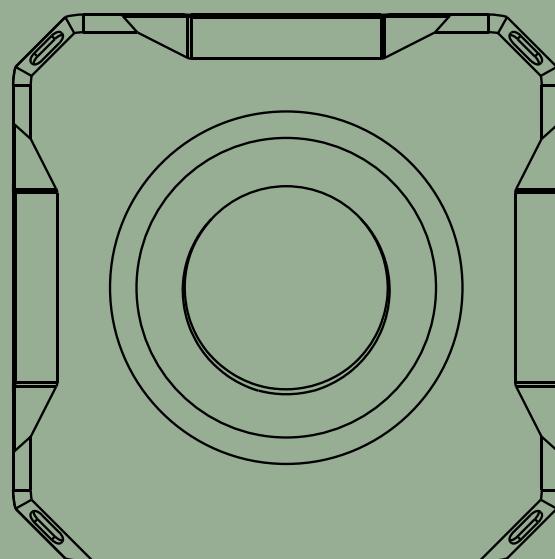


\*ZED X One

# Monocular Camera & SDK Overview

The ZED X One is the ideal choice for flexible integration and customization of stereo systems or for multiple-camera surround vision. It is especially well-adapted for large machines.

The ZED X One offers two sensor options: 2.3 MP Global Shutter and 4K Sony Starvis 2, making it ideal for robots deployed in low-light conditions in various sectors including agriculture, logistics or construction.



# \*ZED X One General Specifications

## Global or Rolling Shutter

Choose the best sensor for your application. Capture distortion-free images of lightning-fast action with our global shutter sensor or benefit from ultra-high resolution even in low-light conditions with our rolling shutter sensor.

## 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.

## 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.

## High-performance IMU

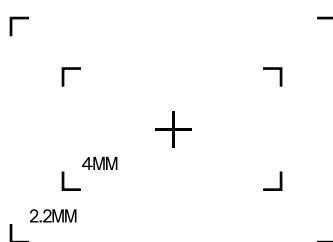
The all-new IMU combines a 16-bit triaxial accelerometer and gyroscope with vibration resistance, ultra low noise and bias for exceptional motion tracking

## Multiple S-mount lens options

Benefit from multiple lens options to create the best camera system for your application.

# \*ZED X One Lens Options

## Global Shutter



### Wide

2.2mm fixed focal lens offers an exceptionally wide field of view while also providing optically corrected distortion for enhanced image quality.

### Narrow

The 4mm focal length lens is perfect for an enhanced resolution and depth accuracy at longer ranges.

## 4K Sony Starvis 2



### Wide

3.05mm fixed focal lens offers an exceptionally wide field of view while ensuring distortion correction and optimal light sensibility, resulting in superior image quality.

# \*ZED X One General Specifications

## ZED X ONE

Camera Model	ZED X ONE GS			ZED X ONE 4K	
Sensor	Onsemi AR0234			Sony IMX678	
Size	1/2.6"			1/1.8"	
Resolution	1928 (H) x 1200 (V)			3856 (H) x 2180 (V)	
Pixel size	3µm x 3µm			2µm x 2µm	
Shutter sync	Global Shutter			Rolling Shutter	
Lens Options	None	Wide	Narrow	None	Wide
Focal Length	-	2.2mm	4mm	-	3.1mm
FOV	-	120.8°(D) 110°(H) 79.6°(V)	91°(D) 80°(H) 52°(V)	-	118.8°(D) 109.9°(H) 71.8°(V)
Lens Mount	S-Mount				
Motion Sensor	3-axis Accelerometer - ODR 200Hz - Res. 16 bit - Max 12g 3-axis Gyroscope - ODR 200Hz - Res. 16 bit - Max 1000 °/sec				
Connector	Serial Coax GMSL2 connector - FAKRA Z				
Operating Temp	-20°C to +55°C (-4°F to 131°F)				
Power	Power via GMSL2 (PoC)				
Consumption	Typically ~0.73W				
Mounting option	4x M4 (bottom) + 1/4" -20UNC adapter plate				
Dimensions	31mm x 31mm x 38.6mm	31mm x 31mm x 52.7mm	31mm x 31mm x 52mm	31mm x 31mm x 38.6mm	31mm x 31mm x 58.1mm
Weight	48g	55g	50g	48g	59g
Part number	ZED-411010	ZED-412010	ZED-413010	ZED-421010	ZED-422010
Warranty	2-year hardware warranty				

# \*ZED X One Sensor Stack Specifications

The IMX678 SONY Starvis 2 sensor offers excellent low-light performance and cutting-edge HDR technology for unparalleled clarity and detail in high-resolution video recording.

## IMX678 SONY Starvis 2 Technology

Sensor Type	1/1.8" 8.4MP CMOS
Array Size	3856 x 2180 pixels
Pixel Size	2µm x 2µm
Shutter	Rolling Shutter
Output Resolution	3840x2160 @15ps 1920x1080 @60fps binning mode 1920x1200 @60fps cropping mode
Output Format	RAW12 (v4I2) / NV21 (Argus)
Max S/N Ratio	>=40dB
Dynamic Range	85dB
Sensitivity	15886 Digit/lux/s

Exceptional low-light capabilities and high sensitivity



Conventional Front-illuminated image sensor



Sensor with STARVIS technology  
Back-illuminated image sensor

The AR0234 sensor delivers 2.3MP clarity and great low-light capabilities, ideal for capturing crisp and distortion-free footage of fast moving objects in robotics applications.

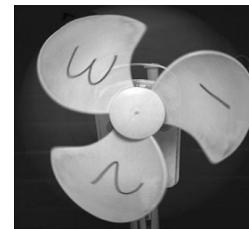
## ONSEMI AR0234

Sensor Type	1/2.6" 2.3MP CMOS
Array Size	1928 x 1208 pixels
Pixel Size	3µm x 3µm
Shutter	Electronical synchronized global shutter
Output Resolution	1920x1200 @60fps 1920x1080 @60fps cropping mode 960x600 @120fps binning mode
Output Format	RAW10 (v4I2) / NV21 (Argus)
Max S/N Ratio	38dB
Dynamic Range	71.4dB
Sensitivity	22.3Ke/Lux*s

Distortion free images of fast moving objects



Rolling Shutter

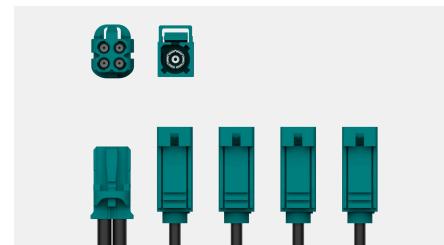


Global Shutter

# \*ZED X One Accessories

## FAKRA Z Cable

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

1.5m (4.93ft)	CBL-310100
5m (16.4ft)	CBL-310200
10m (32.8ft)	CBL-310300

### Female to Female

0.3m (0.98ft)	CBL-320100
1.5m (4.93ft)	CBL-320200
5m (16.4ft)	CBL-320300
10m (32.8ft)	CBL-320400

### Female to Female - 1-to-4

0.5m (1.64ft)	X
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## ZED Link Mono Capture Card

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



Compatibility	NVIDIA Jetson Xavier/Orin Platform
Max. number of cameras	1
Deserializer	MAX9296
Bandwidth	Up to 6Gb/s total bandwidth
Power	Requires external power (9V - 19V)

## ZED Box Orin NX

The ZED Box, equipped with the latest NVIDIA Jetson Orin NX, serves as a robust AI gateway for autonomous robotics and advanced video analytics.

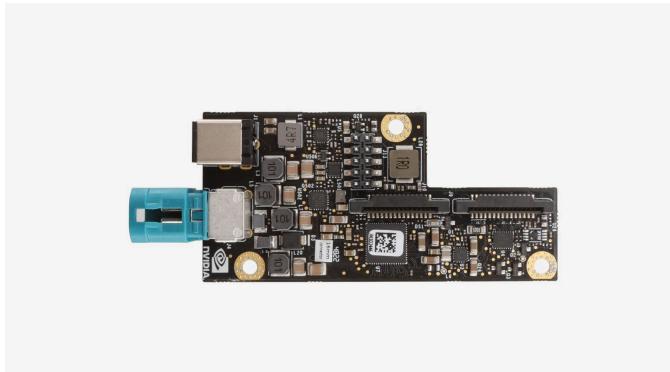


AI Performance	16GB - 100 TOPS / 8GB - 70 TOPS
Compatible camera	ZED 2i Stereo Camera, ZED X Stereo Camera
I/Os	3x USB 3.2 Gen2 (10 Gbps) 1x Micro USB OTG (Flash) 1x Gigabit Ethernet 1x HDMI, 4x Gigabit Multimedia Serial Links (GMSL2)** 1x WiFi 6 connectivity** 1x RTK GNSS GPS Ublox ZED F9P**

# \*ZED X One Accessories

## ZED Link Dual Capture Card

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



Compatibility	NVIDIA Jetson Xavier/Orin Platform
Max. number of cameras	2
Deserializer	MAX96712
Power	Via Samtec CSI port of the Jetson AGX External required when using MIPI ports

## ZED Link Quad Capture Card

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



Compatibility	NVIDIA Jetson Xavier/Orin Platform
Max. number of cameras	4
Deserializer	2 x MAX96712
Power	Requires external power (9V – 19V)

## Dual Camera Mount for ZED X One

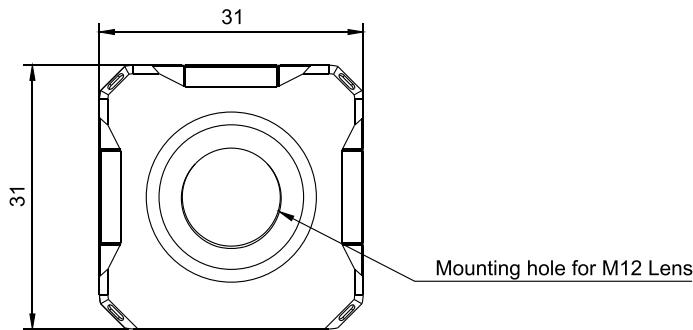
This rigid aluminum mount allows you to mount two cameras on a tripod. Adjust the stereo baseline of your ZED X One and capture depth from 5cm to 100m.



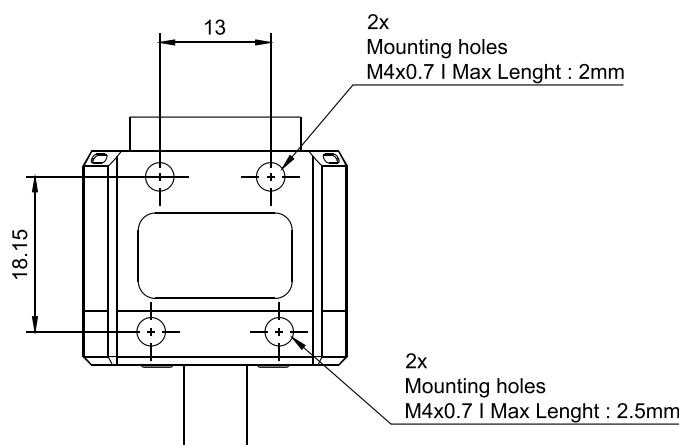
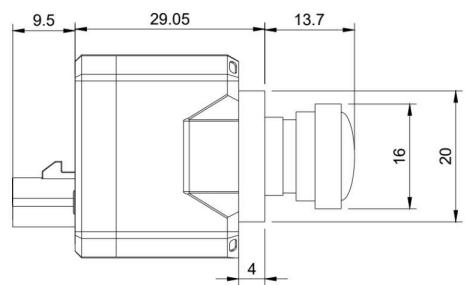
Dimensions	310 x 28 x 6 mm (12.2 x 1.1 x 0.24 inch)
Mounting	Mount on any surface using M4 screws or on any tripod using 1/4" screws.
Cameras	Minimum camera separation: 52mm. Maximum camera separation: 222mm.

# \*ZED X One Technical Drawings

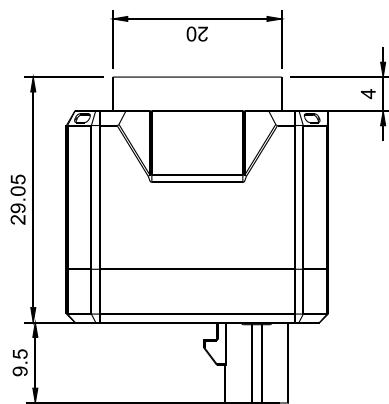
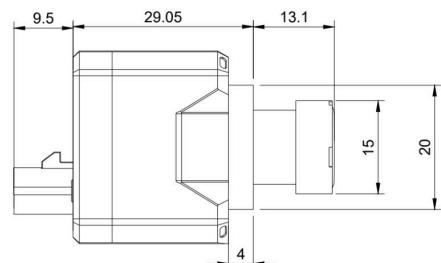
ZED X One



ZED XOne GS WIDE



ZED XOne GS NARROW



ZED XOne 4K WIDE

