



**LEOPARD**  
IMAGING

LI-AR0231-AP0202-TI913-xxxH



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## INTRODUCTION

The LI-AR0231-AP0202-TI913-xxxH is equipped with ON Semiconductor 1/2.7" 2.3MP CMOS digital image sensor AR0231, AP0202 ISP and FPD-Link III serializer TI913. This camera outputs fine tuned YUV image data and supports HDR (Hide Dynamic Range).

## KEY FEATURES

Sensor	ON SEMI 2.3MP CMOS Sensor AR0231
Optical Format	1/2.7"
Resolution	1920 (H) x 1080 (V)
Pixel Size	3.0 x 3.0 $\mu\text{m}$
Data Format	YUV
Color / Mono	Color sensor
Frame Rate	20 fps @ 1920 x 1080
ISP	ON SEMI AP0202
HDR (High Dynamic Range)	Supported
Lens	FOV H 60° / 120° / 200°
Serializer	TI913 FPD-Link III (DS90UB913A-Q1)
Power Supply Range	9 ~ 19 VDC
Connector	FAKRA Z TYPE
IP Rating	FOV H 60° / 120°: IP67 FOV H 200°: IP69K
Power Consumption	Approx. 80 mA @ 12 VDC (1920 x 1080 @ 20 fps)
Operating Temp	-40°C ~ +85°C
Storage Temp	-40°C ~ +105°C
Weight	~ 50 g
Part#	LI-AR0231-AP0202-TI913-xxxH

## APPLICATIONS

- Automotive ADAS
- 1080p Video Applications
- ADAS + Viewing Fusion

## IMAGE ORIENTATION



## CABLE CONNECTOR

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



LI-AR0231-AP0202-TI913-060H

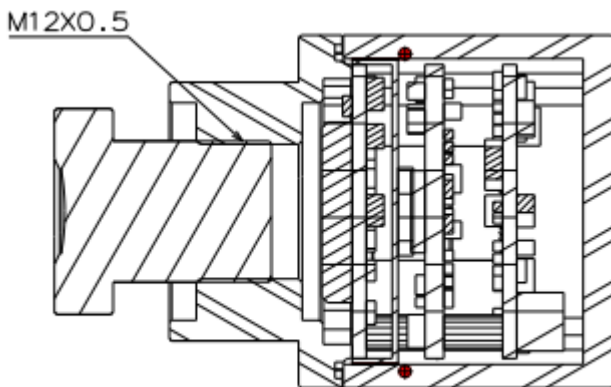
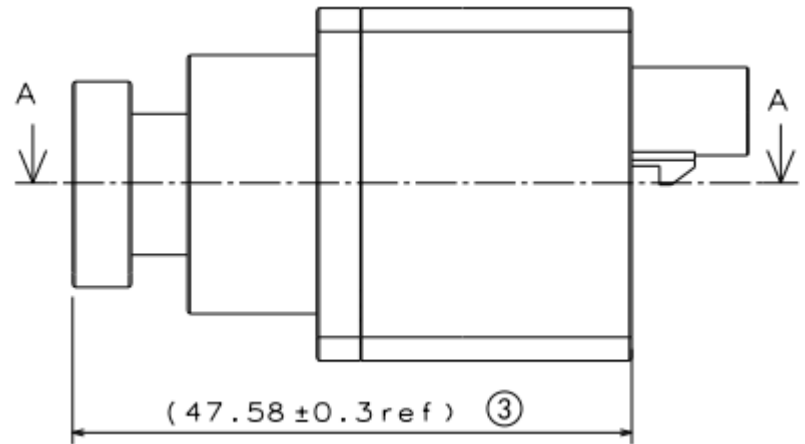
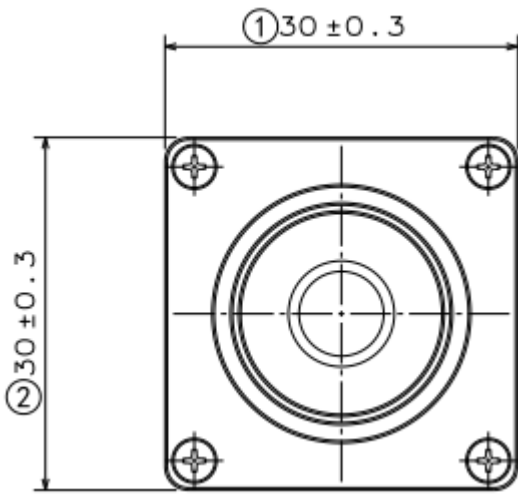
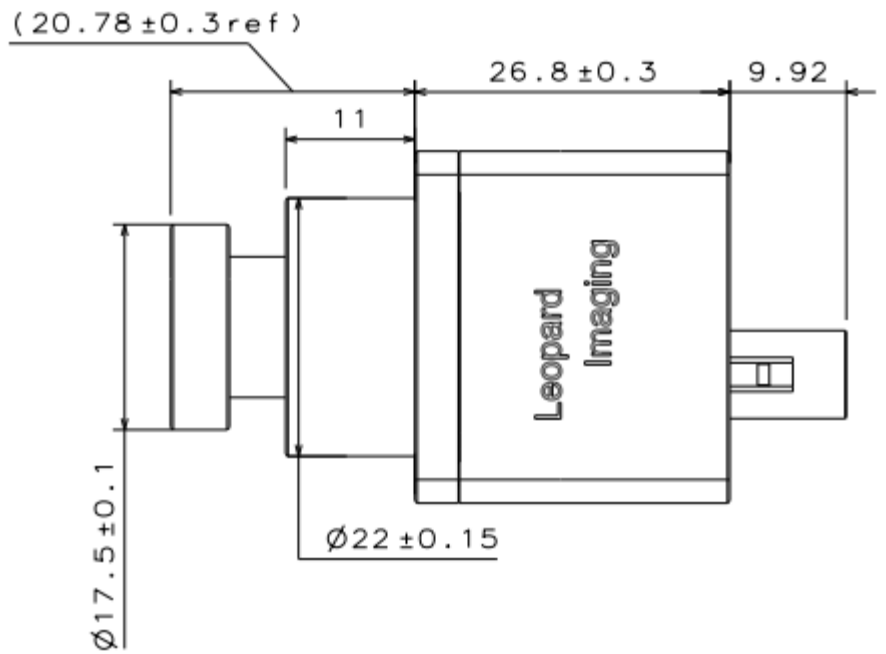
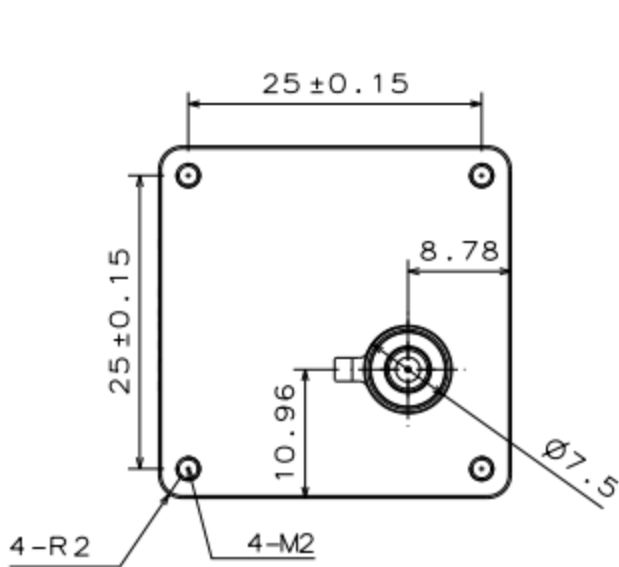


LI-AR0231-AP0202-TI913-120H



LI-AR0231-AP0202-TI913-200H

DIMENSIONS: LI-AR0231-AP0202-TI913-060H



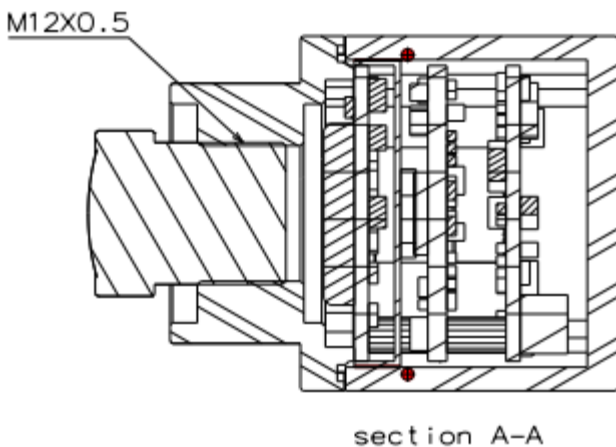
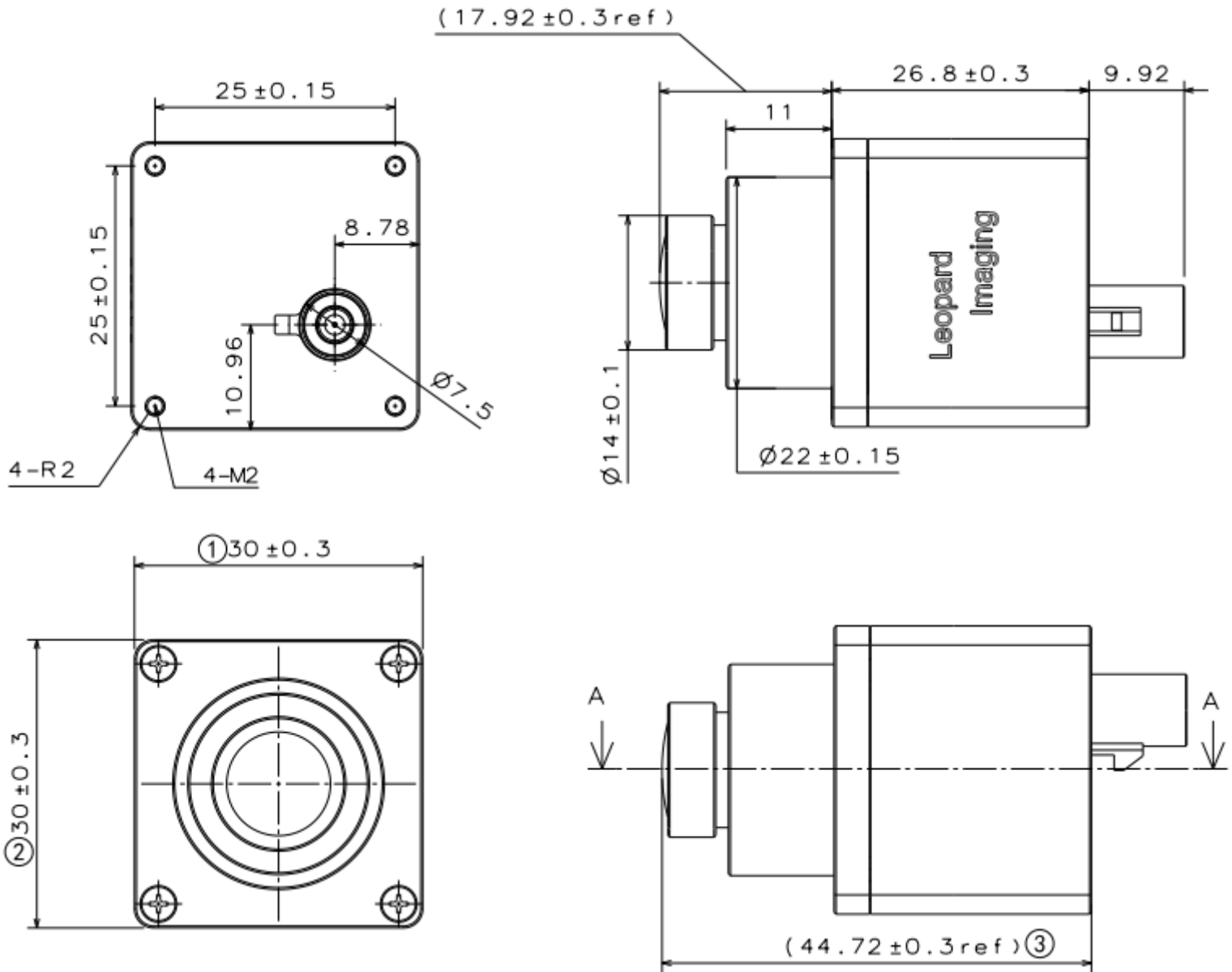
section A-A

**NOTE:**

- ⊗ marked are important sizes.
- All materials are compliant with RoHS requirements.
- Tolerances for others unmarked are  $\pm 0.3$  mm.

Unit: mm

DIMENSIONS: LI-AR0231-AP0202-TI913-120H

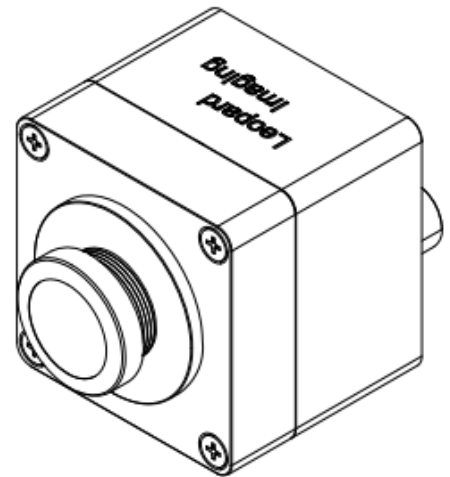
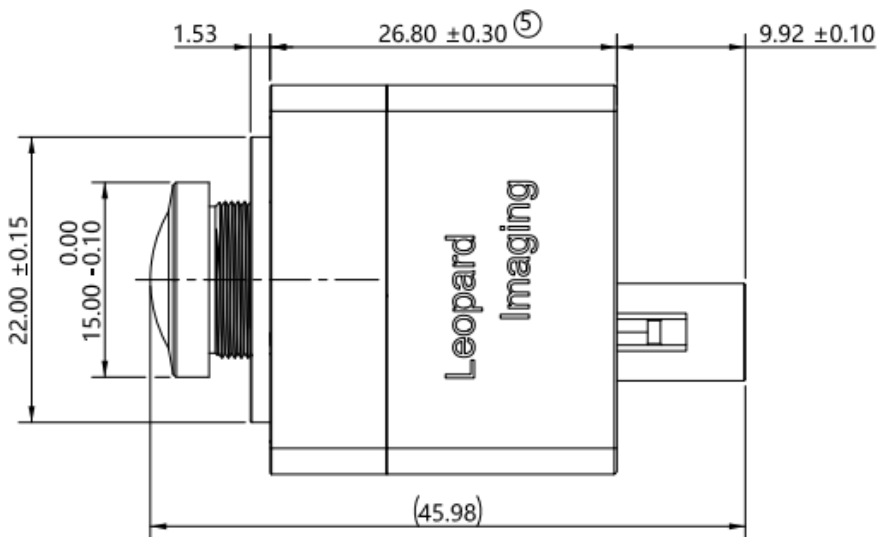
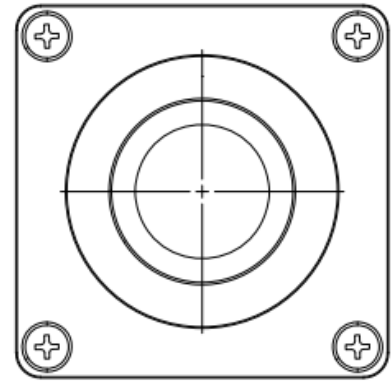
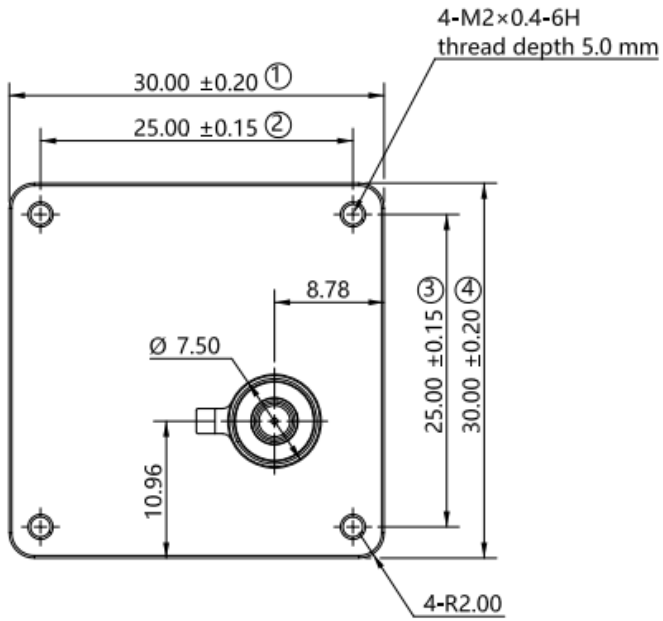


**NOTE:**

- $\otimes$  marked are important sizes.
- All materials are compliant with RoHS requirements.
- Tolerances for others unmarked are  $\pm 0.3$  mm.

Unit: mm

# DIMENSIONS: LI-AR0231-AP0202-TI913-200H



**NOTE:**

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

Unit: mm

## ORDERING INFORMATION

**NOTE:**

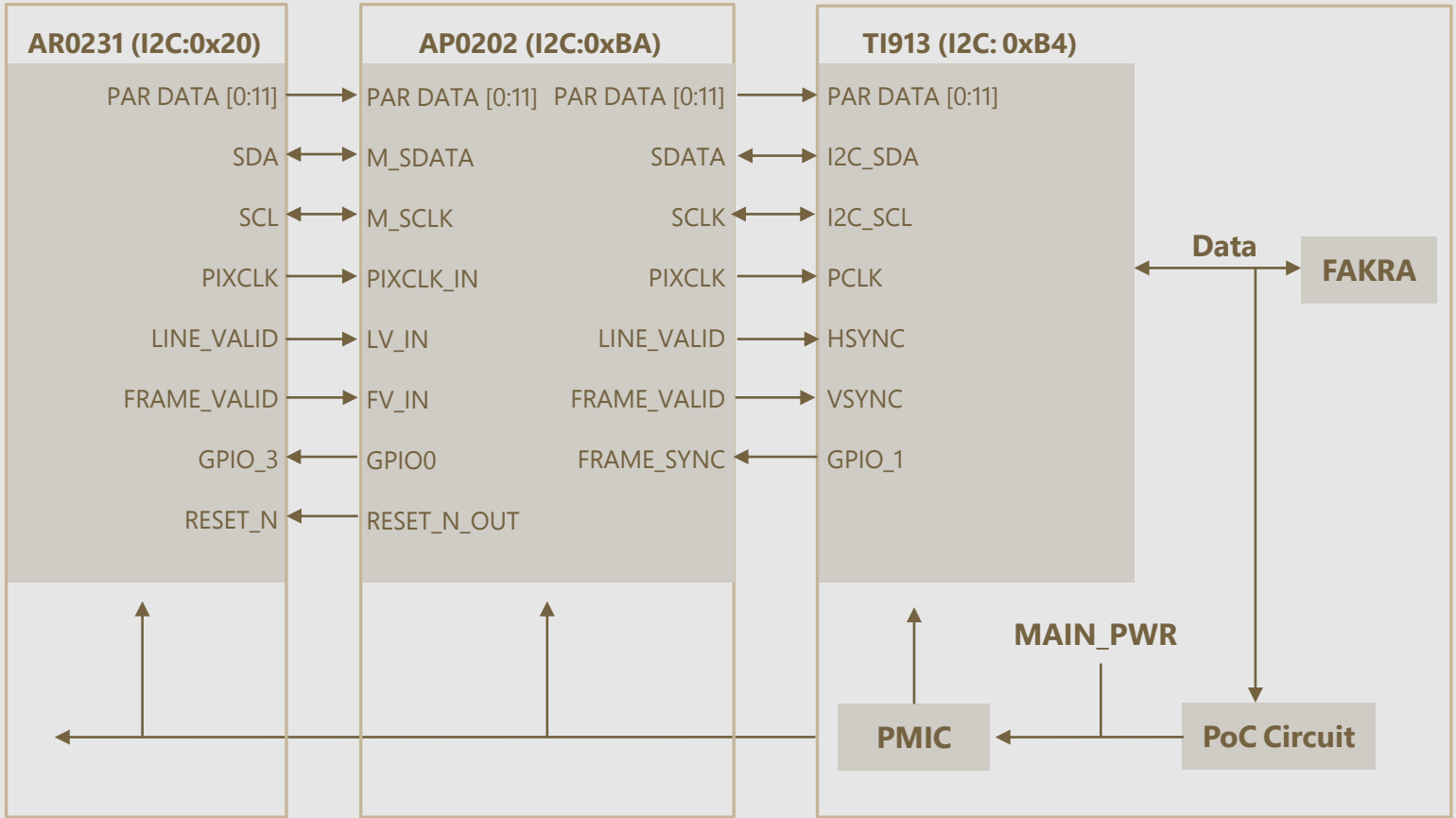
xxxH refers to 060H (FOV H 60°), 120H (FOV H 120°) or 200H (FOV H 200°)

LI-AR0231-AP0202-TI913-060H

Lens EFL: 6.0 mm
Aperture, F/#: 1.8
Field of View (FOV): 74.5° (D) / 60.6° (H) / 36.1° (V)
Mount: M12

LI-AR0231-AP0202-TI913-120H	LI-AR0231-AP0202-TI913-200H
	
Lens EFL: 2.8 mm	Lens EFL: 0.95 mm $\pm$ 5%
Aperture, F/#: 2.0	Aperture, F/#: 2.0 $\pm$ 5%
Field of View (FOV): 148° (D) / 122° (H) / 74° (V)	Field of View (FOV): 200° (H)
Mount: M12	Mount: M12

# SYSTEM BLOCK DIAGRAM



## NOTE:

- PAR is the abbreviation for Parallel.

## USB3.0 CAMERA KIT

LI-TI914-USB-BOX



Front View



Side View

LI-AR0231-AP0202-TI913-xxxH can connect to LI-TI914-USB-BOX as a USB 3.0 camera.

Part#: **LI-USB30-AR0231-AP0202-TI913-xxxH**

### KEY FEATURES

- USB 3.0 Super Speed support
- YUV output without compression
- Supports HDR
- Supports Trigger mode
- UVC compliant
- Allows customization
- 12 VDC power supply
- Weight: ~ 178 g
- Single Coax Cable transmits up to 12 meters PoC (Power over Cable)
- Resolution: 1920 x 1080 @ 20 fps
- Power consumption: Approx. 80 mA @ 12 VDC
- Compatible with Windows, Linux OS and other OS which have UVC drivers

### BOM

#	Items	QTY
1	LI-AR0231-AP0202-TI913-xxxH	1
2	LI-TI914-USB-BOX	1
3	3-Meter Fakra Cable	1
4	12 VDC Power Supply	1
5	USB3.0 Cable	1



### SDK SUPPORTED

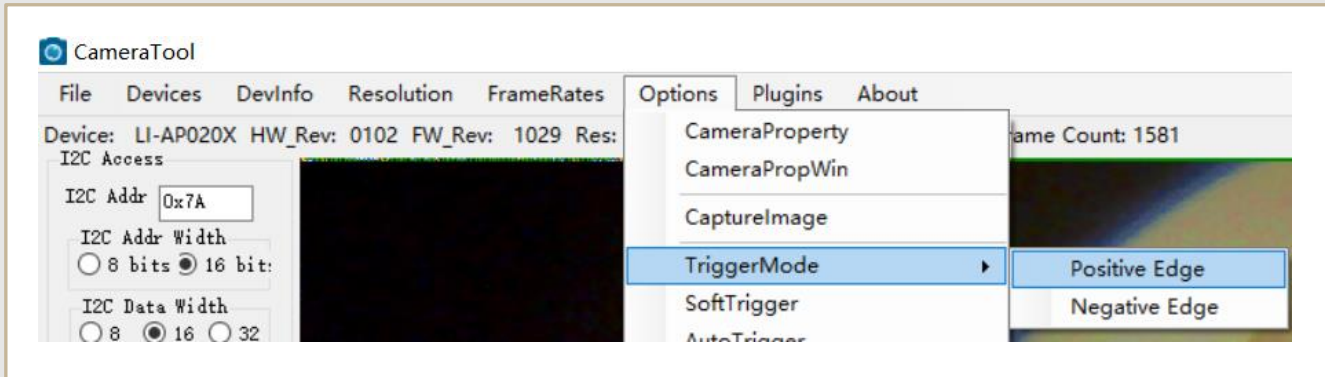
- Camera Tool Source Code in C#
- Capture & Display
- Hardware Trigger Mode



## How to Use Hardware Trigger

### INSTRUCTIONS

1. Click **Options > TriggerMode > Positive Edge / Negative Edge** on the camera tool to enable Trigger mode. The video will stop.



2. Connect the external trigger device to **Pin1 (OPT\_IN)** and **Pin5 (GND)** of **J3**. The voltage of trigger signal can be 3.3V ~ 12V.

Once receiving trigger pulses, the camera will output frames.



## ● REVISION HISTORY

Revision	Description	Release Date
1.0	First release.	19 Dec 2018
1.1	Added trigger mode.	30 Sep 2019
1.2	Updated 200H lens and related product images and 2D dimensions.	02 Feb 2023
1.3	Deleted lens model and IP rating.	08 Aug 2023
1.4	Updated System Block diagram, IP rating of 200H lens and Image Orientation format.	08 Mar 2024

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