



Performance Specifications

All Downhole Frequency Models (QHB, SPB, QMB, etc.)

Part Number Coding: A A A X X X - Y Y - Z Z Z
 Family Options Pressure Temperature

Pressure Performance

Pressure (kpsi) -YY	05	10	16	20	25	30	35
Sensor	Thickness Shear Mode Quartz Resonator						
Pressure Range ¹ (psia / bar)	0 to 5,000 / 0 to 344	0 to 10,000 / 0 to 690	0 to 16,000 / 0 to 1,100	0 to 20,000 / 0 to 1,380	0 to 25,000 / 0 to 1,725	0 to 30,000 / 0 to 2,070	0 to 35,000 / 0 to 2,415
Available Calibration Temperature Ranges (°C)	25 to 150	25 to 150	25 to 150, 177, 200	25 to 150, 177, 200, 225	25 to 177, 200, 225	25 to 177, 200, 225	25 to 177, 200
Accuracy ² (% FS) 25 to 150, 177, or 200°C	0.02	0.015	0.02	0.02	0.02	0.025	0.03
Typical Accuracy (% FS) 25 to 150, 177, or 200°C	0.015	0.012	0.015	0.015	0.015	0.02	0.025
Accuracy ² (% FS) 25 to 225°C (special cal)	0.04	0.025	0.025	0.025	0.03	0.035	-
Achievable Resolution ³ (psi / sec)	< 0.006	< 0.006	< 0.008	< 0.008	< 0.010	< 0.010	< 0.010
Repeatability (% FS)	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Nominal Sensitivity (Hz / psi)	2.8	2.8	2.5	2.5	2.2	2.2	2.2
Frequency Output Range (kHz)	10 to 70	10 to 70	10 to 75	10 to 80	10 to 90	10 to 100	10 to 100
Response Time to FS Step (for 99.5% FS)	< 1 sec	< 1 sec	< 1 sec	< 1 sec	< 1 sec	< 1 sec	< 1 sec
Gravity / Orientation Effect	Negligible	Negligible	Negligible	Negligible	Negligible	Negligible	Negligible
Acceleration Sensitivity (psi / g - any axis)	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
Drift at 14 psi and 25°C (% FS / year)	Negligible	Negligible	Negligible	Negligible	Negligible	Negligible	Negligible
Drift at Max. Pressure and Temperature (% FS / year) ⁴	0.02	0.02	0.02	0.02	0.02	0.025	0.03

Temperature Performance

Temperature (°C) -ZZZ	150	177	200	225
Sensor	Thickness Shear Mode Quartz Resonator			
Calibrated Temperature Range (°C / °F)	25 to 150 / 77 to 302	25 to 177 / 77 to 350	25 to 200 / 77 to 392	25 to 225 / 77 to 437
Accuracy (°C)	0.5	0.5	0.5	0.5
Typical Accuracy (°C)	0.15	0.15	0.15	0.2
Achievable Resolution ³ (°C / sec)	< 0.005	< 0.005	< 0.005	< 0.005
Repeatability (°C)	< 0.01	< 0.01	< 0.01	< 0.01
Average Sensitivity (Hz / °C)	180	180	180	180
Frequency Output Range (kHz)	10 to 90	10 to 90	10 to 90	10 to 90
Drift at 177°C (°C / year)	< 0.1	< 0.1	< 0.1	< 0.1

Reference Performance

All Products	
Sensor	SC-cut Quartz Resonator
Frequency Output (MHz)	7.200 ± 0.007
Drift at 177°C (ppm / year)	< 1

Notes:

- Units calibrated with a bellows meet accuracy specifications from 200 psi to FS. Below 200 psi, non-linear bellows effects may increase ambient pressure readings. Operating range is from 0 to FS.
- Accuracy is the combined effects of repeatability, hysteresis, and corrected linearity over the calibrated temperature range. Stated accuracy does not include the deadweight tester error, which is 0.01% of reading. Some transducers require fourth- or fifth-order coefficients to satisfy accuracy specifications. Consult factory for details.
- Assumes 7.2 MHz reference is used as the clock in a period-based counter. Resolution scales directly with gate time.
- Products may have up to three times the stated %FS drift/year at 225°C.