

## SMALL, FAST AND AFFORDABLE

The LUMA optical communication nodes combine outstanding performance and energy efficiency in a very compact form factor. Optical communication offers superior data rates, low latency and lower power requirements when compared to acoustics.

This makes LUMA the perfect choice for applications such as data download from submerged sensor platforms (landers), as well as wireless interfacing between ROVs/AUVs and deep sea infrastructure.

## LOWEST POWER CONSUMPTION. PERIOD

The LUMA is very energy efficient, which makes it ideal for battery-powered applications. It can be configured to enter a sleep mode after a specified time of inactivity and optically woken up from sleep by another node when the link is re-established.

## AS SIMPLE AS PLUG & PLAY

The serial cable interface can be switched between RS232 and RS485 in software, which makes the LUMA the ideal drop-in replacement for cabled connections in many existing systems.

## ABOUT HYDROMEA

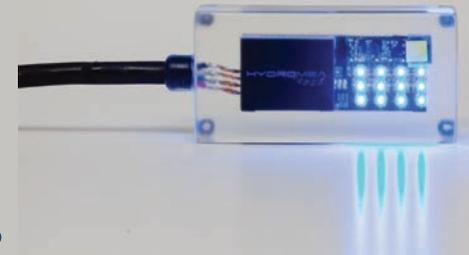
We are a Swiss-based company with core expertise in underwater robotics, underwater communication networks and underwater navigation. We have started this journey back in Australia over 15 years ago where we put together our first portable underwater drone. Years later we found home in Lausanne, Switzerland, the cradle of fine manufacturing.

Having a passion for ocean exploration and how big data is changing the world around us, we quickly realized that there is still a significant gap in our understanding of the oceans. Hydromea develops products and solutions that allow customers to have autonomous high-speed and high-volume subsea data access in near real-time. We render expensive cables obsolete, replace ships and save divers by combining robotics and wireless communication network systems. This presents a paradigm shift in affordability and speed of subsea data access. Importantly, it takes human risks to zero.



# LUMA

## WIRELESS UNDERWATER COMMUNICATIONS



Ultra-Fast & High-Bandwidth  
For Demanding & Critical Subsea Jobs



[www.hydromea.com](http://www.hydromea.com)



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## LUMA-250LP

Lowest power consumption & high tolerance to ambient light, ideal for long-term deployments on battery-powered systems and daylight environments.



## LUMA-500ER

Long range & small form factor, ideal for subsea wireless infrastructure, docking stations and bottom-to-surface data upload.

FEATURE SET	LUMA-250LP	LUMA-500ER
Dimensions	100x50x30mm	
Weight in air/water	250g/50g	
Data bandwidth	250Kbit/s	500Kbit/s
Range	Up to 6m	50+m
Supply voltage	12-36V	
Power consumption	5 mW - 5W between sleeping, receiving and transmitting modes	
Software features of the base configuration	Error correction, FEC, auto-wake-up	Error correction, FEC, timed wake-up
Interface	RS232/RS485	
Connector	SUBCONN MCIL6M or as requested	

### CAPABILITIES

### BENEFITS



Ultra-compact and low weight

Easy to retrofit on any AUV or ROV



Ultra-low power sleep mode with optical wake-up with less than 10mW

Keep your batteries running for longer



High speed data transfer

A glider or an AUV can harvest data in passing without the need to hover



Low latency of a data link

Well suited for the jobs requiring precision communication in real-time



Four transmission power levels: 2 - 5 W

Optimize power consumption



Wide supply voltage range

Can accommodate most legacy systems



Minimal multi-path distortion

No interference in shallow waters or near other structures



Encryption of data link, ad-hoc networking (optical, onrequest)

High-level data protection for sensitive applications



120 degree beam cone

High tolerance to relative positions of two communication nodes



High tolerance to ambient light

Shallow-water data harvesting is no issue



6000m depth rated

Covers 98% of world's oceans

### MORE THAN JUST A HIGH-SPEED MODEM

LUMA is designed with flexibility in mind. In its base configuration it is a transparent link between your legacy systems, making it very easy to integrate. Plug & Play is not just marketing language when it comes to LUMA.

We call our LUMAs wireless communication nodes because they can be programmed to be used in a mesh network or even serve as access points for high-speed wifi coverage over a subsea field. AUVs, ROVs and infrastructure can then be wirelessly connected. This suddenly opens up affordable high-bandwidth subsea connectivity which was previously not possible.

### CONNECTING YOUR SUBSEA ASSETS FOR BIG DATA ACCESS

LUMA will wirelessly transfer high volume of data in a variety of subsea applications during construction, inspection, monitoring and repairs in the offshore energy sector. In the science & research sector it will serve as a regular environmental data uplink from an ADCP, a camera or other sensors on the sea floor. We see other opportunities in the aquaculture and defense space.

With LUMA you can now design connectivity solutions all the way from the ocean floor at 6000m to a satellite in the space. Splash zone communication is something that LUMA can deal with really well. In this way LUMA offers unparalleled connectivity and can be a vital agent for real-time monitoring of structures in digital twin systems.

### USE CASES



Remote Data Harvesting



Continuous Monitoring



Construction Data Relay



Water to Air connectivity