



NECTA 

USB 3.1 Gen 2 line scan cameras

NECTA series



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COMPATIBLE

HALCON
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NECTA X is the latest generation of CMOS line scan cameras, featuring a **USB 3.1 Gen 2 10 Gbps** interface.

USB 3.1 Gen 2 delivers a significant leap over its predecessor, doubling usable bandwidth to 9.6 Gbps. This performance boost directly enhances machine vision applications by enabling higher frame rates, minimizing latency for real-time processing, and supporting the most demanding high-resolution camera configurations.

Thanks to the **USB-C interface**, NECTA X streamlines system integration by removing the need for dedicated interface boards. Furthermore, its enhanced power delivery supports high-performance configurations while maintaining maximum system reliability.

Designed for **low power consumption**, NECTA X requires no active cooling thanks to its high thermal efficiency, simplifying installation in tight spaces and enhancing long-term reliability.

Available with single- and dual-line AMS Dragster CMOS sensors in **4K, 8K and 16K resolutions**, these cameras provide powerful onboard FPGA processing, while maintaining a compact, reliable footprint. Available with F-mount lens adapter and M72 thread.

Features

USB 3.1 Gen 2 interface

Up to 10 Gbps of bandwidth over a single USB3 Type-C cable for a faster data transmission and reduced latency.

CMOS technology

AMS Dragster CMOS sensors, color and monochrome, featuring 12-bit A/D converter, up to 16384 pixels, up to 95000 lines/s.

Going farther

NECTA X is compatible with new USB3 Active Optical cables, allowing you to reach longer distances with a single cable.

Onboard image processing

Like all Alkeria cameras, NECTA X performs all of its image pre-processing onboard without loading your CPU with heavy calculations.

Triple programmable LUTs

Independent LUTs (one for each color) allow easy color thresholding, filtering and calibration for color-critical applications to external signals: line/frame triggering, direct encoder readout and strobed lighting have never been easier.

Versatile I/O

2 inputs, 2 outputs and 1 bidirectional I/O, for interfacing to outer world signals.

Smart triggering

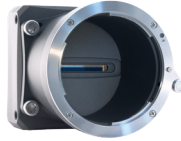
Choose from a variety of triggering mechanisms. Acquisition can be driven by I/O levels, signal edges and encoder position. Additionally, triggering signal frequencies can be internally converted to solve even the most challenging applications.



Format and accessories

Image quality does not depend only on the resolution of the camera: to achieve top performance from a vision system it is essential to choose the best format and combination of all components. For this reason NECTAX is available both in a compact format with F-mount lens adapter or in larger format with M72 thread.

Visit www.alkeria.com/accessories to discover the complete range of accessories.



F-mount

Interfacing

USB3

Cost-effective, wide-spread, high-performance, plug&play, directly powered by the PC. All of these perks make USB3 the right choice for cameras intended to be ready out-of-the-box.

I/O

NECTA X provides a versatile 24-V tolerant I/O interface to control external devices such as strobe lights or encoders: 2 input lines with direct encoder interface, 2 output lines and 1 input/output (RS-422, RS-644 LVDS, LVTTTL). Its multipurpose I/O connector supports user I/O, line/frame triggering and direct encoder interfacing.



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Vision libraries

Image processing libraries represent the most flexible way of developing vision applications: these systems provide a complete range of powerful vision analysis tools, as well as the possibility to develop tailor-made algorithms and functionality to address specific application needs.

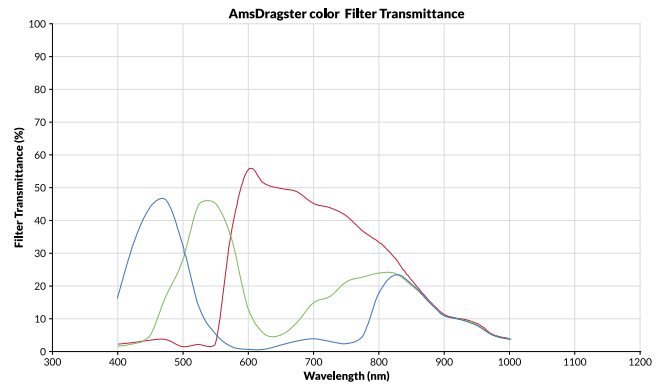
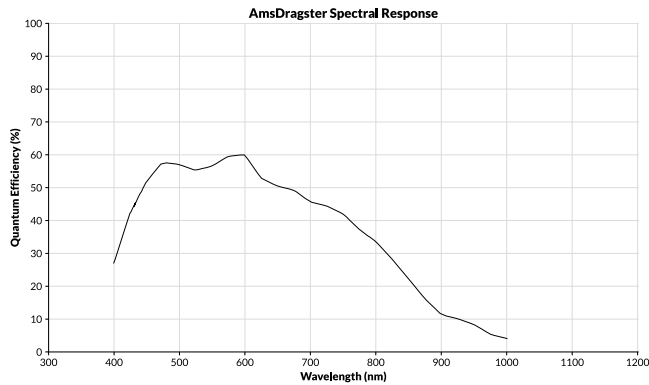
That's why our cameras are GenICam GenTL compliant and are compatible with the major vision libraries, such as MVTech HALCON or Cognex VisionPro.

Want to use your own code instead?

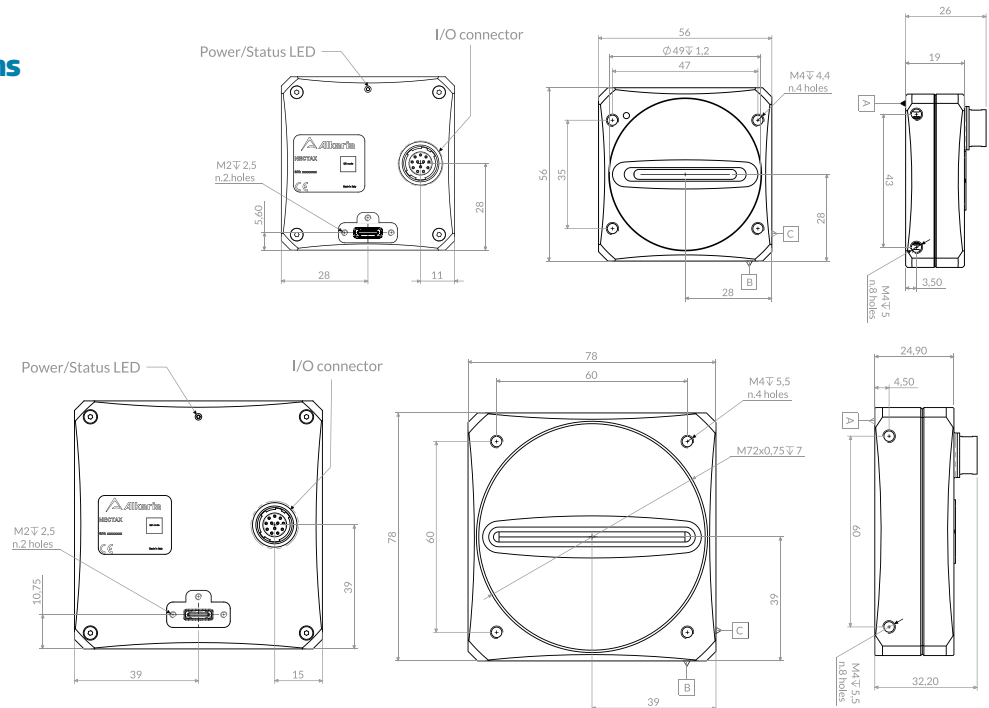
Our cameras come with a comprehensive SDK for Windows and Linux featuring a sample player for live view and camera configuration, and a rich set of code samples in C# and C++ (Win32 and Qt).

Technical specifications

Sensors specifications



Mechanical specifications



All dimensions are expressed in millimeters.
 Camera specifications are subject to change without notice.
 Sensor specifications (monochrome and color) are taken from the data sheet of the manufacturer.

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MODEL	NX4K2-7	NX4K2-7C	NX8K-3	NX8K-7	NX8K2-7	NX8K2-7C	NX16K-3
Resolution	4K	4K	8K	8K	8K	8K	16K
Resolution (w×h)	4096×2		8192		8192×2		16384
Pixel Size	7 × 7 μm ²		3.5 × 3.5 μm ²	7 × 7 μm ²			3.5 × 3.5 μm ²
Color mode	Mono	Color	Mono			Color	Mono
M72 mount	○	○	○	●	●	●	●
F-mount	●	●	●	○	○	○	○
Shutter Control	2 μs ÷ 100 ms, 100 ns per step						
Line rate	Up to 95 kHz				Up to 47.6 kHz		
Pixel Format	MONO8/16, RAW8/16	RGB24, YUV4:2:2, MONO16, RAW16	MONO8/16, RAW8/16			RGB24, YUV4:2:2, MONO16, RAW16	MONO8/16, RAW8/16
A / D Conversion	Up to 12 bit						
Synchronization	External trigger, software trigger						
Readout	Normal, ROI, binning						
Power Supply	< 5 W, powered by USB 3.1 Gen 2 interface						
Inputs / Outputs	2 in (direct encoder interface), 2 out and 1 I/O (RS422, RS644 LVCMOS, LVTTTL) , 24 V tolerant						
Interface	USB 3.1 Gen 2 (up to 10Gbps)						
Weight	~100 g (without additional lens adapter)			129 g			
Dimensions	56 mm x 56 mm x 19 mm - (L x W x D) camera only			78 mm x 78 mm x 25 mm - (L x W x D) camera only			
Conformity	CE, RoHS, FCC/IC						
Main Controls	Shutter, contrast, gain, LUT, gamma correction, frame rate, brightness, trigger						
Operative Temp	0 ÷ 50 °C						

This chart shows all technical specifications of the current NECTAX USB 3.1 Gen 2 product line.

To know more about specifications and prices, please contact our Sales department at sales@alkeria.com: we'll help you finding the right camera for your application.



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