

TECHNICAL SPECIFICATION



FluorPen FP 110

PAR-FluorPen FP 110

PROTOCOLS

PAR-FluorPen FP 110	<ul style="list-style-type: none">· Ft - Instantaneous chlorophyll fluorescence· QY - Quantum Yield· OJIP - Chlorophyll fluorescence induction kinetics· NPQ - Non-photochemical quenching· LC - Light curve· PPFD - Photosynthetically Active Radiation
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ILLUMINATION

LED emitter	Blue (peak λ 470 nm), different wavelengths on request 12-bit DAC for light control
Saturating pulse intensity	Up to $3,000 \mu\text{mol}(\text{photon})\cdot\text{m}^{-2}\cdot\text{s}^{-1}$ Adjustable from 10 to 100 %
Actinic light	Adjustable from 10 to $1,000 \mu\text{mol}(\text{photon})\cdot\text{m}^{-2}\cdot\text{s}^{-1}$
Measuring flash pulse	Up to $0.09 \mu\text{mol}(\text{photon})\cdot\text{m}^{-2}\cdot\text{s}^{-1}$ per pulse Adjustable from 10 to 100 %

DETECTOR

Type	PIN photodiode with bandpass filters
Wavelength range	From 665 to 750 nm
Resolution	12-bit with variable gain amplifier
Acquisition rate	10 ms (0.1 MHz)

SYSTEM SPECIFICATION

Internal memory capacity	16 Mb
Internal data logging	Up to 149,000 measurements (depending on protocol complexity)
Record length	40 ms – 600 s
Real-time clock	YES
Data transfer	USB 2.0 Bluetooth (transfer up to 3 Mbps for distance up to 20 m)
PC software	FluorPen 1.1 (Windows 7 and higher)

BATTERY

Type	Li-Ion rechargeable battery
Capacity	2,000 mAh
Max. charging current	0.5 A
Charging	Via USB port - PC, power bank, USB charger, etc.
Battery life	48 hours typical with full operation (low battery indicator)

GENERAL SPECIFICATION

Sample holder	Standard leaf-clip (FP 110/S) Detachable leaf-clip (FP 110/D) Probe (FP 110/P)
PAR sensor cosine correction	Cosine corrected up to 80° angle of incidence
Display	Graphical display
Keypad	Sealed, 2-key tactile response Turns off after 5 minutes of no use
Built in GPS module	Ultra-high sensitivity down to -165 dBm High accuracy of < 1.5 m in 50% of trials
Size	134 x 65 x 33 mm
Weight	188 g
Operating conditions	Temperature: 0 to +55 °C Relative humidity: 0 to 95 % (non-condensing)
Storage conditions	Temperature: -10 to +60 °C Relative humidity: 0 to 95 % (non-condensing)
Warranty	1-year parts and labor