



**THERMAL  
SOLUTIONS  
FOR UNMANNED  
SYSTEMS UxS**

# OVERVIEW OF THE MARKET

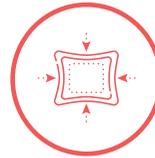
## SEGMENTS & APPLICATIONS

Growth is surging in the unmanned vehicle market, driven by a wide and varied range of applications:

- In the defense industry, unmanned systems can lead reconnaissance, surveillance and intelligence operations, and even be used for attack missions with their superior precision while minimizing the risks for infantry troops.
- In the civilian sector, they can bring effective performance to a variety of applications at a lower cost compared to traditional methods.

**Thermal imaging represents a technological breakthrough for seeing, detecting and targeting, as well as locating and measuring. Thermal imaging detectors offering augmented performance can be incorporated into UxS solutions for improved accessibility and effectiveness, while delivering reliable and accurate detection capabilities.**

**Drones play a vital role** in critical missions, supporting surveillance, reconnaissance, targeting, and logistics. Thermal imaging isn't just an enhancement, it's essential for success in challenging environments.



SWAP



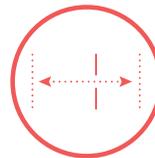
RELIABLE PRODUCTS



OPTIMIZE POWER CONSUMPTION



HIGH IMAGE QUALITY



LONGER RANGE



SEAMLESS INTEGRATION



## Commercial

- Surveillance and emergency service missions (firefighting, search and rescue, perimeter and industrial site surveillance, wildlife observation, public safety, etc.)
- Linear infrastructure inspections (solar farms, powerlines, transformers, engineering structures, etc.)
- Temperature measurements (industrial maintenance, roofs, energy surveys, etc.)
- Precision agriculture (soil analysis, moisture control, monitoring of crops and grazing herds, etc.)
- Gas detection (OGI)

## Defense

- Surveillance and intelligence missions
- Combat support
- Geopositioning, GNSS-denied
- UGV for heavy lift
- Medical Evacuation (Med Evac)
- Loitering munition



# LYNRED THERMAL IMAGING MISSIONS

Provide the market with a range of cooled and uncooled products to meet the requirements of these new platforms.

Address the need to facilitate integration through turnkey solutions, and standardized mechanical and electrical interfaces using the PlugUp™ platform.

Ramp up systems development to shorten the time to market.

**LYNRED infrared solutions bring your thermal systems to life with the introduction of two new solutions:**

- Cooled detectors on the PlugUp™ platform
- Advanced Thermal Imager (ATI) modules

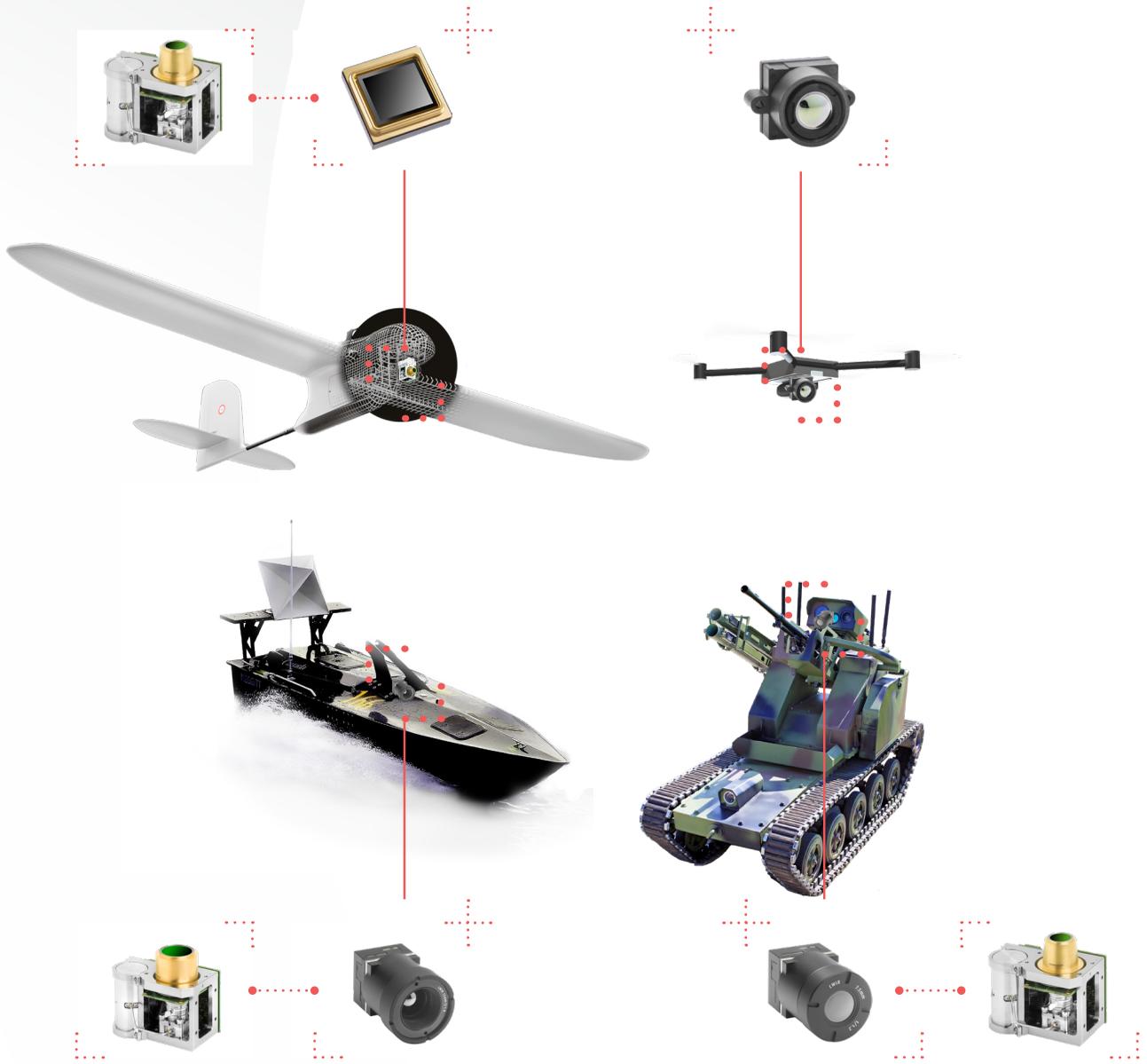
## **LYNRED:** the partner you can rely on

- **Independent supplier** located in Europe
- **Over 30 years' experience in producing high-performance infrared detectors** (high sensitivity, high frame rate, high uniformity, etc.)
- **Extensive range of cooled and uncooled thermal detectors** covering the entire infrared spectrum (from SWIR to VLWIR)
- **A dedicated customer care team** focused on providing assistance and technical support. We take a proactive approach to responding to your questions and needs. Our engineers possess the skills to work efficiently with your people, from R&D through to engineering. Our customer care services are fully integrated into our product lineup, with personalized support available to all our customers. Our mission is to help you boost your technical capabilities and inject even greater efficiency into your infrared solution development processes, while shortening the time to market.



**2 million detectors**  
delivered since 2016

# LYNRED infrared detectors bring your thermal systems to life



# MAIN LYNRED PRODUCT RANGE



DRONES



TACTICAL DRONES



Ø ~ 3"



Ø ~ 5.2"

UNCOOLED ATI™

ATTO™

PICO640S BB 7-14™

GALATEA MW SL™

SEEGNUS MW SL™

EOLE MW™

	PRODUCT	FORMAT & PIXEL PITCH	SPECTRAL BAND	TYPICAL NETD
UNCOOLED	 ATI320™	QVGA, 320 x 480, 12µm	8-14µm	≤ 50 mK (f/1, 300 K, 60 Hz)
	 ATI640™	VGA, 640 x 480, 12µm	8-14µm	≤ 24 mK (f/1, 300 K, 60 Hz, de-noising)
	 PICO640SBB 7-14™	VGA, 640 x 480, 17µm	7 - 14µm	30 mK (f/1, 300 K, 30 Hz)
	 ATTO1024-02™	XGA, 1024 x 768, 12µm	8-14µm	35 mK (f/1, 300 K, 30 Hz)
	 ATTO1280-02™	SXGA, 1280 x 1024, 12µm	8-14µm	35 mK (f/1, 300 K, 30 Hz)
COOLED	 EOLE MW™	VGA, 640 x 512, 15µm	3.2 - 3.55µm	20 mK (300 K, 50% well fill, F/1.3, 25 Hz)
	 GALATEA MW SL™	VGA, 640 x 512, 15µm	3.6-4.2µm	31 mK (300 K, 50% well fill, 25 Hz)
	 SEEGNUS MW SL™	SXGA, 1280 x 1024, 7.5µm	3.6-4.2µm	40 mK (300 K, 50% well fill, 25 Hz)

Check out all  
our unmanned  
products



DEFENSE



COMMERCIAL



MALE



Ø ~ 10"



HALE



Ø ~ 18"

COOLED ATI™

POWER CONSUMPTION	WEIGHT	SIZE	EMBEDDED ALGORITHMS	RECOGNITION* DISTANCE FOR HUMAN MEASURING 1.8X0.5m	
< 400 mW	7 g	16 x 16 x 17.9 mm	Included	7.8 mm Lens	165 m
< 1 W	15 g (core)	24.6 x 24.6 x 19 mm (core)	Included	25 mm Lens	540 m
< 130 mW	< 6.5 g	24.4 x 24.4 x 4.7 mm	N/A	N/A	N/A
≤ 470 mW @ 50 Hz (2 outputs) ≤ 550 mW @ 100 Hz (4 outputs)	< 10 g	29.5 x 29.5 x 5.6 mm <sup>3</sup>	N/A	70 mm Lens	1670 m
≤ 470 mW @ 30 Hz (2 outputs) ≤ 550 mW @ 60 Hz (4 outputs)	< 10 g	29.5 x 29.5 x 5.6 mm <sup>3</sup>	N/A	88 mm Lens	2090 m
< 3.4 Wdc	365 g	56 x 77 x 72.5 mm	Available with ATI EOLE™ <b>NEW</b>	N/A	N/A
< 3.0 Wdc	365 g	56 x 77 x 72.5 mm	Available with ATI GALATEA SL™ <b>NEW</b>	300 mm Lens	3740 m
< 3.5 Wdc	365 g	56 x 77 x 72.5 mm	N/A	300 mm Lens	5060 m

\*Range for Johnson's criteria, target delta T = 2K, Perfect atmospheric and optics transmission, theoretical square pixel



35<sup>years</sup>

of experience

80%

exports

1,000  
employees

15%

revenue  
invested in R&D

**LYNRED,**  
**a merger between Sofradir and**  
**ULIS, designs infrared sensors**  
**to meet the needs in a wide range**  
**of markets.**

Our infrared sensor lineup covers the entire infrared spectrum from SWIR through to VLWIR. Our products are capable of satisfying the demanding requirements of a variety of industries.

They are reliable and rugged enough for defense applications, compact and powerful enough for surveillance applications, and stable and sensitive enough for thermography, industrial systems, firefighting and search & rescue applications.

**LYNRED HEADQUARTERS**  
**DEVELOPMENT & PRODUCTION CENTER**

Actipole - CS 10021  
364, route de Valence  
38113 Veurey-Voroize, France

Phone +33 (0)4 76 28 77 00  
info@lynred.com



[www.lynred.com](http://www.lynred.com)

**LYNRED ASIA PACIFIC PTE LTD**

5 Shenton Way,  
#22-04 UIC Building  
068808 Singapore  
info@lynred.com

**LYNRED USA**

373 US Highway 46W  
Fairfield, NJ 07004, USA  
Phone +1 973.882.0211  
info@lynred-usa.com



[www.lynred-usa.com](http://www.lynred-usa.com)

**NIT (NEW IMAGING TECHNOLOGIES)**  
**PREMIUM SWIR BY LYNRED**

1 impasse de la Noisette  
91370 Verrières-le-Buisson, France  
Phone +33 (0)1 64 47 88 58  
info@new-imaging-technologies.com



[www.new-imaging-technologies.com](http://www.new-imaging-technologies.com)