



**LEOPARD**  
IMAGING

# LI-AR0823-GM2B-xxxH



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## INTRODUCTION

The LI-AR0823-GM2B-xxxH is equipped with ON Semiconductor 8.3MP CMOS RGGB image sensor AR0823 which supports Hyperlux technology and Maxim GMSL2 serializer MAX96717. This camera outputs 3840 x 2160 RAW data.

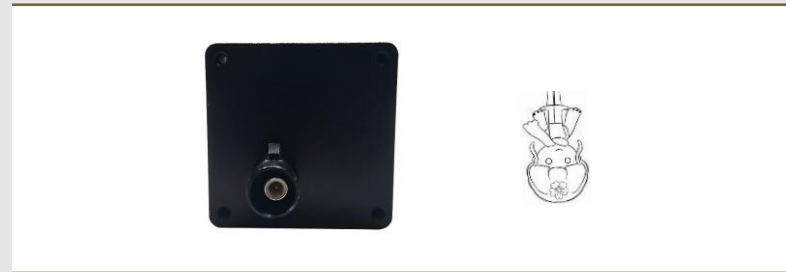
## SPECIFICATIONS

|                              |                                                             |
|------------------------------|-------------------------------------------------------------|
| Sensor                       | ON Semiconductor AR0823 8.3MP CMOS RGGB Sensor              |
| Optical Format               | 1/2"                                                        |
| Resolution                   | 3840 (H) x 2160 (V) (active pixels)                         |
| Pixel Size                   | 2.1 x 2.1 $\mu$ m                                           |
| Sensor                       | Color sensor                                                |
| Output Format                | 8-bit / 10-bit / 12-bit / 14-bit / 16-bit / 20-bit RAW data |
| Maximum Frame Rate           | 60 fps @ 3840 x 2160                                        |
| HDR (High Dynamic Range)     | Supported                                                   |
| LFM (LED Flicker Mitigation) | Supported                                                   |
| Lens                         | FOV H 30° / 60° / 120°                                      |
| Serializer                   | Maxim GMSL2 MAX96717                                        |
| Power Supply Range           | 9 ~ 19 VDC                                                  |
| Connector                    | FAKRA Z TYPE                                                |
| IP Rating                    | 120H: IP69K<br>030H / 060H: TBD                             |
| Power Consumption            | 131 mA @ 12 VDC<br>(3840 x 2160 @ 11 fps)                   |
| Operating Temp               | -40°C ~ +85°C                                               |
| Storage Temp                 | -40°C ~ +85°C                                               |
| Weight                       | TBD                                                         |
| Part#                        | LI-AR0823-GM2B-xxxH                                         |

## APPLICATIONS

- Automotive Front Camera (ADAS)
- Mirror Replacement (CMS)
- ADAS + Viewing Fusion
- High Dynamic Range Imaging
- Surround View + Sensing
- In-Cabin Occupancy Monitor

## IMAGE ORIENTATION

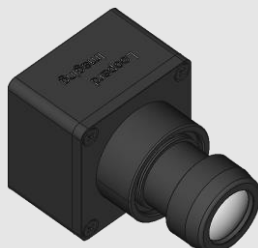


## CABLE CONNECTOR

- Housing Connector: FAKRA Z Type
- Cable Length: 3 meters
- Cable Part#: FAK-SMZSMZ-3M



LI-AR0823-GM2B-030H

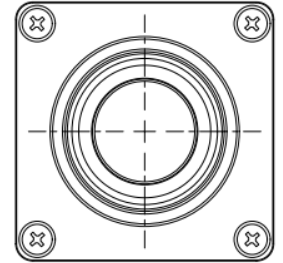
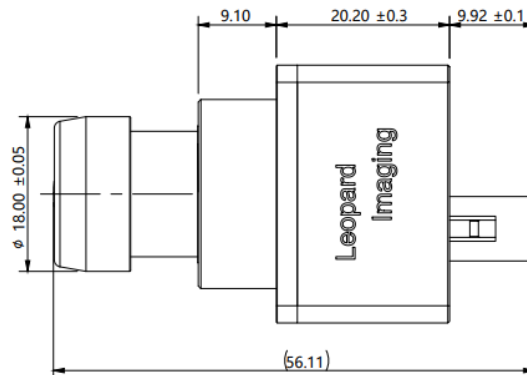
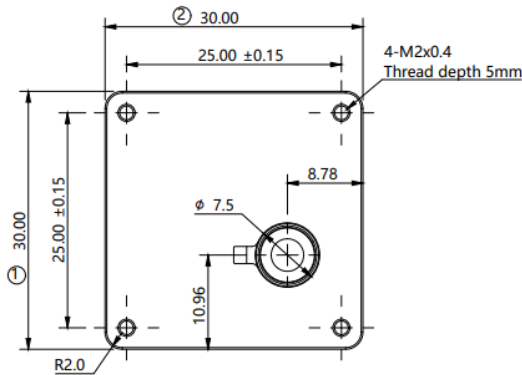


LI-AR0823-GM2B-060H



LI-AR0823-GM2B-120H

## DIMENSIONS: LI-AR0823-GM2B-030H



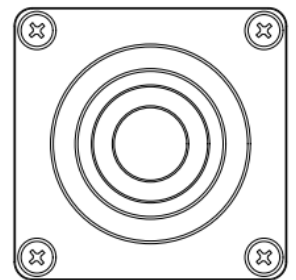
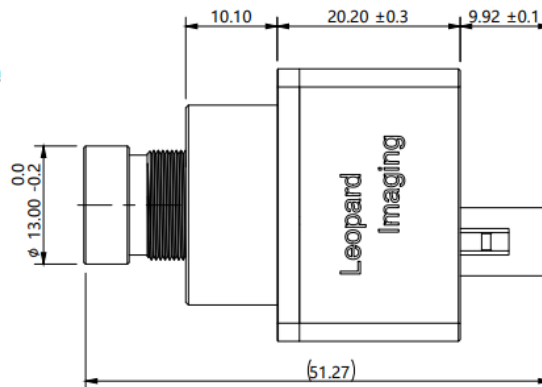
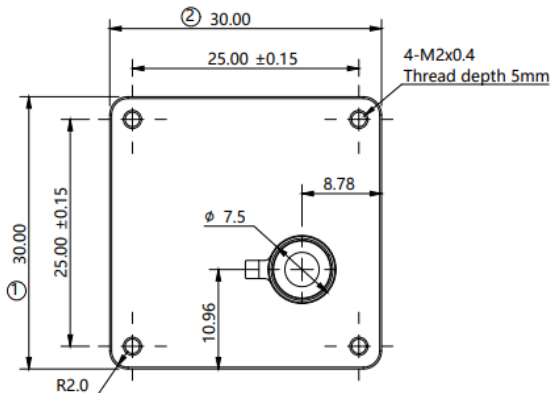
| TOLERANCE TABLE  |           |                   |           |                 |           |
|------------------|-----------|-------------------|-----------|-----------------|-----------|
| LENGTH TOLERANCE |           | CHAMFER TOLERANCE |           | ANGLE TOLERANCE |           |
| Size X           | 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      | X > 30            | ±2        | 120 < X ≤ 400   | ±10'      |
| 120 < X ≤ 400    | ±0.5      |                   |           | X > 400         | ±5'       |
| 400 < X ≤ 1000   | ±0.8      |                   |           |                 |           |
| X > 1000         | ±1.2      |                   |           |                 |           |

### NOTE:

- ⊗ marked are important sizes.
- Tolerances for others unmarked refer to the Tolerance table.
- All materials are compliant with RoHS & REACH requirements.

Unit: mm

## DIMENSIONS: LI-AR0823-GM2B-060H



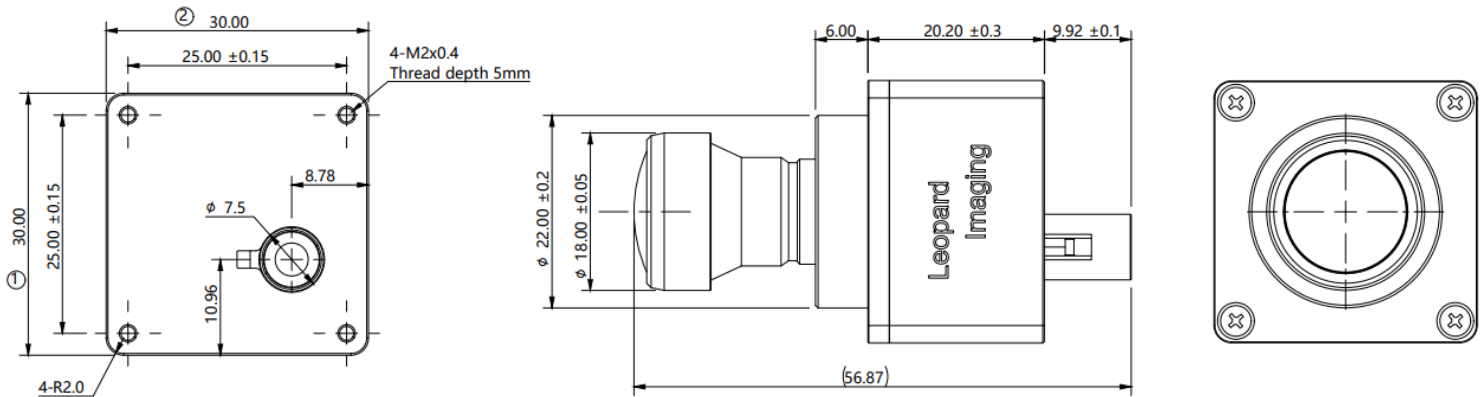
| TOLERANCE TABLE  |           |                   |           |                 |           |
|------------------|-----------|-------------------|-----------|-----------------|-----------|
| LENGTH TOLERANCE |           | CHAMFER TOLERANCE |           | ANGLE TOLERANCE |           |
| Size X           | 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      | X > 30            | ±2        | 120 < X ≤ 400   | ±10'      |
| 120 < X ≤ 400    | ±0.5      |                   |           | X > 400         | ±5'       |
| 400 < X ≤ 1000   | ±0.8      |                   |           |                 |           |
| X > 1000         | ±1.2      |                   |           |                 |           |

### NOTE:

- ⊗ marked are important sizes.
- Tolerances for others unmarked refer to the Tolerance table.
- All materials are compliant with RoHS & REACH requirements.

Unit: mm

## DIMENSIONS: LI-AR0823-GM2B-120H



| 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      | X > 30            | ±2        | 120 < X ≤ 400   | ±10'      |
| 120 < X ≤ 400    | ±0.5      |                   |           | X > 400         | ±5'       |
| 400 < X ≤ 1000   | ±0.8      |                   |           |                 |           |
| X > 1000         | ±1.2      |                   |           |                 |           |

### NOTE:

- ⊗ marked are important sizes.
- Tolerances for others unmarked refer to the Tolerance table.
- All materials are compliant with RoHS & REACH requirements.

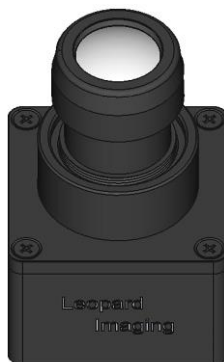
Unit: mm

## ORDERING INFORMATION

### **NOTE:**

xxxH refers to 030H (FOV H 30°), 060H (FOV H 60°) and 120H (FOV H 120°)

**LI-AR0823-GM2B-030H**



Lens EFL: 15.3 mm  $\pm$  0.15

Aperture, F/#: 1.65  $\pm$  0.15

Field of View (FOV): 30° horizontal

IR Filter: 660 nm IR cut filter

Mount: M16

**LI-AR0823-GM2B-060H**



Lens EFL: 7.87 mm  $\pm$  0.2

Aperture, F/#: 1.8  $\pm$  0.1

Field of View (FOV): 60° horizontal

IR Filter: 650 nm IR cut filter

Mount: M12

**LI-AR0823-GM2B-120H**



Lens EFL: 3.9 mm  $\pm$  2%

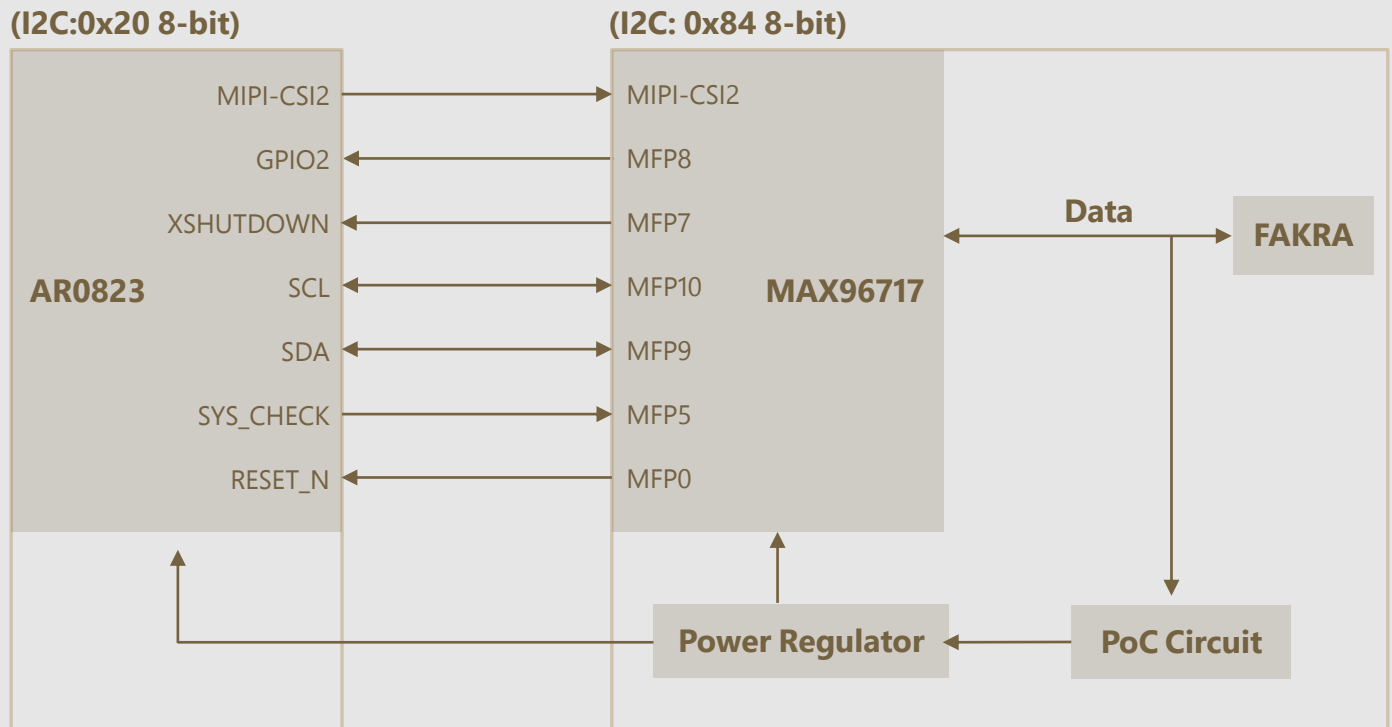
Aperture, F/#: 1.6  $\pm$  5%

Field of View (FOV): 121.2° horizontal

IR Filter: 650 nm IR cut filter

Mount: M12

## PINOUT CONNECTIONS

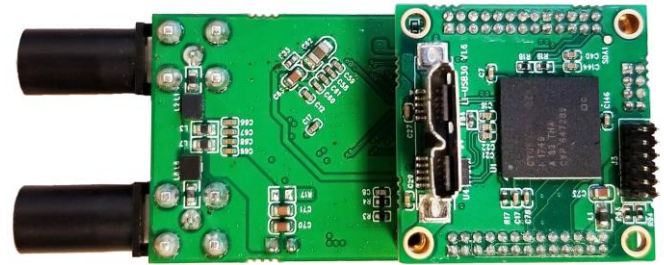


## USB3.0 CAMERA KIT

LI-GMSL2-USB



Top View



Bottom View

LI-AR0823-GM2B-xxxH can connect to LI-GMSL2-USB as a USB 3.0 camera.

Part#: **LI-USB30-AR0823-GM2B-xxxH**

### SPECIFICATIONS

- USB 3.0 Super Speed support
- UVC compliant
- Allows customization
- 12 VDC Power Supply for camera
- Weight: TBD
- Single Coax Cable transmits up to 12 meters PoC (Power over Cable)
- Resolution: 3840 x 2160 @ 11 fps
- Power consumption: 131 mA @ 12 VDC
- Compatible with Windows, Linux OS and other OS which have UVC drivers

### BOM

| # | Items               | QTY |
|---|---------------------|-----|
| 1 | LI-AR0823-GM2B-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

- REVISION HISTORY

| Revision | Description              | Release Date |
|----------|--------------------------|--------------|
| 0.1      | Initial draft.           | 30 Oct 2023  |
| 0.2      | Updated image direction. | 27 Dec 2023  |

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