MESIONTECH

# MD_FT70 Optical Engine

## V0.30 Datasheet



**2026.05**

MESIONTECH

# Change History

| Version | Release Date | Changes | Author |
|---|---|---|---|
| V0.10 | 2026/5/10 | Initial Release | Jackie Chu |
| V0.20 | 2025/5/15 | Correction SDK link | Jackie Chu |
| V0.30 | 2026/5/21 | Correction Spec | Jackie Chu |

# Disclaimer

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# Table of Contents

# 1 Product Introduction

## 1.1 Product Description

**MD_FT70 Optical Engine** is a monocular 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. 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.

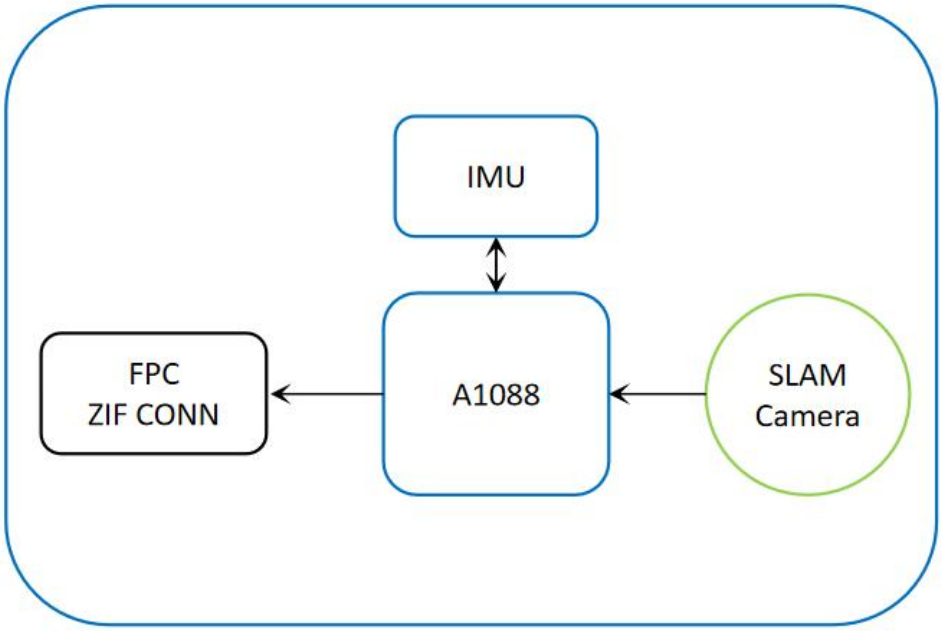
## 1.2 Feature

- APE(Absolute Position Error)≤100mm.
- FPC interface for USB2.0, 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/Mac OS.
- The structure and interface can be customized according to your requirements.

## 1.3 Scenario

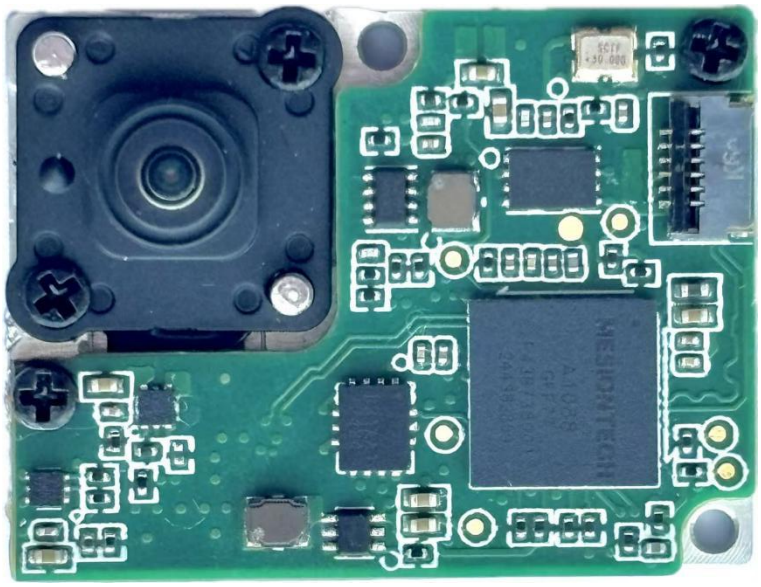
- XR device
- Robot
- UAV/Drone
- Location surveillance
- Data acquisition

## 1.4 Block Diagram



# 2 Specification

## 2.1 Product Picture



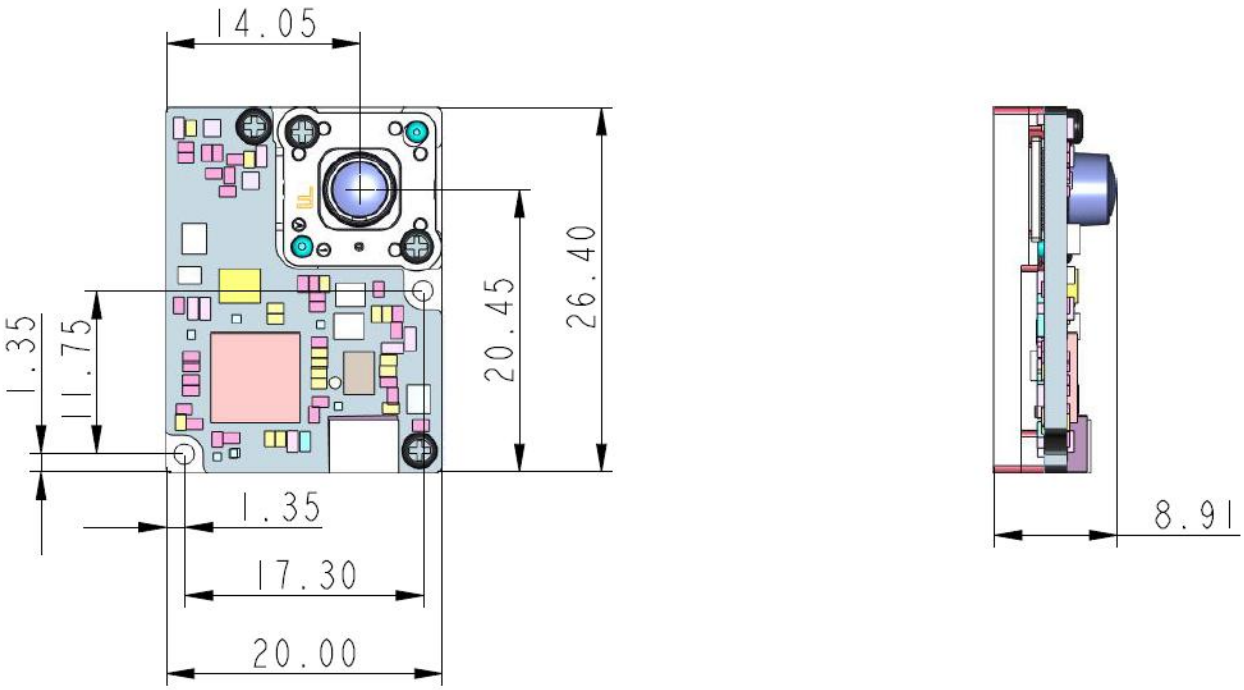
MD_FT70 Front View

## 2.2 Product Specification

| MD_FT70 Specification | |
|---|---|
| Power Consumption | Average：0.25W (SLAM) |
| Camera Exposure Modes | Global |
| FOV | D151° (640*480 30fps) |
| IMU | 6-axis acc&gyro |
| IMU Frequency | 1000Hz |
| SLAM | 6 DoF |
| 6DoF FPS | 1000Hz |
| vSLAM Accuracy | APE(Absolute Position Error)≤100mm |
| Relocation Time | < 1 second |
| Latency | 1ms |
| Data Transfer | FPC interface USB 2.0 |
| Power Supply | FPC Interface |
| Operating Temperature | -10℃ ~ 55℃ |
| Supported Operating Systems | Android / Linux / ROS / Windows/Mac OS |
| Applicable Scenarios | XR device/Robot/UAV/Location surveillance/Data acquisition |
| Dimensions (mm) | 20mm (Width) x 26.4mm (Length) x 8.9mm (Height) |
| Weight | 5.6g including mechanical metal base structure |

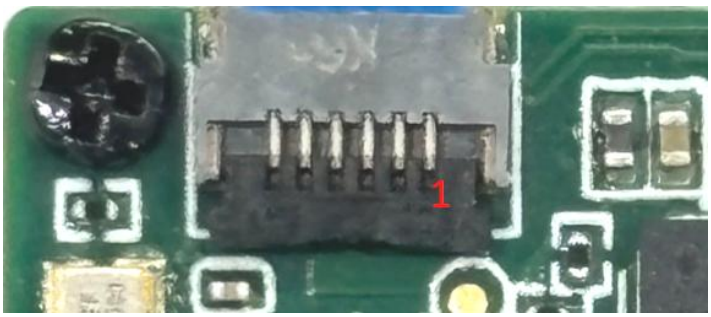
# 3 Mechanical and Installation

## 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 6 pins under the connector that are close to the PCB.




| J1. PIN | NET |
|---|---|
| J1. 1 | USB3_VBUS |
| J1. 2 | UART_TXD |
| J1. 3 | UART_RXD |
| J1. 4 | USB3_D_P |
| J1. 5 | USB3_D_N |
| J1. 6 | GND |

FPC PIN Definition

## 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.
- 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 System Integration

Before users choose the MD_FT70 optical engine for product development, they should obtain the SDK development package from this website Mesiontech release.

Mesiontech provides SDKs for the MD_FT70 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, Windows and Mac OS platforms.

Recommended Process:

Step 1: Read the MD_FT70 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 download 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.

# 5 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.