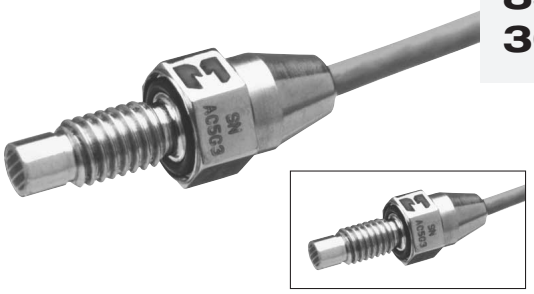
Piezoresistive Pressure Transducer

ENDEVCO MODEL 8544-300M11

Model 8544-300M11

- **Automotive Transmission Transducer**
- **Teflon® Cable**
- **Operates To +350°F (+177°C)**
- **Sealed Reference**



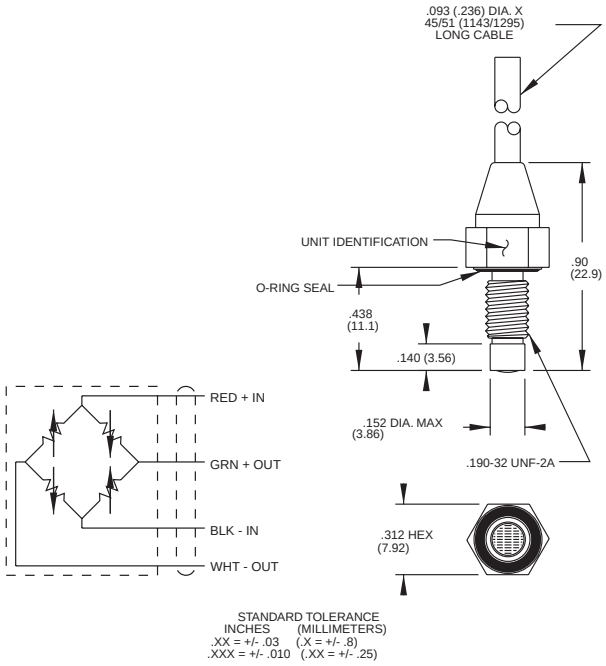
Actual size

DESCRIPTION

The ENDEVCO® Model 8544-300M11 is a miniature, high sensitivity piezoresistive transducer designed specifically for pressure measurements inside automotive transmissions. Full scale output is standardized at 100 mV, with a wide temperature compression range from -40°F to +335°F (-40°C to +168°C). The Model 8544-300M11 utilizes a shielded, Teflon® jacketed cable for compatibility with transmission fluids.

The Model 8544-300M11 is an absolute pressure transducer which is balanced to ±5mV at atmospheric pressure. With its small size, rugged design and high overpressure, the Model 8544-300M11 can be installed inside automotive transmissions for dynamic measurements. This eliminates the concern for pressure signal loss due to long lines associated with externally mounted transducers.

ENDEVCO Model 136 Three-Channel System, Model 4430A Signal Conditioner, or Model 68207 BCAS™ Computer Controlled Systems are recommended as signal conditioner and power supply.



SPECIFICATIONS

CERTIFIED PERFORMANCE: All specifications assume +75°F (+24°C) and 10 Vdc excitation unless otherwise stated. The following parameters are 100% tested. Calibration data, traceable to the National Institute of Standards and Technology (NIST), is supplied.

	Units	8544-300M11
RANGE	psig	0 - 300
	bar	20
SENSITIVITY [1]	mV/psi	.333 ±0.017
	mV/bar	4.83 ±0.25
COMBINED: NON-LINEARITY, NON-REPEATABILITY, PRESSURE HYSTERESIS [2] [3]	% FSO RSS Max	0.50
Non-Linearity, Independent	% FSO Typ	0.2
Non-Repeatability	% FSO Typ	0.1
Pressure Hysteresis	% FSO Typ	0.1
OUTPUT @ 14.7 PSIA (1BAR)	mV Max	± 5
ZERO SHIFT AFTER 2X RANGE	± % 2X FSO Max (Typ)	0.5
THERMAL ZERO SHIFT From -40°F to +335°F (-40°C to +168°C)	± % FSO Max	4
THERMAL SENSITIVITY SHIFT From -40°F to +335°F (-40°C to +168°C)	±%/°F Max	0.02
	±%/°C Max	0.04

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SPECIFICATIONS—continued

TYPICAL PERFORMANCE CHARACTERISTICS: The following parameters are established from testing of sample units.

	Units	8544-300M11
RESONANCE FREQUENCY	Hz	900 000
NON-LINEARITY AT 2X RANGE	% 2X FSO	1.0
THERMAL TRANSIENT RESPONSE PER ISA-S37.10, PARA. 6.7, PROCEDURE I	psi/°F psi/°C	0.006 0.011
PHOTOFLASH RESPONSE [4]	Equiv. psi	1
WARM-UP TIME [5]	ms	1
ACCELERATION SENSITIVITY	Equiv. psi/g	0.0010
BURST PRESSURE (Diaphragm)	psia Min	1000

ELECTRICAL

FULL SCALE OUTPUT	100 ±5 mV at 10.0 Vdc
SUPPLY VOLTAGE [6]	10.0 Vdc recommended, 15 Vdc maximum
ELECTRICAL CONFIGURATION	Active four-arm piezoresistive bridge
POLARITY	Postitive output for increasing pressure
RESISTANCE	
Input	2000 ohms typical, 1200 ohms minimum
Output	450 to 1250 ohms
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 ±3 inch (1220 ±76 mm)	Four conductor No. 30 AWG Teflon® insulated leads, braided shield, Teflon® jacket, 48
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	2.5 grams (cable weighs 14 grams/meter)

ENVIRONMENTAL

MEDIA [7] [8]	Automotive transmission fluids and dry clean gases
TEMPERATURE	-65°F to +350°F (-54°C to +177°C)
VIBRATION	100 g pk
ACCELERATION	10 000 g
SHOCK	10 000 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

CALIBRATION DATA

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

ACCESSORY

EHR93 O-RING, VITON

OPTIONAL ACCESSORIES

30024 4 CONDUCTOR SHIELDED CABLE

NOTES

1. 1 psi = 6.895 kPa = 0.069 bar.
2. FSO (Full Scale Output) is defined as transducer output from 0 to + full scale pressure, which is 100 ±5mV.
3. Tighter specifications are available on special order
4. Per ISA-S37.10, Para. 6.7, Proc. II
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. Use of excitation voltages other than 10.0 Vdc requires manufacture and calibration at that voltage since thermal errors increase with high excitation voltages.
7. Internal seals are epoxy and are compatible with clean dry gas media and automotive transmission fluids. Media in measur- and port is exposed to CRES, Ceramic, epoxy and the VITON O-Ring. Not suitable for use with high pH or low pH liquids, long term exposure to water, or exposure to solvents which may attack epoxies.
8. O-Ring, Parker No. 5-125, compound V747-75 (VITON) is supplied unless otherwise specified on purchase order.

Continued product improvement necessitates that Endevco reserve the right to modify these specifications without notice. Endevco maintains a program of constant surveillance over all products to ensure a high level of reliability. This program includes attention to reliability factors during product design, the support of stringent Quality Control requirements, and compulsory corrective action procedures. These measures, together with conservative specifications have made the name Endevco synonymous with reliability.

INTERTECHNOLOGY INC. 1-800-465-1600
1 Scarsdale Road
Don Mills, ON M3B 2R2
Tel: 416-445-5500
Fax: 416-445-1170
E-Mail: sales@intertechnology.com