

Photoelectric converter with single-mode dual-core fiber optic interface



Article Overview

A single-mode dual-core fiber optic photoelectric converter converts Ethernet electrical signals into optical signals over two single-mode fibers, enabling long-distance, high-speed network transmission.

Overview

A photoelectric converter (or fiber optic media converter) with a single-mode dual-core fiber interface is designed to convert electrical Ethernet signals into optical signals and vice versa. This allows Ethernet networks to extend over long distances, typically several kilometers, while maintaining high bandwidth and signal integrity. Dual-core single-mode fiber uses two separate fibers—one for transmitting and one for receiving—ensuring full-duplex communication and reducing signal interference .

Key Features

- **Transmission Distance:** Typically supports distances up to 10 km or more, depending on the device and SFP module used . Some industrial models can reach up to 120 km for long-haul applications .
- **Data Rates:** Supports 10/100 Mbps or 1 Gbps Ethernet, with some high-performance models reaching 10 Gbps .
- **Fiber Type:** Single-mode dual-core fiber (usually LC or SC connectors) for long-distance, low-loss transmission .
- **Ethernet Ports:** Equipped with RJ45 ports for copper Ethernet connections, often s...

Article Content

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Media converters

Fiber optic converter with SC duplex connection (1310 nm) for 100Base-TX to singlemode fiber optics, DIN

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Single-mode optical fiber

In fiber optics, a quadruply clad fiber is a single-mode optical fiber that has four claddings. Each

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Difference Between Single vs Dual Fiber Optical Transceivers

Single Fiber: Suitable for cost-sensitive deployments with shorter distances, ideal for point-to-point connections within buildings or

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10G optical fiber transceiver LC interface Ethernet SFP multi-single ...

The transceiver's dual-fiber RJ45 photoelectric converter capability means it can be used in a variety of scenarios, from small offices

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Photoelectric Composite Connector | Factory Price | AIMIFIBER

A Photoelectric Composite Connector & Adapter is a hybrid coupler that enables optical signal + DC power to be connected through

Mar 24, 2026

Gigabit 2-port single-mode dual fiber media converter

User can select different optical modules, such as multi- mode dual fiber, single-mode dual fiber, and single

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Single Mode to Multimode Converters | Fiber to Fiber

Easily connect different fiber types and wavelengths to convert Single Mode to Multimode (SM to MM), or extend the distance of

Feb 10, 2026

Gigabit 2-port single-mode single fiber media converter

Gigabit single-mode single fiber media converter with 1*10/100/1000M RJ45 port and 1*1.25G SC fiber port. 1310nm/ 3km. Total

Oct 12, 2025

Mode converter based on dual-core all-solid photonic bandgap fiber

In this paper, we present a mode-selective coupler based on a dual-core all-solid photonic bandgap fiber (AS-PBGF).

Feb 10, 2026

High-performance Ge photodetectors on silicon photonics platform for ...

These tasks involve optimizing waveguide designs, incorporating mode converters, and using optical grading

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Gigabit Fiber to Ethernet Media Converter Kit LC Single

Components for optic fiber integrate to LAN like media converters, SFP transceivers, power adapters are

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Industrial Fiber Optical Transceiver Photoelectric Conversion Ethernet ...

By converting electrical signals into optical signals in single-mode optical fiber transmission, it breaks the limitation of short cable

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Mode converter based on mode coupling in an asymmetric dual-core ...

In this study, a compact mode converter based on an asymmetric dual-core photonic crystal fiber (ADC-PCF)

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Single-Mode vs Multi-Mode Fiber Media Converters

Fiber media converters are now an essential connector, harnessing the speed of fiber and the low power, single-cable deployment of

Feb 03, 2026

Fiber Optic Cable Types – Multimode and Single Mode

The Optical Core – a glass tube (core) propagates the light signals through the fiber cable. Glass is inherently reflective and is a

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SFP Optical Transceiver | SFP Optical Module | Perle

Perle Protocol and Rate-transparent Media Converters provide conversion between different wavelengths, multimode and single

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Single Fiber Media Converter | 10/100TX-100FX Single Fiber

Single Fiber Media Converters Versitron's single fiber media converters efficiently convert Ethernet signals into optical signals using

Aug 09, 2025

Industrial Fiber Optical Transceiver Photoelectric Conversion Ethernet ...

ZLAN9100 optical transceiver is a photoelectric conversion device that converts 10M/100M Ethernet electrical signals into optical

Feb 08, 2026

NOVA 10G Photoelectric Converter Guide | PDF | Fiber Optic ...

This document provides specifications for NOVA 10G photoelectric converters and guidance on fiber selection and usage. It includes:

Feb 27, 2026

Ethernet-to-Fiber Media Converters

Moxa's Ethernet to Fiber media converters feature innovative remote management, industrial-grade reliability, and a flexible, modular

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(PDF) Digital Twin of the Photoelectric Converter of the Power ...

The basic configuration of power-over-fiber comprises three key components: light sources, optical fibers, and

Oct 09, 2025

Single Fiber vs Dual Fiber Transceivers Understanding the Key

Single fiber transceivers, like the Bidi Transceiver, use one fiber for bidirectional data, while dual fiber transceivers

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