

# xiSpec

- smallest hyperspectral cameras
- linescan and mosaic snapshot
- 16 to 150 hyperspectral bands

ximea



USB3.0 hyperspectral imaging cameras

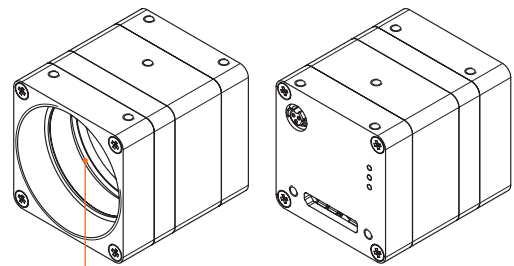
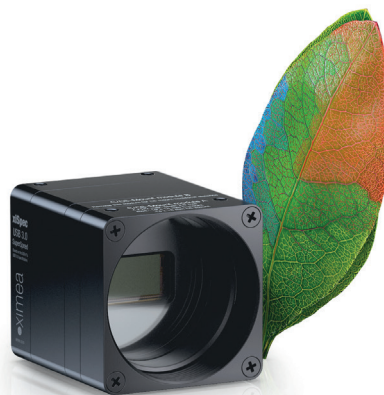
## [sci-spek] or [ksi-spek]

The unique **xiSpec** series offers linescan and snapshot mosaic hyperspectral cameras, being smallest in class by far and combining extreme low power consumption and acquisition of hyperspectral imaging (HSI) raw data at very high frame rates. This camera is implemented in a plethora of applications where chemical differentiation is required: e.g. medicine, agriculture, food processing, waste disposal and many more. The small size, low weight and robustness make it an ideal choice for mobile environments such as drones or handheld devices.

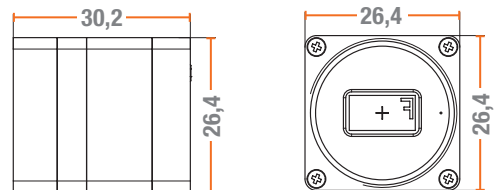
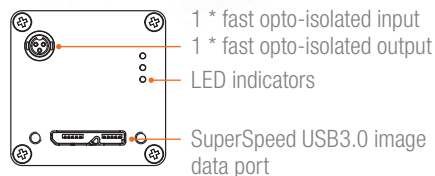
## Quick facts

- Smallest and lightest HSI camera
- Single PCB, board-level versions available
- Lowest power consumption, only 1.8W
- 16 to 150 bands, 170 HSI data cubes or up to 1360 lines per second
- USB3 Vision compliant

## Housed cameras

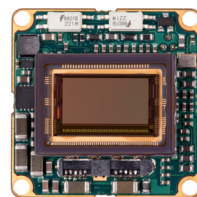


Standard C/CS lens mount with model-specific, customized filter glass



## Board-level cameras

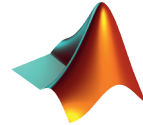
All HSI cameras are available in various board-level camera versions (only on request):



- Board-level version of standard housed camera with Micro-B connector
- Connector for flat flex cables (FFC) including USB3.0 and USB2.0 signals and GPIOs
- Board stack with remote usable sensor board, connector for flat flex cables (FFC) including USB3.0 and USB2.0 signals and GPIOs (xiC series board stack)
- Board stack with remote usable sensor board, connector for flat flex cables (FFC) including PCIe Gen2 x2 signals and GPIOs (xiX series board stack)

## Supported vision libraries

Compatible with more than 30 popular machine vision libraries



XIMEA strives to create and maintain compatibility and interfaces for the most common and advanced vision image-processing libraries and applications. Major support is available for **MVTec Halcon**, **National Instruments LabVIEW**, **MathWorks MATLAB** and **OpenCV**. Please check our XIMEA website for an up-to-date list of other supported libraries and software packages.

## Compatibility

Supported operating systems



Windows



Linux



OS X

## Standards



### About us

**Big**  
about  
**small**

#### Why would we make that claim?

We say that because we just love to make cameras small, and excel at this task. Nobody makes the same thing any smaller. Is that a good thing? We certainly think so, especially when our products exceed customer satisfaction and specification. With small, comes low mass, another massive advantage for all our customers. High density means we have to take extraordinary care regarding power consumption and heat dissipation. But... that does not mean we allow any compromises. Everything we include in our products is of industry standard or better. Thanks to the full metal body, our cameras – literally and figuratively – are extremely cool, and because of our love for speed they are also fast. This design paradigm optimizes for the most ideal specifications for the broadest set of customers.

Our passion about small things also extends to the company itself.

We take conscious action to stay small and agile as a company. Consequentially our people must be extraordinarily talented to ensure efficient processes and cover all bases. We have well defined outsourcing interfaces with close interactions internally and externally with management as a part of the team. Being small keeps everyone focused and aware of what is going on, which quickly translates into customer satisfaction.

Thanks for your time.

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## Sensors and models

Model	Sensor type	Spectral range [nm]	Bands
MQ022HG-IM-LS100-NIR	Linescan	600-975	100+
MQ022HG-IM-LS150-VISNIR	Linescan	470-900	150+
MQ022HG-IM-SM4X4-VIS	Snapshot Mosaic	470-630	16
MQ022HG-IM-SM5X5-NIR	Snapshot Mosaic	600-975	25

## Sensor types

The sensor technology is based on standard CMOS area sensors, with a native resolution of 2048 × 1088 pixels. Two hyperspectral filter arrangements are added at wafer-level on top of the pixel structure of the sensor.

### Snapshot Mosaic cameras

4 × 4 or 5 × 5 mosaic patterns are repeated continuously on the sensor surface:

- 4 × 4 filter array, 16 HSI bands between 470-630 nm (MQ022HG-IM-SM4X4-VIS)
- 5 × 5 filter array, 25 HSI bands between 600-975 nm (MQ022HG-IM-SM5X5-NIR)

The spatial resolution is approx. 512 × 272 pixels (4 × 4) or 409 × 217 pixels (5 × 5).

The original sensor resolution can be interpolated.

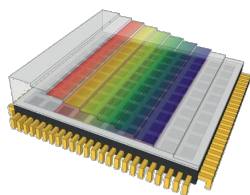


### Linescan cameras

The different hyperspectral bands are realized vertically.

- 100+ bands between 600 and 975 nm in 4 nm steps, each with a size of 2048 × 8 pixels (MQ022HG-IM-LS100-NIR)
- 150+ bands between 470 and 900 nm in 3 nm steps, each with a size of 2048 × 5 pixels (MQ022HG-IM-LS150-VISNIR)

Using this camera requires a synchronized camera / object movement and image acquisition.



## Contact

Please visit [www.ximea.com](http://www.ximea.com) for complete product information.

Get in touch with our teams at [sales@ximea.com](mailto:sales@ximea.com).

We will be glad to assist and consult you regarding our products.

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