



COMPACT ACTIVE FLUORESCENCE SENSOR

mFL.12

Measures water quality from above the surface, day and night.

mFL.12 sits above the water and measures it unattended, day and night, on an interval you set. A survey covers a line once; a fixed node measures the same water again and again.



RENDER, PEN SHOWN FOR SCALE

1.75 kg

MASS

12 W

PEAK POWER

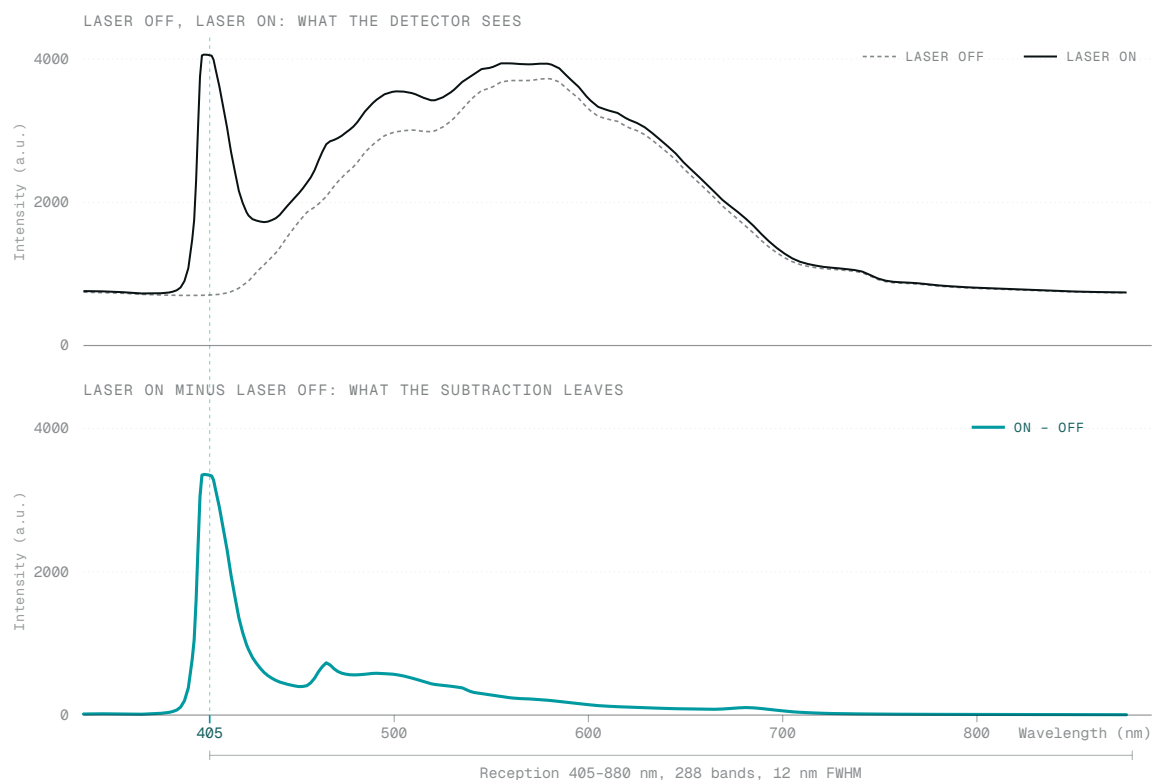
288

SPECTRAL BANDS

IP68

WEATHERPROOF

THE MEASUREMENT IS A SUBTRACTION



Experiment mFL12001, 03/05/2026. One ON/OFF pair, unaveraged, not smoothed. Both panels use the same intensity scale, so the subtraction is visible directly: the broad ambient hump in the top panel is gone from the bottom one. The narrow peak at 405 nm is the laser's own return. The fluorescence is everything to the right of it. Arbitrary units.

The 405 nm source is switched on and off in software. Subtracting the off-state from the on-state cancels ambient light and leaves only what the laser caused, which is why **it works at noon and at midnight**. Nothing needs to be shaded, and it is never restricted to darkness. In standard operation it wakes on a configurable interval, measures, and returns to standby.



WHAT IT MEASURES

Chlorophyll-a Total concentration	CDOM Coloured dissolved organic matter	TSS Total suspended solids	Oil-in-water Surface films and in-water emulsions
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HYPER SPECTRAL 405-880 NM, 288 BANDS, 12 NM FWHM

SPECIFICATION

EXCITATION	405 nm, software-modulated
RECEPTION	405-880 nm hyperspectral
SPECTRAL BANDS	288 px, 12 nm FWHM
DETECTOR	High-sensitivity CMOS linear image sensor
DIVERGENCE / FOV	1° / 1°
DETECTION RATE	Up to 1 Hz, ambient-light dependent
ACQUISITION	Single continuous auto-integration mode
INTEGRATION TIME	270 µs to 1 000 000 µs, auto + manual
ADC	12-bit
COMMS	RS485, Wi-Fi, internal logging
POSITION	GPS + IMU
PROTECTION	IP68, weatherproof
POWER	12 V DC, 12 W peak
OPERATING TEMP.	0 to +30 °C
STORAGE TEMP.	-20 to +70 °C
SIZE	130 × 140 × 121 mm
MASS	1.75 kg

APPLICATIONS

1 Continuous chl-a, CDOM and TSS monitoring
WATER MANAGEMENT & SCIENCE

2 Oil watch at a port
WATER-QUALITY CONTROL

3 Buoy-network HAB early warning
AQUACULTURE, FISH & OYSTER FARMS, RESERVOIRS

4 Fixed discharge-compliance station
WATER-QUALITY CONTROL

5 Industrial water-quality monitoring
DESALINATION, HYDROELECTRIC PLANTS

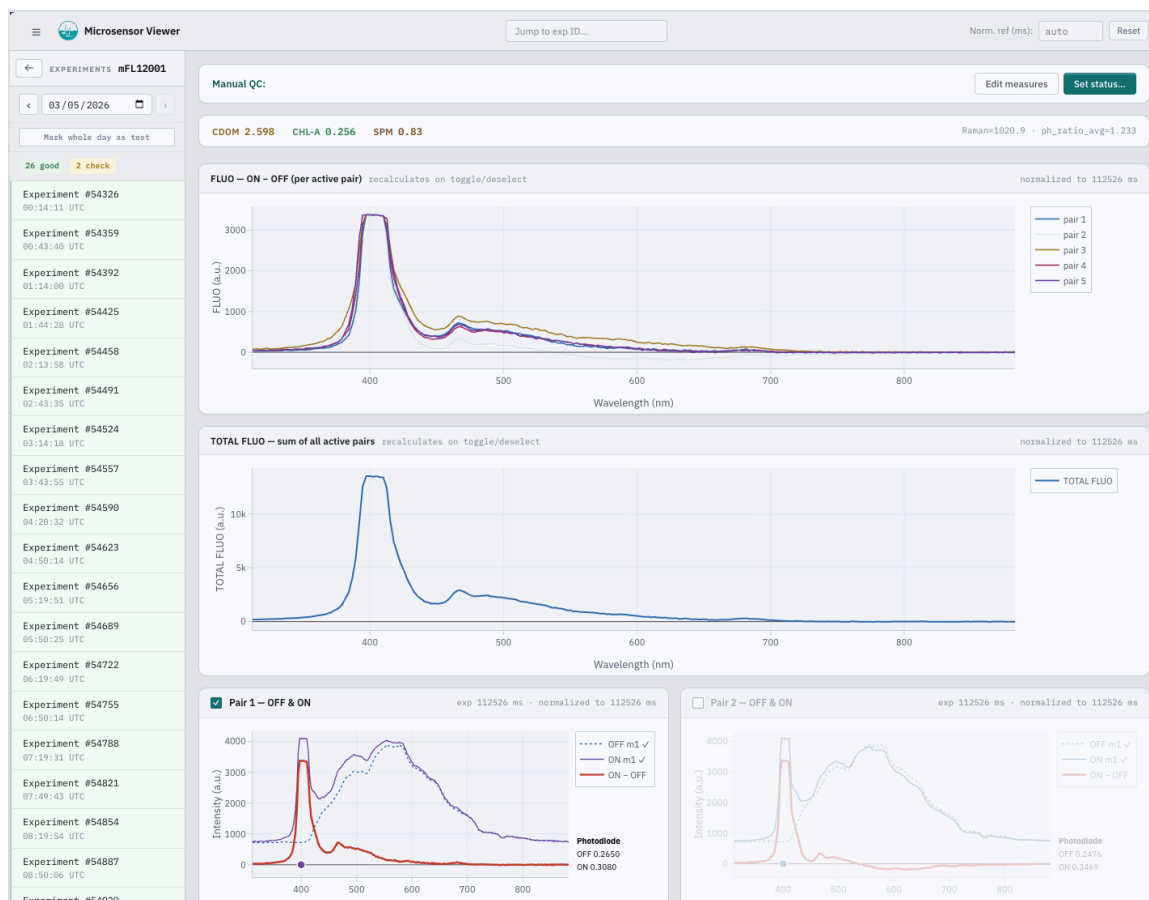
ORDERING

1-2 months

FROM ORDER TO DELIVERY

Sold as a single sensor, or as a web of nodes covering one water body. Tell us the water body and what you need to see in it; we will tell you how many nodes that takes.

THE SAME MEASUREMENT, INSIDE THE SOFTWARE



Microsensor Viewer, experiment mFL12001. The same ON/OFF pair drawn on page one. Every measurement arrives here with its derived values and its QC state attached, and exports for analysis. The data structure is AI-ready for adaptive acquisition.

WHERE IT MOUNTS

Buoy

Bridges

Piers

Vessels

USV

Ground platforms

Lab benches

Coastal stations

Above the surface, looking down. The instrument never enters the water

IN THE STACK

mFL.12 is the fixed-node sensor in the LIFeLiDAR stack. It goes where the LIFL.11 LiDAR cannot: onto a buoy, a pier, a bridge. Put an **mHR.2** on the same mast and the station also measures passive reflectance, which is what a satellite sees.

FIELD RECORD

ESA PHY2FLEX, Venice, October 2025

STATUS

Validated, TRL 8

PROGRAMME

Developed under France 2030