CRES)Cable, integral4 conductor No. 32 AWG Teflon® insulated leads, braided shield, silicone jacketDead volume (+) port0.0003 cubic inches (0.005 cc)Mounting torque10-32 UNF-2A threaded case 0.438 inch (11.12 mm) long/15 ±5 lbf-in (1.7 ±0.6 Nm)Weight2.3 grams (cable weighs 9 grams/meter)Environmental characteristicsMedia [9]Temperature [10] [11]-65'F to ±250'F (-54'C to ±121'C)Vibration1000 g pkAcceleration1000 gShock20 000 g, 100 microsecond haversine pulseHumidityIsolation resistance greater than 100 megohms at 50 volts when tested per MIL-STD-202E,						
Electrical configuration   Active four-arm piezoresistive bridge     Polarity   Positive output for increasing pressure into (+) port (end with screen on it)     Resistance   2600 ohms typical, 1700 ohms 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     Case material   Stainless steel (17-4 PH CRES)     Cable, integral   4 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 characteristics   Media [9]     Temperature [10] [11]   -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,	1					
Polarity   Positive output for increasing pressure into (+) port (end with screen on it)     Resistance   Input   2600 ohms typical, 1700 ohms minimum     Output   1500 ohms typical, 200 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   4 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 characteristics      Media [9]      Temperature [10] [11]   -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,						
Resistance   Input   2600 ohms typical, 1700 ohms 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   4 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 characteristics      Media [9]      Temperature [10] [11]   -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,	Electrical configuration	Active four-arm piezoresistive bridge				
Input Output2600 ohms typical, 1700 ohms minimumOutput1500 ohms typical, 2200 ohms maximumIsolation100 megohms minimum at 50 volts; leads to case, leads to shield, shield to caseNoise5 microvolts rms typical, dc to 50 000 Hz; 50 microvolts rms maximum, dc to 50 000 HzMechanicalCase materialCase materialStainless steel (17-4 PH CRES)Cable, integral4 conductor No. 32 AWG Teflon® insulated leads, braided shield, silicone jacketDead volume (+) port0.0003 cubic inches (0.005 cc)Mounting torque10-32 UNF-2A threaded case 0.438 inch (11.12 mm) long/15 ±5 lbf-in (1.7 ±0.6 Nm)Weight2.3 grams (cable weighs 9 grams/meter)Environmental characteristicsMedia [9] Temperature [10] [11]-65°F to +250°F (-54°C to +121°C)Vibration1000 g pkAcceleration1000 gShock20 000 g, 100 microsecond haversine pulseHumidityIsolation resistance greater than 100 megohms at 50 volts when tested per MIL-STD-202E,	-	Positive output for increasi	ing pressure into (+) po	ort (end with screen on i	t)	
Output Isolation1500 ohms typical, 2200 ohms maximumIsolation100 megohms minimum at 50 volts; leads to case, leads to shield, shield to caseNoise5 microvolts rms typical, dc to 50 000 Hz; 50 microvolts rms maximum, dc to 50 000 HzMechanicalImage: Case materialStainless steel (17-4 PH CRES)Case material4 conductor No. 32 AWG Teflon® insulated leads, braided shield, silicone jacketDead volume (+) port0.0003 cubic inches (0.005 cc)Mounting torque10-32 UNF-2A threaded case 0.438 inch (11.12 mm) long/15 ±5 lbf-in (1.7 ±0.6 Nm)Weight2.3 grams (cable weighs 9 grams/meter)Environmental characteristicsMedia [9] Temperature [10] [11]-65°F to +250°F (-54°C to +121°C)Vibration1000 g pkAcceleration1000 gShock20 000 g, 100 microsecond haversine pulseHumidityIsolation resistance greater than 100 megohms at 50 volts when tested per MIL-STD-202E,	Resistance					
Isolation100 megohns minimum at 50 volts; leads to case, leads to shield, shield to caseNoise5 microvolts rms typical, dc to 50 000 Hz; 50 microvolts rms maximum, dc to 50 000 HzMechanicalCase materialStainless steel (17-4 PH CRES)Cable, integral4 conductor No. 32 AWG Teflon® insulated leads, braided shield, silicone jacketDead volume (+) port0.0003 cubic inches (0.005 cc)Mounting torque10-32 UNF-2A threaded case 0.438 inch (11.12 mm) long/15 ±5 lbf-in (1.7 ±0.6 Nm)Weight2.3 grams (cable weighs 9 grams/meter)Environmental characteristicsMedia [9] Temperature [10] [11]-65°F to +250°F (-54°C to +121°C)Vibration1000 g pkAcceleration1000 gShock20 000 g, 100 microsecond haversine pulseHumidityIsolation resistance greater than 100 megohms at 50 volts when tested per MIL-STD-202E,	Input					
Noise5 microvolts rms typical, dc to 50 000 Hz; 50 microvolts rms maximum, dc to 50 000 HzMechanicalCase materialStainless steel (17-4 PH CRES)Cable, integral4 conductor No. 32 AWG Teflon® insulated leads, braided shield, silicone jacketDead volume (+) port0.0003 cubic inches (0.005 cc)Mounting torque10-32 UNF-2A threaded case 0.438 inch (11.12 mm) long/15 ±5 lbf-in (1.7 ±0.6 Nm)Weight2.3 grams (cable weighs 9 grams/meter)Environmental characteristicsMedia [9]-65°F to +250°F (-54°C to +121°C)Yibration1000 g pkAcceleration1000 gShock20 000 g, 100 microsecond haversine pulseHumidityIsolation resistance greater than 100 megohms at 50 volts when tested per MIL-STD-202E,	Output	1500 ohms typical, 2200 ohms maximum				
Mechanical     Case material   Stainless steel (17-4 PH CRES)     Cable, integral   4 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 characteristics   Media [9]     Temperature [10] [11]   -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,	Isolation	•				
Case material   Stainless steel (17-4 PH CRES)     Cable, integral   4 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 characteristics     Media [9]     Temperature [10] [11]   -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,	Noise	5 microvolts rms typical, de	c to 50 000 Hz; 50 micr	ovolts rms maximum, d	c to 50 000 Hz	
Cable, integral4 conductor No. 32 AWG Teflon® insulated leads, braided shield, silicone jacketDead volume (+) port0.0003 cubic inches (0.005 cc)Mounting torque10-32 UNF-2A threaded case 0.438 inch (11.12 mm) long/15 ±5 lbf-in (1.7 ±0.6 Nm)Weight2.3 grams (cable weighs 9 grams/meter)Environmental characteristicsMedia [9]Temperature [10] [11]-65°F to +250°F (-54°C to +121°C)Vibration1000 g pkAcceleration1000 gShock20 000 g, 100 microsecond haversine pulseHumidityIsolation resistance greater than 100 megohms at 50 volts when tested per MIL-STD-202E,	Mechanical					
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 characteristics   Media [9]     Temperature [10] [11]   -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,	Case material	Stainless steel (17-4 PH CR	RES)			
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 characteristics   Media [9]     Temperature [10] [11]   -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,	Cable, integral					
Mounting torque10-32 UNF-2A threaded case 0.438 inch (11.12 mm) long/15 ±5 lbf-in (1.7 ±0.6 Nm) 2.3 grams (cable weighs 9 grams/meter)Environmental characteristicsMedia [9] Temperature [10] [11]-65°F to +250°F (-54°C to +121°C) 1000 g pk AccelerationAcceleration1000 g 0 9 ShockHumidityIsolation resistance greater than 100 megohms at 50 volts when tested per MIL-STD-202E,	Dead volume (+) port					
Weight   2.3 grams (cable weighs 9 grams/meter)     Environmental characteristics     Media [9]     Temperature [10] [11]   -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,		10-32 UNF-2A threaded case 0.438 inch (11.12 mm) long/15 $\pm$ 5 lbf-in (1.7 $\pm$ 0.6 Nm)				
Media [9]     Temperature [10] [11]   -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,	5	2.3 grams (cable weighs 9 grams/meter)				
Temperature [10] [11]-65°F to +250°F (-54°C to +121°C)Vibration1000 g pkAcceleration1000 gShock20 000 g, 100 microsecond haversine pulseHumidityIsolation resistance greater than 100 megohms at 50 volts when tested per MIL-STD-202E,	Environmental characteristics					
Temperature [10] [11]-65°F to +250°F (-54°C to +121°C)Vibration1000 g pkAcceleration1000 gShock20 000 g, 100 microsecond haversine pulseHumidityIsolation resistance greater than 100 megohms at 50 volts when tested per MIL-STD-202E,	Media [9]					
Vibration1000 g pkAcceleration1000 gShock20 000 g, 100 microsecond haversine pulseHumidityIsolation resistance greater than 100 megohms at 50 volts when tested per MIL-STD-202E,		-65°F to +250°F (-54°C to +	121°C)			
Acceleration1000 gShock20 000 g, 100 microsecond haversine pulseHumidityIsolation resistance greater than 100 megohms at 50 volts when tested per MIL-STD-202E,						
Shock20 000 g, 100 microsecond haversine pulseHumidityIsolation resistance greater than 100 megohms at 50 volts when tested per MIL-STD-202E,		• 1				
Humidity Isolation resistance greater than 100 megohms at 50 volts when tested per MIL-STD-202E,		-	•			
		-		50 volts when tested r	er MIL-STD-202E.	
		•	-			
alibration data supplied	alibration data supplied					

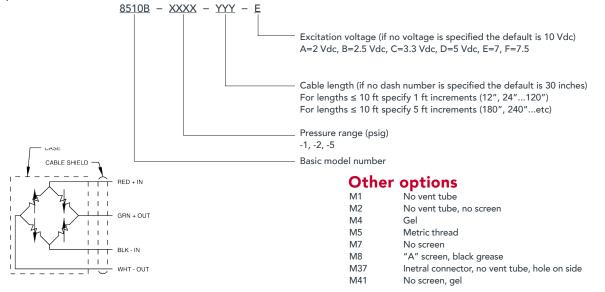
Data supplied for all parameters in Certified Performance section. Optional calibrations available for all parameters in Typical Performance section.

#### **Piezoresistive pressure transducer** | Model 8510C -15, -50, -100

Accessories				
Options	Description	8510C		
EHR93	O-ring, Viton	Included		
EHR96	O-ring, fluorosilicone	Optional		
24328-3	4 conductor shielded cable, white	Optional		

#### **Notes**

- FSO (Full Scale Output) is defined as transducer output change from 0 psig to + full scale pressure. Calibration provided is for positive 1. pressure. Sensitivity to negative pressures is typically within 1% of positive pressure sensitivity.
- 1 psi = 6.895 kPa = 0.069 bar. 2.
- Zero Measurand Output (ZMO) is the transducer output with 0 psig applied. 3.
- Significant higher thermal transient errors occur if the excitation voltage exceeds 10 Vdc. For sensitive phase change studies, many 4 users reduce the excitation to 5 Vdc or even 1 Vdc.
- Per ISA-S37.10, Para. 6.7, Proc. I. The metal screen partially shields the silicon diaphragm from incident radiation. Accordingly, light 5. incident at acute angles to the screen generally increases the error by a factor of 2 or 3.
- Warm-up time is defined as elapsed time from excitation voltage "turn on" until the transducer output is within±1% of reading accuracy. 6.
- Note that the differential pressure on the diaphragm may not exceed the diaphragm pressure limit. 7.
- Please specify the excitation voltage you will use and we will calibrate at that voltage for highest accuracy. See model definition. 8.
- Internal seals are epoxy compatible with clean dry gas media. Media is exposed to CRES, ceramic, silicon, Parylene C, epoxy, silicone 9. 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. Reference port media is restricted to clean, dry noncorrosive gases.
- 10. Units can be compensated over any 200°F (93°C) span from -65°F to +250°F (-54°C to +121°C) on special order.
- O-Ring, EHR93 VITON is supplied unless otherwise specified on Purchase Order. EHR96 Parker material L677-70 for leak tight operation 11. below 0°F (-18°C) is available on special order.
- Maintain high levels of precision and accuracy using Endevco's factory calibration services. Call Endevco's inside sales force at 12. 866-ENDEVCO for recommended intervals, pricing and turn-around time for these services as well as for quotations on our standard products.



10869 NC Highway 903, Halifax, NC 27839 USA

AN AMPHENOL COMPANY

UE1

endevco.com | sales@endevco.com | 866 363 3826

© 2022 PCB Piezotronics - all rights reserved. PCB Piezotronics is a wholly-owned subsidiary of Amphenol Corporation. Endevco is an assumed name of PCB Piezotronics of North Carolina. Inc., which is a wholly-owned subsidiary of PCB Piezotronics Inc. Accumetrics, Inc. and The Modal Shop, Inc. are wholly-owned subsidiaries of PCB Piezotronics, Inc. Modal Shop, Inc. are wholly-owned subsidiaries of PCB Piezotronics, Inc. Modal Shop, Inc. are wholly-owned subsidiaries of PCB Piezotronics, Inc. Modal Shop, Inc. are wholly-owned subsidiaries of PCB Piezotronics, Inc. Modal Shop, Inc. are wholly-owned subsidiaries of PCB Piezotronics, Inc. Modal Shop, Inc. are wholly-owned subsidiaries of PCB Piezotronics, Inc. Modal Shop, Inc. Except for any third party marks for which attribution is provided herein, the company names and product names used in this document may be the registered trademarks or unregistered trademarks of PCB Piezotronics, Inc., PCB Piezotronics of North Carolina, Inc. (d/b/a Endevco), The Modal Shop, Inc. or Accumetrics, Inc. Detailed trademark ownership information is available at www.pcb.com/trademarkownership.