Holybro C3 Remote ID Module User Manual

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Contents

Specifications

Radio module:

Espress if 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:

Ardu Remote ID (**https://github.com/ArduPilot/ArduRemoteID**)
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 (Drone CAN) 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)

Connection

1. Use the USB-UART board to connect to the REMOTE ID 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

OTA firmware upgrade method ESP32-C3 can use this method

Default the REMOTEID will act as a WiFi Access Point. Connect to the RID _xxxxxxxxxx WiFi network. The default password is Ardu Remote ID
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 Ardu Remote ID-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.

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.

Ard upilot
Ard upilot 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/

Android app
You can use the free OpenDroneID OSM Android app to view the Drone Beacon Remote ID signals:
https://play.google.com/store/apps/details?id=org.opendroneid.android_osm

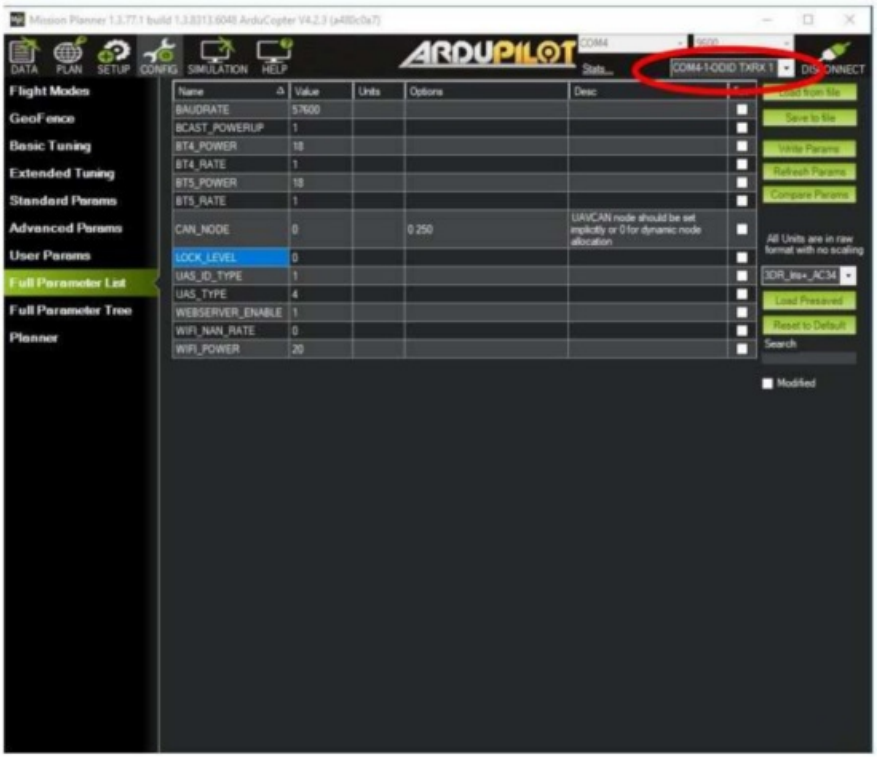
Note: only few Android smartphones support reception of Bluetooth Long Range and/or WLAN NaN signals. A list of supported smartphones is presented, in the link below.
https://github.com/opendroneid/receiver-android/blob/master/supported-smartphones.md

Open Drone ID

The Ardu Remote ID firmware uses the Open Drone ID framework to broadcast Remote ID signals.
The framework can be found on this page: https://www.opendroneid.org/

Connect the flight control through the Remote ID serial port

In this section, the Remote ID is connected to the flight controller using the MAV Link/TELEM interface.
Open Mission Planner and make sure you run the latest stable version (1.3.77 or higher).
Setup Set the following parameters in Mission Planner (Config –> Full Parameter List) :
DID_ENABLE 1
DID_OPTIONS 1
DID_MAVPORT X (where x is the serial port attached to Open Drone ID 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 Mission Planner go to Config –> Full Parameter List to see the list of Remote ID parameters.



Connect the flight control through the RemoteID CAN port

In this section, the Remote ID is connected to the flight controller using the Drone CAN/CAN interface.
Open Mission Planner and make sure you run the latest stable version (1.3.77 or higher).
Setup Set the following parameters in Mission Planner (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 Mission Planner go to Setup –> Optional Hardware –> Drone CAN/UAVCAN. Click on the top button called “MAV Link CAN1”.
If the module is connected to CAN2, the click on the button called “MAV Link CAN2”. After a few seconds, the list of connected CAN devices should be listed.

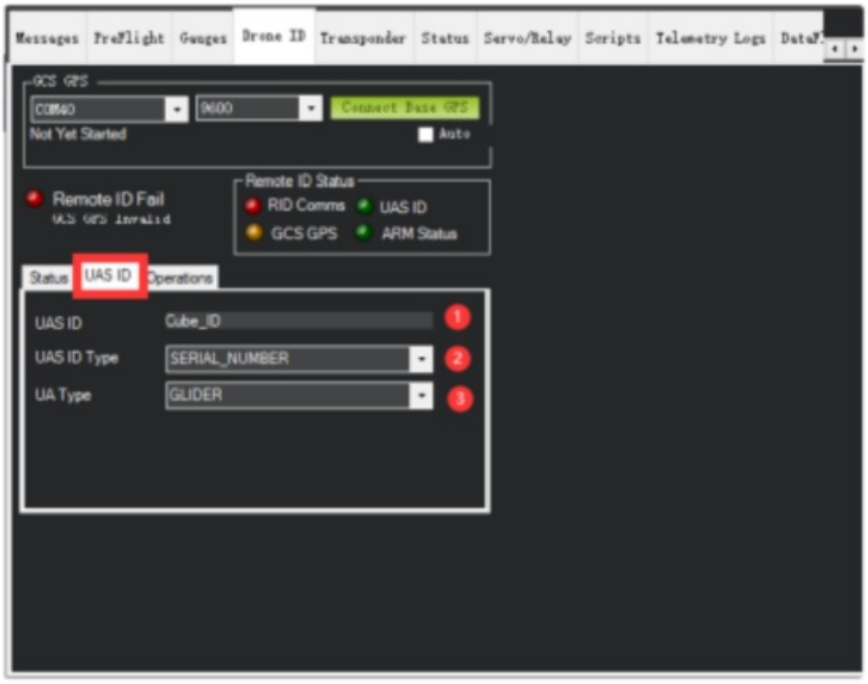
Mobile phone search for REMOTEID hotspot SSID

The default SSID is RID _xxxxxxxx where xxxxxxxx is the factory WiFi MAC address of the board. The default password is Ardu Remote ID.

Mission Planner setting

Connect a GPS to the Mission Planner at the ground end to provide the Operation Location

Go to Mission Planner 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

After the above steps are set, wait for the status LED on the REMOTEID to turn green, then the REMOTE ID 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.

Documents / Resources

	Holybro C3 Remote ID Module [pdf] User Manual C3, C3 Remote ID Module, Remote ID Module, ID Module, Module

References

- OpenDroneID — Dev documentation
- GitHub - ArduPilot/ArduRemoteID: RemoteID support using OpenDroneID
- Releases · ArduPilot/ArduRemoteID · GitHub
- receiver-android/supported-smartphones.md at master · opendroneid/receiver-android · GitHub
- (Remote ID) Fill out and publish open drone id messages, open drone ID preflight check by ThomasDebrunner · Pull Request #20036 · PX4/PX4-Autopilot · GitHub
- User Manual