

MD_FT68 Optical Engine

V0.20 Datasheet

Mesiontech Co., Ltd. Copyright

2026.04

MESIONTECH

Change History

Version	Release Date	Changes	Author
V0.10	2025/10/31	Preview version	Jackie Chu
V0.20	2026/4/2	Correction block diagram	Jackie Chu

Disclaimer

The copyright of this datasheet belongs to Mesiontech Co., Ltd. Without permission, no unit or individual may copy, disseminate, transcribe and save this publication in electronic, mechanical, magnetic, optical, manual or other forms, or translate it into other language versions. Once discovered, legal liability will be pursued. Mesiontech Co., Ltd. guarantees the accuracy and reliability of the information provided in this datasheet, but is not responsible for any omissions in text or graphics that may appear in the text. Mesiontech Co., Ltd. reserves the right to change this datasheet and will not inform you of any changes. Please contact us when purchasing the product to obtain the latest product information and technical support. Mesiontech Co., Ltd. is not responsible for any user's infringement of third-party copyright or other rights when using our products. In addition, when Mesiontech Co., Ltd. does not clearly indicate that the product has such a purpose, it is not responsible for any losses caused by some failures or damages caused by the use of the product under extreme conditions.

Table of Contents

1	Product Introduction	4
1.1	Product Description	错误! 未定义书签。
1.2	Feature	4
1.3	Scenario	4
1.4	Block Diagram	5
2	Specification	5
2.1	Product Picture	6
2.2	Product Specification	6
3	Mechanical and Installation	7
3.1	Mechanical Dimension(Unit:mm)	7
3.2	Connector and PIN Definition	7
3.3	Installation and Test	8
3.4	Heat Disipation	8
3.5	Module Integration and Usage Protection	8
4	Cloud Map Building	9
5	System Integration	9
6	Certification	10
7	Notice	11

MESIONTECH

1 Product Introduction

1.1 Product Description

MD_FT68 Optical Engine is a binocular visual positioning module. By integrating 6 DoF gyroscope data and combining with A1088, a self-developed spatial positioning coprocessor of Mesiontech, the module can provide indoor and outdoor vSLAM visual positioning data. Enhanced Camera Performance in High-Contrast Scenes via newly Integrated ISP+CPLD SLAM Camera Module, Through the [Carina SDK](#) provided by Mesiontech, the module can be easily integrated into the system and widely used in vSLAM/VIO systems and service robots.

1.2 Feature

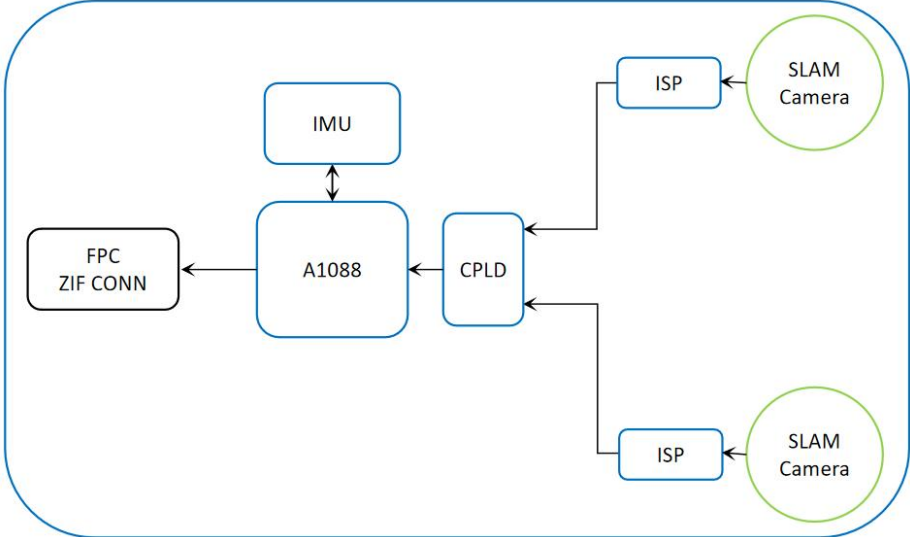
- Enhanced Camera Performance in High-Contrast Scenes via newly Integrated ISP+CPLD SLAM Camera Module.
- Centimeter-level accuracy: 1% drift; also 0.3% drift for loopback/cloud map.
- FPC interface for USB3.0 (Please inform us before ordering if USB2.0 is required), FPC to Type-C adapter board is offered in engineering sample stage.
- Lightweight, low power consumption, high frame rate, and low latency.
- Support Android / Linux / ROS/ Windows.
- The structure and interface can be customized according to your requirements.

1.3 Scenario

- AR Glass / VR HMD
- Service Robot
- Low-speed autonomous vehicle
- Sweeping Robot
- Robotic Lawn Mower
- Intelligent personnel management system and equipment
- Indoor and outdoor vSLAM applications

MESIONTECH

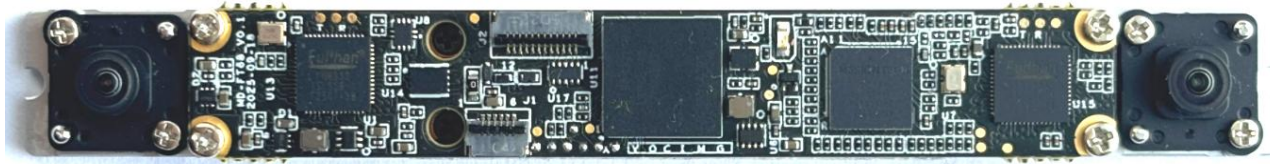
1.4 Block Diagram



2 Specification

MESIONTECH

2.1 Product Picture



MD_FT68 Front View

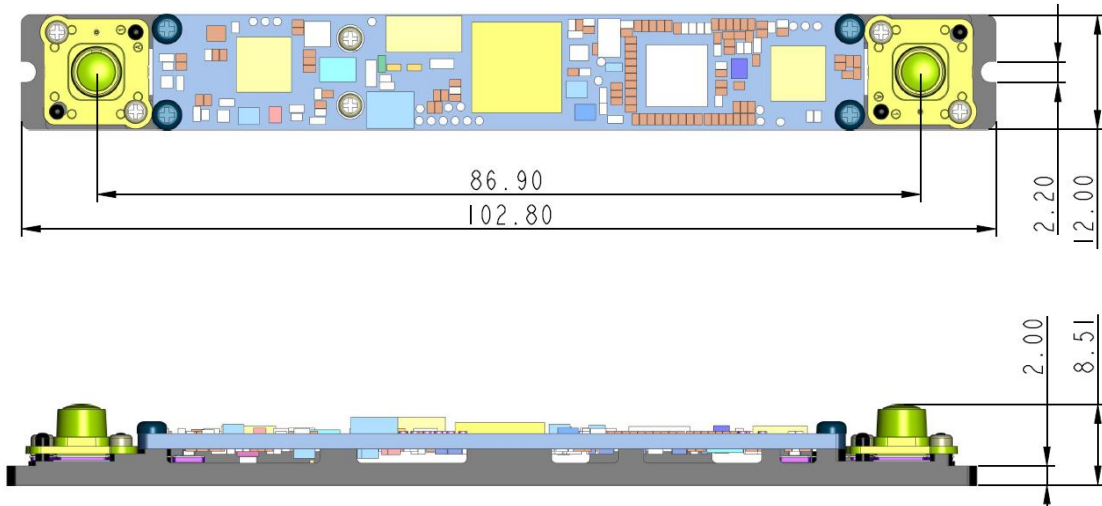
2.2 Product Specification

MD_FT68 Specification	
Baseline	86.9 mm
Power Consumption	Average: 0.95W (SLAM)
vSLAM Camera Exposure Modes	Global
vSLAM FOV	D151°
IMU	6-axis
IMU Frequency	1000Hz
SLAM	6 DoF
6DoF FPS	30-1000fps
vSLAM Accuracy	Centimeter-level accuracy: 1% drift; also 0.3% drift for loopback/cloud map
Relocation Time	< 1 second
Latency	1ms
Timestamp Synchronization	Hardware synchronization
Data Transfer	FPC interface USB 2.0/3.0 adaptive
Power Supply	FPC Interface
Operating Temperature	-10°C ~ 55°C
Supported Operating Systems	Android / Linux / ROS / Windows
Applicable Scenarios	Indoor/Outdoor (Depending on the application scenario and related algorithm requirements)
Dimensions (mm)	12mm (Width) x 102.8mm (Length) x 8.5mm (Height)
Weight	15g including mechanical metal base structure

MESIONTECH

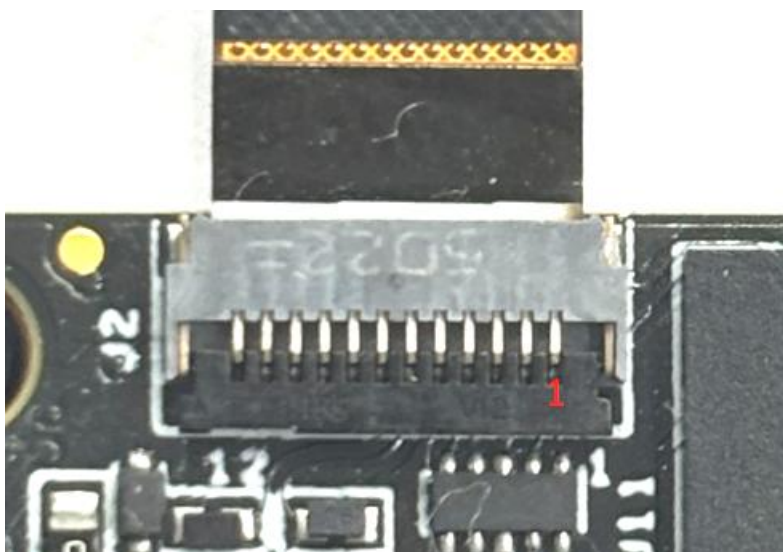
3 Mechanical and Installation

3.1 Mechanical Dimension (Unit: mm)



3.2 Connector and PIN Definition

The module uses an FPC interface for power supply and data transmission. The recommended use distance is no more than 10 cm. If other wires or wires with locking mechanisms are required, they must be customized. The FPC interface is PIN 1 below, and the contacts use the 12 pins under the connector that are close to the PCB.



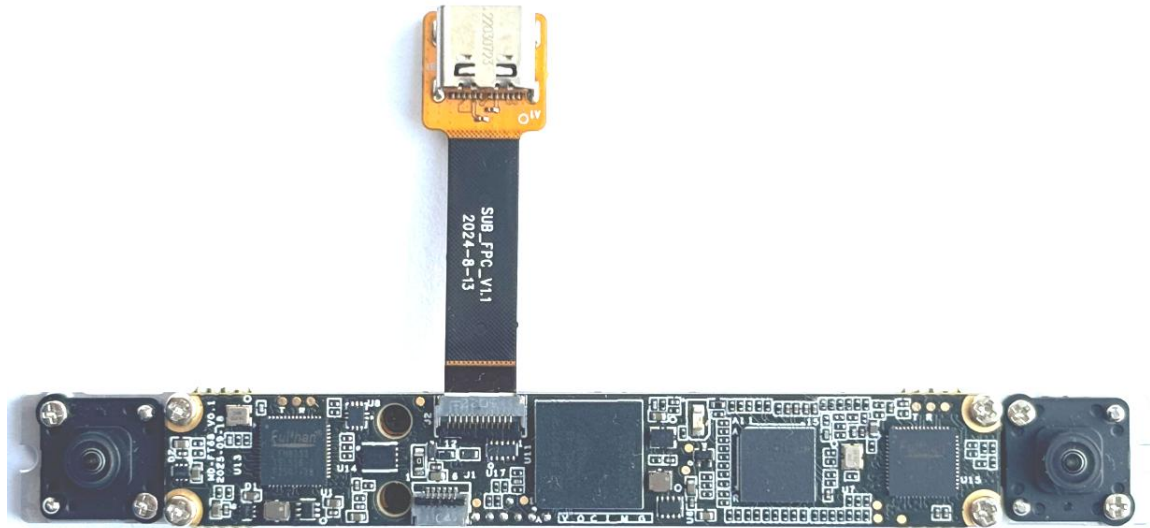
J2. PIN	NET
J2. 1	USB3_TX_P
J2. 2	USB3_TX_N
J2. 3	USB3_RX_P
J2. 4	USB3_RX_N
J2. 5	GND
J2. 6	USB3_D_N
J2. 7	USB3_D_P
J2. 8	VSYNC_1V8
J2. 9	BOOT_OTA
J2. 10	GND
J2. 11	USB3_VBUS
J2. 12	USB3_VBUS

FPC PIN Definition

MESIONTECH

3.3 Installation and Test

To facilitate module testing, Mesiontech can provide an FPC-TYPE C interface adapter board as shown below.



3.4 Heat Dissipation

The module can dissipate heat naturally through the environment at the nominal operating temperature. However, it must be noted that the module (including the metal reinforcement part on the back) must not be close to other heat sources. The metal reinforcement plate on the back is conducive to the heat dissipation of the hardware and must not be removed without the consent of Mesiontech.

3.5 Module Integration and Usage Protection

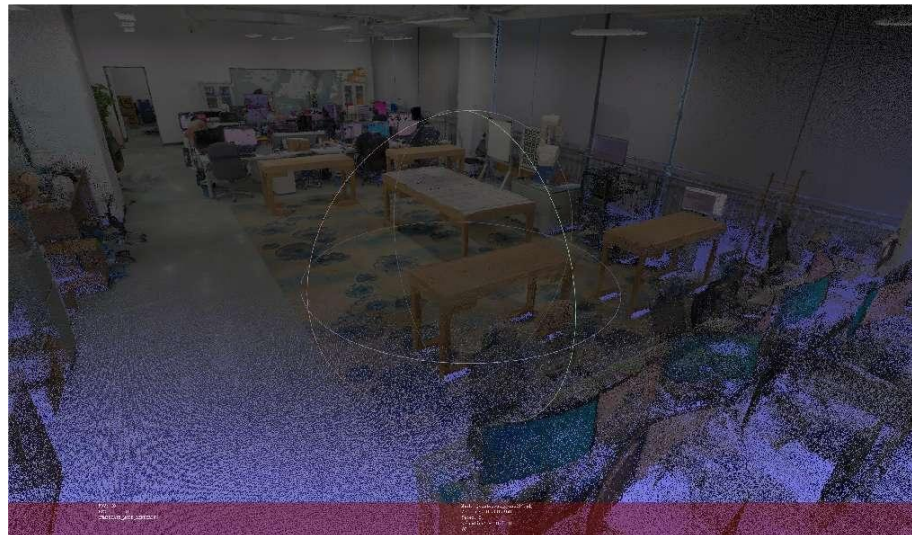
- Operators must wear anti-static work clothes.
- Wear an anti-static wrist strap that is in good contact with the skin and is reliably grounded.

MESIONTECH

- All component operations must be performed on an electrostatically safe workbench.
- Any electrostatically sensitive components that fall to the floor during operation must be tested and re-confirmed before use.
- When holding a PCB, avoid touching component leads and lugs, and try to stay away from electrostatically sensitive component areas.

4 Cloud Map Building

If you have any cloud map building needs, you can send an email to the product support sales@mesiontech.com



5 System Integration

Before users choose the MD_FT68 optical engine for product development, they should contact Mesiontech to obtain the SDK development package. Mesiontech will confirm whether the solution meets the mass production requirements through evaluation, debugging and verification.

MESIONTECH

Mesiontech provides SDKs for the MD_FT68 optical engine module that are compatible with the corresponding platforms, and users can integrate and develop applications for the product based on this. The SDK supports Android, Linux, ROS, and Windows platforms.

Recommended Process:

Step 1: Read the MD_FT68 optical engine module product specification.

Step 2: Evaluate the feasibility of the project with relevant pre-sales personnel of Mesiontech.

Step 3: Purchase a sample and apply for the SDK development package for the corresponding platform.

Step 4: If you encounter any technical problems, please contact the sales staff of Mesiontech in time.

Step 5: Confirm the mass production plan, structure and interface requirements of the terminal product.

Step 6: If you need to customize the optical engine in the mass production plan, please contact Mesiontech sales staff in time;

Step 7: Please evaluate the forecast before mass production.

6 Certification

➤ TBD

7 Notice

1. Please operate the module correctly according to the instructions. Illegal operation may cause damage to internal components.
2. This product is a precision device and must be protected from collision, drop, and vibration to prevent the mainboard components from falling off or the optical components from being damaged, which may cause functional problems or affect the performance of the product;
3. Do not attempt to modify or disassemble the module in any way to avoid damage to the module and reduced accuracy.
4. This module must not be heated by other heat sources; it is normal for the temperature of the product to rise after a period of use.
5. Do not touch the lens to avoid leaving foreign matter and affecting the image quality.
6. When using the product, ensure that the front of the camera lens is exposed to the outside to prevent transparent objects from blocking the camera and affecting the use effect.
7. When installing and using the product, please ensure that the assembly is stable and reliable to avoid shaking that may affect the use effect.
8. During use, ensure that all interfaces are in good contact. If the image frame rate is insufficient or the data stream cannot be obtained, it is recommended to reconnect the camera in the correct way. You can also contact Mesiontech technical support for assistance.