

C1 Camera

Automotive-grade cameras
for autonomous mobility
and robotics applications

C1-046



C1-085



C1-120



C1-195 MP



Overview

The C1 Camera is a 2.5 MP GMSL2 camera engineered for automotive applications, with a variety of lens options to suit diverse system requirements. Powered by a Sony Semiconductor Solutions ISX021 stacked CMOS SoC with an integrated ISP, it features 120 dB HDR, LED flicker mitigation (LFM), and artifact-free 30 fps capture. To enable sensor fusion, TIER IV cameras also support external triggering, essential for synchronizing capture with other sensor modalities like LiDAR and radar. Built to withstand extreme environments and designed to meet AEC-Q100 Grade 2, Q101, and Q200 standards, the C1 Camera is a reliable, deployment-ready vision solution for autonomous driving systems.

Key features

High dynamic range

Captures high-contrast scenes without crushed shadows or blown-out highlights using a 120 dB dynamic range.

High sensitivity, low noise

Suppresses noise to maintain high image quality even in challenging low-light environments.

LED flicker mitigation

Effectively mitigates flickering from LED light sources like traffic signs, headlights, and taillights.

GMSL2 interface

Enables long-distance signal transmission (up to 15 m) and power supply over a single cable.

Automotive grade

Built with automotive-grade components to operate reliably in temperatures ranging from -40°C to 85°C.

Standard compliance

CE, FCC, RoHS certified.

Autoware compatibility

Fully compatible with Autoware, the world's leading open-source software for autonomous driving.

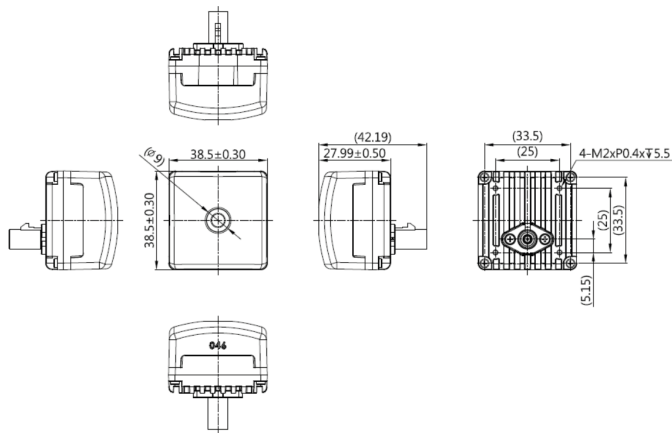
Applications

Autonomous driving

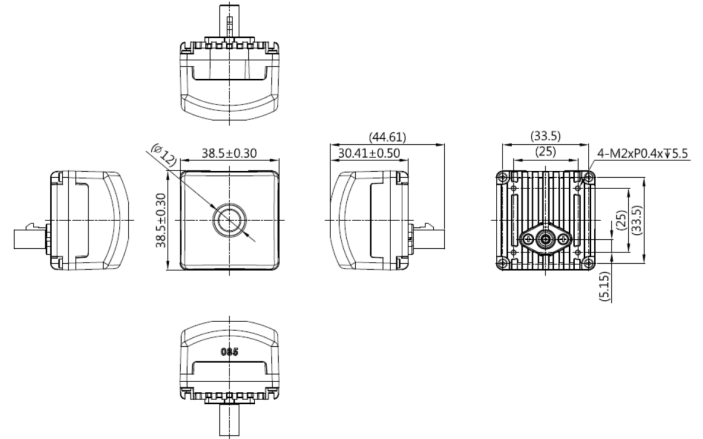
Traffic light recognition
Object recognition
Remote monitoring
Visual SLAM

Mechanical drawings

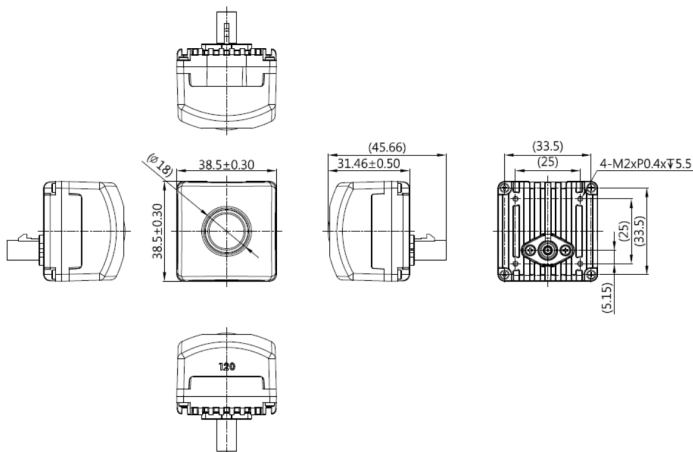
C1-046



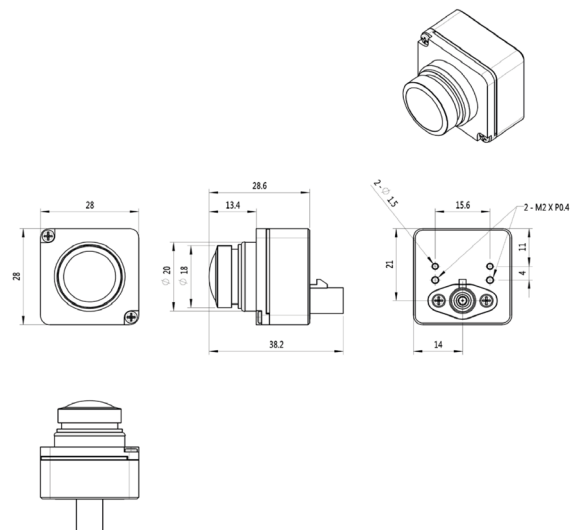
C1-085



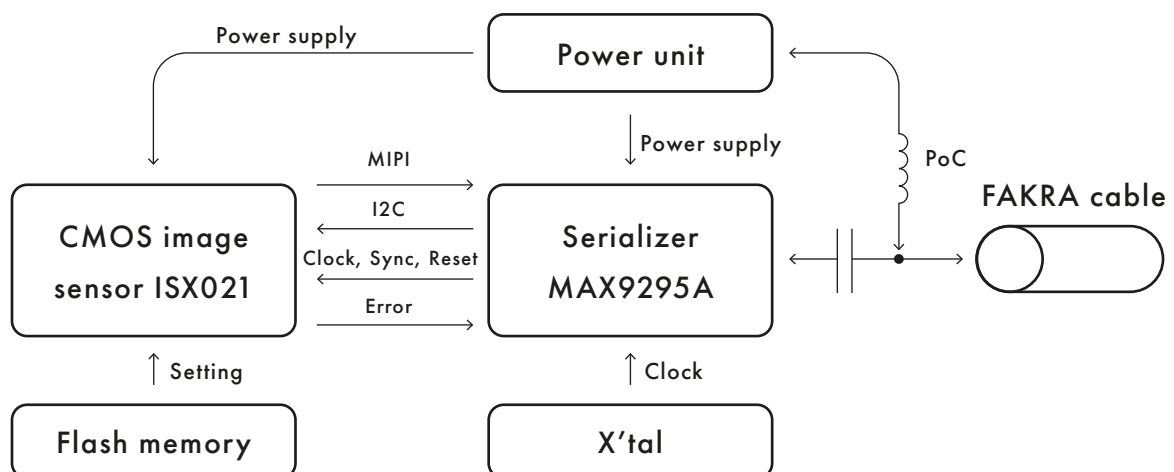
C1-120



C1-195MP



Block diagram



Technical specifications

	C1-046	C1-085	C1-120	C1-195MP
Mechanical				
Dimensions	38.5 mm x 38.5 mm x 42.19 mm	38.5 mm x 38.5 mm x 43.21 mm	38.5 mm x 38.5 mm x 48.93 mm	28.0 mm x 28.0 mm x 28.6 mm
Connector	FAKRA Z			
Lens				
Lens mount	Glued, active alignment applied			
Field of view (FOV) H/V	46°/32°	85°/56°	120°/77°	196.7°/130.4°
F#	2.2	1.7	1.8	2.0
Infrared cut-off filter (IRCF)	650 nm	648 nm	650 nm	650 nm
Depth of field (DOF)	185 cm – ∞ Focus peaking distance: 400 cm	112 cm – ∞ Focus peaking distance: 400 cm	106.7 cm – ∞ Focus peaking distance: 400 cm	15 cm – ∞ Focus peaking distance: 50 cm
Power supply				
Power supply method	Power over coax			
Power supply level	9 V – 12 V			6 V – 12 V
Power consumption	1.7 W			1.44 W
Key components				
Image sensor	Sony Semiconductor Solutions ISX021			
Optical format	Diagonal 6.99 mm, Type 1/2.57			
Pixel size	3.0 μm			
High dynamic range (HDR)	✓			
LED flicker mitigation (LFM)	✓			
Serializer	Analog Devices MAX9295A			
Image signal processor (ISP)	On-sensor			
Camera function				
Output interface	GMSL2, up to 6 Gbps			
Output frame rate	Up to 30 fps			
Output image format	YUV422 8 bit			
Output image size	1920 x 1280			
Shutter type	Rolling shutter			
Synchronization	Triggering over GMSL2			
Image signal processing				
ISP functions	HDR composition, demosaicing, autoexposure, auto white balance, IQ adjustment (hue, color saturation, brightness, contrast, sharpness)			
Environmental				
Operating temperature	-40°C – 85°C			
Storage temperature	-40°C – 105°C			-40°C – 95°C
EMI	CE, FCC, CAN ICES-3, UKCA, RCM, KC			
Vibration	ISO 16750-3:2012 (4.1)			
Shock	ISO 16750-3:2012 (4.2.2)			
Safety	LVD			
RoHS	Compliant			
Ingress protection	IP69K			
Software support				
Drivers	V4L2 driver, ROS/ROS2 driver			