



Lattice Link™ Free span Monitoring System (Lattice FMS) reduces the risk and cost of subsea cable and pipeline RBI (Risk Based Inspection). It provides reliable and timely information on fatigue induced in subsea cables and pipelines due to VIV and wave action in situations where free span is recurrent or continuous. Lattice FMS is designed for Autonomous Operations - installation and hot-swap by inspection class ROV deployed from CTV or USV. It is interrogated by above water Lattice Gateway or ROV to download fatigue information.

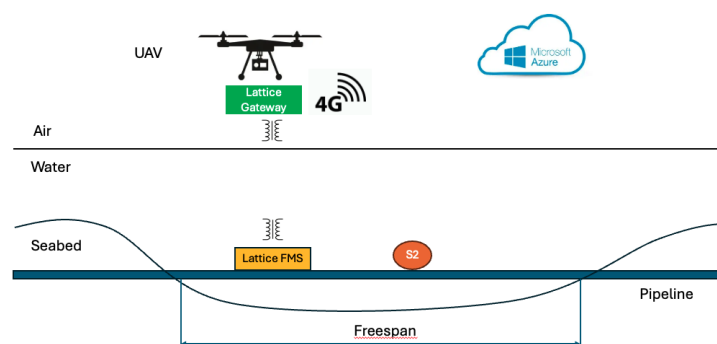
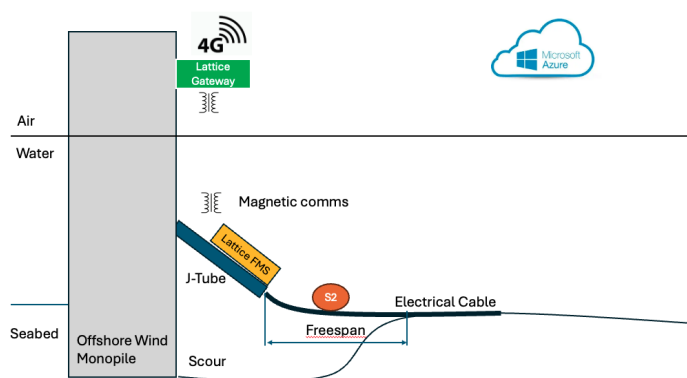
Lattice FMS sets a new industry standard in reducing free span uncertainties.



Lattice FMS

Features

- Cable attachment using ROV clamp; pipeline or J-Tube attachment using magnetic clamp
- Efficient and accurate continuous monitoring of movement
- Wireless recovery of information to Lattice Gateway installed above water, on UAV or ROV
- Low power consumption leading to a battery life of 10 years or more
- Stand-alone system that can be fitted in minutes, recovered and retrofitted elsewhere.
- Suitable for deployment using inspection class ROV
- Optionally integrated with corrosion, temperature, pressure, acoustic, flow sensors to provide asset integrity and/or flow assurance information



Lattice FMS deployment on (a) subsea electrical cable (b) subsea pipeline



Lattice Link™ Free span Monitoring System (Lattice FMS) monitors the movement of subsea electrical cables, pipelines and flowlines. Free span may be caused by scour, sand waves, seabed irregularities, sediment mobility, thermal expansion/contraction, upheaval buckling or deployment.

The standard solution for pipelines is a standalone Lattice device magnetically or mechanically clamped to a pipeline. The standard subsea cable solution comprises a Lattice device with magnetic clamp attached to a J-tube and a remote sensor with mechanical cable clamp attached to an electrical cable. Lattice FMS is designed to for rapid, cost-effective deployment and recovery.

Architecture



Specifications

FMS accelerometer	Standard: +/- 2 g; Optional +/- 4g, 8g
Sampling Frequency	Standard: 2.5Hz; Adjustable 1Hz to 400kHz
Pipe/Cable External Temperature (optional)	+/- 2-5C design-dependent
Wireless information transfer	Range: Up to 10m to ROV; up to 500m to SCM
Wireless download time	Standard: < 2 minutes for 1 year of information
Battery	Primary Cell lithium-manganese dioxide (Li-MnO2) chemistry 10 year life;
Depth rating:	Standard: 100m; 1500m ; Custom 3000m
Clamp	Custom
Operating temperature	Operating 4°C to + 50°C, Storage -10°C to + 60°C
Working environment	Subsea/Underground/air
Weight (WMS excluding mount)	Standard: 7kg (in air)
Dimensions (FMS excluding mount)	Standard: 550mm x 120mm