

CamSight® LS(+)

Ultra Low SWaP Thermal Camera (high sensitivity)

Key features

- ❖ Ultra low Size, Weight and Power (SWaP)
- ❖ LYNRED ATTO sensor: 640 x 480 @ 12µm
- ❖ Low latency
- ❖ Patented shutterless technology
- ❖ Thin pitch camera allowing lens size decrease
- ❖ Designed and manufactured in France with French thermal sensors



Image captured by CamSight® LS with a 13,6mm lens

CamSight® LS is the newest Original Equipment Manufacturer (OEM) digital core camera developed by Bertin Photonics.

To comply with users' requirements, the camera has been designed to be easily integrated within complex optronic systems, such as rifle sights, ground or aerial drones and every equipment requiring ultra low SWaP. Based on a patented Bertin Photonics' shutterless technology, it allows for low latency and freeze-free image delivery in real-time. CamSight® LS features an uncooled LYNRED ATTO infrared sensor designed for challenging applications.

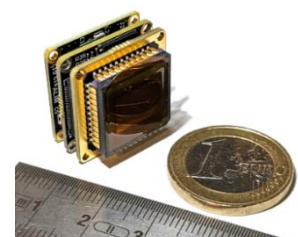
Lightweight, ultra-compact and very low-consuming, CamSight® LS can be implemented in very constrained environments. Indeed, thanks to its ergonomic design and high-performance, the camera fulfills most night and day surveillance, observation and infantry missions.

CamSight® LS also exists in a Plug & Play version dedicated to end-users.

The camera is available in two different versions: CamSight® LS+ (NETD < 40 mK F#/1.0) and CamSight® LS (NETD < 50 mK F#/1.0).

SENSOR

	CamSight® LS+	CamSight® LS
Model	LYNRED ATTO640D-02 (+)	
Type	Uncooled microbolometer	
Resolution, Pixel size	640 x 480 pixels (VGA), 12µm	
Spectral band	8µm – 12µm (LWIR)	
NETD (30Hz, 25°C)	< 40mK @ f 1/1.0	< 50mK @ f 1/1.0



CamSight® LS OEM module

CamSight® LS(+)

PHYSICAL CHARACTERISTICS (*without lens*)

	OEM version	OEM+ version	Casing version with connector
Weight	10g	12g	30g
Dimensions	22 x 22 x 15.5mm	22 x 22 x 21.65mm	24 x 24 x 38mm

INTERFACES

	OEM version	OEM+ version & casing version
Video	Parallel 14 bits / SD-SDI / MIPI CSI2 / USB	SD-SDI / PAL / MIPI CSI2 / GigE Vision / USB Video stream : 25Hz
Frequency		Option : 9Hz, 30Hz or 60Hz on demand, (>9Hz requires a license delivered by the French government)
Communication		RS-232, 3.3V TTL

ELECTRICAL CHARACTERISTICS

	OEM version	OEM+ version	Casing version with connector
Connectors	Hirose DF40C-60DP-0.4V	MMCX7-SM, BM12B-SURS, LSHM-110, M06B-SURS-TF	Hirose FL10WB
Input voltage		4.5 – 5.1VDC	
Consumption		< 0,75W*	
Time to image		*Parallel Bus 25°C & 25Hz < 1 sec (from off to on)	

OPERATION & CONTROL

Calibration	Shutterless (single factory calibration / no periodic maintenance needed)
Camera Control	Gamma correction Algorithm selection CLHE / CLAHE Histogram equalization Sharpening algorithm / Contouring Filter LUT Region of interest Image polarity inversion Continuous zoom 1x to 8x relocatable Column Noise Correction Flattening Filter
Tools	SDK (MAVLINK) GUI (Companion)

ENVIRONMENTAL CHARACTERISTICS

Operating temp	-40°C / +70°C
Storage temp	-40°C / +85°C
Shock	Pre compliance to MIL STD 883K
Humidity	5-95% non-condensing
Environnement	CE, RoHS, REACH

CamSight® LS(+)

CAMSIGHT® LS PHOTOS



OEM version



Casing version



OEM version with
13,6mm lens

QUALIFIED LENSES



4,3mm & F/1.2
FoV: 112°x84°
 DRI (V): 420/140/70
 DRI (S): 200/70/30
 Size: \varnothing 20 x 15
 Weight: 12g



5,5mm & F/1.2
FoV: 86°x64°
 DRI (V): 600/210/100
 DRI (S): 250/80/40
 Size: \varnothing 20 x 16
 Weight: 13g



7,5mm & F/1.2
FoV: 61°x46°
 DRI (V): 820/280/140
 DRI (S): 340/110/60
 Size: \varnothing 25 x 19
 Weight: 25g



8,7mm & F/1.0
FoV: 50°x38°
 DRI (V): 1140/410/210
 DRI (S): 500/170/80
 Size: \varnothing 26 x 25
 Weight: 29g



13,6mm & F/1.0
FoV: 32°x27°
 DRI (V): 1740/620/310
 DRI (S): 770/260/130
 Size: \varnothing 21 x 18
 Weight: 13g



24mm & F/1.0
FoV: 18°x14°
 DRI (V): 3100/1140/580
 DRI (S): 1350/480/240
 Size: \varnothing 34 x 29
 Weight: 37g



25mm & F/1.2
FoV: 18°x13°
 DRI (V): 2610/900/460
 DRI (S): 1100/380/190
 Size: \varnothing 35 x 29
 Weight: 57g



35mm & F/1.2
FoV: 13°x9°
 DRI (V): 3550/1260/640
 DRI (S): 1520/530/270
 Size: \varnothing 45 x 35
 Weight: 108g

This list does not represent all compatible lenses. It is therefore possible to add lenses according to your needs.

DRI's were calculate with TRM4. DRI (V) = DRI vehicle. DRI (S) = DRI soldier with NATO standard. Unity : meter.

To calculate the overall weight of the CamSight LS with the lens, a mechanical interface (lens - core) must be added. Its weight depends on the lens and is about 10 grams.