



INNOSEIS

Innovative Solutions to Seismic Challenges



Quantum

Ultra-low power
wireless seismic sensor
networks

**Dramatically reduce land
seismic acquisition costs with
the industry's lightest sensing system**

Quantum pushes the boundaries in wireless seismic sensor networks for on-shore oil & gas exploration and monitoring. Its ultra-low power technology means that each sensor node is significantly smaller and easier to handle, while providing the industry's longest recording time. This makes deployment and maintenance of large sensor networks simpler, faster and more cost efficient than cabled or other wireless systems.

Designed to scale up to million node networks, Quantum allows for higher resolution imaging and wide azimuth geometries. It also provides increased topology freedom for various terrains across large survey areas.



Charging and data harvesting system

"Its ultra-low power technology means that each sensor node is significantly smaller and easier to handle, while providing the industry's longest recording time."



Ultra-low power sensor nodes



The benefits of Quantum

Lightest node, less cost

Each node weighs just **650 grams**, including battery and weather-proof housing. As a result transportation and deployment costs can be significantly reduced.

Longest battery life

Lasting **50+ days** in continuous recording mode and 100 days on 12 hr/day Tremornet has the longest battery life allowing improved operational efficiency and peace of mind.

Quality Control

Our nodes are highly reliable and function entirely autonomously including automated sensor testing. However, if in field quality control is required this can be done using a low-power Bluetooth connection.

Ease of use

Easily deployable nodes without the hassle of cables or external batteries allows for operational efficiencies in all terrains and varying topologies. No disassembly required for charging and harvesting.

Safer for crew and environment

Smaller crews with less weight to transport and with less heavy equipment on-site result in lower HSE exposure. Fewer batteries mean less impact on the environment.

Technical specifications

General

Number of channels	1
Timing accuracy	< 20 μ s
Storage capacity	8 GB (up to 16 GB)
Sensor	Vertical 5 or 10 Hz high-sensitivity geophone
Integrated batteries	Rechargeable Li-Ion

Physical

Lightweight, watertight, rugged enclosure

External dimensions	109 x 98 x 107 mm (excl. spike) 4.4 x 3.9 x 4.2 inches (excl. spike)
Weight (incl. internal battery pack)	0.65 kg (23 ounces)
Operating temperature	-40°C < T < +70°C
Water immersion	IP 68

Transmission

Connectivity	Low-energy Bluetooth
GPS	L1 - GPS/QZSS, GLONASS, BeiDou, Galileo

Automated tests

Unit temperature	✓
Sensor tilt	✓
Sensor step / impulse response	✓
Sensor impedance	✓
System noise	✓

Signal conditioning

Sampling rate	1, 2, 4 ms
Preamp gains	0 dB, 6 dB, 12 dB, 18 dB, 24 dB
Dynamic range (@ 2 ms)	@ gain: 0 dB 12 dB 24 dB 127 dB 126 dB 120 dB
Stop band attenuation	> 100 dB
Anti-aliasing filter	208 Hz @ 2 ms
Battery life	> 50 days continuous recording 100 days @ 12 hrs /day