Photon Systems Instruments

PSI (Photon Systems Instruments), spol. s r.o. Czech Republic

FluorPen FP 100

Leaf Chlorophyll Fluorescence

FluorPen is a Photon Systems Instrument that is a portable, battery -powered fluorometer that enables quick and precise measurement of chlorophyll fluorescence parameters in the laboratory, greenhouse, or in the field.

It can be effectively used for studying photosynthetic activity, stress detection, herbicide testing, or mutant screening.

The basic model measures two parameters:

F_T - continuous fluorescence yield in non-actinic light. F_T is equivalent to F_0 if the leaf sample is dark- adapted.

QY - Photosystem II quantum yield. QY is equivalent to F_V/F_M in dark-adapted samples and to $F_{V'}/F_{M'}$ in light-adapted samples

In addition, more sophisticated FluorPen models, e.g., FluorPen FP 100-MAX, include protocols for measuring commonly used chlorophyll fluorescence parameters, such as:

OJIP - Chlorophyll Fluorescence Induction Kinetics.

NPQ - Non-Photochemical Quenching.

Light Curve - Photosystem II Quantum Yield estimated from fluorescence that is measured sequentially in several different light levels.

Specifications:

Measured/Calculated Parameters: F_0 , F_T , F_M , $F_{M'}$, QY, OJIP*, NPQ*, Light Curve 1*, and Light Curve 2*

Actinic and Saturating Light: Adjustable from 0 to 3,000 µmol (photon).$m^{-2}.s^{-1}$

Measuring Light: Adjustable by intensity

Detector Wavelength Range: PIN photodiode with 697 to 750 nm band-pass filters

FluorPen 1.0 Software: Windows 2000, XP, or higher**

Memory Capacity: Up to 4 Mb

Internal Data Logging: Up to 100,000 data points

Display: 2 x 8 characters LC display

Keypad: Sealed, 2-key tactile response

Keypad Escape Time: Turns off after 5 minutes of no use

Power Supply: 4 AAA alkaline or rechargeable batteries

Battery Life: 48 hours typical with full operation

Low Battery Detection: Low battery indication displayed

Size: 120 mm x 57 mm x 30 mm 4.7" x 2.2" x 1.2"

Weight: 180 g, 6.5 oz

Sample Holder: Mechanical leaf clip

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Operating Conditions:

Temperature: 0 to 55 °C; 32 to 130 °F Relative humidity: 0 to 95 % (non-condensing)

Storage Conditions:

Temperature: -10 to +60 °C; 14 to +140 °F Relative humidity: 0 to 95 % (non-condensing)

Warranty: 1 year parts and labor

FluorPen Versions:

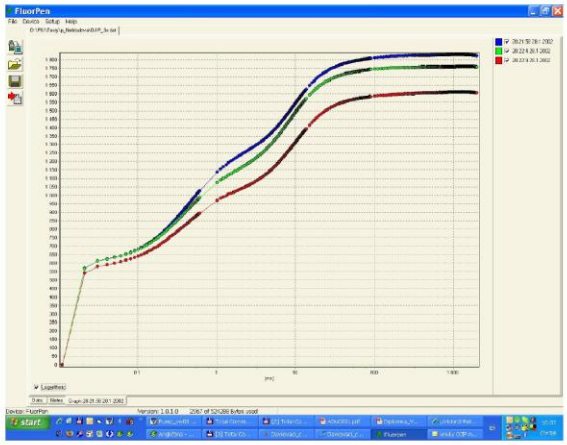
FluorPen FP 100-MAX
Includes one of the communication modules (Bluetooth, USB, or serial port), FluorPen 1.0 software, protocol update, user's guide. Measures Ft, QY, NPQ, OJIP, and LightCurve.

FluorPen FP 100-MAX-W
This version of the FluorPen has a special "open-window" leaf-clip that enables measurements in ambient light.

Standard FluorPen FP 100
Standard FluorPen measures Ft and QY Options include supplemented by Bluetooth, USB or serial port and FluorPen 1.0 software (data collection and visualization).

Additional Options:

- Mini-computer
- GPS
- Protocol update
- Battery charger
- Transport case



Formula	Value
Bckg	0
Fo	412
Fj	830
Fi	1343
Fm	1535
Fv	1123
Vj	0.372
Vi	0.829
Fm/Fo	3.726
Fv/Fo	2.726
Fv/Fm	0.732
Mo	0.684
Area	1787.306
Sm	1591.546
Ss	0.544
N	2924.181
Phi_Po	0.732
Psi_o	0.628
Phi_Eo	0.459
Phi_Do	0.268
Phi_Pav	985.567
Pi_Abs	1.831
ABS/RC	2.511
TRo/RC	1.837
ETo/RC	1.153
DIo/RC	0.674

Measured data are sequentially stored in the FluorPen memory and may be recalled for transcription to a computer.
FluorPen 1.0 software provides visualization and data transfer routines to the computer.

Software:

- FluorPen 1.0 Software (Windows 2000, XP, or higher compatible*)
- Bluetooth communication
- Real-time and remote control functions
- GPS mapping plug-in
- Export to Microsoft Excel

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