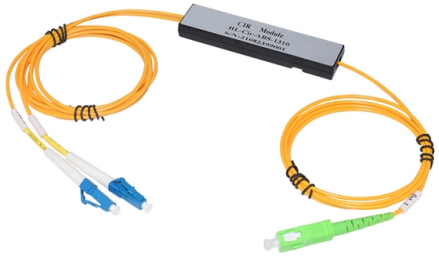
Anti-interference measures for optical fiber communication cables



Overview

Outdoor optical cables must combat interference from various sources, including RF signals, electromagnetic radiation, and adverse weather conditions. Advanced shielding techniques, grounding systems, and insulation materials are crucial to minimizing signal degradation. OTDR testing is a diagnostic technique used to evaluate the integrity of fiber optic cables. By sending a series of light pulses through the fiber and measuring the reflected signals, OTDR can identify faults, breaks, and other anomalies that may cause signal interference. Regular OTDR testing. To address the challenge of linear anti-interference in digital signal transmission, this paper integrates Discrete Fourier Transform and Wavelet Transform techniques to precisely identify and locate linear interference signals during the transmission process of Orthogonal Frequency Division. Depending on the application, cables can be adversely affected by EMI/RFI/ESI (electromagnetic interference, radio frequency interference, electrostatic interference) also known as 'signal interference. ' Insulation alone provides no protection from signal interference – so to combat the effects of. In order to achieve accurate transmission of protection signals in fiber optic communication networks, it is necessary to perform channel balancing configuration of fiber optic communication networks and adaptive forwarding control processing of relay protection signals, the author proposes an. As we approach the half century mark for the dawn of the era of optical communications, it is appropriate to take stock of the journey of discovery and application of this empowering technology.

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Using the VPI optical communication simulation platform, a short-distance analog-division multiplexing transmission system based on multimode fiber was designed and built.

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