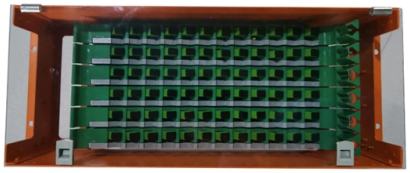
Selection Guide for Upgraded Active Optical Devices for Rail Transit Use



Article Overview

Upgraded active optical devices for rail transit should be selected based on environmental resilience, high bandwidth, low latency, and compliance with railway standards such as EN50155 and EN45545-2.

Key Considerations for Selection

1. Environmental and Operational Resilience Railway optical devices must withstand extreme conditions including temperature fluctuations, vibration, shock, dust, moisture, and electromagnetic interference. Devices should comply with EN50155 (electronic equipment for rolling stock) and EN45545-2 (fire safety) standards to ensure safe and reliable operation in onboard and trackside environments . 2. Bandwidth and Latency Requirements Modern rail networks demand high-speed data transmission for signaling, passenger Wi-Fi, video surveillance, and train control systems. Active optical devices such as 25G SFP28 Active Optical Cables (AOCs) and optical transceivers support high bandwidth (up to 25Gb/s) with low latency, ensuring deterministic performance for mission-critical applications . 3. Device Categories

• Optical Transceivers (SFP/SFP+/SFP28): Provide flexible connectivity for multimode or single-mode fiber, suitable for short- and medium-range links .
• Active Optical Cables (AOCs): Pre-terminated fiber assemblies with integrated transceivers, ideal for rack-to-rack or onboard connections, offering cost-effective, high-performance solutions .
• Optical Line Terminals (OLTs) and Optical Network Units (ONUs): Hardened device...

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