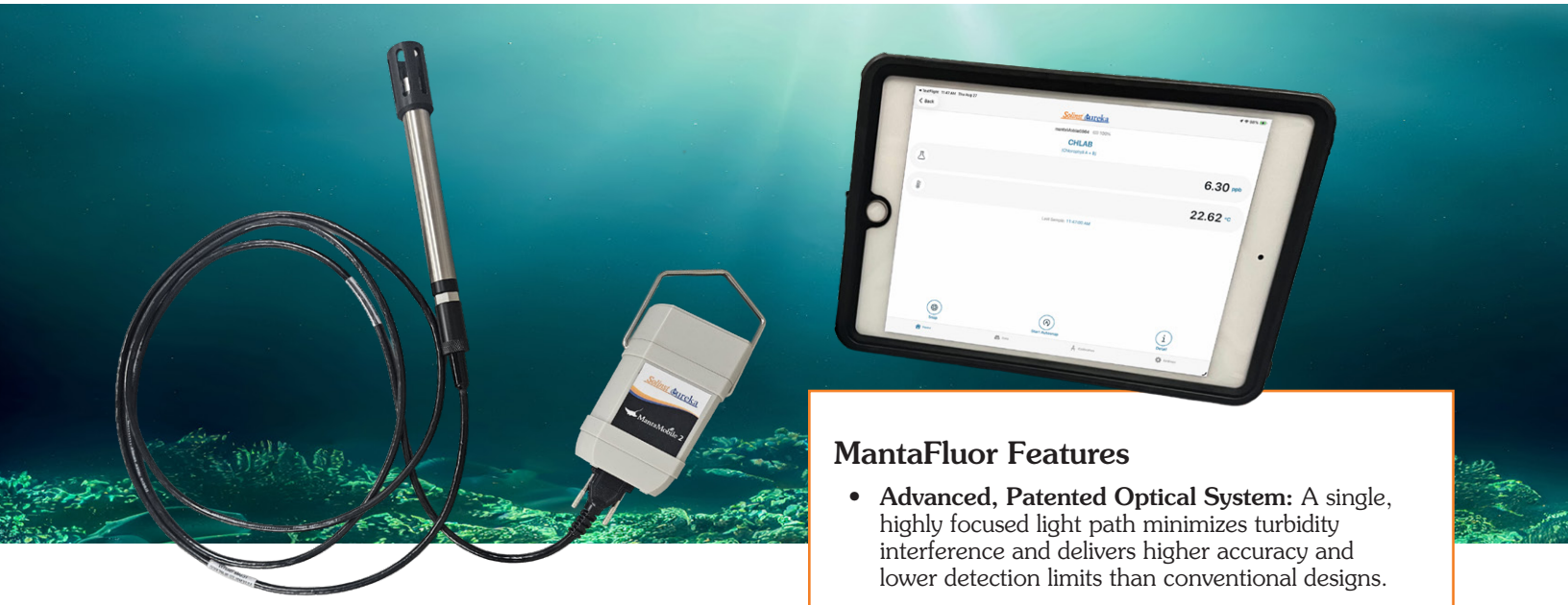


MantaFluor

Model 5001

The MantaFluor by Solinst Eureka is a single-sensor fluorometer designed for environmental field professionals who need accurate, reliable fluorescence data without the complexity of multiparameter instruments. Featuring a patented optical system and automatic temperature compensation, the MantaFluor delivers application-appropriate performance across a full range of analytes—in a compact, field-ready titanium housing.

The MantaFluor is powered and wirelessly paired with the MantaFluor App via the MantaMobile 2 *Bluetooth*® Low Energy (BLE) device. With the App, users can connect, calibrate, log, and export data directly from their iOS smart device.

Rugged MantaFluor Communication Cables connect the MantaFluor to the MantaMobile 2 and are available in standard lengths up to 25 m (80 ft), providing flexibility for projects. The cable design makes it simple to switch out MantaFluor probes when another monitoring parameter is desired. A sensor guard protects the optical head of the MantaFluor probe during measurements.

MantaFluor Features

- **Advanced, Patented Optical System:** A single, highly focused light path minimizes turbidity interference and delivers higher accuracy and lower detection limits than conventional designs.
- **Integrated Temperature Sensor:** Compensation eliminates temperature-driven variance, delivering accurate data across all seasons and environments.
- **Application-Appropriate Specifications:** Range, linearity, resolution, and MDL are purpose-built for real-world natural water conditions.
- **Seamless Probe Interchangeability:** The cable connection allows users to quickly swap MantaFluor probes in the field when monitoring parameter requirements change.
- **MantaMobile 2 Compatible:** Plug-and-play integration with MantaMobile for a complete, connected water-quality measurement system.
- **Industry-Leading 3-Year Warranty:** The best warranty coverage in the field fluorometry market.
- **Wireless Field Operation:** Connect, calibrate, log, and share data via the free MantaFluor iOS App.

Get Quote

Fluorometers measure specific substances in water by exciting them with light at a selected wavelength and measuring the fluorescence they emit at a different wavelength. The intensity of this fluorescence is used to determine the concentration of the target substance.

MantaFluor Options

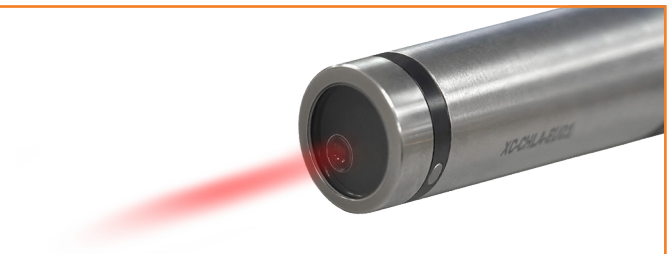
The MantaFluor is currently available in eight different models: Chlorophyll A, Chlorophyll AB, BGA (Blue-Green Algae), CDOM (Coloured Dissolved Organic Matter), BTEX (Refined Fuels), PAH (Crude Oil), Optical Brighteners, and Tryptophan.

In water quality monitoring, fluorometers are essential for detecting and quantifying a variety of naturally occurring and man-made substances.

- **Chlorophyll Sensors:** Monitor chlorophyll concentrations for assessing phytoplankton and algal activity and overall ecosystem health.
- **Blue-Green Algae Sensor:** Measures phycocyanin, a key pigment used to detect and monitor freshwater cyanobacteria (blue-green algae).
- **CDOM Sensor:** Measures Coloured Dissolved Organic Matter (CDOM) to help assess dissolved organic matter and changes in water quality
- **BTEX (Refined Fuels) Sensor:** Detects fluorescent aromatic hydrocarbons associated with refined petroleum fuels, providing an effective method for monitoring fuel contamination in water.
- **PAH (Crude Oil) Sensor:** Detects fluorescent polycyclic aromatic hydrocarbons (PAHs) associated with crude oil and other petroleum hydrocarbons for monitoring oil contamination in water.
- **Optical Brightener Sensor:** Detects fluorescent whitening agents commonly found in laundry detergents and household wastewater, making them useful as tracers of wastewater and sewage influence.
- **Tryptophan Sensor:** Measures tryptophan-like fluorescence associated with proteins and organic matter and can be used as an indicator of biological and wastewater-related contamination.

Each MantaFluor requires a MantaFluor Communication Cable, MantaMobile 2, and the MantaFluor App to operate. Rugged tablets, and other optional accessories are available.

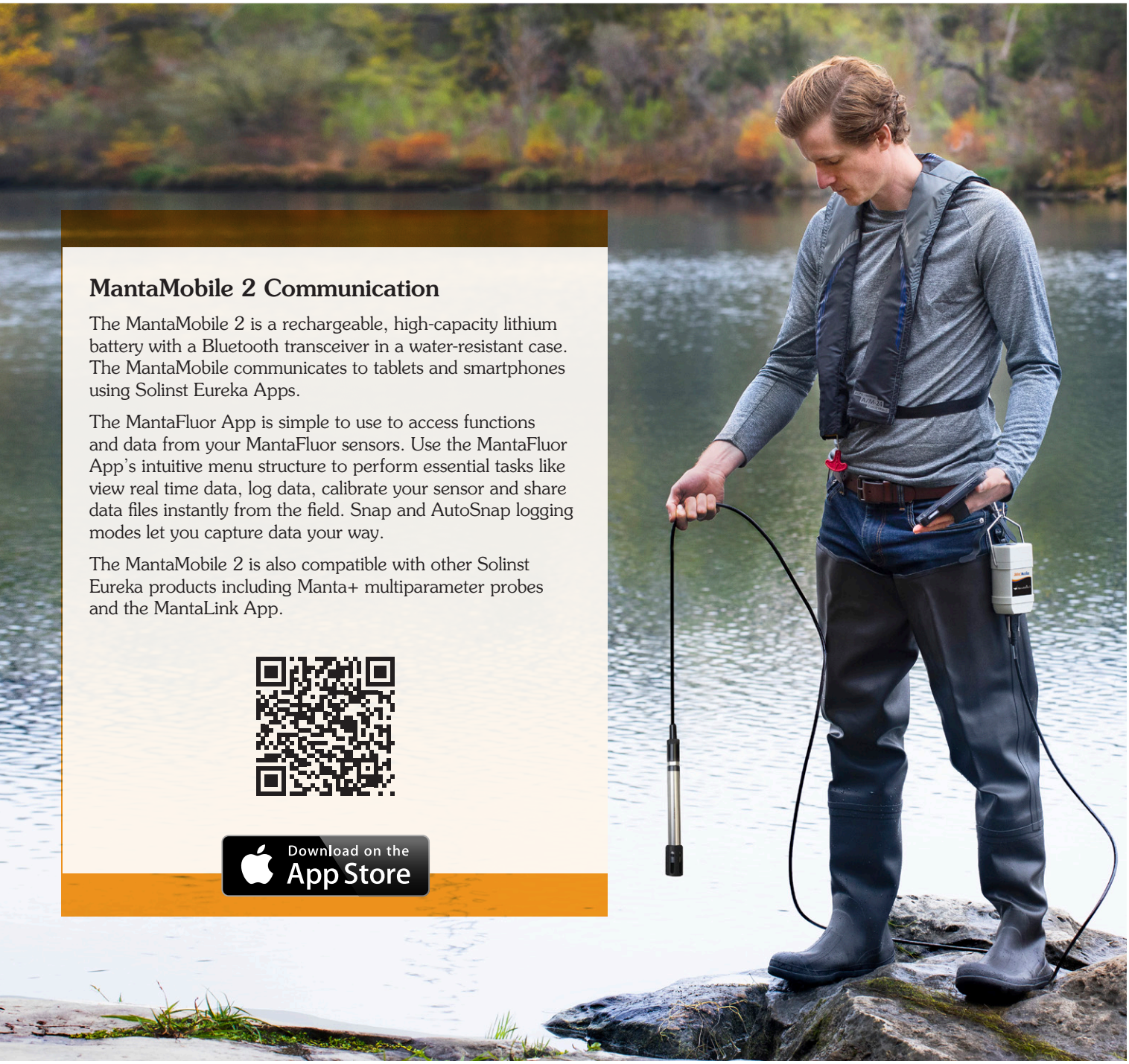




MantaFluor Specifications

Feature	Detail
Dimensions	6.76" x 0.875" (171 mm x 22 mm)
Housing Material	Titanium
Communication	Bluetooth
Connector	6-Pin
Power Supply	6–36 VDC
Temperature Compensation	Automatic, analyte-specific
Fluorometer Range	Chlorophyll A: 0 to 100 µg/L Chlorophyll AB: 0 to 100 µg/L BGA: 0 to 2500 ppb CDOM: 0 to 500 ppb BTEX: 0 to 20 ppm PAH: 0 to 300 ppm Optical Brightener: 0 to 300 ppm Tryptophan: 0 to 5000 ppm
MDL	Chlorophyll A: 0.01 ug/L Chlorophyll AB: 0.02 ug/L BGA: 0.8 ppb CDOM: 0.02 ppb BTEX: 0.4 ppm PAH: 0.2 ppm Optical Brightener: 0.6 ppm Tryptophan: 3.0 ppm
Accuracy	linearity of 0.999 R^2
Fluorometer Response Time	< 200ms. measured value for T_{100} is 3~10s
Operating/Storage Temperature	0 to 50°C
Temperature Accuracy	± 0.3 °C
Temperature Response Time	T_{90} ~ 60 sec
Calibration	2-point, zero and lab qualified sample

CAUTION: Never look directly at a fluorometer sensor. The UV rays emitted by the sensor can cause eye damage.



MantaMobile 2 Communication

The MantaMobile 2 is a rechargeable, high-capacity lithium battery with a Bluetooth transceiver in a water-resistant case. The MantaMobile communicates to tablets and smartphones using Solinst Eureka Apps.

The MantaFluor App is simple to use to access functions and data from your MantaFluor sensors. Use the MantaFluor App's intuitive menu structure to perform essential tasks like view real time data, log data, calibrate your sensor and share data files instantly from the field. Snap and AutoSnap logging modes let you capture data your way.

The MantaMobile 2 is also compatible with other Solinst Eureka products including Manta+ multiparameter probes and the MantaLink App.

Download on the App Store

MantaFluor Applications



Chlorophyll A Sensors

Chlorophyll A is found in almost all plants and algae.

- **Measuring Total Algae:** Gives a quick estimate of total algae growth in lakes, rivers, and oceans.
- **Protecting Fish & Aquaculture:** Detects sudden algae spikes. When large algae populations die and decompose, they drain dissolved oxygen from the water, which can suffocate fish.
- **Tracking Fertilizer Pollution:** Shows if excess nitrogen or phosphorus from farm runoff is causing rapid plant growth downriver.



Chlorophyll AB Sensors

Chlorophyll B is present in green algae and land plants, but absent in other groups like diatoms or cyanobacteria.

- **Identifying Algae Types**: Comparing the ratio of Chlorophyll A to Chlorophyll B helps scientists figure out what types of algae are multiplying without needing to count them under a microscope.
- **Spotting Land Runoff:** Helps distinguish whether plant debris washed into a river from land during a storm or grew directly in the water.



Blue-Green Algae (BGA) Sensors: Phycocyanin

Blue-green algae (cyanobacteria) are photosynthetic bacteria that produce a unique pigment called phycocyanin.

- **Harmful Algal Bloom (HAB) Early Warning:** Detects cyanobacteria population growth days or weeks before visual surface scums or mats appear, enabling proactive public health warnings.
- **Safe Drinking Water:** Cyanobacteria can release dangerous liver/nerve toxins and chemicals that give tap water an earthy taste. Sensors alert water treatment plants to switch intake depths or add carbon filters before toxins reach municipal pipes.
- **Public Safety:** Helps park officials close swimming areas and lakes before toxic conditions threaten humans and pets.



CDOM / fDOM Sensors (Colored Dissolved Organic Matter)

CDOM (or fDOM, its fluorescent fraction) consists of humic and fulvic substances from decaying organic matter and soil leaching, giving natural waters a tea-like tint.

- **Measuring Organic Carbon:** Acts as a quick standby measurement for dissolved organic carbon, skipping time-consuming lab chemistry tests.
- **Preventing Water Treatment Byproducts:** When water treatment plants add chlorine to disinfect water, high levels of dissolved organic matter can react with the chlorine to create harmful chemical byproducts. Sensors help operators adjust filter doses before adding chlorine.
- **Storm Runoff Tracking:** Shows how much soil and forest floor debris washes into rivers during heavy rainfall or spring snowmelt.



BTEX (Refined Fuels) Sensors

BTEX refers to aromatic hydrocarbons associated with refined petroleum products such as gasoline, diesel fuel, and aviation fuels. These compounds fluoresce when excited with ultraviolet light, allowing their presence in water to be detected rapidly.

- **Groundwater Monitoring:** Helps identify petroleum contamination entering wells, aquifers, and surface waters from leaking underground storage tanks and contaminated sites.
- **Fuel Spill Detection:** Provides early detection of refined-fuel contamination from spills, leaking tanks, pipelines, marinas, and industrial facilities.
- **Continuous Monitoring:** Allows real-time detection of changes in petroleum contamination that might otherwise be missed by periodic grab sampling.



PAH (Crude Oil) Sensors

Crude oil contains polycyclic aromatic hydrocarbons (PAHs), a group of naturally fluorescent compounds that can be used to detect and track petroleum contamination in water.

- **Oil Spill Monitoring:** Detects crude-oil-related hydrocarbons in water, helping identify spills and track changes in contamination over time.
- **Environmental Remediation:** Provides rapid measurements at contaminated sites to help evaluate cleanup activities and identify areas requiring additional investigation.
- **Industrial & Marine Monitoring:** Helps detect petroleum contamination around ports, pipelines, production facilities, storage terminals, and other locations where crude oil may enter the water.



Optical Brightener Sensors

Optical brighteners are fluorescent whitening agents commonly used in laundry detergents, cleaning products, paper products, and other consumer materials. Their strong fluorescence makes them useful tracers of wastewater entering natural waters.

- **Wastewater & Sewage Tracking:** Helps identify wastewater influence from leaking sewer lines, septic systems, and wastewater discharges.
- **Finding Contamination Sources:** Can help trace suspected wastewater contamination upstream to determine where it may be entering a river, stream, or drainage system.
- **Stormwater Monitoring:** Helps distinguish wastewater-related discharges from normal stormwater in drainage systems and surface waters.



Tryptophan Sensors

Tryptophan is a naturally fluorescent amino acid found in proteins and biological material. Tryptophan-like fluorescence can provide a rapid indication of changes in biologically derived organic matter and wastewater influence.

- **Wastewater Monitoring**: Detects changes in tryptophan-like fluorescence that may indicate wastewater or sewage entering natural waters.
- **Organic Pollution Tracking:** Provides rapid indication of changes in protein-like organic matter associated with biological activity and organic contamination.
- **Early-Warning Monitoring:** Continuous measurements can identify sudden changes in water quality and help determine when additional sampling or laboratory analysis may be warranted.

Solinst Eureka LLC. www.solinst.com/eureka
2113 Wells Branch Pkwy, Suite 4400, Austin, TX USA 78728
E-mail: eureka@solinst.com Tel: +1 (512) 302-4333 Fax: +1 (512) 251-6842