

## CHALLENGE

Standard aircraft engine oil filter differential pressure sensors employ on/off type switches to indicate when the filter is at the end of its useful life. These switches experience chronic reliability problems and are prone to field failures due to corrosion of the contacts. These failures can cause false indications and result in expensive maintenance and downtime.

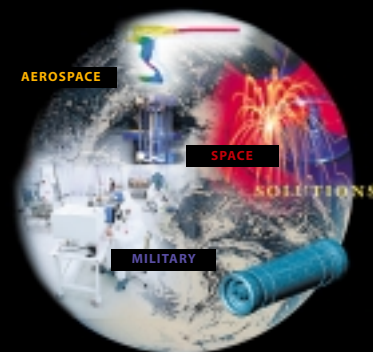


## LVDT PRESSURE SENSORS

## SOLUTION

Senior Flexonics Metal Bellows Division developed a high-resolution bellows actuated linear variable differential transformer (LVDT) type pressure sensor. The all welded construction of the LVDT provides an extremely reliable high temperature hermetic seal with all mechanical components designed to withstand the specified pressure, fire, vibration, and fatigue loading. The typical MTBF for these sensors exceeds 100,000 engine operating hours equating to maintenance-free operation for

the life of the aircraft engine. These sensors are ETOPS qualified and are the most rugged and reliable pressure sensors available today. The self-calibrating design eliminates adjustment or calibration throughout the entire operating temperature range. This sensor displays actual pressure readings that warn when filters are nearing the end of their useful life.



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## LVDT Pressure Sensors

Senior Flexonics Metal Bellows Division offers a unique line of high-resolution Bellows/LVDT pressure sensors that detect and transmit vital information regarding fuel and oil pressures to the Electronic Engine Control (EEC). The all-welded construction of the sensor provides an extremely reliable, high temperature, hermetically sealed unit. All mechanical components are designed to withstand the specified pressure, fire, vibration and fatigue loading. The typical MTBF for these sensors exceeds 100,000 engine operating hours equating to maintenance-free operation for the life of the aircraft engine.

The LVDT sensors are a self-calibrating design that eliminates adjustment or calibration throughout the entire operating temperature range. The sensor displays actual pressure and allows for readings of absolute pressure as well as pressure differential. For pressure switch type applications, this unit has the additional benefit of allowing for trend monitoring rather than simply indicating a single switch pressure point.

In addition to pressure sensing, this Bellows/LVDT technology can be used for flow sensing applications as well.

### Advantages:

- All welded stainless steel construction
- Elimination of elastomeric seals
- Full temperature compensation
- Compact and lightweight
- High resolution
- Guaranteed zero leakage
- Superior linearity
- Permanent high strength assembly
- Fireproof construction
- Electrical components are completely sealed from working fluid

### Technical Specifications

Welded Metal Bellows Actuated Linear Variable Differential Transformer (LVDT)

Temperature Range: -65 to 450°F

Pressure Range: Vacuum to 500+ PSID

Configurations: Differential, Gauge, Absolute

Excitation Voltage: 2 VAC to 32 VAC

Excitation Frequency: 400 Hz to 5000 HZ

Number of Channels: Single or Multiple

Media: Oil, Fuel, Water, Pneumatics

ETOPS Rating: Qualified

Vibration: 0 to 3000 Hz, 20G (Tested to over 100G)

Acceleration: 20G+

Shock: 20G+

Fire Resistance: 2000F, 15 Minutes

Humidity: 100%

Insulation Resistance: 100 Megohms @500 VDC

Dielectric Strength: 1500 VRMS

Connector Bonding: 2.5 Milliohms Max

