Coherent Detection Optical Receiver

Overview

It is designed as a reference receiver for transmitter characterization and analysis of IQ modulated optical signals in the C-Band. Available with bandwidth options of 80 GHz, 60 GHz, 40 GHz and 20 GHz, the CORX enables the processing of Terabit-class signals and baud rates beyond. tion assisted by digital signal processing (DSP). Due to limitations in space, it focuses mainly on coherent optical systems usin major. Abstract: The drive for higher performance in optical fiber systems has renewed interest in coherent detection. The optical hybrid then delivers the four light signals to two pairs of balanced detectors. See the block diagram belo itable for coherent signal demodulation, BPSK or QPSK demodulation. When the frequencies of the LO and incoming optical field carrier are the same, the baseband signal. The CORX Coherent Optical Receiver is a turn-key instrument designed to interface with any real-time oscilloscope by providing 4 single-ended RF outputs.

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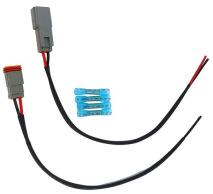
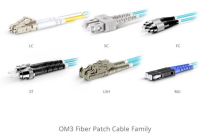


The receiver architecture shown here is recommended by the Optical Internetworking Forum (OIF) and enables extraction of all information in the signal. We''ll examine receiver architecture in...

Optical coherent receivers operate on the principle of mixing an incoming optical field (information channel) with a high power local oscillator (LO) signal prior to detection by the photodetector.



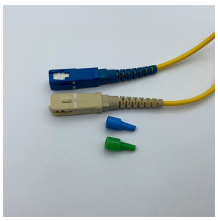
In coherent detection, a strong local oscillator is used, mixing with the optical signal at the receiver and effectively amplifying the weak optical signal. Thus, compared to direct detection, ...

The optical performance of the 90deg optical hybrid is same as those described in previous sections, except for the output collimators are replaced by single-ended photodetectors.

It allows the coherent detection of polarization-multiplexed optical signals in the C-Band by mixing the test signal with a built-in local laser oscillator. It is designed as a reference receiver for transmitter ...

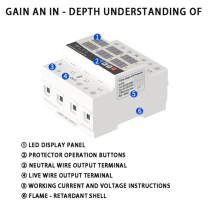
This paper reviews the history of research and development related to coherent optical communications and describes the principle of coherent detection, including its quantum-noise ...

Innovations for the digital society of the future are the focus of research and development work at the Fraunhofer HHI. The institute develops standards for information and communication technologies ...



The most advanced detection method is coherent detection, where the receiver computes decision variables based on the recovery of the full electric field, which contains both amplitude and phase ...

In this section, we describe the implementation of the functionalities of the optical M-PSK transmitter and receiver using various photonic devices, i.e., a QM, a balanced receiver, a phase-diversity receiver ...



This section studies each basic type of coherent optical receivers that mix the received signal with the LO laser. The signal-to- noise ratio (SNR) of each receiver type is derived, especially for systems ...

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