

# RemotelD user's manual v1.1



## Specifications

Radio module:

Espressif ESP-C3 module

output power Bluetooth and WiFi 2.4GHz (ERP): + 20 dBm (100 mW)

Antenna:

2 . 33 dBi omni-directional antenna with SMA connector (included)

Firmware:

ArduRemotelD (<https://github.com/ArduPilot/ArduRemotelD>)

Supports upgrading firmware via the web interface ("OTA")

Long range: > 500m detection range (Estimated value, ground test of 180 meters)

Connectivity:

1x JST GH 4-pin CAN (DroneCAN) port

1x JST GH 6-pin TELEM (UART) port

Power:

+5V supplied from TELEM or CAN port

LED lights:

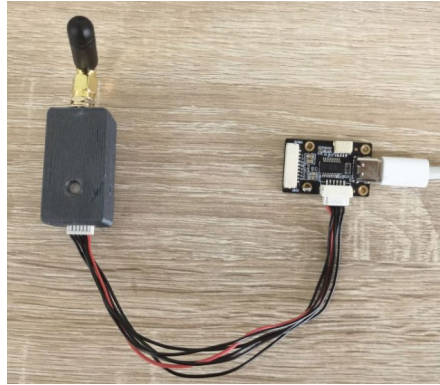
RGB status LED

Size: 38 x 26.5 x 11.5 mm (not include antenna )

Operating temperature: -40°C to +85°C

Weight: 27.5g

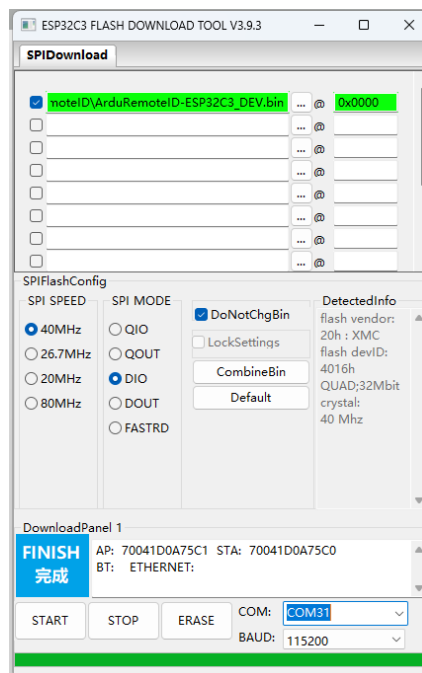
1, ESP32-C3 through serial port firing programming (when applicable to empty film)



- 1) Use the USB-UART board to connect to the REMOTEID UART port with a 6PIN GH wire
- 2) Open the flash\_download\_tool\_3.9.3.exe on the computer side
- 3) Hold down the download button to power on



- 4) After selecting firmware and string slogans, click START to start firing



1.OTA firmware upgrade method (ESP32-C3 can use this method)

Default the REMOTEID will act as a WiFi Access Point. Connect to the RID\_xxxxxxxxx WiFi network. The default password is ArduRemoteID

After connecting to this WiFi network, point your browser to <http://192.168.4.1>

At the bottom of the page you can upload and flash the new firmware.

Remarks:

(1) Important: download the *ArduRemoteID-ESP32C3\_DEV.bin* file from the latest release from this page <https://github.com/ArduPilot/ArduRemoteID/releases>

(2) Use this file for uploading the new firmware.

(3) Press the update button to update the firmware

(4) In case, the firmware update would fail, it will revert to using the factory installed firmware.

| System               |            |
|----------------------|------------|
| OperatorLocationType | TAKEOFF    |
| ClassificationType   | UNDECLARED |
| OperatorLatitude     | 0.00000000 |
| OperatorLongitude    | 0.00000000 |
| AreaCount            | 1          |
| AreaRadius           | 0          |
| AreaCeiling          | -1000.00   |
| AreaFloor            | -1000.00   |
| CategoryEU           | UNDECLARED |
| ClassEU              | UNDECLARED |
| OperatorAltitudeGeo  | -1000.00   |
| Timestamp            | 0          |

| Location        |                          |
|-----------------|--------------------------|
| Status          | REMOTE_ID_SYSTEM_FAILURE |
| Direction       | 361.00                   |
| SpeedHorizontal | 255.00                   |
| SpeedVertical   | 63.00                    |
| Latitude        | 0.00000000               |
| Longitude       | 0.00000000               |
| AltitudeBaro    | -1000.00                 |
| AltitudeGeo     | -1000.00                 |
| HeightType      | OVER_TAKEOFF             |
| Height          | -1000.00                 |
| HorizAccuracy   | UNKNOWN                  |
| VertAccuracy    | UNKNOWN                  |
| BaroAccuracy    | UNKNOWN                  |
| SpeedAccuracy   | UNKNOWN                  |
| TSAccuracy      | UNKNOWN                  |
| TimeStamp       | 0.00                     |

### Documentation

- [ArduPilot Project](#)
- [ArduRemoteID Project](#)
- [ArduPilot RemoteID Documentation](#)
- [OpenDroneID Website](#)

### Firmware Update

No file chosen

upload progress: 0%

## 2.Using the REMOTEID

The REMOTEID is controlled by the autopilot system. For normal operation, make sure the REMOTEID is powered on (status LED is red) and make sure the module can communicate with the autopilot system.

### Ardupilot

Ardupilot has support for Remote ID in version 4.x and newer. See this link for more information:

<https://ardupilot.org/dev/docs/opendroneid.html#opendroneid>

### PX4

Support for PX4 is pending. See this pull request (PR) for more information:

<https://github.com/PX4/PX4-Autopilot/pull/20036/>

### 2.1 Android app

You can use the free *OpenDroneID OSM* Android app to view the DroneBeacon Remote ID signals:

[https://play.google.com/store/apps/details?id=org.opendroneid.android\\_osm](https://play.google.com/store/apps/details?id=org.opendroneid.android_osm)

Note: only few Android smartphones support reception of Bluetooth Long Range and/or WLAN NaN signals. A list of supported smartphones is presented, in the link below.

<https://github.com/opendroneid/receiver-android/blob/master/supported-smartphones.md>

### 2.2 Open Drone ID

The ArduRemoteID firmware uses the Open Drone ID framework to broadcast Remote ID signals.

The framework can be found on this page:

<https://www.opendroneid.org/>

### 2.3 Connect the flight control through the RemoteID serial port

In this section, the RemoteID is connected to the flight controller using the MAVLink/TELEM interface.

Open MissionPlanner and make sure you run the latest stable version (1.3.77 or higher).

Setup Set the following parameters in MissionPlanner (Config --> Full Parameter List) :

DID\_ENABLE 1

DID\_OPTIONS 1

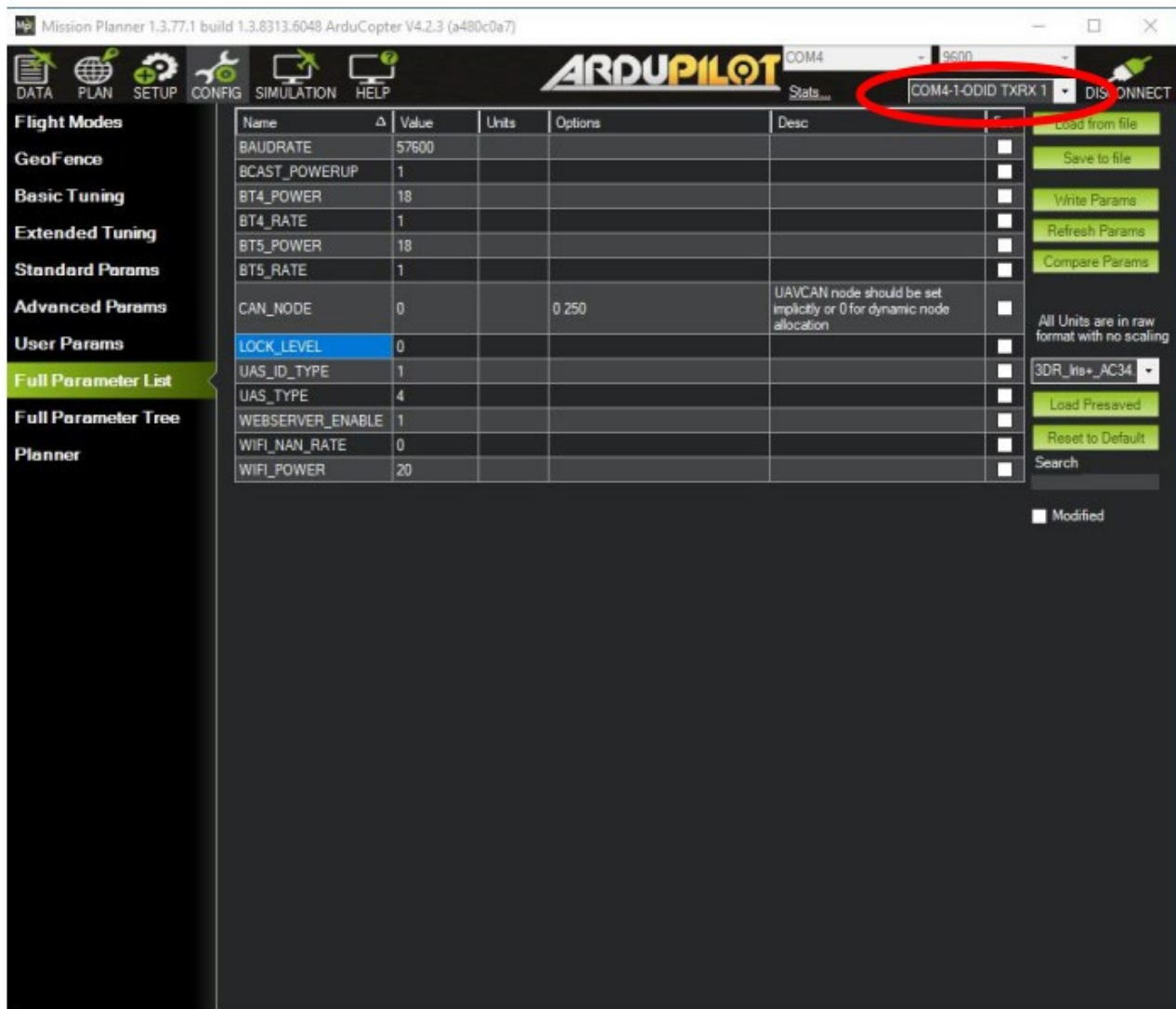
DID\_MAVPORT X (where x is the serial port attached to OpenDroneID module) DID\_CANDRIVER 0

AHRS\_EKF\_TYPE 3

GPS\_TYPE 1

GPS\_TYPE2 0

Configuration Below the COM port settings, select the interface ending with -ODID TXRX In MissionPlanner go to Config --> Full Parameter List to see the list of Remote ID parameters.



## 2.4 Connect the flight control through the RemoteID CAN port

In this section, the RemoteID is connected to the flight controller using the DroneCAN/CAN interface. Open MissionPlanner and make sure you run the latest stable version (1.3.77 or higher).

Setup Set the following parameters in MissionPlanner (Config --> Full Parameter List) :

DID\_ENABLE 1

DID\_OPTIONS 1

DID\_MAVPORT -1

DID\_CANDRIVER 1 (where 1 is the CAN 1 interface of the flight controller )

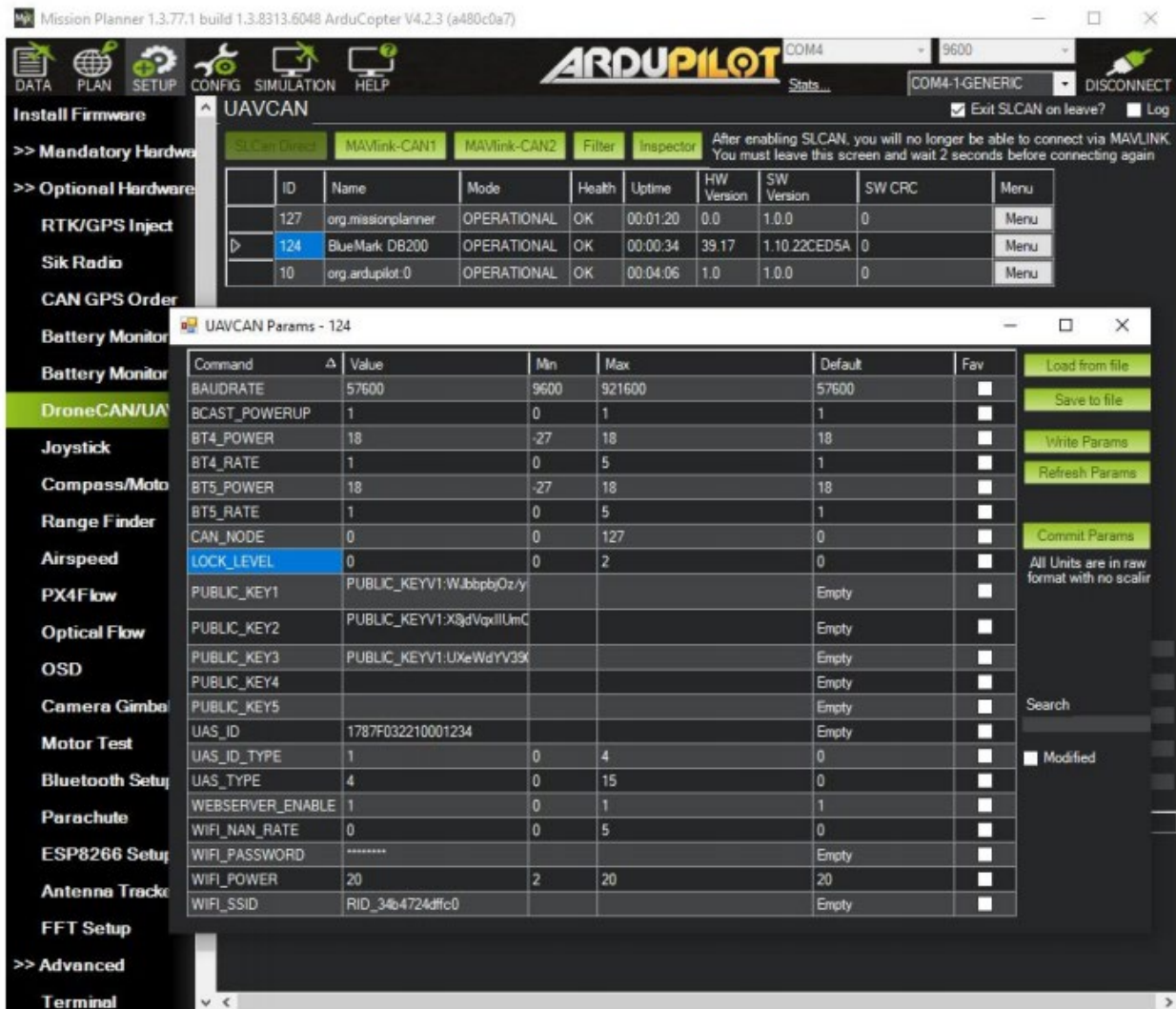
AHRS\_EKF\_TYPE 3

GPS\_TYPE 1

GPS\_TYPE2 0

Configuration In MissionPlanner go to Setup --> Optional Hardware --> DroneCAN/UAVCAN. Click on the top button called "MAVLink CAN1".

If the module is connected to CAN2, the click on the button called "MAVLink CAN2". After a few seconds, the list of connected CAN devices should be listed.



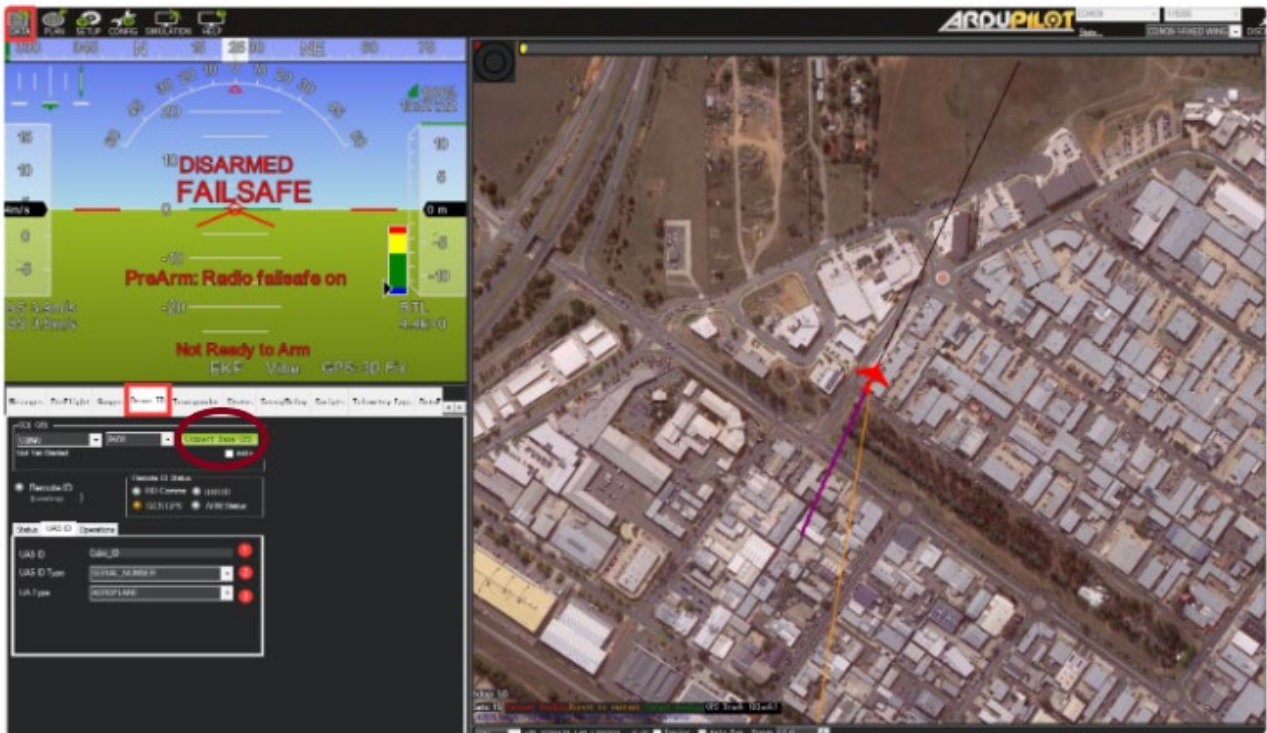
## 2.5 Mobile phone search for REMOTEID hotspot SSID

The default SSID is RID\_xxxxxxx where xxxxxxx is the factory WiFi MAC address of the board. The default password is ArduRemoteID.

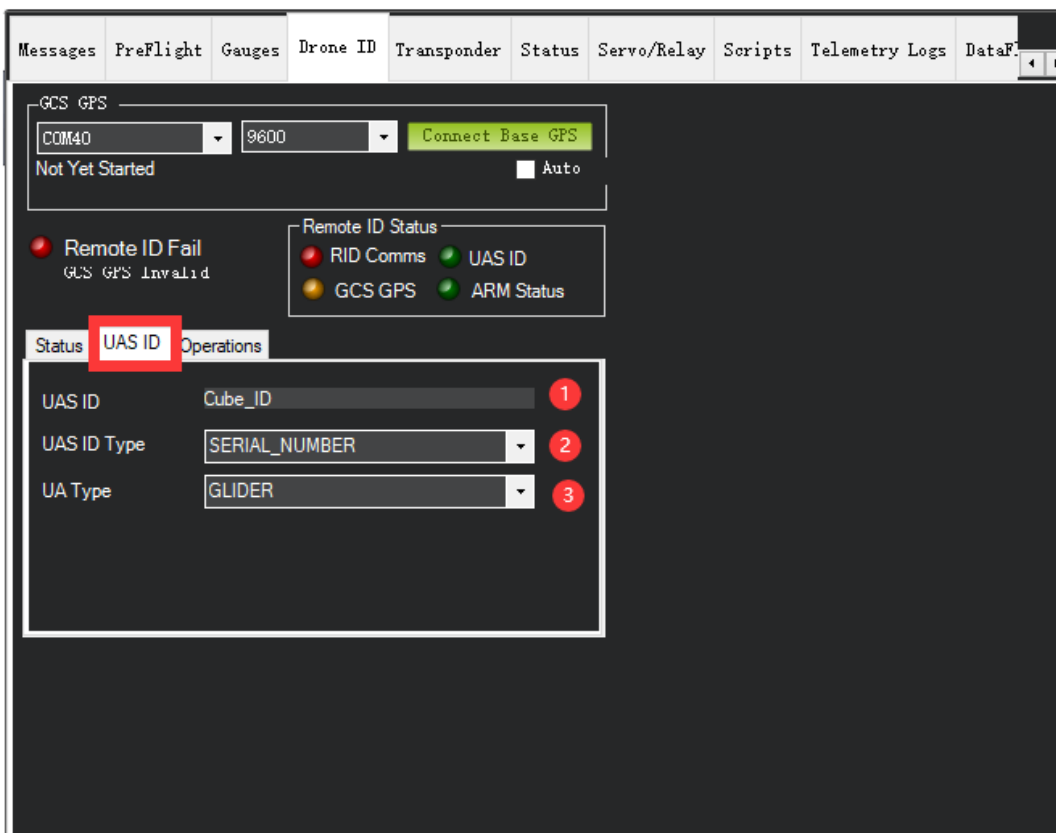
## 2.6 MissionPlanner setting

Connect a GPS to the MissionPlanner at the ground end to provide the Operation Location

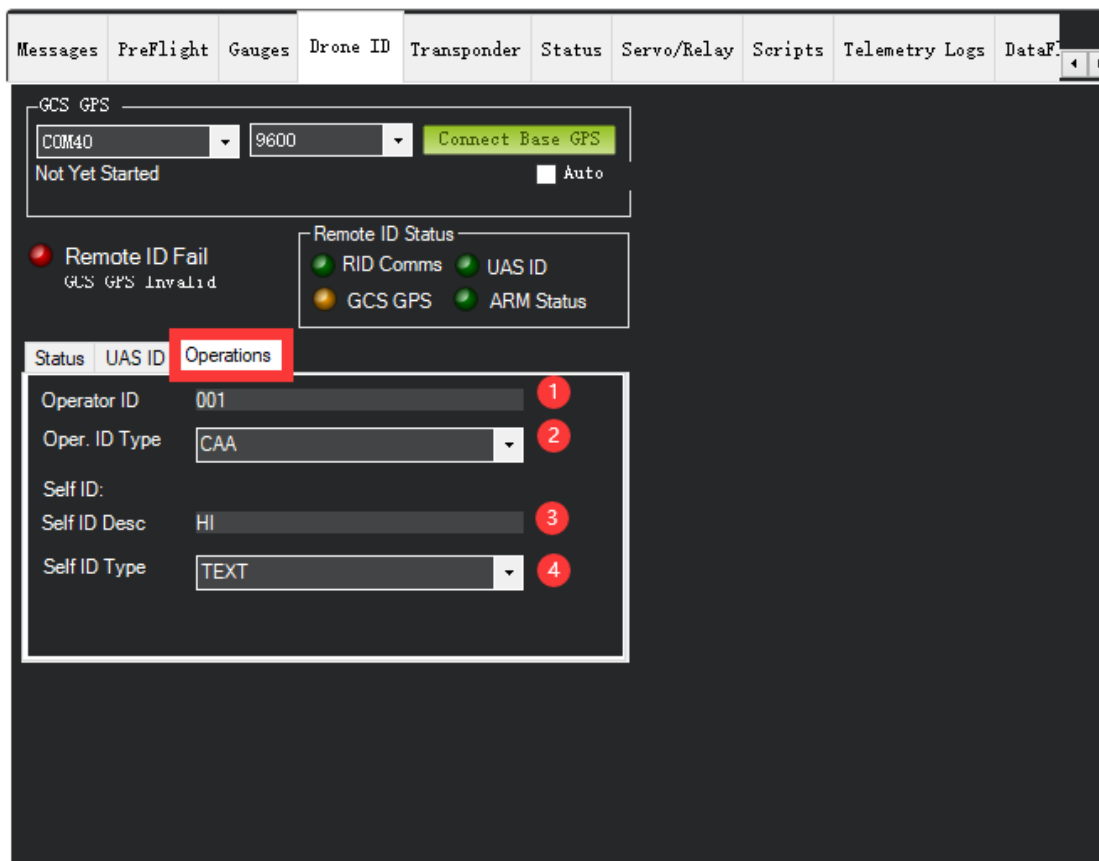




Go to MissionPlanner homepage select **Drone ID** to set (1)UAS ID\* (2)UAD ID Type and (3)UA Type



Go to **Operation** to set (1)Operator ID , (2)Oper ID Type , (3)Self ID DESC and (4)Self ID Type



2.8 After the above steps are set, wait for the status LED on the REMOTEID to turn green, then the REMOTEID starts sending information about the aircraft and the operator. You can see both positions on the phone APP.

#### FCC STATEMENT :

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- (1) This device may not cause harmful interference, and
- (2) This device must accept any interference received, including interference that may cause undesired operation.

**Warning:** Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

Reorient or relocate the receiving antenna.



Increase the separation between the equipment and receiver.

Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

Consult the dealer or an experienced radio/TV technician for help.

**FCC Radiation Exposure Statement:**

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.