

Optical Module 485



AI Overview

Optical-to-RS485 converters allow RS-485 electrical signals to be transmitted over fiber optic cables, enabling long-distance, interference-free communication in industrial environments.

Overview Optical-to-RS485 converters are devices that convert electrical RS-485 signals into optical signals for transmission over fiber optic cables and then back to RS-485 at the receiving end. This approach is ideal for long-distance communication, environments with high electromagnetic interference (EMI), or applications requiring galvanic isolation between devices.

Key Features

- Data Rate Support:** Many converters support RS-485 speeds up to 500 kbps or higher, suitable for protocols like Modbus or SUCONET.
- Fiber Type:** Converters are available for multi-mode (shorter distances, up to 5 km) and single-mode (longer distances, up to 40 km) fiber cables.
- Diagnostics:** Some models, such as the Phoenix Contact PSI-MOS-RS485W2/FO, include integrated optical diagnostics and alarm contacts to monitor fiber signal quality.
- Industrial Grade:** Devices are often designed for harsh environments, with wide operating temperature ranges (e.g., -40°C to 85°C) and rugged housings.
- Redundancy and T-Couplers:** Certain converters allow linear or redundant network structures using T-couplers for increased system reliability.

Applications

- Industrial Automation:** Connecting PLCs, SIPROTEC devices, or other RS-485-based controllers over long distances.
- EMI-Prone Environments:** Fiber optic transmission eliminates interference from motors, transformers, or high-voltage equipment.
- Remote Monitoring:** Extending RS-485 networks to remote sensors or substations without signal degradation.

Example Products

- Siemens 7XV5650:** Converts RS-485 signals to optical fiber for SIPROTEC devices, supporting asynchronous protocols up to 115 kbps.
- Phoenix Contact PSI-MOS-RS485W2/FO:** Multi-mode fiber converter with optical diagnostics, alarm contact, and T-coupler support for RS-485 2-wire bus systems.
- Moxa Serial-to-Fiber Converters:** Industrial-grade co...

Article Content

AN1991: Isolating RS-485 Interfaces with High-Speed Digital

Abstract Opto-isolators (also known as optocouplers, photocouplers, or optical isolators), have been used in the design of isolated RS-485 networks for the past four decades. Despite the availability of

AN-727:

The intention of this application note is to give the user brief overview of the RS-485 system physical layer, as well as an understanding of why isolation is so

The DL485

The fiber optic systems DL485-4W connect field bus systems with RS485 four-wire interfaces. With the help of this innovative system optical bus, star, tree and mixed structures are possible.

Serial-to-Fiber Converters

Moxa's industrial-grade serial-to-fiber optic converters can convert RS-232/422/485 to optical fiber, which provides users with an easy and reliable way to

RS-485 (Modbus) Multi-Drop Bus Fiber Optic Converter

RS-485 (Modbus) Multi-Drop Bus Fiber Optic Converter RS-485 (Modbus) Multi-Drop Bus Fiber Optic converter The RS-485 Multi-Drop Bus Fiber Optic Modem

Opto-Isolated RS485 Hub / Splitter (Industrial) - CommFront

The HUB-485-4 is a rugged, industrial-grade, optically-isolated RS485 Hub / Splitter / Repeater, which can be used to expand RS-485 networks by splitting one (1) RS-485 network into four (4) - star

7XV5650.pdf

This manual describes the optical fiber converter for the conversion of optical and electrical signals for SIPROTEC devices and includes information about device properties, connection options as well as

OZD 485 G12-1300 PRO Hirschmann | Mouser

OZD 485 G12-1300 PRO Hirschmann Interface Modules Interface converter electrical/optical for RS 485 field bus networks; repeater function; for quartz glass FO; electrical full duplex or semi-duplex mode;

RS485 fiber converter

Product introduction IDM-3152 series is RS-485 serial port to optical fiber converter, which has the ability to transform RS-485 serial port and optical fiber (multimode or single mode) signals. The IDM-3152

RS-485 to Fiber Optic Converter

RS-485 Multi-Drop Bus Fiber Optic converter The RS-485/422 Multi-Drop Bus Fiber Optic Modem series products provide an optical bus network for RS-232, RS-422 or RS-485 data interfaces over a pair of

What Is an Optical Module PCB

What Is an Optical Module PCB Optical modules are essential components for high-speed optical communication systems and are widely deployed in data center switches, server clusters, and ...

Hirschmann OZD-485-G12 PRO Fiberoptic Repeater

The Hirschmann OZD-485-G12 PRO Fiberoptic Repeater is a high-performance optical link module designed for industrial automation environments, ensuring reliable data transmission over long

BB-485OP

Device and data 2 kV optical isolation and 1.2 km (4000 ft) extension Add up to 32 nodes to RS-485 network Inline installation External 12 Vdc power source

Isolated RS-485 transceivers

Learn how integrated isolated RS-422 and RS-485 transceivers deliver reliable communication while reducing significant board space compared to traditional optocoupler-based solutions. Explore

TCF-142-M-ST HA RS-485 To Fiber optic Multi Mode

The TCF-142-M-ST Fiber Optic Module converts RS-485 networking signals to operate over fiber optic cable. FireNET, FireNET Plus, and Network Annunciator

Google's High-Speed Interconnect Architecture to Push

Google's next-generation TPU, Ironwood, integrates a 3D Torus network topology with the Apollo optical circuit switch (OCS) all-optical network,

Modbus RS-485 Fiber Optic Converter

Modules with one or two optical ports can be used to create an active RS485 star coupler. Modules with one optical port are sufficient for connecting a terminal or an RS 485 bus segment to the active star

6GK1503-2CB00 SIEMENS PROFIBUS OLM/G11 V4.0

Buy 6GK1503-2CB00 SIEMENS PROFIBUS OLM/G11 V4.0 optical link module with 1 RS 485 and 1 glass fiber optic cable interface (2 BFOC sockets), with signaling

Dongshan Precision's Source Photonics to Invest USD1.2 Billion to

(Yicai) June 17 -- Source Photonics, a subsidiary of Chinese electronics manufacturer Dongshan Precision Manufacturing, plans to invest USD1.2 billion to increase its production capacity of optical

RS485 to fiber optic converters, DL485 and DL485-4W

The DL485 and DL485-4W fiber optic systems serve as vital components for connecting field bus systems with RS485 interfaces, enabling safe and reliable

Why Arista's New Optical Transceiver Is a Big Deal

Futuriom Take: Arista's new XPO module marks a fresh and important take on optical transceiver technology. If it performs in production as planned, it could substantially reduce capex

Optical Module MCUs Become Critical as AI Data Centers Drive

MCU chips for optical modules emerge as a critical semiconductor segment as AI data center buildout drives 800G/1.6T demand, with domestic players GigaDevice and Nations

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