21 NA Pressure Transducer

Indian Space Research Organization (ISRO) at its Liquid Propulsion Systems Centre has developed a novel 21 NA Pressure Transducer, which will find wide industrial and commercial applications.

Principle of Operation

21NA Pressure transducers which is space qualified has outstanding features such as light weight, high accuracy and ruggedness. These transducers are intended for absolute pressure sensing. The active element is a

stainless steel membrane which senses the pressure to be measured. The membrane transmits a force in proportion to the pressure, to an isostatic beam on which four active strain gauges are bonded in a wheat stone bridge circuit. These transducers are totally enclosed, adequately temperature compensated and are designed to operate even under adverse environmental conditions. They are hermetically sealed and suitable for high humidity environment as

well. Any failure of the sensing element will be contained within the sensor and no catastrophic damage outside is ensured. These transducers have a heritage of long term use in satellites as well. These sensors have 30 years heritage in ISRO launch vehicle programmes. These transducers are mainly meant for application in the areas of aerospace, process industries, air and gas compressors, oil and gas, wind tunnel studies etc.

Advantages & Salient Features

- Compact & Light weight
- Hermetically Sealed
- Can withstand Shock 50grms
- Vibration resistance upto 30grms
- High Dynamic response
- Compatible with corrosive fluid environments.

Application

- Aerospace
- Defense
- Process Industries
- Atomic energy
- Air and Gas Compressors
- High Dynamic response
- Compatible with corrosive fluid environments.
- Oil and gas industry.
- Automobiles Wind
- Tunnel Studies etc.
- Oceanography

Specifications

Measuring Ranges (Bar)	0-3, 0-5, 0-7, 0-10, 0-15, 0-20, 0-30, 0-50, 0-70, 0-100, 0-200, 0-300 and 0-330 Bar.
Nominal Excitation	10 V DC ± 5 m V
Safe over load For 0-3 to 0-20 bar For 0-30 bar For 0-50 to 0-200 bar For 0-300 to 0-330 bar	 2X Nominal pressure 40 bar 2X Nominal pressure 500 bar
Full Scale Output (FSO) For 10 Volts Excitation	20 to 21 m V
Non Linearity + Hysteresis For 0-30 to 0-300 Bar For 0-330 Bar	 ≤ 0.7% FSO ≤ 0.85% FSO
Hysteresis	≤ 0.5% FSO
Sensitivity	$2_{-0.}^{-0.1}$ mV/V
Zero & Nominal point drift in temperature	≤ 2 X 10^{-4} / FSO/ ^{0}C
Noise Due to Vibration	≤ 1% FSO
Mass	≤ 100 grams
Electrical interface	Multi-pin hermetically sealed connector

Technology Transfer from ISRO

ISRO is willing to offer the knowhow of this technology to suitable entrepreneurs / industries in India. Capable manufacturing industries interested in acquiring this knowhow may write with details of their present activities, requirements and plans for implementation, infrastructure and technical expertise available with them, their own market assessment, if any, and plans for diversification to the address given below: