

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 latest 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.

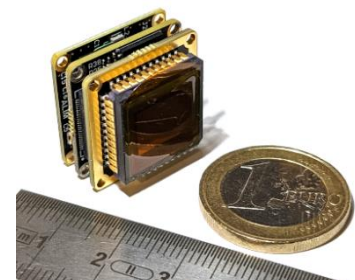
Lightweight, ultra-compact and very low-consuming, CamSight© LS can be implemented in very constrained environments. Indeed, thanks to its ergonomic design and high-performance, the camera fulfills most night and day surveillance, observation and infantry missions.

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	9 g	12g	30 g
Dimensions	22 x 22 x 15,5 mm	22 x 22 x 21,65 mm	24 x 24 x 38 mm

INTERFACES

	OEM version	OEM+ version & casing version
Video	Parallel 14 bits / SD-SDI / MIPI CSI2	SD-SDI / PAL / MIPI CSI2 / GigE Vision Video stream : 25 Hz
Frequency		<i>Option : 9Hz, 30Hz or 60Hz on demand,</i> (>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 – 5.1 VDC	
Consumption		< 0,9W	
Time to image		< 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 Flatening Filter
Tools	SDK (MAVLINK) GUI (Companion)

ENVIRONNEMENT CHARACTERISTICS

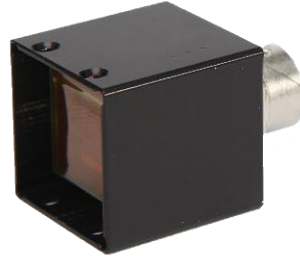
Operating temp	-40°C / +70°C
Storage temp	-40°C / +85°C
Shock	Pre compliance to MIL STD 883 K
Humidity	5-95% non condensing
Environnement	CE, RoHS, REACH

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: 19°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.