

DATASHEET

LabSTAF

Single Turnover Active Fluorometer

A new generation of instruments for the assessment of phytoplankton primary productivity

**Chelsea
Technologies**



LabSTAF is a state-of-the-art benchtop instrument for the interrogation of phytoplankton photophysiology and assessment of primary productivity. Using Chelsea's Single Turnover Active Fluorometry (STAF) technology, LabSTAF is capable of precise measurements even under extreme oligotrophic conditions.

The instrument can be operated in flow-through or discrete sampling modes and enables highly automated generation of Fluorescence Light Curves (FLCs). The incorporation of seven excitation wavebands enables the generation of a Photochemical Excitation Profile (PEP) for highly automated spectral correction.

A High-Biomass option is also available which extends the dynamic range by a factor of ten.

Key Features

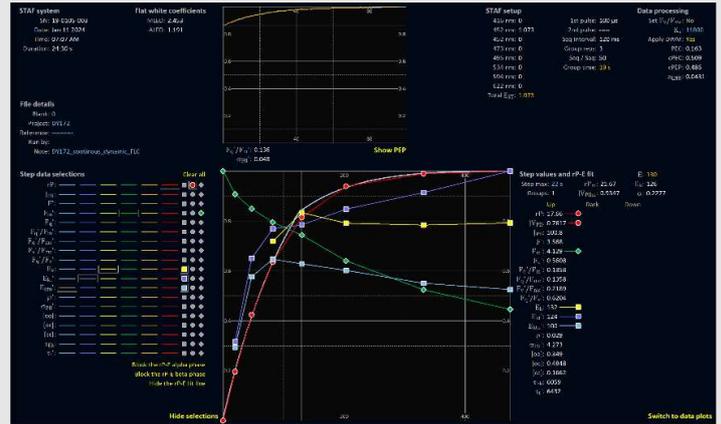
- Enhanced dynamic range for accurate measurements from low to high biomass
- Seven excitation wavebands for highly automated spectral correction
- Dual fluorescence detection at 685 & 730 nm for package effect correction (PEC)
- Auto FLC mode simplifies complex measurements
- Hard-coated filters and optical arrangement minimises the need for blank measurements
- Programmable illumination provides precise control over measurement conditions
- Wide range of data export functions
- Automated sample exchange and cleaning

Applications

- Direct measurement of photosynthetic rates for the assessment of PhytoPP
- Acquisition of STAF data at high resolution for ground-truthing of satellite-based models
- Rapid photophysiological screening of phytoplankton samples using scintillation vials
- Tracking the development of algal blooms and changes in community structure
- Continuous underway measurements on research vessels and ships of convenience
- Real-time assessment of the impact of environmental change on photosynthesis

RunSTAF Software Features

- Dynamic FLC function makes it easier to ensure saturation is reached
- Time of day function allows different FLC and STAF protocols to be set throughout the diurnal cycle
- The Auto FLC function can be customised to run between 1 and 20 light steps with automated spacing or manual override of E values
- Multi-sample feature under manual settings allows for rapid screening



Specifications

LabSTAF Instrument

Detection limit	Can resolve F _v with an amplitude equivalent to the fluorescence signal generated under 452 nm excitation by 0.001 mg m ⁻³ of chlorophyll
Excitation wavebands	Central wavelengths at: 416, 452 (x2), 473, 495, 534, 594, 622 nm
Actinic light source	Collimated output from 10 to >1600 μmol photons m ⁻² s ⁻¹
Dimensions	429 x 328 x 236 mm
Mass	8.1 kg
Power requirements	140 - 400 mA @ 24 V (3.4 to 9.7 W)
IP rating	IP64 (protected from water spray from any direction)

LabSTAF Power Pack

Dimensions	259 x 201 x 114 mm
Mass	2 kg
Power requirements	Mains (110 to 220 V AC)
IP Rating with Lid Closed / Open	IP64 / IP40

Order Code	Product
2408-100-PL-G	LabSTAF Delivery Pack
2408-323-PL-A	LabSTAF High Biomass Delivery Pack
2408-372-PL-B	LabSTAF Spares Kit

Chelsea Technologies Ltd,
 4 Tuscany Way, Yateley, Hampshire, GU46 6GF, UK
 T +44 (0)20 8481 9000 E sales@chelsea.co.uk W chelsea.co.uk

