

# ECO Triplet-w

## Scattering/Fluorescence Combination

The ECO Triplet custom optical instrument is now available with active anti-biofouling. It features an evolutionary design that builds off the bio-wiper and faceplate available on the current ECO line. The optics of the ECO Triplet-w are arranged on a circumference on the face of the instrument. A copper faceplate covers all but the optics, and a central pivot three-armed copper and neoprene wiper clears the optics prior to sampling.



## Features

- Addresses the need for multiple simultaneous scattering and fluorescence sensors for autonomous and unattended measurement platforms
- Performs a free space measurement and requires no pump. It accommodates a variety of deployment options
- Provides excellent precision, reliability, and overall performance at a fraction of the cost and size of similar instruments
- Ships with WET Labs' ECOView host software for communication and configuration
- Provides multiple measurements in a compact design, making the ECO Triplet unique among *in-situ* fluorometers

## Options

Configuration options:

- Three scattering
- Two scattering, one fluorescence
- Three fluorescence
- One scattering, two fluorescence

Measurement options:

- Blue scattering
- Green scattering
- Red scattering
- Chlorophyll fluorescence
- CDOM fluorescence
- Phycocyanin fluorescence
- Phycoerythrin fluorescence
- Rhodamine fluorescence

## Optical

|   |  |
|---|--|
| Scattering wavelengths <sup>1</sup><br>Sensitivity, all<br>Range, typical | 470, 532, 650, or 700 nm<br>0.003 m <sup>-1</sup><br>0–5 m <sup>-1</sup> |
| Chlorophyll EX/EM<br>Sensitivity<br>Range, typical                        | 470/695 nm<br>0.025 µg/l<br>0–50 µg/l                                    |
| CDOM EX/EM<br>Sensitivity<br>Range, typical                               | 370/460 nm<br>0.28 ppb<br>0–375 ppb                                      |
| Uranine EX/EM<br>Sensitivity<br>Range, typical                            | 470/530 nm<br>0.15 ppb<br>0–300 ppb                                      |
| Rhodamine EX/EM   | 530/595 nm   |
| Phycocyanin EX/EM <sup>2</sup>  | 630/680 nm   |
| Phycoerythrin EX/EM <sup>3</sup><br>Sensitivity<br>Range<br>Linearity     | 530/595 nm<br>0.09 ppb<br>0–175 ppb<br>99% R2                            |

## Mechanical

|                  |  |
|------------------|--|
| Diameter         | 8.08 cm                                    |
| Length           | Triplet-w: 22.1 cm<br>Triplet-wB: 33.34 cm |
| Weight in air    | Triplet-w: 1.25 kg<br>Triplet-wB: 2.1 kg   |
| Weight in water* | Triplet-w: 0.29 kg<br>Triplet-wB: 0.43 kg  |
| Materials        | Acetal co-polymer                          |

- ECO Triplet w—Ships with wiper for long term operation
- ECO Triplet wB—Ships with wiper and internal batteries for long term autonomous operation

## Electrical

|                           |   |
|---------------------------|---|
| Digital output resolution | 12 bit  |
| Internal data logging     | Yes   |
| Internal batteries        | Triplet-w: No<br>Triplet-wB: Yes                    |
| Connector                 | Triplet-w: MCBH6MP<br>Triplet-wB: MCBH6MP & MCBH3FS |
| Input                     | 7–15 VDC  |
| Current, non-wiping       | 60 mA   |
| Current, wiper active     | 200 mA  |
| Current, sleep            | 140 µA  |
| Data memory               | 67,000 samples                                      |
| Sample rate               | User selectable to 4 Hz                             |
| RS-232 output             | 19200 baud  |

## Environmental

|                             |   |
|-----------------------------|---|
| Operation Temperature Range | 0 - 30 °C                                     |
| Depth Rating                | ECO-Triplet-W: 1500m<br>ECO-Triplet-WB: 1000m |

1. Backscattering specifications are given in beam cp (m-1) based on the regression of the response of the instrument relative to the beam  $c_p$  measured at the coincident wavelength using an ac-s spectrophotometer. Scale factors for backscattering incorporate the target weighting function and the solid angle subtended.
2. Measurement made with BB 3 dye.
3. Measurement made with Rhodamine WT dye.