

Differential Pressure Transducer (DPT)

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

Principle of Operation

A DPT is used where the difference in pressures at two points are to be measured. The forces developed due to these pressures (say P1 and P2) act on a balanced beam called sensing element. Four resistance foil strain gauges are bonded on this sensing element beam which deforms proportionately to the difference between P1 and P2. The electrical output signal is positive when P1 is greater than P2 and vice versa. A mechanical stopper limits the deflection of sensing beam within the specified limits.

The DPT can be used for liquid medium or gaseous medium or even a combination of both. 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 is caused to the system.

Advantages & Salient Features

- Rugged
- Hermetically Sealed
- Vibration resistance
- Compatible with corrosive fluid environments.

Application

- Aerospace
- Atomic energy
- Process Industries
- Air and Gas Compressors
- Oil and gas industry's



Specifications

Differential pressure range	$\pm 3, \pm 5, \pm 7, \pm 10, \pm 20$
Line pressure	65 bar Safe
overload	75 bar
Excitation	10 V \pm 5 mV
Output	10m V \pm 5 mV
Non Linearity + Hysteresis	$\leq 0.5\%$ F.S.O
Hysteresis	$\leq 0.3\%$ F.S.O
Sensitivity	$\pm 1\text{mV/V} \pm 0.1$
Zero & F.S.O drift in temperature	$\pm 3 \times 10^{-4}/\text{F.S.O}/^{\circ}\text{C}$
Noise due to vibration	$\leq 1\%$ F.S.O Mass ≤ 950 gms
Maximum current	28 mA @ 10 V.D.C
Wetted parts	Stainless steel, 316L/304L
Electrical interface	Multi-pin hermetically sealed electrical 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: