Digiquartz® Depth Sensors
Series 8000

Digiquartz® Depth Sensors provide the ultimate precision in water level measurements. Typical application accuracy of 0.01% is achieved even under difficult environmental conditions. Desirable characteristics include excellent long-term stability,1x 10–8 resolution, low power consumption, and high reliability. The remarkable performance of these depth sensors is achieved through the use of a precision quartz crystalresonator whose frequency of oscillation varies with pressure-induced stress. A quartz crystal temperature signal is provided to thermally compensate the calculated pressure and achieve high accuracy over a broad range of temperatures. The depth sensors include waterproof housings with integral shock protection.

High accuracy, resolution, and stability make Digiquartz® Depth Sensors ideal for applications such as Tsunami detection, wave and tide gauges, platform leveling, underwater pipe laying, and as depth sensors in ROVs and AUVs. All Depth Sensor ranges are available with either frequency outputs or integral intelligent electronics with bi-directional digital communications.

Specifications

Product	Digiquartz® Depth Sensors
Country of origin	USA
Manufacturer	Paroscientific Inc

Dual RS-232 and RS-485 interfaces allow complete remote configuration and control of all operating parameters, including resolution, sample rate, and choice of engineering units, integration time, and sampling requests. Commands include: Single sample and send, synchronized sample and hold, continuous sample and send, and special burst sampling modes.

New and enhanced features include support for both serial loop and multi-drop networking, selectable baud rates up to 115,200 baud, synchronization of measurements with timebased integration, 2 or 4 wire RS-485 transmission distances greater than 1 kilometer, improved high-speed continuous pressure measurements, a power management “sleep” mode, data formatting features, and unit identification commands.
All Digiquartz® transducers come with a limited five-year warranty with the first two years covered at 100%.

Ranges

Absolute	0-10 m H2O to 0-7000 m H2O 0-30 psia to 0-10,000 psia
Gauge	0-10 m H2O to 0-140 m H2O 0-15 psi

Features

0.01% Accuracy
1 x 10 –8 Resolution
Unique Anti-Fouling Port
Low Power Consumption
High Stability and Reliability
Fully Calibrated and Characterized
ISO 9001 Quality System – NIST Traceable
Frequency Outputs or Dual RS-232 and RS-485 Interfaces

Application areas

Hydrology
Oceanography
Tsunami Detection
Wave and Tide Gauges
Offshore Platform Leveling
Dam and Reservoir Level Sensing
Underwater Pipe Laying and Surveying
Remotely Operated and Autonomous Underwater Vehicles

Performance characteristics

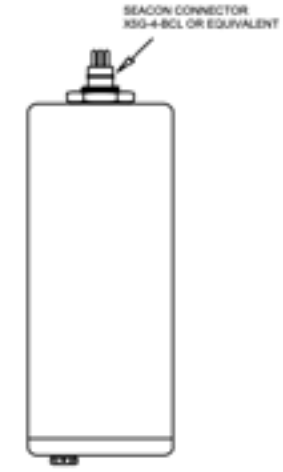
Pressure Performance	Accuracy typically better than 0.01% Full Scale (See SCD)
Calibrated Temperature	-2C to +40C
Hysteresis	8B ≤± 0.01% Full Scale 8DP ≤± 0.005% Full Scale
Repeatability	8B≤± 0.01% Full Scale 8DP≤± 0.005% Full Scale
Over Pressure	1.2 times Full Scale
Thermal Sensitivity	<0.0008% Full Scale /deg C
Pressure Signal	Nominal Frequency 37 to 42 KHz
Temperature Signal	Nominal Frequency 172 KHz

Electrical characteristics

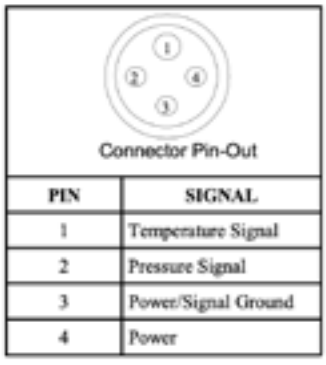
Input Voltage	+6 (Min) to +25 VDC
Current Consumption	1.3 mA @ 6VDC (Typical)
Output Signal	Nominal square wave of 4 volts amplitude peak-to-peak, capacity coupled with source impedance <1,000 Ohms

Environmental characteristics

Weight	8B Dry: 2.55 lbs (1.156 Kg) Max 8DP Dry: 3.48 lbs (1.58 Kg) Max 8DP 700m Dry: 5.00 lbs (2.26 Kg) Max
Housing Materials/Wetted	8B - Stainless Steel 8DP-PVC Type 1 or Acetal, White



Series 8DP (0-700 meters)



Connector Pin-Out

PIN	SIGNAL
1	Temperature Signal
2	Pressure Signal
3	Power/Signal Ground
4	Power

Series 8B (0 to 7,000 meters)

Performance characteristics

Pressure Performance	Accuracy typically better than 0.01% Full Scale (See SCD)
Calibrated Temperature	-2C to +40C
Hysteresis	8B ≤± 0.01% Full Scale 8DP ≤± 0.005% Full Scale
Repeatability	8B≤± 0.01% Full Scale 8DP≤± 0.005% Full Scale
Over Pressure	1.2 times Full Scale
Thermal Sensitivity	<0.0008% Full Scale /deg C

Electrical characteristics

Input Voltage	+6 (Min) to +16 VDC
Current Consumption	16.5 mA Quiescent, 32 mA max @ +6 VDC
Output Signal	RS-232 meets EIA/TIA specs RS-485 meets EIA/TIA specs

Environmental characteristics

Weight	8CB Dry: 2.94 lbs (1.33 Kg) Max 8CDP Dry: 3.48 lbs (1.58 Kg) Max 8CDP 700m Dry: 5.0 lbs (2.26 Kg) Max
Housing Materials/Wetted	8CB - Stainless Steel 8CDP-PVC Type 1 or Acetal, White

Series 8CDP (0 to 700 meters)

Connector Pin-Out

PIN	SIGNAL
1	RS-232 to Computer
2	RS-232 from Computer
3	Power/Signal Ground
4	Power
5	RS-485 RX+
6	RS-485 RX-
7	RS-485 TX+
8	RS-485 TX-

Series 8CB (0 to 7,000 meters)

Depth Sensors

Depth	Model	Frequency Outputs		
Meters of H2O	Model	Part Number	Dimensions inch (cm) Dia.	Length
		Series 8DP Absolute Depth Sensors*		
0-10	8DP010-2	1116-004-0	3.50(8.9)	8.92(22.7)
0-20	8DP020-2	1116-006-0	3.50(8.9)	8.92(22.7)
0-60	8DP060-2	1116-008-0	3.50(8.9)	8.92(22.7)
0-130	8DP130-2	1116-010-0	3.50(8.9)	8.92(22.7)
0-200	8DP200-2	1116-012-0	3.50(8.9)	8.92(22.7)
0-270	8DP270-2	1116-014-0	3.50(8.9)	8.92(22.7)
0-700	8DP700-2	1116-035-0	3.50(8.9)	14.51(36.8)

Depth	Model	Frequency Outputs		
Meters of H2O	Model	Part Number	Dimensions inch (cm) Dia.	Length
		Series 8DP Gauge Depth Sensors*		
0-10	8DP010-GV-2	1117-002-0	3.50(8.9)	8.92(22.7)
0-15	8DP015-GV-2	1117-010-0	3.50(8.9)	8.92(22.7)
0-20	8DP020-GV-2	1117-004-0	3.50(8.9)	8.92(22.7)
0-70	8DP070-GV-2	1117-006-0	3.50(8.9)	8.92(22.7)
0-100	8DP100-GV-2	1117-012-0	3.50(8.9)	8.92(22.7)
0-140	8DP140-GV-2	1117-008-0	3.50(8.9)	8.92(22.7)

Depth	Model	Frequency Outputs		
Meters of H2O	Model	Part Number	Dimensions inch (cm) Dia.	Length
		Series 8B High Pressure Absolute Depth Sensors *		
0-1400	8B1400-2	1036-002-0	1.61(4.0)	9.85(25.0)
0-2000	8B2000-2	1036-004-0	1.61(4.0)	9.85(25.0)
0-4000	8B4000-2	1036-006-0	1.61(4.0)	9.85(25.0)
0-7000	8B7000-2	1036-008-0	2.17(5.5)	10.68(27.1)

Depth Sensors

Depth	Model	Intelligent		
Meters of H2O	Model	Part Number	Dimensions inch (cm) Dia.	Length
		Series 8CDP Intelligent Depth Sensor		
0-10	8CDP010-I	1705-001-0	3.50(8.9)	8.55(21.7)
0-20	8CDP020-I	1705-002-0	3.50(8.9)	8.55(21.7)
0-60	8CDP060-I	1705-003-0	3.50(8.9)	8.55(21.7)
0-130	8CDP130-I	1705-004-0	3.50(8.9)	8.55(21.7)
0-200	8CDP200-I	1705-005-0	3.50(8.9)	8.55(21.7)
0-270	8CDP270-I	1705-006-0	3.50(8.9)	8.55(21.7)
0-700	8CDP700-I	1705-007-0	3.50(8.9)	10.50(26.7)

Depth	Model	Frequency Outputs		
Meters of H2O	Model	Part Number	Dimensions inch (cm) Dia.	Length
		Series 8CDP Intelligent Depth Sensors		
0-10	8CDP010-GVI	1706-001-0	3.50(8.9)	8.80(22.4)
0-15	8CDP015-GVI	1706-002-0	3.50(8.9)	8.80(22.4)
0-20	8CDP020-GVI	1706-003-0	3.50(8.9)	8.80(22.4)
0-70	8CDP070-GVI	1706-004-0	3.50(8.9)	8.80(22.4)
0-100	8CDP100-GVI	1706-005-0	3.50(8.9)	8.80(22.4)
0-140	8CDP140-GVI	1706-006-0	3.50(8.9)	8.80(22.4)

Depth	Model	Frequency Outputs		
Meters of H2O	Model	Part Number	Dimensions inch (cm) Dia.	Length
		Series 8B High Pressure Absolute Depth Sensors *		
0-1400	8CB1400-I	1700-001-0	1.61(4.0)	10.83(27.5)
0-2000	8CB2000-I	1700-002-0	1.61(4.0)	10.83(27.5)
0-4000	8CB4000-I	1700-003-0	1.61(4.0)	10.83(27.5)
0-7000	8CB7000-I	1700-004-0	2.17(5.5)	10.83(27.5)