OXYNODE®

IoT sensor

OXYNODE® CELL



Vibration, Shock & Precision Inclinometer

The OXYNODE® CELL wireless IoT sensor is dedicated to advanced vibration monitoring of infrastructures.
The high-performances, fully autonomous CELL Series IoT sensors are powered by innovative hybrid technology, giving them a 15-years service life. They incorporate a proprietary high-sensivity accelerometer and shock sensor in a highly compact, waterproof housing.
The accelerometer and shock sensor functions enable multi-physics measurements (inclination, vibration spectrum, shock, temperature, etc.) for optimum infrastructure monitoring.

Performance

- LoRaWAN® network, secure, low-power, long-distance connection
- Continuous ultra-wideband vibration monitoring
- High precision 3 axis inclinometer
- Ultra-low power consumption
- Autonomy 15 years
- 1/128s event timestamp
- Robust IP68 industrial enclosure
- Magnetic fastening system
- Embedded data logger
- Self-calibrating system
- Remote parameterization via LoRaWAN® network

Applications

- Infrastructure and building integrity
- Predictive infrastructure maintenance
- Vibration analysis and impact detection
- Soil vibration analysis
- Intrusion detection

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Spectrum (low frequencies)	
Z axis	Broadband FFT from 1Hz to 1,6kHz
Resolution Z	0,125mG to 0,5mG
Z range	1 to 4G
Typical noise Z	30µG/√Hz
Frequency / day	From 1 to 120 + Threshold triggers

Spectrum (high frequencies)	
Z axis	Broadband FFT from 1,6kHz to 3kHz
Resolution Z	32mG
Z range	4G
Typical noise Z	150µG/√Hz
Frequency / day	From 1 to 120 + Threshold triggers

Accelerometer / Inclinometer	
Technology	MEMS
Typ. accuracy	±0.05deg (à l'horizontal et sur la plage de température)
Repeatability	0,002 degré
Range	± 180deg
Frequency / day	From 1 to 120 + Threshold triggers

Temperature	
Résolution	0,1°C
Frequency / day	From 1 to 120

Shock	
Technology	Proprietary capacitive technology
Frequency	Continuous monitoring
Detection threshold	Configurable from 256mG to 16G
Range	32 G or 120G
Band gain	3kHz
Timestamp	hh:mm:ss:1/128s

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Sensor features	
Dimensions	Diameter 52,5mm / Height 22mm
Weight	82g
Materials	Polycarbonate plastic / Nickel-plated 6061 aluminum
Environment	-25°C to +65°C
Protection class	IP68

Additional features
4 MB internal memory with 1-month rolling event logging
Integrated self-calibrating sensor system
Integrated tightness control system

Communication	
Network	LoRaWAN® 1.03
Security	AES128 data encryption
Connection	OTAA
Transmitter power	14 dBm

Autonomy (i.e. SF12)			
No. Of messages / day	6	12	24
Estimated life - years*	15	14	12
Autonomy (i.e. SF11)			
No. Of messages / day	12	24	48
Estimated life - years*	15	14	12

* Estimated service life under normal lighting conditions and ambient temperature in mainland France.

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