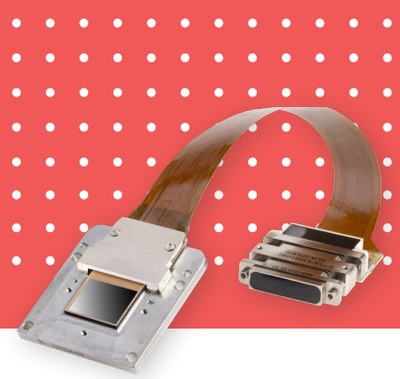
LYNRED

STARING ARRAY INFRARED DETECTOR



LYNRED Staring Array

COBRA

1840 x 1112 (COBRA-L) or 1380 x 640 (COBRA-S)

20 µm pitch – MCT – SWIR

COBRA is a **high spectral and spatial resolution staring array detector** well-suited for integration in various space-based Earth observation applications like **atmosphere chemistry or hyperspectral imaging**.

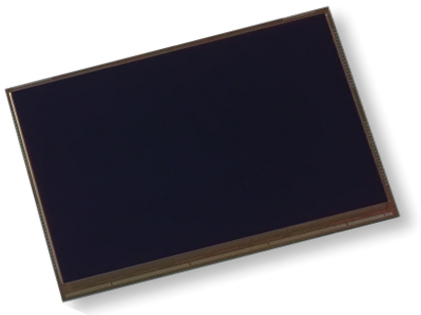
Based on LYNRED space proven MCT technology, large format COBRA detector offers the **highest level of performances** (high operability, high frame rate, low readout noise…) and **versatility** to fit with numerous needs (format selection, adjustable gain, CDS/multi-reading…).

STARING ARRAY
INFRARED DETECTOR FOR SPACE IMAGING AND SOUNDING APPLICATIONS

- **HIGH SPECTRAL AND SPATIAL RESOLUTION**
- **ADAPTABLE AND VERSATILE CONFIGURATIONS**
- **EMBEDDED SPACE PROVEN TECHNOLOGIES**
- **WELL ADAPTED FOR HYPERSPECTRAL AND SPECTROSCOPY IMAGING**

SPACE

PRODUCT NUMBER: **LYNRED STARING ARRAY COBRA**



ADVANCED PERFORMANCES

MULTI-APPLICATION

VERSATILE CONFIGURATION

SPACE PROVEN ARCHITECTURE

	Nominal configuration	*On demand*
ARRAY FEATURES		
Spectral range	■ *0.8 – 2.5 µm*	■ *Spectral adjustment up to 5 µm*
Array format & Pixel pitch	■ *1840 x 1112, 20 µm pitch* ■ *1380 x 640, 20 µm pitch*	■ *Columns = 920 or 1380 or 1840* ■ *Lines = up to 1112*
FPA operating temperature	■ *150K*	■ *90K – 200K*

ROIC (READ-OUT INTEGRATED CIRCUIT)	
ROIC architecture	■ *CTIA input stage* ■ *Snapshot integration type* ■ *IWR/ITR/multi-reading readout* ■ *On-chip CDS functionality with high gain mode* ■ *Analog outputs (pseudo-differential mode, 1.6V voltage swing):* • *COBRA-L: 8 or 16 outputs (selectable mode)* • *COBRA-S: 6 or 12 outputs (selectable mode)*
ROIC main functionalities	■ *Integration time adjustment* ■ *Gain selection by line (1 among 2)* ■ *Line selection to be readout* ■ *Anti-blooming* ■ *Power management*
Operating characteristics	■ *Available operation up to 10 MHz pixel rate per output* ■ *Integration time: from 15 µs up to (Frame time – 15 µs)*
Charge Handling Capacity	■ *2 gains available: 120 ke- and 1.2 Me-*

TYPICAL PERFORMANCES (NOMINAL CONFIGURATION)	
Detection Efficiency	■ *> 80%*
PRNU	■ *< 3 %*
Dark Current @150K	■ *< 2.4 10^{-3} fA/µm²*
MTF @Nyquist	■ *> 0.5*
Non linearity	■ *< 1 % p-p from 5 to 90 % of CHC*
ReadOut Noise @150K	■ *High gain: 70e-, 50e- with CDS* ■ *Low gain: 250e-*
Operability	■ *> 99.5 %*
Power Dissipation	■ *< 260 mW @8MHz for COBRA-L with 8 outputs* ■ *< 145 mW @8MHz for COBRA-S with 6 outputs*
Radiation hardness	■ *TID: up to 20 krad(Si)* ■ *SEE robustness: SEL free / Low SEU & SEFI rate*

DETECTOR CONFIGURATIONS *	*Single module*
Passive configuration (without cryocooler)	
Active configuration (with high reliability > 60 000 h and low µvibrations cryocooler)	 *In collaboration with Absolut System*

*Detailed technical information available on request

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