

# ModBox-DFR **Dynamic Extinction Ratio ModBox**

## ModBox



**FEATURES** 

**APPLICATIONS** 

Laser implosion

**OPTIONS** 

Wavelength

**RELATED EQUIPMENTS** ModBox-Pulse-Shaper

Front-End System

• 1030 nm, 1053 nm, 1064 nm

Dynamic Extinction Ratio up to 55 dB

Other maximum Extinction Ration value

The ModBox-DER is the first equipment specially designed to measure the Dynamic Extinction Ratio (DER) of high contrast ns optical pulses in the 1000 nm wavelength band. It measures Extinction Ratios up to more than 50 dB, for pulses as short as 5 ns, from single-shot operation to 10 kHz repetition frequency.

The ModBox-DER uses the French Nuclear Agency technology developed for the monitoring of the MegaJoule laser. It finds applications mostly in ultra-intense laser facilities.

### Principle

The high contrast pulse to be characterized is split in two parts: one part is strongly attenuated by a factor which is typically the expected value of the DER; for the second part, most of the pulse is retrieved using a high extinction modulator, leaving only the pedestal. The two parts are then measured with the same high bandwidth - high sensitivity photodetector for which only a few dB of dynamic range are required.

The main advantage of this measurement principle is the "self-calibration". Peak and noise powers of the optical pulse are measured by the same high bandwidth and high sensitivity photodetector.

### Performances

Parameter	Min	Тур	Max	Unit				
Input Signal								
Wavelength	1030 r	-						
Signal type	Optical Pulse			-				
Pulse Width	5	-	25	ns				
Pulse Rate	Single shot	-	10	kHz				
Pulse amplitude	70	-	450	mW				
Optical Characteristics								
	Automatic measurement			-				
DER	10	50	55	dB				
DER monitoring	-	until 1 week	-	-				
Resolution	-	0.6	-	ns				

-

0.5

500 n

٠	Inertial confinement fusion	and	a nign sens	π
٠	Interaction of intense light with matter			
•	Laser Plasma interaction		<i>c</i>	

Measuring window

Pulse acquisition rate

2 m

s

Hz



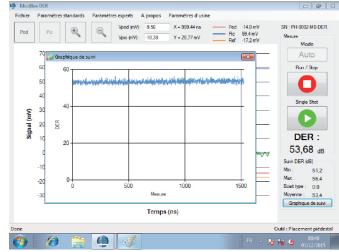
## ModBox-DER Dynamic Extinction Ratio ModBox

## ModBox

### ModBo - 6 × Apr A pro Vped (mV): 6,29 X = 999.44 m SN · PH-0002-MB-DEE Vined (mV): -9.56 Ped 22.2 mV Pic 54,7 mV Ref -0,2 mV Ped Ð, Đ, Voic (mV): -1.95 Y = 42.82 mV Voic (mV): -18.39 Mode 70.00 Auto 62.00 Run / Stor 54,00 46,00 Single Shot 4 38,00 3 £ Signal (mV) 30,00 50 2 Signal DER : 22.00 20 44,69 dB 14,00 Sulvi DER (dB) 6.00 44.7 -2,00 45.1 0. 0.2 500 1000 Ecart type : -10,00 Moyenne : 45.0 Mesure 200,00 300.00 100,00 400.00 500,00 700,00 800.00 900.0 600,00 Temps (ns) Temps (ns) d 3600,00e+ bytes in 0,015 sec (240000,00e+ bytes per sec Outil : Plac $\bigcirc$ ( (

## Pulse and Pedastal Measurement

## **DER** monitoring



### Interfaces

Parameter	Symbol	Min	Max	Unit	
Connectivity	Standard USB 2.0 Mouse / Keyboard / USB Key				
	Ethernet port (remote control)				
Operating System	Windows 7				
Display	8.1 inch touch display				

## Ordering information

# ModBox-DER-XXnm-YY-ZZ

DER = Dynamic Extinction Ratio

XXnm = 1030nm, 1053nm, 1064nm

- YY = Optical Input Connector, FA : FC/APC FC : FC/UPC SC : SC/UPC
- ZZ = Optical Diagnostic Connector, FA : FC/APC FC : FC/UPC SC : SC/UPC

### 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 (LiNbO<sub>2</sub>) 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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