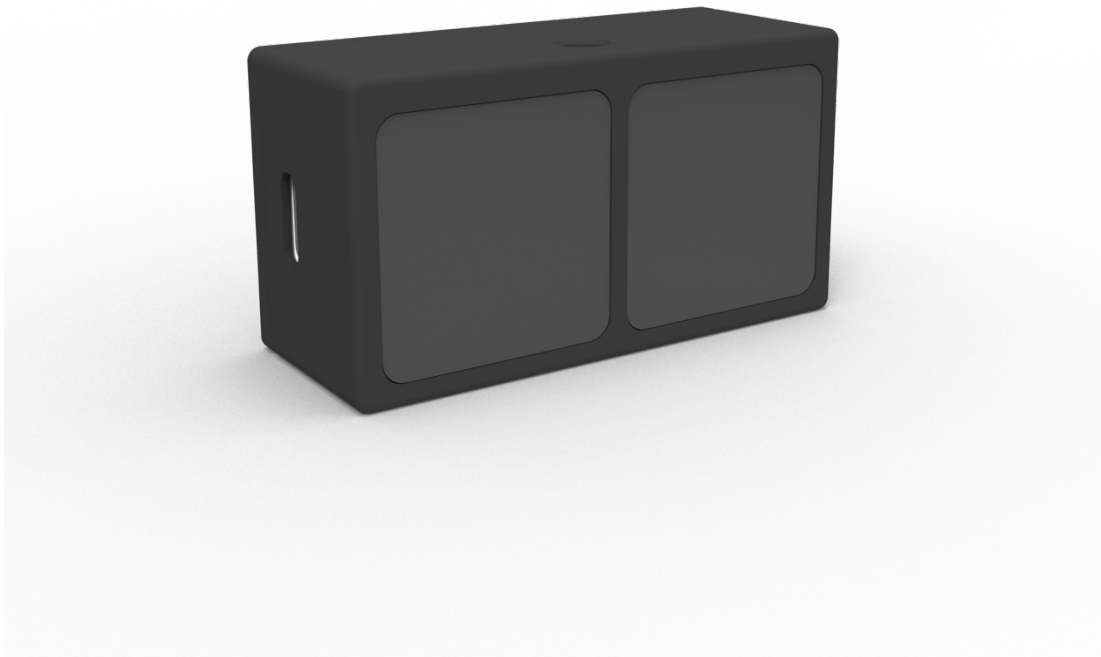


DFR1177 User Manual



1 MMPT044-940 Development Toolkit

The MMPT044-940 Development Toolkit empowers users to investigate the capabilities of the MMPT044-940 module, test its features, and create prototypes for their applications efficiently. To use the toolkit, users can simply follow the basic getting-started guide. This document will guide you through the following contents:

- 1) Performance Evaluation: Begin by using the tools and documentation provided in the development kit to evaluate the functionality and performance of the MMPT044-940 module.
- 2) Environmental Observation & Analysis: Leverage the provided software to observe images on a PC, such as object recognition and spatial measurements, assessing how the module interacts with varied environments.
- 3) Customized Solutions: Access the SDK (Software Development Kit) to develop custom applications that fulfill specific operational requirements. This could involve creating advanced algorithms, adding functions for secondary development, or integrating the module with existing or new systems.

MMPT044-940 Development Toolkit is designed to provide users with a range of tools and resources necessary for performance evaluation and rapid development. This guide is a good starting point for getting an initial understanding of the toolkit. If users need more advanced procedures and detailed secondary development information, it's recommended to refer to the "Development Manual of MMPT044-940".

2 Scope of Kit

MMPT044-940 development toolkit includes the following components :

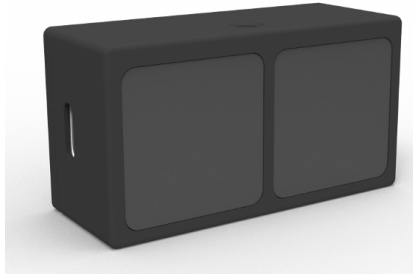


Figure 2-1: MMPT044-940 Module

3 Operation Steps

3.1 Device Connection

MMPT044-940 Development Toolkit allows you to observe the images with a Graphical User Interface (GUI) application on either a Windows or Mac PC. A USB Type-C cable is needed to connect the USB female port of the USB Adapter Kit to the MMPT044-940 module to set it up.

3.2 GUI Installation

The MMPT044-940 module has plug-and-play compatibility, which means that there is no need to install a USB driver for it to connect. To get started, users can

download the installation package from the official website of Alpha Cen, which is named TOMCAM635.rar. After the download is complete, users can install the package. Once the installation is finished and users have connected to the device, users can simply double-click the icon to open the GUI Interface.

3.3 GUI Interface on Monitor Computer

First, connect the module to the PC using a USB adapter kit. Then, double-click the relevant icon on the PC. If the USB connection is successful, a graphic user interface (GUI) opens. Calibration has already been completed by the manufacturer, so no additional action is needed from the user in this regard. The module is ready for immediate use. The GUI presents a parameter-setting area, which is organized into various sections.

(1) CAMERA SETUP

Modulation Channel : Configure the modulation frequency, fine-tuned around 20MHz

Interference Detection : configure whether to detect interference (if there are more than 2 modules, modulated lasers interfere with each other)

Mode : Configure Mode, Only “Wide Field Data” mode for this device

FPS : Configure the Frame of Rate and limit the amount of acquisitions per second

(2) INTEGRATION TIME

Automatic Integration Time 3D : Configure whether automatic Integration time is enabled

Integration Time : Configure integration time, Max up to 1600us

(3) DISTANCE SETTING

Offset : Configure the value of Offset. The range of distance measurement can be fine-tuned and offset value according to the actual use.

MMPT044-940

3D Time-of-Flight Camera with Wide Field of View

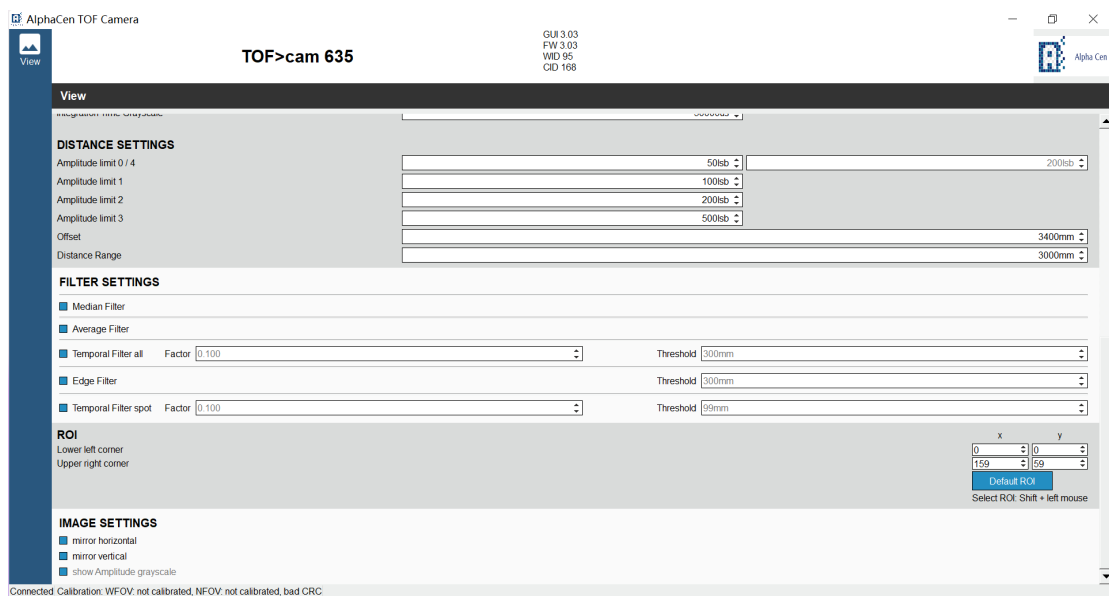
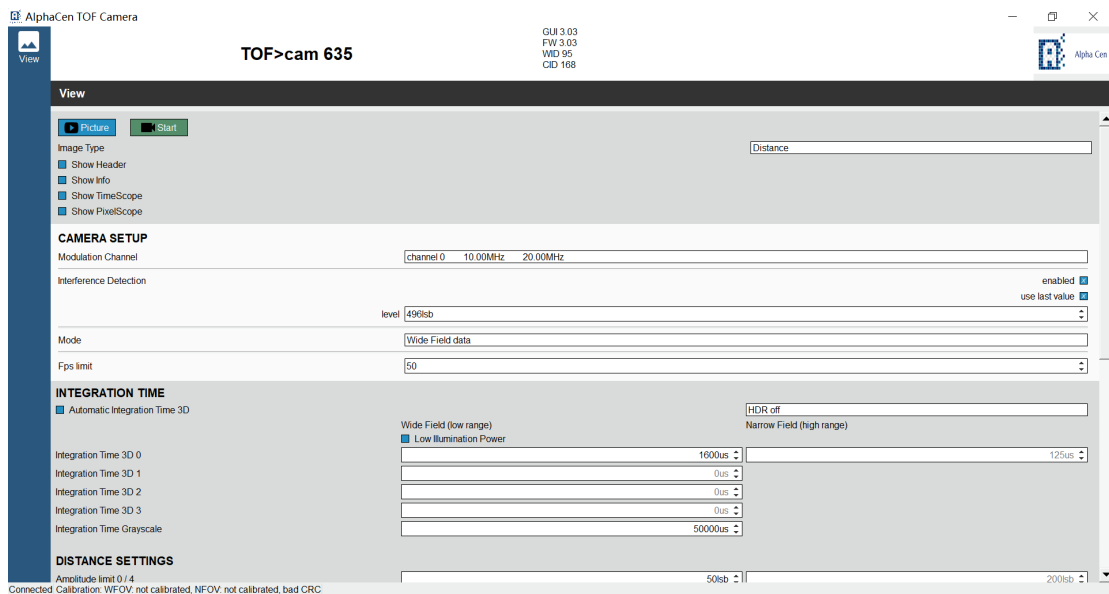
Distance Range : Configure Distance Measurement Range(Below 4m)

(4) ROI (Region of Interest)

Users' own interested area to can be carried out to measure and data collection, instead of collecting all pixels.

(5) IMAGE SETTING

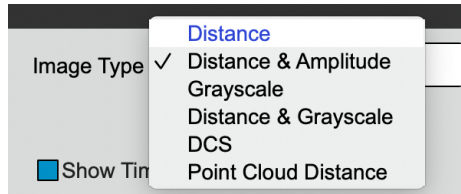
Configure whether to flip mirror, flip upside down or whether to display grayscale amplitude image



3.4 GUI Quick Start Operation Guide

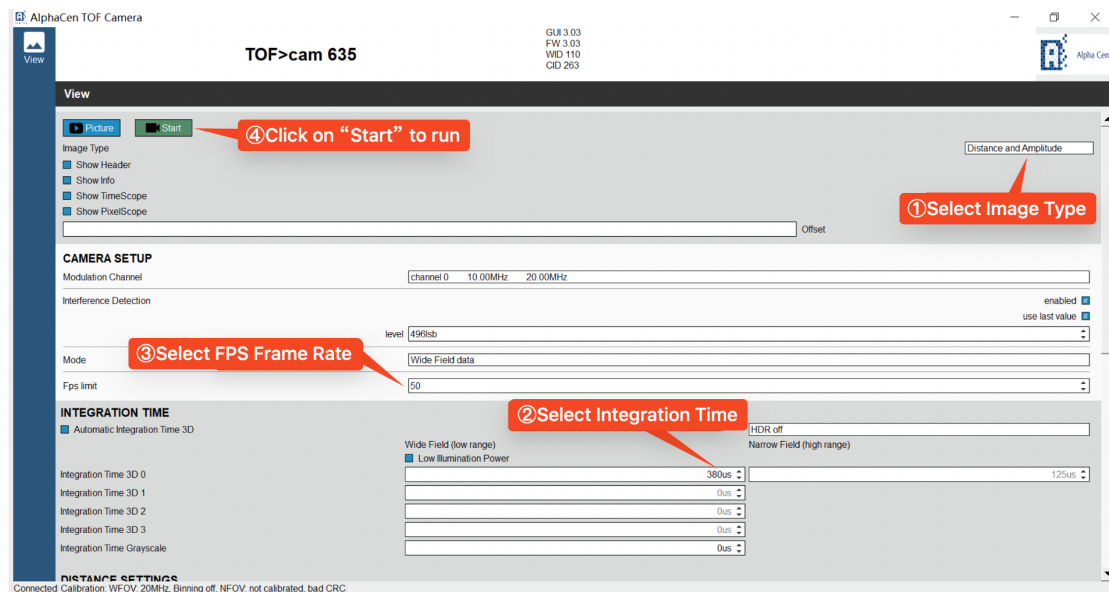
Quick Start Operation Guide :

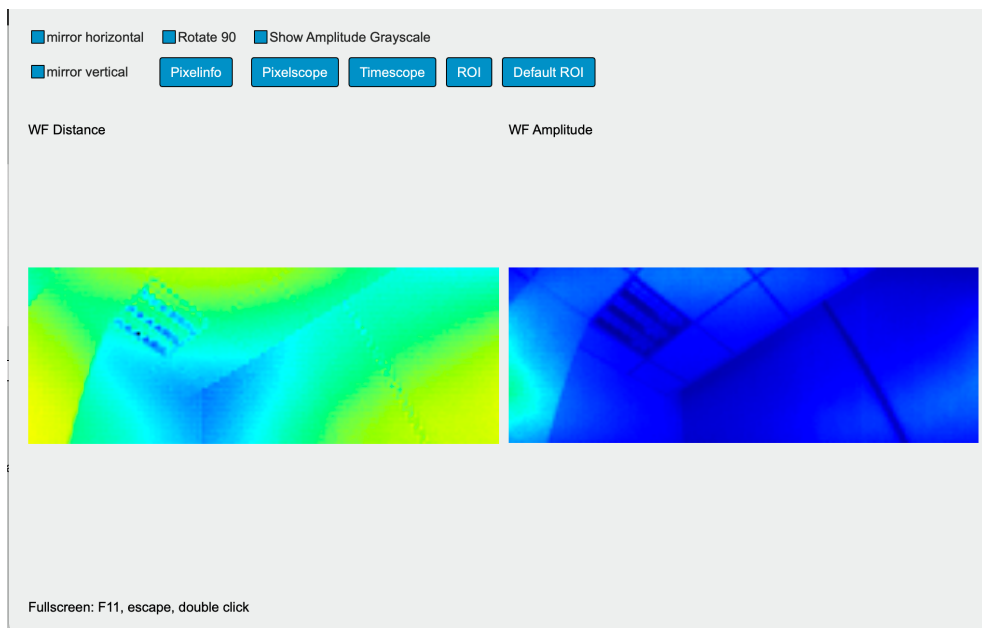
- 1) Select Image Type, Select Distance & Amplitude :



- 2) Select Integration Time
- 3) Select FPS Frequency (10FPS recommended)
- 4) Click on "Start", start to run

Upon clicking the "Start" button, the image gathered from the MMPT044-940 Module will be displayed.





4 Precautions

When using the MMPT044-940 laser module, users should consider the following safety and operational guidelines:

- 1) Avoid strong vibration or impact, so as not to damage the internal structure of the equipment.
- 2) Avoid using in harsh environmental conditions, such as high temperature, exposure to the sun, moisture, etc.
- 3) Ensure the stability of the power supply voltage, avoid the impact of voltage fluctuations on the equipment.
- 4) Before operating the equipment, please read the product manual in detail to understand the relevant operating specifications and precautions.
- 5) In case you encounter any problems while using the equipment, please contact our professional technicians or suppliers for consultation and solution.

5 Common Issues and their Solutions

When using MMPT044-940 laser module, users might encounter several common issues. Here are some potential causes and their corresponding solutions:

- 1) Device Won't Power On: Check power connection and ensure it's functioning. If there is an internal fault of the device, please contact the supplier for repair.
- 2) Monitor Computer Connection Issue: Check the device connection and reconfigure the communication configurations. If the problem still exists, please contact the supplier for repair.
- 3) Abnormal Depth Image: it may be an environmental light, device setting or data processing problem. Adjust the device setting or process the data. If the problem still exists, please contact the supplier for consultation and solution.
- 4) Reduced Measuring Range: If the maximum distance measurement range is less than the nominal value, utilize the recommended 12V/3A adapter to supplement power, overcoming potential USB driver limitations on certain PCs or platforms.

6 Maintenance

To keep the equipment running smoothly and reliably, users are recommended to have regular maintenance and repair tasks:

- 1) Clean the equipment surface: use a clean cloth and non-corrosive cleaner to wipe the equipment surface to remove dust and dirt.
- 2) Check the cable connection: check whether the cable connection is firm. Tighten it in time if there is a loose phenomenon.
- 3) Update software and drivers: update the equipment software and drivers regularly to obtain the latest functions and performance optimization.

7 Version Information

Version	Date	Notes
V0.1	10/25/2023	Initial Version Released
V1.0	10/30/2023	Formal Version Released