LEOPARD
IMAGING

LI-IMX490-GMSL2-xxxH

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INTRODUCTION

The LI-IMX490-GMSL2-xxxH is equipped with Sony automotive sensor IMX490 and Maxim GMSL2 serializer MAX9295A/B and is designed for automotive applications. This camera outputs RAW image data with HDR (High Dynamic Range) supported.
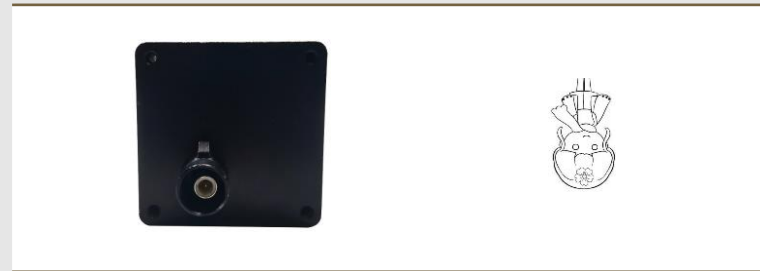
KEY FEATURES

Sensor	Sony Diagonal 10.36 mm (Type 1/1.55) CMOS Image Sensor IMX490
Optical Format	1/1.55"
Resolution	2897 (H) x 1877 (V) (active pixels)
Pixel Size	3.0 x 3.0 μm
Data Format	20-bit / 16-bit / 14-bit / 12-bit RAW
Color / Mono	Color sensor
Maximum Frame Rate	40 fps @ 2880 x 1860
HDR (High Dynamic Range)	Supported
LFM (LED Flicker Mitigation)	Supported
Lens	FOV H 30˚ / 40˚ / 65˚ / 90˚ / 120˚ / 160˚
Serializer	Maxim MAX9295A/B
Power Supply Range	9 ~ 19 VDC
Connector	FAKRA Z TYPE
IP Rating	FOV H 30˚ / 120˚: IP69K FOV H 40˚ / 65˚ / 90˚ / 160˚: IP67
Power Consumption	102 mA @ 12 VDC (2880 x 1860 @ 19 fps)
Operating Temp	-40℃ ~ +85℃
Storage Temp	-40℃ ~ +85℃
Weight	~ 55 g
Part#	LI-IMX490-GMSL2-xxxH

APPLICATIONS

- Automotive ADAS
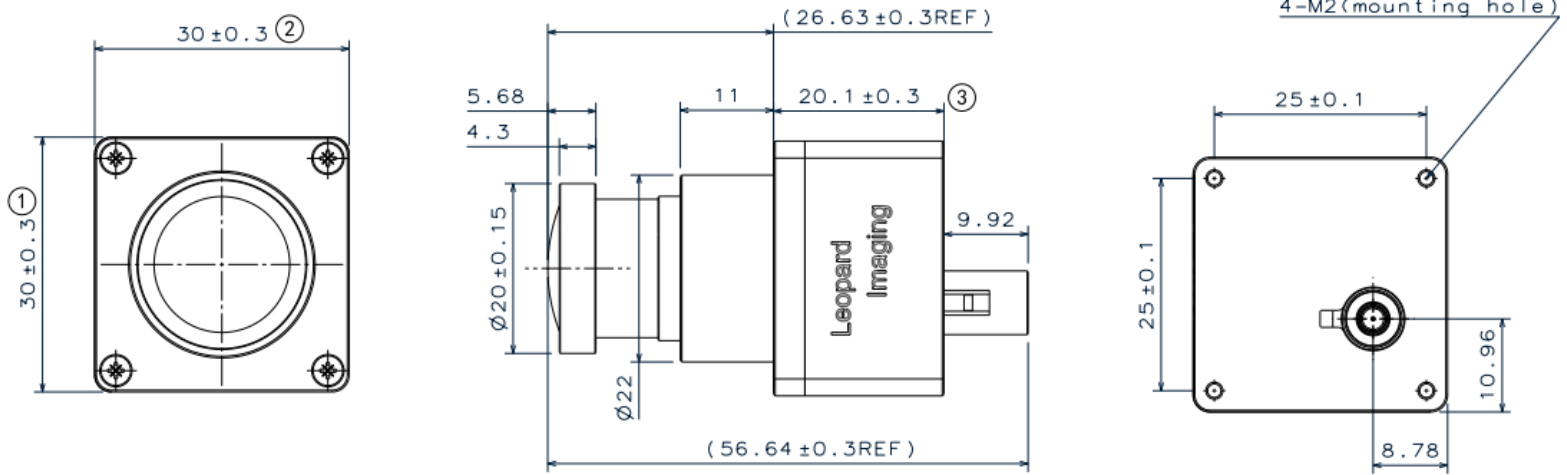- Automotive Rear View or Backup

IMAGE ORIENTATION

CABLE CONNECTOR
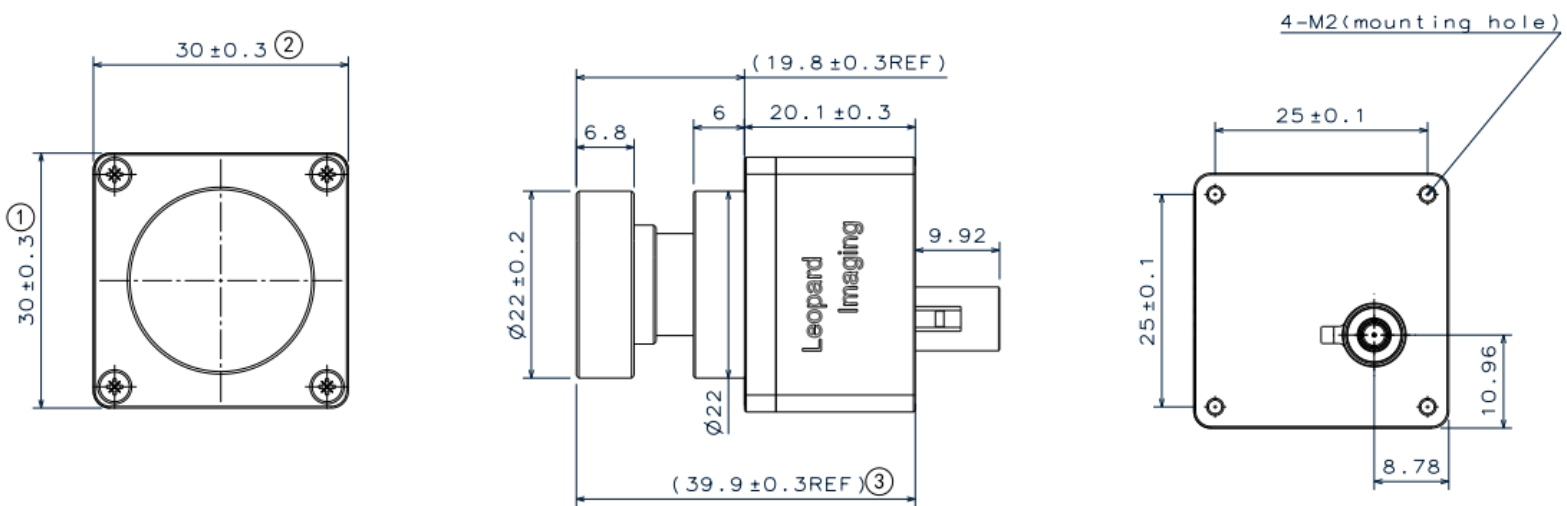
- Housing Connector: FAKRA Z Type
- Cable Length: 3 meters

DIMENSIONS: LI-IMX490-GMSL2-030H

NOTE:

- ⊗ marked are important sizes.
- Tolerances for others unmarked are ± 0.3 mm.
- All materials are compliant with RoHS and REACH requirements.
- Unit: mm

DIMENSIONS: LI-IMX490-GMSL2-040H

NOTE:

- ⊗ marked are important sizes.
- Tolerances for others unmarked are ± 0.3 mm.
- All materials are compliant with RoHS and REACH requirements.
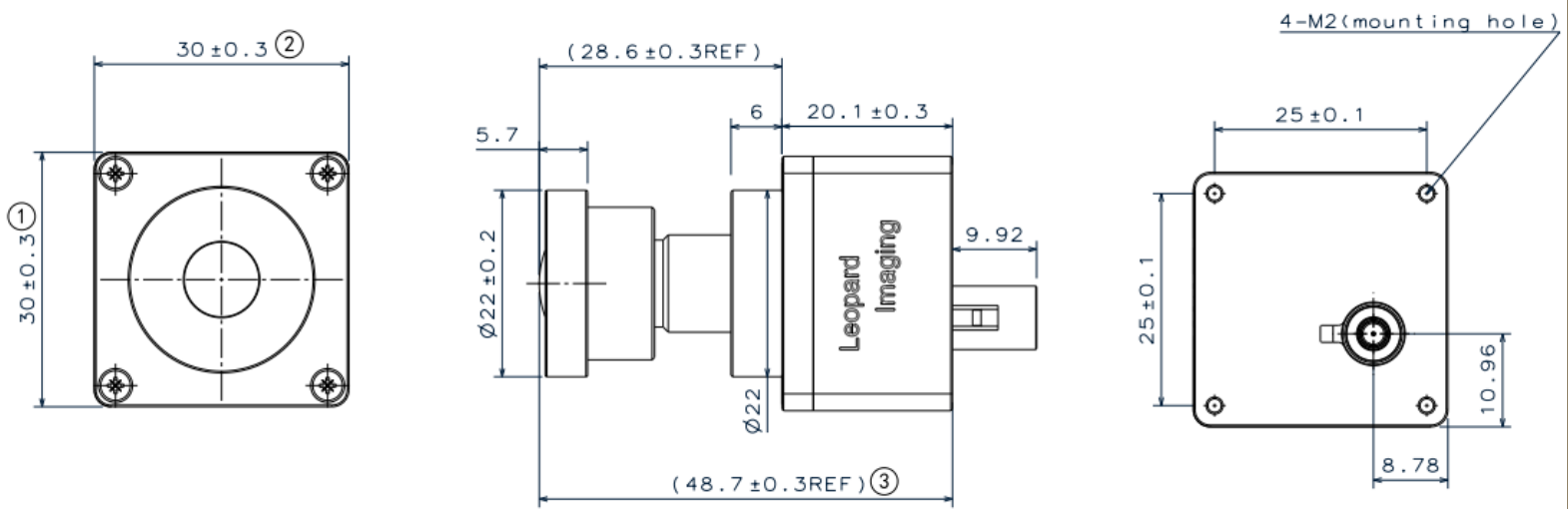- Unit: mm

DIMENSIONS: LI-IMX490-GMSL2-065H

NOTE:

- ⊗ marked are important sizes.
- Tolerances for others unmarked are ± 0.3 mm.
- All materials are compliant with RoHS and REACH requirements.
- Unit: mm

DIMENSIONS: LI-IMX490-GMSL2-090H

NOTE:

- ⊗ marked are important sizes.
- Tolerances for others unmarked are ± 0.3 mm.
- All materials are compliant with RoHS and REACH requirements.
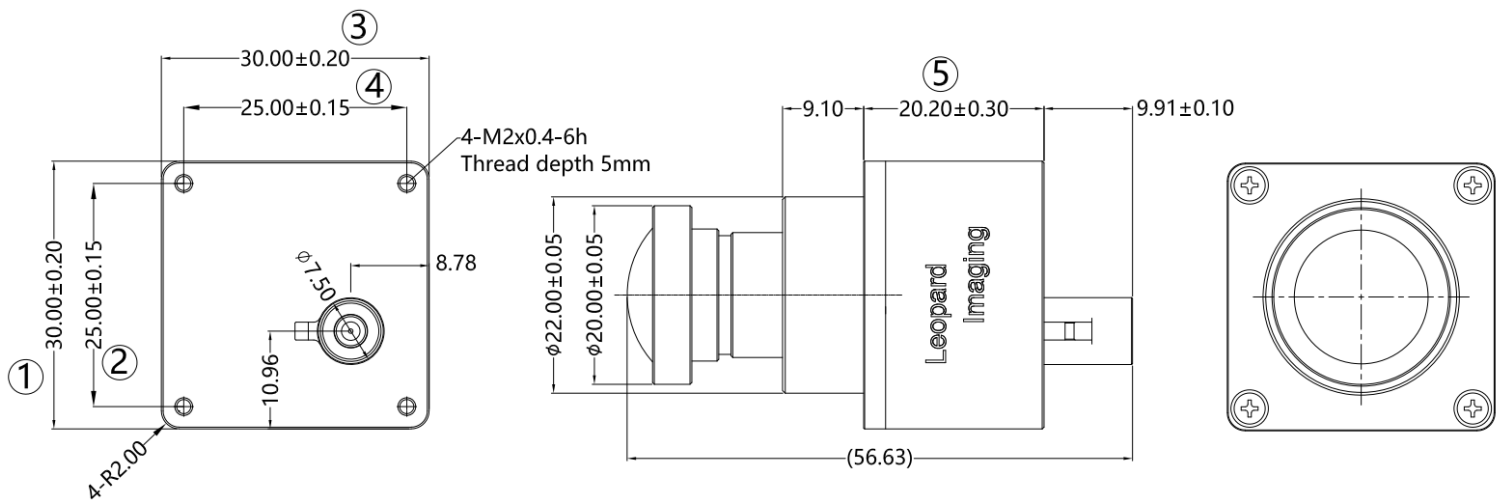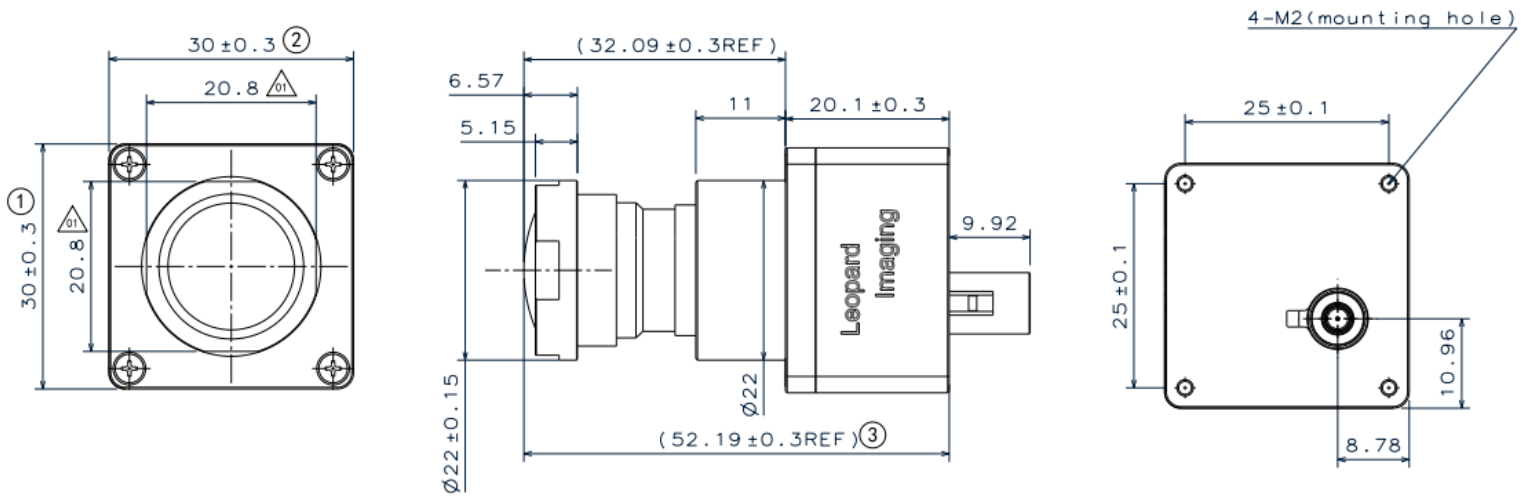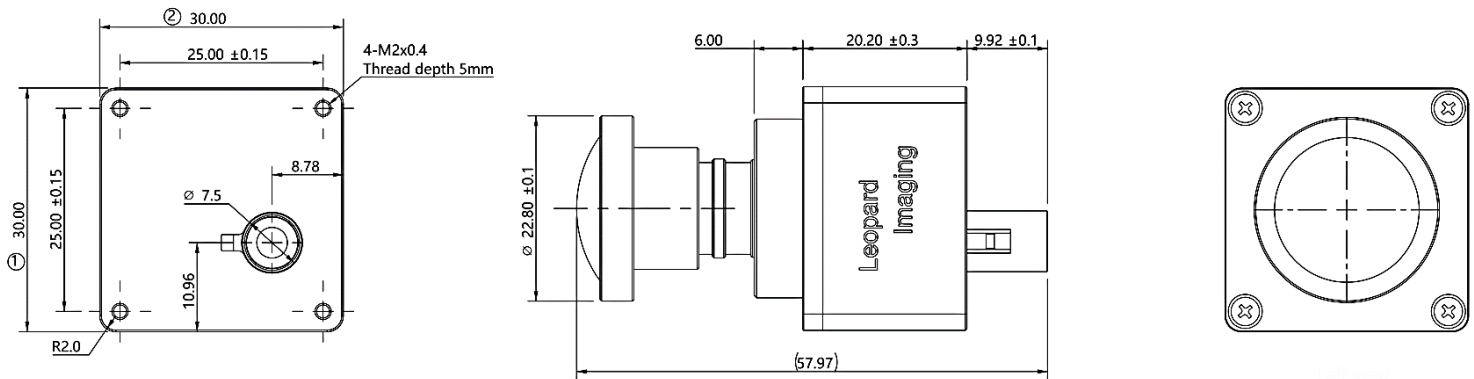- Unit: mm

DIMENSIONS: LI-IMX490-GMSL2-120H

NOTE:

- ⊗ marked are important sizes.
- Tolerances for others unmarked are ± 0.3 mm.
- ⚠ indicates revisions have been made.
- All materials are compliant with RoHS and REACH requirements.
- Unit: mm

DIMENSIONS: LI-IMX490-GMSL2-160H

TOLERANCE TABLE					
LENGTH TOLERANCE		CHAMFER TOLERANCE		ANGLE TOLERANCE	
Size X	Tolerance	Size X	Tolerance	Size X	Tolerance
0.5 < X ≤ 3	±0.1	0.5 < X ≤ 3	±0.2	X ≤ 10	±1°
3 < X ≤ 6	±0.1	3 < X ≤ 6	±0.5	10 < X ≤ 50	±30'
6 < X ≤ 30	±0.2	6 < X ≤ 30	±1	50 < X ≤ 120	±20'
30 < X ≤ 120	±0.3			120 < X ≤ 400	±10'
120 < X ≤ 400	±0.5	X > 30	±2		
400 < X ≤ 1000	±0.8			X > 400	±5'
X > 1000	±1.2				

NOTE:

- ⊗ marked are important sizes.
- Tolerances for others unmarked refer to the tolerance table.
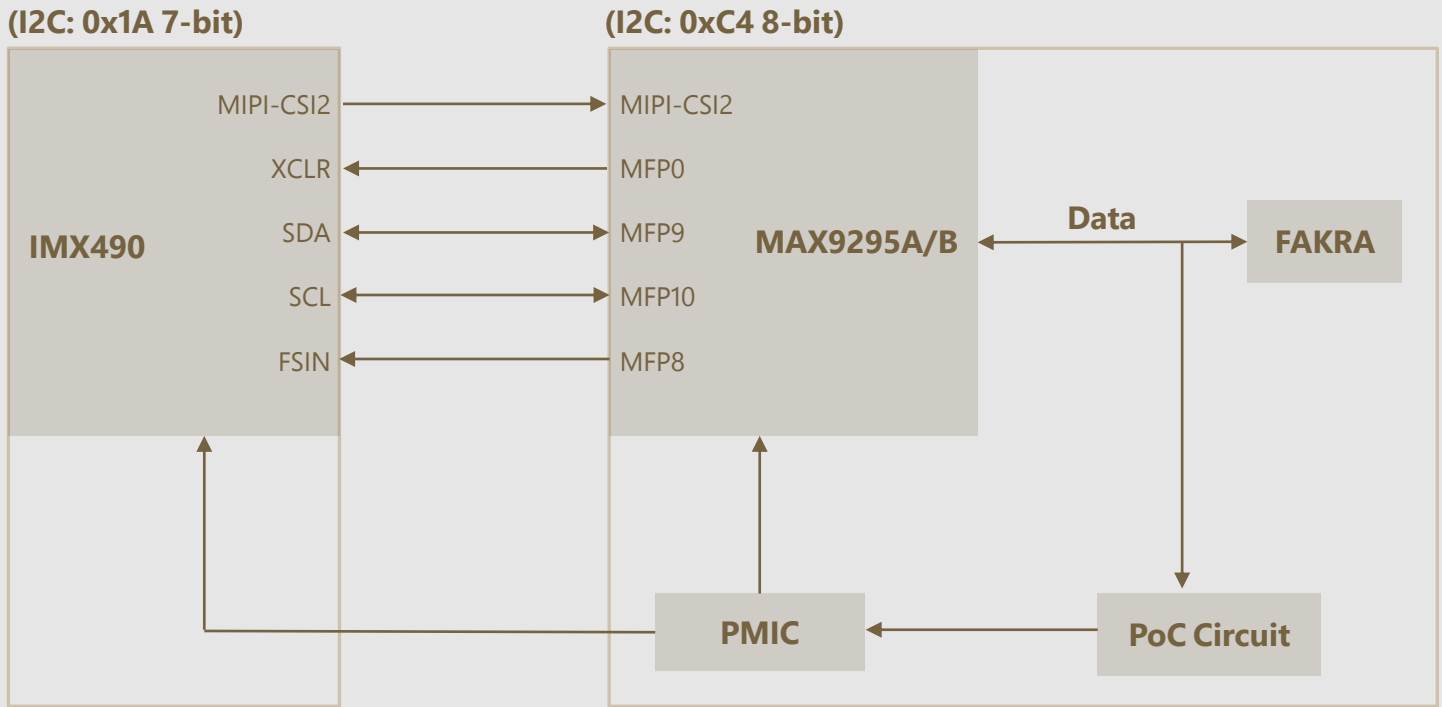- All materials are compliant with RoHS and REACH requirements.
- Unit: mm

LENS SPECIFICATIONS

xxxH refers to 030H (FOV H 30˚), 040H (FOV H 40˚), 065H (FOV H 65˚), 090H (FOV H 90˚), 120H (FOV H 120˚) and 160H (FOV H 160 ˚)

LI-IMX490-GMSL2-030H	LI-IMX490-GMSL2-040H	LI-IMX490-GMSL2-065H
Lens EFL: 16.37 mm	Lens EFL: 11.9 mm	Lens EFL: 7.9 mm
Aperture, F/#: 1.6	Aperture, F/#: 2.0	Aperture, F/#: 2.0
Field of View (FOV): 35.5˚ (D) / 30.0˚ (H) / 19.5˚ (V)	Field of View (FOV): 44.4˚ (D) / 38.0˚ (H) / 20.8˚ (V)	Field of View (FOV): 74.0˚ (D) / 65.0˚ (H) / 37.0˚ (V)
Mount: M17	Mount: M12	Mount: M12

LI-IMX490-GMSL2-090H	LI-IMX490-GMSL2-120H	LI-IMX490-GMSL2-160H
Lens EFL: 5.39 mm	Lens EFL: 4.49 mm	Lens EFL: 3.0 mm
Aperture, F/#: 2.6	Aperture, F/#: 1.6	Aperture, F/#: 2.8
Field of View (FOV): 90˚ (H)	Field of View (FOV): 154.9˚ (D) / 120.0˚ (H) / 73.2˚ (V)	Field of View (FOV): 120.0˚ (H)
Mount: M14	Mount: M16	Mount: M12

SYSTEM BLOCK DIAGRAM

(I2C: 0x1A 7-bit)

(I2C: 0xC4 8-bit)

IMX490		MAX9295A/B
MIPI-CSI2 →		MIPI-CSI2
XCLR ←		MFP0
SDA ←		MFP9
SCL ←		MFP10
FSIN ←		MFP8

Data
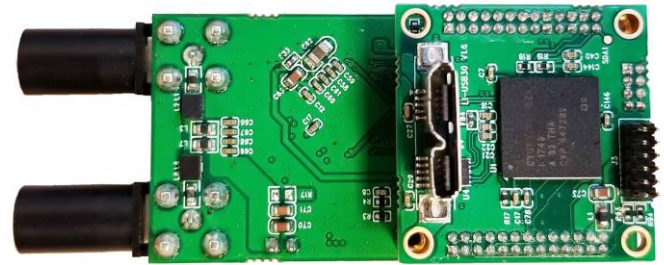
FAKRA

PMIC

PoC Circuit

USB3.0 CAMERA KIT

LI-GMSL2-USB

Top View

Bottom View

LI-IMX490-GMSL2-xxxH can connect to LI-GMSL2-USB as a USB 3.0 camera.

Part#: **LI-USB30-IMX490-GMSL2-xxxH**

SPECIFICATIONS

- USB 3.0 Super Speed support
- RAW data output without compression
- UVC compliant
- Allows customization
- 12 VDC power supply for camera
- Weight: ~ 86 g
- Single Coax Cable transmits up to 12 meters PoC (Power over Cable)
- Resolution: 2880 x 1860 @ 19 fps
- Power consumption: 102 mA @ 12 VDC
- Compatible with Windows, Linux OS and other OS which have UVC drivers

12 VDC power supply for camera

BOM

#	Items	QTY
1	LI-IMX490-GMSL2-xxxH	1
2	LI-GMSL2-USB	1
3	3-Meter Fakra Cable	1
4	12 VDC Power Supply	1
5	USB3.0 Cable	1

SDK SUPPORTED

- Camera Tool Source Code in C#
- Capture & Display
- Register Access Function
- Save file as BMP & RAW format

REVISION HISTORY

Revision	Description	Release Date
1.0	First release.	20 Aug 2019
1.1	Added DSL492 lens and updated the resolution to full size.	26 Aug 2019
1.2	Added 030H lens.	02 Aug 2019
1.3	Changed CAR-53 lens to CAR-55.	02 Jun 2021
1.4	Replaced CAR-36 with CAR-56 and updated 2D dimensions, power consumption, frame rate, resolution, and storage temp.	26 Nov 2021
1.5	Updated 090H lens.	04 Jan 2023
1.6	Deleted HDR function on the USB30 page.	07 Apr 2023
1.7	Updated IP rating of 090H lens.	19 Jun 2023
1.8	Updated image direction.	27 Dec 2023
1.9	Added 160H lens	29 Apr 2024
2.0	Deleted 3-Meter fakra cable P/N.	25 Nov 2024