How to identify RRU optical modules



Overview

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

Key Takeaways

The optical module on an RRU is a compact, rectangular device that provides optical-electrical conversion, allowing fiber optic cables to transmit signals between the RRU and other network equipment.

Appearance and Placement

The optical module is typically a small, rectangular unit inserted into a dedicated port on the RRU panel. It is designed to accommodate fiber optic connectors and is often located near the RRU's cabling cavity or interface panel. The module may have a metal or plastic casing with a slot for the optical fiber and sometimes includes indicators for operational status.

Before replacing the module, optical cables must be removed to avoid signal interruption.

Function

The primary function of the optical module is optical-electrical conversion, enabling high-speed data transmission between the RRU and the Baseband Unit (BBU). It converts electrical signals from the RRU into optical signals for fiber transmission and vice versa, supporting CPRI or eCPRI interfaces. This allows the RRU, which is mounted on towers, to communicate efficiently with the BBU located in the server room.

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Types and Specifications

In 4G networks, common optical modules include 1. 25G, 2. 5G, 6G, and 10G modules, often using single-mode or multi-mode fiber.

For 5G networks, higher-speed modules such as 25G SFP or 10G SFP+ are used. These modules typically operate at wavelengths like 850nm, with working temperatures ranging from 0–75°C and power consumption under 1W. Transmission distances vary depending on the module and fiber type, e.g., 550m for 1.

25G SFP over multi-mode fiber.

Connectivity

The optical module connects to the RRU via a dedicated optical port. Fiber optic patch cords are inserted into the module, linking the RRU to the BBU or to a CWDM multiplexer in serial networking setups. Passive wavelength division multiplexing is often used to optimize fiber usage when multiple RRUs are connected over long distances.

Maintenance Notes

Replacing an optical module interrupts signal transmission, so care must be taken during maintenance. Modules are designed for easy insertion and removal, and proper handling of fiber connectors is essential to prevent damage. In summary, the optical module is a small, rectangular interface on the RRU that enables optical communication with the BBU, comes in various speeds and types depending on network generation, and is critical for high-speed, long-distance signal transmission in distributed base stations.

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

RRU Installation and Hardware Guide

It describes the appearance and functions of the RRU, and outlines the steps for installing the RRU units, connecting the power and optical cables, and properly grounding the equipment.

HUAWEI RRU HARDWARE MAINTENANCE MANUAL

You must disconnect optical fibers from an optical module before replacing the optical module. Disconnecting the optical fibers interrupts the transmission of

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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

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

DBS3900 RRU3252, RRU3256 Hardware Description | Manualzz

This document provides reference for planning and deploying an RRU3252/RRU3256 (referred to as RRU in this document). It presents the exterior and describes the ports, functions, cable types,

Microsoft Word

When dealing with optical fibers, connector condition and cleanliness are two of the most important factors. Dirty or damaged connectors will reduce the quality of transmissions and cause large

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.

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

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

ZTE MM BBU Port Numbers |SFP Modules Port Numbering| RRU Optical

ZTE MM BBU Port Numbers | SFP Modules Port Numbering | RRU Optical Fibers Port Verification IT RAN BBU | Telecom In this video you can learn that How to veri...

RRU5935E Hardware Description

Table 1-4 Optical module mapping Optical Module Type Mapping Between the BBU and RRU SFP duplex (two-fiber bidirectional, duplex for short) optical module SFP duplex optical modules with the

Remote radio unit (rru) and base band unit (bbu)

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A remote radio unit (RRU) in a radio base station system can include a cyclic prefix (CP) module having a CP adder for downlink channel processing includes a CP remover for uplink channel processing.

Have you heard of RRU and RFU? If these terms aren''t ...

• The RRU, on the other hand, is also an RF Module but is mounted directly under the antenna and connects to it via a Feeder Cable, and connects to the BBU via a CPRI Cable, which is an optical ...

Why Optical Modules For CPRI Applications Need To Support

Based on the above analysis, optical modules working in RRUs must support an industrial temperature range of -40℃ to 85℃ to ensure stable performance under extreme outdoor

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

RRU Installation and Hardware Guide

The document provides instructions for installing RRU, DBS, BTS and TMA equipment and their associated cables. It describes the appearance and functions of the RRU, and outlines the steps for

Things You Need to Know About Optical Modules and Wavelengths

Introduction What are optical modules used to build a campus network? What are differences between various optical modules? How should we select optical modules? You will get

The Most Comprehensive Guide Of Optical Modules

Explore the ultimate guide to optical modules. Learn types, functions, performance metrics & how to choose the right module for your fiber network.

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