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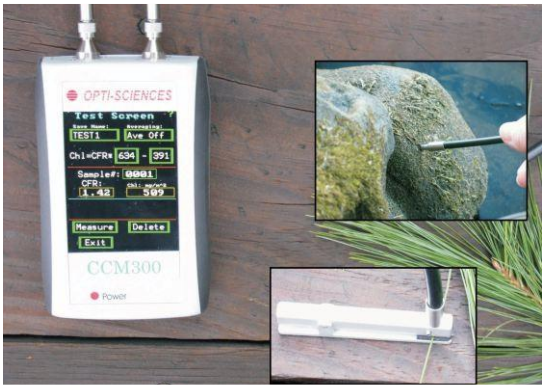
Chlorophyll & Fluorescence Catalog - 2025

CCM-200+GPS:
Chlorophyll content meter
Graphic display. & provides non-volitile memory for up to 160,000 measurements.. Sample averaging option for 2-30 samples included. This system has *more than 1,500 journal references. Now with GPS*



CCM-300:
Chlorophyll content meter
For small & difficult samples.
Reads directly in chlorophyll content values - mg/m^{-2} & provides non-volitile memory for up to 160,000 measurements. *Works for pine needles, grasses, immature Arabidopsis, moss on rocks, immature wheat, immature rice, cactus, etc. Now with GPS*

ACM-200plus:
Anthocyanin content meter
Proven performance on leaves with low chlorophyll content. Allows averaging of from 2-30 measurements. & provides non-volitile memory for up to 160,000 measurements. *Now with GPS*

The MPM-100 "Multi-Pigment-Meter
It uses "leaf absorptance" to measure **chlorophyll content** & "ratio-fluorescence" to measure **anthocyanins** & **flavonols**. Has **Nitrogen-Flavonol index with "Red Edge"** Measuring aperture diameter is 9.5 mm, & provides non-volitile memory for up to 160,000 measurements. Now with GPS. It will measure all pigments at the same time on leaves & ***grape berry caps.***

Telephone: 603-883-4400 **Fax**: 603-883-4410 **Web:** www.optisci.com **Email:** sales@optisci.com

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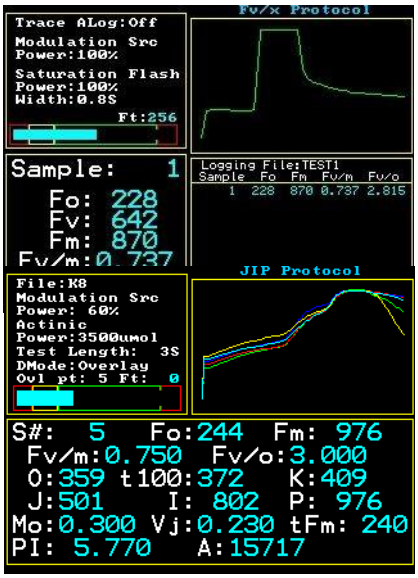
OS30p+:

Measures F_V/F_M & Strasser OJIP,
comes with 10 dark clips

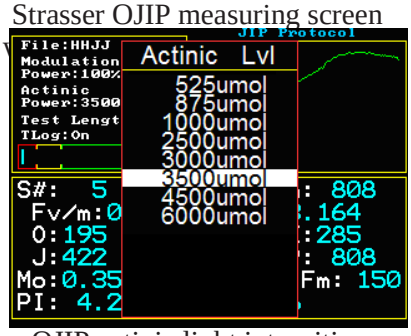
F_V/F_M is the most used chlorophyll fluorometer measuring parameter in the world, because it allows comparison of samples at the same known dark adapted state. *Dark clips allow measurement in the field, in green houses and growth chambers at convenient times of day instead of pre-dawn measurements.*

Since Strasser OJIP measuring parameters change with instrument actinic light intensity, the OS30p+ auto-calibrates the light source intensity every time the instrument turns on. The intensity is held stable with a feedback loop. **The instrument auto-calibrates at 3,000 & 3,500 μmoles m^{-2} s^{-1}** , the intensities used by Strasser. Other intensities up to 6,000 μmoles m^{-2} s^{-1} are also possible. The most popular Strasser measuring parameters are on the measuring screen. However, all Strasser measuring parameters report to the data file.

F_V/F_M measuring screen



Strasser OJIP measuring screen



OJIP actinic light intensities
Autocalibration of light intensities

Affordable dark clips for a pleasant measuring experience at a great price.

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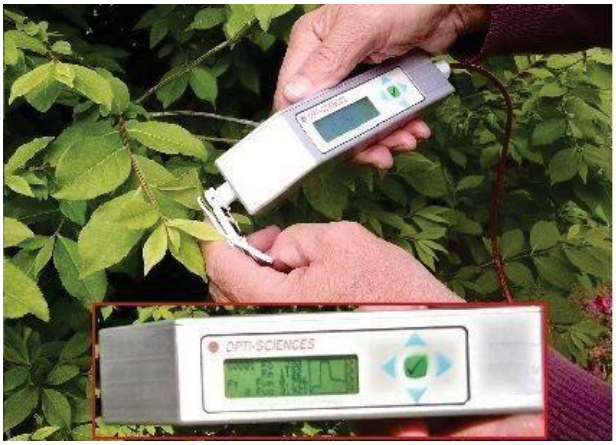
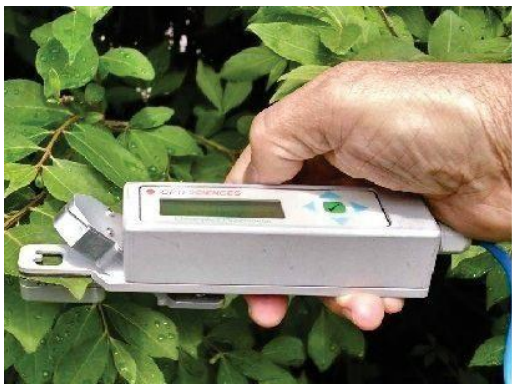


PSK - Plant Stress Kit

Includes 2 separate instruments, the F_V/F_M Meter & the Y(II) Meter:

The **F_V/F_M Meter** measures dark adaption protocol parameters F_V/F_M, F_V/F_O, F_O and F_M. It is a field portable modulated chlorophyll fluorometer with a graphic display. Includes **10 dark clips** & a red saturation flash up to 6,000 µmols m^{-2} s^{-1}. The **Y(II) Meter** measures the light adaption protocol parameters Y(II) or ϕ_{PSII}, ETR, **leaf absorptance or** α , PAR, humidity & leaf temperature. Saturation flash up to 7,000 µmols m^{-2} s^{-1} & includes option for F_M' correction according to Loriaux & Genty 2013. Provides graphic display of measuring trace.



Y(II) Meter:
Field portable fluorometer

Measures the light adaption protocol parameters Y(II) or ϕ_{PSII}, ETR, ***leaf absorptance* or** α, PAR, leaf temperature & humidity. Has significant memory storage. Saturation flash up to 7,000 µmols m^{-2} s^{-1} & includes option for *F_M'correction according to Loriaux & Genty 2013.*

F_V/F_M Meter:
Field portable chlorophyll fluorometer

Graphic display.
Includes 10 dark clips.
12 megabytes of memory.
Red saturation flash up to
6,000 µmols m^{-2} s^{-1}

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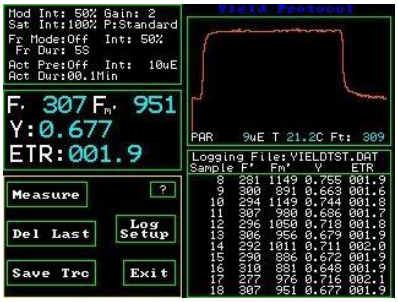
OS1p:
Field portable research chlorophyll fluorometer
Works with any commercially available BARCODE reader that has a USB output

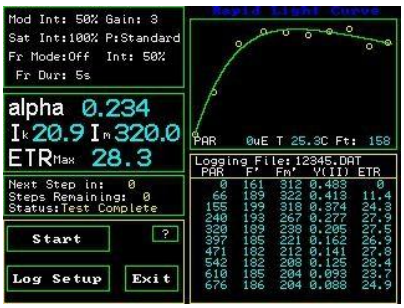
Color graphic touchscreen display.
Measures: F_V/F_M , Y(II) or ϕ_{PSII}, ETR, PAR, leaf temp., RLC (ETR_{MAX}, I_M, I_K,& α), Light response curves.
"Stable" white actinic light intensity maintained for quenching, and rapid light response curve measurements.
Saturation flash to 12,000 µmols m^{-2} s^{-1}
Included option *for F_M' correction according to Loriaux & Genty (2013).*

Measures quenching with:
Kramer lake model(Y(NPQ), Y(NO), Y(II), q_L, & ETR)
Hendrickson lake model (NPQ, Y(NPQ), Y(NO), Y(II) & ETR
Puddle model (q_P, q_N, & NPQ)
Quenching relaxation q_E, q_T, q_Z, & q_I

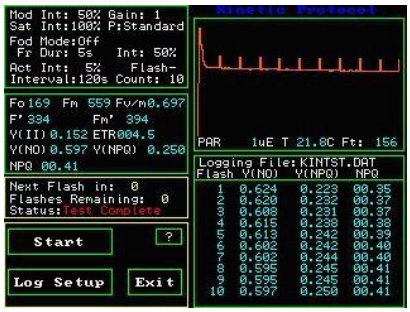
Comes with red or blue modulated light sources as well as far-red light.
2 Gigabyte of non-volitile memory
USB and data card output & for barcode reader



Y(II) measuring screen



Rapid light curve measuring screen



Quenching measuring screen

Option for USB Bar code reader

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Y(II) measuring screen

Quenching relaxation measuring screen measuring q_E, q_Z & q_I

OS5p+:

Advanced portable research chlorophyll fluorometer with <u>stable</u> RGBW actinic light source

Works with any commercially available BARCODE reader that has a USB output

Color graphic touchscreen display.

Measures: F_V/F_M , Y(II) or ϕ_{PSII}, ETR, PAR, leaf temp., RLC (ETR_{MAX}, I_M, I_K,& α), Light response curves

"Stable" RGBW actinic light source for Y(II), quenching, light response curves & OJIP measurements

Included option *for F_M' correction according to Loriaux & Genty (2013).*

Saturation flash to 12,000 µmols m^{-2} s^{-1}

Measures quenching with**:**

Kramer lake model(Y(NPQ), Y(NO), Y(II), q_L& ETR)

Hendrickson lake model (NPQ, Y(NPQ), Y(NO), Y(II) & ETR)

Puddle model (q_P, q_N, & NPQ)

Quenching relaxation q_E, q_T, q_Z, & q_I

Strasser OJIP (all parameters)

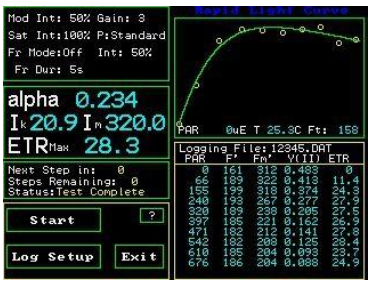
Vredenburg OJIP quenching protocol

Comes with either red <u>or</u> blue modulated light sources as well as far-red light.

2 Gigabyte of non-volitile memory

USB and data card output & for barcode reader

OS5p+ with PAR clip and 10 dark clips:



Rapid Light Curve measuring screen

ETR_{MAX}

I_K

I_M

α

F_V/F_M measuring screen

F_V/F_M

F_V/F_O

F_O

F_M

Strasser OJIP measuring screen

The most popular parameter are on display & all parameters are in the measuring file

<u>Optional USB Barcode reader</u>

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PAR Clip

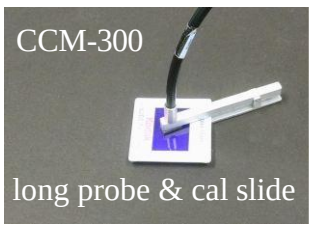
The PAR clip is always included with the OS5p+ but it can be sold separately for the OS1p. The PAR clip measures Photosynthetically Active Radiation or the light intensity at the leaf plane between 400nm and 700 nm. It also measures leaf temperature with a thermistor. The additional measuring parameters allow an estimation of ETR or Electron Transport Rate as well. The PAR clip also has a C-mount for tripods and a trigger switch

FL-DC
Dark adaption Clips

Light weight inexpensive dark adaption clips work with all Opti-Sciences chlorophyll fluorometers designed for measuring F_V/F_M, & OJIP applications. The great price allows measurement of larger statistically significant plant populations at reasonable times of day.

1 FL-DC dark clip:

1 FL-DC50 package of 50 dark clips:



CCM-300 Probes:
GFP- C1: Standard Leaf clip for CCM-300

GFP-C2: long leaf clip probe for wide leaves CCM-300

C3CS: CCM-300

FL-Arm
Adjustable
heavy duty table top stand
for PAR clip & PSP32 probe support.

FL-DC50
Bag of 50 dark clips
with belt clip:

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PSP32:
Automated Plant Monitoring System

Ideal for field work, green house work, and growth chamber work

System works with up to 32 separate plants.
A central controller comes standard with *remote control & data collection* capability using Wi-Fi, and Ethernet. Options also exist for cellular modem, or satellite modem use.

Remote webpage control of the instrument is possible by cell phone, laptop, desk top or tablet computer.

Automated dark adaption is possible during the day for measurement of F_V/F_M, the xanthophyll cycle q_E, photoinhibition q_I, state transitions q_T, chloroplast migration q_M, or for rapid light curve light saturation studies.

A special scripting system allows ultimate measuring flexibility to create new measuring protocols.

Probes are available with either red or blue modulated light, saturating light and actinic light. Quenching values are compared to pre-dawn F_V/F_M values.

Protocols include: Y(II), F_V/F_M, quenching, quenching relaxation, Ruban & Murchie PNPQ protocol & rapid light curves.
Saturation flash to 10,000 μmols m^{-2} s^{-1} and *F_M' correction is included according to Loriaux & Genty 2013.*

The system will also measure PAR and leaf temperature

Integration with weather stations, soil moisture probes possible and lighting systems is possible.

Solar power/ battery power option

The PSP32 automated system can be configured in many ways with different support stands and cable lengths. Quotations are recommended.

Pricing varies by the number of measuring probes. Pricing is available on systems with any number of probes from 1 to 32. Tripods, stands for measuring probes & a controller stand are not included. Pricing is for either red or blue probe systems.

1 probe system:
1 probe system with dark hood:

3 probe system:
3 probe system with dark hoods:

4 probe system:
4 probe system with dark hoods:

8 probe system:
8 probe system with dark hoods:

16 probe system:
16 probe system with dark hoods:

24 probe system:
24 probe system with dark hoods:

32 probe system:
32 probe system with dark hoods:

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