

Penning Gauge - Analog



This is a cold cathode Ionisation Gauge consisting of two electrodes anode and cathode. A potential difference of about 2.2 KV is applied between anode and cathode through current limiting resistors. A magnetic field is introduced at right angles to the plane of the electrodes by a permanent magnet having nearly 800 gauss magnetic field which will increase the ionisation current.

The electrons emitted from the cathode (gauge head body) of the gauge head are deflected by means of magnetic field applied at right angles to the plane of the electrodes & are made to take helical path before reaching the anode loop. Thus following very long path, the chance of collision with gas molecule is high even at low pressures. The secondary electrons produced by ionisation themselves perform similar oscillations and the rate of ionisation increases rapidly. Eventually, the electrons are captured by the anode and equilibrium is reached when the number of electrons produced per second by ionisation is the sum of positive ion current to the cathode & the electron current to the anode & is used to measure the pressure of the gas. The Cold Cathode Penning gauge is designed on this detection method to read vacuum from 10^{-2} to 10^{-6} m.bar. The vacuum reading efficiency is enhanced by utilising cross coupled static magnetic and electron fields of the gauge head. The gauge is stabilised to high voltage DC power supply of about 2 KV. The ionization current in terms of vacuum can be noted from the front panel micro-ammeter. All the high voltage points in the penning gauge are well insulated to eliminate any accidental contact by the user.

Salient Features:

- Stabilised power supply for accurate reading
- Fast response
- Easy to clean the sensor
- Rugged design for no filament burnout
- Instant start up
- Standardised to heat and voltage fluctuations
- Compatible out put for process set point controller model PNGC-1

TECHNICAL SPECIFICATIONS

Model No.	SPT4M-D
Pressure Range	10^{-2} to 10^{-6} mbar in two ranges of 1×10^{-2} to 1×10^{-5} mbar and 3×10^{-5} mbar to 1×10^{-6} mbar
Display	Wide view analog panel meter calibrated directly in mbar in the ranges
Capacity	One Gauge head
Power Input	220V AC $\pm 10\%$, 50 Hz
Power cord	2 Mtr. long cable with 3 pin, 5 amp plug as standard. Extra long cable on request.
Sensor Gauge Head	Model no. PNG2

Gauge Head Specification

Type	PNG2
Useful Range	10^{-2} mbar to 10^{-6} mbar
Gauge Head Cable	2 Mtr. long Amphenol sockets suitably connected on both sides as standard extra length cable on request

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