

Pressure Transmitter

Model #249/349

Gage, Absolute and Vacuum

Features

- High accuracy $\leq \pm 0.10\%$ FSO (0.05% optional)
- 1.5 to 100K PSI
- Small size and weight
- All welded, stainless steel construction
- Internal shunt calibration
- Sealed zero and span adjusts

Typical Applications

- Jet engine test
- Internal combustion engine test
- Rolling mills
- Die casting
- Brake test
- Injection molding



Viatran's "49" Series is a robust highly accurate pressure transmitter designed for the severe environments found in aerospace, engine test and fluid power control applications. Its small size allows flexibility in tight spaces, while the welded body, stainless steel connector and sealed adjustments ensure protection against contamination.

The "49" Series utilizes three sensor technologies to achieve top performance through all pressure ranges. For ranges 1.5 to 150 PSI, a silicon piezoresistive sensor provides extremely accurate readings and high overpressure protection. Bonded foil strain gage sensors are more reliable for pressure ranges 200 to 15,000 PSI where transient spikes could destroy a silicon sensor. For pressure measurement over 20,000 PSI, Viatran developed the "tube" sensor. Made from high strength stainless steel, this sensor ensures high accuracy and durability where diaphragm type sensors can rupture.

Models 249 and 349 are 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 0.05%).

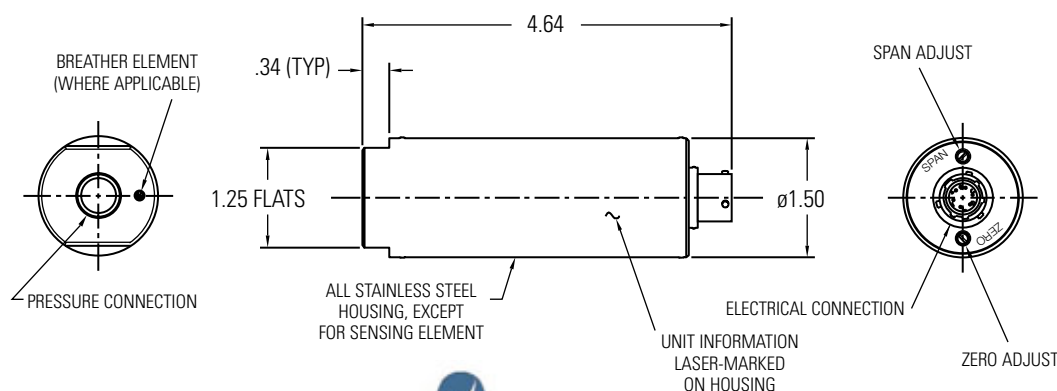
Encapsulation of the surface-mount components of the PC board helps to prevent damage from severe vibration with top-mounted and sealed zero and span adjustments, an internal calibration circuit permits easy 2-point calibration without an external pressure source.

Optional performance features of the "49" series include improved accuracy, temperature compensation, special ranging, modified output, and alternate pressure ports.

Viatran has developed a complete line of precision test transmitters.

Dimensions

ALL DIMENSIONS ARE NOMINAL, IN INCHES AND FOR REFERENCE PURPOSES ONLY



Viatran Model 249/349 Specifications

Performance

Full Scale Pressure Range (FSPR)	0-2, 5, 10, 15 PSIV 2, 5, 10, 15, 25, 50, 100, 150, 200, 300, 500, 1K, 1500, 2K, 3K, 5K, 7500, 10K, 15K, 20K, 25K, 30K, 40K, 50K, 60K, 75K, 100K PSIA, PSIS, PSIG
Linearity	$\leq \pm 0.10\%$ FSO (BFSL)
Hysteresis	$\leq \pm 0.05\%$ FSO
Repeatability	$\leq \pm 0.05\%$ FSO
Full Scale Output (FSO)	
Model 249	5 VDC
Model 349	16 mA
Resolution	Infinite
Drift	$\leq \pm 0.25\%$ FSO per 6 months
Response Time	≤ 4 mSec to reach 90% of FSO
Thermal Zero Shift	$\leq \pm 1.0\%$ FSO per 100° F
Thermal Sensitivity Shift	$\leq \pm 1.0\%$ FSO per 100° F
Compensated Temperature Range	
≤ 150 PSI	70° F to 170° F
> 150 PSI	0° F to 200° F
Non-Operating Temperature Range	-40° F to 250° F

Electrical

Supply Voltage	9 to 40 VDC
Power Supply Regulation	$\leq \pm 0.0001\%$ FSO/V
Output Signal	
Model 249	0 to 5 VDC
Model 349	4 to 20 mA
Load Impedance	
Model 249	125K Ohms min
Model 349	1500 Ohms at 40 VDC max
Circuit Protection	Output may be short circuited indefinitely. Input polarity may be reversed. Over voltage protected to 1000V < 1ms duration.
Bridge Resistance	5K Ohms
Electrical Connections	6-pin hermetic, bayonet-style, 303 SST weldmount connector
	Model 249 Model 349
Pin A	+ Power + Signal
Pin B	- Power - Signal
Pin C	+ Signal Calibration
Pin D	- Signal Calibration
Pin E	Calibration No Connection
Pin F	Calibration No Connection

Mechanical

Pressure Connection	
0 - 15K PSI	1/4" NPT Female
20K - 50K PSI	1/4" F250-C High Pressure Tube
60K - 100K PSI	5/16" F-312-C150 High Pressure Tube
Proof Pressure	
2 - 150 PSI	3X Range Minimum
151 - 15K PSI	1.5X Range
20K - 100K PSI	1.2X Range
Burst Pressure	
2 - 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	
2 - 150 PSI	0.25 cu. in.
151 - 15K PSI	0.32 cu. in.
20K - 100K PSI	0.10 cu. in.

Materials of Construction

Wetted Materials	
2 - 150 PSI	316, 304 SST
200 - 15K PSI	15-5 PH SST
20K - 100K PSI	Stainless Steel
Housing	316L SST
Weight	15 oz., nominal
Identification	Laser etched onto body

Options

Codes	Alternate Connector
BZ	Micro change connector

Codes	Alternate Ports
YA	MS33649-04
YG	MS16142-04
YI	1/8" NPT(F)
YK	1/4" NPT(M)
YM	1/4" F250-C High pressure tube
YN	3/8" NPT(F)
YS	5/16" F-375-C High pressure tube
YR	1/2" NPT(F)
YV	MS33649-08

Codes	Performance Options
DG	Improved temperature performance
DH	Special range
DK	Special calibration setting
DM	Modified output (i.e. 0-10 VDC)
DN	Improved accuracy (to $\pm 0.05\%$ FSO (BFSL))
DQ	Cleaning for Oxygen service
EA	Special calibration run
NH	Customer specified identification
PW	1/8 DIN digital indicator

Note: Application of some available options may affect standard performance. Consult your Viatran representative for details.

Accessories	Mounting bracket
	Mating electrical assembly
	Digital indicator