ENDEVCO
AN AMPHENOL COMPANY

PERFORMANCE SPECIFICATION
PRESSURE TRANSDUCER
(Model 8515C)

Document Number	Rev	Date	Entered by	Description of Change	Change Accountable Engineer	ECO
80463	A	1/21/26	NAD	Add typ TSS and TZS to specification	RF	56386

1.0   DESCRIPTION

The ENDEVCO® Model 8515C is rugged, miniature, high-sensitivity piezoresistive absolute pressure transducer available in 15 and 50 psia full scale ranges. It is surface-mounted and measures 0.030 inch thick by 0.250 inch diameter (0.76mm x 6.3mm). Full scale output is 200 mV with high overload capability, high frequency response, very low base strain sensitivity and improved temperature performance.

Because of its very small size, the Model 8515C can be installed on curved surfaces with minimal effect on laminar air or hot gas flow. For a flush fit, the 8515C and leadwires can be recessed into the mounting surface. For on-surface installations, a rubber mounting pad is available that smooths out air flow. A protective screen is also provided to protect against particle impingement.

The Model 8515C is suitable for use on small-scale models in wind tunnel tests, as well as on aerodynamic surfaces during flight tests. Other uses are for blast effect studies and helicopter or turbine blade surface pressure measurements.

2.0   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	Range Dash Number	
			-15	**-50**
2.1	RANGE	psia	0 - 15	0 - 50
2.2	SENSITIVITY	mV/psi	13.3 ±6.3	4.0 ±2.0
2.3	Accuracy [1]	% Span, Max	0.5	0.5
2.3.1	Non-Linearity	% Span, typical	0.2	0.2
2.3.2	Hysteresis	% Span, typical	0.1	0.1
2.3.3	Non-Repeatability	% Span, typical	0.1	0.1
2.4	ZERO MEASURAND OUTPUT	mV Max	±20	±20

| | | Units | **Range Dash Number** | |
			-15	**-50**
2.5	ZERO SHIFT AFTER Proof Pressure	% Proof Pressure Span, Max	±0.5	±0.5
2.6	THERMAL ZERO SHIFT FROM 0°F to +200°F (-18°C to 93°C),			
2.6.1		% Span Max	± 3.5	± 3.5
2.6.2		% Span Typ	± 1.0	± 1.0
2.7	THERMAL SENSITIVITY SHIFT FROM 0°F to +200°F (-18°C to 93°C),			
2.7.1		% Max	± 3.5	± 3.5
2.7.2		% Typ	± 1.0	± 1.0
2.8	Proof Pressure	psia	45	150

3.0 TYPICAL PERFORMANCE CHARACTERISTICS

The following parameters are established from testing of sample units.

		Units	-15	-50
3.1	DIAPHRAGM RESONANT [2] FREQUENCY	Hz	180,000	320,000
3.2	NON-LINEARITY AT Proof Pressure	% Proof Pressure Span	1.0	1.0
3.3	PHASE CHANGE ERROR	% Span	0.001	0.001
3.4	THERMAL TRANSIENT RESPONSE PER ISA-S37.10, PARA. 6.7, PROCEDURE I	psi/°F	0.003	0.005
3.5	PHOTOFLASH RESPONSE, EQUIV. PSI PER ISA-S37.10, PARA. 6.7, PROCEDURE II	psi	0.25	0.8
3.6	WARM-UP TIME TO 1% [3] ACCURACY	ms	1	1
3.7	ACCELERATION SENSITIVITY	psi/g	0.0002	0.0002
3.8	BURST PRESSURE (Minimum, Diaphragm)	psia	75	250
3.9	BASE STRAIN SENSITIVITY			

AT 250 MICROSTRAIN

| 3.9.1 | Elastomer Mounting | psi | 0.004 | 0.013 |
| 3.9.2 | Rigid Mounting | psi | 0.007 | 0.023 |

4.0 ELECTRICAL

4.1	Span	200 mV typ at 10.0 Vdc
4.2	SUPPLY VOLTAGE [4]	10.00 Vdc recommended 12 Vdc maximum
4.3	ELECTRICAL CONFIGURATION	Active four-arm piezoresistive bridge
4.4	POLARITY	Positive output for increasing pressure
4.5	RESISTANCE	
4.5.1	Input	2700±700 ohms
4.5.2	Output	1500±700 ohms
4.5.3	Isolation	100 megohms minimum at 50 Vdc Leads to case
4.6	NOISE	5 microVrms typical; dc to 50000Hz 50 microVms maximum; dc to 50000Hz

5.0 MECHANICAL

5.1	CASE, MATERIAL	Stainless steel 300 Series CRES
5.2	CABLE, INTEGRAL	4 Conductor Ribbon Cable, No. 36 AWG Solid S.P.C., Teflon® Insulation.
5.3	DEAD VOLUME [2]	0.0004 in^3 (0.0065 cm ^{3})
5.4	MOUNTING	Refer to document EDVIM8500 Instruction Manual and installation/outline drawing
5.5	WEIGHT	0.08 grams (cable weighs 2.5 grams/meter)

6.0 ENVIRONMENTAL

6.1	MEDIA	The pressure cavity of this transducer model is designed to be compatible with dry clean gases. It is not recommended for use in water or moisture condensing environments. Pressure media is exposed to CRES, epoxy, silicon, and parylene C.
6.2	TEMPERATURE	-65°F to 250°F (-54°C to 121°C)

6.3	VIBRATION	1000 g
6.4	STATIC ACCELERATION	1000 g
6.5	SHOCK	10000 g, 100 microsecond, haversine
6.6	HUMIDITY	The transducer is not recommended for long term operation in humid environments.

7.0 CALIBRATION DATA

EPCS-1 Calibration Code = ISO17025 calibration of piezo-resistive sensors to full scale pressure range: providing sensitivity, linearity, hysteresis, repeatability, ZMO, zero shift after proof pressure, thermal zero shift, thermal sensitivity shift, & Input/Output/Isolation resistance. For "-D" version: EPCS-2 Calibration code includes the noted above calibration (EPCS-1) as well as sensitivity and ZMO provided at at 5Vdc.

CE
UKCA   See Declaration of Conformity PS282

8.0 OPTIONAL ACCESSORIES/COMPATIBLE PRODUCTS

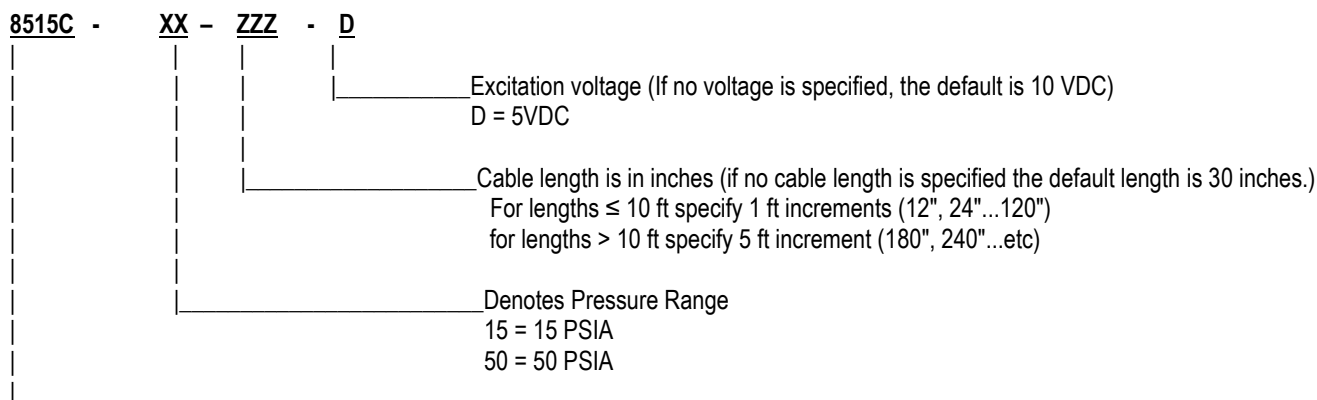| 30042	Mounting Pad
EDVEW862	4 conductor ribbon cable

9.0 NOTES

[1] Span is defined as transducer output from ZMO to full scale output. Accuracy is defined as the RSS of non-linearity, hysteresis, and non-repeatability.

[2] The cavity in the housing around the diaphragm may result in a low amplitude minor resonance near 70 kHz.

[3] Warm up time is defined as lapsed time from excitation voltage "turn on" until the transducer output is within 1% of reading accuracy.

[4] Transducer calibrated at 10 Vdc. Calibration at 5 Vdc available upon request (see -D option)

[5] Model number definition

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8515C  -    XX –  ZZZ   -  D
|           |     |       |
|           |     |       |_____Excitation voltage (If no voltage is specified, the default is 10 VDC)
|           |     |                  D = 5VDC
|           |     |
|           |     |_____Cable length is in inches (if no cable length is specified the default length is 30 inches.)
|           |                         For lengths ≤ 10 ft specify 1 ft increments (12", 24"...120")
|           |                         for lengths > 10 ft specify 5 ft increment (180", 240"...etc)
|           |
|           |_____Denotes Pressure Range
|                                     15 = 15 PSIA
|                                     50 = 50 PSIA
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|_____Basic Model Number