



MODEL 249 PRESSURE TRANSDUCER

- ◆ 0-5 thru 0-100K PSI
- ◆ Compact and lightweight
- ◆ All welded, stainless steel construction
- ◆ Internal shunt calibration
- ◆ Sealed zero and span adjustments

The Model 249 Series from Viatran is a family of robust, high-accuracy pressure transducers. They are designed to provide reliable, repeatable pressure measurements within demanding aerospace and engine testing, as well as fluid power control applications.

PERFORMANCE

| | |
|-------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------|
| Full Scale Pressure Ranges | 0-5, 15, 25, 50, 100, 200, 300, 500, 1000, 1.5K, 2K, 3K, 5K, 7.5K, 10K, 15K, 20K, 25K, 30K, 40K, 50K, 60K, 75K, 100K PSIA, PSIS, PISG |
| Accuracy (RSS) (BFSL Non-Linearity, Hysteresis, Repeatability) | 0-60K PSI $\leq \pm 0.12\%$ FSO 75K-100K PSI $\leq \pm 0.25\%$ FSO |
| Full Scale Output (FSO) | 5 Vdc |
| Resolution | Infinite |
| Compensated Temperature Range | 70°F to 170°F (21°C to 76°C) |
| Operating Temperature Range | -40°F to 185°F (-40°C to 85°C) |
| Storage Temperature Range | -65°F to 250°F (-54°C to 121°C) |
| Long Term Stability (%FSO) | $\leq \pm .25\%$ FSO per 6 months |
| Thermal Effect on Zero | $\leq \pm 1\%$ FSO per 100°F Typical |
| Thermal Effect on Span | $\leq \pm 1\%$ FSO per 100°F |

ELECTRICAL

| | |
|----------------------------------|--------------------------------------------------------------------------------------------|
| Output Signal | 0-5 Vdc |
| Supply Voltage | 9-40 Vdc |
| Power Supply Regulation | $\leq \pm .01\%$ FSO per volt |
| Load Impedance | 125K Ohms minimum |
| Circuit Protection | Reverse polarity protected |
| Voltage Spike Protection | Withstand 1000 volt spike per EN 61000-4-5 |
| Insulation Resistance | < 5 nS to case ground |
| Response Time | ≤ 4 millisecond to reach 90% of FSO |
| Range Calibration Signal | 80% FSO $\pm 5\%$ by shorting pins E&F |
| Calibration Power Supply Voltage | 8.5 -28 VDC |
| Calibration Signal Accuracy | Readings on calibration certificate are within $\pm 0.2\%$ FSO of actual Cal signal output |
| Bridge Resistance | 5K Ohms, nominal |
| Standard Electrical Connection | Mates with 6 pin, Hermetic, bayonet style, 303 SST weld mount connector |

Pin Outs

| | |
|-------|-----------|
| Pin A | +Power |
| Pin B | -Power |
| Pin C | +Signal |
| Pin D | -Signal |
| Pin E | Calibrate |
| Pin F | Calibrate |



MODEL 249 Pressure Transducer



HIGHLY ACCURATE

Design of the Viatran Model 249 Series incorporates three unique sensing technologies, to help achieve maximum transducer output-for-size and precision measurement accuracy.

For ranges 0-5 to 0-150 PSI, a MEMS-based piezoresistive sensing element offers accurate readings with high over-pressure protection. Bonded foil strain gage elements support models in the 200 to 15K PSI range, where MEMS-based designs can be vulnerable to transient spikes.

For ranges over 20K PSI, Viatran has developed its own proprietary “tube” sensor. Constructed of high-strength stainless steel, the sensor ensures high-accuracy and durability, in applications where traditional diaphragm-type sensors can rupture.

All Viatran Model 249 Series pressure transducers are compact and lightweight, for ease of installation within space constrained areas. The incorporation of welded bodies, stainless steel connectors and sealed adjustments ensure protection from contaminant.



MECHANICAL

| | |
|------------------------|-------------------------------------------|
| Pressure Port: | |
| 5-15K | 1/4" NPT female |
| 20K-50K | 1/4" F250-C high pressure tube |
| 60K-100K | 5/16" F312-C150 high pressure tube |
| Proof Pressure | |
| 5-150 PSI | 3X range minimum |
| 151-15K PSI | 1.5X range |
| 20K-100K PSI | 1.2X range |
| Burst Pressure | |
| 5-150 PSI | Consult factory |
| 151-15K PSI | 5X range or 30K PSI, whichever is less |
| 20K-100K PSI | 1.5X range or 125K PSI, whichever is less |
| Pressure Cavity Volume | |
| 5-150 PSI | 0.25 cubic inch |
| 200-15K PSI | 0.32 cubic inch |
| 10K-100K PSI | 0.10 cubic inch |

MATERIALS OF CONSTRUCTION

| | |
|--------------------|------------------------------|
| Wetted Materials | |
| 5-150 PSI | 316, 304 Stainless Steel |
| 200-15K PSI | 15-5PH Stainless Steel |
| 20K-100K PSI | 13-8 Mo Stainless Steel |
| Enclosure Material | |
| | 316L Stainless Steel |
| Identification | |
| | Laser marked on body of unit |
| Weight | |
| | 15 oz. nominal |

OPTIONS

| | |
|----|--------------------------------------------------------------|
| BZ | Micro change connector |
| DG | Improved temperature compensation |
| DH | Special Range |
| DK | Special calibration setting |
| DM | Modified output (i.e., 0-10 Vdc) |
| DN | Improved accuracy |
| DQ | Cleaning for oxygen service |
| EA | Special Calibration run |
| NH | Customer specific identification |
| PW | Meter with unit |
| YA | MS33649-04 |
| YG | MS16142-04 |
| YI | 1/8" NPT (F) |
| YK | 1/4" NPT (M) |
| YM | 1/4" F250-C High pressure tube (standard for 20K-50K PSI) |
| YN | 3/8" NPT (F) |
| YS | 5/16" F-375-C High pressure tube |
| YR | 1/2" NPT (F) |
| YV | MS33649-08 |

Information is accurate to the best of Viatran's knowledge. We reserve the right to change specifications at any time. Please contact Viatran for specific order inquiries.



BUILT TO PERFORM

Model 249 is equipped with electronic linearization, a compensation circuit that corrects for non-linearities in the sensor. Surface-mount technology (SMT) allows this complex circuitry to be incorporated into a small package and yield a linearity specification of $\leq 0.1\%$ FSO (optional to $\leq 0.05\%$ for $\leq 15\text{K PSI}$).

Encapsulation of PC board surface mount components helps to prevent damage from severe vibration. Zero and span adjustments allow for user recalibration of the pressure transmitters in the field. An internal calibration circuit permits easy two-point calibration without an external pressure source.

Optional performance features of the Viatran Model 249 series include improved accuracy, temperature compensation, special ranging, modified output, and alternate pressure ports.

APPROVALS

KG CRN (Canadian Registration Number)

ACCESSORIES

Mounting Bracket

Mating electrical assembly

Digital indicator

DL Series Dual Line, Analog Input Process Meter

TYPICAL APPLICATIONS

Jet Engine Test

Internal Combustion Engine Test

Rolling Mills

Die Casting

Brake Test

Injection Molding

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