Using the photoelectric conversion module

Overview

WO2024111643A1 This disclosurerelates to a photoelectric conversion element, a solar cell module, and a method for manufacturing a photoelectric conversion.

Key Takeaways

A photoelectric conversion module converts light into electrical signals, typically using a photodiode or avalanche photodiode (APD) and an amplifier, and requires proper setup, impedance matching, and testing for optimal performance.

Understanding the Module

A photoelectric conversion module consists of a photodiode or APD, which detects light and generates a current, and an amplifier that converts this current into a usable voltage signal. Some modules also include impedance matching circuits to ensure compatibility with other electronic components and minimize signal loss. The module may be used in applications such as optical communication, laser detection, photometry, and distance measurement systems.

Basic Setup

Power Supply: Connect the module to a stable power source according to the manufacturer's specifications. Light Source: Direct the light you want to measure onto the photodiode. Ensure the light intensity and wavelength are within the module's operational range.

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Signal Output: Connect the output terminals to a measurement device, such as an oscilloscope, multimeter, or data acquisition system. The amplifier in the module will convert the photocurrent into a voltage signal. Impedance Matching: If the module includes an impedance matching circuit, ensure it is properly configured to match the input impedance of your measurement device to avoid signal distortion.

Measurement and Testing

Calibrate the Module: Measure the “dark current” (current when no light is present) and subtract it from your readings to ensure accurate measurements. Monitor Responsivity: The module's responsivity (current per unit light power) may vary with wavelength. Use the manufacturer's datasheet to calculate the actual light power from the measured current.

Protect the Module: Turn off the module when not in use to prevent degradation, and avoid exposure to moisture or oxygen, which can reduce performance over time.

Practical Tips

Use a mask or aperture if you need to measure light over a specific area. Avoid exposing the module to light intensities beyond its rated capacity to prevent damage. For high-sensitivity applications, consider using an APD module, which amplifies weak light signals through the avalanche effect.

Ensure the module is sealed properly to protect the photoelectric conversion element from environmental factors like water and oxygen, which can degrade performance. By following these steps, you can effectively use a photoelectric conversion module to convert light into electrical signals for experiments, optical sensing, or communication systems.

Article Content

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This disclosurerelates to a photoelectric conversion element, a solar cell module, and a method for manufacturing a photoelectric conversion element. Photoelectric conversion...

Photoelectric Conversion Module: A Comprehensive Review

A photoelectric conversion module converts light into electrical signals using a photodiode or APD, amplifying the current into a voltage. It is essential in optical communication, laser detection, and

PHOTOELECTRIC CONVERSION DEVICE, ELECTRONIC DEVICE,

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In particular, a flexible photoelectric conversion device is expected to have a high efficiency and to be able to follow various situations; thus, it is expected to be suitably applicable for

PHOTOELECTRIC CONVERSION MODULE, ELECTRONIC

To increase the output of this photoelectric conversion element, a module structure may be used where a plurality of photoelectric conversion elements are produced on the same substrate and are coupled

Integration of functional modules in a unified photoelectrochemical ...

Herein, a proof-of-concept modular PCP device incorporating electron transport layer (ETL), photoelectric conversion layer (PCL), hole transport layer (HTL) and hole consumption layer

A co-packaged photoelectric converter module

In this paper, we introduced an ultra-compact photoelectric converter array module fabricated with hybrid-integration microassembly process, the practical test results showed a good optical coupling

WO/2024/122182 PHOTOELECTRIC CONVERSION MODULE

The purpose of the present invention is to provide a photoelectric conversion module that has a bypass diode function and that will not lose flexibility.

Application of Photoelectric Conversion Technology in ...

The objective of this study is to investigate the use of photoelectric conversion technology in the process of creating enhanced photoelectric signal sampling systems using photoelectric

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Wireless laser power transmission: Recent progress and future ...

${eta }_{mathrm{LPC}}$ is the photoelectric conversion efficiency of the laser power converter used to receive laser energy. To achieve high full-link efficiency, the LPT system must be

FinancialContent

Transceiver (Optical Module) is the core photoelectric conversion device of fiber-optic communication systems, known as the "photoelectric interpreter" of the network world and the "super

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The photoelectric conversion modules of Samples 1 to 11 were stored in the following environment, and the storage time and the output of the photoelectric conversion module after the storage time was

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In this invention, a photoelectric conversion module is proposed. The photoelectric conversion module comprises two parts, optical layer and electrical layer.

Experimental Measurement and Numerical Simulation

Additionally, the effect of photovoltaic-module snow on photoelectric conversion efficiency was studied by building a test bed. Based on the numerical

The Internal Components and Structure of The Optical Transceiver

Optical modules are devices used to connect network devices, transmit and receive data between network devices, and can be used to convert optical and electrical signals. The optical

US8710356B2

Photoelectric conversion modulesare used to convert light into electricity. a representative photoelectric conversion moduleis a solar cell for obtaining energy from sunlight. photoelectric conversion

RF photoelectric conversion module – 2GHz ~ 18GHz external

RF photoelectric conversion module – 2GHz ~ 18GHz external-modulated temperature-controlled wideband The RF optical transmission module mainly achieve 2GHz ~ 18GHz RF signal

Integration of functional modules in a unified photoelectrochemical ...

Photocathodic protection (PCP), emerges as a promising photoelectrochemical technology to alleviate metal corrosion, but the centralization of all core reaction steps on one

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