



# Performance Specifications

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

## Pressure Performance

Pressure (kpsi) -YY	05	10	16	20	25	30	35
Sensor	Thickness Shear Mode Quartz Resonator						
Pressure Range <sup>1</sup> (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 <sup>2</sup> (% 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 <sup>2</sup> (% FS) 25 to 225°C (special cal)	0.04	0.025	0.025	0.025	0.03	0.035	-
Achievable Resolution <sup>3</sup> (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) <sup>4</sup>	0.02	0.02	0.02	0.02	0.02	0.025	0.03

## Temperature Performance

Temperature (°C) -ZZZ	150	177	200	225
Sensor				
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 <sup>3</sup> (°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 100	10 to 100	10 to 100	10 to 100
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 Range (MHz)	7.200 ± 0.007
Drift at 177°C (Hz / 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 to 0.04% FS. 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.
- Resolution scales inversely with gate time (sample interval). Example: If at 1 second the resolution is 0.01 psi, a 2 second gate time will result in 0.005 psi resolution. Conversely, a .1 second gate time would result in 0.1 psi resolution.
- Products may have up to three times the stated %FS drift/year at 225°C.

Part Number Coding: AAA XXX - YY - ZZZ  
 Family      Options      Pressure      Temperature