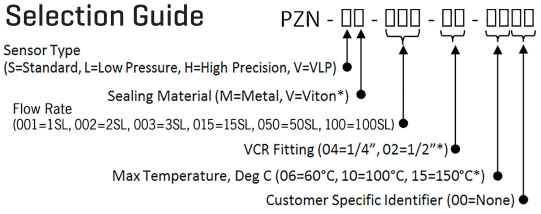
Very Low Pressure (VLP) Piezocon Gas Concentration Sensor

- Built using Veeco's industry-leading and production-proven Piezocon technology
- Optimized for use in high-volume manufacturing (HVM) applications where operating temperature is less than 150 Deg C and operating pressure is between 30 and 100 Torr
- Ideal for high temperature and very low pressure applications such as ALD
- Operates in monitor mode, providing real-time feedback on vapor concentration

Selection Guide



Specifications

	Very Low Pressure Sensor
Range of Concentration (Binary Mixture Only)	0 - 100%
Maximum Operating Pressure	100 Torr
Minimum Operating Pressure	30 Torr
Range of Flow Rates	0 - 2 LPM
Temperature Range (Sensor)	130 -150 Deg C
Temperature Range (Controller)	0 - 40 Deg C
Pressure Connections	Male VCR: 1/2"
Leakage to Atmosphere	< 1x10 -9 atm cc/sec He
Sensor Dimension	VCR Face to Face: 124mm (4.88"), Width: 76.2mm (3.00"), Height: 112mm (4.42")
Weight (Sensor)	1.6 Kg
Weight (Controller)	1-Channel Controller: 1.0 Kg (2.204 lbs) 4-Channel Controller: 2.8 Kg (6.172 lbs)
Sensor Wetted Materials	316L Stainless Steel; Kapton; Viton
Complete User Interface Software (Controller)	Monitor Status & Error Codes, Concentration, MFC Flow, Temperature
Communications Interface Options (Controller)	None; Devicenet; Profibus; RS-232; Modbus/TCP; Modbus/RTU; FabComms; Devicenet Master
Power Supply Options (Controller)	100 - 240 VAC, 50 - 60 Hz, 30 VA (internal); 24VDC External (3-wire interface provided for user to connect to their own external 24VDC power); 5VDC External (Veeco provides external 5VDC power supply)

Typical Measurements for Very Low-Pressure Sensors

Precursor Chemical	Typical Process	Concentration % Qp/Qtotal *	Accuracy % Qp/Qtotal *	Repeatability % Qp/Qtotal *	Matching %
Tungsten Pentachloride, WCl_5	ALD	2.95	< 0.039	< 0.0078	< 0.031

Example precursors in Ar carrier gas, 30 Torr, 100C

* Qp = Precursor Volumetric Flow, Qtotal = Total Volumetric Flow

Piezocon Gas Concentration Sensor and Delivery Control System

The Industry Standard for Reproducible Vapor Delivery Control

- The only gas concentration sensor to enable both monitoring and control of mass transfer of the precursor in real time
- Optimized for High Volume Manufacturing, with little to no user intervention and no periodic maintenance or calibration required
- Provides improved process reproducibility and increased yield by tightly controlling the delivery of process gases and precursor chemical vapors
- Lowers cost-of-operation by allowing more efficient use of precursor chemicals, extending the use of precursor sources and reducing waste
- Easier tool-to-tool matching with quantitative information directly meaningful to both equipment and process engineers
- Comprehensive diagnostic capabilities enable higher tool productivity
- Available options cover a broad range of operating pressures, temperatures and flow rates
- IECEx and CE certifications