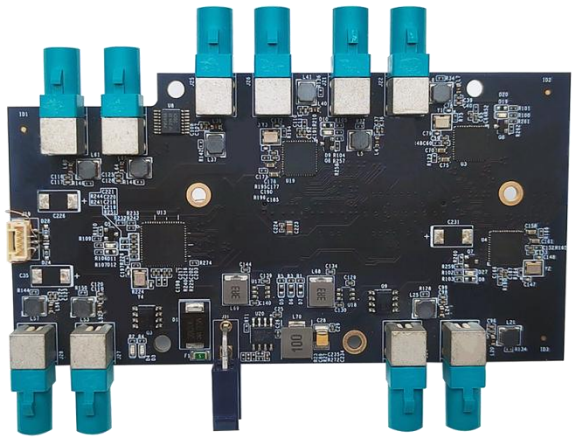
Specification

SG10A-AGON-G2M-Ax



Version 4.0

Disclaimers

SENSING reserves the right to edit/modify this document without any prior notice.

Catalog

Document revision history

Rev	Date	Description	Author
V1.0	2025/02/22	Initial release	
V2.0	2025/04/14	Updated the system installation procedure	
V3.0	2025/05/27	Update the trigger interface description	
V4.0	2025/07/28	Update the accessory list and documentation instructions	

Safety warning and use precautions

- **Safety statement**

Before using this product, you must read this document to have a preliminary understanding of the product, and follow the safety instructions in this product manual to ensure your personal safety and avoid damage to the equipment. If blind operation causes loss or injury, the manufacturer shall not be responsible for any problems caused by its wrong operation of the equipment and personal life and property safety.

- **Supply voltage**

Converter board input power supply: 12V DC; Current: above 3A.

- **Environmental requirement**

Operating temperature: -20℃ -70 ℃.

Ventilation requirements: There must be good conditions around the installation of the computing platform.

- **Grounding requirement**

The power supply of the power adapter must be properly grounded. In special scenarios, a ground screw must be installed to connect the power adapter to the ground.

- **Electrostatic protection**

Electronic components and circuits are very sensitive to electrostatic discharge, although the company will design the main interface on the board card to do anti-static protection design, but it is difficult to do anti-static safety protection for all components and circuits. Therefore, it is recommended that you take ESD safety measures when handling any circuit board component. ESD safety measures include, but are not limited to, the following:

- During transportation and storage, place the box in an ESD bag. Do not take the conversion board until installation and deployment;
- Release the static electricity stored in the body before touching the box: Wear a wrist strap with a grounding discharge;
- Operate the box only in a safe electrostatic discharge area;
- Avoid moving boxes in carpeted areas.

Noun parsing

POC	Power Over Coax
GMSL	Gigabit Multimedia Serial Links
FPDLINK	Flat Panel Display Link
SerDes	Serializer and Deserializer
D-PHY	The original version of the MIPI D-PHY was designed to target 500Mbits/s, with D being the Roman numeral (Latin numeral) for 500. In the same way, C and M are the Roman numerals 100 and 1000 respectively, which is the C and M in C-PHY and M-PHY
C-PHY	C-PHYs may be used in channel-limited applications, hence the use of the character. "C", 3-Phase symbol encoding technique, Each symbol can transmit 2.28bits of data, using base 5 transmission, and the efficiency is 2.27 times that of D-PHY

Chapter 1 Introduction to SG10A-AGON-G2M-Ax adapter board

SG10A-AGON-G2M-Ax adapter board is designed with a MIPI interface that follows the standard 120-pin interface specification of the NVIDIA Jetson AGX Orin, making it compatible with both official and custom-designed development boards.

It allows up to 10 cameras to be connected to the Jetson AGX Orin module. Given the availability of various types of GMSL cameras, the adapter board can flexibly operate at different frequencies and is compatible with both GMSL and GMSL2 protocol interfaces through software configuration.

The power for GMSL cameras is supplied via PoC (Power over Coax), meaning that all data, control signals, and power are transmitted through a single 50-ohm coaxial cable. This enables flexible cable routing and makes installation easy in long-distance application scenarios.

1.1 SG10A-AGON-G2M-Ax adapter board function

- Compatible with official kits

  Supports the NVIDIA Jetson AGX Orin development suite
- Compatible with different versions of the NVIDIA JetPack SDK

  Jetpack6.0, L4TR36.3.0 and later versions
- Supports up to 10 GMSL cameras

Supports up to 4 channel 2MP YUV Stereo Camera，or 6 channel 8MP YUV camera

- Support synchronous trigger

  Supports external trigger signals to achieve camera synchronization

- The maximum transmission distance of the camera is 15 meters

  By using the GMSL protocol camera, it can support the long distance stable and reliable transmission of the camera, the longest distance supports 15 meters, which can be extended by using the Sensing Repeater

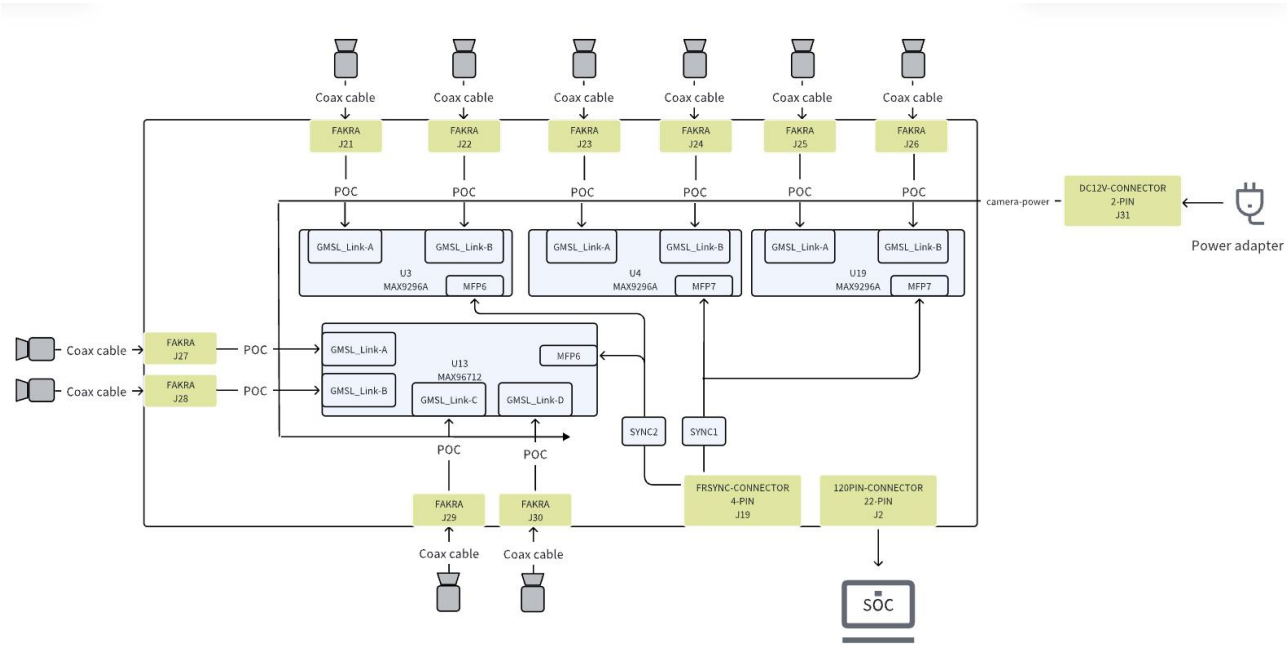
  https://www.sensing-world.com/gmslzjq

1.2 SG10A-AGON-G2M-Ax adapter board specification

Model	SG10A-AGON-G2M-Ax
Dimension	88mm*120mm*22mm
Weight	90g
Connector	1x120Pin High-density connectors
Camera input	Camera*10(GMSL2/GMSL)
Trigger In	4Pin Sync In
Deserializer	MAXIM(ADI) MAX9296A*3 MAXIM(ADI) MAX96712A*1
Camera Connector	Fakra Z Code
POC Power Supply	DC 9-16V

DC Power Supply	DC 12V
Operating Conditions	-20°C to +70°C
Adaptation kit	Jetson AGX Orin

- Product block diagram

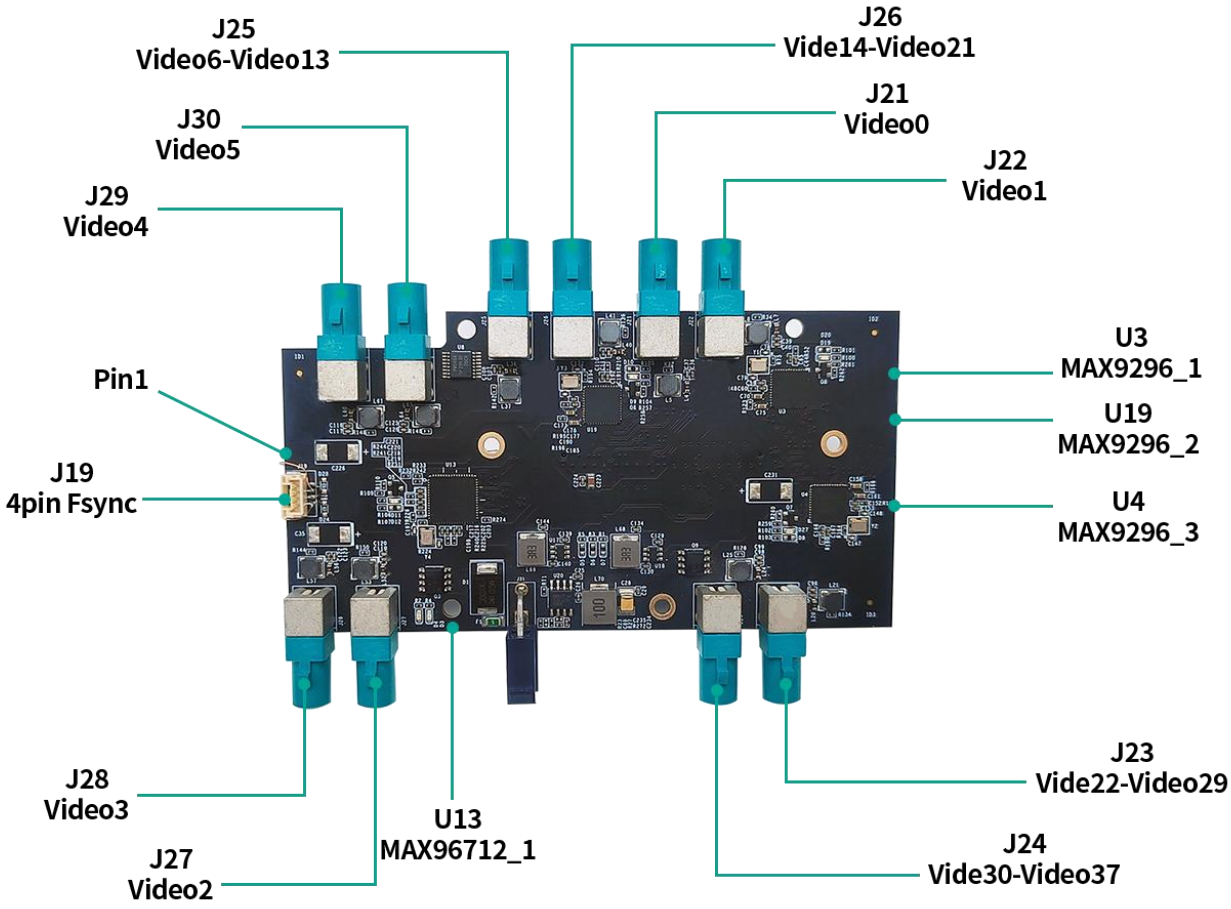


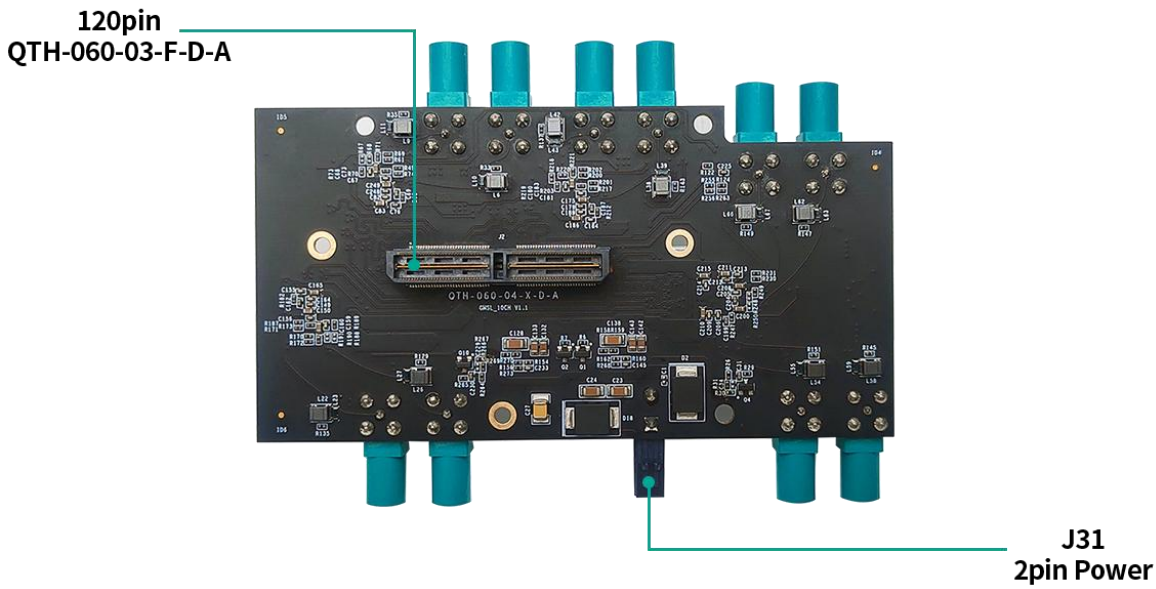
Attention:

(1) The I2C bus number is the hardware location (matching the connector J2 pin). The bus number does not necessarily correspond to what is listed in the software.

(2) The coaxial power supply is shared, but each GMSL line has its own filter.

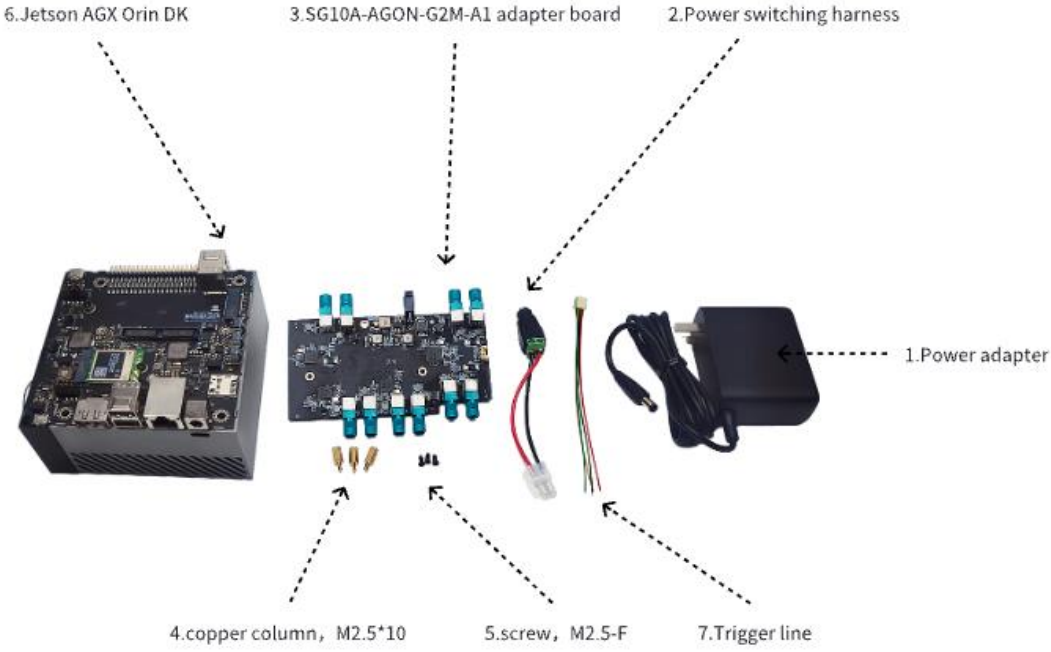
- Adapter board interface diagram





1.3 SG10A-AGON-G2M-Ax Adapter board fitting

Parts list			
Serial number	Product model	quantity	remark
1	Power adapter	1	Standard configuration
2	Power switching harness	1	Standard configuration
3	SG10A-AGON-G2M-Ax adapter board	1	Standard configuration
4	copper column，M2.5*12+5	3	Standard configuration
5	screw，M2.5-F	3	Standard configuration
6	Jetson AGX Orin DK	1	optional configuration
7	Trigger line	1	Standard configuration
8	Multi-functional conversion socket	1	optional configuration



Product model：SG10A-AGON-G2M-A1

Product model：SG10A-AGON-G2M-A3（The overseas version comes with a multi-functional conversion socket as standard upon shipment）

Multi-functional conversion socket

1.4 SG10A-AGON-G2M-AxInterface definition of the adapter board

- J19 Interface Pin Define

BM04B-GHS-TBT(LF)(SN)		
Pin No.	NAME	Remarks
1	GND	/
2	SYNC1	U19/U4
3	GND	/
4	SYNC2	U13/U3

- J31 Interface Pin Define

1724480002		
Pin No.	NAME	Remarks
1	DC12V	/
2	GND	/

Chapter 2 SG10A-AGON-G2M-Ax Instructions for using the adapter board

2.1 Product Usage Introduction

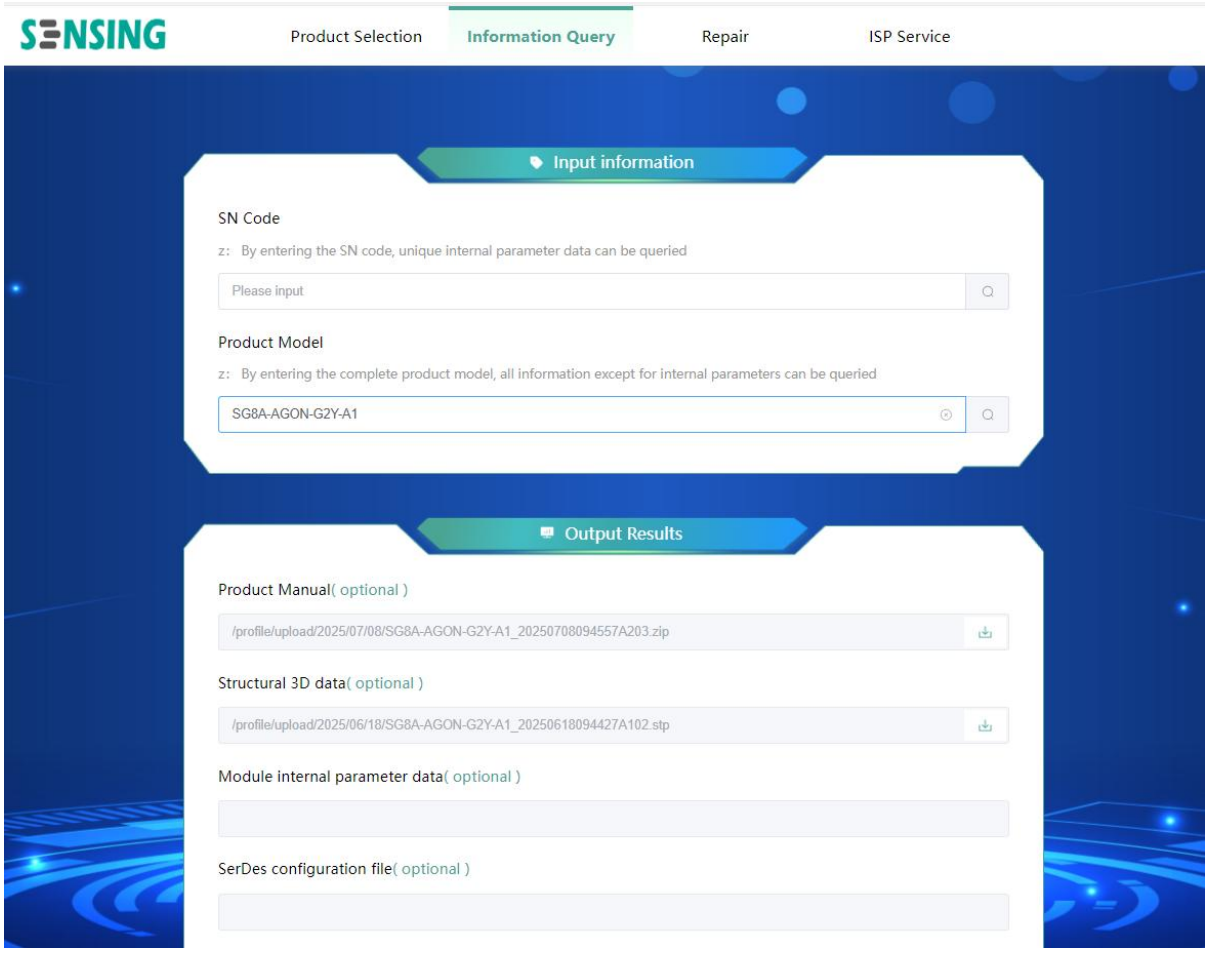
The product usage instructions can be obtained by logging into SENSING WIKI.

SG10A-AGON-G2M-A1 | SENSING WIKI (sensing-world.com)

2.2 Specification

The product specification is available through the following service platforms.

service.sensing-world.com



2.3 Product installation video

Please refer to the following video to install the SG8A-AGON-G2Y-Ax on the Jetson AGX Orin DK;

https://autosensee.feishu.cn/file/Q3ZfbgYNWo706Xxpw49c39OMnNe?from=from_copylink