Raptor photonics

For security related professionals

Read a number plate from far in the darkness.

See in darkness

Without being seen

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See far with powerful zoom and luminous lens : left, the 100 mm Fujinon lens is very efficient in town. For industrial parks or sensitive areas, larger focal length of 1500 mm will detect details in a panoramic view. Its great luminosity with the very high sensitivity of the Raptor Photonics camera will detect people in shadows. Raptor Photonics camera amplifies the light by a factor of 1000 compared to other cameras. Its performances are Second to none.

See far in darkness without being seen

See far in darkness with video ■ Identify people, vehicles and read number boards ■ Integrated system with consistent elements: very light sensitive zoom, ultra-sensitive video camera, price and fast pan-tilt. Each element is the best in its category.

See without being seen. In daylight or darkness, identify vehicles, small boats at long distance (5 kilometers or more), secure ones maritime or terrestrial borders, recognize people. Being able to identify in town at more than 200 meters, in a stadium (320 meters), around a sensitive industrial park (500 meters), this is possible with the night vision video systems from Fujinon. All this without additional light needed. The combination of these three elements renders these performances possible: a day/night zoom, an EMCCD technology camera, a pan-tilt and casing group.

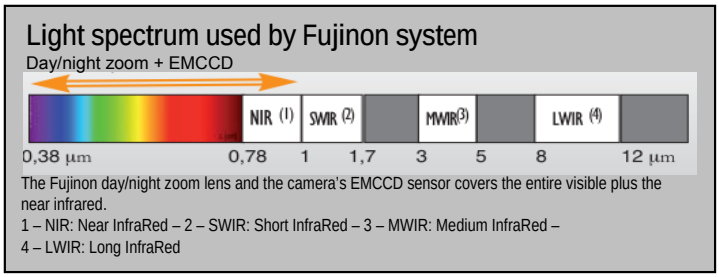
Very luminous zoom lens. Fujinon is world-wide recognized, for the excellence of its optics. The proposed video-surveillance zoom lenses ar directly derived from the broadcasting optics. They inherit from the fine lenses, from the reliability and mechanical precision. Finally, the large front lens insures a remarkable luminosity on the complete focal length (ramping stable). It is imperative that they are of day/night quality to give the camera the complete light spectrum (from 400 nm to 1100 nm).

The large front lens is necessary to capture low lights.

A hyper sensitive camera. The Hawk camera from Raptor Photonics uses the EMCCD (Electron Multiplication - Charged Coupled Device) technology sensor. Its principle is to amplify 1000 times the electrons inside the sensor. In low light, a traditional sensor gives a few electrons, whereas the EMCCD is one thousand times more efficient. This technology enables to provide an image in dark conditions where conventional sensors will be limited. Furthermore it gives a 25 images/second (no integration) for clear movement observation.

The small Hawk Raptor camera sees at night.

A robust and fast pan-tilt See far necessitates large dimension zooms that have to be integrated in a Videotec



Pan-tilt and its casing: quick and precise, it follows the movements.

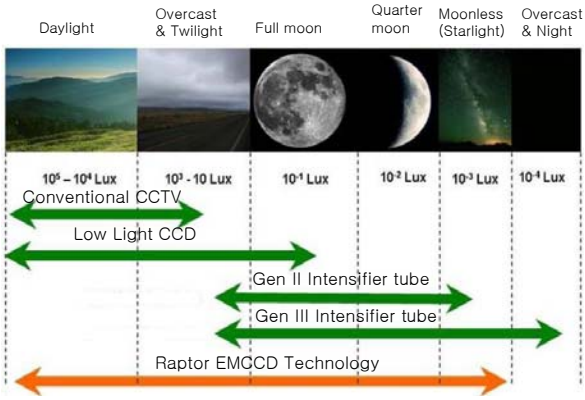
Ulisse Maxi pan-tilt. This one is quick and precise, multi-protocole and very stylish.
In the FH1500-U system (1500 mm Fujinon zoom-Raptor Photonics Hawk camera- modified Videotec Ulisse Maxi) the integration is complex. It is assembled by the technical department of Fujinon France who ensure set-up and a two years warranty. The compactness of the assembly is remarkable and provides minimum wind drag.

The EMCCD sensor : the king of darkness

An EMCCD sensor is similar to a standard CCD sensor but with an additional electron amplification stage. Its technology is based on the ionization by impact that enables to multiply the charges (electrons) at the Silicon level, before matrix readout. The consequence is a signal amplification of up to 1000 times. This drastically increases the camera sensitivity. It can then be used for any extreme night time vision application (10-5 lux), equivalent to a over-cast night with no artificial light. Conditions in which the standard CCD cameras will not operate. The extreme detection possibilities of this new sensor generation (colour or black and white) is dedicated to various applications: military, border and maritime surveillance, ports and airports, sensitive areas, urban areas…

Three clear advantages:
1 – High sensitivity in low light
2 – Smooth video: 25 frames per second
3 – Good performances in daylight mode

Natural light scale



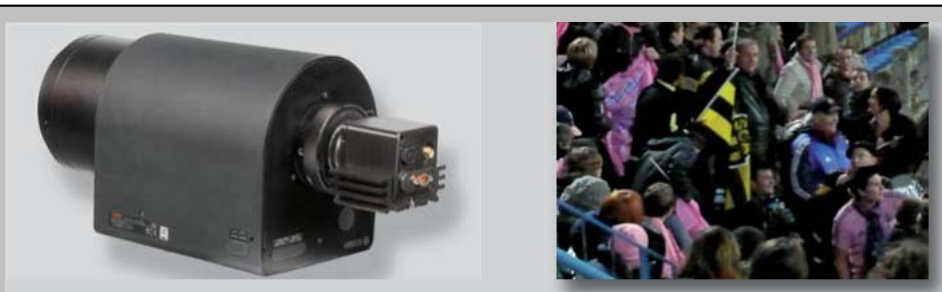
The EMCCD sensor of the Raptor Photonics Hawk camera will operate in all natural light conditions: from daylight to night.

Identify by colour

At night, in low light, colour offers advantages. Even if the picture is degraded, the recognition of an object or a person by its colours, will save time and make it easier to follow in a crowd or in traffic.

Light is not always available. Surveillance of parking lot, warehouses, buildings, of crowd will need high sensitivity systems. To easily identify and follow a person, a vehicle, … colour is a plus. The colour version of the Fujinon system is the answer.

The coupling “zoom lens Raptor Photonics camera” keeps a high sensitivity (10-5 lux). It will provide a colour information while conventional systems work automatically in B&W under low light. It is easier for the operator to follow a person in a crowd by the colour of his cloth or a car by its colour being in a crowd or a traffic.



The system “zoom lens-Raptor Photonics camera” gives a colour picture in low light. In a stadium, the 300 mm focal length lenses will spot people and colour to easily follow them on the move.

Colour by night: positive and fast recognition

On the left trucks are well recognised by their colour while image is not clear. On the car park, red cars are well spotted among the green and blue ones. On the right the red cabin and blue chassis are distinct, as well as the blue container on the background. Colour provides a intuitive recognition. In certain cases it is saves time.

Solution and customized pack

Zoom lens and cameras to answer your needs

Zoom lens pack with EMCCD camera (B&W or colour)

Fujinon D60x12,5 zoom lens with electrical focal extender from 12,5 to 1500 mm. For large spaces.

Fujinon D32x15,6 D32x10 D22x9,1 zoom. For urban territories.

Raptor Photonics Hawk colour and B&W. Unparalleled vision where other cameras fail.

The right pack for the right application

Below zoom lenses are day/night.

Max. focal length	Pan-tilt	Performances	Application
200 mm	Ulisse	Read license plate 200 m far. Identify 400 m far, a group of individuals, several vehicles, a jet-ski in the sea.	Urban surveillance Identify a person in dark areas at 100 m Surveillance of night scenes and events (without being seen)
320 mm	Ulisse	Read license plate 300 m far. Identify 600 m far, a group of individuals, several vehicles, a jet-ski in the sea.	Urban surveillance Surveillance of sensitive buildings, stadiums, industrial areas. Surveillance of large/sensitive events.
500 mm	Ulisse	Read license plate 500 m far. Identify 1000 m far, a group of individuals, several vehicles, a jet-ski in the sea.	Surveillance of large stadiums, of marshalling yard, landing field, car park, … Surveillance of terrestrial or maritime borders.
750 mm (1500 mm with focal extender)	Ulisse Modified with D60 zoom lens	Read license plate 1500 m far. Identify a Zodiac (inflatable dinghy), a jet-ski in the sea at 3000 m.	Surveillance of harbour and airports. Surveillance of terrestrial or maritime borders. Surveillance of extraction sites, and pipe-lines.

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Extreme vision

FH1500-U pack
a complete vision solution

Integration, assembly, set-up
Fujinon
2 years warranty

Fujinon France
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78185 Saint-Quentin-en-Yvelines Cédex
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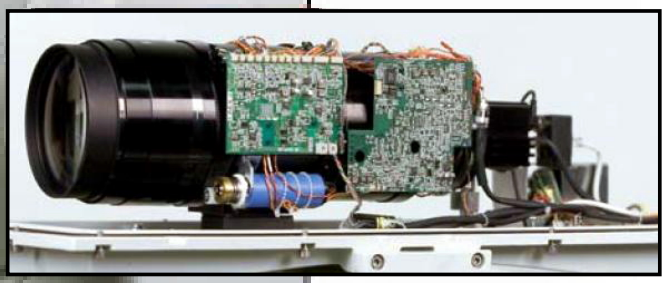
Complete system ready for use. The system uses: the Raptor Photonics Hawk camera and the Fujinon zoom lens D60x12.5 (1500 mm with the focal extender) and the Videotec casing and pan-tilt platform. The complete system is assembled by Fujinon and comes with a 2 years warranty.

Great performances. The system can read a license plate from 1500 m, detect a Zodiac (inflatable dinghy) or a jet-ski from 5000 m with its focal extender.

Without the extender, the zoom lens is very bright and perfectly matches the Raptor Photonics Hawk camera.

The fast pan-tilt enables to search quickly for a detail from large view (large field of view). ■



To capture the light, a large frontal lens is needed. To see far, a large zoom is necessary. Fujinon technicians were able to further simplify the zoom to fit it into the casing. This modification is covered by the 2 years Fujinon warranty.