Product Catalog

For pricing, availability or to place an order please contact our Sales Department at:

Email: sales@turnerdesigns.com

Toll-Free (within the USA): 877-316-8049
    Extension 146 for instrument sales
    Extension 141 for accessory sales

Phone: 408-749-0994
    Extension 146 for instrument sales
    Extension 141 for accessory sales

You can also request a formal quotation online at www.turnerdesigns.com.

We look forward to serving your instrumentation needs!

Submersible Instrumentation

CYCLOPS-7®
SUBMERSIBLE SENSORS

TURNER DESIGNS

Cyclops-7 Submersible Sensors

The CYCLOPS-7 line of submersible sensors is designed for integration into multi-parameter platforms requiring a high performance, compact sensor at a significantly lower price than traditional submersible sensors. The CYCLOPS-7 combination of price, performance and size makes the sensor very attractive for oceanographic, freshwater and dye tracing applications.

Cyclops-7 Highlights

- Integrates into a C6 Multi-Sensor Platform or any third-party platform
- Extremely small size
     5.7" x 0.9" (SSt or Ti)
     5.7" x 1.25" (Delrin)
- Affordable price / excellent value
- Very low power consumption
- Excellent turbidity rejection
- Interfaces with DataBank Handheld Datalogger
- Custom optics available : 260-900 nm

Designed for Integration

Cyclops-7 was designed specifically for integration into a C6 Multi-Sensor Platform or any third-party platform that supplies power and datalogging.

Available Sensors

- Turbidity
- Chlorophyll *a in vivo*
- Blue Green Algae - Phycocyanin
- Blue Green Algae - Phycoerythrin
- Fluorescein Dye
- Rhodamine Dye
- PTSA Dye   New
- CDOM
- Optical Brighteners for Wastewater Treatment
- Crude Oil
- Refined Fuels

Custom Optics Available

Reliable Instruments for an Unreliable World

CYCLOPS-7®

SUBMERSIBLE SENSORS

TURNER DESIGNS

Fluorometer Performance

Linearity: 0.99R²

APPLICATION	MINIMUM DETECTION LIMIT	DYNAMIC RANGE
Chlorophyll *a**	0.025 µg/L	0-500 µg/L
CDOM	0.4 ppb QS**	0-2500 ppb QS**
Crude Oil	0.2 ppb PTSA***	0-2700 ppb PTSA***
Cyanobacteria	150 cells/mL	0-150,000 cells/mL
Optical Brighteners	0.6 ppb PTSA***	0-15,000 ppb PTSA***
Fluorescein Dye	0.01 ppb	0-500 ppb
PTSA Dye	0.01 ppb	0-650 ppb
Rhodamine Dye	0.01 ppb	0-1000 ppb
Turbidity	0.05 NTU	0-3000 NTU
Refined Fuels	2 ppb NS****	0-10,000 ppb NS****
BTEX	0.1 ppm	>2500 ppm

* Chlorophyll specifications determined with Rhodomonas SP culture
** Quinine Sulfate
*** 1,3, 6, 8 - Pyrenetetrasulfonic Acid Tetrasodium Salt
****1.5 Napthalene Disulfonic Disodium Salt

Physical Dimensions

Length x Diameter:
    5.7" x 0.9"; 14.48 x 2.23 cm (SSt or Ti)
    5.7" x 1.25", 14.48 x 3.18 cm (Delrin)

Weight: 5.0 oz; 160 gm

Environmental Characteristics

Temperature Range:
    Ambient: 0 to 50 deg C
    Water Temp: -2 to 50 deg C

Depth Range: 600 meters

Signal Output: 0 - 5 VDC

Supply Voltage Range: 3 - 15 VDC

Power Requirements: <300mW typical

Ordering Information

AVAILABLE INSTRUMENTS

Turbidity

Chlorophyll *a in vivo*

Blue Green Algae - Phycoerythrin

Blue Green Algae - Phycocyanin

Fluorescein Dye

Rhodamine Dye

PTSA Dye

CDOM

Optical Brighteners for Wastewater Treatment

Crude Oil

Refined Fuels
Contact Us for Custom Optics

Titanium and Plastic Housings also available. Titanium and Plastic withstand corrosion better than stainless steel and are recommended for stationary deployments in highly corrosive environments.

CYCLOPS-7 ACCESSORIES

Solid Secondary Standard*

Flowthrough Cap

Shade Cap

2 Foot Analog Cable with Locking Sleeve

5 Meter Analog Cable with Locking Sleeve

10 Meter Analog Cable with Locking Sleeve

25 Meter Analog Cable with Locking Sleeve

50 Meter Analog Cable with Locking Sleeve

*only available for visible wavelengths

DataBank Handheld Datalogger available.
For details visit www.turnerdesigns.com.

Contact Us

Toll-Free : 1.877.316.8049

Phone : 408.749.0994

Fax : 408.749.0998

Email : sales@turnerdesigns.com

Web : www.turnerdesigns.com

Address:
845 West Maude Avenue
Sunnyvale, CA 94085

Reliable Instruments for an Unreliable World

TURNER DESIGNS
Reliable Instruments for an Unreliable World
845 W Maude Ave.   Telephone 408-749-0994
Sunnyvale, CA 94085   Toll Free 877-316-8049
www.turnerdesigns.com   Fax 408-749-0998

Cyclops-7 Submersible Fluorometer
Part List

Part #	Description
Stainless Steel Cyclops-7	
2100-000-C	Stainless Steel Cyclops-7 with Chlorophyll Optics
2100-000-R	Stainless Steel Cyclops-7 with Rhodamine WT Optics
2100-000-F	Stainless Steel Cyclops-7 with Fluorescein Optics
2100-000-P	Stainless Steel Cyclops-7 with Phycocyanin Optics
2100-000-E	Stainless Steel Cyclops-7 with Phycoerythrin Optics
2100-000-U	Stainless Steel Cyclops-7 with CDOM Optics
2100-000-O	Stainless Steel Cyclops-7 with Crude Oil Optics
2100-000-B	Stainless Steel Cyclops-7 with Optical Brighteners Optics
2100-000-A	Stainless Steel Cyclops-7 with PTSA Optics
2100-000-G	Stainless Steel Cyclops-7 with Refined Fuels Optics
2100-000-T	Stainless Steel Cyclops-7 with Turbidity Optics
Plastic Cyclops-7 (Note: larger diameter than stainless steel and titanium)	
2108-000-C	Plastic Cyclops-7 with Chlorophyll Optics
2108-000-R	Plastic Cyclops-7 with Rhodamine WT Optics
2108-000-F	Plastic Cyclops-7 with Fluorescein Optics
2108-000-P	Plastic Cyclops-7 with Phycocyanin Optics
2108-000-E	Plastic Cyclops-7 with Phycoerythrin Optics
2108-000-U	Plastic Cyclops-7 with CDOM Optics
2108-000-O	Plastic Cyclops-7 with Crude Oil Optics
2108-000-B	Plastic Cyclops-7 with Optical Brighteners Optics
2108-000-A	Plastic Cyclops-7 with PTSA Optics
2108-000-G	Plastic Cyclops-7 with Refined Fuels Optics
2108-000-T	Plastic Cyclops-7 with Turbidity Optics
Titanium Cyclops-7	
2100-000-CT	Titanium Cyclops-7 with Chlorophyll Optics
2100-000-RT	Titanium Cyclops-7 with Rhodamine WT Optics
2100-000-FT	Titanium Cyclops-7 with Fluorescein Optics
2100-000-PT	Titanium Cyclops-7 with Phycocyanin Optics
2100-000-ET	Titanium Cyclops-7 with Phycoerythrin Optics
2100-000-UT	Titanium Cyclops-7 with CDOM Optics
2100-000-OT	Titanium Cyclops-7 with Crude Oil Optics
2100-000-BT	Titanium Cyclops-7 with Optical Brighteners Optics
2100-000-AT	Titanium Cyclops-7 with PTSA Optics
2100-000-GT	Titanium Cyclops-7 with Refined Fuels Optics
2100-000-TT	Titanium Cyclops-7 with Turbidity Optics
Plastic Cyclops-7 with Titanium Connector (Note: larger diameter than stainless steel and titanium)	
2108-000-CT	Plastic Cyclops-7 with Chlorophyll Optics and Titanium Connector
2108-000-RT	Plastic Cyclops-7 with Rhodamine WT Optics and Titanium Connector
2108-000-FT	Plastic Cyclops-7 with Fluorescein Optics and Titanium Connector
2108-000-PT	Plastic Cyclops-7 with Phycocyanin Optics and Titanium Connector
2108-000-ET	Plastic Cyclops-7 with Phycoerythrin Optics and Titanium Connector
2108-000-UT	Plastic Cyclops-7 with CDOM Optics and Titanium Connector
2108-000-OT	Plastic Cyclops-7 with Crude Oil Optics and Titanium Connector
2108-000-BT	Plastic Cyclops-7 with Optical Brighteners Optics and Titanium Connector
2108-000-AT	Plastic Cyclops-7 with PTSA Optics and Titanium Connector
2108-000-GT	Plastic Cyclops-7 with Refined Fuels Optics and Titanium Connector
2108-000-TT	Plastic Cyclops-7 with Turbidity Optics and Titanium Connector

Cyclops-7 Submersible Fluorometer packages include submersible analog sensor and CD with user's manual and quick start guide.
1-Year Warranty included.

Part #	Description
Accessories	
DataBank Handheld Datalogger	
2900-002	DataBank Handheld Datalogger configured with 2 Foot Analog Cable w/ Locking Sleeve for Cyclops-7
2900-005	DataBank Handheld Datalogger configured with 5 Meter Analog Cable w/ Locking Sleeve for Cyclops-7
2900-010	DataBank Handheld Datalogger configured with 10 Meter Analog Cable w/ Locking Sleeve for Cyclops-7
2900-025	DataBank Handheld Datalogger configured with 25 Meter Analog Cable w/ Locking Sleeve for Cyclops-7
2900-050	DataBank Handheld Datalogger configured with 50 Meter Analog Cable w/ Locking Sleeve for Cyclops-7

DataBank Handheld Datalogger packages include rechargeable NiMH batteries, PC/Power interface cable, AC to DC charger supply
and CD with user's manual, quick start guide and software. 1-Year Warranty Included

Part #	Description
Factory Installed DataBank Options	
2900-400	GPS Mounting Bracket for Garmin eTrex (includes interface cable)
2900-401	GPS Mounting Bracket for Garmin Geko (includes interface cable)
2900-940	External Power Option
DataBank Accessories	
2900-151	12V DC Power Supply Car Adapter
142-2900	Travel case (for up to 10m cable)
021-2900	RS232 Cable
021-2903	USB Cable
WARR-2901	DataBank Extended Warranty - 1 Year
WARR-2902	DataBank Extended Warranty - 2 Years
Cyclops Cables	
2100-750	2 Foot Analog Cable with Locking Sleeve
2100-755	5 Meter Analog Cable with Locking Sleeve
2100-751	10 Meter Analog Cable with Locking Sleeve
2100-752	25 Meter Analog Cable with Locking Sleeve
2100-753	50 Meter Analog Cable with Locking Sleeve
Reagents & Standards	
10-108	Rhodamine WT Dye, 8 oz.
10-208	Rhodamine WT Dye, 8 Pound Bottle
6500-120	Rhodamine WT Dye, 400 ppb, 1 Liter
10-109	Fluorescein Dye, 8 oz. Bottle
10-508	Fluorescein Calibration Solution, 10 ppb, 1 liter
10-609	PTSA Calibration Standard, 400 ppb, 1 liter
Other Cyclops Accessories	
2100-900	Cyclops-7 Solid Secondary Standard (for Chlorophyll a, Rhodamine, Fluorescein, Phycoerythrin and Phycocyanin only)
2100-908	Cyclops-7 with Plastic Housing Solid Secondary Standard (for Chlorophyll a, Rhodamine, Fluorescein, Phycoerythrin and Phycocyanin only)
2100-600	Cyclops-7 Flowthrough Cap
2100-608	Cyclops-7 with Plastic Housing Flowthrough Cap
2100-701	Cyclops-7 Shade Cap
2100-708	Cyclops-7 with Plastic Housing Shade Cap
WARR-21S1	Extended Warranty - 1 year for Standard Cyclops
WARR-21S2	Extended Warranty - 2 year for Standard Cyclops
WARR-21U1	Extended Warranty - 1 year for UV Cyclops
WARR-21U2	Extended Warranty - 2 year for UV Cyclops
WARR-21T1	Extended Warranty - 1 year for Turbidity Cyclops
WARR-21T2	Extended Warranty - 2 year for Turbidity Cyclops
WARR-21R1	Extended Warranty - 1 year for Refined Fuels Cyclops

C3 Submersible Fluorometer

TURNER DESIGNS

Highlights of the C3

• One, Two or Three Optical Sensors

• Temperature Sensor Included

• Optional Depth Sensor Available

• Optional 3-Brush Mechanical Wiper Available

• All Plastic Housing

• Robust Memory – Over 480,000 Data Points!

• Easy to Use Software with Data Management Capabilities

• Optional C-ray Deployment Body Enables Horizontal Towing

C3 Submersible Fluorometer

The C3 Submersible Fluorometer can be configured with one, two or three optical sensors ranging from the ultraviolet to the infrared spectrum. Internal memory storage capacity combined with an external submersible lithium ion battery allows the C3 to run during extended or short-term deployments. Each C3 comes with a factory-installed temperature sensor. Optional factory-installed depth sensors and mechanical wipers are also available. The durable delrin housing is highly resistant to harsh environments. C-Soft Windows™ based software allows for intuitive calibration, datalogging set-up and file management capabilities as well as digital or analog data integration.

Customized Optical Sensors

Choose up to three optical sensors to be factory installed for a variety of applications.

Available Optical Sensors

- Turbidity
- Chlorophyll *a in vivo*
- Blue Green Algae - Phycocyanin
- Blue Green Algae - Phycoerythrin
- Fluorescein Dye
- Rhodamine Dye
- PTSA Dye New
- CDOM
- Optical Brighteners for Wastewater Treatment
- Crude Oil
- Refined Fuels

Contact Us for Custom Optics

Digital or Analog integration with a CTD profiler or third party platform

Extended Deployments in the Self-Contained Mode with Submersible Battery

Secondary Solid Standard used to check signal stability or correlate to a primary standard

Reliable Instruments for an Unreliable World

C3 Submersible Fluorometer

TURNER DESIGNS

Application	Minimum Detection Limit	Dynamic Range
Chlorophyll *a**	0.025 μg/L	0-500 μg/L
CDOM	0.4 ppb QS**	0-2500 ppb QS**
Crude Oil	0.2 ppb PTSA***	0-2700 ppb PTSA***
Cyanobacteria	150 cells/mL	0-150,000 cells/mL
Optical Brighteners	0.6 ppb PTSA***	0-15,000 ppb PTSA***
Fluorescein Dye	0.01 ppb	0-500 ppb
PTSA Dye	0.01 ppb	0-650 ppb
Rhodamine Dye	0.01 ppb	0-1000 ppb
Turbidity	0.05 NTU	0-3000 NTU
Refined Fuels	2 ppb NS****	0-10,000 ppb NS****
BTEX	0.1 ppm	>2500 ppm

* Chlorophyll specifications determined with Rhodomonas SP culture
** Quinine Sulfate
*** 1,3, 6, 8 - Pyrenetetrasulfonic Acid Tetrasodium Salt
****1.5 Napthalene Disulfonic Disodium Salt

C3 Physical Specifications

Weight in Air	1.64 kg; 3.6 lbs
Length	23 cm; 9.1 in
Diameter	10 cm; 3.9 in
Material	Delrin Plastic
Temperature	-2 to 50 degrees C.
Depth	0 to 600 meters

C3 Electrical Specifications

External Power	8 to 30 VDC
Output	Digital Signal
Interface	RS232 Interface
Maximum Sample Rate	1 Second
Maximum Power Requirements	1 Watt

Ordering Information

INSTRUMENT	PART NUMBER
C3 Submersible Fluorometer	2300-000

C3 ACCESSORIES	PART NUMBER
3-Brush Mechanical Wiper	2300-450
Pressure Sensor	2300-360
Analog Output Adapter	2300-480
Submersible Battery Pack	2200-601
Battery Pack Bracket	2300-603
Flow Cap	2300-700
Shade Cap	2300-500
Shade Cap Weight	2300-510
C-ray Shade Cap	2300-502
C-ray Towed Deployment Body	2300-750
Solid Secondary Standard*	2300-900
24" Pigtail Interface Cable w/ Locking Sleeve	2200-170
Integration Cable	2200-160
Boosters (Set of 2)**	2200-900
10 Meter Extender Cable	105-2595
25 Meter Extender Cable**	105-2596
50 Meter Extender Cable**	105-2597

*Only available for visible wavelengths
**Boosters are required for cable lengths greater than 10 meters

AVAILABLE FACTORY-INSTALLED OPTICS	PART NUMBER
Turbidity	2300-240
Chlorophyll *a in vivo*	2300-200
Blue Green Algae - Phycocyanin	2300-231
Blue Green Algae - Phycoerythrin	2300-230
Fluorescein Dye	2300-220
Rhodamine Dye	2300-210
PTSA Dye	2300-250
CDOM	2300-251
Optical Brighteners for Wastewater Treatment	2300-252
Crude Oil	2300-253
Refined Fuels	2300-255

Contact Us for Custom Optics

OIL SPILL RESPONSE FOR SMART PROTOCOL	PART NUMBER
SMART Firmware	2200-201
C-ray Shade Cap	2300-502
C-ray Deployment Body	2300-750

Contact Us

Toll-Free : 1.877.316.8049
Phone : 408.749.0994
Fax : 408.749.0998

Email : sales@turnerdesigns.com
Web : www.turnerdesigns.com

Address:
845 West Maude Avenue
Sunnyvale, CA 94085

Reliable Instruments for an Unreliable World

TURNER DESIGNS
Reliable Instruments for an Unreliable World
845 W Maude Ave.   Telephone 408-749-0994
Sunnyvale, CA 94085   Toll Free 877-316-8049
www.turnerdesigns.com   Fax 408-749-0998

Part #	Description
C3 Submersible Fluorometer (Configured Instrument)	

Base Instrument:

2300-000-3	**C3 Submersible Fluorometer with (3) Optical Options** (select optics below)
2300-000-2	**C3 Submersible Fluorometer with (2) Optical Options** (select optics below)
2300-000-1	**C3 Submersible Fluorometer with (1) Optical Option** (select optics below)
	The C3 Submersible Fluorometer instrument packages include interface cable for PC, 12V power supply,
	factory installed temperature sensor, one 8-pin female end plug, CD with user's manual, quick start guide and software.
	1-Year Warranty included.

Optical Options:

2300-200	C3 Chlorophyll a Optics
2300-210	C3 Rhodamine WT Optics
2300-220	C3 Fluorescein Optics
2300-230	C3 Phycoerythrin Optics
2200-231	C3 Phycocyanin Optics
2300-240	C3 Turbidity Optics
2300-250	C3 PTSA Optics
2300-251	C3 CDOM Optics
2300-252	C3 Optical Brighteners Optics
2300-253	C3 Crude Oil Optics
2300-255	C3 Refined Fuels Optics

Optional Factory Installed Features:

2300-450	C3 Mechanical Wiper
2300-360	C3 Pressure Sensor

Optional Accessories

2300-480	Analog Output Adapter (Requires Battery Bracket)
2200-601	Rechargable Battery Pack (Includes battery and charger. Requires Battery Bracket)
2300-603	C3 Battery Bracket (Required for use with Battery Pack and Analog Output Adapter)
2300-700	C3 Flow Cap
2300-500	C3 Shade Cap
2300-510	C3 Shade Cap Weight
2300-502	C-ray Shade Cap
2300-750	C-ray Towed Deployment Body
2300-460	Replacement Brushes for Mechanical Wiper (6/pack)
2300-462	Replacement Spacers for Mechanical Wiper (3/pack)
2300-900	C3 Secondary Solid Standard (Includes one Solid Standard Insert 2300-901) (for Chlorophyll a, Rhodamine, Fluorescein, Phycoerythrin and Phycocyanin only)
2300-901	C3 Solid Insert (Used in the C3 secondary solid standard only) (for Chlorophyll a, Rhodamine, Fluorescein, Phycoerythrin and Phycocyanin only)
2900-151	12V DC Power Supply Car Adapter

Extended Warranties

WARR-2301	C3 Extended Warranty - 1 Year
WARR-2302	C3 Extended Warranty - 2 Years
WARR-23R1	C3 with Refined Fuels Extended Warranty - 1 Year

Cables & Boosters

2200-170	24" Pigtail Interface Cable with Locking Sleeve
2200-160	24" Integration Cable for C3/C6
2200-165	5 Meter Integration Cable for C3/C6
105-2590	Battery Interface Cable (option for deployments in stand alone mode where physical orientation & size restrictions apply)
2200-900	Boosters (Set of 2 boosters) (required for cables greater than 10 meters in length)
105-2595	Extender Cable 10 meters
105-2596	Extender Cable 25 meters (requires boosters)
105-2597	Extender Cable 50 meters (requires boosters)

Reagents & Standards

10-108	Rhodamine WT Dye, 8 oz.
10-208	Rhodamine WT Dye, 8 Pound Bottle
6500-120	Rhodamine WT Dye, 400 ppb, 1 Liter
10-109	Fluorescein Dye, 8 oz. Bottle
10-508	Fluorescein Calibration Solution, 10 ppb, 1 liter
10-609	PTSA Calibration Standard, 400 ppb, 1 liter

C-FINS
Fluorometric Integrated Nautical Mapping System

TURNER DESIGNS

C-FINS Fluorometric Integrated Nautical Mapping System

C-FINS integrates the C3 Submersible Fluorometer's digital output with GPS to enable easy visual mapping of data. A simple software module enables C-FINS and ArcGIS® to work together allowing for real-time mapping of fluorescence, temperature, depth, and turbidity. The ability to capture and integrate these data reliably using the C-FINS package is a powerful tool for researchers.
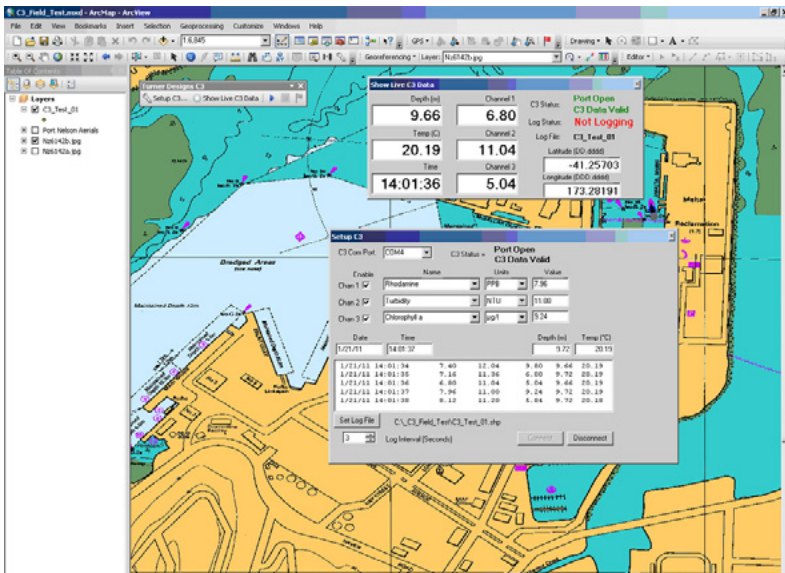
Highlights of C-FINS

• Simplifies Data Mapping using a GPS-integrated C3 Submersible Fluorometer

• Provides real-time data collection and integration

• Works with industry-standard ArcGIS® 10.0 software

• Simple upgrade for existing C3 Submersible Fluorometers

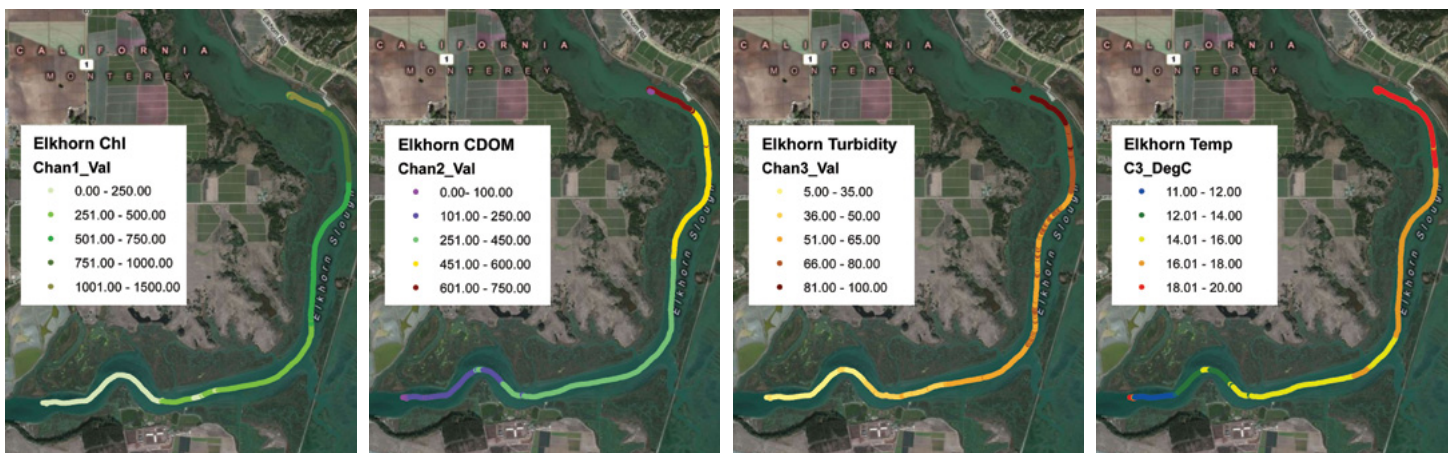• Software add-in available free of charge

Available Optical Options

· Turbidity

· Chlorophyll *a in vivo*

· Blue Green Algae - Phycocyanin

· Blue Green Algae - Phycoerythrin

· Fluorescein Dye

· Rhodamine Dye

· PTSA Dye   New

· CDOM

· Optical Brighteners for Wastewater Treatment

· Crude Oil

· Refined Fuels

Contact Us for Custom Optics

The ArcGIS® 10.0 software data screen running the C3 Add-In Module.

Chlorophyll, CDOM, turbidity and temperature data collected at Elkhorn Slough using C-FINS (the C3 Add-In Module.

Reliable Instruments for an Unreliable World

C-FINS

Fluorometric **I**ntegrated **N**autical Mapping **S**ystem

TURNER DESIGNS

C3 & C-ray Physical Specifications

Total Weight in Air	9 kg; 20 lbs
Total Length	37.8 cm; 14.9 in
Total Width	49.8 cm; 19.6 in
C-ray Inside Diameter	10.4 cm; 4.1 in
C-ray Housing Material	Powder Coated Low Carbon Steel
C-ray Wings Material	High Strength Plastic
C3 & C-ray Shade-Cap Material	Delrin Plastic
Operating Temperature	-2 to 50 degrees C

C3 Electrical Specifications

External Power	8 to 30 VDC
Output	Digital (ASCII string)
Interface	RS232
Maximum Sample Rate	1 Second
C-ray Towing Speed	1 to 5 knots*

*Recommended deployment speed depending on water conditions

Ordering Information

REQUIRED TURNER DESIGNS COMPONENTS	PART NUMBER
C3 Submersible Fluorometer	2300-000
OPTICAL OPTIONS (select 1,2, or 3)	
Turbidity	2300-240
Chlorophyll *a in vivo*	2300-200
Blue Green Algae - Phycocyanin	2300-231
Blue Green Algae - Phycoerythrin	2300-230
Fluorescein Dye	2300-220
Rhodamine Dye	2300-210
PTSA Dye	2300-250
CDOM	2300-251
Optical Brighteners for Wastewater Treatment	2300-252
Crude Oil	2300-253
Refined Fuels	2300-255
Contact us for Custom Optics	
C3 Pressure Sensor (factory installed)	2300-360
C-ray Towed Deployment Body	2300-750
C-ray Shade Cap	2300-502
ArcGIS® 10.0 C3 Add-In Module	Free Online Download
EXTENDER CABLES (choose one)	
Extender Cable 10 meters	105-2595
Extender Cable 25 meters (requires boosters)	105-2596
Extender Cable 50 meters (requires boosters)	105-2597
Boosters (required for cables > 10 meters)	2200-900

OTHER REQUIRED COMPONENTS

PC with ArcGIS® 10.0 Software and at least 2 com ports

GPS with RS232 com port output - NMEA format (not USB)

Power Source

OPTIONAL ACCESSORIES FROM TURNER DESIGNS	PART NUMBER
12V DC Power Supply Car Adapter	2900-151
C3 Mechanical Wiper (factory installed)	2300-450
C3 Solid Secondary Standard (includes 1 insert)	2300-900
C3 Additional Solid Secondary Standard Insert	2300-901

Turner Designs would like to acknowledge Paul Barter and the Cawthron Institute for the development of the ArcGIS® C3 Add-In Module.

Contact Us

Reliable Instruments for an Unreliable World

TURNER DESIGNS
Reliable Instruments for an Unreliable World
845 W.Maude Ave.   Telephone 408-749-0994
Sunnyvale, CA 94085   Toll Free 877-316-8049
www.turnerdesigns.com   Fax 408-749-0998

Each C-FINS Package Requires the Following Components Available from Turner Designs

Part #	Description
C3 Base Instrument (choose one):	
2300-000-3	**C3 Submersible Fluorometer with (3) Optical Options** (select optics below)
2300-000-2	**C3 Submersible Fluorometer with (2) Optical Options** (select optics below)
2300-000-1	**C3 Submersible Fluorometer with (1) Optical Option** (select optics below)
	The C3 Submersible Fluorometer instrument packages include interface cable for PC, 12V power supply,
	factory installed temperature sensor, one 8-pin female end plug, CD with user's manual, quick start guide and software.
	1-Year Warranty included.
C3 Optics (select up to three based on Base Instrument selection above):	
2300-200	C3 Chlorophyll a Optics
2300-210	C3 Rhodamine WT Optics
2300-220	C3 Fluorescein Optics
2300-230	C3 Phycoerythrin Optics
2200-231	C3 Phycocyanin Optics
2300-240	C3 Turbidity Optics
2300-250	C3 PTSA Optics
2300-251	C3 CDOM Optics
2300-252	C3 Optical Brighteners Optics
2300-253	C3 Crude Oil Optics
2300-255	C3 Refined Fuels Optics
Required Accessories:	
2300-360	C3 Pressure Sensor (factory installed must be purchased at time of instrument purchase)
2300-502	C-ray Shade Cap
2300-750	C-ray Towed Deployment Body
Required Cables (Select one cable and boosters if cable selected is greater than 10 meters):	
105-2595	Extender Cable 10 meters
105-2596	Extender Cable 25 meters (requires boosters)
105-2597	Extender Cable 50 meters (requires boosters)
2200-900	Boosters (Set of 2 boosters) (required for cables greater than 10 meters in length)
Required Software (Available for free download from the Turner Designs Website)	

C-FINS ArcGIS® 10.0 Software Module for C-FINS APPLICATION
Installation Instructions:
http://www.turnerdesigns.com/t2/doc/Instructions/C3-Add-In-Module-Quick-Start.pdf
Software Download:
http://www.turnerdesigns.com/Software/C3-Add-In-Module.zip

Each C-FINS Package requires the following components from sources other than Turner Designs
(please click the links to be directed to external product web page)

PC with at least 2 com ports running ArcGIS® 10.0.
ArcGis® is a product of esri®. More information about this software can be located at:
http://www.esri.com/

GPS with RS232 com port output - NMEA format (not USB).
A simple Garmin etrex-h and an interface cable are recommended.
https://buy.garmin.com/shop/shop.do?cID=144&pID=8705
https://buy.garmin.com/shop/shop.do?pID=654

Power source such as the following for your PC and Fluorometer is recommended.
http://www.duracellpower.com/documents/tech-specs/DS20080124_dcell-pp450-voice.pdf
This model has a 12VDC outlet that can be used in conjunction with the 12VDC Car Adapter, Turner Designs P/N 2900-151

Optional Add-ons Available from Turner Designs

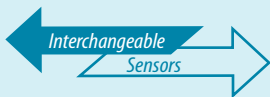|	
2900-151	12V DC Power Supply Car Adapter
2300-450	C3 Mechanical Wiper (factory installed must be purchased at time of instrument purchase)
2300-460	C3 Replacement Wiper
2300-900	C3 Secondary Solid Standard (Includes one Solid Standard Insert 2300-901) (for Chlorophyll a, Rhodamine, Fluorescein, Phycoerythrin and Phycocyanin only)
2300-901	C3 Solid Insert (Used in the C3 secondary solid standard only) (for Chlorophyll a, Rhodamine, Fluorescein, Phycoerythrin and Phycocyanin only)
WARR-2301	C3 Extended Warranty - 1 Year
WARR-2302	C3 Extended Warranty - 2 Years
WARR-23R1	C3 with Refined Fuels Extended Warranty - 1 Year

Reagents & Standards

10-108	Rhodamine WT Dye, 8 oz.
10-208	Rhodamine WT Dye, 8 Pound Bottle
6500-120	Rhodamine WT Dye, 400 ppb, 1 Liter
10-109	Fluorescein Dye, 8 oz. Bottle
10-508	Fluorescein Calibration Solution, 10 ppb, 1 liter
10-609	PTSA Calibration Standard, 400 ppb, 1 liter

C6 Multi-Sensor Platform

TURNER DESIGNS

C6 Multi-Sensor Platform

The C6 Multi-Sensor Platform integrates up to six Cyclops-7 fluorescence and turbidity sensors for extended or short-term deployments. The C6 provides individual automatic gain control, calibration, digital data reporting and datalogging for each Cyclops-7 sensor. Each C6 comes with factory-installed temperature and pressure sensors. C-Soft Windows™ based user interface allows for intuitive calibration, datalogging set up, and file downloading. Existing Cyclops-7 users can easily install their sensors onto the C6 Multi-Sensor Platform.

Interchangeable Sensors

⊕ Available Sensors for Easy Integration

- Turbidity
- Chlorophyll *a in vivo*
- Blue Green Algae - Phycocyanin
- Blue Green Algae - Phycoerythrin
- Fluorescein Dye
- Rhodamine Dye
- PTSA Dye   New
- CDOM
- Optical Brighteners for Wastewater Treatment
- Crude Oil
- Refined Fuels

Contact Us for Custom Optics

C6 Highlights

- Six ports available for Turner Designs Cyclops-7 Sensors
- Pressure and Depth Integrated
- Fast Sampling Rate
- Windows™ Based User Interface with Data Management
- Robust Memory - Over 100,000 data points!
- Field installable mechanical wiper allows for extended deployments
- Depth Rating up to 600 meters

Integrates up to Six Turner Designs Cyclops Sensors

Interchangeable Sensors are Easy to Install

Add Additional Sensors in the Future

Temperature & Depth Already Integrated

2 Optional Dual-Armed Mechanical Wiper Available

Reliable Instruments for an Unreliable World

C6 Multi-Sensor Platform

TURNER DESIGNS

Robust Memory holds
over 100,000 Data Points

Dual Armed Mechanical Wiper
Minimizes Biofouling

Easy to Mount Battery Bracket
with eye holes used for
External Lines or Fasteners

Extended Battery Life
over 45 Days at 15
Minute Intervals

C6 Specifications

Weight in Air	2.74 kg ; 6.0 lbs.
Length	25.8 cm ; 10.2 in
Length with Sensors Attached	33.8 cm ; 13.3 in
Diameter	10.2 cm; 4.0 in
Material	316 Stainless Steel; Delrin
Temperature	-2 to 50 degrees C.
Depth	0-600 meters

C6 Electrical Specifications

External Power	8 to 30 VDC
Output	Digital Signal
Interface	RS232 Interface
Minimum Sample Interval	1 Second

Ordering Information

INSTRUMENT	PART NUMBER
C6 Multi-Sensor Platform	2200-000

C6 ACCESSORIES	PART NUMBER
Mechanical Wiper	2200-450
Wiper Brush Replacement Kit	2200-452
Submersible Battery Pack	2200-601
Battery Pack Bracket	2200-603
Flow Cap	2200-700
Shade Cap	2200-510
Solid Secondary Standard*	2100-900
Integration Cable	2200-160
Boosters (Set of 2)**	2200-900
10 Meter Extender Cable	105-2595
25 Meter Extender Cable**	105-2596
50 Meter Extender Cable**	105-2597

*Only available for visible wavelengths
**Boosters are required for cable lengths greater than 10 meters

CYCLOPS-7 SENSOR	PART NUMBER
Turbidity	2100-000-T
Chlorophyll *a in vivo*	2100-000-C
Blue Green Algae - Phycocyanin	2100-000-P
Blue Green Algae - Phycoerythrin	2100-000-E
Fluorescein Dye	2100-000-F
Rhodamine Dye	2100-000-R
PTSA Dye	2100-000-A
CDOM	2100-000-U
Optical Brighteners for Wastewater Treatment	2100-000-B
Crude Oil	2100-000-O
Refined Fuels	2100-000-G

Contact Us for Custom Optics

Contact Us

Toll-Free : 1.877.316.8049

Phone : 408.749.0994

Fax : 408.749.0998

Email : sales@turnerdesigns.com

Web : www.turnerdesigns.com

Address:

845 West Maude Avenue
Sunnyvale, CA 94085

Reliable Instruments for an Unreliable World

S-0076 Rev. M

TURNER
D E S I G N S
Reliable Instruments for an Unreliable World
845 W.Maude Ave.   Telephone 408-749-0994
Sunnyvale, CA 94085   Toll Free 877-316-8049
www.turnerdesigns.com   Fax 408-749-0998

C6 Multi-Sensor Platform
Instrument package includes interface cable for PC, 12V power supply, factory installed pressure and temperature sensors,
one 8-pin female end plug, and seven fasteners, CD with user's manual, quick start guide and software.

Part #	Description
2200-000	**C6 Multi-Sensor Platform** *(*Please note we recommend purchasing a 6-pin plug (105-2210) for any open sensor or wiper ports.)*
	Instrument package includes interface cable for PC, 12V power supply, factory installed pressure and temperature sensors, one 8-pin female end plug, and seven fasteners, CD with user's manual, quick start guide and software.
	1-Year Warranty included.

Cyclops-7 Sensors (Integrate up to 6 Cyclops-7 Sensors into your C6 Multi-Sensor Platform)

2100-000-C	Stainless Steel Cyclops-7 with Chlorophyll Optics
2100-000-R	Stainless Steel Cyclops-7 with Rhodamine WT Optics
2100-000-F	Stainless Steel Cyclops-7 with Fluorescein Optics
2100-000-P	Stainless Steel Cyclops-7 with Phycocyanin Optics
2100-000-E	Stainless Steel Cyclops-7 with Phycoerythrin Optics
2100-000-U	Stainless Steel Cyclops-7 with CDOM Optics
2100-000-O	Stainless Steel Cyclops-7 with Crude Oil Optics
2100-000-B	Stainless Steel Cyclops-7 with Optical Brighteners Optics
2100-000-A	Stainless Steel Cyclops-7 with PTSA Optics
2100-000-G	Stainless Steel Cyclops-7 with Refined Fuels Optics
2100-000-T	Stainless Steel Cyclops-7 with Turbidity Optics

Cyclops-7 Extended Warranties

WARR-21S1	Extended Warranty - 1 year for Standard Cyclops
WARR-21S2	Extended Warranty - 2 year for Standard Cyclops
WARR-21U1	Extended Warranty - 1 year for UV Cyclops
WARR-21U2	Extended Warranty - 2 year for UV Cyclops
WARR-21T1	Extended Warranty - 1 year for Turbidity Cyclops
WARR-21T2	Extended Warranty - 2 year for Turbidity Cyclops
WARR-21R1	Extended Warranty - 1 year for Refined Fuels Cyclops

---

Optional Accessories

2200-601	Rechargable Battery Pack *(Includes battery and charger. Requires Battery Bracket)*
2200-603	Battery Pack Bracket *(Required for use with Battery Pack)*
2200-450	Mechanical Wiper
105-2210	6-pin Male Plug
2200-310	Locking Fasteners
2200-460	Replacement Brushes for Mechanical Wiper (10/pack)
2200-700	Flowthrough Cap
2200-510	Shade Cap
2100-900	Cyclops-7 Solid Secondary Standard (for Chlorophyll a, Rhodamine, Fluorescein, Phycoerythrin and Phycocyanin only)
WARR-2201	Extended Warranty - 1 year (For C6 only; Cyclops-7 warranty must be purchased separately)
WARR-2202	Extended Warranty - 2 year (For C6 only; Cyclops-7 warranty must be purchased separately)

Cables & Boosters

2200-170	24" Pigtail Interface Cable with Locking Sleeve
2200-160	24" Integration Cable for C3/C6
2200-165	5 Meter Integration Cable for C3/C6
105-2590	Battery Interface Cable (option for deployments in stand alone mode where physical orientation & size restrictions apply)
2200-900	Boosters (Set of 2 boosters) (required for cables greater than 10 meters in length)
105-2595	Extender Cable 10 meters
105-2596	Extender Cable 25 meters (requires boosters)
105-2597	Extender Cable 50 meters (requires boosters)

Reagents & Standards

10-108	Rhodamine WT Dye, 8 oz.
10-208	Rhodamine WT Dye, 8 Pound Bottle
6500-120	Rhodamine WT Dye, 400 ppb, 1 Liter
10-109	Fluorescein Dye, 8 oz. Bottle
10-508	Fluorescein Calibration Solution, 10 ppb, 1 liter
10-609	PTSA Calibration Standard, 400 ppb, 1 liter

PhytoFlash
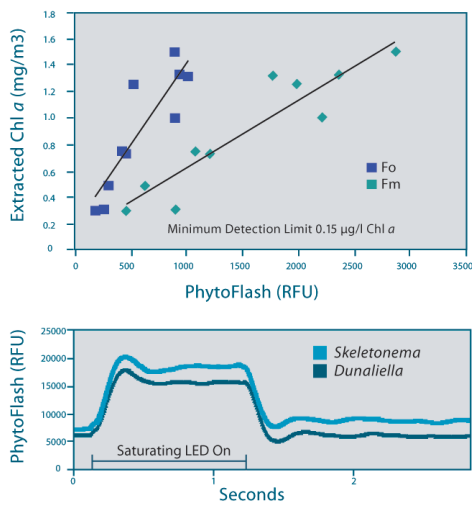## Active Fluorometer

TURNER DESIGNS

PhytoFlash Submersible Active Fluorometer

PhytoFlash is an *in situ* Submersible Active Fluorometer that can be used to determine the quantum efficiency of phytoplankton in both oligotrophic and mesotrophic environments. PhytoFlash is distinct from other fluorescence instruments on the market in that it is the first solid-state instrument capable of variable fluorescence measurements on natural concentrations of phytoplankton. The solid-state platform allows for a much wider range of uses due to its small size, power efficiency, more stable components, and lower price point.

Features

- Digitally integrates into a CTD or third-party system

- Low power consumption <1 W typical

- Extended battery life (Over 35 days at 30 second intervals)

- Large internal data logging memory (10,000 points)

- Optional solid secondary standard provides a quick, easy method to verify calibration

- Reports data in either Relative Fluorescence Units (RFU) or Direct Concentration

Accuracy & Sensitivity

Increased sensitivity for oligotrophic systems (Minimum Detection Limit 0.15 µg/l)

Accurate measurements of (Fo) and (Fm) fluorescence at low concentrations

Applications

- *In situ* measurement of phytoplankton photosynthetic parameters
- Indicator of nutrient status of planktonic algae
- Detection of the onset of algal blooms
- Oceanographic, estuarine, limnological and riverine studies
- Determination of non-photochemical quenching in laboratory mode
- Measurement of photosynthetic efficiency for all algae using Blue PhytoFlash
- Measurement of photosynthetic efficiency for cyanobacteria (blue-green algae) using Red PhytoFlash

Versatility

PhytoFlash can be operated in three different modes:

The Self-Contained Mode can be used with the internal data logging system and rechargeable battery pack.

The Integrated Mode allows PhytoFlash to be mated with and controlled by a third-party system.

The Laboratory Mode provides full reporting of the response curve.

Reliable Instruments for an Unreliable World

PhytoFlash
Active Fluorometer

TURNER DESIGNS

Technique

The PhytoFlash detection system is best described as a short-pulse, multiple turnover variable fluorescence system. The technique utilizes 3 low-intensity LEDs to monitor minimum fluorescence (Fo) and, after saturating the cells in the sample chamber using 6 high-intensity LEDs, measure maximum fluorescence (Fm). The LEDs are arranged to provide an even distribution of light throughout the entire sample volume. The low intensity of the monitoring LEDs prevents an increase in the photosynthetic rate. Users are able to define the saturation duration (200 - 10,000 ms) of the high intensity LEDs. Under the Laboratory Mode users are able to view the response curve. A dark Flow Through Cap is available to allow for dark adaptation for all three modes.

Ordering Information

INSTRUMENT	PART NUMBER
PhytoFlash Submersible Active Fluorometer (Blue Version)	2500-000
PhytoFlash Submersible Active Fluorometer (Red Version)	2500-001
Titanium PhytoFlash Submersible Active Fluorometer (Blue Version)	2500-000-T
Titanium PhytoFlash Submersible Active Fluorometer (Red Version)	2500-001-T

*Titanium withstands corrosion better than stainless steel and is recommended for stationary deployments in highly corrosive environments.

PHYTOFLASH ACCESSORIES	PART NUMBER
Submersible Battery Pack	2500-600
Flow Cap	2500-710
Shade Cap	2500-510
Solid Secondary Standard (for Blue PhytoFlash)	2500-900
Solid Secondary Standard (for Red PhytoFlash)	2500-901
2 Foot Analog Interface Cable with Locking Sleeve	2500-170
10 Meter Analog Interface Cable with Locking Sleeve	2500-171
25 Meter Analog Interface Cable with Locking Sleeve	2500-172
50 Meter Analog Interface Cable with Locking Sleeve	2500-173
Interface Cable and 12V Power Supply	2500-150
Dummy Plug	105-2570

Contact Us

Toll-Free : 1.877.316.8049

Phone : 408.749.0994

Fax : 408.749.0998

Email : sales@turnerdesigns.com

Web : www.turnerdesigns.com

Address:

845 West Maude Avenue

Sunnyvale, CA 94085

Measured Parameters

Fo	Minimum fluorescence
Fm	Maximum fluorescence
Fv	Variable fluorescence (Fm - Fo)
Fv/Fm (yield)	Maximum quantum yield of photochemistry in PSII
Blank	Calculated blank value used in calibration
Response Curve	Available during laboratory mode

PhytoFlash Physical Specifications

Minimum Detection Limit	0.15 µg/l
Dynamic Range*	Low: 0-5 µg/l High 0-100 µg/l
Weight in Air	3.25 lbs (1.47 kg)
Weight in Water	1.01 lbs (0.46 kg)
Length x Diameter	12" x 3" (30.5 cm x 7.6 cm)
Temperature	-2 to 50 degrees C
Depth	600 meters

*Chlorophyll specifications determined with Dunaliella *monoculture*

PhytoFlash Electrical Specifications

Power Requirements	<1 W Typical
Supply Voltage Range	8 - 30 VDC
Detector	Photodiode
Light Source	Light Emitting Diode

Patents Issued 7301158 and 7470917

Reliable Instruments for an Unreliable World

Part #	Description
PhytoFlash Active Fluorometer	
2500-000	**PhytoFlash Submersible Active Fluorometer (chlorophyll version)**
2500-001	**PhytoFlash Submersible Active Fluorometer (cyanobacteria version)**

Titanium withstands corrosion better than stainless steel and is recommended
for stationary deployments in highly corrosive environments

2500-000-T	**Titanium PhytoFlash Submersible Active Fluorometer (chlorophyll version)**
2500-001-T	**Titanium PhytoFlash Submersible Active Fluorometer (cyanobacteria version)**

PhytoFlash Submersible Active Fluorometer instrument packages include interface cable
and 12V power supply, optical cleaning brush, dummy plug and user's manual CD. 1-Year Warranty included.

Optional Accessories	
2500-600	Battery Pack
2500-900	Solid secondary standard
2500-901	Solid secondary standard for Red PhytoFlash
2500-710	Flowthrough Cap
2500-510	Shade Cap
2500-700	Flowthrough Cap (Only for s/n's 2500135 and prior)
2500-500	Shade Cap (Only for s/n's 2500135 and prior)
2500-170	2 foot Analog Interface Cable with Locking Sleeve
2500-171	10 Meter Analog Interface Cable with Locking Sleeve
2500-172	25 Meter Analog Interface Cable with Locking Sleeve
2500-173	50 Meter Analog Interface Cable with Locking Sleeve
2500-150	Interface Cable and 12V Power Supply
2500-160	Optical Cleaning Brush
105-2570	Dummy Plug
WARR-2501	Extended Warranty - 1 year
WARR-2502	Extended Warranty - 2 year

Field Instrumentation

DataBank
Handheld Datalogger

TURNER
D E S I G N S

DataBank Handheld Datalogger

The DataBank is a universal handheld meter, datalogger, and power supply which is easy to connect and use. Data, including GPS information, can be stored and downloaded to a PC. Sensor calibration is simplified through continuous sensor readings with results graphically displayed. Sensor power is provided directly from the DataBank, eliminating the need to connect external batteries. Designed with the customer in mind, the DataBank allows one-handed operation – even while wearing gloves.

Highlights of the DataBank

• Stores up to 9,999 records and 16 calibrations

• Includes auto-gain function

• Simplifies sensor calibration

• Rugged design

• GPS-enabled for Garmin GPS units with serial and text out functions

DataBank Electrical Specifications

Selectable Sensor Parameters	Voltage: Software selectable 3 to 12 volts Current: 150 mA at 3V to 100 mA at 12V Warm-up Time: 0-25 seconds Gain: 1-4
Inputs	Input Selection: Switch; *Differential Voltage, Differential Current or Dual Current* Range: 0-5V or 0-25 mA Resolution: 12 bits Sampling Rate: 1000 Hz (bursts); groups of bursts re-averaged @ 30 Hz
Outputs	Two, Open Drain, up to 200 mA @ 15V max (Used primarily for gain selection)
Storage	Non-Volatile, 1280 Kb (9,999 records, 1 record = sensor reading, date, time and location)
Current Draw	Computer: <=45 mA (at full charge). Sleeping <20 uA LCD Backlight: Full power ~ 30 mA. Low Power ~ 15 mA
Battery	Type: NiMH rechargable, 4.8 volts, 4,000 mA/Hr. User-replaceable Life: Continuous up to 70 hours (dependant on sensor/settings)
Charge Time	~3 hours (for a fully discharged battery; ambient @ 25 degrees C)
Communications	USB (Standard) RS232 (Optional)
GPS Power	3.3 VDC @ up to 300 mA; If DataBank is off, GPS is self-powered Note: Some GPS units cannot be powered by the DataBank

DataBank Physical Specifications

Size	Main body: 4.6"W x 3.2"H, x 3.4"D, Handle: 4.8" long Overall: 11"H (with handle, strain-relief and connector).
Weight	1.7 lb. (.76 kg) w/o GPS

Ordering Information

INSTRUMENT	PART NUMBER
All instrument packages include rechargeable NiMH batteries, PC/Power interface cable, AC to DC charger supply, software & manual	
DataBank Handheld Datalogger with 2ft Cyclops Interface Cable	2900-002
DataBank Handheld Datalogger with 5m Cyclops Interface Cable	2900-005
DataBank Handheld Datalogger with 10m Cyclops Interface Cable	2900-010
DataBank Handheld Datalogger with 25m Cyclops Interface Cable	2900-025
DataBank Handheld Datalogger with 50m Cyclops Interface Cable	2900-050

DATABANK ACCESSORIES	PART NUMBER
Travel Case	142-2900
GPS Mounting Bracket for Garmin eTrex	2900-400
GPS Mounting Bracket for Garmin Geko	2900-401
External Power Option	2900-940
Car Charger	2900-151
RS232 Cable	021-2900
USB Cable	021-2903
Other GPS & sensor cables available	

Contact Us

Toll-Free : 1.877.316.8049

Phone : 408.749.0994

Fax : 408.749.0998

Email : sales@turnerdesigns.com

Web : www.turnerdesigns.com

Address:

845 West Maude Avenue

Sunnyvale, CA 94085

Reliable Instruments for an Unreliable World

TURNER
DESIGNS
Reliable Instruments for an Unreliable World
845 W.Maude Ave.   Telephone 408-749-0994
Sunnyvale, CA 94085   Toll Free 877-316-8049
www.turnerdesigns.com   Fax 408-749-0998

DataBank Handheld Datalogger	
Part #	
2900-000	DataBank Handheld Datalogger
2900-002	DataBank Handheld Datalogger configured with 2 Foot Analog Cable w/ Locking Sleeve for Cyclops-7
2900-005	DataBank Handheld Datalogger configured with 5 Meter Analog Cable w/ Locking Sleeve for Cyclops-7
2900-010	DataBank Handheld Datalogger configured with 10 Meter Analog Cable w/ Locking Sleeve for Cyclops-7
2900-025	DataBank Handheld Datalogger configured with 25 Meter Analog Cable w/ Locking Sleeve for Cyclops-7
2900-050	DataBank Handheld Datalogger configured with 50 Meter Analog Cable w/ Locking Sleeve for Cyclops-7

DataBank Handheld Datalogger packages include rechargeable NiMH batteries, PC/Power interface cable, AC to DC charger supply and CD with user's manual, quick start guide and software. 1-Year Warranty Included

Factory Installed Options	
2900-400	GPS Mounting Bracket for Garmin eTrex (includes interface cable)
2900-401	GPS Mounting Bracket for Garmin Geko (includes interface cable)
2900-940	External Power Option

Accessories	
2900-151	12V DC Power Supply Car Adapter
142-2900	Travel case (for up to 10m cable)
021-2900	RS232 Cable
021-2903	USB Cable
WARR-2901	DataBank Extended Warranty - 1 Year
WARR-2902	DataBank Extended Warranty - 2 Years

Available Cyclops-7 Sensors	
2100-000-C	Stainless Steel Cyclops-7 with Chlorophyll Optics
2100-000-R	Stainless Steel Cyclops-7 with Rhodamine WT Optics
2100-000-F	Stainless Steel Cyclops-7 with Fluorescein Optics
2100-000-P	Stainless Steel Cyclops-7 with Phycocyanin Optics
2100-000-E	Stainless Steel Cyclops-7 with Phycoerythrin Optics
2100-000-U	Stainless Steel Cyclops-7 with CDOM Optics
2100-000-O	Stainless Steel Cyclops-7 with Crude Oil Optics
2100-000-B	Stainless Steel Cyclops-7 with Optical Brighteners Optics
2100-000-A	Stainless Steel Cyclops-7 with PTSA Optics
2100-000-G	Stainless Steel Cyclops-7 with Refined Fuels Optics
2100-000-T	Stainless Steel Cyclops-7 with Turbidity Optics

Cyclops-7 Submersible Fluorometer packages include submersible analog sensor and CD with user's manual and quick start guide. 1-Year Warranty included.

Cyclops-7 Accessories	
2100-900	Cyclops-7 Solid Secondary Standard (for Chlorophyll a, Rhodamine, Fluorescein, Phycoerythrin and Phycocyanin only)
2100-908	Cyclops-7 with Plastic Housing Solid Secondary Standard (for Chlorophyll a, Rhodamine, Fluorescein, Phycoerythrin and Phycocyanin only)
2100-600	Cyclops-7 Flowthrough Cap
2100-701	Cyclops-7 Shade Cap
WARR-21S1	Extended Warranty - 1 year for Standard Cyclops
WARR-21S2	Extended Warranty - 2 year for Standard Cyclops
WARR-21U1	Extended Warranty - 1 year for UV Cyclops
WARR-21U2	Extended Warranty - 2 year for UV Cyclops
WARR-21T1	Extended Warranty - 1 year for Turbidity Cyclops
WARR-21T2	Extended Warranty - 2 year for Turbidity Cyclops
WARR-21R1	Extended Warranty - 1 year for Refined Fuels Cyclops

Reagents & Standards	
10-108	Rhodamine WT Dye, 8 oz.
10-208	Rhodamine WT Dye, 8 Pound Bottle
6500-120	Rhodamine WT Dye, 400 ppb, 1 Liter
10-109	Fluorescein Dye, 8 oz. Bottle
10-508	Fluorescein Calibration Solution, 10 ppb, 1 liter
10-609	PTSA Calibration Standard, 400 ppb, 1 liter

*Aqua*Fluor™
Handheld Fluorometer/Turbidimeter

TURNER DESIGNS

*Aqua*Fluor™ Handheld Fluorometer/Turbidimeter

The *Aqua*Fluor™ is a lightweight, inexpensive, handheld fluorometer/turbidimeter ideal for field use. Its small size and durability make the *Aqua*Fluor™ perfect for the user who needs quick measurements away from the laboratory. Dual-channel capability allows users to measure fluorescence and turbidity in one sample.

While small in size, performance has not been compromised. The *Aqua*Fluor™ brings a new level of simplicity and economy to Turner Designs' line of fluorescence-based instrumentation.

Available Channels

The *Aqua*Fluor™ can be configured with one or two of the following channels:

- Turbidity
- *In Vivo* Chlorophyll *a*
- Extracted Chlorophyll *a*
- Blue Green Algae - Phycocyanin
- Blue Green Algae - Phycoerythrin
- Fluorescein Dye
- Rhodamine Dye
- Ammonium
- CDOM
- Optical Brighteners for Wastewater Treatment

Contact Us for Custom Optical Kits

Highlights of the AquaFluor™

- Dual channels allow for quick toggling between two applications

- Small size easily fits in shirt or jacket pocket

- Dustproof and watertight for field use, it even floats!

- Single-point plus blank calibration

- 12 bit resolution

- Operates using AAA batteries for >1,000 measurements per set

- 5 second warm up

- Low maintenance field fluorometer

Optional Accessories

- Internal Data Logging stores up to 1,000 points of data

- Adjustable Solid Secondary Standard provides Quick and Easy Checks of Calibration, Stability and Performance.

Reliable Instruments for an Unreliable World

*Aqua*Fluor™
Handheld Fluorometer/Turbidimeter

TURNER DESIGNS

Application	Minimum Detection Limit	Linear Range
In Vivo Chlorophyll *a*	0.3 µg/L	0 - 300 µg/L
Extracted Chlorophyll *a**	0.5 µg/L	0 - 300 µg/L
Ammonium*	0.1 µM	0 - 100 µM
CDOM	0.1 ppb	0 - 1000 ppb
Cyanobacteria	150 cells/mL	0 - 150,000 cells/mL
Optical Brighteners	0.5 ppm	0-30,000 ppm
Fluorescein Dye	0.4 ppb	0 - 400 ppb
Rhodamine Dye	0.4 ppb	0 - 400 ppb
Turbidity	0.5 NTU	0 - 1000 NTU

*Reagents and Reaction Time Required

*Aqua*Fluor™ Physical Specifications

Weight in Air	13.9 oz; 0.4 kg
Size	1.75" x 3.5" x 7.25"; 4.45 cm x 8.9 cm x 18.4 cm
Warm-up Time	5 seconds
Case	IP 67 standard; dustproof/waterproof
Temperature	41-104°F; 5-40°C

*Aqua*Fluor™ Electrical Specifications

Power	4 AAA batteries
Detector	Photodiode 300nm-1,000 nm capable

Ordering Information

INSTRUMENT	PART NUMBER
*Aqua*Fluor™ Handheld Fluorometer/Turbidimeter	8000-010

ACCESSORIES	PART NUMBER
Internal Data Logging	8000-920
Adjustable Solid Secondary Standard*	8000-952
Adjustable Solid Secondary Standard**	8000-951
12mm Test Tube Adapter***	8000-932
Minicell Adapter	8000-936
12x75 mm Round Glass Test Tubes (12 ea)***	10-029A
10x10 mm Square Polystyrene Cuvette (100 ea)****	7000-957
10x10 mm Square Methacrylate Cuvette (100 ea)*****	7000-959
Minicells (200 µL capacity) (1000 ea.)	7000-950

AVAILABLE CHANNELS	PART NUMBER
Turbidity	8000-408
Chlorophyll *a in vivo*	8000-406
Chlorophyll *a* Extracted	8000-407
Blue Green Algae - Phycocyanin	8000-412
Blue Green Algae - Phycoerythrin	8000-411
Fluorescein Dye	8000-405
Rhodamine Dye	8000-409
Ammonium	8000-402
CDOM	8000-401
Optical Brighteners for Wastewater Treatment	8000-403

Contact Us for Custom Optics

*For use with chlorophyll, phycoerythrin, phycocyanin and rhodamine WT channels only
**For use with fluorescein channel only
***Required for use with extracted chlorophyll
****Recommended for use with turbidity
*****Required for use with UV (<400nm)

Contact Us

Toll-Free : 1.877.316.8049

Phone : 408.749.0994

Fax : 408.749.0998

Email : sales@turnerdesigns.com

Web : www.turnerdesigns.com

Address:

845 West Maude Avenue

Sunnyvale, CA 94085

Reliable Instruments for an Unreliable World

TURNER DESIGNS
Reliable Instruments for an Unreliable World
845 W.Maude Ave.   Telephone 408-749-0994
Sunnyvale, CA 94085   Toll Free 877-316-8049
www.turnerdesigns.com   Fax 408-749-0998

Part #	Description

INSTRUMENT

8000-010	***Aqua*Fluor Handheld Fluorometer with (1) optical channel (choose from list below)**
	Instrument package includes: user's manual CD, batteries and storage pouch (142-8000). 1-Year Warranty included.

Select (1) optical channel:
In Vivo Chlorophyll *a*
Extracted Chlorophyll *a*
Rhodamine WT
Fluorescein
Ammonium
Phycocyanin
Phycoerythrin
Optical Brighteners
CDOM
Turbidity

Second optical channel (optional):
In Vivo Chlorophyll *a*
Extracted Chlorophyll *a*
Rhodamine WT
Fluorescein
Ammonium
Phycocyanin
Phycoerythrin
Optical Brighteners
CDOM
Turbidity
For customized channels, please contact our sales department

ACCESSORIES

142-8000	Storage Pouch
142-8005	Replacement Cap
8000-920	Internal Data Logging

CUVETTES & ADAPTERS

8000-932	12 mm Test Tube Adapter (For use with Extracted Chlorophyll *a* channel)
8000-936	Minicell Adapter
10-029A	12 mm x 75 mm Round Glass Test Tubes (12 ea) (For use with Extracted Chlorophyll a channel)
7000-957	10 mm x 10 mm Square Polystyrene Cuvette (3.5 ml capacity) (100 ea.) (For use with Turbidity Channel)
7000-959	10 mm x 10 mm Square Methacrylate Cuvette (3.5 ml capacity) (100 ea.)
7000-950	Minicells (200 uL capacity) (1000 ea.) (For use with Minicell Adapter 8000-936)

REAGENTS & STANDARDS

8000-952	Adjustable Solid Secondary Standard (For use with Chlorophyll, Phycoerythrin, Phycocyanin and Rhodamine WT Channels Only)
8000-951	Adjustable Solid Secondary Standard (For use with Fluorescein Channel Only)
10-850	Chlorophyll *a* Standards in 90% Acetone (must ship overnight service not available for international delivery)
10-108	Rhodamine WT Dye (8oz)
10-208	Rhodamine WT Dye - 8 Pound Bottle
6500-120	Rhodamine WT Dye, 400 ppb, 1 Liter
10-109	Fluorescein Dye, 8 oz. Bottle
10-508	Fluorescein Calibration Solution, 10 ppb, 1 liter
10-609	PTSA Calibration Standard, 400 ppb, 1 liter

EXTENDED WARRANTY

WARR-8001	Extended Warranty - 1-year in addition to standard 1-year warranty included with instrument purchase (total 2 years coverage)
WARR-8002	Extended Warranty - 2-year in addition to standard 1-year warranty included with instrument purchase (total 3 years coverage)

Prices are subject to change without notice.
Effective 01/01/11
Updated 11/16/11

10-AU
Field Fluorometer

TURNER DESIGNS

Highlights of the 10AU

- Exceptional Sensitivity
- Automatic or Manual Ranging
- Analog and Digital Output
- Field Installable Optical Kits
- Easy to Read LCD Display
- Now 20% Lighter!

10AU Field Fluorometer

The 10AU Field Fluorometer is a rugged, field-portable instrument that can be set up for continuous-flow monitoring or discrete sample analyses. Measurements are extremely stable with stability measured in months or weeks as opposed to days or hours. Watertight filter paddles enable quick change of excitation and emission filters so a variety of compounds can be easily measured on-site.

Available Optical Kits

Optical kits with appropriate filters and lamps are available for a wide range of applications and can be easily installed in the field or lab. Individual filters and lamps can also be purchased for customized applications.

Available Optical Kits

- Chlorophyll *a* - Extracted and/or *In Vivo*
- Blue Green Algae - Phycocyanin (freshwater)
- Blue Green Algae - Phycoerythrin (marine)
- Rhodamine WT Dye Tracing
- Fluorescein Dye Tracing
- Ammonium
- CDOM
- Crude Oil (Long Wavelength)
- Refined Oil (Short Wavelength)
- Histamine
- Optical Brighteners for Wastewater Treatment

Contact Us for Custom Optical Kits

User Configured Options

- Standard or Red PMT
- Continuous Flow Monitoring or Discrete Sample Analysis

Optional Accessories

- Internal Data Logging & Electronic Chart Recording
- Temperature Compensation for Continuous Flow Measurements
- Solid Secondary Standard

Reliable Instruments for an Unreliable World

10-AU
Field Fluorometer

TURNER DESIGNS

Ordering Information

BASE INSTRUMENT W/ WATERTIGHT CASE	PART NUMBER
10AU Fluorometer with Red PMT	1100-100
10AU Fluorometer with Standard PMT	1100-101

SAMPLE CELL	PART NUMBER
25 mm One-Piece Continuous Flow System	1100-020
25 mm & 13 mm Discrete Sample Test Tube Holder Set	10-AU-030

SOFTWARE	PART NUMBER
Internal Data Logging & Electronic Chart Recording	10-AU-450
Temperature Compensation Package (On-Line Systems)	1100-500

OPTICAL KITS	PART NUMBER
In Vivo & Extractive Chlorophyll *a*	10-037R
Extractive Chlorophyll *a*	10-040R
In Vivo Chlorophyll *a*	10-096R
Blue Green Algae - Phycocyanin (freshwater)	10-305
Blue Green Algae - Phycoerythrin (marine)	10-304
Rhodamine WT Dye	10-041R
Fluorescein Dye	10-086R
Ammonium/CDOM	10-303
Crude Oil (Long Wavelength Oil)	10-302R
Refined Oil (Short Wavelength Oil)	10-301R
Optical Brighteners for Wastewater Treatment	10-302R

Contact Us for Custom Optical Kits

OPTIONAL ACCESSORIES	PART NUMBER
Solid Secondary Standard	10-AU-904
Shipping Case	10-AU-060
12 VDC Power & Signal Cable w/ Clips	10AU-810
Universal Power & Signal Cable, 115 VAC & 230 VAC	10AU-800

10AU Electrical Specifications

Light Source	Lamp (4 watts, 8000 hours lamp life)
Detector	PhotoMultiplier Tube; Standard (300-650 nm), Red (185-870 nm)
AC Power	100-130 V; 200-240 V, 50/60 Hz, 30 watts
DC Power	11-16 V; 2.5 amperes
Digital Output	100% ASCII data output via RS-232 at 4800 or 9600 bps
Analog Output	0.1, 1, 2, or 5 volts

10AU Detection Limits

Extracted Chlorophyll *a*	0.025 µg/L using EPA Method 445.0
Rhodamine WT Dye	0.01 ppb RWT in potable water
Fluorescein Dye	0.01 ppb Fluorescein in potable water

10AU Linear Range

Extracted Chlorophyll *a*	0 - 250 µg/L
Rhodamine WT Dye	0 - 250 ppb
Fluorescein Dye	0 - 250 ppb

10AU Physical Specifications

Weight	12.6 kg (28.5 lbs)
Height	24 cm (9.45 in)
Width	55 cm (21.65 in)
Depth	34 cm (13.39 in)
Operating Temperature	0-55° C, 32-131° F (ambient)

Contact Us

Toll-Free : 1.877.316.8049
Phone : 408.749.0994
Fax : 408.749.0998

Email : sales@turnerdesigns.com
Web : www.turnerdesigns.com

Address:
845 West Maude Avenue
Sunnyvale, CA 94085

Reliable Instruments for an Unreliable World

TURNER DESIGNS
Reliable Instruments for an Unreliable World
845 W Maude Ave   Telephone 408-749-0994
Sunnyvale, CA 94085   Toll Free 877-316-8049
www.turnerdesigns.com   Fax 408-749-0998

10AU Field Fluorometer Part List

Configured 10AU-005-CE Instrument
Base Instrument (Required - Select One)

Part #	Description
1100-100	**10AU Field Fluorometer with Red PMT**
	Instrument package includes watertight case, universal power & signal cable (10AU-800) and user's manual. 1-year Warranty included.
1100-101	**10AU Field Fluorometer with Standard PMT**
	Instrument package includes watertight case, universal power & signal cable (10AU-800) and user's manual. 1-year Warranty included.

Continuous & Discrete Sample Cell (Select to Factory Install)

1100-020	25 mm One-Piece Continuous Flow Cuvette System
10-AU-030	25 mm and 13 mm Discrete Sample Test Tube Holder Set
1100-080	25 mm One-Piece Continuous Flow Cuvette System - Quartz

Line Cord (Select to Include)

046-0400	US Line Cord-6"
046-0108	UK Line Cord - 230 VAC
046-0150	European Line Cord - 230 VAC
046-0125	Australian Line Cord - 250 VAC 6A

Software (Select to Factory Install)

10-AU-450	Internal Data Logging & Electronic Chart Recording
1100-500	Temperature Compensation Package, On-Line Systems

Optical Kit (Select to Factory Install)
NOTICE! ALL NON 10-AU-005-CE CUSTOMERS REQUIRE 10-150 AND 1000-260 ROUND FILTER ADAPTERS

10-037R	Chlorophyll Optical Kit (In-Vivo & Extractive Measurement) (Red PMT Instrument Required)
10-040R	Chlorophyll a Optical Kit (Extractive Measurement) (Red PMT Instrument Required)
10-041R	Rhodamine WT Optical Kit
10-086R	Fluorescein Optical Kit
10-096R	Chlorophyll a Optical Kit (In-Vivo Measurement) (Red PMT Instrument Required)
10-301R	Short Wavelength Oil Optical Kit
10-302R	Long Wavelength Oil Optical Kit
10-303	Ammonium/CDOM Optical Kit
10-302R	Optical Brighteners Optical Kit
10-304	Phycoerythin Optical Kit
10-305	Phycocyanin Optical Kit

ADDITIONAL ITEMS
Sample Cells and Accessories

10-AU-020	25 mm One-Piece Continuous Flow Cuvette System (Not for use with instruments with s/n sequence 1100XXX)
10-AU-080	25 mm One-Piece Continuous Flow Cuvette System - Quartz for (Not for use with instruments with s/n sequence 1100XXX)
10-AU-021	25 mm Replacement Pyrex Cuvette (1 ea.)
10-028A	25 mm x 150 mm Borosilicate Test Tubes (12 ea.)
10-295	25 mm x 115 mm Quartz Test Tube (1 ea.)
10-031	13 mm x 100 mm Borosilicate Test Tubes (12 ea.)
10-299	13 mm x 100 mm Quartz Test Tubes (3 ea.)
10-AU-081	25 mm Quartz Flow Cell Cuvette (1 ea.)
7000-956	10 mm x 10 mm Square Quartz Cuvette, (1 ea.) (Recommended for use with Short Oil Kit 10-301R)
10-AU-027	25 mm Cuvette Holder
10-AU-035	10mm X 10mm Square Cuvette Holder
10-AU-157	140 cc Luer Tip Syringe, plastic.
10-350	25 mm Flow Cell Clean-Out Brush (1 ea.)

Optical Kit Accessories

10-045	Daylight White Lamp
10-046	Clear Quartz Lamp
10-047	Cool White Lamp
10-049	Near U.V. Lamp
10-089	Blue Lamp
10-318R	Round Attenuator Plate, 1:5
10-327R	Round Attenuator Plate, 1:75
10-AU-245	Excitation Filter Paddle for 10-AU-005-CE/10AU-005-CE
10-AU-255	Emission Filter Paddle for 10-AU-005-CE/10AU-005-CE

For additional information on individual filters or custom filter sets please contact Turner Designs.

Calibration Standards & Tracer Dyes

10-AU-904	10-AU Solid Secondary Standard
10-850	Chlorophyll a Standards in 90% Acetone (must ship overnight service not available for international delivery)
10-950	Spectophotometric Chlorophyll a Standards (not for use with the 10AU)(must ship overnight service not available for international delivery)
10-108	Rhodamine WT Dye, 8 oz.
10-208	Rhodamine WT Dye, 8 Pound Bottle
6500-120	Rhodamine WT Dye, 400 ppb, 1 Liter
10-109	Fluorescein Dye, 8 oz. Bottle
10-508	Fluorescein Calibration Solution, 10 ppb, 1 liter
10-609	PTSA Calibration Standard, 400 ppb, 1 liter

Other

10AU-810	12 VDC Power & Signal Cable w/Clips (Only for instruments with s/n sequence 1100XXX)
10-AU-012C	12 VDC Power & Signal Cable w/Clips (Not for use with instruments with s/n sequence 1100XXX)
10AU-800	Universal Power & Signal Cable, 115 VAC and 230 VAC (Only for instruments with s/n sequence 1100XXX)
10-AU-115S	Universal Power & Signal Cable, 115 VAC and 230 VAC (Not for use with instruments with s/n sequence 1100XXX)
10-AU-060	Transport Case
10-AU-064	Fuses, DC, 4 AMP, International, 5 each
10-AU-069	Fuses, DC, 4 AMP, United States, 5 each
10-AU-074	User's Manual, 10AU-005-CE
10-AU-460	NVRAM Replacement Kit
10-022	O-ring Replacement Kit, 2 each
10-023	Desiccant Replacement Kit, 10 per bottle
10-072	Short Light Cap
10-072X	Tall Light Cap
10-590	Sample Pump, Submersible
10-595	Sample Pump, In-line
3000-150	Luer Lock, Flow Cell Replacement (Qty 1)
6500-901	Luer Locks, Caps (Qty 2)
WARR-10AU1	Extended Warranty - One Year
WARR-10AU2	Extended Warranty - Two Years
10AU-MAINT	10AU Maintenance Plan

Model 10 and 10-AU-005/000 Accessories

10-150	Round Excitation Filter Holder
1000-260	Round Emission Filter Holder
10-070	Model 10 User's Manual (Specify Serial Number)

Laboratory Instrumentation

Trilogy
Laboratory Fluorometer

TURNER DESIGNS

Features of the Trilogy

• Multifunctional, Compact and Modern Design

• Sample Adaptor accommodates 10 x 10 mm square plastic cuvettes, 12 x 75 mm round tubes and 12 x35 mm round vials

• Snap-in Modules Provide Flexibility

Trilogy Laboratory Fluorometer

The Trilogy Laboratory Fluorometer is a compact laboratory instrument for making fluorescence, absorbance and turbidity measurements using the appropriate snap-in Application Module. Trilogy provides you with excellent sensitivity and measurement range. The all solid-state design ensures you will make reliable and repeatable readings.

Fluorescence modules are available for chlorophyll *a*, (extractive acidification and non-acidification plus *in vivo*), rhodamine and fluorescein dye, cyanobacteria (phycocyanin and phycoerythrin pigments), CDOM, optical brighteners and ammonium. For extracted chlorophyll measurements using EPA 445, Trilogy automatically calculates the concentration using the filtered and solvent volumes. The Turbidity Module uses an IR LED with a wavelength of 860 nm to meet ISO 7027 requirements for Turbidity water quality measurements.

Snap-In Application Modules

Snap-in modules enable you to select the applications you need today while being able to easily add capabilities in the future

Available Modules

• Turbidity	• Rhodamine Dye
• Absorbance	• Fluorescein Dye
- Phosphate	• Ammonium
- Nitrate	• CDOM
- Silicate	• Histamine
• Chlorophyll *a*	• Oil
• Blue Green Algae - Phycocyanin	• Optical Brighteners for Wastewater Treatment
• Blue Green Algae - Phycoerythrin	*Custom Modules Also Available*

Touchscreen Highlights

Intuitive Color Touch Screen User Interface

Store Up to 18 Named One to Five Point Calibrations

Blank Reads and Automatically Subtracts in Direct Concentration Mode

Reliable Instruments for an Unreliable World

Trilogy
Laboratory Fluorometer

TURNER DESIGNS

Fluorescence Module Performance

APPLICATION	MINIMUM DETECTION LIMIT	LINEAR RANGE
Chlorophyll *a*	0.025 µg/L	0-300 µg/L
Phycoerythrin	150 cells/ml	0-150,000 cells/ml
Phycocyanin	150 cells/ml	0-150,000 cells/ml
Rhodamine WT	0.01 ppb	0-500 ppb
Fluorescein	0.01 ppb	0-500 ppb
Ammonium	0.1 µM	0-100 µM
CDOM	0.1 ppb	0-1,000 ppb Quinine Sulfate
Crude OII	0.2 ppb	0-2,000 ppb Quinine Sulfate
Refined Oil	0.25 ppb	0-6,000 ppb Napthalene
Optical Brighteners	1 ppb	0-10,000 ppb Quinine Sulfate

Absorbance Module Performance

APPLICATION	MINIMUM DETECTION LIMIT	LINEAR RANGE
Nitrate	0.04 mg/L of total inorganic N	0-14 mg/L of total inorganic N
Silicate	3 µg/L of total inorganic Si	0-3,000 µg/L of total inorganic Si
Phosphate	1 µg/L of total inorganic P	0-930 µg/L of total inorganic P

Turbidity Module Performance

APPLICATION	MINIMUM DETECTION LIMIT	LINEAR RANGE
Turbidity	0.05 NTU	0-1,000 NTU

Trilogy Physical Specifications

Readout	Direct Concentration (µg/l, ppb, etc.) or Raw Fluorescence
Dimensions (D x W x H)	12.92" x 10.44" x 8.42" (32.82 cm x 26.52 cm x 21.39 cm)
Weight	8.1 lbs (3.65 kg)
Operating Temperature	60 - 105˚ F (15 - 40˚C)

Trilogy Electrical Specifications

Light Source & Detector	Light Emitting Diode and Photodiode
Data Output	100% ASCII format through a 9 pin RS-232 serial cable at 9600 baud
PC Operating System (optional if connected to PC)	Window 98 or later
Power	100 to 240VAC Universal Power Supply included, Output 12 VDC 0.84A Max

Ordering Information

INSTRUMENT	PART NUMBER
Trilogy Laboratory Fluorometer	7200-000

FLUORESCENCE MODULES	PART NUMBER
Chlorophyll *a* Acidification	7200-040
Chlorophyll Non-Acidification	7200-046
Chlorophyll *a* in-vivo	7200-043
Rhodamine/Phycoerythrin	7200-042
Phycocyanin	7200-044
Fluorescein	7200-048
CDOM/Ammonium	7200-041
Histamine	7200-049
Short Oil	7200-062
Crude Oil	7200-063
Optical Brighteners for Wastewater Treatment	7200-047

TURBIDITY MODULE	PART NUMBER
Turbidity	7200-060

ABSORBANCE MODULES	PART NUMBER
Phosphate Kit	7200-070
Silicate Kit	7200-072
Nitrate Kit	7200-074
Absorbance (requires filter paddle)	7200-050
560/10 nm Filter Paddle	7200-051
600/10 nm Filter Paddle	7200-052
750/10 nm Filter Paddle	7200-053

Contact Us

Toll-Free : 1.877.316.8049

Phone : 408.749.0994

Fax : 408.749.0998

Email : sales@turnerdesigns.com

Web : www.turnerdesigns.com

Address:

845 West Maude Avenue

Sunnyvale, CA 94085

Reliable Instruments for an Unreliable World

TURNER
D E S I G N S
Reliable Instruments for an Unreliable World
845 W.Maude Ave.   Telephone 408-749-0994
Sunnyvale, CA 94085   Toll Free 877-316-8049
www.turnerdesigns.com   Fax 408-749-0998

Part #	Description

INSTRUMENT

7200-000	**Trilogy Laboratory Fluorometer**
	Instrument package includes adjustable solid secondary standard (p/n 8000-952), 10 ea 10 x 10mm methacrylate cuvettes (from p/n 7000-959), 5 ea 12 x 35 mm screw top glass vials (from p/n 7200-938), 50 Well Storage Box (p/n 038-7200), 12 mm round vial adaptor (p/n 016-0810), power supply (p/n 7200-941), CD with user's manual and quick start guide. 1-Year Warranty included.

FLUORESCENT MODULES

7200-040	Chlorophyll *a* Acidification Module
7200-046	Chlorophyll Non-Acidification Module
7200-043	Chlorophyll *a* In-Vivo Module
7200-042	Rhodamine/Phycoerythrin Module
7200-044	Phycocyanin Module
7200-048	Fluorescein Module
7200-064	PTSA Module
7200-041	CDOM & Ammonium Module
7200-049	Histamine Module
7200-047	Optical Brighteners Module
7200-062	Short Oil Module
7200-063	Crude Oil Module
7200-080	Development Kit

ABSORBANCE MODULE

7200-070	Phosphate Absorbance Module (includes IR module & filter paddle)
7200-072	Silicate Absorbance Module (includes IR module & filter paddle)
7200-074	Nitrate Absorbance Module (includes IR module & filter paddle)
7200-050	Absorbance Module (Must select one filter paddle from list below)
7200-051	Absorbance Filter Paddle, 560/10 nm
7200-052	Absorbance Filter Paddle, 600/10 nm
7200-053	Absorbance Filter Paddle, 750/10 nm

TURBIDITY MODULE

7200-060	Turbidity (IR) Module

CUVETTES, TEST TUBES AND ADAPTORS

7000-959	10 mm x 10 mm Square Methacrylate Cuvette (3.5 ml capacity) (100 ea.)
7000-955	10 mm x 10 mm Square Glass Cuvette (3.5 ml capacity) (1 ea.)
7000-956	10 mm x 10 mm Square Quartz Cuvette (1 ea.) (Recommended for use with Short Oil & Absorbance Modules)
10-029A	12 mm x 75 mm Round Glass Test Tubes (12 ea.) (Recommended for use with 7200-070 and 7200-072)
7200-938	12 mm Glass Vial with Screw Top, (Qty 10) (Recommended for use with 7200-070 and 7200-072)
016-0810	12 mm Round Vial Adapter

STANDARDS

10-850	Chlorophyll *a* Standards in 90% Acetone (must ship overnight service not available for international delivery)
10-950	Spectophotometric Chlorophyll *a* Standards (not for use with Trilogy)(must ship overnight service not available for international delivery)
10-108	Rhodamine WT Dye (8oz)
10-208	Rhodamine WT Dye - 8 Pound Bottle
6500-120	Rhodamine WT Dye, 400 ppb, 1 Liter
10-109	Fluorescein Dye, 8 oz. Bottle
10-508	Fluorescein Calibration Solution, 10 ppb, 1 liter
10-609	PTSA Calibration Standard, 400 ppb, 1 liter
8000-952	Adjustable Solid Secondary Standard
8000-951	Adjustable Solid Secondary Standard (Orange) (For use with Fluorescein Module)

OTHER ACCESSORIES

7200-941	Power Supply Kit

EXTENDED WARRANTY

WARR-7201	Extended Warranty - 1-year in addition to standard 1-year warranty included with instrument purchase (total 2 years coverage)
WARR-7202	Extended Warranty - 2-year in addition to standard 1-year warranty included with instrument purchase (total 3 years coverage)

In-Line Instrumentation

Enviro-T™
In-Line Fluorometer

TURNER DESIGNS

Enviro-T Highlights

- Wide Dynamic Range
- Low Sensitivity
- Compact Package
- Easy Integration with Controllers

Enviro-T In-Line Fluorometer

Turner Designs' Enviro-T is an accurate, single-channel fluorometer which installs into a plumbing tee for direct in-line measurements. The Enviro-T, easily integrated with data collection systems, provides a 4 - 20 mA signal output proportional to the relative concentration of the fluorophore of interest in the sample water. The Enviro-T is a rugged, 24/7 sampling device that provides maximum performance, minimal maintenance, and solid-state reliability.

Enviro-T Physical Specifications

Material	PVC – Type I, machined plastic
Weight	3.35 ounces (95 g)
Length	5.92 inches (15.04 cm)
Housing Diameter	1.05 inches (2.67 cm)
Diameter at Male Fitting	1.54 inches (3.91 cm)

Application	Minimum Detection Limit	Dynamic Range	Linearity
Chlorophyll	0.03 µg/L	0-100 µg/L	$0.99R^2$

Enviro-T Electrical Specifications

Power Draw	0.96 W @ 12 VDC (1.2 W maximum)
Input Voltage	8-30 VDC
Signal Output	4-20 mA
Warm up time	5 Seconds

Ordering Information

INSTRUMENT	PART NUMBER
Enviro-T In-Line Fluorometer with Chlorophyll Optics	2800-000-C

ACCESSORIES	PART NUMBER
Replacement Tee	118-0135

Mounting Tee Physical Specifications

Material	PVC – Type I, molded plastic
Dynamic Pressure	100 PSI
Threading	1 inch (NPT)
Length	3.44 inches (8.74 cm)

Patent# 7,099,012

Reliable Instruments for an Unreliable World

TURNER DESIGNS
Reliable Instruments for an Unreliable World
845 W.Maude Ave.   Telephone 408-749-0994
Sunnyvale, CA 94085   Toll Free 877-316-8049
www.turnerdesigns.com   Fax 408-749-0998

Part #	Description
INSTRUMENT	
2800-000-C	**Enviro-T In-Line Fluorometer with Chlorophyll Optics**
	Enviro-T In-Line Fluorometer instrument package includes a 1" NPT PVC plumbing tee(118-0135) and operational manual on CD.
CALIBRATION STANDARDS	
6500-120	Rhodamine WT Dye, 400 ppb, 1 Liter
ACCESSORIES	
118-0135	Replacement Tee
EXTENDED WARRANTIES	
WARR-2801	Extended Warranty - 1 year for In-Line Fluorometer
WARR-2802	Extended Warranty - 2 year for In-Line Fluorometer

Online Instrumentation

algaewatch™
Online Fluorometer

TURNER DESIGNS

AlgaeWatch Online Fluorometer

The AlgaeWatch is the ideal tool for water resource managers and scientists interested in real-time monitoring of water quality. Easy-to-use and install, the AlgaeWatch provides a continuous indication of the algal biomass in water, thus allowing for the early detection of algal blooms, detection of nuisance species, and a measure of daily and seasonal fluctuations in the algal community.

AlgaeWatch is an on-line monitor that detects algal biomass through chlorophyll fluorescence. Chlorophyll *a*, the primary photosynthetic pigment in all plants, is a fluorescent molecule. Where chlorophyll-containing organisms are small enough (as with phytoplankton or microalgae), fluorescence may be measured directly *(in vivo* chlorophyll detection) without extraction or chemical treatment.
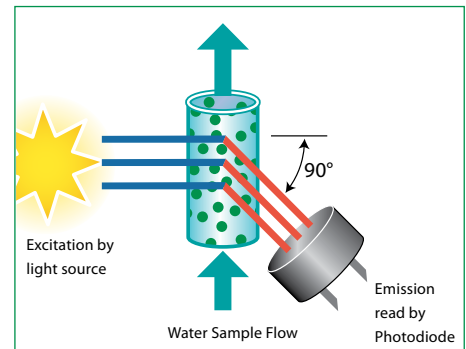
Applications
- Public Water Systems
- Water Monitoring Facilities

AlgaeWatch Highlights

- Detect the onset of algal blooms

- Detect the presence of taste and odor-causing species

- Eliminate or decrease frequency of cell counting

- Improve filter run times

- Easy Maintenance: Clean-out port and brushes allow simple routine maintenance

Fluorescence Detection System

Excitation by light source

90°

Emission read by Photodiode

Water Sample Flow

AlgaeWatch consists of a micro-processor-based fluorometer with electrical inputs/outputs for a flow switch, 4–20mA signal output, and data logging.

Reliable Instruments for an Unreliable World

algaewatch™
Online Fluorometer

TURNER DESIGNS

AlgaeWatch Specifications

Sensitivity	0.1 µg/L Chlorophyll *a*
Linear Range	0–200 µg/L Chlorophyll *a*
Accuracy	±0.2 µg/L or 3% of the reading, whichever is greater
Repeatability	±3%
Calibration	1 point calibration (standard and blank)
Data Storage	Up to 20, 000 points

All specifications determined at constant temperature. Temperature fluctuations, high turbidities and the presence of interfering compounds may result in greater error.

AlgaeWatch Physical Specifications

Weight	5 lbs; 2.3 kg
Dimensions	8" W x 4" D x 15 " H;
	20 cm W x 10 cm D x 38 cm H
Enclosure	Approximates NEMA 4X
Ambient Temperature	40°F to 120°F; 4°C to 49°C
Maximum Sample Temperature	140°F; 60°C
Relative Humidity	0–100%
Maximum Water Pressure	100 psi

AlgaeWatch Electrical Specifications

Power	90–250 VAC/200–250 VAC, 50/60 Hz, 5 amps
Signal Output	4–20 mA, isolated
Relays	2 x 90-250 VAC/200-250 VAC, 50/60 Hz, 5 amps
	(fused at 3.15 amps ea. Type "F"), 1 x 0-5V DC

Ordering Information

INSTRUMENT	PART NUMBER
AlgaeWatch Online Fluorometer	6500-000

ALGAEWATCH ACCESSORIES	PART NUMBER
Calibration Kit	6500-900
Inlet/Outlet Plumbing Kit	6500-955
Luer Lock, Flow Cell Replacement (Qty 1)	3000-150
Luer Locks, Caps (Qty 2)	6500-901
Dessicant Plugs (Qty 3)	6000-970
Flowcell Brushes (Qty 3)	6000-350
Basket Strainer	119-0103

Contact Us

Toll-Free : 1.877.316.8049
Phone : 408.749.0994
Fax : 408.749.0998

Email : sales@turnerdesigns.com
Web : www.turnerdesigns.com

Address:

845 West Maude Avenue
Sunnyvale, CA 94085

Reliable Instruments for an Unreliable World

TURNER
DESIGNS
Reliable Instruments for an Unreliable World
845 W.Maude Ave.   Telephone 408-749-0994
Sunnyvale, CA 94085   Toll Free 877-316-8049
www.turnerdesigns.com   Fax 408-749-0998

Part #	Description
BASE UNIT	
6500-000	**AlgaeWatch On-line Fluorometer**
	Instrument package includes data logger and software, user's manual and software CD
	and flowcell brush for cleaning. 1-Year Warranty included.
	Comes standard with 4-20-mA output and IDL.
SUGGESTED ACCESSORIES	
6500-900	Calibration Kit (includes 400ppb Rhodamine calibration solution, (2) syringes and (3) cleaning brushes)
6500-955	Inlet/Outlet Plumbing Kit
OTHER ACCESSORIES	
3000-150	Luer Lock, Flow Cell Replacement (Qty 1)
6500-901	Luer Locks, Caps (Qty 2)
6000-970	Dessicant plugs (Qty 3)
6000-350	Flowcell brushes (Qty 3)
119-0103	Basket strainer
WARR-6601	Extended Warranty - 1 year
WARR-6602	Extended Warranty - 2 year

cyanowatch™
Online Fluorometer

TURNER DESIGNS

CyanoWatch Online Fluorometer

Increased customer awareness of water quality problems associated with algal blooms creates the need for a continuous, simple, and accurate solution to monitor the concentration of cyanobacteria in water.

With CyanoWatch you are able to track changes in the cyanobacteria population over time that can provide early warning of algal blooms. Using improved process control and response, you can reduce the amount of treatment chemicals required and improve customer satisfaction by minimizing taste and odor problems and increasing filter run time.

Fresh Water and Ocean Water Options: CyanoWatch continuously senses the concentration of either phycocyanin or phycoerythrin (two accessory pigments unique to cyanobacteria). The phycocyanin version of CyanoWatch is for freshwater applications and the phycoerythrin version is for use in marine waters.
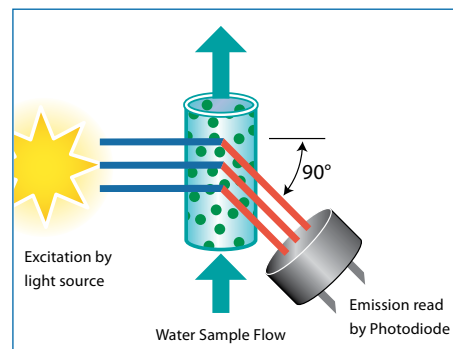
Applications
- Public Water Systems
- Water Monitoring Facilities

CyanoWatch Highlights

- Detect the onset of blue-green algae

- Detect the presence of taste and odor-causing species

- Eliminate or decrease frequency of cell counting

- Improve filter run times

- Easy Maintenance: Clean-out port and brushes allow simple routine maintenance

Fluorescence Detection System

Excitation by light source

90°

Water Sample Flow

Emission read by Photodiode

CyanoWatch consists of a micro-processor-based fluorometer with electrical inputs/outputs for a flow switch, 4–20mA signal output, and data logging.

Reliable Instruments for an Unreliable World

cyanowatch™
Online Fluorometer

TURNER DESIGNS

CyanoWatch Specifications

Sensitivity	150 cells/mL
Linear Range	0 - 50,000 cells/mL
Accuracy	±0.2 µg/L or 3% of the reading, whichever is greater
Repeatability	±3%
Calibration	1 point calibration (standard and blank)
Data Storage	Up to 20,000 points

All specifications determined at constant temperature. Temperature fluctuations, high turbidities and the presence of interfering compounds may result in greater error.

CyanoWatch Physical Specifications

Weight	5 lbs; 2.3 kg
Dimensions	8" W x 4" D x 15 " H
	20 cm W x 10 cm D x 38 cm H
Enclosure	Approximates NEMA 4X
Ambient Temperature	40°F to 120°F; 4°C to 49°C
Maximum Sample Temperature	140°F; 60°C
Relative Humidity	0–100%
Maximum Water Pressure	100 psi

CyanoWatch Electrical Specifications

Power	90–250 VAC/200–250 VAC, 50/60 Hz, 5 amps
Signal Output	4–20 mA, isolated
Relays	2 x 90-250 VAC/200-250 VAC, 50/60 Hz, 5 amps
	(fused at 3.15 amps ea. Type "F"), 1 x 0-5V DC

Ordering Information

INSTRUMENT	PART NUMBER
CyanoWatch Online Fluorometer - Phycocyanin Version	6600-000
CyanoWatch Online Fluorometer - PhycoerythrinVersion	6602-000

CYANOWATCH ACCESSORIES	PART NUMBER
Calibration Kit	6500-900
Inlet/Outlet Plumbing Kit	6500-955
Luer Lock, Flow Cell Replacement (Qty 1)	3000-150
Luer Locks, Caps (Qty 2)	6500-901
Dessicant Plugs (Qty 3)	6000-970
Flowcell Brushes (Qty 3)	6000-350
Basket Strainer	119-0103

Contact Us

Toll-Free : 1.877.316.8049

Phone : 408.749.0994

Fax : 408.749.0998

Email : sales@turnerdesigns.com

Web : www.turnerdesigns.com

Address:

845 West Maude Avenue
Sunnyvale, CA 94085

Reliable Instruments for an Unreliable World

S-0063 Rev. B

TURNER DESIGNS
Reliable Instruments for an Unreliable World
845 W.Maude Ave.   Telephone 408-749-0994
Sunnyvale, CA 94085   Toll Free 877-316-8049
www.turnerdesigns.com   Fax 408-749-0998

Part #	Description
BASE UNIT	
6600-000	**CyanoWatch On-line Fluorometer, Phycocyanin Version**
6602-000	**CyanoWatch On-line Fluorometer, Phycoerythrin Version**

CyanoWatch On-Line Fluorometer instrument packages include data logger and software,
user's manual and software CD and flowcell brush for cleaning. 1-Year Warranty included.
Comes standard with 4-20-mA output and IDL.

SUGGESTED ACCESSORIES	
6500-900	Calibration Kit (includes 400ppb Rhodamine calibration solution, (2) syringes and (3) cleaning brushes)
6500-955	Inlet/Outlet Plumbing Kit

OTHER ACCESSORIES	
3000-150	Luer Lock, Flow Cell Replacement (Qty 1)
6500-901	Luer Locks, Caps (Qty 2)
6000-970	Dessicant plugs (Qty 3)
6000-350	Flowcell brushes (Qty 3)
119-0103	Basket strainer
WARR-6601	Extended Warranty - 1 year
WARR-6602	Extended Warranty - 2 year

Discontinued Instrumentation Accessories

TURNER DESIGNS
Reliable Instruments for an Unreliable World
845 W.Maude Ave.   Telephone 408-749-0994
Sunnyvale, CA 94085   Toll Free 877-316-8049
www.turnerdesigns.com   Fax 408-749-0998

Part #	Description
OPTICAL KITS	
Optical Kits (Includes Ex & Em filters and two lamps)	
10-037R	Chlorophyll Optical Kit (In-Vivo & Extractive Measurement) (Red PMT Instrument Required)
10-040R	Chlorophyll a Optical Kit (Extractive Measurement) (Red PMT Instrument Required)
10-041R	Rhodamine WT Optical Kit
10-086R	Fluorescein Optical Kit
10-096R	Chlorophyll a Optical Kit (In-Vivo Measurement) (Red PMT Instrument Required)
10-301R	Short Wavelength Oil Optical Kit
10-302R	Long Wavelength Oil Optical Kit
10-303	Ammonium/CDOM Optical Kit
10-302R	Optical Brighteners Optical Kit
10-304	Phycoerythrin Optical Kit
10-305	Phycocyanin Optical Kit
LAMPS	
10-045	Daylight White Lamp
10-046	Clear Quartz Lamp
10-047	Cool White Lamp
10-049	Near U.V. Lamp
10-089	Blue Lamp
ADAPTORS, CUVETTES, & TEST TUBES	
7000-981	13 mm Round Test Tube Adaptor
7000-988	10 mm x 10 mm Square Cuvette Adaptor (Short Aperture)
7000-957	10 mm x 10 mm Square Polystyrene Cuvette (3.5 ml capacity) (100 ea.)
7000-955	10 mm x 10 mm Square Glass Cuvette (3.5 ml capacity) (1 ea.)
7000-956	10 mm x 10 mm Square Quartz Cuvette, (1 ea.) (Recommended for use with Short Oil Kit 10-301R)
7000-959	10 mm x 10 mm Square Methacrylate Cuvette (3.5 ml capacity) (100 ea.)
10-028A	25 mm x 150 mm Borosilicate Test Tubes (12 ea.)
10-031	13 mm x 100 mm Borosilicate Test Tubes (12 ea.)
10-299	13 mm x 100 mm Quartz Test Tubes (3 ea.)
REAGENTS & STANDARDS	
7000-994	TD-700 Solid Secondary Standard, Red
10-850	Chlorophyll a Standards in 90% Acetone (must ship overnight service not available for international delivery)
10-609	PTSA Calibration Standard, 400 ppb, 1 liter
ADDITIONAL ITEMS	
046-0400	US Line Cord-6"
046-0108	UK Line Cord - 230 VAC
046-0150	European Line Cord - 230 VAC
046-0125	Australian Line Cord - 250 VAC 6A
7000-941	Power Supply
7000-949	Filter O-Rings (4 ea.)

TURNER DESIGNS
Reliable Instruments for an Unreliable World
845 W.Maude Ave.   Telephone 408-749-0994
Sunnyvale, CA 94085   Toll Free 877-316-8049
www.turnerdesigns.com   Fax 408-749-0998

Part #	Description
Accessories	
2000-900	Flowthrough Cap (calibration & CTD use)
2000-901	Solid secondary standard
2000-950	Copper Anti-Fouling Screens (5 Sets)
2000-971	20 m Interface Cable (RS-232, DC Clips, 0-5V Output)
2000-981	50 m Interface Cable (RS-232, DC Clips, 0-5V Output)
10-108	Rhodamine WT Dye, 8 oz.
10-208	Rhodamine WT Dye, 8 Pound Bottle
6500-120	Rhodamine WT Dye, 400 ppb, 1 Liter

Filters

Filters Part List

Part Number	Description	
Interference Filters		
034-0860	254 nm narrow band filter	254 nm
034-0280	280 nm narrow band filter	280 nm
034-0289	289 nm narrow band filter	289 nm
034-0040	330-370 nm narrow band filter	330-370 nm
034-0320	320 nm narrow band filter	320 nm
034-0330	330 nm narrow band filter	330 nm
034-0365	365 nm narrow band filter	365 nm
034-0390	390 nm narrow band filter	390 nm
034-0366	400 nm narrow band filter	400 nm
034-0392	436 nm narrow band filter	436 nm
034-0486	486 nm narrow band filter	486 nm
034-0520	520 nm narrow band filter	520 nm
034-0500	550 nm narrow band filter	550 nm
034-0395	680 nm narrow band filter	680 nm
034-0544	544 nm narrow band filter	544 nm
034-0577	577 nm narrow band filter	577 nm
034-0630	630 nm narrow band filter	630 nm
034-0660	660 nm narrow band filter	660 nm
Bandpass Filters		
10-107R-C	300 - 400 nm	Combination Filter
10-069R	300 - 400 nm	
10-050R	340 - 500 nm	BG-12
10-061R	390 - 500 nm	47B
10-110R-C	410 - 610 nm	Combination Filter
10-104R-C	455 - 500 nm	Combination Filter
10-109R-C	510 - 700 nm	Combination Filter
10-058R	325 - 700nm	4-97
Cutoff Filters		
10-059R	> 410 nm	2A
10-053R	> 535 nm	16
10-052R	> 570 nm	OG-570
10-054R	> 610 nm	29
10-051R	> 665 nm	RG-665
Square Reference Filters (10-AU Use ONLY)		
10-032	Square 1 N.D. Filter	400 - 700 nm
10-035	Square 2 N.D. Filter	400 - 700 nm
10-300	Square Soft Glass Filter	>300 SG