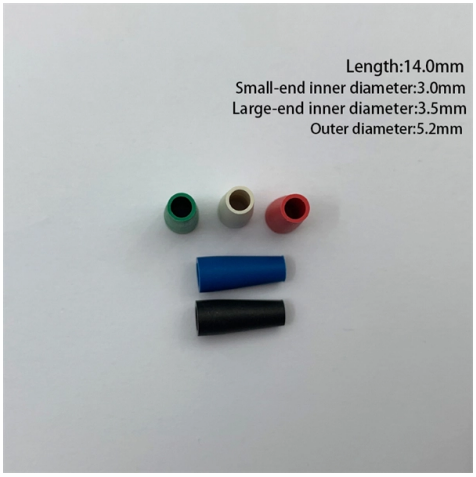
Optical module used by RRU



Overview

It describes the exterior, ports, indicators, optical modules, and types of cables used including power, fiber optic and RF cables.

Key Takeaways

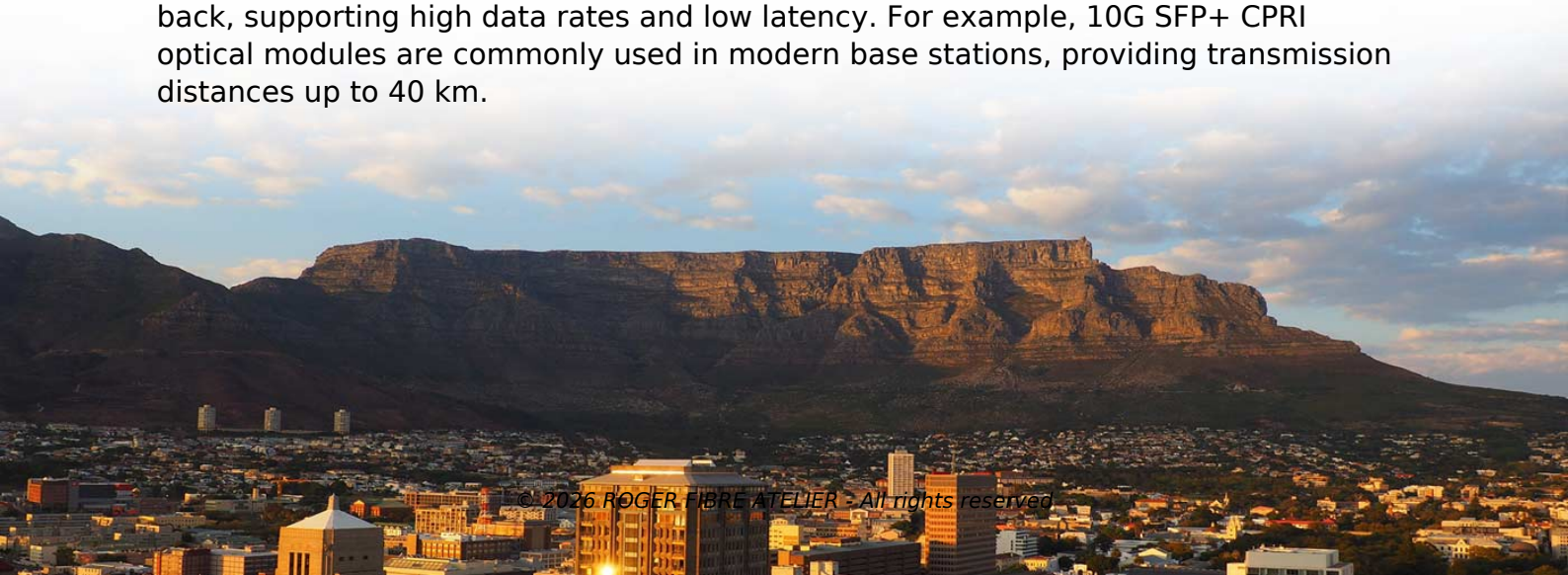
An optical module on an RRU converts electrical signals to optical signals (and vice versa) to transmit data between the RRU and BBU over fiber.

Function and Role

The optical module in a Remote Radio Unit (RRU) is responsible for optical-to-electrical and electrical-to-optical signal conversion, enabling high-speed data transmission over fiber optic cables between the RRU and the Baseband Unit (BBU) in a base station network. This is essential for 2G/3G/4G/5G networks, where the RRU is mounted on towers or antennas, and the BBU is located in a machine room or cabinet.

Interfaces and Standards

Optical modules typically connect via CPRI (Common Public Radio Interface) or eCPRI interfaces. These interfaces carry baseband I/Q signals from the BBU to the RRU and back, supporting high data rates and low latency. For example, 10G SFP+ CPRI optical modules are commonly used in modern base stations, providing transmission distances up to 40 km.



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Connection and Cabling

The optical module is connected to fiber optic cables, which can be single-core or multi-core depending on the deployment. Field optical cables are designed for outdoor use, offering flexibility, durability, and resistance to environmental factors such as tension, pressure, and temperature variations. The optical module plugs into the RRU's optical port, while the other end connects to the BBU or an optical distribution frame (ODF) in CRAN deployments.

Monitoring and Information

Operators can display optical module information on the RRU, including module type, transmit power, and receive power, which helps in monitoring link quality and troubleshooting. This ensures reliable communication between the RRU and BBU, maintaining network performance.

Summary

In essence, the optical module is a critical component of the RRU, enabling high-speed, long-distance communication over fiber, supporting modern wireless standards, and ensuring efficient signal transmission between the antenna and the baseband processing unit. Proper selection, installation, and monitoring of optical modules are key for network reliability and performance.

Article Content

RRU5818 Hardware Description 04 PDF

It describes the exterior, ports, indicators, optical modules, and types of cables used including power, fiber optic and RF cables. Connection details for the RF cables between the RRU and antenna

How many optical modules are in one RRU

Optical modules used in Remote Radio Units (RRUs) for CPRI applications are required to support industrial temperature ranges, primarily because RRUs operate in diverse outdoor environments with

RRU5517t Hardware Description

Optical modules can be classified into single-mode and multimode optical modules, which can be distinguished as follows: The puller of a single-mode optical module is blue and the puller of a

Which Optical Modules Are Commonly Used In 4G Base Stations?

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The base station can be divided into two modules: the RRU for transmitting signals and the BBU for processing signals. The BBU is small and exquisite, with low power consumption, while the RRU is

Understanding BBU, RRU, and AAU in telecom networks

Below is a breakdown of the BBU (Baseband Unit), RRU (Remote Radio Unit), and AAU (Active Antenna Unit)—their roles, placement, connectivity, and relevance in evolving technologies.

How many optical modules should be installed on one RRU

The base station can be divided into two modules: the RRU for transmitting signals and the BBU for processing signals. User Guide About This Document About This Document Purpose This document

Difference Between AAU, RRU, and BBU

AAU (Active Antenna Unit): Integrates multiple beams to receive signals from the RRU, which have been converted from the BBU. The AAU

Cellular Network Infrastructure: From Antenna to BBU

Connectivity to BBU: The RRU connects to the BBU through a bi-directional fiber optic link, usually using the Common Public Radio Interface (CPRI).

Remote radio head

A remote radio head (RRH), also called a remote radio unit (RRU) in wireless networks, is a remote radio transceiver that connects to an operator radio control panel via electrical or wireless interface.

XPO: Redefining Pluggable Optics for AI Networking

While the industry-standard OSFP (Octal Small Form-Factor Pluggable) module has successfully enabled 400Gbps, 800Gbps, and 1.6Tbps optical pluggable modules , it is limited to 32 modules

Remote Radio Unit

We sell famous telecom power brands (Huawei, ZTE, Eaton, Siemens, Delta, Mean well, Cisco), including telecom power supply, power module, PLC, AP, RRU,BBU,switch, video

Optical Module Working Principle | SFP Transceiver Technical Guide ...

Understanding the working principle of optical modules—especially SFP transceivers—is critical for network engineers, data center operators, and telecom professionals tasked with building

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Understanding Optical Modules: A Comprehensive Guide

Optical Module Basics: Understanding the Core ConceptsOptical modules are compact devices that convert electrical signals into optical signals and vice versa. They are used in fiber optic

Optical Module Guide: Demystifying Optical Modules

How Optical Modules Work and Their Practical Uses Optical modules operate by converting electrical signals from networking equipment into

Which Optical Modules Are Commonly Used In 4G Base Stations?

In this blog,ETU-LINK will talk about 4G base stations and common types of optical modules. The base station can be divided into two modules: the RRU for transmitting signals and the BBU for processing

HISILICON Optical Modules in the field of communication base stations

In 4G network, the optical modules used to connect bbu and rru are mainly Gigabit to 10 Gigabit optical modules; in 5G network, the interfaces between bbu and rru are such as cpri

Optical Fibre SFP Module for 5G Networks An SFP (Small Form-factor ...

Optical Fibre SFP Module for 5G Networks An SFP (Small Form-factor Pluggable) is a hot-swappable optical transceiver module that converts electrical signals into optical signals (and vice versa ...

Understanding RRU in Telecommunications

1. RRU stands for Radio Remote Unit and is the distributed frequency unit that connects to an operator''s network and user equipment like cell phones. It is installed below antennas on towers. 2. RRU

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