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UPRTEK PG200N – SPECTRAL PAR METER

PPFD, PFD, Plant Factory,Quantum PAR meter

UPRtek PG200N Handheld plant growth lighting detector

PG200N is a Handheld Spectra PAR Meter that conforms with the requirements of JIS AA and DIN B illuminance class.The main purpose of creating PG200 is to push the limits ofthe traditional quantum meter / plant detectors which only offer PPFD (Photosynthesis Photon Flux Density), PFD(Photon Flux Density), Lux and basic lighting parameters. This time, PG200N PAR Meter is embedded with a G-sensor to help users adjust the measuring position dynamically. The sensor head is upgraded to the waterproof and dustproof level-IP66 to ensure that the precision of data is not affected by humidity. In addition, through the built-in PAR reference spectrum, users can instantly confirm the absorption of light by plants and provide proper light source. PG200N is the most intelligent and innovative meter to be utilized in LED plant factory equipment vendors, integrators, plant lighting designers and R&D institution.

PG200N Spectra PAR Meter conforms with the requirements of JIS AA and DIN B illuminance class

JIS AA

Conforms to JIS C 1609-1:2006 for General Class AA

DIN

Conforms to DIN 5032 Part 7 Class B

■Exclusive Spectrum PAR Meter with Axial Displacement Function, G Sensor

Users understand the angle of the PG200N by using G-sensor and adjust it to get the most appropriate horizontal position. It is recommended for indoor and outdoor plant measurement.
Application 1: Plant Factory site inspection. It is similar to horizontal “position sensor”function.
Application 2: Sensor head can be used with a selfie stick and camera tripod. Users can easily measure far reaching ranges and adjust the measurement point horizontally.

By using motion sensor (G-sensor), users can intuitively check the axial shift and the anchor point can be fixed anytime to avoid the artificial measurement error from happening

應用1: 佈點測試

應用2: 感測頭與自拍神器/ 攝相機腳架結合

■The First Handheld Spectral PAR Meter with Durable and Waterproof Sensor Head

PG200N sensor head is IP66 level with waterproof and dustproof functions which are suitable for field and humid environment measurements. It has a build-in logging mode which allow users to monitor, collect and record data for a long time. Moreover, PG200N can be connected with uSpectrum PC software for advanced analysis that enables the creation of an exclusive plant light formula database to make plant production more stable and more efficient. It is recommended for plant factories and greenhouses.

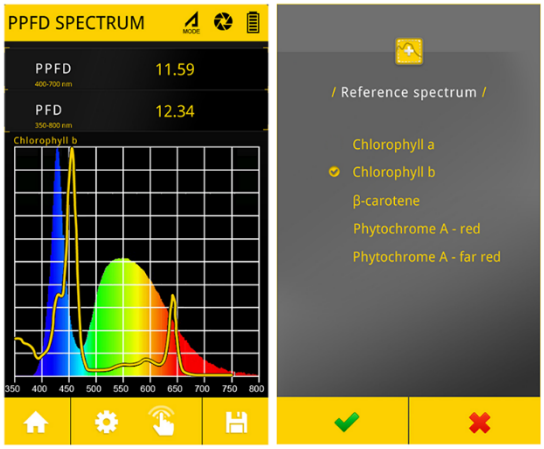
PG200N Spectra PAR Meter complies with waterproof level IP66

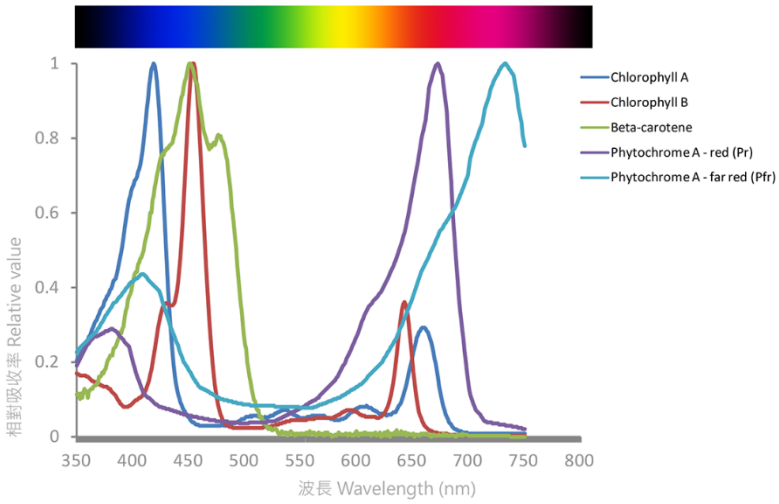
■Plant Growth reference spectrum comparison

Plants utilize different photosynthetic pigments (cholorophyll a, cholorophyll b, β-carotene and photosensitin) for the occurrence of photosynthesis in different wavelengths of light. PG200N Spectral PAR Meter is a professional plant light detector embeded with PAR reference spectrum for users to check whether the current plant growth light spectrum configuration meets the plant light absorption requirements. And if not, users can adjust their light source to meet the plants' basic light requirement instantly. It helps plants grow healthily. The following are the photosynthetic pigments:

(1) Cholorophyll a- Main absorption peaks are 418nm and 660nm. In photosynthesis, cholorophyll a mainly performs photoreation which is also called the main pigment. It widely exists in higher plants.
(2) Cholorophyll b- Main absorption peaks are 454nm and 643nm. It is an photosynthesis accessory pigments. It also widely exists in higher plants.
(3) β-carotene –Main absorption range is blue violet (400 nm -500 nm). It is the same as the chlorophyll b, which is a photosynthesis accessory pigment. It transmits the absorbed light energy to chlorophyll a for photosynthesis. It is widely available in green and yellow fruits and vegetables, such as carrots, mangoes, papayas, sweet potatoes, citrus and others.
(4) Phytochrome –It is a protein pigment in plants and is divided into 2 types which are active form-Pr (Phytochrome red with 673nm absorption peak) and inactive form-Pfr (Phytochrome far red with 732 nm absorption peark)。 The phytochrome mainly absorbs red light and far red light through the light signal to regulate plant growth and development.
【1】 Whitelam G C, Devlin P F. Light signaling in arabidopsis plant[J]. Plant Physiology and Biochemistry, 1998, 36(2): 125－133.

PG200N offers plant reference spectrum for users to compare and compensate the necessary light wavelength needed by plant.





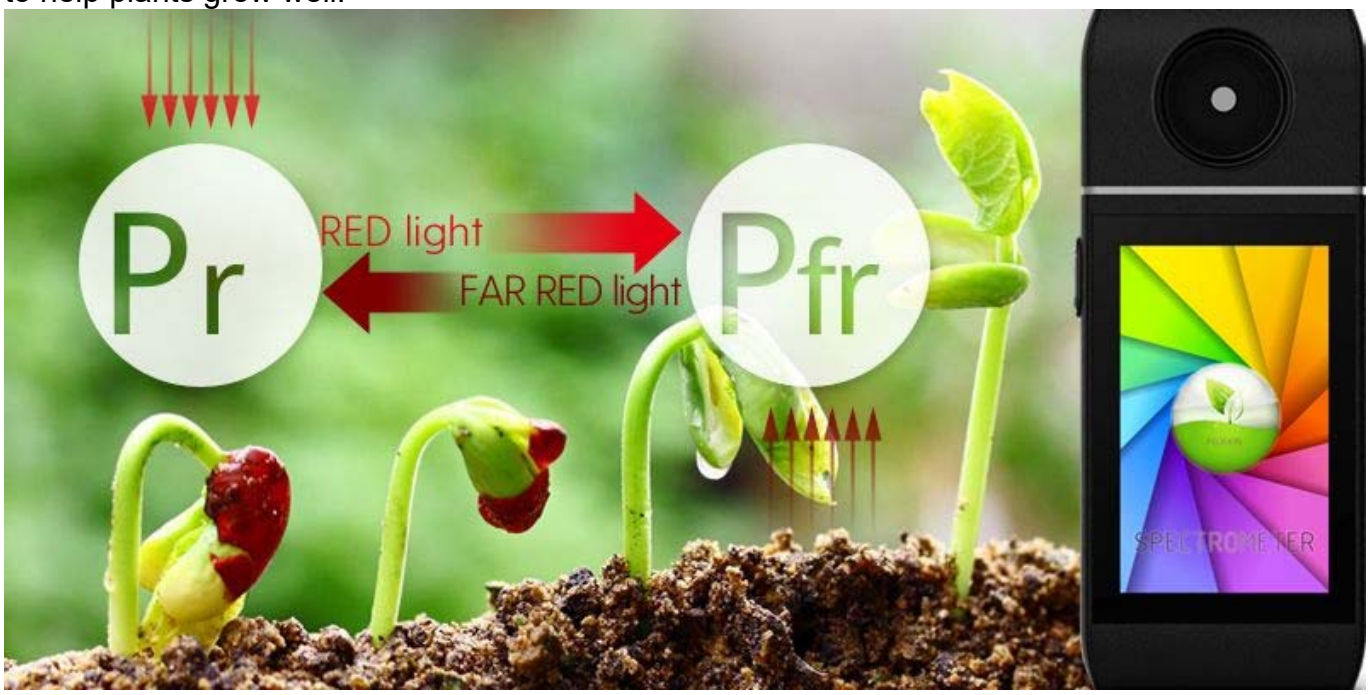
■Customizing PPFD (Photosynthetic Photon Flux Density) & PFD (Photon Flux Density) Range of Plant

Measurement wavelength can expand from 350 nm to 800 nm (UVA-FR). Users depend on their needs to identify the PFD wavelength.

Customizing PPFD (Photosynthetic Photon Flux Density) & PFD (Photon Flux Density) range of plant

■PSS Indicator (PPS, Phytochrome Photostationary State)

PG200N PSS measurement indicator, which mainly include Phytochrom A Red (Pr) and Phytochrome A Red (Pfr), and they are discussing the red light and far red light which are closely related to plant growth. Users can know how close the light emitted by the plant growth lamp you use is to the sunlight through the PSS index and have sufficient light source for plants to help plants grow well.



** Phytochrome A Red
This is a kind of pigment in the plant, the component is protein, and the absorption of red light will be converted into the pigment Pfr that absorbs far red light. Plants mainly receive external light signals through photochrome to regulate their own growth, development and flowering.
** Phytochrome A Far Red
This is a kind of pigment in the plant. The component is protein. Absorption of far-red light will drive the pigment to turn into a form of red light absorption Pr. Plants mainly receive external light signals through photochrome to regulate their own growth, development and flowering.

■Large and varied data for complex analysis in different kind of situation

COMPARE mode

There are various products which including poor ones that we cannot avoid in the LED plant growth lamp market. PG200N COMPARE mode helps users to correctly select high-quality products in the early stage when buying to ensure that they provide the best light source for plants.

PG200N COMPARE Mode Measure Screen

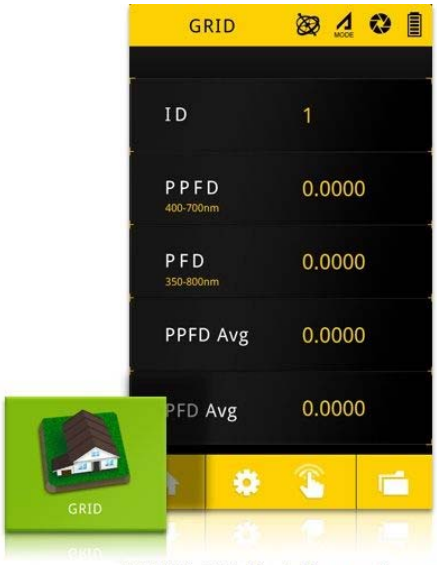
LOGGING continuous measurement mode

How can the lighting designer predict the life and death of a lamp? Whether the light color changes or the life of the lamp is shortened, the designer needs to observe and record the performance of the lamp for a long time to find out the problem. PG200N's LOGGING continuous measurement mode will be a powerful assistant for lighting designers, assisting designers to save the experimental data which they spend a lot of time and energy in the development and design and it will be easier to adjust and improve the light through big data analysis!

PG200N LOGGING Mode Measure Screen

GRID mode

In the plant factory, there are a bunch of LED growth lamps inside, which one has a problem? And is it enough to just look at the growth of plants? In addition, installing a lamp is a piece of cake, but the extra electricity bill is a major thing! The GRID mode helps you to analyze and compare multiple lamps. It is not only tell you the indices related to plant growth, but also include the average value of the whole plant, the difference between the maximum and minimum values. These are the key issues to monitor multiple lamps more effectively in the plant factories.

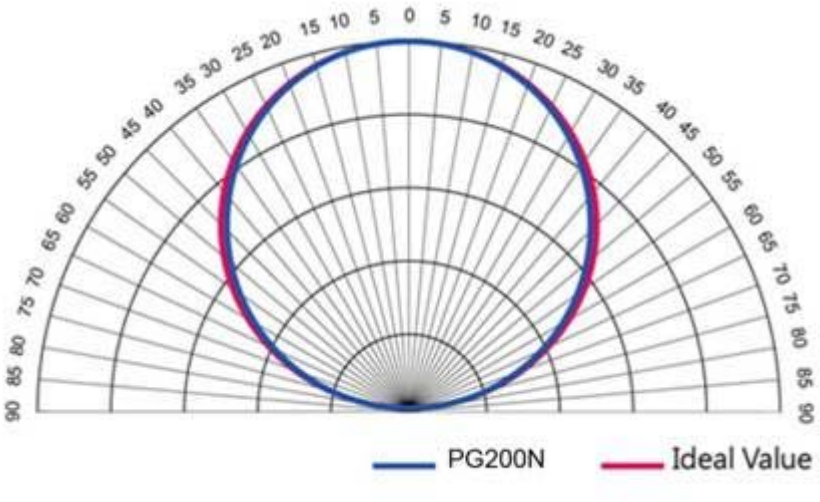


PG200N GRID Mode Measure Screen

■Optical receiver complies with the CIE illuminance Cosine Correction Regulation

Cosine receiving surface is optimized, users can measure light from different angles properly and get accurate values.

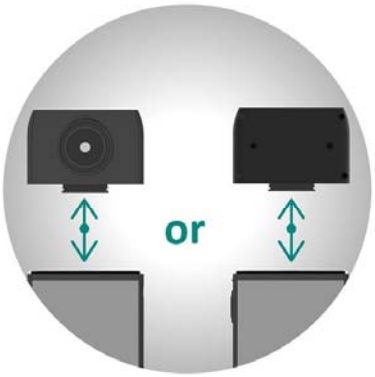
PG200N Spectral PAR Meter Cosine receiving surface is optimized



■LED Grow Lights-Multi Measuring Options

According to various scenario requirements, users can adopt the most suitable solutions for measuring which greatly improves measurement flexibility and practicality
(1) Standalone (Detachable sensor head)/ Sensor head can be measured on both sides
(2) Remote measurement-a. USB Type-C cable measurement, b. Bluetooth iOS/Android APP Controller
(3) uSpectrum PC Software- Users make advanced analysis comparison, store and export report more effectively.

LED Grow Lights-Multi Measuring Options:Standalone, Wireless bluetooth connection and uSpectrum PC software analysis



Quelle UPRTek