LYNRED

LINEAR INFRARED DETECTOR

LYNRED Linear

PEGA

(600x3) x4 – 30 µm pitch – MCT - MW to VLW

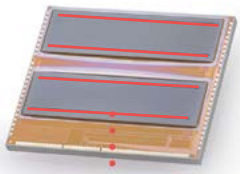
LYNRED Linear PEGA is a **large linear detector** specially tailored for **earth observation** applications from MWIR up to VLWIR spectral range.

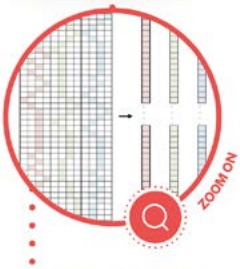
Based on LYNRED space proven MCT technology, LYNRED Linear PEGA detector, developed in the frame of TRISHNA mission offers the **highest level in terms of performance** (100% operability, high frame rate, large dynamic range…) and **versatility** (compatible design with staggered/butted configuration, external TDI, gain selection, integration time adjustment per readout line…).

SPECIALLY DESIGNED FOR EARTH OBSERVATION IMAGING APPLICATIONS

- **MULTISPECTRAL AND MULTI LINEAR ARRAY INFRARED DETECTOR**
- **TAILORED ARCHITECTURE FOR PUSHBROOM AND WHISKBROOM INSTRUMENTS**
- **VERSATILE AVAILABLE CONFIGURATIONS**
- **FROM 600 PIXELS UP TO >3,000 PIXELS PER LINE**

SPACE





12 READOUT LINES
(3 PER CHANNEL)
OF 600 PIXELS
AT ROIC LEVEL

VERSATILE ARCHITECTURE

100% OPERABILITY

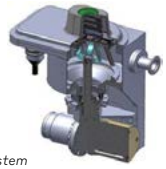
SPACE PROVEN ARCHITECTURE

ON BOARD TRISHNA MISSION

	Nominal configuration	*On demand*
ARRAY FEATURES		
Sensitive array	■ *4 channels [8 – 12µm]* ■ *2 arrays (LWIR & VLWIR)*	■ *MWIR/LWIR/VLWIR [3 – 14µm]*
Format & Pixel pitch	■ *9 readout lines of 600 pixels* ■ *30 µm pixel pitch*	■ *1 to 12 readout lines* *(3 readout lines per channel)*
Operating temperature	■ *60K*	■ *[50K – 110K]*

ROIC (READ-OUT INTEGRATED CIRCUIT)	
ROIC architecture	■ *Snapshot integration type (IWR & ITR mode)* ■ *External TDI (3 readout lines per channel)* ■ *1 analog output per readout line (Pseudo-differential mode, 2.6V maximum output voltage swing)*
ROIC main functionalities	■ *Pixel selection (1 among 4 for each column)* ■ *Integration time adjustment per readout line* ■ *Gain selection (1 among 7) per readout line* ■ *Readout line deactivation for power saving* ■ *Anti-blooming*
Operating characteristics	■ *Nominal Frame rate: 4.5 kHz @3MHz pixel rate (Available operation up to 8MHz pixel rate)* ■ *Integration time: From 15 µs up to (Frame time – 15µs)*
Charge Handling Capacity	■ *7 gains available: 3, 4.3, 7.3, 10.8, 13.8, 15.1, 18.1 Me-*

TYPICAL PERFORMANCES (NOMINAL CONFIGURATION)	
Detection efficiency	■ *From 60% (VLWIR) up to 80% (MWIR)*
PRNU	■ *< 3%*
Dark Current @60K	■ *< 10 fA/µm² (LWIR array) & < 2500 fA/µm² (VLWIR array)*
MTF @Nyquist	■ *> 0.6*
Non linearity	■ *< 1% p-p from 5 to 90% of CHC*
ReadOut Noise @60K	■ *From 230e- (Gain 1) up to 660 e- (Gain 7)*
Operability	■ *100%*
Power Dissipation	■ *100mW @ 3 MHz for 9 activated readout line* ■ *+ 8 mW/additional activated readout line*
Radiation hardness	■ *Maximum TID: up to 20 krad(Si)* ■ *Maximum TNID: up to 6e10 protons/cm² @ 60MeV* ■ *SEE robustness: SEL free / Low SEU & SEFI rate*

	Single module	***Multi module*** *(Design compatible with Butted and staggered configuration)*
DETECTOR CONFIGURATIONS *		
Passive configuration (without cryocooler)		
Active configuration (with high reliability crycooler >60,000h)		

In collaboration with Absolut System

*Detailed technical information available on request

LYNRED

LYNRED HEADQUARTERS
Avenue de la Vauve - CS 20018
91127 Palaiseau - France
Phone +33 (0)1 60 92 18 30
info@lynred.com

DEVELOPMENT AND PRODUCTION CENTER
Actipole - CS 10021 - 364, route de Valence
38113 Veurey-Voroize - France
Phone +33 (0)4 76 28 77 00
info@lynred.com