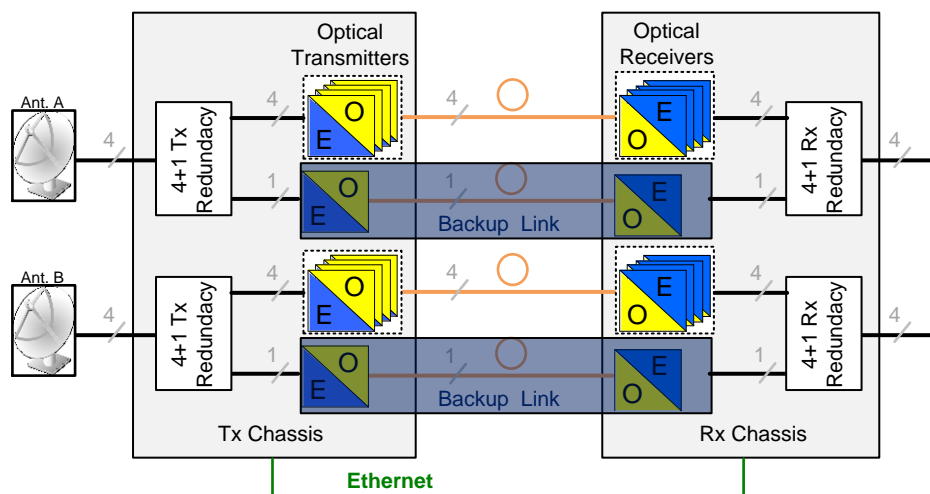


RF over Fiber Links in 4+1 Redundancy Configuration

RF over Fiber systems, in which light is modulated by a radio frequency signal and transmitted over an optical fiber link, are typically employed in satellite ground stations or teleports to transmit RF signals between field-based receiving antennas and ICT control rooms or between different equipment centers. Beside the general benefits of optical technology like significant lower transmission losses and higher signal quality, the reliability and availability of these systems can be further increased by applying link redundancy configurations.

A 4+1 redundancy scheme provides one Backup optical link per 4 Main optical links. This can e.g. ensure the availability of all four RF signals of one satellite antenna in case of the failure of any optical Main link of the four polarizations.



Typical application scenario for a 4+1 redundancy configuration with in total 8 Main and 2 Backup RF over Fiber transmission paths from 2 satellite receiving antennas.

In the drawing above, a RF over Fiber architecture in 4+1 redundancy configuration is shown, which provides one optical Backup link per 4 optical Main links. Therefore the 4+1 redundancy scheme combines the benefit of an increased reliability compared to a 1:1 architecture with reduced capital expenditure of a 1+1 redundancy scheme.

Benefits:

RF over Fiber technology in a 4+1 redundancy configuration shows several advantages compared to all-electrical signal transmission.

- Increased system reliability by 4+1 redundancy scheme
- 4+1 configuration provides excellent balance between system reliability and costs
- Increased uptime by automatic switching to Backup link
- Significant lower losses and less frequency dependent loss by optical transmission
- Applicable for transmission distances from below 100 m to above 100 km
- More flexible and light weight cables assuring simple installations
- Reduced sensitivity to noise and electromagnetic interference
- Monitoring and Control over Ethernet via Graphical User Interface or SNMP

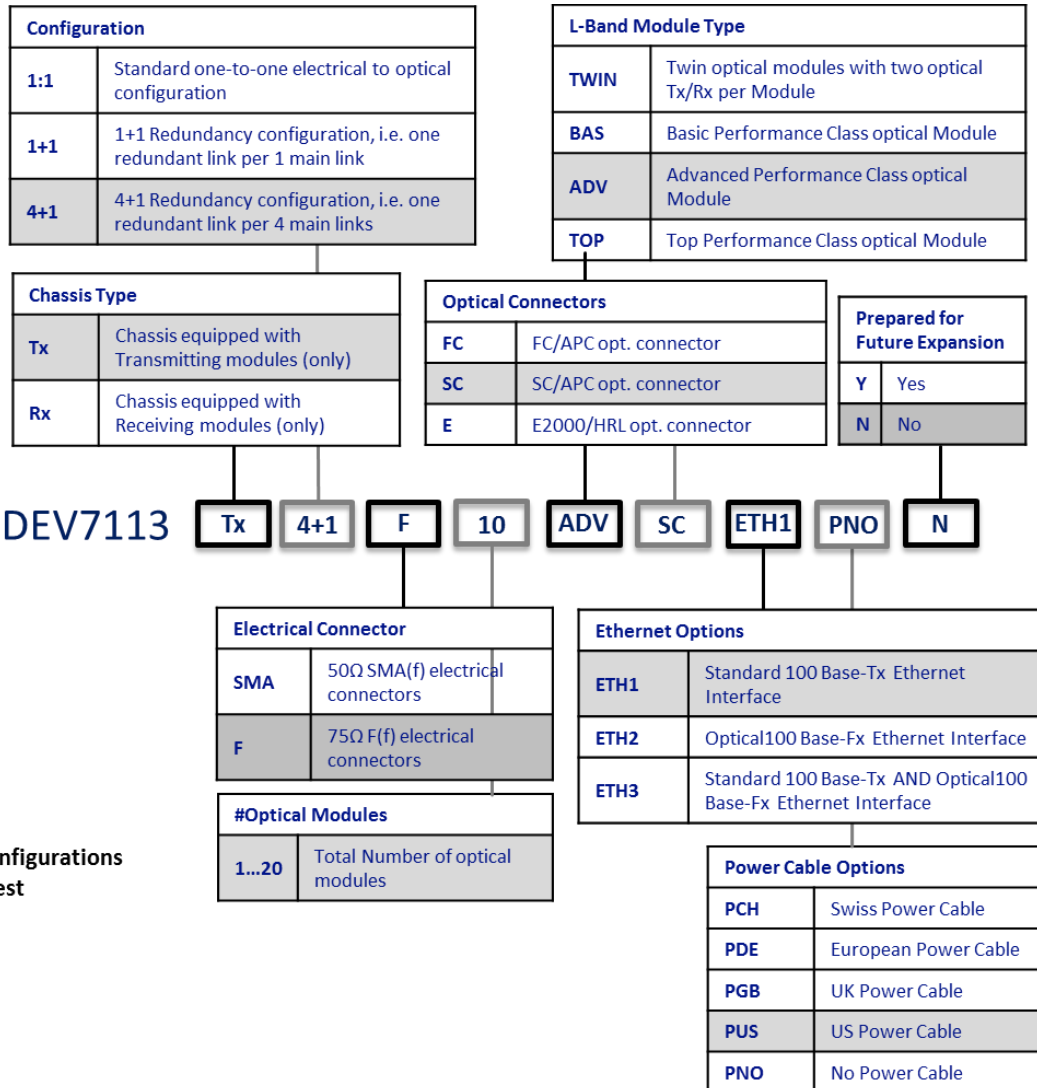
DEV RF over Fiber Indoor Chassis

The DEV Systemtechnik chassis for indoor use can be flexibly equipped with various RF over Fiber optical modules. In the following, an indoor chassis configuration according to the example discussed previously is presented.



Front and rear view of DEV7113 chassis in 4+1 configuration equipped with 10 'Advanced' Tx modules.

Ordering Key



Further chassis configurations available on request

Ordering Key: DEV7113-Tx-4+1-F-10-ADV-SC-ETH1-PNO-N

Results in a DEV7113 indoor chassis equipped with 10 RF over Fiber 'Advanced' transmitting modules in 4+1 configuration with US power cables, with F and SC/APC connectors and equipped with electrical Ethernet Interface.

About DEV Systemtechnik:

DEV Systemtechnik is a leading manufacturer of RF signal management equipment. The company produces RF matrix switches, RF over fiber equipment, routers, test automation and control software, redundancy switches, relay switches, splitters, combiners, amplifiers, and RF accessories such as powering products available in various frequencies. The products are used in Satellite, Broadcast, Government/Military, and Wireless Markets and meet the highest standards of system availability, reliability, and controllability.

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