



unicommm UM220-IV M0 Navigation and Positioning Module Evaluation Kit User Guide

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unicommm UM220-IV M0 Navigation and Positioning Module Evaluation Kit



Product Information

The UM220-IV M0 Navigation and Positioning Module Evaluation Kit is a product of Unicore Communication, Inc. It is designed to provide navigation and positioning capabilities. This kit includes the UM220-IV M0 evaluation module.

Revision History:

Version R1.0 – First release (April 2023)

| Version | Revision History | Date |
|---------|------------------|-----------|
| R1.0 | First release | Apr. 2023 |

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Foreword

This document provides information of Unicore’s UM220-IV M0 evaluation kit (EVK). It can be used together with UPrecise_User Manual.

Target Readers

This manual is written for technicians who are familiar with GNSS modules. It is not for general readers.

Overview

The overview section provides a general introduction to the UM220-IV M0 EVK.
UM220-IV M0 evaluation kit (hereinafter referred to as EVK) is mainly used to test and evaluate the function and performance of UM220-IV M0 module for user convenience.

The delivered package contains

Table 1-1 UM220-IV M0 EVK Package

| Type | Contents | Number |
|-------------|----------------------------|--------|
| Main device | UM220-IV M EVK Suite | 1 |
| Accessory | GNSS antenna – OSAnm10854G | 1 |
| Accessory | Micro-B USB cable | 1 |

EVK Introduction

This section provides detailed information about the UM220-IV M0 evaluation kit (EVK). It is recommended to refer to the UPrecise_User Manual in conjunction with this guide. The figure below shows the appearance of UM220-IV M0 EVK Suite.



Figure 2-1 UM220-IV M0 EVK Suite

Interfaces & Indicators

This section explains the various interfaces and indicators available on the UM220-IV M0 EVK. The interfaces and indicators on UM220-IV M0 EVK is shown below. For the detailed description, see Table 3-1.



Figure 3-1 Interfaces & Indicators on UM220-IV M0 EVK

Table 3-1 Interfaces & Indicators on UM220-IV M0 EVK

| Interface/ Indicator | Type | Description |
|----------------------|------------------------------|---|
| S1 | Reset | Reset the module by inserting and removing the jumper cap |
| S2 | Antenna feed | Control the antenna feed on and off by the jumper cap |
| L1 | Power/1PPS indicator | The indicator lights up when powered on, and flashes when the 3D positioning is effective. |
| ANT | RF signal input connector | Antenna signal input |
| FWD | Direction signal connector | Reserved for odometer directional signal input. UM220-IV M0 EVK does not support this interface. |
| L2 | Speed pulse signal indicator | Reserved. The indicator flashes when receiving the speed pulse signal. UM220-IV M0 EVK does not support this interface. |
| SPD | Speed pulse signal connector | Reserved for odometer speed pulse signal input. UM220-IV M0 EVK does not support this interface. |
| USB | Micro-B USB connector | Power supply (+5V) and data communication |
| SD-card | SD card slot | Insert an SD card |
| UART | Communication DB9 connector | Backup serial communication interface with RS232 |

Installation & Configuration

Installation

To install the UM220-IV M0 EVK

1. Ensure you have all the necessary components and cables.
2. Follow the installation instructions provided by Unicore to connect the EVK to your system.
3. Ensure proper power supply and connections.
4. **Step 1:** Make sure to take full anti-static measures, such as wearing anti-static wrist straps and grounding the workbench.
5. **Step 2:** Select the GNSS antenna with appropriate gain (the GNSS systems and frequencies supported by the antenna should be in line with the module), fix it in the non-blocking area, and connect the antenna to the ANT

port on the EVK.

6. **Step 3:** Connect the EVK to the PC using the Micro-B USB cable.
7. **Step 4:** Open the UPrecise software on the PC.
8. **Step 5:** Configure the receiver through UPrecise to display the constellation view, data stream, tracking status, etc. For more information, please refer to UPrecise_User Manual.

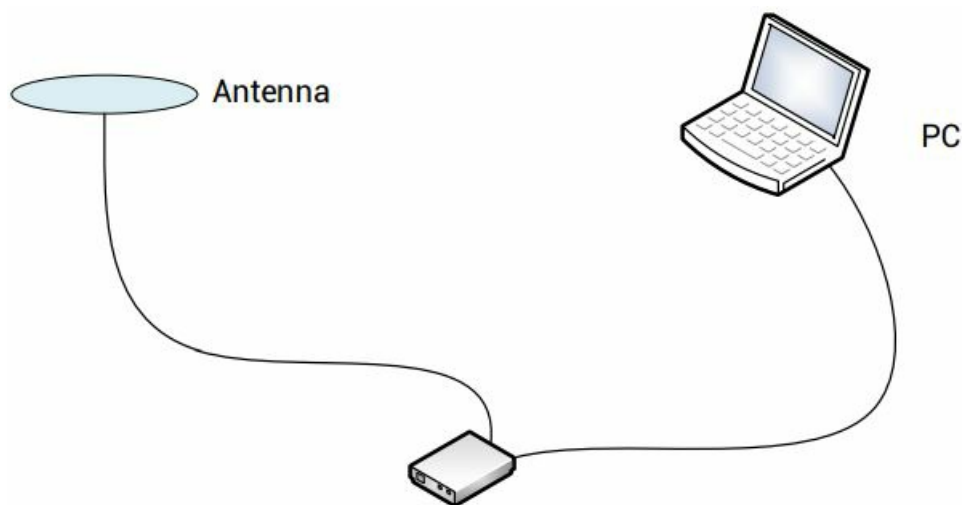


Figure 4-1 Installation of the EVK

SD Card Instructions

Follow these instructions to use an SD card with the UM220-IV M0 EVK:





1. Insert the SD card into the designated slot on the EVK.
2. Make sure the SD card is properly inserted and secured.
3. Refer to the user manual for specific instructions on using the SD card with the EVK.

There is an SD card slot on the UM220-IV M EVK, which is used for data storage and firmware upgrade. You can also use UPrecise to store data and upgrade the firmware. For more information, see UPrecise_User Manual.

Contents of the SD Card Folder

Before using the SD card, you need to copy the zipped folder “UM220-IV-N_EVK_Suite_V2.0_sdcard” to the card. The folder contains the following items:

Figure 4-2 Contents of the SD Card Folder

| Name | Date modified | Type | Size |
|--|--------------------|------------------------|------|
|  bootloader | 4/24/2023 11:28 AM | File folder | |
|  firmware | 4/24/2023 11:28 AM | File folder | |
|  Log | 4/24/2023 11:28 AM | File folder | |
|  config.ini | 4/24/2023 6:24 PM | Configuration settings | 1 KB |

1. The “bootloader” folder contains the loader file for firmware upgrade.
Unicore has already provided the loader file, which can be used directly.
2. The “firmware” folder is used to store the firmware file.

3. The “Log” folder is used for data storage.
4. The “config.ini” is the configuration file, of which the contents are as follows:

Figure 4-3 Contents of the config.ini File

```
#####
#Description of the configuration items:
#1. SingleFileSize: It specifies the size of a single file. If the file size exceeds the specified one, a
new file will be created.
# Notes: Hexadecimal format is not supported; please convert the size to a decimal number.
#
#2. StartRecordStyle: It defines the recording style after starting up, either to create a new file or
append to the existing file.
# When the value = append, the data will be logged in the existing file; when the value = new,
the data will be logged in a new file.
#
#3. The character '#' at the beginning of a line means that the line is a comment.
#####
[config]
SingleFileSize = 512000000

#(new or append)
StartRecordStyle = new

WorkBaudrate = 115200

LogFileName = log

#When the value is 1, the firmware will be upgraded; otherwise, it will not be upgraded.
update = 0
```

Table 4-1 Description of the config.ini File

| Contents | Description |
|----------------------------|--|
| [config] | / |
| SingleFileSize = 512000000 | The size of a single file. If the file size exceeds the specified number, a new file will be created. (Hexadecimal format is not supported; please convert the size to a decimal number.) |
| StartRecordStyle = new | The recording style after starting up (new or append): Append = log data in the existing file; New = log data in a new file |
| WorkBaudrate = 115200 | The working baud rate of UM220-IV M0 module |
| LogFileName = log | The name of the log file |
| update = 0 | 1 = Upgrade the firmware; 0 = Do not upgrade the firmware |

Data Storage Instructions

1. Step 1: Insert the SD card into the PC, and copy the zipped folder “UM220-IV-N_EVK_Suite_V2.0_sdcard” to the card.
2. Step 2: Unzip the folder and open the “config.ini” file, then set the “update” value to 0, set the “WorkBaudrate” the same as that of the UM220-IV M0 module and set other parameters as needed (see Table 4-1 for more information).
3. Step 3: Remove the SD card from the PC, insert it into the EVK, and power on the EVK1.
4. Step 4: Waiting for a while and you can get the logged data in the SD card. During the process, you may use the Micro-B USB cable to connect the EVK to PC in order to check the status of data transmission with a port monitor tool.

Firmware Upgrade Instructions

1. Step 1: Insert the SD card into the PC, and copy the zipped folder “UM220-IV-N_EVK_Suite_V2.0_sdcard” to the card. Unzip the folder and open “bootloader” to make sure that it contains the loader file. Then, put the firmware file2 in the “firmware” folder.

For the bootloader and firmware folders, only one file can be stored in each folder.

2. Step 2: Open the “config.ini” file, and set the “update” value to 1.
3. Step 3: Remove the SD card from the PC, insert it into the EVK, and power on the EVK.
4. Step 4: During upgrade, the indicator L1 is off. After the upgrade is finished, the light turns on. You may also use the Micro-B USB cable to connect the EVK to PC in order to check the status of upgrade with a port monitor tool.

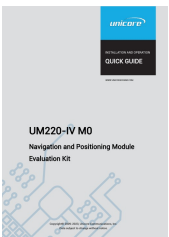
1 If the antenna is not connected, the EVK will output debug information; if you need the positioning information, please connect the antenna before powering on.

2 Please contact Unicore to get the latest firmware.

Unicore Communications, Inc.

- F3, No.7, Fengxian East Road, Haidian, Beijing, P.R.China, 100094
- www.unicorecomm.com
- Phone: 86-10-69939800
- Fax: 86-10-69939888
- info@unicorecomm.com

Documents / Resources

| | |
|---|---|
|  | <p>unicorecomm UM220-IV M0 Navigation and Positioning Module Evaluation Kit [pdf] User Guide</p> <p>UM220-IV M0 Navigation and Positioning Module Evaluation Kit, UM220-IV M0, Navigation and Positioning Module Evaluation Kit, Positioning Module Evaluation Kit, Module Evaluation Kit</p> |
|---|---|

References

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