Pair of industrial-grade single-mode fiber optic transceivers



Overview

CTC Union offers a full spectrum of products, including Industrial SFP Transceiver, Industrial Ethernet, PoE, EN50155 and E-Mark certified switches.

Key Takeaways

Industrial single-mode fiber optic transceivers provide reliable, long-distance connectivity in harsh environments, supporting data rates up to 1. 25 Gbps and operating across extreme temperatures. OverviewIndustrial-grade single-mode SFP (Small Form-factor Pluggable) transceivers are designed for harsh environments such as factories, outdoor surveillance, and building automation systems.

They are engineered to withstand extreme temperatures (–40°C to 85°C), high humidity, vibration, and electromagnetic interference, ensuring stable and low-latency data transmission over long distances.

Key Features

Data Rate: Typically 1. 25 Gbps for single-mode fiber applications. Wavelength: Commonly 1310 nm or 1550 nm for long-distance single-mode transmission.

Transmission Distance: Ranges from 10 km up to 110 km depending on the model and wavelength. Form Factor: Hot-pluggable SFP modules with LC duplex connectors for easy installation and replacement. Power Supply: Operates on +3.

3V, compatible with industrial switches and media converters. Environmental Resilience: Resistant to temperature extremes, moisture, and EMI, suitable for outdoor or industrial deployments.

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Recommended Use Cases

Backbone Network Links: Connecting control layers to device layers in industrial automation. Outdoor Surveillance: Reliable transmission from cameras mounted on poles or towers to monitoring centers. Smart Factories: Short-range, high-density connections between edge devices like robot arms, HMIs, and machine vision terminals.

Long-

Distance Industrial Networks: Inter-factory links or building automation systems requiring stable single-mode fiber connectivity. Example ProductsCTC Union Industrial SFP Transceivers: Support single-mode fiber at 1. 25 Gbps, with TOSA/ROSA assemblies for reliable optical communication.

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S SFP1G-LX-31-I: Single-mode fiber transceiver with 10 km reach, wide temperature tolerance, and high EMI resistance. Lanshack 1G Singlemode Industrial SFP: Hot-pluggable modules supporting distances from 10 km to 110 km, designed for extreme temperature and humidity conditions.

Purchasing Options

Industrial single-mode transceivers are available from suppliers such as Mouser Electronics, which provides inventory, datasheets, and pricing for a variety of single-mode SFP modules. When selecting a pair, ensure compatibility with your network switches, desired transmission distance, and environmental requirements. These transceivers are ideal for robust, long-distance, and low-latency fiber optic communication in industrial and outdoor applications, providing both flexibility and reliability.

Article Content

Fiber Optical Transceivers

SFP-4330 1.25Gbps Single-Mode BIDI (WDM) Industrial SFP Transceiver, 20km, TX 1310nm / RX 1550nm, Simplex LC, -40 to +85 °C, DDM SFP-4200 1.25Gbps Multi-Mode Industrial SFP

Industrial SFP Transceiver | Industrial & Telecom

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Fiber optic transceiver, Fiber optic transceiver module

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SFP Optical Transceiver | SFP Optical Module | Perle

Perle SFP Optical Transceivers are hot-swappable, compact media connectors that provide instant fiber connectivity for your networking gear. They are a cost effective way to connect a single network

Single-mode optical fiber

In fiber-optic communication, a single-mode optical fiber, also known as fundamental- or mono-mode, is an optical fiber designed to carry only a single mode of light - the transverse mode. Modes are the

Related Video Reference

This video was associated with the source search result. Verify technical details against current product documentation and project requirements.

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