RBR

MEASURE THE BLUE PLANET

rbr-global.com

RBR*quartz*³ BPR|zero

# BOTTOM PRESSURE RECORDER


## HIGH STABILITY, AzeroA CORRECTION

The RBR*quartz*³ BPR|zero is a special version of the robust RBR*quartz*³ BPR implementing the AzeroA technique to correct for the long-term drift in the Paroscientific Digiquartz® pressure gauge. This instrument is intended for deep, long-term deployments, where high stability and resolution of absolute pressure measurements are critical.

## FEATURES

- Long deployments
- High accuracy
- Quartz stability
- Up to 8Hz sampling rate
- AzeroA drift correction
- 10ppb resolution

The RBR*quartz*³ BPR|zero integrates one or two Paroscientific Digiquartz® pressure gauges, an internal quartz barometer, and a switching valve. The AzeroA drift correction technique periodically activates the switching valve to perform reference measurements of internal housing pressure. The resulting long term drift is several hundred times lower than with uncompensated measurements.

The RBR*quartz*³ BPR|zero requires external power to operate the valve, and can use RBR*fermata* underwater battery canisters, or connect via cable to an observatory for external power and realtime data access.

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## Specifications

### Physical

| | |
|---|---|
| Storage | 240M readings |
| Power | Internal: 8 AA cells<br>External: 9.5V to 30V |
| Communication | Internal: USB-C<br>External: RS-232/485, or Ethernet |
| Clock drift | ±60 seconds/year |
| Depth rating | 7000m |
| Housing | Titanium |
| Size | 788mm x Ø140mm |
| Weight | 30kg in air,18kg in water<br>(single pressure unit, with batteries) |

### Temperature

| | |
|---|---|
| Range | -5 to 35°C |
| Initial accuracy | ±0.002°C |
| Resolution | 0.00005°C |
| Typical stability | 0.002°C/year |
| Time constant | ~3 minutes |

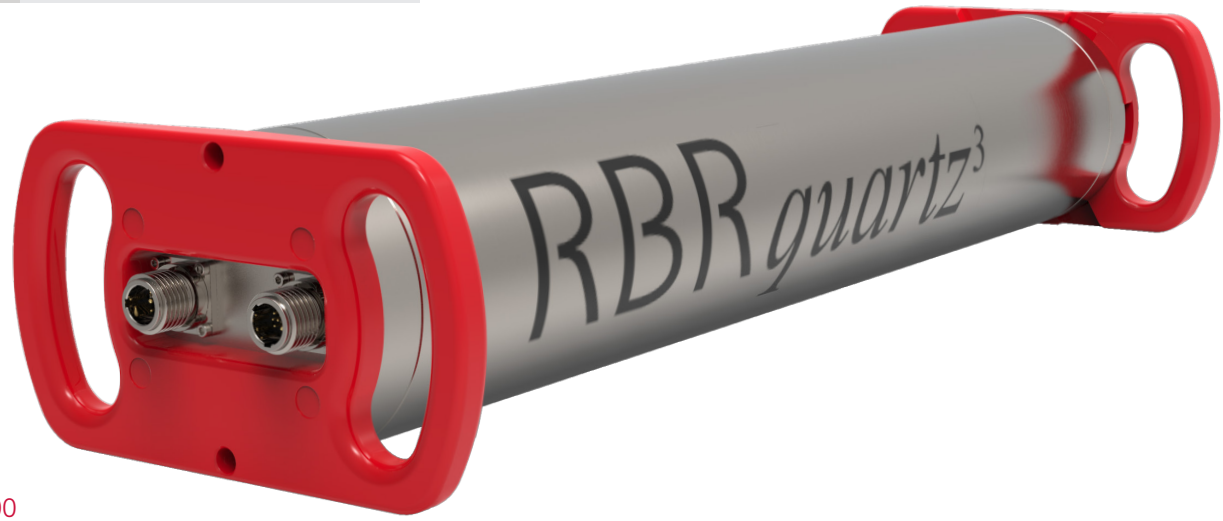
### Pressure

| | |
|---|---|
| Range | 1000 / 2000 / 4000 / 7000dbar |
| Initial accuracy | ±0.01% full scale |
| Resolution | 10ppb (at 1Hz sampling rate) |
| Typical stability | <0.01dbar/year at 7000dbar<br>(with AzeroA drift correction) |

### Deployment estimates[1]

| | Internal batteries only (no valve operation) | | RBR*fermata* (with the valve activated every 20 days) | |
|---|---|---|---|---|
| Speed | Time | # samples | Time | # samples |
| 8Hz | 34 days | ~23 million | 77 days | 45 million |
| 4Hz | 34 days | ~12 million | 152 days | 45 million |
| 2Hz | 34 days | ~6 million | 305 days | 45 million |
| 1Hz | 34 days | ~3 million | 611 days | 45 million |

[1] Deployment estimates are for a single pressure unit, with lithium thionyl chloride cells.

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