

12 Channels Active Optical Fiber Expansion Equipment

5G Base Station Remote Expansion System



Specification

As the deployment of wireless networks becomes more and more intensive, the scale of large-capacity distributed base stations is also expanding. The deep coverage of base stations requires the location of the deployment to be closer to users. The traditional pre-transmission scheme of optical fiber direct drive between the BBU and the RRU has a series of problems such as serious consumption of optical fiber resources and difficulty in expanding the capacity. The 1U compact WDM equipment effectively solves the practical problem of lack of resources for fiber-optic remote transmission cable between BBU and RRU in C-RAN architecture, and meets the requirements for deep coverage and flexible expansion of carrier base stations.

Functions and features

- Supporting CWDM/DWDM transmission, wavelength conversion.
- Meet a variety of transmission distances: 10KM, 40KM, 80KM and other distances.
- Supporting flexible and transparent access for multiple rate services: supporting Ethernet, PTN, PON, SDH, SONET, CPRI1~8 and private network services.
- Supporting 12 channels bidirectional 155Mbit/s~11.3Gbit/s/25G service access at any rate, supporting client end with single mode or multimode.
- Supporting SNMP-based unified network management platform, network management mode CLI, WEB, NetRiver (graphical interface).
- Supporting CDR function, which can optimize output, DDM signal monitoring and no optical signal shutdown function.
- Supporting software to close the port.

Parameters

System Parameter	Technical Index	
Optical fiber expansion capacity	The max. capacity of a single device fiber can be expanded by 12 times.	
Insertion loss	The introduction of devices at both ends does not increase the attenuation of the original fiber, and its connection and transmission loss is less than 1 dB.	
Access business types	Supports BBU and RRU interconnections, PTN interconnection, OLT of PON system and splitter interconnection and hybrid transmission of multiple businesses. There is no need to make any changes to the original BBU, RRU, and PTN equipment. No hardware replacement is required for each interface of the equipment. CPRI interfaces (1~7), Optical Ethernet Interface (100M~10G), SDH interface (155M~10G) can be directly supported via the configuration of network management back stage and software.	
Transmission distance	Supports transmission distance: 10KM, 40KM, and 80KM (optional).	
Transmission delay	<12dB@100G QPSK, <21dB@200G DP-16QAM, <16dB@200G DP-16QAMps, <13.5dB@200G DP-QPSK.	
Entry cable	Adopts front outlet mode for external connection of equipment (such as optical fiber, power supply, network management line, etc.).	
3R feature	Supports STM-1-64, CPRI (1-7), PTN, 25G and other rate services 3R functions (Re-amplifying, Re-shaping, Re-timing) front outlet mode.	
Cascading feature	Supports above 8 pairs of equipment cascading without affecting device performances. Any rate is supported during cascading.	
Clock feature	Supports IEEE 1588 v2 clock protocol.	
Protection feature	Supports OLP line protection, switching time is less than 50ms.	
Network management feature	Supports various network management modes such as NetRiver, CLI, WEB, etc.; Supports in-band network management transmission of OSC, No additional optical fibers or transmission interfaces are added as network management channels; Supports local and remote loopback functions, online read-out all ports' input and output optical power of optical fiber, easy for network maintenance and fault location.	
Operation environment	Working temperature	-10°C~+70°C.
	Working humidity	5%~95%.
Input power	DC -48V, DC24V or AC220V (optional).	
Full load function	≤60W.	

System Parameter	Technical Index
Device Dimension	438mm (W) ×44mm (H) ×250mm (D).
MTBF	117501 hours.
Compliant electromagnetic specification	Compliance with GB/T 17626.2 or IEC 61000-4-2, GB/T 17626.3 or IEC61000-4-3, GB/T 17626.4 or IEC61000-4-4, GB/T 17626.5 or IEC 61000-4-5, GB/T 17606.6 or IEC 61000-4-6, GB 9254 or CISPR22, GB 9254 or CISPR22, GR-1089-CORE requirements.
Compliant safety standard	Compliance with GB 4943-2001, GB 7247.1-2001, GB/Z 1846-2001, GR-63-CORE requirements.

Networking Applications

The base station remote product effectively solves the practical problem of lack of fiber-optic cable transmission resources between BBU-RRU/DU-AAU in C-RAN architecture, and meets the requirements of deep coverage and flexible expansion of carrier base stations. Moreover, it can provide multi-solutions for full scene access and end-to-end loading.

Application 1: Passive Solution

Passive solutions need to deploy passive optical fiber expansion equipment between BBU/DU pool and RRU/AAU. Only one pair of optical fibers is required between the passive optical fiber expansion equipment. At the same time, we need to replace the SFP colored optical module provided by our company at the CRU port of RRU/AAU and BBU/DU.

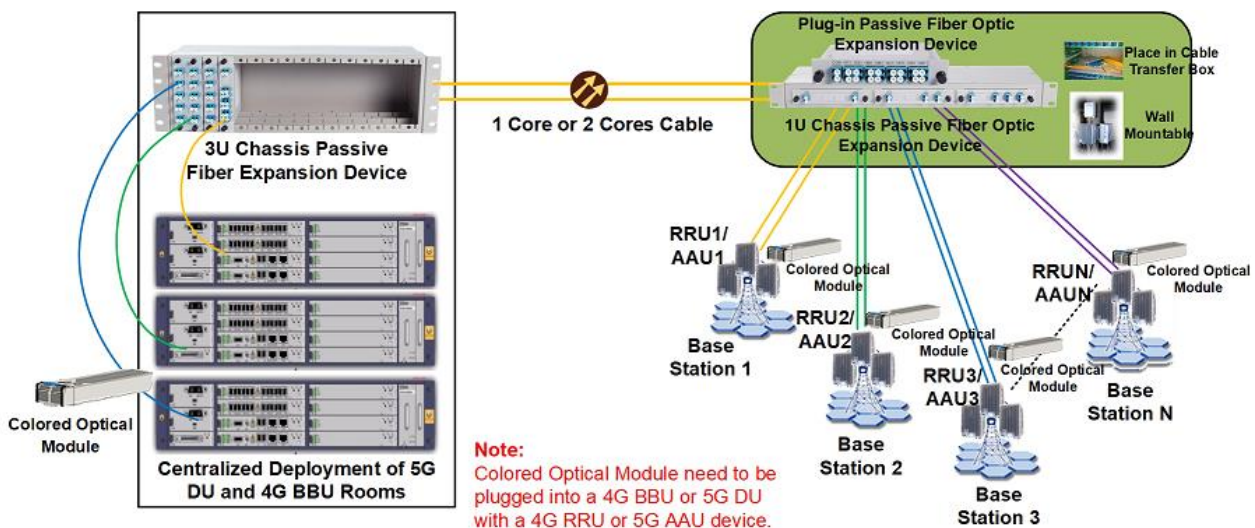


Figure 1: Passive Application Solution for BBU/DU & RRU/AAU

Application 2: Active Solution

Active solutions need to deploy active optical fiber expansion devices between BBU/DU pool and RRU/AAU. Only one pair of optical fibers is required between the active optical fiber expansion devices, and the original BBU/DU devices and RRU/AAU devices do not need to be changed. Plug-and-play, it supports mixed transmission of other types of services.

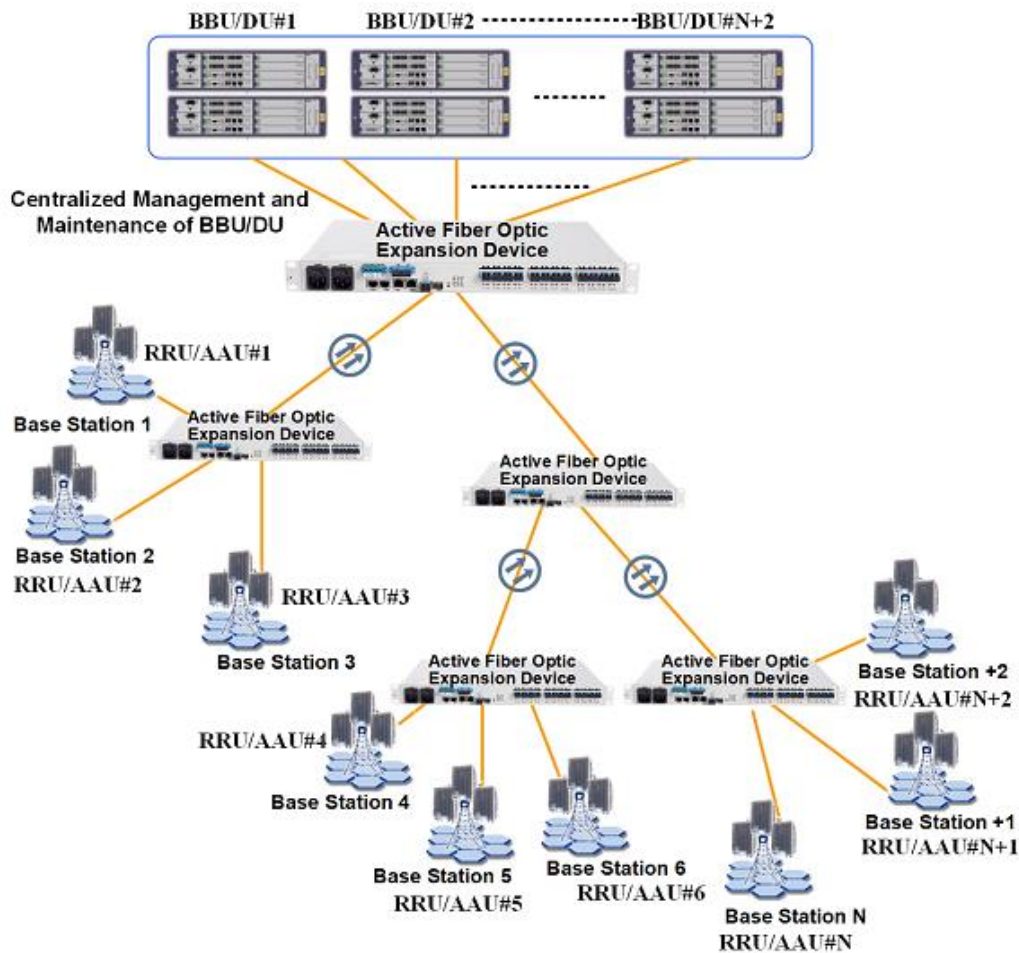


Figure 2: Active Application Solution for BBU/DU & RRU/AAU