

OS1-FL Chlorophyll Fluorometer - Pulse Modulated, Hand Held!



The OS1-FL from Opti-Sciences offers a powerful combination of sophisticated measurement capability and ease of use in a low-cost package. This small, yet versatile instrument performs superbly under a large variety of illuminated conditions. The OS1-FL provides researchers with an extensive range of test parameters to conduct practical field and laboratory studies. The sensitivity and accuracy of the OS1-FL allows for a broad range of sample types, from thick leaf tissue to liquid samples such as algae (in concentrations greater than 350ug/l).

The OS1-FL incorporates all components necessary for rapid, field screening of large number of samples. Instrument operation is intuitive with all control settings made, and tests conducted via a simple array of dedicated control keys. Automatic test modes for both Fv/Fm and Yield measurements control precise cycling of optical sources and data acquisition, under control of user-defined parameter settings. The user can easily conduct tests, triggering repetitive operation and logging results, using a single button.

The OS1-FL features internal modulated excitation and high-intensity saturation sources as well as sensitive detection electronics and extensive data logging capability. Dedicated test modes enable the rapid measurement of dark-adapted (Fv/Fm) and steady state (Y) parameters without the typical complicated instrument setup. Conditions at the leaf surface (illumination and temperature) can be logged with the optional PAR leaf clip.

Applications

- Non-Invasive Photosynthesis Analysis
- Monitor & Record Plant Performance, Health and Condition
- Rapid Screening for Environmental Stress: Nutrient, Heat, Drought, Photoinhibition, Freezing, Pesticides, Herbicides, etc.
- Pollution Studies: Determine the Effects of Air, Water & Soil Pollution on Crops/Plants
- Teaching and Research

Features

- Measures Dark & Light Adapted Parameters: Y, Fv/Fm, Fs, Fms, Fo, Fm, etc.
- Non-Destructive Measurement
- Lightweight, Hand-Held Design Optimized for Field Work
- Accurate, Reliable, and Easily Repeatable Measurements
- Internal Data-Logging
- Stand Alone Operation- No P.C. Required

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Plant Stress

Nutrient Deficiency

Leaf Senescence

Chlorophyll fluorescence is a powerful analytical tool that allows non-destructive study of the photosynthetic apparatus. It is the premier research technique for monitoring health and condition in Plants, Crops, and Algae. Because the technique is so versatile and studies can be performed in the field, it has become an integral part in many areas of research from agriculture and crop production to plant physiology and forestry chlorophyll fluorescence has proven to be an amazing and reliable research tool. Now it is easier than ever to Detect and Monitor the effects of environmental stress (drought, disease, root pathogens, heat, herbicide, etc.), identify desirable traits to improve Plant Breeding programs (i.e. resistance to stressors), and verify plant/crop performance in Ag-Chem development.

Opti-Sciences line of Chlorophyll Fluorometers are superb for field and lab work and even teaching. All of our units are field portable, lightweight, self contained, and provide an expansive range of tests. There is a model for every level of user and for every budget.

Parameter Definitions

- Y:** Yield of quantum efficiency (aka F_v/F_m')
- Fo:** Non-variable fluorescence
- Fm:** Maximal fluorescence
- Fv:** Variable fluorescence
- Fv/Fm:** Photochemical efficiency of PSII
- Fms:** Maximal fluorescence under steady state condition
- Fs:** Fluorescence under steady state condition (prior to saturation pulse)
- qP:** Photochemical quenching*
- qN:** Non-photochemical quenching*
- NPQ:** Non-photochemical quenching calculated with F_m^*
- ETR:** Electron transport rate (w/optional clip)
- PAR:** Photosynthetically Active Region value (with optional PAR clip)
- T:** Leaf temperature (with optional PAR clip)



Technical Specifications

Parameters Measured: Y, Fs, Fms, Fv/Fm, Fo, Fm

Excitation Sources:

Saturation pulse 35 Watt halogen lamp with 690 nm short pass filter. 15,000uE

Modulated light

660 nm LED with 690 nm short pass filter.

Detection method: Pulse modulation method.

Detector & Filters: A PIN photodiode with a 700 ~ 750 nm bandpass filter.

Sampling Rate: Autoswitching from 10 to 10,000 points per second, depending on phase of test.

Test Duration: Adjustable from 2 seconds ~ 45 minutes (optional 2 seconds ~ 16 hours.)

Storage Capacity: 128 Kb battery backed up RAM, supporting up to 4,000 test data sets, or 1 trace up to 45 min.

Digital Output: RS-232 port.

User Interface:

Display: 20 x 4 Character super-twist LCD

Keyboard: 12 key dedicated function layout

Power Supply: Internal 12V, 1.2 Ah rechargeable sealed lead-acid battery.

Battery Life: Up to 6 hours of continuous operation.

Dimensions: 7 cm x 11 cm x 19 cm.

Weight: 2 Kg.

** Can be Calculated using values given by the OS1-FL. Not displayed or recorded by the OS1-FL.*

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