

BOTTOM PRESSURE RECORDER WITH ACCELEROMETER



EARTHQUAKE DETECTION,
TSUNAMI WARNING

The RBRquartz³ APT (Accelerometer, Pressure, Temperature) combines a triaxial quartz accelerometer with the Paroscientific Digiquartz[®] pressure sensor, building on the capabilities of the RBR bottom pressure recorders. The instrument is intended for deepwater earthquake and tsunami detection and monitoring.

FEATURES



Long
deployments



High
accuracy



Quartz
stability



10ppb
resolution



Up to 16Hz
sampling rate



Ethernet
connectivity

The RBRquartz³ APT is ideal for ocean bottom earthquake and tsunami early-warning systems, providing continuous measurements while connected to a cabled realtime network. The instrument is designed for rapid ROV deployment, and penetrates the seabed to ensure good seismic coupling and insulation from potential noise sources. The RBRquartz³ APT supports both autonomous installations and realtime data streaming to cabled observatories.

The sub-second integration time consumes less power during sampling, significantly extending the time until the next battery replacement. User selectable integration time for each reading means you can adjust the resolution to your measurement needs. Datasets can be read directly in Matlab, or exported to Excel, OceanDataView[®], or text files.

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Specifications

Physical

Storage	~240M readings
Power	8 AA cells
External power	4.5V to 30V
Communications	Internal: USB-C External: USB and RS-232/RS-485, or Ethernet
Clock drift	±60 seconds/year, NTP clock sync when available
Diameter	~60mm
Length	~880mm (with Ethernet) ¹
Weight	~5.7kg in air, ~3.2kg in water (with Ethernet) ¹

¹ Length and weight depend on configuration. Non-Ethernet versions have slightly different lengths and weights.

Temperature

Range	-5°C to 35°C
Initial accuracy	±0.002°C
Resolution	0.00005°C
Typical stability	0.002°C/year
Time constant	30s (embedded)

Pressure

Range	4000 / 7000dbar
Initial accuracy	±0.01% full scale
Resolution	10ppb (at 1Hz sampling rate)

Accelerometer

Range	±3g
Resolution	<100ng

Deployment estimates²

Speed	Time (days)	# samples
16Hz	27	~38 million
8Hz	32	~22 million
4Hz	32	~11 million
2Hz	32	~6 million
2s	35	~2 million

² Deployment estimates are for an instrument operating on internal battery power, continuous sampling.



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