

RTST-GMSL001

Product Manual

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Revision History

Revision	Date	Update content	Applicable hardware version
V1.0	2021-03	Initial release	V1.1



Electronic components and circuits are very sensitive to electrostatic discharge. Although our company designs anti-static protection for the main interfaces on the card when designing circuit board products, it is difficult to achieve anti-static safety protection for all components and circuits. Therefore, it is recommended to observe anti-static safety precautions when handling any circuit board component (including RTST-GMSL001). Anti-static safety protection measures include, but are not limited to the following:

- a) The smart box should be placed in an anti-static bag during transportation and storage, and then the board should not be taken out during installation and deployment.
- b) Before touching the smart box, discharge the static electricity stored in the body: wear a discharge grounding wrist strap.
- c) Operate the smart box only within the safe area of the electrostatic discharge point.
- d) Avoid moving smart boxes in carpeted areas.

Precautions and after-sales maintenance

matters needing attention

Before using the product, please read this manual carefully and keep it for future reference;

- Please pay attention to and follow all warning and guidance information marked on the product;
- Please use matching power adapter to ensure the stability of voltage and current;
- Please use this product in a cool, dry and clean place;
- Do not use this product in cold and hot alternate environment to avoid condensation damage components;
- Do not splash any liquid on the product. Do not use organic solvent or corrosive liquid to clean the product;
- Do not use the product in dusty and messy environment. If it is not used for a long time, please pack the product;
- Do not use in the environment with excessive vibration, any dropping or knocking may damage the circuit and components;
- Do not plug and unplug the core board and peripheral modules when power is on;
- Please do not repair or disassemble the product by yourself. In case of any fault, please contact our company in time for maintenance;



- Do not modify or use unauthorized accessories by yourself, and the damage caused will not be warranted;

After sales maintenance

1) Warranty period

- Base plate, core plate : 3 year (non-human damage)
- Other peripherals sold by the company: 1 year (non-human damage)

2) Warranty description

- Within 7 days: the product (base plate, core module) is not damaged by human, our company will replace / repair it free of charge, and bear the return freight; (because the core module needs NVIDIA to confirm that it can meet the requirements of repair, it will take a long time, we will coordinate as soon as possible, please forgive for the inconvenience)

- From 7 days to 36 months: the product (base plate, core module) is not damaged by human, our company will repair it free of charge, and bear the return freight; (because the core module needs NVIDIA to confirm that it can meet the requirements of repair, it will take a long time, we will coordinate as soon as possible, please forgive for the inconvenience)

- Artificial damage in more than 3 year or 3 year: the product (carrier plate) shall be tested after it is sent to the customer, and the customer shall be informed of whether it can be repaired and the maintenance cost in detail. After reaching an agreement, the product shall be repaired and returned to the customer, and the company shall bear the return freight;

- The starting time shall be subject to the date of express delivery receipt;

3) Contact information

Official website: www.realtimesai.com

Taobao website: <https://shop340963258.taobao.com/>

Address: 11, block B, Heping Xiyuan, Heping West Street, Chaoyang District, Beijing

Attention: RMA

Tel: 010-84284669

Mailing notice: contact with the company's sales department in advance, arrange technical support personnel to check and eliminate errors caused by misoperation as soon as possible, fill in the product after-sale return to factory maintenance form after verification, and send it to rma@realtimes.cn Mail box, please attach the list of items to facilitate verification, so as to avoid loss and loss in the process of express delivery. The company does not receive any delivery

Technical support and development customization

1. Scope of technical support

- 1) The company releases the electrical characteristics and use of industrial carrier boards and modules;
- 2) Physical dimension of hardware, relevant structure diagram and line sequence definition of specific interface;
- 3) Burn in verification of all BSP support packages provided by the company;
- 4) The company released burn environment construction, entry-level use. ;
- 5) Various peripheral module drivers released by the company;
- 6) The company's product fault diagnosis and after-sales maintenance services;

2. Scope of technical discussion

Due to the wide range of embedded system knowledge and various types of involvement, we can not



guarantee that all kinds of questions can be answered one by one. The following content is not available for technical support, only suggestions can be provided.

- 1) Knowledge beyond the course published by our company;
- 2) Specific software program design;
- 3) Technical support for industrial carrier not issued by the company;
- 4) All kinds of driving support for industrial carrier board not issued by the company;
- 5) Hardware principle and drive design of peripheral module not issued by our company;

3. Technical support mode

- 1) Official website or email questions (recommended): <https://www.realtimesai.com/cn/download.html>
techsupport@realtimes.cn
- 2) Official Taobao through Alibaba Wangwang consultation: <https://shop340963258.taobao.com/>
- 3) Wechat group consultation (wechat Group No. consults Taobao customer service or sales, and Taobao purchase order No. needs to be provided for verification);
- 4) Technical support email: techsupport@realtimes.cn
- 5) Tel: 010-84284669

4. Technical support time

Monday to Friday; 8:30-12:00 am; 1:00-17:30 PM;

The company arranges the rest according to the national legal holidays, during which it may not be able to provide technical support, please send the problem to the technical support email. We will reply to you as soon as possible on weekdays.

5. Complaints and suggestions

If you are not satisfied with us or have suggestions, you can send an email to [yu.qin @ realtimes.cn](mailto:yu.qin@realtimes.cn) For feedback, please call 010-84284669 for further improvement.

6. Customized development services

The company provides the embedded operating system driver based on NVIDIA Jetson series and the paid customized development service of hardware carrier board to shorten your product development cycle.

Please email the request to info@realtimes.cn

Data acquisition and subsequent update

1. Access to information

Download on our website

The company's website contains supporting information of its products, including product user manual, NVIDIA Jetson series module data manual, BSP driver support package for carrier board, supporting peripheral driver files, interface test verification method, FAQ, system burning guide, etc. get into www.realtimesai.com, select "data download" in the navigation bar, find the data you need, and click download.

2. Subsequent updates

Updates of subsequent documents, BSP, driver files and other official account will be updated in time. We will pay close attention to our developments in order to ensure that your information is up to date. We will push through WeChat public.



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1 Product introduction

The RTST-GMSL001 main board is mainly used for the RTSO-1001 series carrier board to extend the GMSL2 camera interface function. It supports Sensing, Leopard and other brands of GMSL2 cameras, currently supports 4-channel camera access, up to 8 cameras can be connected.

1.1 Features

- 2 x 4-in-1 coaxial cable interfaces
- 10 x LED lights
- 1 x 4P 12V power input interface
- 8-channel synchronous trigger
- 1 x Reserved debugging port
- 1 x RTSO-1001 high-speed connector for carrier board docking
- Size: 54.3mm × 104.6mm
- Temperature: -40~+80°C



1.2 Ordering Information

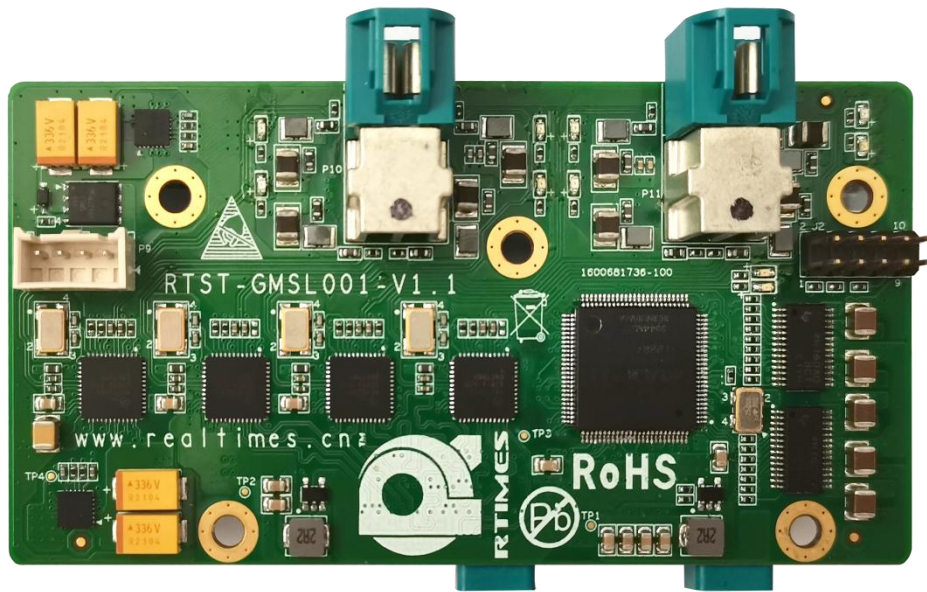
Model Options	Functional Description
RTST-GMSL001	8-channel GMSL camera expansion board
RTST-GMSL001-Cable	GMSL camera cable, can connect 4 GMSL cameras
SG2-IMX390RGB-5200-GMSL2	GMSL camera

Order online

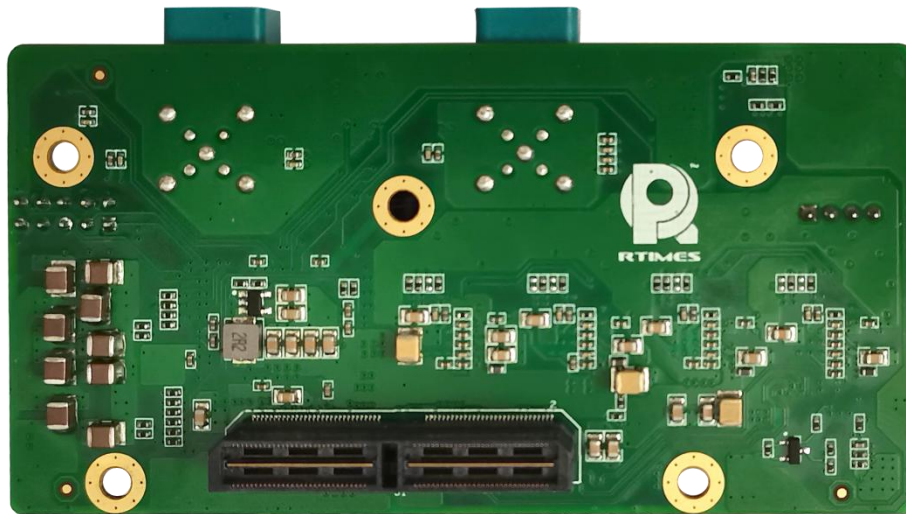
<https://shop340963258.taobao.com>

<https://mall.jd.com/index-824786.html>

2 External interface function and location



RTST-GMSL001 TOP



RTST-GMSL001 BOTTOM

2.1 Function connector

Marking	Function description
J1	Dedicated interface for communication with carrier board
J2	Reserved debugging interface
P9	Power input interface
P10、P11	Coaxial cable and camera connection

2.2 LED indicator

Marking	Function description
D1-D10	Equipment system working status indicator

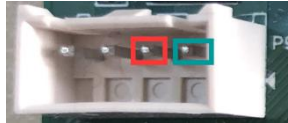
3 Installation and use

3.1 Usage

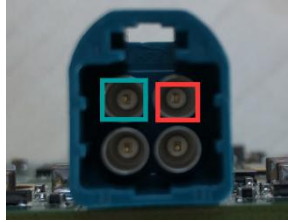
- a) Make sure that the voltage of all external systems is turned off
- b) Connect the RTST-GMSL001 carrier board to the RTSO-1001 board.
- c) Connect the GMSL2 camera and the coaxial cable to the RTST-GMSL001 interface to ensure that the connection is complete.
- d) Turn on the power and the system starts to work.
- e) For systems without a protective enclosure, after the system is powered on, please avoid moving the entire system, and it is strictly forbidden to touch the circuit board and its electronic components with your body.

4 Connectors Description

4.1 Power connector

Function	Connect external power			
Marking	P9			
Type	1*4Pin socket			
Pin define	Pin	Signal	Pin	Signal
	1	12V	3	GND
	2	12V	4	GND
<p>Pin 1 position: the green frame in the picture on the right. Pin 2 position: the red frame in the picture on the right.</p> <p>RTST_GMSL001 can be powered from RTSO-1001, but the following two conditions must be met:</p> <ol style="list-style-type: none"> 1. 1001 welded the power supply circuit 2. The input power of 1001 is 12V. <p>If these two conditions are met, 1001 input power can be used for power supply. If they are not met, an external 12V power supply is required.</p>				
				

4.2 Coaxial cable camera interface

Function	Connect GMSL2 camera			
Marking	P10、P11			
Type	4 in 1 coaxial cable socket			
Pin define	Pin	Signal	Pin	Signal
	1	Camera 1	2	Camera 2
	3	Camera 3	4	Camera 4
<p>Pin 1 position: the green frame in the picture on the right. Pin 2 position: the red frame in the picture on the right.</p>				
				

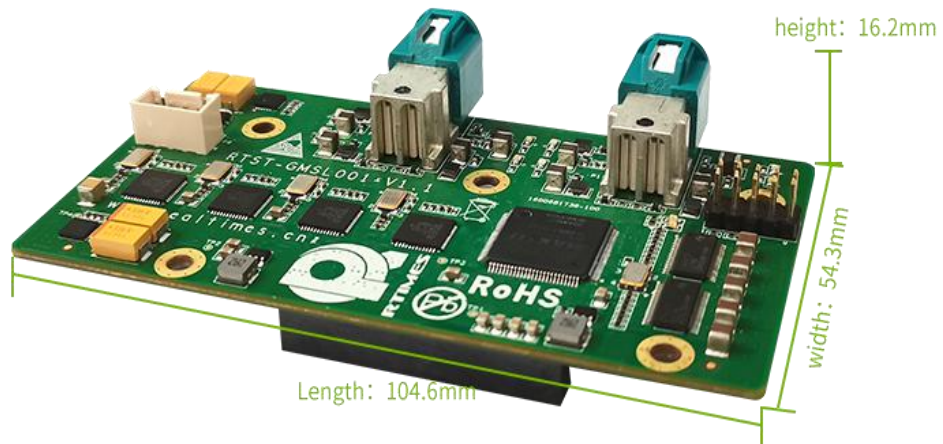


5 Hardware update history

RTST-GMSL001 hardware update history

Versions	Update Description
V1.1	Initial version

6 Product size



7 Drive

RTST-GMSL001 needs to contact and use the BSP (Board Support Package) provided by Realtimes to enable the function interface.

Terms of Warranty

Important note

Each embedded product provided by Realtimes Technology is free from any defects in material and process,fully in line with the specifications officially issued by the original factory.

Realtimes Technology warranty covers the original products,If the parts configured by the dealer are out of order, please consult with the dealer to solve the problem. All the baseplate and core modules provided by Ruitai New Era (Beijing) Technology Co., Ltd. are guaranteed for 3 years, while the other peripherals are guaranteed for 1 year (life-long maintenance service is provided if the warranty period is beyond the warranty period).The warranty period starts from the date of delivery, for the products repaired within the warranty period, the repair parts shall be extended for 12 months.Unless notified by Realtimes Technology, the date of your original invoice shall be the date of shipment.

How do I get warranty services

If the product does not work properly, Please contact Realtimes Technology or dealer for warranty service, please show invoice when product warranty(this is the proof for you getting warranty service).

Warranty solution

When you ask for warranty service, please follow Realtimes Technology warranty process,You will need to receive your first diagnosis from a technical engineer by phone or by email,at that time,we need you to cooperate with us to fill in all the questions on the RMA form provided by us. Once we accurately determine the cause of the fault and the location of the damage ,we will provide the charge list for the out of warranty products,which needs your confirmation.Realtimes Technology keep the right to repair or replace the products. If the product is replaced or repaired, the replaced faulty product or the repaired and replaced faulty parts will be returned to Realtimes Technology.

For products under warranty,the customer shall bear the freight when the product is returned to the manufacturer,Realtimes Technology will bear the ship cost of the products after maintenance.

The following conditions are not covered by the warranty terms

- a) Improper installation, improper use, misuse and abuse of products(Overloading, for example).
- b) Improper maintenance and storage (Such as fire, explosion, etc) or natural disasters (such as lightning stroke,earthquake,typhoon,etc)
- c) Personal unauthorized changing the product(such as changing circuit characteristics, mechanical characteristics, software characteristics,Conformal coating).
- d) Other failures which are clearly due to misuse(such as overvoltage,polarity reversal, the pin bent or broken,the wrong connection,drop damage,transportation damage,damage due to over operating temperature and so on).
- e) The logo and part number on the product have been deleted or removed.
- f) The product is out of warranty.

Special concerns

If the same fault multiple occurrence for the products,in order to find out the reason causing the problem,we will request the users to provide the specific documents or information of peripheral equipment,such as monitor,I/O boards,cables,power supply, diagram and structure of the system,etc.If such documents or information are not available,we have the right to refuse to perform the warranty, the repairments will be charged accordingly.

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