

Malaysian optical receivers are resistant to low temperatures

Article Overview

Optical receivers, including those used in Malaysia, can operate at low temperatures, typically down to -40°C , but performance may degrade below this threshold due to material and signal limitations.

Temperature Tolerance of Optical Receivers

Optical receivers rely on photodetectors such as PIN photodiodes or avalanche photodiodes (APDs) to convert light signals into electrical signals. The semiconductor materials used in these devices are generally robust at low temperatures, but the surrounding components—like polymer coatings, buffer tubes, and jackets—can become brittle and induce mechanical stress on the optical fiber, leading to microbending and increased signal attenuation. Standard optical fibers can reliably operate down to -40°C , but below -55°C , signal loss may exceed acceptable limits, potentially rendering the system inoperable.

Design Considerations for Cold Environments

To ensure reliable operation in low-temperature conditions, optical receivers often incorporate:

- Temperature-resilient materials: Using coatings and jackets with low thermal expansion mismatch to reduce stress on the fiber core.
- Thermal management solutions: Active or passive cooling is typically used to prev...

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Rare usage of Free Space Optical (FSO) communications in Malaysia might be related to environmental factors.

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Receivers of Optical Systems | Springer Nature Link

Optical radiation receivers are designed to detect and measure the energy of electromagnetic waves in the optical

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Heat-Resistant Thin Optical Fiber for Sensing in ...

The development and characterization of thin optical fibers for high temperature sensing applications is presented in

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Optical Receivers | Springer Nature Link

The basis of all receivers in optical transmission is the internal photoelectric effect. The simplest receiver is the p-n

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Optical Receiver

An optical receiver consists of an optical detector (the transducer) and a low noise electronic amplifier which raises the signal level to

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[2510.06176] An integrated photonic millimeter-wave receiver with sub ...

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Exploring the Operating Temperatures of Optical Transceivers

Optical Transceivers are widely used in various communication and data transmission systems. They achieve high

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Fibre Optic Transmitters, Receivers, Transceivers – Mouser Malaysia

Fibre Optic Transmitters, Receivers, Transceivers are available at Mouser Electronics. Mouser offers inventory, pricing, & datasheets

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Optical Receiver

Optical receiver characterization and calibration are important for both optical communication and instrumentation, which directly

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Penang, Malaysia | SCHOTT

A pioneer of Asian success SCHOTT opened its plant in Penang, Malaysia, in 1975 with 80 employees to serve the growing optics

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Optical Receivers | part of Fiber-Optic Communication Systems

The design of an optical receiver depends on the modulation format used by the transmitter. The chapter deals with various noise

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Optical Receivers | part of Fiber-Optic Communication Systems

The sensitivity analysis is based on the consideration of receiver noise only. An optical receiver converts power fluctuations into

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Optical Receivers | Springer Nature Link

The fastest receiver is the p-n photo diode, which can be very fast due to drift. The most sensitive receiver is the

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Optical Receivers: A Comprehensive Guide

Optical receivers are a crucial component in optical communication systems, playing a vital role in converting optical

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Development of High Sensitivity SWIR APD Receivers

Spectrolab has been developing high sensitivity SWIR APD receivers for many years. Low excess noise, large optical aperture, and

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Optical Module Suppliers & Exporters in Malaysia

TradeFord is a growing Manufacturer Directory and B2B Marketplace connecting Global Optical Module Importers, Exporters,

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Fiber Optic Sensors: Short Review and Applications

The inherent advantages of fiber optic sensors such as lightweight, small size, passive, low attenuation, immunity to

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Microsoft PowerPoint

Optical Receivers Optical receivers convert optical signal (light) to electrical signal (current/voltage) Hence referred "O/E Converter"

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Optical Fiber Sensors and Sensing Networks: Overview of the Main ...

Optical fiber sensors present several advantages in relation to other types of sensors. These advantages are essentially related to

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Room-temperature nine- μ m-wavelength photodetectors and GHz

Room-temperature operation is essential for any optoelectronics technology that aims to provide low-cost, compact

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Receivers

Receivers The SPIE Digital Library offers a comprehensive range of content on receivers, encompassing various aspects of their

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Radiation tolerant optoelectronics for high energy physics

In general they must be sufficiently radiation tolerant and possibly also be non-magnetic, which often requires

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Optical Receiver Selection Guide

Receiver or Detector? Both types of modules employ a photodiode to convert optical signals to electrical signals. With

Feb 16, 2026

Performance of a Passive Multilayer Optical RIS for Tropical FSO

Overall, the study provides a quantitative baseline for passive optical RIS deployment in tropical FSO links and

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Alnair Photonics | Advanced Photonics Solutions

Alnair Photonics Sdn. Bhd. manufactures optical equipment, fiber coupled active/passive devices, and

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Malaysia Free Space Optical Receivers Market By Type

Malaysia's Free Space Optical Receivers Market: Types and Industrial Demands
Malaysia's Free Space Optical Receivers Market is

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Handbook Optical fibres, cables and systems

At about the same time, GaAs semiconductor lasers, operating continuously at room temperature, were demonstrated. The

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Active Cooling of Optical Transceivers

The objective was to design a thermoelectric cooler assembly that can remove heat generated by optical transceivers running in

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Optical Receiver

An "Optical Receiver" is a device that detects and converts the light received from a transmitter into an electrical signal. It consists of

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Development of High Sensitivity SWIR APD Receivers

Together with the low temperature dependence on the gain, Spectrolab Gen 3 APDs are capable to operate in a wide range of

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Temperature Measurement Using Optical Fiber Methods: Overview

The paper deals with the overview of fiber optic methods suitable for temperature measurement and monitoring. The

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(PDF) High gain, low noise InGaAs APD receiver with fast overload ...

While maintaining the existing family of receivers" bandwidth and APD gain, a 1.8 x increase in responsivity can now

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Optical Transceiver – Suntrec Solution Sdn Bhd

Finding the right SFP in Malaysia can be tricky. For proper reliability it highly depends on the manufacturer

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