ID Photonics Product Portfolio Overview

IDPHOTONICS GMBH SHAPING LIGHT

www.id-photonics.com

Product line overview

CoBrite$_{DX1}$

Ultra compact single laser platform

- USB Interface
- C and L Band Option available

CoBrite$_{DX4}$

Versatile multi-purpose laser platform

- Local interface
- USB&Ethernet remote control Interface
- 1-4 lasers in one chassis
- 8 Laser variants available

CoBrite$_{MX}$

Highly scalable multi channel laser platform

- Scales from 2 to 104 Laser sources per system
- 4 Different Mainframes available
- 8 Laser variants available

ID OSA

Optical Spectrum Analyzer

- Cost Effective compared to standard solutions
- High Resolution & Fast
- Ultra Compact
- Rugged

Product line overview - continued

PMUX

Polarization Maintaining Multiplexer

- AWG based for high port counts
- coupler based variant for Flexigrid applications
- Standalone or integrated in $CoBrite_{MX}$ Platform

ABC

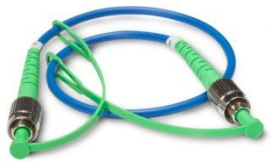
BIAS control for Mach-Zehnder Structures

- Optimizes BIAS Operating point of MZM Modulators
- Operates independent of RF data signal
- Intuitive GUI provided
- USB& Ethernet remote interfaces

OMFT

IQ Multi-Format Transmitter

- Generation of optical Dual-Pol Multi-Level IQ Signals
- E/O Bandwidth > 40GHz
- Intuitive GUI provided
- USB& Ethernet remote interfaces
- Recommended E/O Solution by Keysight, integration with M819xA AWG Signal source series



PM passive components

- PM Couplers up to 1x16
- Patchcords in various configuration

Tunable laser availability matrix

Laser Option	DX1 	DX4 	MX 
H01 standard, C01, W01 (Max. Port density)	✓ (1)	✓ (4)	✓ (4*)
H01 C+L Band (Max. Port density)	-	✓ (2)	✓ (2*)

*per Card

Data Sheets

http://www.id-photonics.com/images/stories/PDF/Data_sheet_CBDX4-x-x-xx.pdf
http://www.id-photonics.com/images/stories/PDF/Data_sheet_CBDX1-x-x-xx.pdf
http://www.id-photonics.com/images/stories/PDF/Data_sheet_CBMX_series.pdf

Laser chassis - Available Variants

CBMA48

Up to 48 Lasers
in one mainframe

Allows to central control of up to 104 Lasers by extension with CBSL56

CBSL56

Up to 56 Lasers

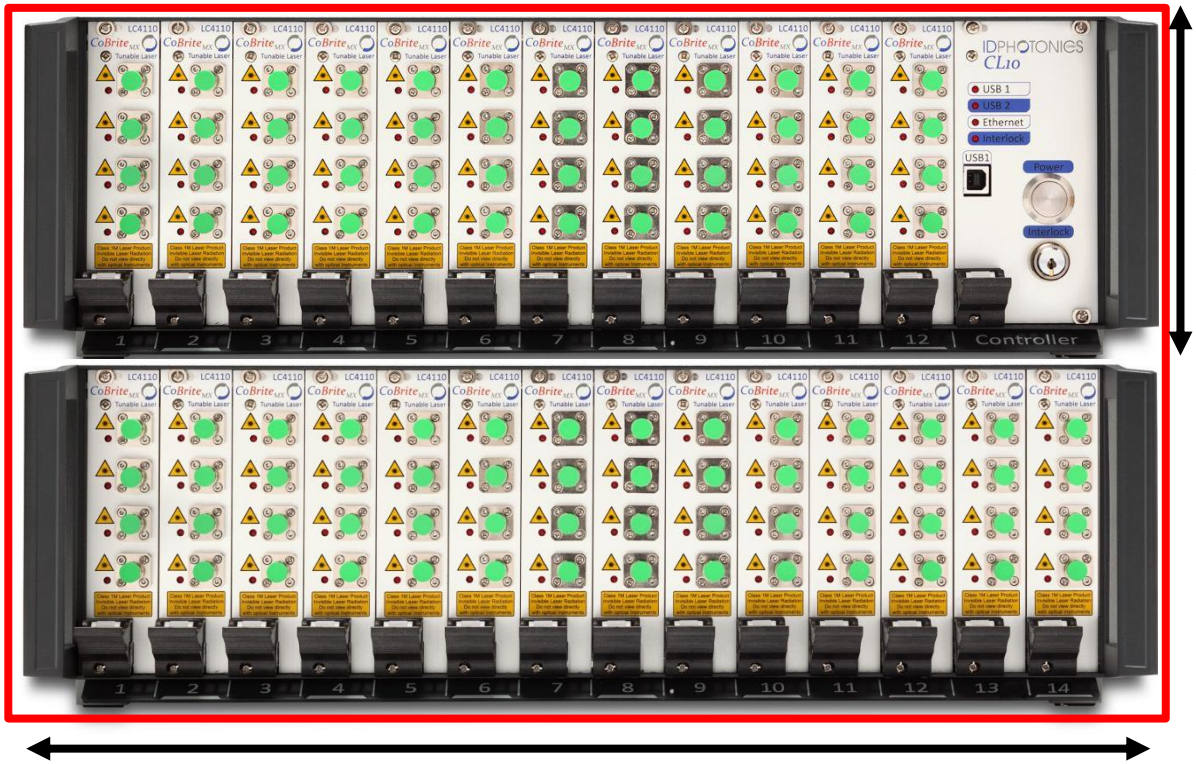
Slave mainframe for system extension up to 104 Lasers with CBMA48

= maximum of 104 Lasers in one system

CBMA24

Up to 24 Lasers

Ultra Compact mainframe



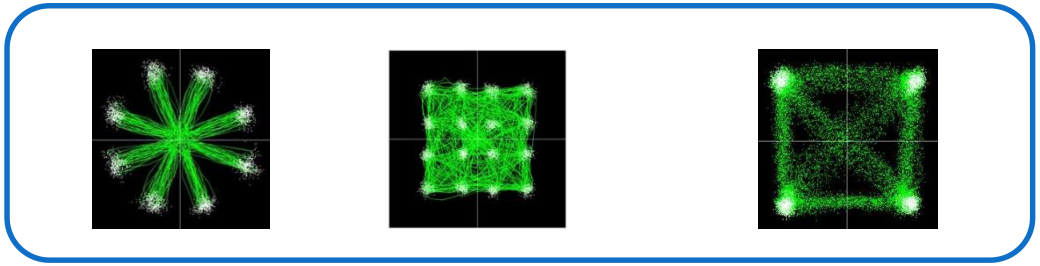
ID OSA – Optical Spectrum Analyzer

NEW!

- ✓ **High Resolution** - 312.5MHz/2.5pm Scan Resolution
- ✓ **Fast** - 2 Hertz Scan Rate at full Resolution
- ✓ **Ultra Compact** - 1HE half size 19” rack stacking
- ✓ **Rugged** - No moving Optical Parts

Data Sheet
http://www.id-photonics.com/images/stories/PDF/Data_sheet_IDOSA.pdf

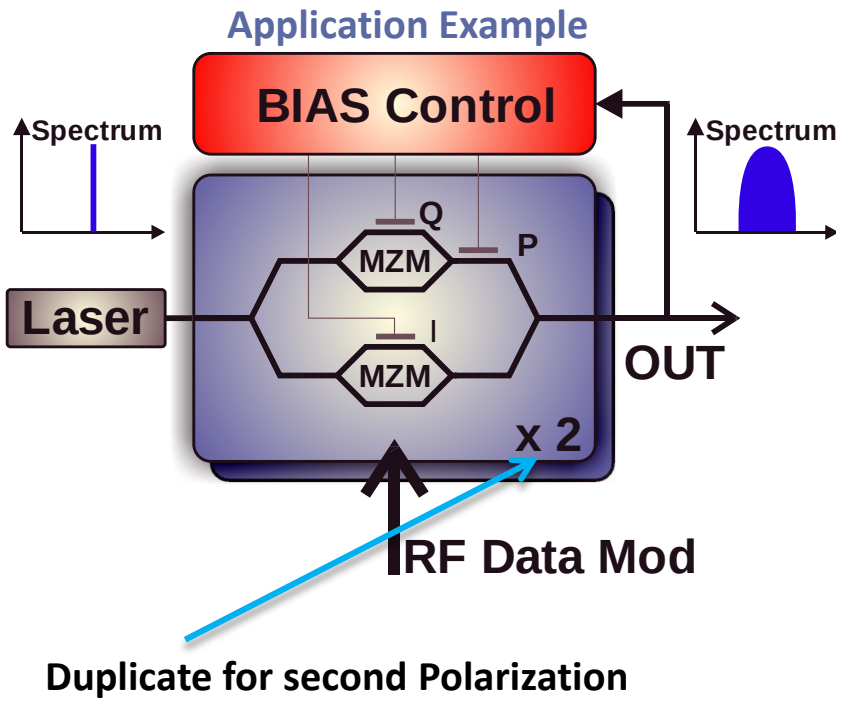
ABC BIAS control for Mach Zehnder Modulator Structures



- ✓ Optimized for next generation IQ modulation
- ✓ Independant of modulation format
  - ✓ QAM – OFDM – QPSK, …
- ✓ High-performance all Digital Signal Processing

Data Sheet
http://www.id-photonics.com/images/stories/PDF/Data_sheet_ABC-x-x-xx.pdf

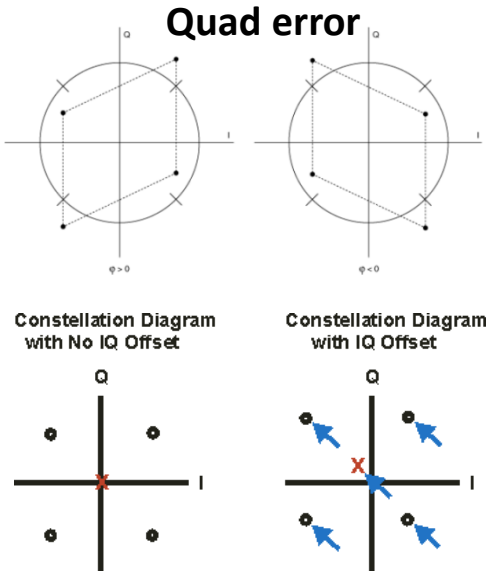
Automated ABC (ABC) for IQ Modulators



- Nested Mach-Zehnder Structure used to generate IQ Modulated signals such as QPSK, QAM, OFDM, …
- Voltages applied to BIAS electrodes used to operate device in working point
  ➔ **direct impact on signal fidelity**
- Mach - Zehnders suffer from inherent drifts due to temperature, electron migration etc.
  ➔ **Constant optimization is required**
- Dual Polarization IQ devices require 6 inter-dependent voltages to be optimized
  ➔ **Manual adjustment time intense & cumbersome**

➔ **Automated control required**

Test Parameters characterizing constellation quality



- **EVM**

  Global parameter charactering overall quality. Note related to specific distortions

- **Quadrature error**

  “rhombus distortion” characterizing phase relation between I and Q. Dominated by Phase BIAS setting of Mach-Zehnder; **Key performance parameter for automated ABC quality for IQ Modulators**

- **IQ Offset**

  Constellation center moved out of plane point of origin.

- **Gain Imbalance**

  I and Q dimension scaling difference => determined by RF chain imbalances

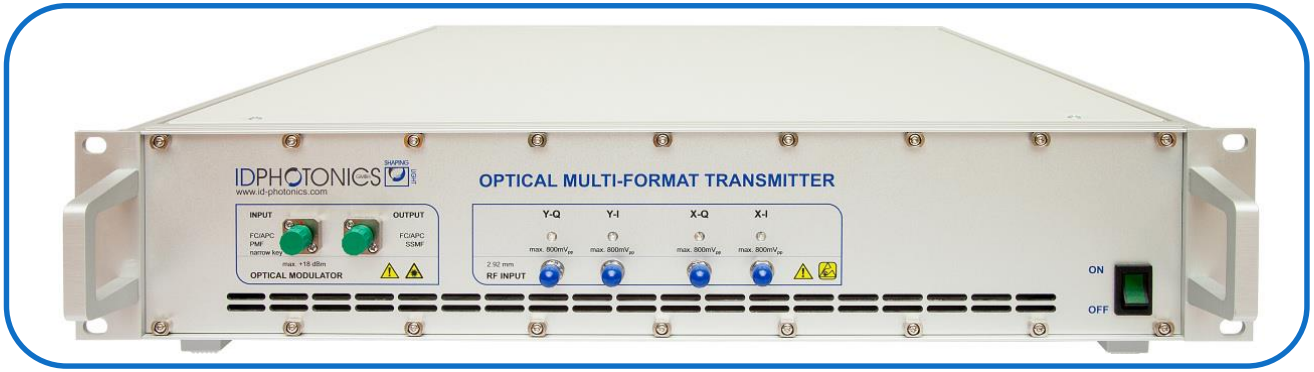
- **XY Polarization Imbalance**

  X and Y Polarization constellation size difference => determined by Mach-Zehnder polarization optics and RF chain imblance

Performance indicators for automated ABC

EVM & Quad error

OMFT IQ Transmitter



Turnkey ready integrated IQ Transmitter

- ✓ >40GHz E/O Bandwidth
- ✓ Generation of advanced optical modulation formats (e.g. QPSK, 16-QAM)

✓ Generation of advanced multi-level modulation formats

- ✓ QAM – OFDM – PSK, …

✓ High-performance automated BIAS Control

Data Sheet

http://www.id-photonics.com/images/stories/PDF/Data_sheet_OMFT-x-xx-x-xx-xx.pdf