

## Fluorometers and Sondes for Cyanobacteria

This list is not an endorsement or recommendation of any product. Its purpose is to provide public water systems information and contacts on the types of meters and sondes available. This list should NOT be considered complete. If you are a vendor and would like to have your information added to this list, please send an email to [linda.slattery@epa.ohio.gov](mailto:linda.slattery@epa.ohio.gov).



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Provider/U.S. Distributer	Equipment Name	Measures Chlorophyll	Chlorophyll range	Measures Phycocyanin	Phycocyanin range	Power source	Computer Interface	Total Approximate Cost	Additional Supplies	Additional Information
<b>Handheld Fluorometers / Analyzers</b>										
<b>Beagle Bioproducts</b> <a href="http://beaglebioproducts.com">beaglebioproducts.com</a>	Handheld Dual Channel Fluorometer	Yes, not sure if chlorophyll- <i>a</i> or total	0.25-2,500 ppb	Yes	10-100,000 ppb	4-AA batteries or 5V DC adapter	USB, can retrieve up to 3 assays	\$1,495 plus \$150 for each standard	0.2 mL tubes	Small handheld model, inexpensive. Will need to purchase calibration standards and calibrate before each use.
<b>Modern Water</b> <a href="http://modernwater.com">modernwater.com</a>	AlgaeChek Ultra Fluorometer	Yes	0-100 ug/L	Yes	0-100 ug/L	Digital RS232 or Analog 0-5V dc	Requires a laptop or tablet	\$4,000-\$7,000, dependent on use for in-line, in-situ, or portable	Cable and USB interface	Low cost, easy to use with options for spot testing using the portable kit, in-line or in-situ. A data logger is required for in-line and in-situ. Can test up to 3 parameters including chlorophyll <i>a</i> , phycocyanin, phcoerythrin and turbidity.
<b>OTT Hydromet (Hach Co.)</b> <a href="http://ott.com">ott.com</a>	Hydrolab DS5	Yes, chlorophyll- <i>a</i>	0-500 ug/L	Yes	200-2,000,000 cells/ml	Internal battery pack - 8 C cells	Serial (or USB adapter), PDA, or handheld display	\$11,000	Handheld display (\$1,600)	Sonde can have up to 5 additional sensors added. Includes internal datalogger.
<b>PP Systems (aka bbe moldaenke)</b> <a href="http://ppsystems.com">ppsystems.com</a>	AlgaeTorch	Yes, total	0-200 ug/L	Indirectly, through chlorophyll- <i>a</i> fluorescence	0-200 ug/L	12V Rechargeable battery	USB, data software for Windows; GPS	\$8,500, plus sensor performance attachment (\$370), and Telescopic rod to 10 m (\$442)	Optional sensor performance attachment to check integrity of LED's; telescoping rod to 10m	Turbidity sensor included, calculates a compensation factor. Factory calibrated; needs calibration ~ every 2 yrs. GPS sensor for each sampling point.
<b>Turner Designs</b> <a href="http://turnerdesigns.com">turnerdesigns.com</a>	Trilogy Lab Fluorometer	Yes, in vivo and extracted	0-300 ug/L, 0.025 ug/L min	Yes	0-150,000 cells/ml, 150 cells/ml min	AC power source	ASCII output through a 9-pin serial cable	\$8,145 (includes extended warranty)	10mm x 10mm square cuvettes	Snap-in modules so it can be used for more than just algae; touch screen user interface. Lab use only
<b>Turner Designs</b> <a href="http://turnerdesigns.com">turnerdesigns.com</a>	AquaFluor Fluorometer	Yes, in vivo OR extracted	0-300 ug/L, 0.3-0.5 ug/L min	Yes	0-150,000 cells/ml, 150 cells/ml min	4-AAA batteries	Internal datalogger	\$3,048 (includes internal datalogger, chlorophyll and phycocyanin channels, standards, and extended warranty)	10mm x 10mm square cuvettes	Small handheld model, inexpensive. Will need to purchase calibration standards and calibrate before each use.
<b>YSI</b> <a href="http://ysi.com">ysi.com</a> <a href="http://fondriest.com">fondriest.com</a>	EXO1 Water Quality Sonde	Yes	0-400 ug/L	Yes	1-100 ug/L	2 D batteries (internal), or 9-16.5 V DC (external)	Handheld display or USB adapter for PC	\$12,325 (2 sensors + handheld display and cable)	Handheld display (\$2,800); 10 m cable (\$595)	Can be used with the handheld display or PC and measure chlorophyll and phycocyanin at depth. Can get up to 4 probes. Should be serviced every 90 days.

Provider/U.S. Distributer	Equipment Name	Measures Chlorophyll	Chlorophyll range	Measures Phycocyanin	Phycocyanin range	Power source	Computer Interface	Total Approximate Cost	Additional Supplies	Additional Information
<b>Sondes / Probes (These are more complicated systems; cost depends on public water system's needs. Contact the distributor for more information.)</b>										
Chelsea Technologies <a href="http://prairieoceanotech.com">prairieoceanotech.com</a>	UniLux	Yes	0-100 ug/L	Yes	0-100 ug/L	5V DC from a USB port	Need a laptop to operate	Chlorophyll-a probe: \$2,395; phycocyanin probe: \$2,600	Cable and USB interface needed to attach to laptop (\$1,565)	Each probe has to be purchased separately. Small, inexpensive, lightweight. Multi-use but not so practical to carry laptop around and cannot leave running longterm unless Laptop is suitable for permanent installation/damp proof
	UniLux + Algae Station System	Same as above, but this is a permanently installed wall-mounted unit. Only suitable for single reservoirs. Can connect to existing SCADA. Data are logged to an internal SD card and can be downloaded via USB or via removal of the SD card. Chlorophyll-a only system is \$6,925; Phycocyanin-only system is \$7,130.								
	UniLux + Algae Wader System	Same as above, but this is suitable for multiple reservoirs. It's a portable unit, good for spot checks. Logs to SD card. Chlorophyll-a only system is \$6,240; Phycocyanin-only system is \$6,445.								
Chelsea Technologies <a href="http://prairieoceanotech.com">prairieoceanotech.com</a>	TriLux	Yes	0-100 ug/L	Yes	0-100 ug/L	5V DC from a USB port	Need a laptop to operate	Chlorophyll-a probe + 2 additional probes: \$2,825	Cable and USB interface needed to attach to laptop (\$1,565)	Comes with chlorophyll-a as a standard probe, and can select up to two additional probes (phycocyanin and/or turbidity). Same multi-use comment as above.
	TriLux + Algae Station System	Same as above, but this is a permanently installed wall-mounted unit. Only suitable for single reservoirs. Can connect to existing SCADA. Data are logged to an internal SD card and can be downloaded via USB or via removal of the SD card. Chlorophyll-a and any 2 other probes is \$7,355.								
	TriLux + Algae Wader System	Same as above, but this is suitable for multiple reservoirs. It's a portable unit, good for spot checks. Logs to SD card. Chlorophyll-a and any 2 other probes is \$6,670.								
PP Systems (aka bbe moldaenke) <a href="http://ppsystems.com">ppsystems.com</a>	Flouroprobe	Yes, total	0-200 ug/L	Determines algae classes, diatoms, etc		12V Rechargeable battery	USB, data software for Windows; GPS	\$26,635		Optional flow-through unit, wipers, protective cage.
Sea Bird Coastal (Hach Co.) <a href="http://sea-birdcoastal.com">sea-birdcoastal.com</a> <a href="http://ott.com">ott.com</a>	Sea-Bird Coastal HydroCat	Yes, chlorophyll-a	0-50 ug/L	Yes	0-175 ppb	Lithium 9V batteries	Datalogger	\$19,000-\$21,000 (price depends on types and number of sensors)	Buoys, datalogger costs not included.	Multiparameter instrument used for long-term monitoring. Only needs annual calibration, no monthly maintenance needed.
OTT Hydromet (Hach Co.) <a href="http://ott.com">ott.com</a>	Hydrolab DS5X	Yes, chlorophyll-a	0.03 - 5/50/500 ug/L (depending on the sensitivity setting)	Yes	150 - 20,000/200,000/2,000,000 cells/mL (depending on sensitivity setting)	8 - C batteries (internal battery pack available)	Laptop, PDA, or handheld display/internal memory/Telemetry	\$11,000-\$13,000 (price depends on types and number of sensors)	Buoys, datalogger costs not included.	Multiparameter instrument (can measure 16 parameters simultaneously), uses Turner Designs fluorometers. Has central wiper unit. Needs monthly calibration.
Turner Designs <a href="http://turnerdesigns.com">turnerdesigns.com</a>	Cyclops-7	Yes, in vivo	0-500 ug/L, 0.025 ug/L min	Yes	0-40,000 ppb, 2 ppb min	Probes: Rechargeable batteries; Datalogger: AC or DC power source	Datalogger interface	\$7,014	Price includes chlorophyll and phycocyanin probes, datalogger, standards, power cords, car adapter, and extended warranty	Will have to download from on-site datalogger.
YSI <a href="http://ysi.com">ysi.com</a> <a href="http://fondriest.com">fondriest.com</a>	EXO2 Water Quality Sonde	Yes	0-400 ug/L	Yes	1-100 ug/L	4-D batteries (internal), or 9-16.5 V DC (external)	Datalogger / telemetry	\$11,200 (Sonde w/sensors, no telemetry); \$16,200 (Sonde w/sensors + telemetry)	Should also get central wiper (for cleaning)	Can integrate into existing SCADA. Recommended to get the total algae cond/temp probes; can get up to 7 probes (or 6 + central wiper). Should be serviced every 90 days.

Additional probes are described at: [http://www.act-us.info/sensor\\_list.php?cat=Fluorometer&type=Physical](http://www.act-us.info/sensor_list.php?cat=Fluorometer&type=Physical)