BlueSeis-3A
Rotational Seismometer
Broaband & High-Grade 3-component Rotational Seismometer for land applications

iXblue offers now to geosciences the possibility to explore rotational ground motion. Recognized throughout the industry for its mastery of Fiber Optic Gyroscope (FOG), the iXblue group stands as a global leader in several high-grade applications such as inertial navigation, hydrography and satellite gyroscopes. Based on its 30 years' unchallenged expertise, iXblue revolutionizes geosciences by offering a brand-new product that seismology has always been looking for. BlueSeis-3A is today the best and most reliable answer to the rotational seismometer need: 3-axis, broadband, low-noise, high dynamic range and flat passband solution with "geosciences-ready" interfaces including digitizer and time stamping.

**Features**
- 3 Interferometric Fiber Optical Gyroscope (I-FOG) for low self-noise and broadband measurement
- DC signal for absolute rotation measurement
- High dynamic range
- Embedded digitizer and GNSS time stamping
- Field-proven technology

**Benefits**
- Rotation as a new observable in seismology!
- Easy to deploy: no calibration, no tilt range limitation, insensitive to environmental conditions
- Heading provided by the system
- 2-in-1: "weak motion" low-noise + "strong motion" dynamic
- Plug and play interfaces

**Preliminary Technical Specifications**

**PERFORMANCE**

<table>
<thead>
<tr>
<th>Sensor self-noise in rad/s/√Hz</th>
<th>10^-3 Hz</th>
<th>10^-2 Hz</th>
<th>10^-1 Hz</th>
<th>1 Hz</th>
<th>10 Hz</th>
<th>100 Hz</th>
</tr>
</thead>
<tbody>
<tr>
<td>Angular Random Walk</td>
<td>&lt; 15. 10^-9 rad/s/√Hz (50 μ°/√h)</td>
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<tr>
<td>Passband</td>
<td>Flat from DC to 100Hz</td>
<td></td>
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<tr>
<td>DC rotation rate accuracy</td>
<td>&lt; 5 rad/s</td>
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<tr>
<td>Heading</td>
<td>&lt; 4° x secant(lat) (2)</td>
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<tr>
<td>Scale factor stability</td>
<td>&lt; 1% guaranteed for life</td>
<td></td>
<td></td>
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<tr>
<td>Calibration</td>
<td>Not needed</td>
<td></td>
<td></td>
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<tr>
<td>Settling time</td>
<td>&lt; 1 minute</td>
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</table>

**OPERATING RANGE / ENVIRONMENT**

- Operating / storage temperature: -10 to 50°C / -40 to 80°C
- Rotation rate dynamic range: 100 000 prad/s
- Operational tilt range: Any
- Acceleration susceptibility: None
- Pressure susceptibility: None
- MTBF: 100,000 hours

**PHYSICAL CHARACTERISTICS**

- Ingress protection: IP66
- Dimensions (L x W x H): 300 x 300 x 280 mm
- Weight: 20 kg

**INTERFACES**

- Hardware interfaces: Ethernet + RS232/422 + 1 TTL input pulse for PPS
- Output format: miniSEED (TCP/UDP)
- Input format: NMEA (ZDA) / NTP / PTP for time stamping
- Data output rate: Up to 200 Hz
- Power supply / consumption: 24 VDC / < 20 W
- Man Machine Interface (MMI): Web-based interface for configuration

(1) Optional extra: open-loop process capability to keep flat self-noise at 2.10^-8 rad/s/√Hz between 10Hz and 100Hz. Long-term performances are no longer guaranteed. Calibration needed. // (2) secant(lat) = 1 / cos(latitude): 4° at 0° latitude, 4° x √2 = 5.6° at 45° latitude.