

Optical data relays for sensors along pipelines and chains

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Hydromeia's Mission: we Automate Remote Inspections of Submerged Assets at Scale

Technologies:

LUMA™

Patent-pending high-speed wireless optical data link
— a mission critical enabler of autonomous future
underwater*



DISKDRIVE™

Patented ultra-thin hub-less thrusters for high current
environments and extra maneuverability



EXRAY™

World's first truly wireless underwater vehicle
streaming HD video in real time



Acoustic vs. Optical communication

Acoustic

- Long range (kilometers)
- Not affected by turbidity
- Limited in bandwidth (bits - kbits)
- Slow speed (high latency)
- Noise signature
- Interference issues in constrained spaces
- Does not scale (1:1 or 1:few)
- Max transmission range > interference range
- Established commercial market

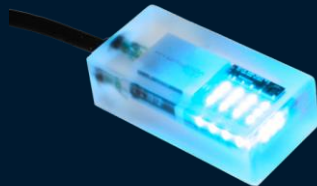
Optical

- Limited range (100+ meters)
- Turbidity-dependent
- High bandwidth (Mbits - Gbits)
- Extremely fast (low latency)
- Low power consumption (1000x less over acoustic per bit)
- Benefits from reflections
- Scales to hundreds of nodes
- Max transmission range \approx interference range
- Emerging commercial offering

LUMA Product Line



LUMA 100



LUMA 250LP



LUMA 500ER



LUMA X-UV

No ROV lights
interference



LUMA X

100 kbit/s over 2m

Range, Bandwidth



10 Mbit/s over 50m*

*can vary depending on water conditions

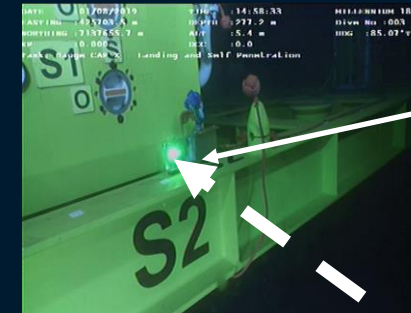
Disrupting Wireless Underwater Communications



Live sensor status check at 4300m



Underwater "Wi-Fi" bubbles



moving template
during construction



Ashtead's AMS gyro
box with LUMA
250LP



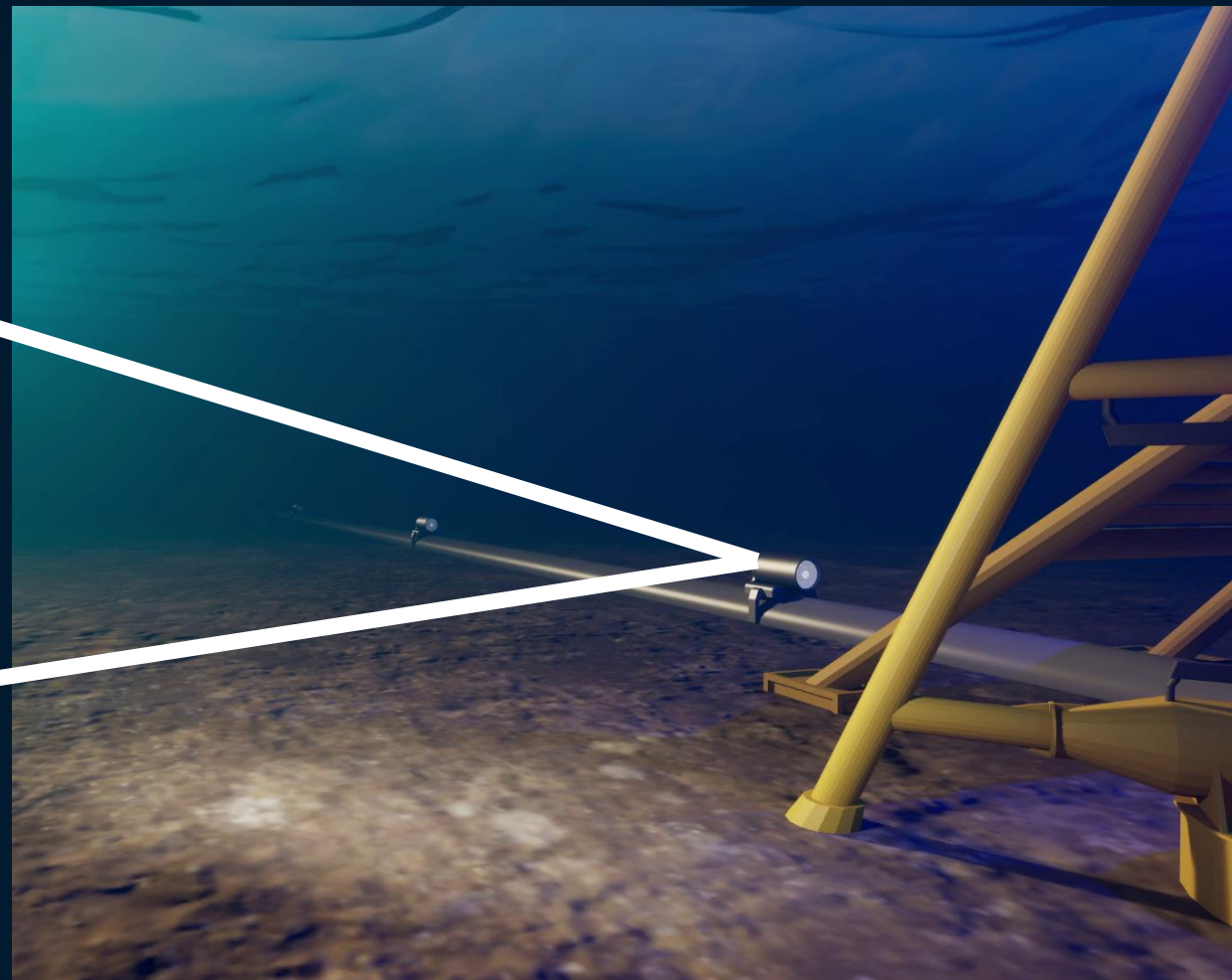
Hydromea Leads Optical Comms Industry Standard Development



Sensing node

Sensing node

- measures and logs:
 - temperature
 - corrosion
 - cathodic protection
- battery-powered



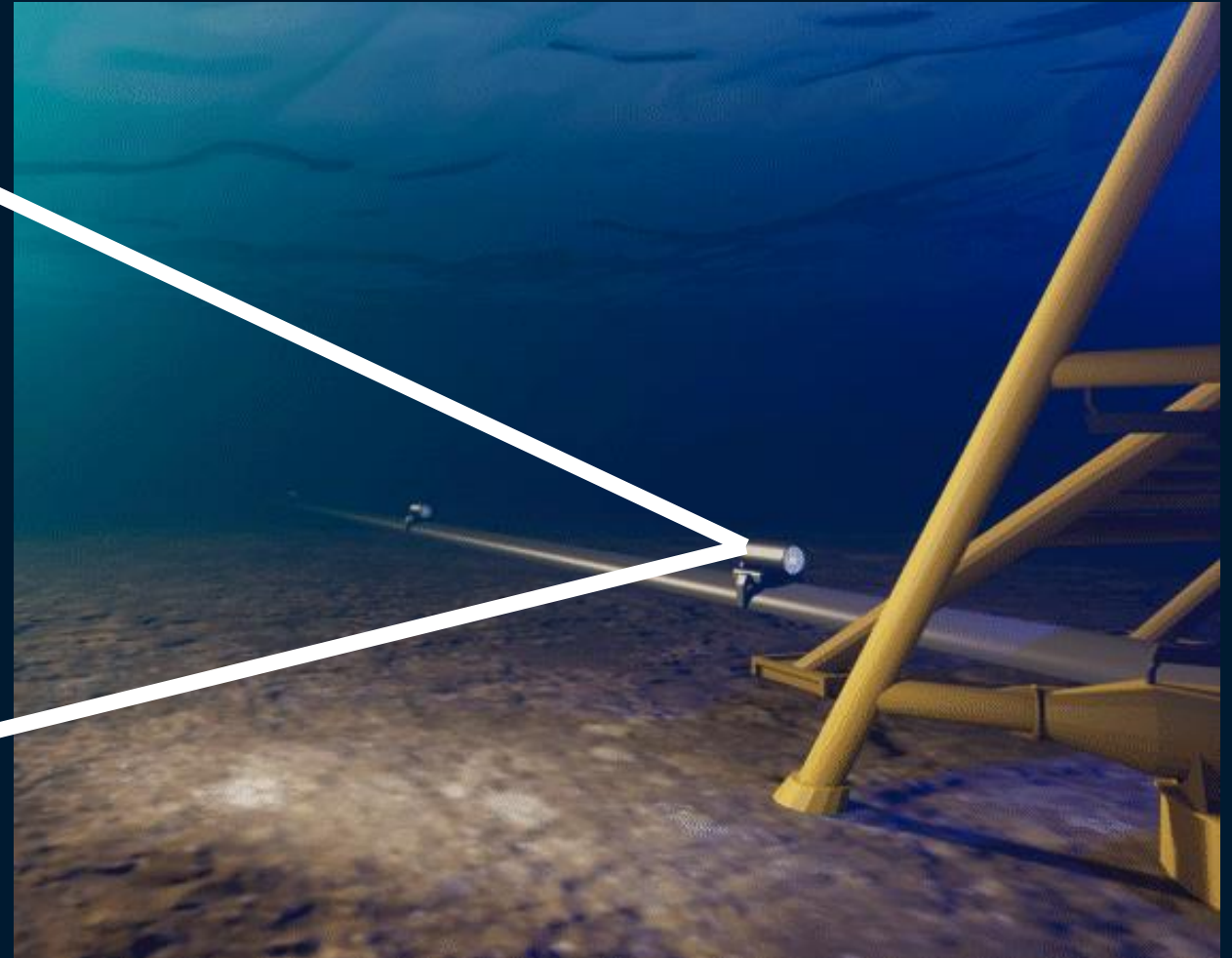
Sensing node + optical communication module

Sensing node

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Optical communication module

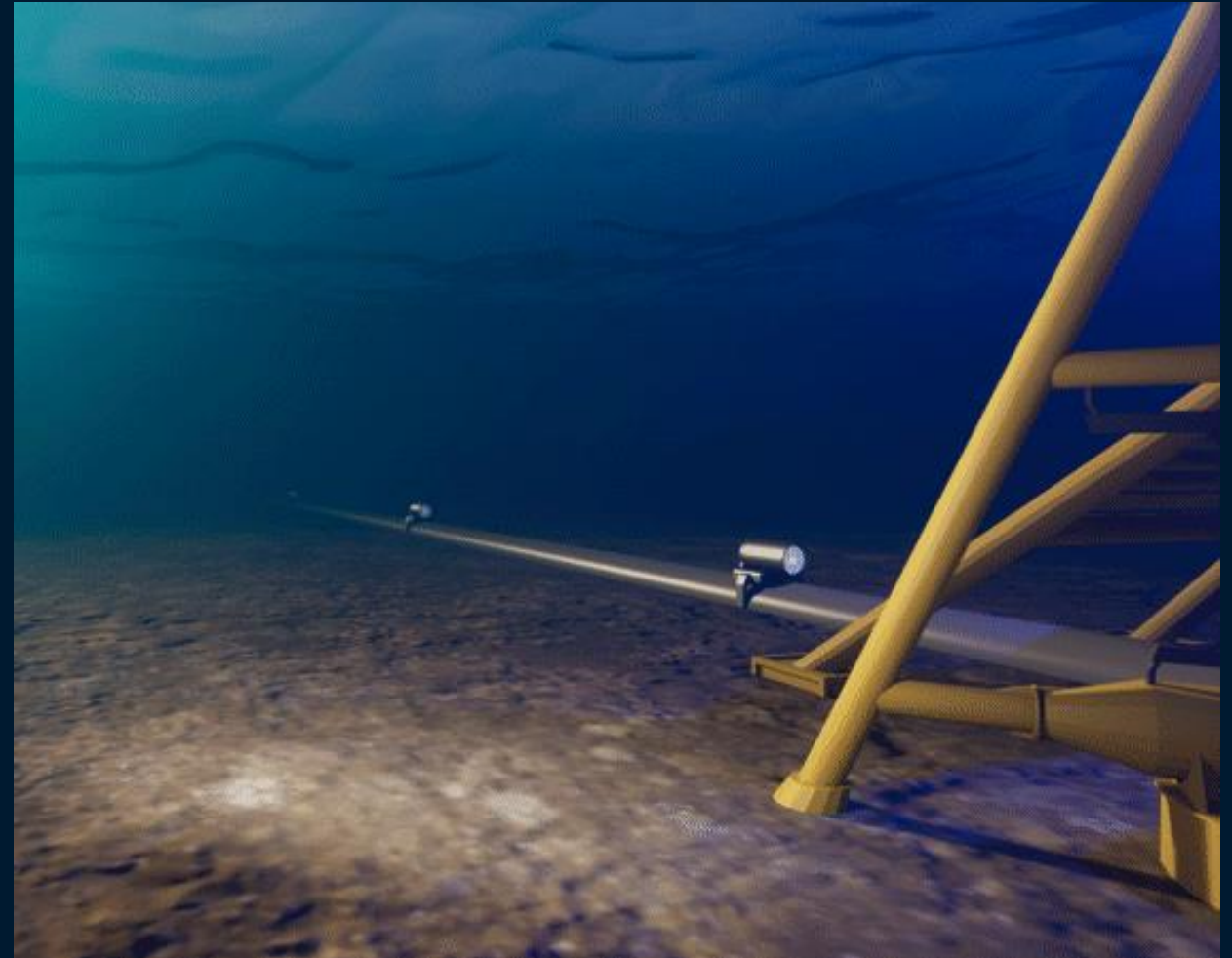
- based on LUMA 500 tech
- focused beam



Sensing node + optical communication module

Optical

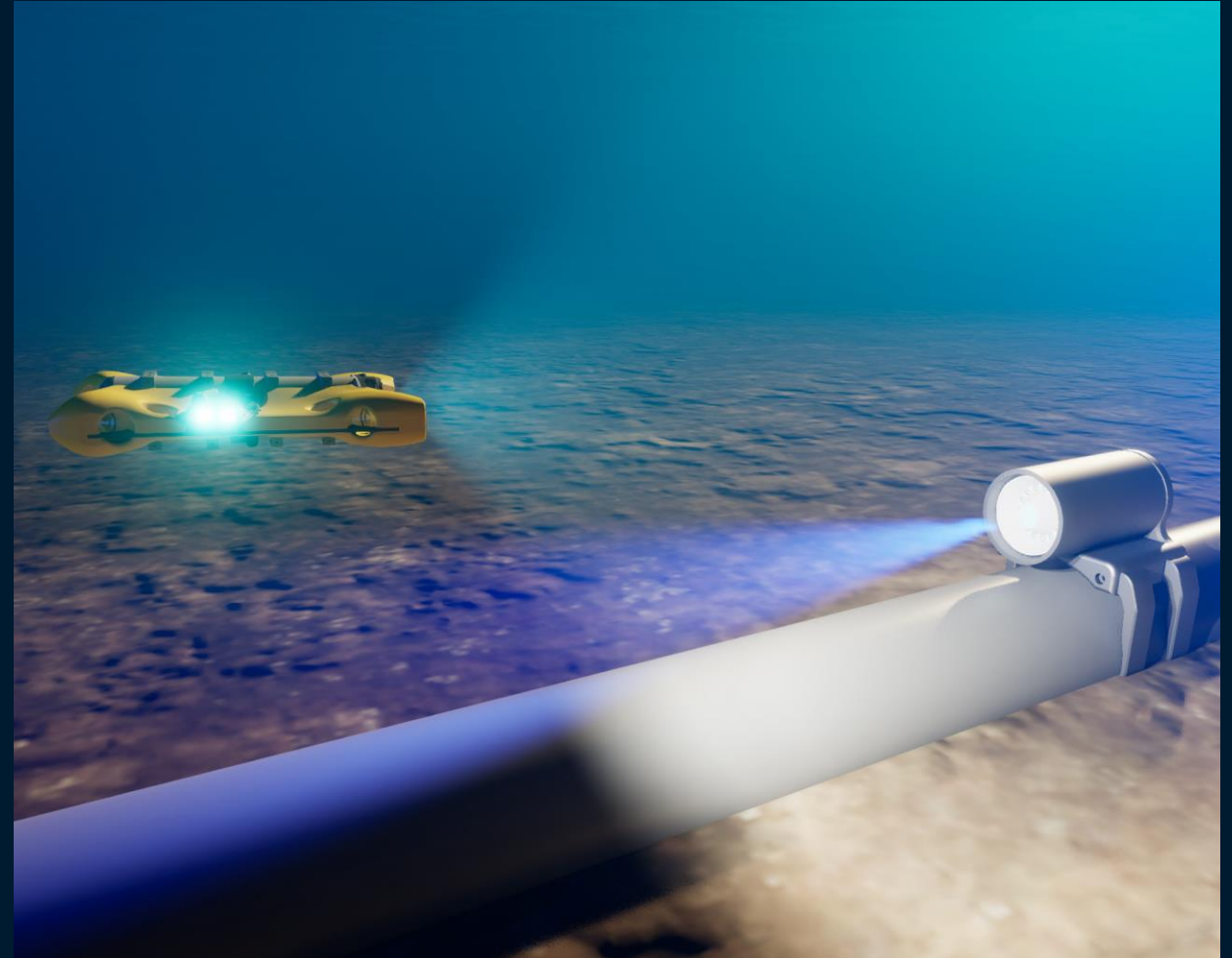
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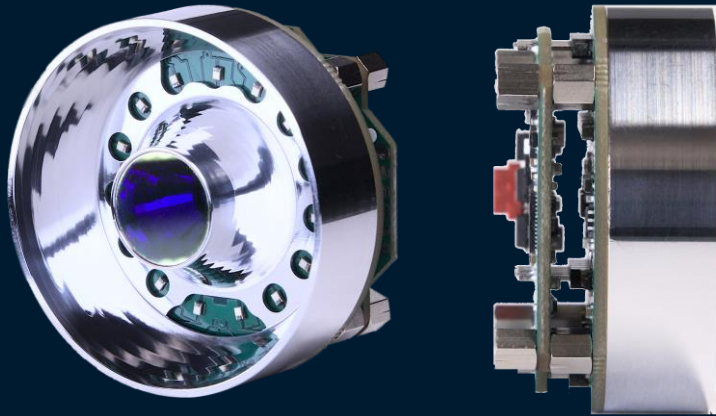
Sensing node + optical communication module + EXRAY

EXRAY for data muling

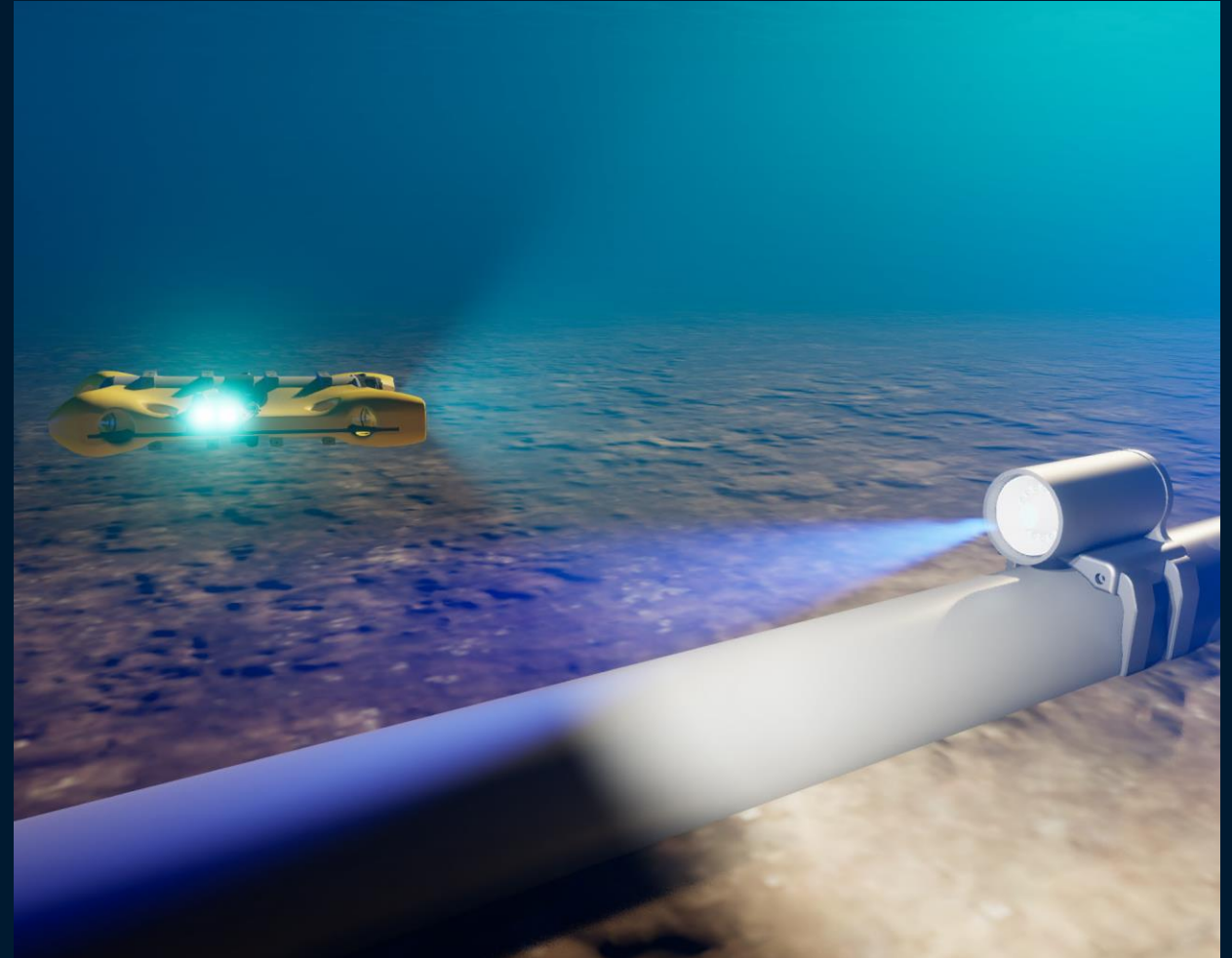
- for widely dispersed sensor nodes without network access
- using wireless ROV EXRAY turned AUV
- self-homing onto data node
- 6 DOF maneuverability allows for simple hovering
- data offload via built-in LUMA modem



Introducing LUMA 500FLEX



- improved LUMA 500ER technology
- diameter: 5cm ; thickness: 2cm
- reflector optional
- range 70m (with reflector)



Visit us at F550



Contact Us:

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Learn more:

<https://hydromea.com>



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