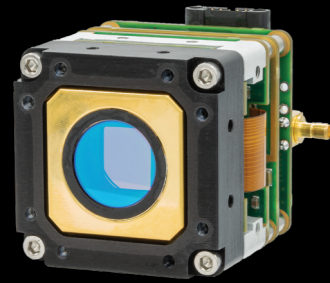


High Performance and Quality

Raptor cameras are well designed and expertly built. We carry the latest quality accreditation BS EN ISO 9001:2015 and IPC Class 3. All our cameras are built to MIL-STD-810F and MIL-STD-704F standards, meaning our cameras are rugged and reliable.

They are designed for EMC & Environmental stress, shock & vibration, meaning Raptor cameras will work in harsh conditions. The electronics are enabled to operate from -40C to +75C. Our electronics are also conformally coated enabling them to work in high humidity or condensation environments in mission-orientated applications.

Raptor undertakes monthly audits of RMAs (returns). On a rolling 12 month basis RMAs have been <2% for the last 3 years. Our high quality manufacturing and QC testing means we rarely see cameras returned.



Quality Compliance and Sourcing

All components used in Raptor cameras are reputedly sourced from approved ISO9001:2015 suppliers offering full traceability. We appreciate that our cameras end up in mission critical equipment, in medical, industrial and surveillance applications where reliability and quality are paramount. We are 100% committed to preventing the use of any grey / counterfeit goods as components within our products. All suppliers are continuously monitored for compliance with RoHS, REACH and the Conflict Minerals rule, section 1502 of the Dodd-Frank Act (2010) using our Raptor Certified Supply Chain.



Raptor Manufacturing

We design and manufacture all of our camera solutions from our state-of-the-art headquarters in Larne, United Kingdom. Our 6,000 sq ft facility holds all our enhanced processes including our cleanroom and vacuum capabilities. Our manufacturing environment operates Kanban processes which enables short lead times and effective stock management. We welcome visits from OEM customers to see our facilities and meet our engineers.

Project Process

Every OEM project has a dedicated project manager, a lead engineer and an account manager to look after the technical, commercial and support aspects of each project. A typical project can take from a few weeks to several months depending on the complexity of the work involved. Customers sit in on regular update calls and sign off at every stage of the project.



Customer Support

We pride ourselves on our levels of customer support, knowing our customers and their needs very well.

All our standard COTS products have a two-year warranty. We also offer a range of extended warranty packages which enable additional levels of service and support, both on-site and remote.

For further information, datasheets or to schedule a demo of any of our cameras, please refer to our website, or reach out to us directly.

OEM Options

Our camera platforms provide our customers with flexible/modular solutions that meet their exact requirements. We build what you need, offering high quality, reliability, competitive pricing and fast delivery, making Raptor a very attractive solution for OEMs.

Sensor options:

- CCD, EMCCD, InGaAs, CMOS & Intensifier Tubes
- Monochrome, Colour
- Global shutter, Progressive scan, a range of resolutions

Communication options:

- RS232
- RS485

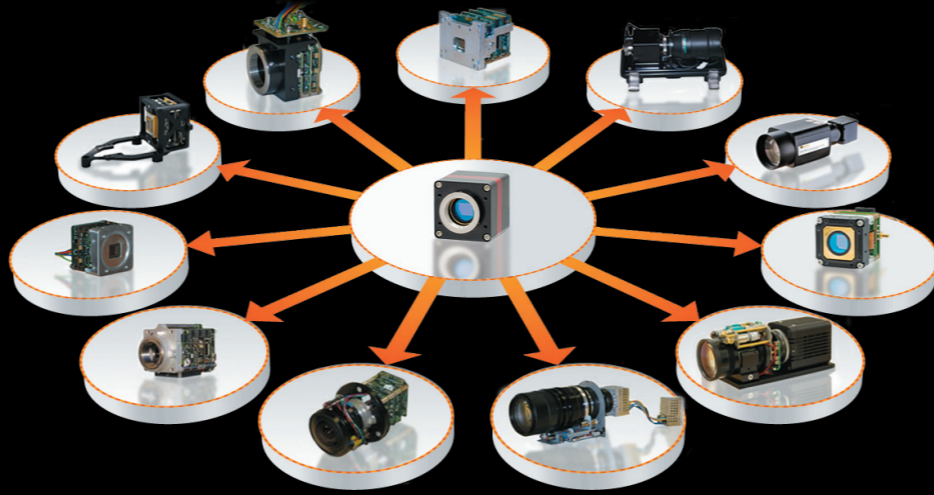
Camera options:

- With or without camera housing (Mechanical re-design to customer specification)
- Remote heads
- Electronic re-design to customer specifications
- Flexible voltage supply
- Increased resistance to shock, vibrations and temperature (according to the housing specification)
- Modified COTS with space flight heritage

Customer Support

Understanding your instrumentation solutions, your product roadmap and your business model will enable us to offer you the best camera solution. We would be delighted to hear from you.

For further information, datasheets or to schedule a demo of any of our cameras please refer to our website, contact your local distributor or reach out to us directly.



Video output options:

- PAL
- NTSC
- ITU-R BT.656-4
- HD HDMI

Digital output options:

- CameraLink
- GigE
- LVDS (RS644)
- USB 2.0/3.0
- HD-SDI
- Custom

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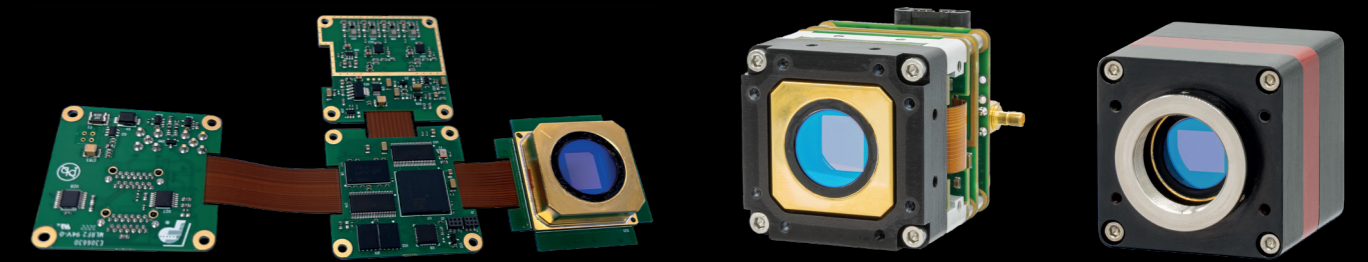
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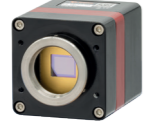
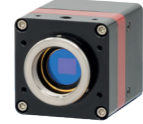
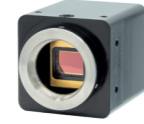
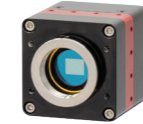

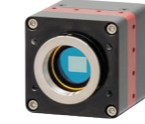
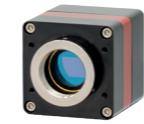
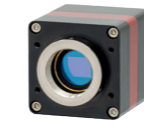
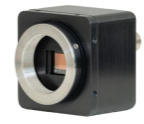


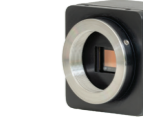


Leaders in digital camera solutions

UV VIS NIR SWIR



SURVEILLANCE 2023

	SWIR	VIS-SWIR							UV, VIS, NIR			
	Owl 640S	Owl 320 HS	Owl 640 M	Owl 640 II	Owl 640 Analogue	Owl 640 N	Owl 640 T	Owl 1280	Hawk Indigo	Hawk 800**	Hawk 1920**	Hawk 4096**
												
Sensor	InGaAs	InGaAs	InGaAs	InGaAs	InGaAs	InGaAs	InGaAs	InGaAs	Next gen CMOS	Next gen CMOS	Next gen CMOS	Next gen CMOS
Sensor Type	2/3"	2/3"	2/3"	2/3"	2/3"	2/3"	1/2"	1"	2/3"	1/1.7"	2/3"	1/2"
Active Pixels	640 x 512	320 x 256	640 x 512	640 x 512	640 x 480 (EIA) 640 x 512 (CCIR)	640 x 512	640 x 512	1280 x 1024	2048 x 2048	816 x 624	1920 x 1080	4096 x 3008
Pixel Pitch (µm)	15 x 15	30 x 30	15 x 15	15 x 15	15 x 15	15 x 15	10 x 10	10 x 10	2.74 x 2.74	9 x 9	4.5 x 4.5	2.74 x 2.74
Active Area (mm)	9.6 x 7.68	9.6 x 7.68	9.6 x 7.68	9.6 x 7.68	9.6 x 7.68	9.6 x 7.68	6.4 x 5.12	12.8 x 10.24	7.80 x 7.80	7.34 x 5.62	8.64 x 4.86	11.22 x 8.24
Digitization (bit)	12	14	14	14	N/A	14	12	12	12	12	12 Mono 8 Colour	12
Readout Noise (Typical Value) LG = Low Gain HG = High Gain	LG: <85e- HG: <50e-	HG: 202e-	LG: 174e- HG: 38e-	LG: 174e- HG: 36e-	LG: 174e- HG: 36e-	LG: 150e- HG: 18e-	LG: 160e- HG: 47e-	LG: 160e- HG: 28e-	<3e-	1.5e-	1.5e-	<3e-
Max. Full Resolution Frame Rate (Hz)	300	349	120	120	25 (CCIR) 30 (EIA)	120	60	60	15	60	60 Mono 30 Colour	10
Peak Quantum Efficiency	>80% @ 1.5µm	>90% @ 1.3µm	>90% @ 1.3µm	>90% @ 1.3µm	>90% @ 1.3µm	>90% @ 1.3µm	>90% @ 1.3µm	>90% @ 1.3µm	>36% @ 250nm	77% @ 510nm 28 @ 800nm	77% @ 510nm 28 @ 800nm	86% @ 510nm 28 @ 800nm
Spectral Response (nm)	900 - 1700	600 - 1700	600 - 1700	600 - 1700	600 - 1700	600 - 1700	600 - 1700	600 - 1700	200 - 1000	300 - 1100	300 - 1100	300 - 1100
Cooling	Active	Active	None	Active	Active	Active	Active	Active	Uncooled	Uncooled	Uncooled	Uncooled
Output ³	Camera Link	Camera Link	Camera Link/SDI	Camera Link/SDI	Analogue	Camera Link/SDI	Camera Link/SDI	Camera Link/SDI	Camera Link	Camera Link	Camera Link	12bit
Lens Mount ²	C mount	C mount	C mount	C mount	C mount	C mount	C mount	C mount	C mount	C mount	C mount	C mount
Camera Power Consumption (With TEC)	<8W	<6W	<2.5W	<8W	<6W	<4W	<8W	<8W	<4W	<4W	<4W	<4W
Operating Case Temperature ⁴ (°C)	-20 to 55	-20 to 55	-20 to 55	-20 to 55	-20 to 55	-20 to 55	-20 to 55	-20 to 55	-20 to 55	-20 to 55	-20 to 55	-20 to 55
Dimensions (mm)	75 x 50 x 50	75 x 50 x 50	62 x 42 x 42	70 x 50 x 50	76 x 50 x 50	70 x 50 x 50	68 x 50 x 50	68 x 50 x 50	43 x 63 x 37	43 x 43 x 37	43 x 43 x 37	43 x 63 x 37
Weight (g)	260	250	170	282	282	282	247	247	100	95	95	100

* All specifications correct at time of print. Other options available on request. More detailed and most recent specifications can be found in datasheets for each product on www.raptorphotronics.com.
¹ All CMOS Cameras available as mono and colour, details on request.
² Other lens mounts are available on request.
³ We offer a range of output interfaces. Please contact us to discuss your requirements.
⁴ Extended operating temperatures available on request.

High performance imaging from UV to SWIR

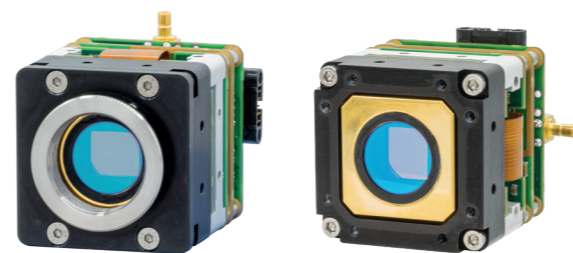
Raptor has been designing and manufacturing compact, SWaP optimised cameras for a range of surveillance applications since 2006. Our cameras are used from the sea-bed to space and everything in-between. They are ultra-sensitive, suitable for day, night and low-light vision and they are ruggedised to work in extreme conditions such as airborne gimbals and turrets. We are also delivering modified COTS cameras for LEO Cube-Sat missions. The cameras have been designed to withstand harsh shock and vibration conditions of launch. The company offers both commercial off the shelf (COTS) cameras as well as custom OEM solutions.

Working with OEMs

Raptor's business model is based on volume demand from OEM customers. Understanding our customers' needs is vital when putting together a solution. The ability to be flexible and being able to offer a range of custom fittings means we can deliver unrivalled price performance solutions, with a pricing structure scalable with volume requirements. Our expertise includes:

- Sensors: CCD, InGaAs, CMOS & Intensifier Tubes
- Analogue and digital signal processing
- Digital design including PCI, USB, LVDS, CameraLink, GigE and HD-SDI
- FPGA (VHDL) development for imaging processing
- High speed analogue and digital design
- Low noise pre-amp circuit development
- High voltage and ultra fast pulse circuit design
- Embedded firmware development
- Application development in C++, C# and VB
- Modified COTS with space flight heritage

- Mechanical and Optical design.
- Heat removal interfaces, e.g. heatsink-less conductive configurations
- Chassis mounting options
- Specific QC / testing to meet customer requirements



OEM options from board level camera to custom designs available in a range of sensors, interfaces and layouts

OEM Accreditations

Raptor's core business is targeted at the OEM market. Since our inception in 2006 we have focused on building our credentials / capabilities to meet our OEM customer needs. These include:

- Operating a quality management system, the company fully complies with the requirements of BS EN ISO 9001:2015
- Accustomed to designing to MilSpec standards including MIL-STD-810F and MIL-STD-704F
- RMAs of less than 2% – we deliver quality products
- Workmanship to class IPCa610
- ESD Compliant
- RoHS Compliant

We have also introduced our Raptor Certified Supply Chain to ensure that our suppliers conform to best practice guidelines e.g. Counterfeit goods inspections.

Interface

Most of Raptor's off the shelf products use Camera Link to communicate with the processor. However, we appreciate that OEMs need a range of options so we can also deliver in HD-SDI, GigE, USB2/3 as well as custom digital output options, including Raptor's direct bus, enabling direct data from our camera to your system. CCIR and EIA are different forms of analog input.



Key Facts

- Established 2006
- Made in the UK
- Onshore US sales and technical support
- Complete turnkey manufacturing
- Cyber Essentials Certified
- Rapidly expanding user base. Includes DoD, MoD and other NATO customers