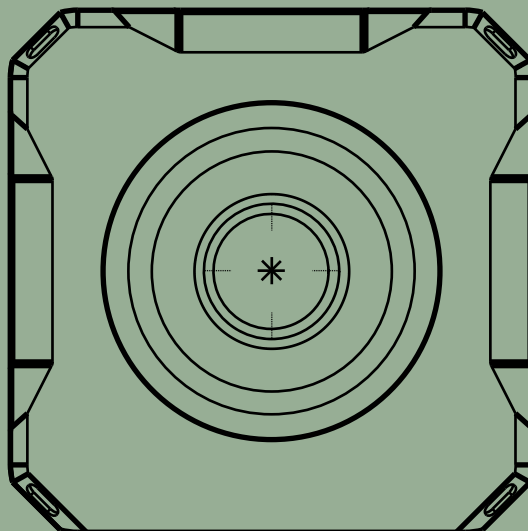


*ZED X One 4K

Monocular Camera Overview

The ZED X One 4K is the perfect choice for applications that require maximum visual detail, from barcode reading to high-reliability quality inspection.

Designed for advanced multi-camera deployments, it supports precise hardware synchronization, ensuring seamless coordination across complex vision setups. The integrated GMSL2 connection delivers robust, high-speed image transfer over long distances, even in harsh environments. Its rolling shutter sensor pairs 4K UHD resolution with high-speed capture, resolving fine detail for the most demanding vision tasks.



*ZED X One 4K

Datasheet Revision History

Document Version	Description	Revision Date
1.0	● Initial release	April 2024
2.0	● New release: Separated from ZED X One GS datasheet	April 2026
2.1	Added: Sensor positions	June 2026
2.2	● Added: Dimensions on technical drawings ● Added: Compliance and certificates	July 2026

*ZED X One 4K

General Specifications

Featuring 4K UHD sensor

The ZED X One 4K is equipped with a performant 4K rolling shutter sensor, delivering exceptionally high-resolution images with high frame rates for smooth, detailed capture.

Exceptional high-dynamic range

The ZED X One 4K provides a high-dynamic range (HDR), optimizing exposure balance, while preserving highlights and shadows for lifelike visuals.

Secure GMSL2 connection

GMSL2 connectivity is ideal for robotics. Transmit video without EMI and high data rate through a lockable interface to a Jetson Orin over a distance of up to 15M with low latency.

High-performance IMU

The all-new IMU combines a 16-bit triaxial accelerometer and gyroscope with vibration resistance, ultra low noise and bias for exceptional motion tracking

Multi-camera synchronization

Hardware synchronization for multiple connected cameras at frame-level within 15 microseconds. Capture RGB and depth images of the same scene with multiple cameras all triggered at the same time.

Low-level camera control

Benefit from low-level control to finely tune image parameters and achieve unparalleled image quality and customization in camera firmware development.

Camera	
Sensor Type	1/1.8" 8.4MP CMOS - Rolling Shutter
Output Resolution	3840x2160 @15fps 1920x1080 @15/30/60fps cropping mode 960x600 @15/30/60/120fps binning mode
Image Format	16:9
Output Format	Raw 12 / YUV 4:2:2 (Argus)
Field of View	Max. 110°(H) x 72°(V) x 119°(D)
Focal Length	3.1mm (0.122")
Aperture	f/2.0
TV Distortion	< 5.85%
Interface	GMSL2 Serial Coax GMSL2 Connector - FAKRA Z Type

Sensors	
Image	RGB Rolling Shutter Sensor
Motion	200 Hz 16-bits Accelerometer (up to 12g)
Physical	
Dimensions	31 x 31 x 58.2mm (1.22 x 1.22 x 2.29")
Mounting	4x M4 (bottom) + 1/4"-20UNC adapter plate
Weight	59g (0.12 lb.)
Power	Power via GMSL2 0.92W (12V)
Warranty	2-year warranty

System Requirements	
System	NVIDIA® Jetson
OS	Jetson Linux (L4T) v35.1 or newer

*ZED X One 4K

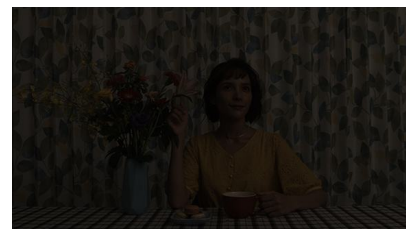
Detailed Specifications

Image Sensor

The ZED X One 4K sensor offers excellent low-light performance and cutting-edge HDR technology for unparalleled clarity and detail in high-resolution video recording.

Sensor Type	1/1.8" 8.4MP CMOS
Array Size	3856 x 2180 pixels
Pixel Size	2µm x 2µm
Chief Ray Angle	0°
Recommended Lens CRA	0° ± 10°
Shutter	Rolling shutter
Output Resolution (Side by side)	3840x2160 @15fps 1920x1080 @15/30/60fps cropping mode 960x600 @15/30/60/120fps binning mode
Output Format	Raw 12 / YUV 4:2:2 (Argus)
Max S/N Ratio	>=41dB
Dynamic Range	85dB
Sensitivity	15886 Digit/lux/s
Camera Control	Exposure, analog & digital gain, gamma, white balance, saturation, sharpness, denoising, brightness, contrast

Exceptional low-light capabilities and high sensitivity



Conventional Front-illuminated image sensor



Sensor with HDR technology
Back-illuminated image sensor

Motion Sensor BMI088 IMU

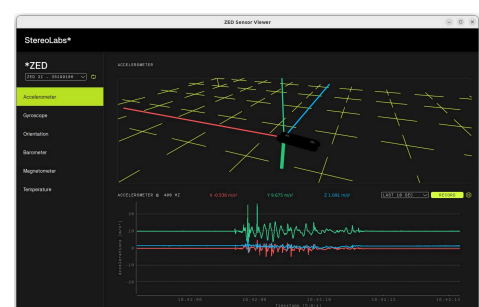
The integrated IMU is a high-performance 6-axis inertial sensor with a 16-bit triaxial accelerometer and gyroscope, providing precise orientation and motion detection of the camera. Offering high vibration robustness and excellent temperature stability, it's ideal for harsh industrial robotics environments.

Motion Sensor	BOSCH BMI088 IMU
Accelerometer Range	± 12G
Accelerometer Resolution	0.36 mg
Accelerometer Noise Density	2.3 mg
Gyroscope Range	± 1000 dps
Gyroscope Resolution	0.03 dps
Gyroscope Noise Density	0.20 dps
Sensitivity Error	± 0.5%
Output Data Rate	200 Hz

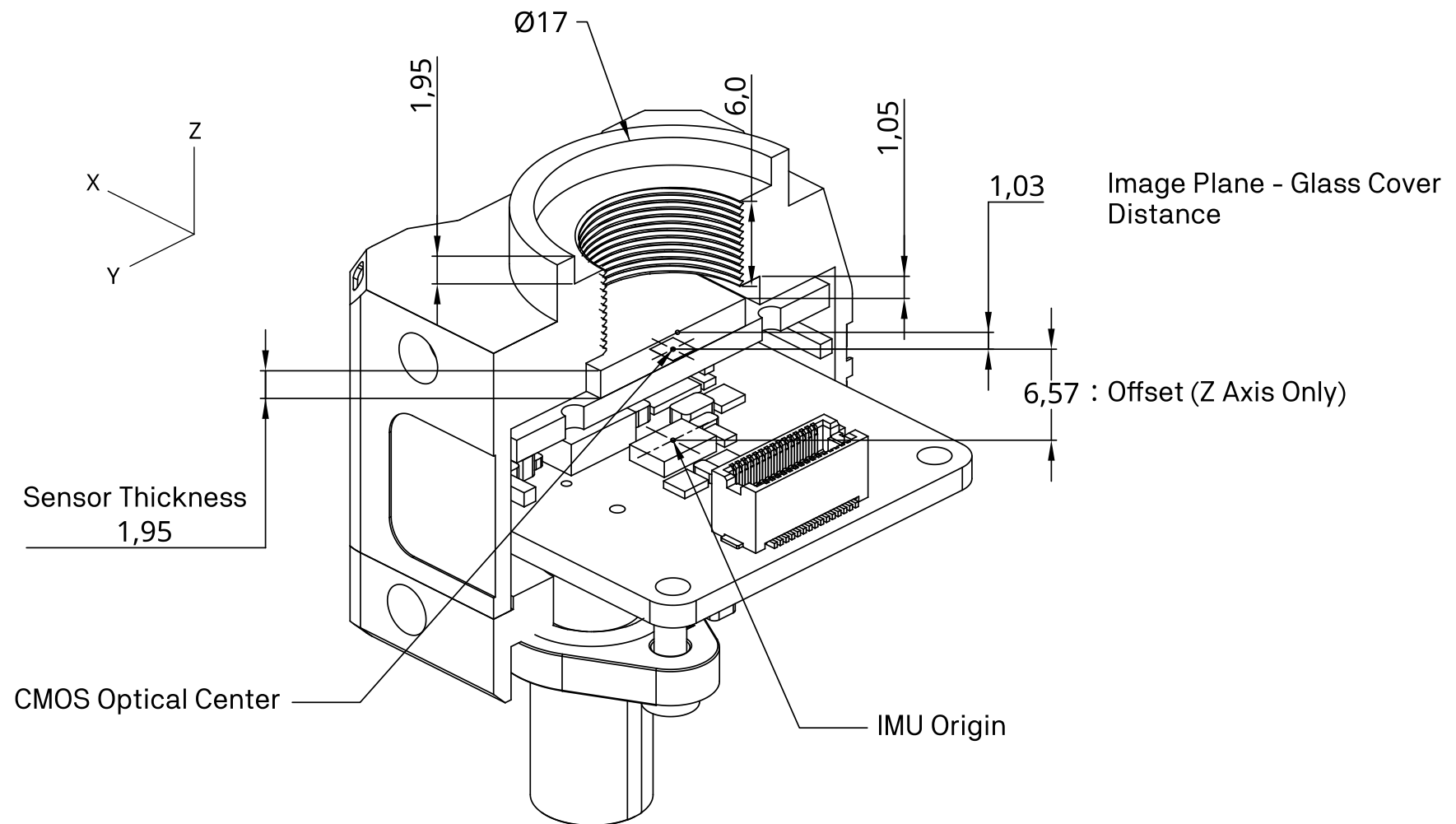
Sensors API

You can access these sensors and acquire sensor data by using the Sensors API.

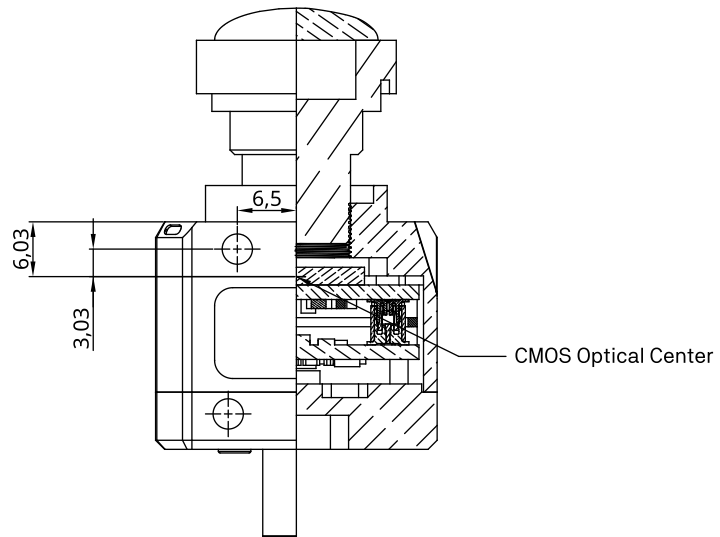
Please visit stereolabs.com/docs for tutorials.



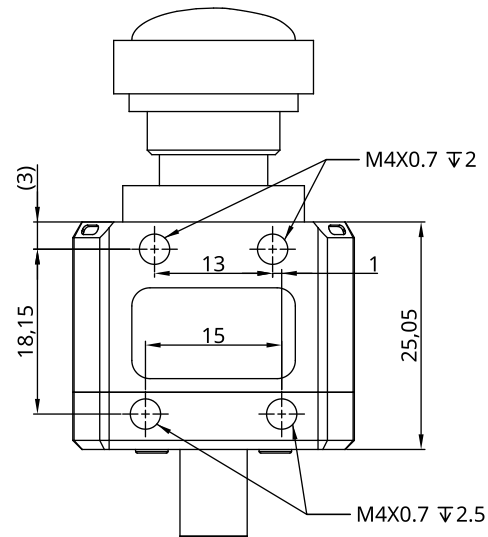
*ZED X One 4K Sensor Positions



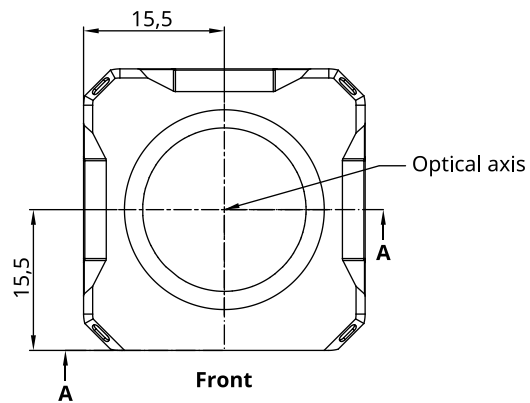
*ZED X One 4K Sensor Positions



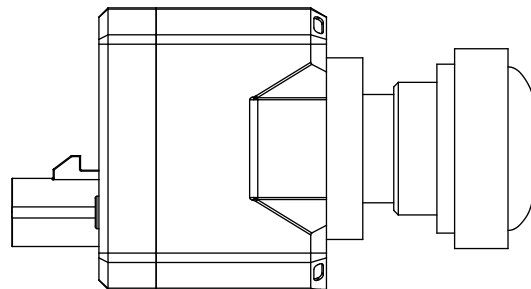
A - A



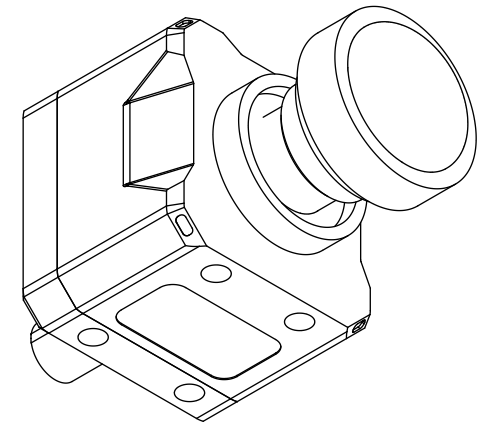
Bottom



Front

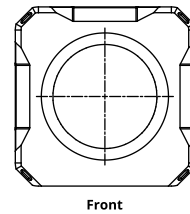
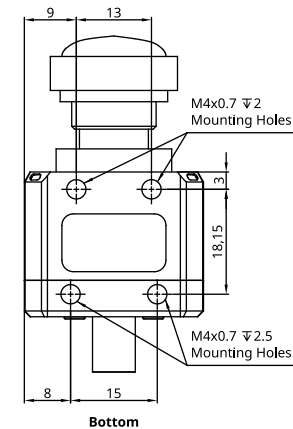
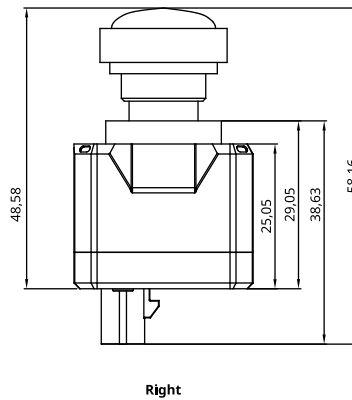
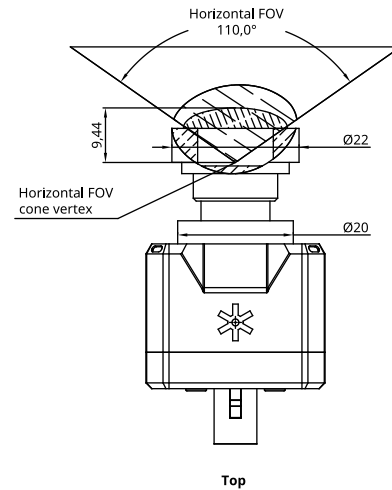
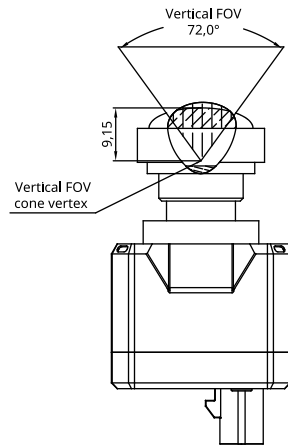
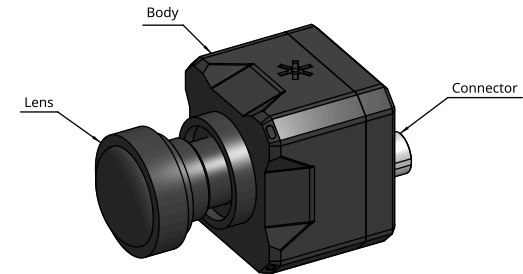
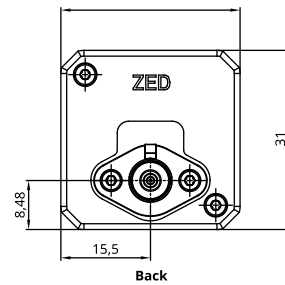


Left



Isometric

*ZED X One 4K - Wide lens Technical Drawings



*ZED X One 4K Accessories

FAKRA Z Cables

A wide range of camera cables are readily available, tailored to diverse requirements and applications, offered in varying lengths to suit both compact and expansive setups.



Male to Female		Female to Female		Female to Female 1-to-4		Right-Angle Extension	
0.5m (1.6ft)	CBL-310800	0.3m (0.98ft)	CBL-320100	0.5m (1.64ft)	CBL-320510	0.3m (0.98ft)	CBL-310500
1.5m (4.93ft)	CBL-310100	1.5m (4.93ft)	CBL-320200			0.5m (1.6ft)	CBL-310900
5m (16.4ft)	CBL-310200	5m (16.4ft)	CBL-320300				
10m (32.8ft)	CBL-310300	10m (32.8ft)	CBL-320400				
15m (49.2ft)	CBL-310400						

ZED Box Embedded Computers

Stereolabs ZED Boxes are powered with NVIDIA® Jetson Orin modules and serves as a robust AI embedded computers for autonomous robotics and AI applications.



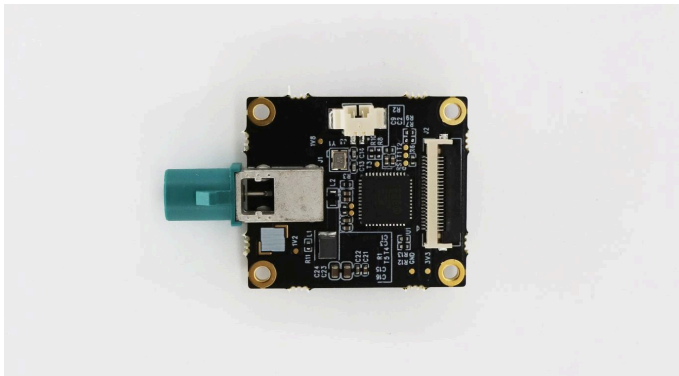
Model	ZED Box Orin NX	Model	ZED Box Mini
Jetson Modules	Orin NX 8GB, NX 16GB	Jetson Modules	Orin Nano 4GB, Nano 8GB, NX 8GB, NX 16GB
I/Os	3x USB 3.2 Gen2 (10 Gbps) 1x Gigabit Ethernet 1x HDMI 4x GMSL2 ** WiFi 6 connectivity 1x RTK GNSS GPS Ublox ZED F9P**	I/Os	2x GMSL2 1x USB 3.0 (5 Gbps) 1x Gigabit Ethernet 1x HDMI WiFi 6 connectivity**

** Available as options.
The Multiband GNSS antenna ANN-MB-00 is an additional accessory.

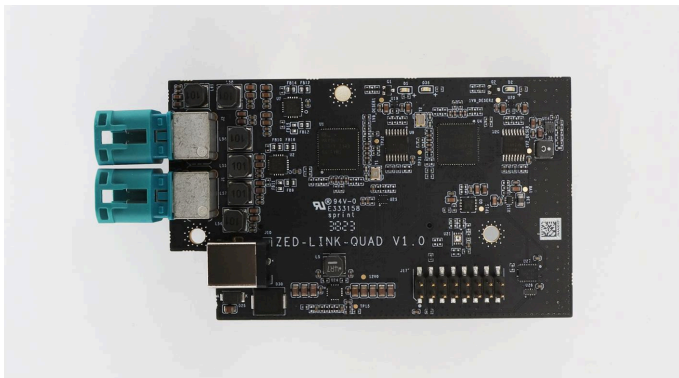
*ZED X One 4K Accessories

Capture Cards

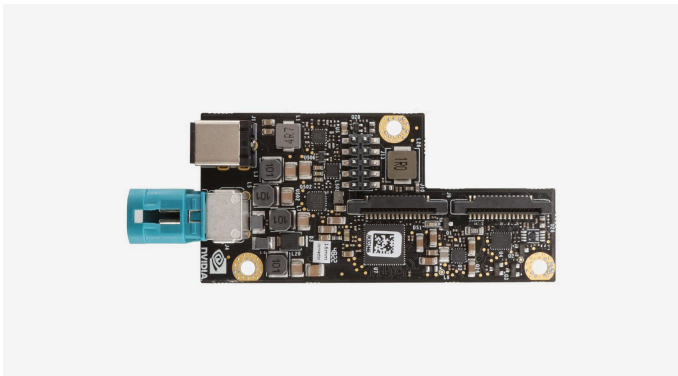
To capture the ZED X One 4K on the NVIDIA® Jetson AGX platform, one solution is to utilize a GMSL2 capture card that directly connects to the Jetson's CSI port.



Model	ZED Link Mono Capture Card
Compatibility	NVIDIA® Jetson Orin Platform (NX/Nano) NVIDIA® Jetson Xavier Platform (NX)
Max. number of cameras	Capture 1x GMSL2 camera input in SD/HD, up to 3840x2160 @15fps
Deserializer	MAX9296A
Power	Requires external 9-14V power supply.



Model	ZED Link Quad Capture Card
Compatibility	NVIDIA® Jetson Orin Platform (AGX) NVIDIA® Jetson Xavier Platform (AGX)
Max. number of cameras	Capture 4x GMSL2 camera input in SD/HD, up to 3840x2160 @15fps
Deserializer	2 x MAX96712
Power	Requires external 9-19V power supply.



Model	ZED Link Duo Capture Card
Compatibility	NVIDIA® Jetson Orin Platform (AGX/NX/Nano) NVIDIA® Jetson Xavier Platform (AGX/NX)
Max. Number of cameras	Capture 2x GMSL2 camera input in SD/HD, up to 3840x2160 @15fps
Deserializer	MAX96712
Power	Connects to and is powered by the Samtec port of the Orin/Xavier AGX Developer Kit. Requires external power supply for NX/Nano (9V-19V) when using MIPI port

*ZED X One 4K

Part Numbers & Compliance

ZED X One 4K Part Numbers

	ZED X One 4K No lens	ZED X One 4K Wide lens (3.1mm)
SKU	ZED-421010	ZED-422010

Standards & Compliance

Certificate	Region
CE Declaration of Conformity	European Union
REACH	European Union
RoHS Compliance	European Union
TSCA	United States
Certificate of Origin	Global

