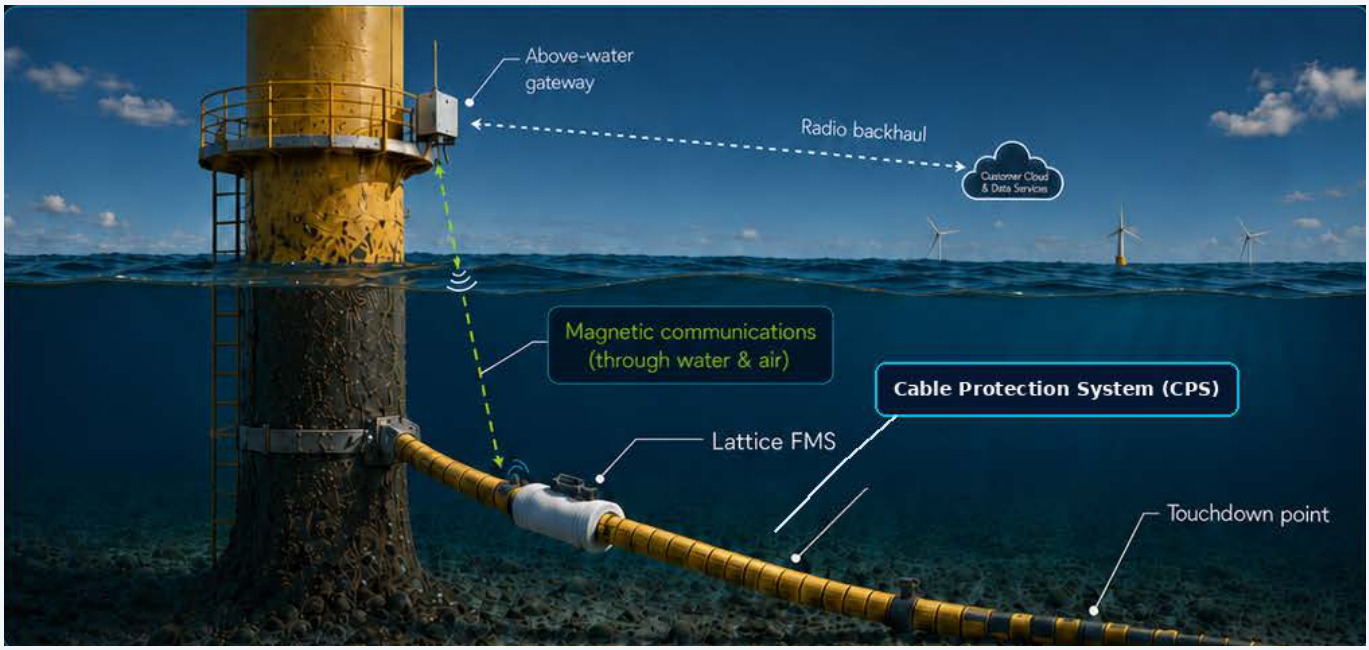
Unlocking Subsea Autonomy

Lattice FMS

Motion and fatigue monitoring for cables, pipelines and moorings



Identify fatigue-driving movement before failure

Repeated bending and vibration can cause fatigue-induced failure in offshore cables, cable protection systems, pipelines and moorings. Lattice FMS measures the cyclic behaviour driving this risk, providing evidence for fatigue assessment and earlier intervention.

6-axis inertial measurement | Up to 400 Hz sampling

Installed measurement and local processing

Clamp the device to the asset to measure motion, vibration and inclination. Local processing identifies relevant events and trends, helping operators recognise damaging behaviour, calibrate engineering models and prioritise action. Selected information is recovered wirelessly through the configured route.

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Specifications and integration

Indicative specifications | Configuration-dependent

Parameter	Specification
6-axis IMU	±2 g standard. ±4 g / ±8 g options. Angular accuracy ±0.2°, resolution 0.01°.
Sampling	10 Hz standard. Up to 400 Hz configurable.
Motion outputs	Amplitude, frequency, direction, motion stability and wave-driven motion.
Motion / indicators	Inclination, rotation and cyclic motion. Curvature, touchdown behaviour, creep and effective length change are application-dependent indicators.
Pressure option	0-10 bar or 0-300 bar. Accuracy ±0.01 FS.
Temperature option	Typical range -0.5 °C to +50 °C. Typical accuracy ±2 °C.
Magnetic transfer	Up to 60 m to gateway. Typical example: 40 m seawater plus 20 m air.
Recovery time	Depends on logging profile, selected information and communications link.
Acoustic option	50-3,000 m, depending on environment.
Power	Primary-cell battery. Optional ROV-deployable, replaceable subsea energy pack, approximately 1.5 kWh delivered by wireless power transfer.
Depth rating	100 m or 1,500 m standard configurations. Options to 3,000 m.
Mass	Approximately 3-5 kg in air and 0.5-1 kg in water.
Temperature limits	Operating: 4 °C to +50 °C. Storage: -10 °C to +60 °C.
Mounting	Magnetic or mechanical clamp. Subsea or topside use.

Identify damaging behaviour and act earlier

Lattice FMS turns measured motion into evidence for fatigue management. Magnetic transfer across the water-air boundary and radio backhaul connect the shallow-water installation shown to the customer system. ROV/AUV recovery and acoustic links provide other routes. Use the resulting information to calibrate fatigue models, identify damaging cyclic behaviour and focus inspection and intervention on the cables, pipelines and moorings at risk.

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