

COHERENT RECEIVER FRONTEND

AT A GLANCE

- Fully differential optical receiver frontend in a 19" 1HE-chassis
- Coherent detection of high-speed optical QPSK and n-QAM signals



Features

- Includes coherent receiver module with integrated beam splitter, 4 balanced photoreceivers/-detectors and optical 90° hybrid
- Different versions for 100 Gbit/s DP-QPSK and up to 64 Gbaud n-QAM
- Up to 8 Electrical RF-outputs for pos./neg., I/Q and both polarizations
- Optical inputs for LO / data signal
- Automatic or manually tunable gain and peakdetector output in TIA-version

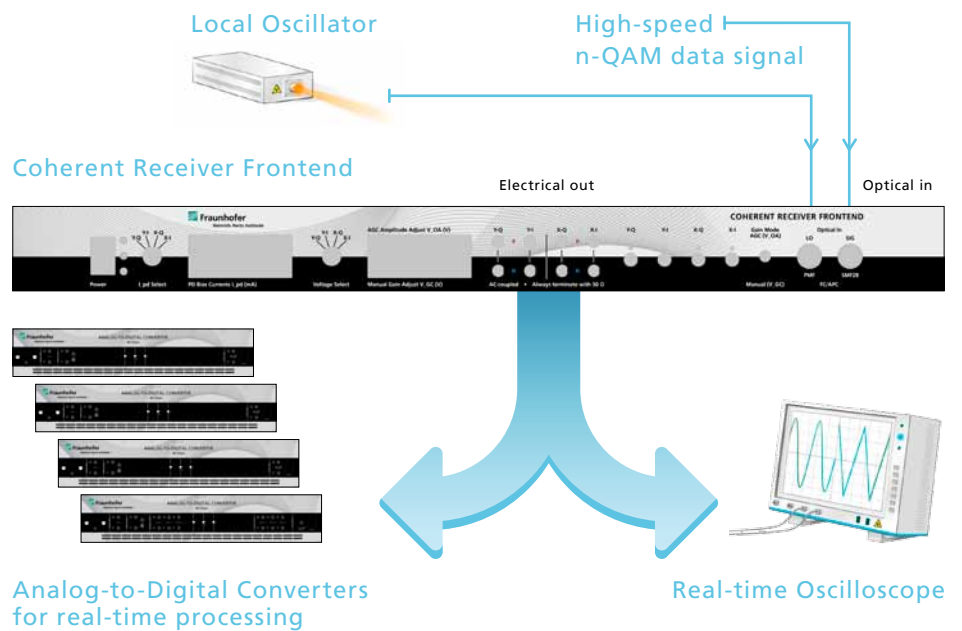
Applications

- Coherent detection of high-speed data signals with various modulation formats (QPSK, n-QAM)
- Coherent receiver frontend for optical data transmission
- O/E converter for detection of arbitrary optical waveforms
- High-resolution optical spectrum measurements

Specifications

Operating wavelength range (nm)	■ C-band (1530 – 1570) or L-band (1570 – 1612)
3dB cut-off frequency (GHz)	■ typical 25, typical 40*
Average photodiode responsivity (mA/W)	■ typical 50
Common mode rejection ratio (dBe)	■ typical -20
Imbalance I_{Sig} and I_{LO} (dBo)	■ <2
Phase deviation (deg)	■ +/- 5, +/- 1*
Polarization extinction ratio for Sig & LO (dBo)	■ typical 20

*depending on the implemented coherent receiver version



Principal setup of the coherent receiver frontend



The Fraunhofer HHI

One of the prime research and development foci of the Fraunhofer Heinrich Hertz Institute lies in photonic networks, components and systems and their application in fields such as digital media.

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