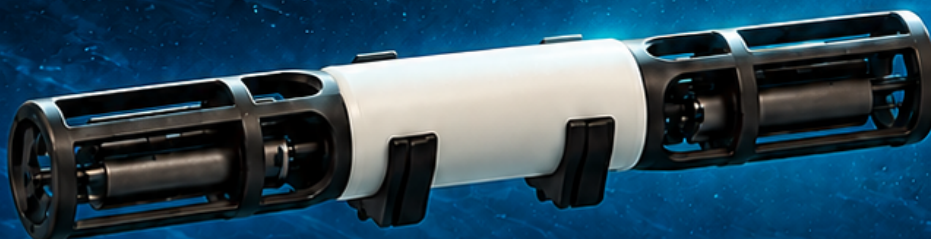




Lattice E-Field

Vehicle-integrated cathodic-protection measurement for subsea infrastructure



4 $\mu\text{V}/\text{m}$

RMS noise floor

Neutral

buoyancy in water

1,000 m

depth rating

Contactless cathodic-protection inspection

Lattice E-Field measures the electric fields associated with cathodic-protection currents in seawater. Time-stamped measurements combine with vehicle position and attitude to reveal anode signatures and local changes along pipelines and subsea structures.

MEASUREMENT PRINCIPLE

Two Ag/AgCl seawater reference electrodes measure a voltage difference across a fixed 0.5 m baseline.

01

Two electrodes

Seawater reference

02

Voltage difference

Differential sensing

03

Known baseline

$L = 0.5 \text{ m}$

04

Electric field

$E = \Delta V / L$

WHAT IT REVEALS

- Anode-related electric-field signatures
- Local changes in CP current flow
- Repeatable traces for survey comparison

BUILT TO INTEGRATE

- Approx. 500 × 70 mm (L × OD)
- Approx. 2.5 kg in air; neutral in water
- Stand-offs or suitable frame attachments

WHY IT MATTERS

- Contactless surveys from ROVs and AUVs
- Targets closer inspection and CP checks
- Data for interpretation and asset models



Lattice E-Field

Integration and technical information

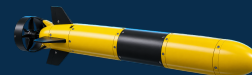
ROV INTEGRATION

Real-time inspection data through vehicle power and Ethernet, or self-contained logging.



AUV INTEGRATION

Time-stamped logs combine with vehicle navigation for post-mission interpretation.



FROM MEASUREMENT TO INSIGHT

SENSE

Electric field



SYNCHRONISE

Time + navigation



PROCESS

Filter + calibrate



INTERPRET

Anomalies + models



DELIVER

Maps + survey logs

TECHNICAL SPECIFICATIONS

Measurement	Single-axis electric field per sensor; three orthogonal sensors for a full 3D vector.
Electrode baseline	0.5 m fixed separation; Ag/AgCl seawater reference electrodes.
Noise floor	4 μ V/m RMS.
Sampling rate	2-800 Hz.
Dimensions / housing	Approx. 500 $\times$ 70 mm (L $\times$ OD); POM-C and ABS.
Mass / buoyancy	Approx. 2.5 kg in air; neutrally buoyant in water.
Depth rating	1,000 m.
ROV power	Less than 1 W (ROV version).
Self-contained logger	1,000-hour battery life; BLE configuration and download; automatic baseline on water entry.
Live-streaming option	24 V DC and Ethernet through the vehicle interface / ROV MUX.
Data output	Time-stamped logs; CSV / JSON; integration with GIS, DAS and survey systems.
Sensor arrangements	1 sensor: one field component. 2 orthogonal sensors: two components. 3 orthogonal sensors: full 3D vector.

SURVEY GUIDANCE

Use approximately 2 m standoff for routine ride-along surveys and approximately 1 m for closer follow-up where safe. Record position, attitude and altitude with the field data; use consistent survey geometry for repeat comparisons.