



CAMSIGHT LP, YOUR ALLY FOR OPTRONIC SURVEILLANCE IN HARSH ENVIRONMENT

In a world of ever-accelerating changes, the modern battlefield has become an extremely complex environment where situational awareness is key to accomplish strategic missions. As a clear night and day vision gives soldiers the means to take good decisions, at the right time and in all weather conditions, Bertin Instruments is committed to providing them with the best optronics to further improve their defence capabilities in any field application.

Supplying innovative solutions to end users, integrators and manufacturers, it offers a comprehensive answer to their most stringent requirements, both in terms of reliability and performance. CamSight LP, Bertin Instruments' camera module with low-power consumption, is one of those.

This White Paper thus compiles three of the main surveillance applications possible with this ultra-compact optronic device: whatever your aims and objectives are, CamSight LP can help you fulfil them all.

IMPROVE YOUR SURVEILLANCE CAPABILITIES WITH CAMSIGHT LP

SUMMARY

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ENHANCING DRIVER'S VISION & LOCAL SITUATIONAL AWARENESS WITH CAMSIGHT LP

CONTEXT

When conducting military, reconnaissance, or search & rescue missions, a vehicle's driver & crew need to control their safety & detect potential threats, obstacles, & objects of interest, even in the harshest operational conditions. To increase a mission's capability by enhancing situational awareness, it is primordial to improve night vision & eliminate the blind spots.

Keeping both safety & tactical interests of driver & crew in mind, Bertin Instruments provides CamSight LP – a thermal imaging camera – to be integrated into complex optronic systems.

Sensitive to thermal radiation without any light, the OEM module is able to produce high-quality pictures in the darkest nights, thus enhancing one's awareness of the surroundings.



APPLICATIONS

Ultra-compact, ruggedized & easy-to-install, CamSight LP was specifically designed for vehicle manufacturers & integrators, to equip combat & tactical-wheeled vehicles, SWAT trucks, mobile command vehicles, Unmanned Aerial Vehicle (UAV) & Unmanned Ground Vehicle (UGV), etc. Moreover, the **robust impact-resistant design** of the camera module is **compliant with military standards** for it to be utterly operational in extreme driving conditions.

In a Driver Vision Enhancement configuration: two CamSight LP camera modules are recommended – one in front of the vehicle, the other at the back – to provide the vehicle's operator with the ultimate driving comfort (i.e a field-of-view of 60°)

Whereas **in a Local Situational Awareness system:** four CamSight LP with a 90-degree field-of-view will be necessary to provide wider fields of view, hence offering a 360-degree monitoring of one's surroundings.



MATERIAL

Ultra-compact, CamSight LP is a **passive thermal imaging system** to be easily integrated into complex optronic devices used to enhance a driver's viewing capabilities & increase a pilot's situational awareness of surroundings, even when operating in **challenging working conditions**. The camera, equipped with a LYNRED's infrared sensor (640 x 480 pixels), comes with an uncooled system & a *shutterless* technology that enable real-time, freeze-free image delivery. Thanks to its **low-power consumption** (≤ 1 Watt) & its **outstanding image quality**, CamSight LP is a **precious asset for any surveillance application** under degraded visual conditions.

By significantly enhancing night & day vision, the OEM camera module of Bertin Instruments allows for real-time detection & identification of potential threats or obstacles on the road, in extreme operational conditions. When integrated into tactical vehicles, CamSight LP allows the driver & crew to navigate safely through the darkest nights, thus participating in the mission's success.



IMPROVING LONG-RANGE NIGHT & DAY SURVEILLANCE WITH CAMSIGHT LP & WHITE HAWK

CONTEXT

Over the past years, airborne observation, intelligence and reconnaissance have become increasingly vital to the strengthening of national defense and security capabilities. This is why tethered aerostats equipped with advanced optronic payloads have appeared on the market. Indeed, offering a tailored, persistent and cost-effective surveillance solution to civil and military use cases, they allow to protect and defend public and private interests.

Therefore, to support the operational needs of its customers, CNIM Group, by means of its subsidiary company **CNIM Air Space**, and **Bertin Technologies**, has developed two complementary solutions well-adapted to long-range night and day monitoring: the **White Hawk tethered aerostat** for one, and the **CamSight LP OEM camera module** for the other.



White Hawk tethered aerostat

MATERIALS & APPLICATIONS

Lightweight, impact-resistant and easy-to-install, CamSight LP is a **passive thermal imaging system** specially designed for manufacturers and integrators. It can be used to equip, inter alia, gyrostabilized optronic payloads and electro-optical gimbals integrated into permanent surveillance solutions such as aerostats or Unmanned Aerial Systems (UAS). By enhancing night and day vision, it significantly improves an area of interest's awareness and fosters decision-making when a threat is detected.

The camera, including a **LYNRED's infrared sensor** (640 x 480 pixels), comes with an uncooled system and a **shutterless** technology that enable real-time, freeze-free image delivery.

Thanks to its **low-power consumption** (≤ 1 Watt) and its **image quality**, CamSight LP is a **precious asset for any surveillance application** under degraded conditions (ex: extreme low light and fast wind speed). Ultra-compact, it can be fitted into any payload before installation in the aerostat.

As for the helium-filled White Hawk tethered aerostat, it distinguishes itself by its capacity to conduct unmanned aerial surveillance operations with **360-degree all-round coverage, 24 hours a day, 5 days in a row**.

Tailored to meet any mission's requirements, it offers, when fitted with CamSight LP, an **improved knowledge of one's surroundings**. Moreover, its use is all the more effortless as its **logistic footprint** is limited and its **operational costs** are small.

Fast-to-deploy (only 45 minutes), the CamSight LP-equipped aerostat can be used for **short and middle-term operations** to protect the following sensitive sites: military bases, industrial areas, critical infrastructures (nuclear facilities, offshore platforms), borders, customs, public events, etc.

Thanks to the OEM camera module's long focal length, it is able to **anticipate and eliminate potential threats by detecting, recognizing and identifying fixed or mobile targets remotely**.

By significantly enhancing night and day vision, the OEM camera module CamSight LP allows for real-time detection, recognition and identification of potential threats under poor visibility conditions. When fitted into CNIM Air Space tethered aerostat, CamSight LP improves multi-day surveillance operations in harsh environments, thus participating in the mission's success at a reasonable price.



CARRYING OUT SURVEILLANCE & GATHERING INTELLIGENCE WITH CAMSIGHT LP & FLEXNET

CONTEXT

Having a greater awareness of one's surroundings is highly strategic for the military when conducting Intelligence, Surveillance, & Reconnaissance (ISR) missions.

On the field, information is collected through enduring observation by deployed soldiers, along with a wide variety of sensors, whose aim is to increase military capabilities & gather intelligence when the environment is hostile. To support the Armed Forces, Bertin Instruments has designed, developed & manufactured a **whole range of optronic solutions** dedicated to the **improvement of local situational awareness** & consequently **the protection of soldiers & the enhancement of decision-making**. The OEM camera module CamSight LP is one of those. Compliant with military standard, this **passive imaging system** is able to **detect thermal radiation & produce high-quality pictures** in the darkest nights, thus providing operators with valuable, strategic information. When integrated into Exensor' Scout camera, CamSight LP becomes a precious asset within the Unattended Ground Sensor (UGS) system Flexnet. Indeed, as a tailored solution, Flexnet is based on wireless, battery-operated sensors (seismic, acoustic & infrared), combined with day/night motion cameras, to be rapidly deployed on operations. Operating over a mesh network, CamSight LP is consequently an essential component of the system, as it confirms the nature of the detected threat & increases both effectiveness & coordination of the team.



Scout camera with 60mm lens



Camera Scout IR 19mm visible B&W



Flexnet solution

EQUIPMENT & APPLICATION

Ultra-compact, ruggedized & easy-to-install, CamSight LP is especially designed for manufacturers & integrators to equip complex optronic devices such as Unattended Ground Sensor (UGS) systems, Unmanned Aerial Vehicles, combat vehicles, etc. The lightweight camera, fitted with a **LYNRED's infrared sensor**, comes with an **uncooled system & a shutterless technology** that enable real-time, freeze-free image delivery.

Thanks to its **impact-resistant design**, its **low-power consumption** (≤ 1 Watt) & its **outstanding image quality**, CamSight LP is a **valuable asset for any fixed or mobile surveillance application under harsh operational conditions**.

Having a **19-millimeters lens** (32° Field-Of-View) in its standard configuration, the Scout camera is also available with 3 optional lens - 60mm (10°), 35mm (18°) & 25mm (25°) - to clearly extend the operator's FOV.

As an **early warning** device, the CamSight LP-equipped camera acts as a backup team, allowing soldiers to focus on their mission's purpose & to free up capacity, without fearing for their personal safety. Using intelligent motion detection, the Flexnet's camera performs advanced recognition to remotely obtain relevant information. Providing the operators with extra sharp eyes, it supports intelligence gathering of the enemy's movements, dispositions & intents by contributing to a better understanding of the ground.

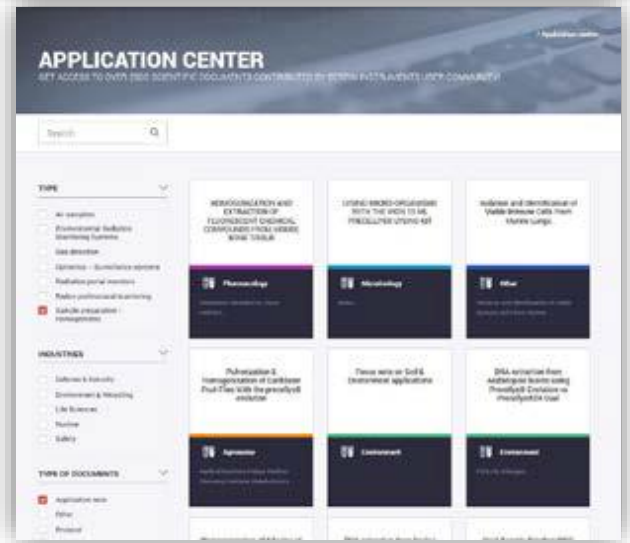
Improving the operators' situational awareness, the Made-in-France camera module of Bertin Instruments allows for early warning detection & identification of potential threats in harsh operational conditions. When integrated into sensors like Exensor' Scout camera, CamSight LP enables them to remotely dispel doubt, in time to take necessary actions & protect themselves & their interests.



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CamSight© LP is an Original Equipment Manufacturer (OEM) digital core camera designed & developed by Bertin Instruments, to be integrated into any complex optronic system:

- Ultra-compact & very low-power consuming (< 1W)
- Very fast time to image (1.2 seconds)
- Best shutterless sensor technology
- Based on French components

