

# LOW-LIGHT CAMERA MODULE FOR MACHINE PERCEPTION

Immervision's Low-Light Navigation Camera Module is designed for the **autonomous and semi-autonomous navigation** of UAVs (Unmanned Aerial Vehicles) in all environments, with high performance in low-light conditions.

Under the initiative of the Defense Innovation Unit (DIU) Blue UAS Architecture, the Immervision low-light navigation camera module provides trusted, low size and weight, interoperable UAV technologies for commercial and defense applications.



"Visual camera system is the best all-round performer with regard to navigation and object avoidance." Patrice Roulet, VP Technology



## LOW-LIGHT

High performance in low-light conditions, allows secure navigation.



## WIDE-ANGLE

Wide-angle panomorph lens with Smart Pixel Management, optimizes image quality and 190° Field of View for obstacle avoidance.



## VARIOUS ENVIRONMENTS

Front lens element in glass for usage in various environments, outdoors and indoors.



## OFF-THE-SHELF

Solution is ready for implementation while being easily customizable to application requirements.



## LIGHT WEIGHT

Small footprint and light weight for low impact on battery consumption.



## OTHER APPLICATIONS

Well suited for other navigation applications such as land vehicles, water vessels, robots, etc.

## A UNIQUE DESIGN THAT MAXIMIZES BOTH LOW-LIGHT SENSITIVITY AND IMAGE QUALITY

From the Immervision's InnovationLab

Designed in our InnovationLab by multidisciplinary scientists, optical designers, and image processing engineers, this camera module satisfies requirements of **operating in low-light conditions while delivering optimal image quality.**

Platforms equipped with this innovative technology can operate from dusk-to-dawn, both outdoors and indoors. It is suitable for use by **human operators and/or the artificial intelligence (AI) and machine learning (ML) systems used in fully autonomous vehicles.**



Simulated image.

## OFF-THE-SHELF AND OUT-OF-THE-BOX

This camera module is driver **ready for industry's leading robotic platform and flight controller**. The **plug-and-play** solution gives access to Immervision's image processing software capability directly ported on the platform.

## CUSTOM DEPLOYMENTS

Easy to customize, this camera module can also be used for other applications, including **robots, land vehicles, and water vessels**.

Immervision will be happy to collaborate with customers to provide **custom solutions** that work with the processors and navigation application visual requirements.



*Also available for a wide range of other applications*

SPECIFICATIONS	VALUE	DETAILS
Module Size	Module head: 16.0 x 16.0 x 18.65mm	Total length (with cable): 56.0mm
Interface	MIPI 4 Lane	
Field of View	190°	
Sensor Model	Sony	IMX335LLN (MONO)/IMX335LQN-C (Color)
Sensor Nb. of Recommended Recording Pixels	2592 x 1944 px	1/2.8"
Sensor Pixel Size	2.0 x 2.0 μm	
Maximum Image Circle Diameter	3.9 mm	
Focal Length	1.38 mm	
Wavelength	Visible + NiR	Fully corrected up to 950 μm
Aperture/F-number	1.8	
Aperture Type	Fixed	
Minimum Focus	0.25 m	
Distortion Profile	Panomorph	
Number of Lens Element	7	2G5P
Operating Temperature	-30 ~ 85°C	
Relative Illumination	≥ 78%	
Module Weight	4.7 g	-22 ~ 185°F
Lens IP Rating	IP67	