

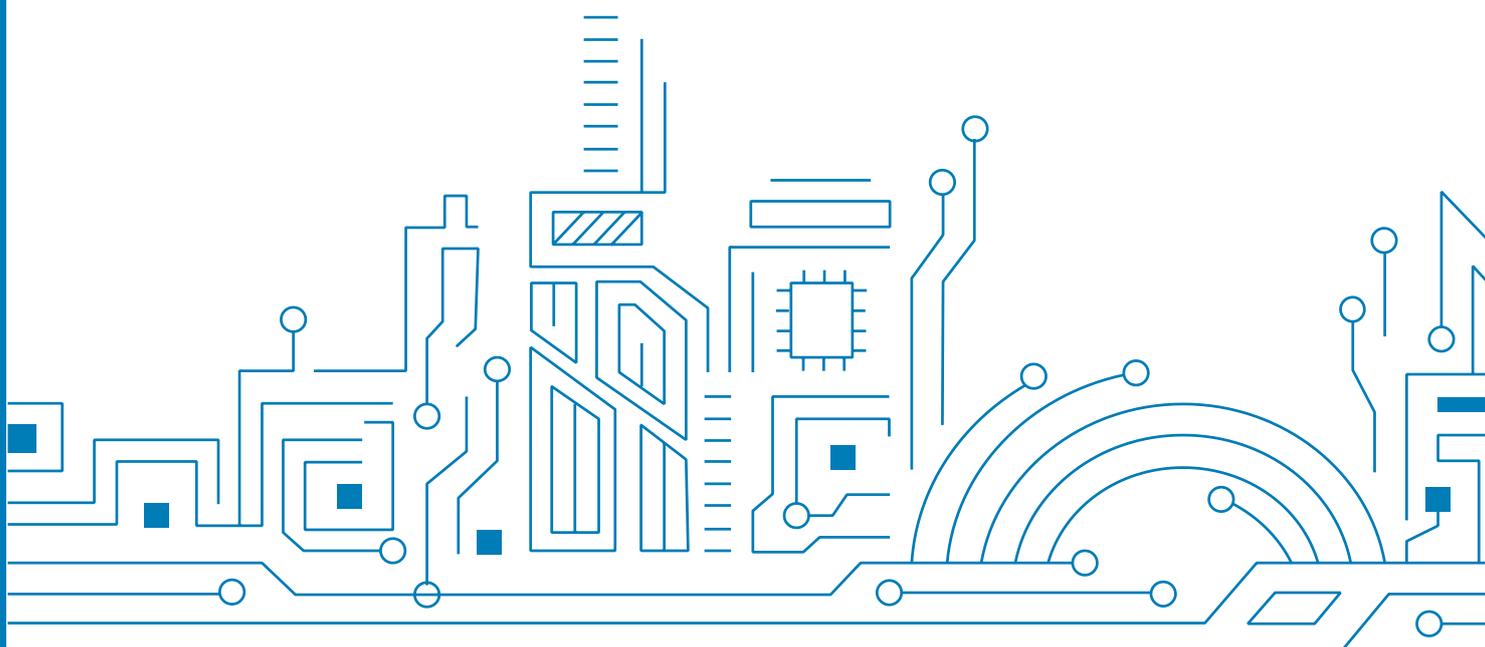


华大北斗  
ALLYSTAR

# GNSS Evaluation Kit

## Tiny-EVK

User Manual V1.0



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## 1 OVERVIEW

### 1.1 Introduction

The TINY-EVK is a simple, friendly demo kit to evaluate the ALLYSTAR GNSS modules. It integrates a Micro-USB interface to power the board and communicates with PC. Passive or active antennas can be used via the SMA connector.

### 1.2 System requirements

- PC with USB interface
- Operating system: Windows Vista onwards (x86 and x64 versions)
- Satrack, the software in PC from ALLYSTAR

### 1.3 Block diagram

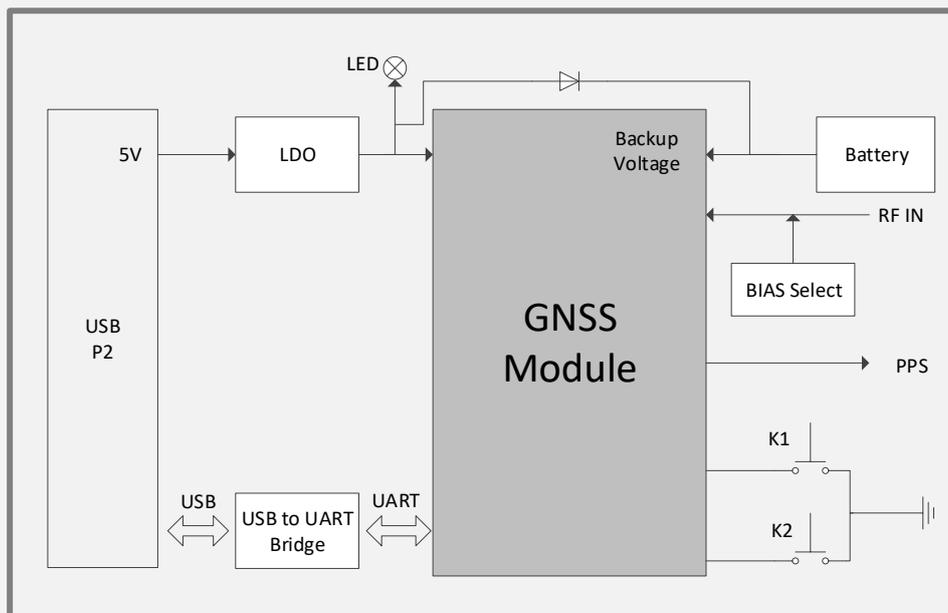


Figure 1 Block diagram

## 1.4 Evaluation kit photo

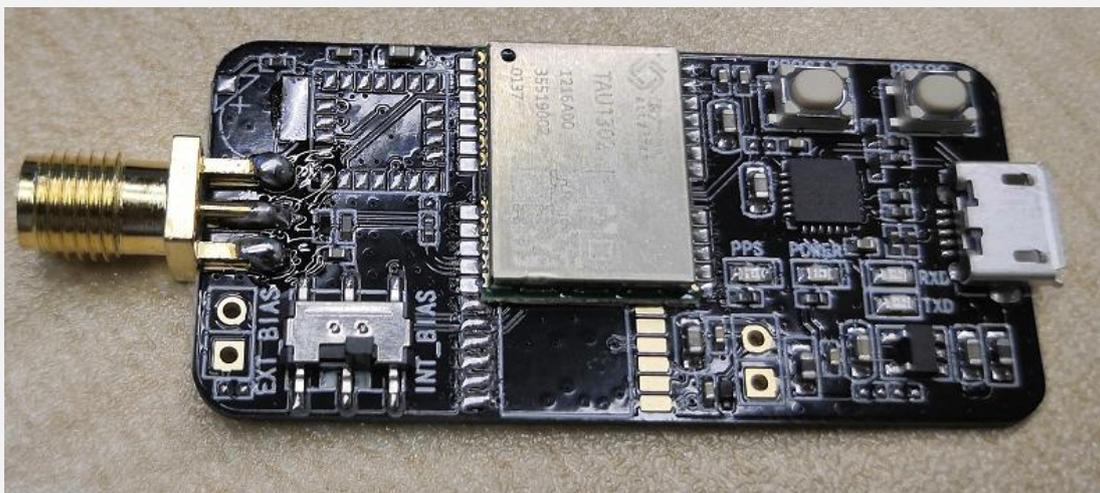


Figure 2 TINY-EVK photo

## 1.5 Specification

Table 1 TINY-EVK board specification

| Parameter                    | Specification   |
|------------------------------|-----------------|
| Interface                    | USB to UART x 1 |
| RF input                     | SMA female?     |
| Dimensions                   | 48mm x 23mm     |
| Power supply                 | 5V via USB      |
| Normal operating temperature | 0°C to +70°C    |

## 2 EVK DESCRIPTION

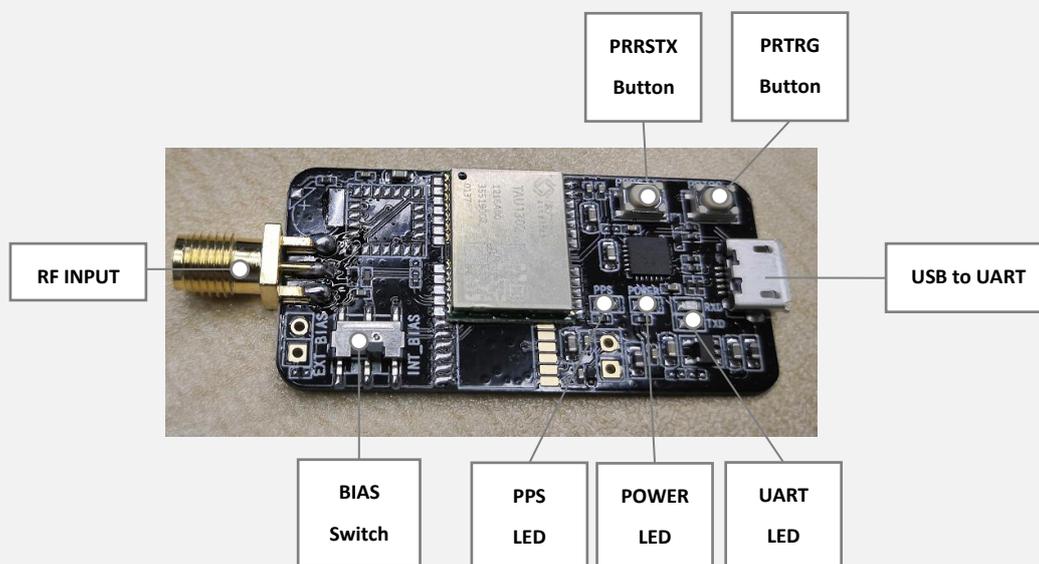


Figure 3 EVK overview

### 2.1 Antenna connector

An SMA female jack is available on the side panel (see Figure 3) of the evaluation unit for connecting an active or passive antenna. The EVK provides the power supply for Antenna power. Use the BIAS switch to select the power source. INT\_BIAS with recommended maximum output current 20 mA is powered by the module, and EXT\_BIAS with recommended maximum output current 50 mA is powered by the LDO.

### 2.2 Reset(PRRSTX) button

Press the reset button to generate a hardware reset to the module.

### 2.3 Boot(PRTRG) button

The boot button is used to set the module to enter BootROM command mode. In this mode the module executes only the minimal functionality, such as updating new firmware.

Follow these steps to enter BootROM command mode:

- Press and hold the **BOOT** button first, and then press **RESET** button. After that, release the **RESET** first, and then release the **BOOT** button.

### 2.4 PPS

The PPS LED indicates the positioning status. After the module gets the fixed position, it delivers PPS signal.

## 2.5 Power status

The power LED indicates the power status. When the module is powered on, the LED is on.

## 3 EVALUATION KIT SETUP

### 3.1 Preparation

To start using the Evaluation kit, please make the following prepared:

- Evaluation kit
- An USB cable
- GNSS antenna

### 3.2 Installing Satrack

Install the latest version of Satrack for Windows to the PC. Make sure that the software version is the latest one, and the software components will be included on the product package. Follow the on-screen description to finish the software installation.

### 3.3 Interface connections

For connecting the EVK to a PC, insert the EVK to the USB interface on the PC. The PC will install the USB driver automatically. Otherwise, the user needs to download the CP2102 driver.

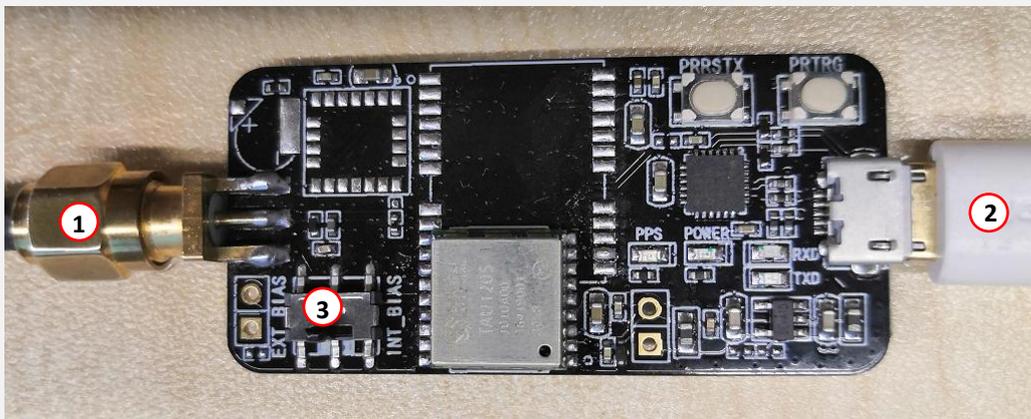


Figure 4 Interface connections

- 1) Connect a GNSS antenna to the EVK. Place the antenna in a location with good sky view.
- 2) Connect the EVK to the PC by an USB cable.
- 3) Select the BIAS for the active antenna.
- 4) Start the Satrack (GNSS evaluation software), and select the corresponding COM port and baud rate.

\* For more information, please refer to Satrack User Manual.

## 4 STARTUP WITH SATRACK

### 4.1 Starting Satrack

- 1) Connect the EVK with the antenna and PC. See Section 3.
- 2) Launch the Satrack application.
- 3) Select the corresponding COM port.
- 4) Set the baud rate if necessary by choosing “**Device settings**” on strip toolbar. If the port is selected and the baud rate is set correctly, Satrack program will show the received EVK output on the screen, signal strength, as well as satellite constellation.

\* For detailed introductions, please refer to Satrack User Manual.

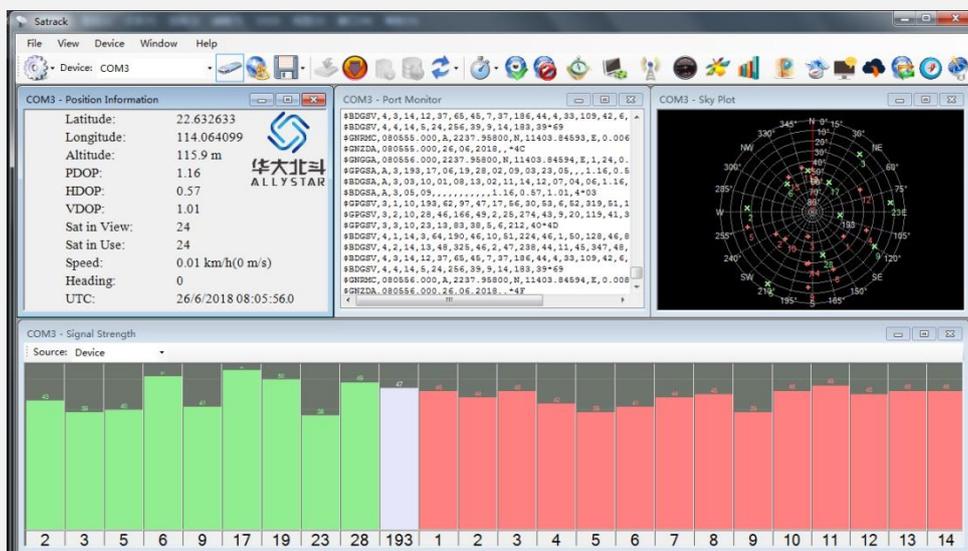


Figure 5 Satrack main menu

## 5 FIRMWARE UPDATING

### 5.1 Updating in user mode

- 1) Connect to the EVK through COM ports.
- 2) Select **"HD User Update"** from the tool bar, and the file choosing dialog will be shown.



Figure 6 HD user Update

- 3) Find the file to send and press **"Open"** to start sending the file and finish firmware updating.

### 5.2 Updating in Boot mode

- 1) Connect to the EVK through COM ports.
- 2) Use the PRRSTX and PRTRG buttons to set the module to enter Boot mode.
- 3) Disconnect the module first by clicking **"DisConnect"** from the tool bar and then reconnect the module again by clicking **"Connect"** from the tool bar. The module will enter the Boot mode.
- 4) Select **"HD BOOT Update"** from the tool bar.



Figure 7 HD boot update

- 5) Find the file to send and press **"Open"**.
- 6) Press **"Send"** to start sending the file and click **"Close"** to close the updating window after firmware updating finishes.
- 7) After firmware updating completed, press **RESET** button on the EVK to restart the module.

### 5.3 Firmware updating caution

DO NOT interrupt the file transfer, keep program running and make sure all cables are well connected when the file is transmitting.

## 6 REVISION HISTORY

| Revision | Date    | Author        | Status / Comments             |
|----------|---------|---------------|-------------------------------|
| V0.1     | 2019-06 | Yanping Zhang | Initial version               |
| V1.0     | 2019-06 | Yufan Tan     | Start version, first released |
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