



Capable of delivering 30 ps to 230 ps pulses, the ModBox-PG-852nm-30ps is an Optical Pulse Generator ModBox that produces high-quality Gaussian optical pulses @852 nm. The system embeds carefully selected components to ensure outstanding optical pulses performances such as a high optical extinction ratio with high stability over time, low jitter and high versatility on the Pulse Width and the repetition rate frequency.

ixBlue Photonics has accumulated a strong experience in such systems and successfully installed them in many laboratories over the world.

The ModBox-PG provides R&D and production engineers with state of the art performance and the peace of mind of a turn-key instrument. It can be used as a reference transmitter in laboratories and production for a broad variety of applications: components and material characterization, seeder for high energy lasers, lidars...

FEATURES

- Optimization for 852 nm operation
- Very high extinction ratio
- Fast rise & fall times
- Square, super-Gaussian waveforms
- Low jitter
- Proven solution

APPLICATIONS

- Transmission system test
- Components characterization
- Production test
- R&D laboratories

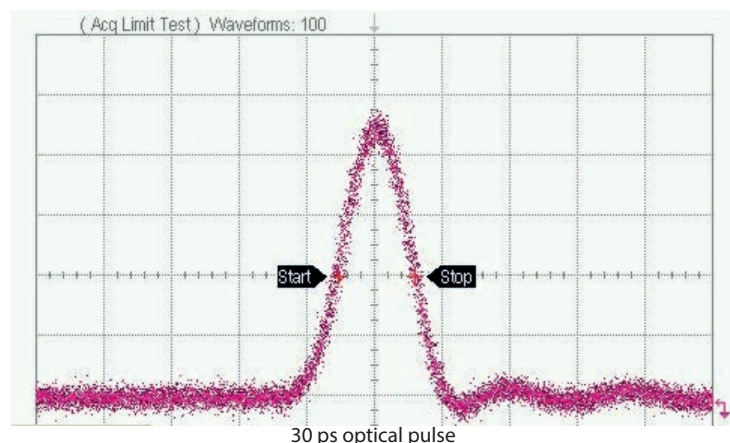
OPTIONS

- Extended Pulse Width to 230 ps
- Extended Extinction Ratio to 50 dB
- 780 nm, 950 nm, 1030 nm, 1064 nm...

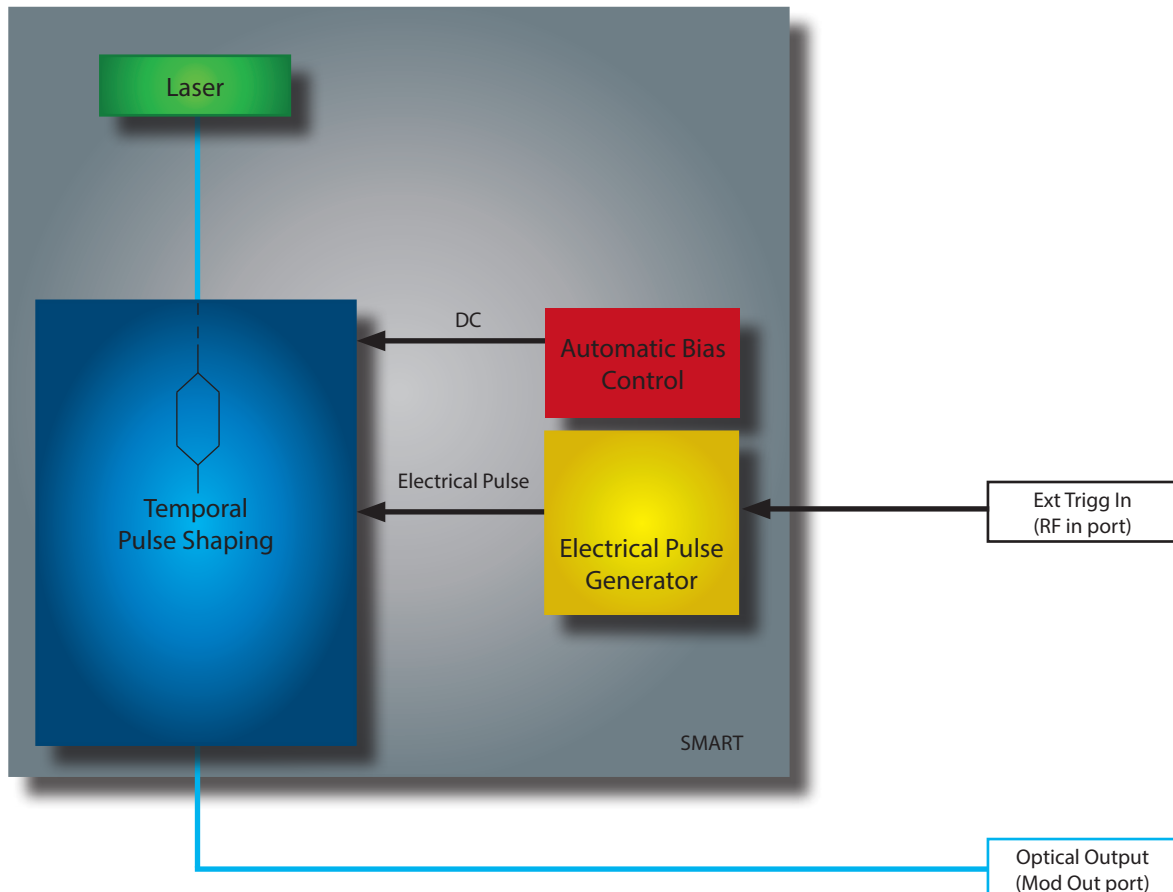
Performance Highlights

Parameter	Min	Typ	Max
Operating wavelength		852 nm	
Pulse contrast @795nm		30 dB / 50 dB (option High ER)	
Pulse waveform		Gaussian	
Pulse width		30 ps / 30 ps to 230 ps (Option Wide PW)	
Frequency Repetition Rate		50 kHz up to 500 MHz	
Rise / Fall times		10 ps	

Optical Pulse Diagrams



Functional Block Diagram



The ModBox-PG integrates the new Smart Interface which allows control for the full system:

- a temporal pulse block based on a modulators set to ensure a very high optical pulse extinction ratio over a large optical bandwidth,
- an automatic modulator bias control circuitry to guarantee high extinction ratio stability over long periods of time,
- the Electrical Pulse Generator with a flexible Frequency Repetition rate and fixed pulse width at 30 ps,
- a CW laser.

Electrical Input Specifications - Trigger In Characteristics User supplied, not a ModBox specification

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Signal type	-	-	Square clock for enhanced jitter performance			
Input level	-	50 Ω	300	-	500	mVpp
Frequency range	FRR	Adjustable	50 k	-	500	MHz
		Optimized range	100	-	300	MHz

Optical Output Specifications

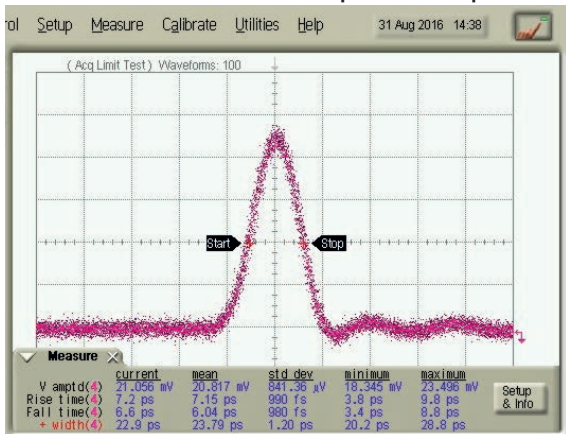
Parameter	Symbol	Condition	Min	Typ	Max	Unit
Operating wavelength	λ	-	852 nm			
Line-width	$\Delta\lambda$	-	-	1	-	MHz
Output pulse shapes	-	-	Super-Gaussian to Square			-
Pulse width	PW	Fix	-	30	-	ps
		With option Wide Pulse Width	30	-	230	ps
Frequency repetition rate	FRR	Adjustable	50 k	-	500 M	Hz
		Optimized range	100	-	300	MHz
Rise time / Fall time	t_r/t_f	20 % - 80 %	10	-	15	ps
Pulse extinction ratio @852 nm	SER	ModBox-PG-852nm-30ps-30dB	28	30	-	dB
		ModBox-PG-852nm-30ps-50dB	40	50	-	dB
Extinction ratio stability	Δ SER	Over 12 hours	-	-	1	%rms
Polarisation extinction ratio	PER	-	19	20	-	dB
Peak optical power	OP	ModBox-PG-852nm-30ps-30dB	10	12	-	dBm
		ModBox-PG-852nm-30ps-50dB	3	5	-	dBm
Optical return loss	ORL	-	40	-	-	dB

ModBox Electrical and Optical Outputs

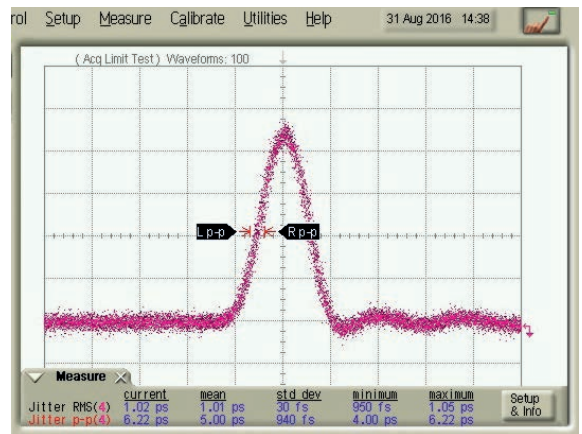
The following equipment was used to obtain below results :

- ModBox-PG with built-in Pulse generator
- Oscilloscope Agilent 86100B or Tektronix CSA 8000

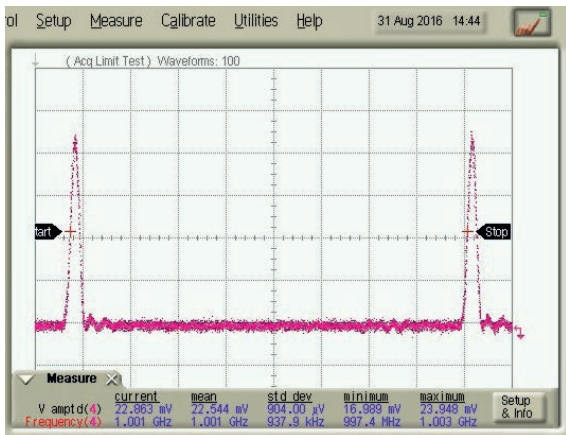
ModBox Electrical and Optical Outputs



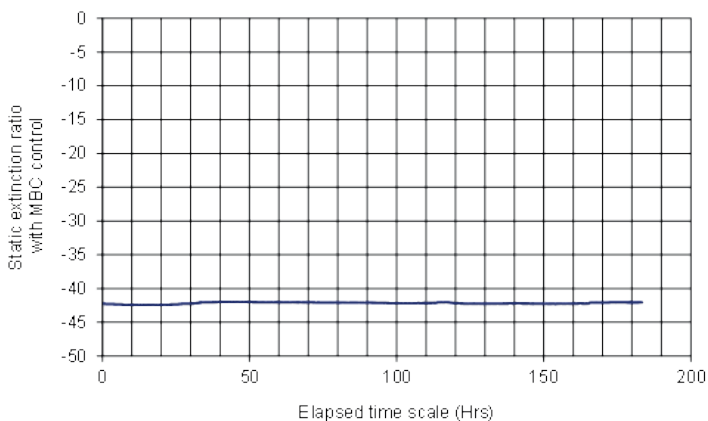
30 ps - Pulse Width / Rise Time



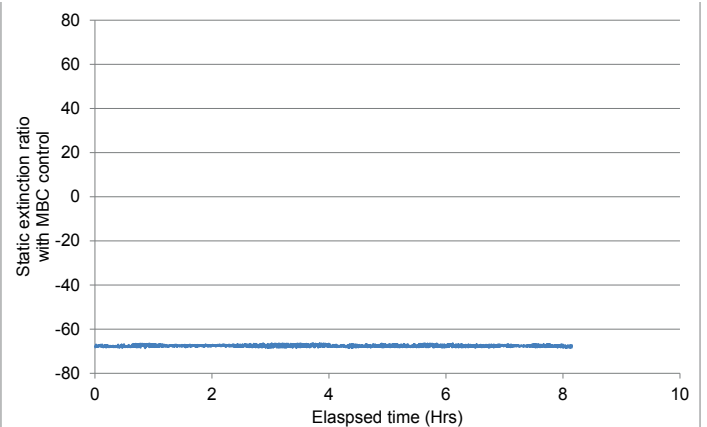
30 ps - Pulse Width / Jitter



30 ps - Pulse Width - FRR tunable



SER stability from ModBox-PG-852nm-30ps-30dB



SER stability from ModBox-PG-852nm-30ps-50dB

Interfaces, Dimensions and Compliance

Interfaces	
Optical	FC/APC - Polarization maintaining fiber - Corning 85-U25D
Trigger input connector	Ext-Trigg-In - BNC
Control	Smart Interface (front panel), GUI (USB typeB)
Power supply	100-120V/220-240 automatic switch 50-60Hz (Rear panel)
EMC and optical norms	EN61326-1 Ed. 2006 / NF EN 60825-1 & EN 60825-2 Ed.2014
Dimensions / Weight	Rack 19" x 3U, Depth=375mm / 3 kg



Ordering information

ModBox-PG-852nm-30ps-xxdB

PG = Optical Pulse Generator, CW laser and Electrical pulse generator are embedded.
 852nm = Modulator selection for 852 nm operation.
 30ps = 30 ps optical pulse width, can be extended to 230 ps with option WPW
 xxdB = 30dB : SER > 28 dB @852 nm - 50dB : SER > 50 dB @852nm

About us

ixBlue Photonics includes ixBlue ixFiber brand that produces specialty optical fibers and Bragg gratings based fiber optics components and ixBlue Photline brand that provides optical modulation solutions based on the company lithium niobate (LiNbO₃) modulators and RF electronic modules.

ixBlue Photonics serves a wide range of industries: sensing and instruments, defense, telecommunications, space and fiber lasers as well as research laboratories all over the world.

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