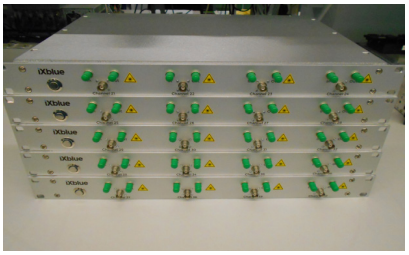
ModBox

ModBox-CBC-2000nm-4CH

ModBox 2000 nm 4 channels with phase modulation control

The ModBox-CBC-2000nm-4CH-is a robust multi-channels phase modulation solution for multibeam coherent combination.
The ModBox operates in the range of 2000 nm and is composed of 4 parallel and independent channels for adjusting the phase of each to match the others.
Each channel allows an adjustment of the temporal phase for synchronization of all beams.
The design integrates exail proprietary low frequency phase modulator combined with its matching RF electronic.
Specific effort is done for ModBox product: the exail electro-optical modulators are screened from our regular production to ensure very low insertion loss, low insertion dispersion between the sereral beams, as well as high phase modulation stability.
The modulator selection makes the ModBox-CBC-2000nm-4CH an accurate, adjustable, and reliable phase-lock modulation solution for Coherent Beam Combining technique.



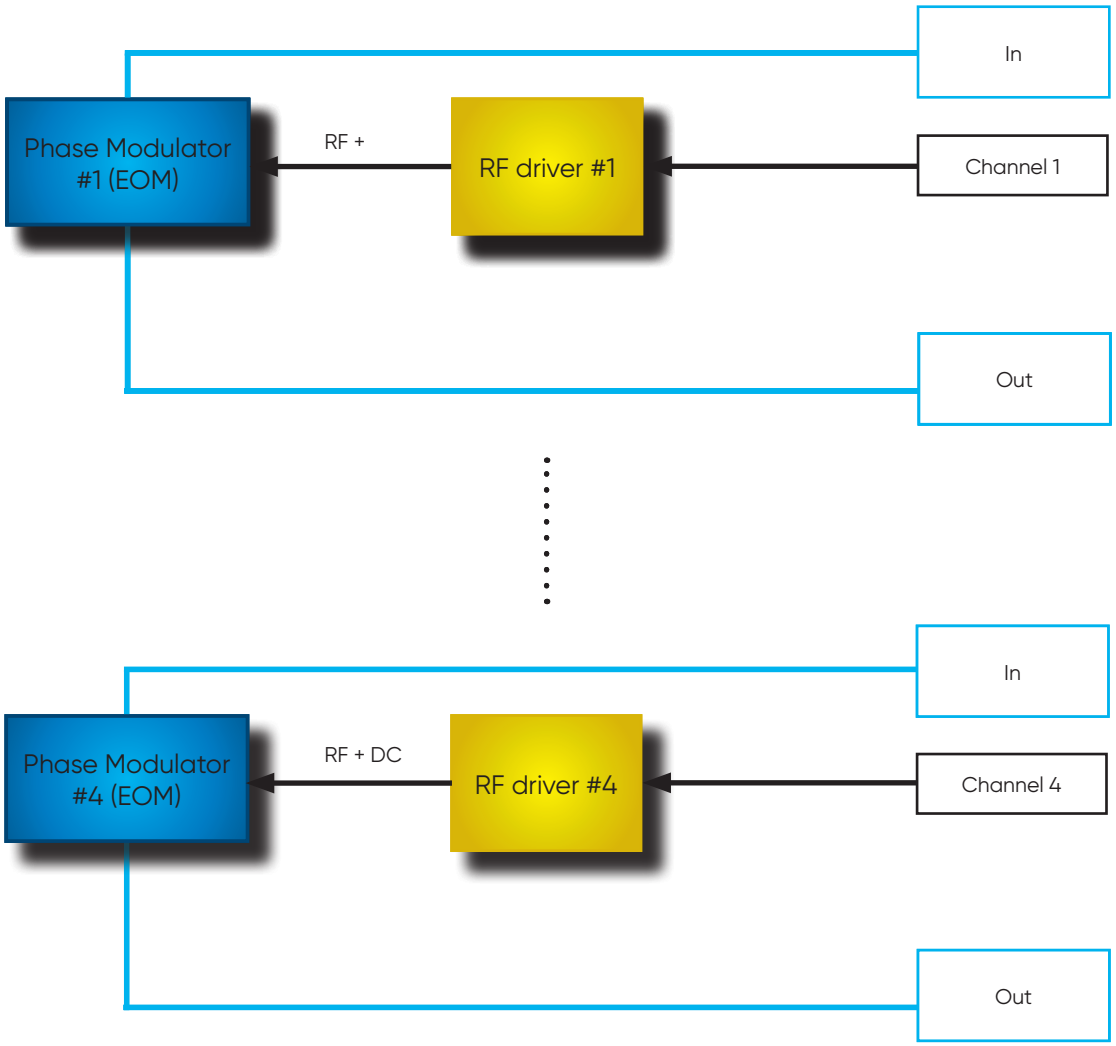
FEATURES

- Proven and reliable solution
- Temporal phase modulation per channel
- Adjustable residual amplitude modulation
- Low Insertion Loss

PERFORMANCE HIGHLIGHTS

Parameter	Typical
Operating wavelengh	2000 nm
Insertion loss	3.5 dB
Polarisation extinction ratio	20 dB
Residual amplitude modulation	Adjustable

FUNCTIONAL BLOCK DIAGRAM



The ModBox-CBC-2000nm-4CH-is an independant 4 channels, each channel integrates:

- a high speed temporal phase modulator
- a modulator matching RF amplifier

The ModBox is a reciprocal modulation unit: each main input (respectively output) can be seen as an output (respectively input) without any alterations to the specification.

Sales: contact@cybel-llc.com | Web: www.cybel-llc.com | 62 Highland Ave., Bethlehem, PA 18017, USA | Tel: +1 (610) 691-7012

INPUT SPECIFICATIONS

Parameter	Symbol	Condition	Min	Typ	Max	Unit
		Electrical Input Specifications				
Input RF voltage	V_{RF_IN}	50 Ω	-	± 110	-	mVpp
Input RF frequency	F_{RF_IN}	50 Ω	-	-	200	MHz
Input DC voltage	V_{DC_IN}	50 Ω	-	± 250	-	mV

OUTPUT SPECIFICATIONS

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Operating wavelength	λ	-	1900	2000	2200	nm
Maximum insertion loss	IL	Per channel @2004 nm	-	3.5	4.5	dB
Insertion loss inter-channel	ΔIL	@2004 nm	-	0.8	1	dB
Polarisation extinction ratio	PER	-	-	20	-	dB
Temporal modulation	BW	From EOM	-	-	200	MHz
Optical return loss	ORL	-	-40	-45	-	dB
RF driver gain	G	DC & RF	25(2)	26(2)	-	dB
Modulation rise & fall times	Rt / Ft	20 % - 80 %	8	-	-	ns

ABSOLUTE MAXIMUM RATINGS

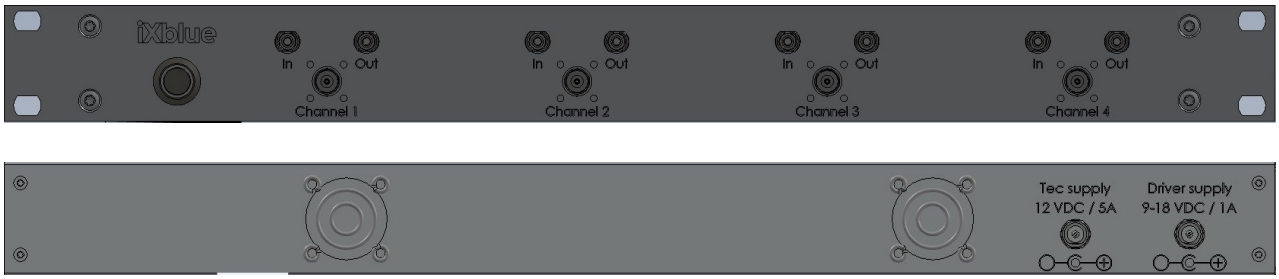
Stresses in excess of the absolute maximum ratings can cause permanent damage to the device. These are absolute stress ratings only. Functional operation of the device is not implied at these or any other conditions in excess of those given in the operational sections of the data sheet. Exposure to absolute maximum ratings for extended periods can adversely affect device reliability.

Parameter	Symbol		Min	Max	Unit
RF input power	EV_{in}	-	-	10	Vpp
DC Input Voltage	DCV_{IN}	-	-	± 1	V
Optical input power	OP_{in}	To the EOM input port (Main In)	-	25	dBm
Operating temperature	OT	-	0	+55	°C
Storage temperature	ST	-	-40	+85	°C

PANELS

Parameter	Condition	
	Rear Panel	
Power supply	-	TEC and driver
Power supply	-	
	Front Panel	
Optical ports	''In [1]	Narrow key FC/APC
	''Out [1]	Narrow key FC/APC
Optical fiber	''In / ''Out [1]	Polarization maintaining fiber, Nufern PM1950
RF & DC input port	''Channel#N'' [1]	BNC
Main power socket	-	DC jack 2.5 mm x2

(1) With N = 1, ..., 20



COMPLIANCE AND SAFETY

Parameter	Condition	
Compliance	-	BS EN 60825 - CE certified

DIMENSIONS

Parameter		
Size	19 inches 1U	
Weight	6 kg	
Power supply	TEC	+12 V DC
	Driver	+9 V to +18 V DC

Sales: contact@cybel-llc.com | Web: www.cybel-llc.com | 62 Highland Ave., Bethlehem, PA 18017, USA | Tel: +1 (610) 691-7012