

# Mav GoPro Remote Controller User Manual

Rev v1.0

24/05/2022

## Contents

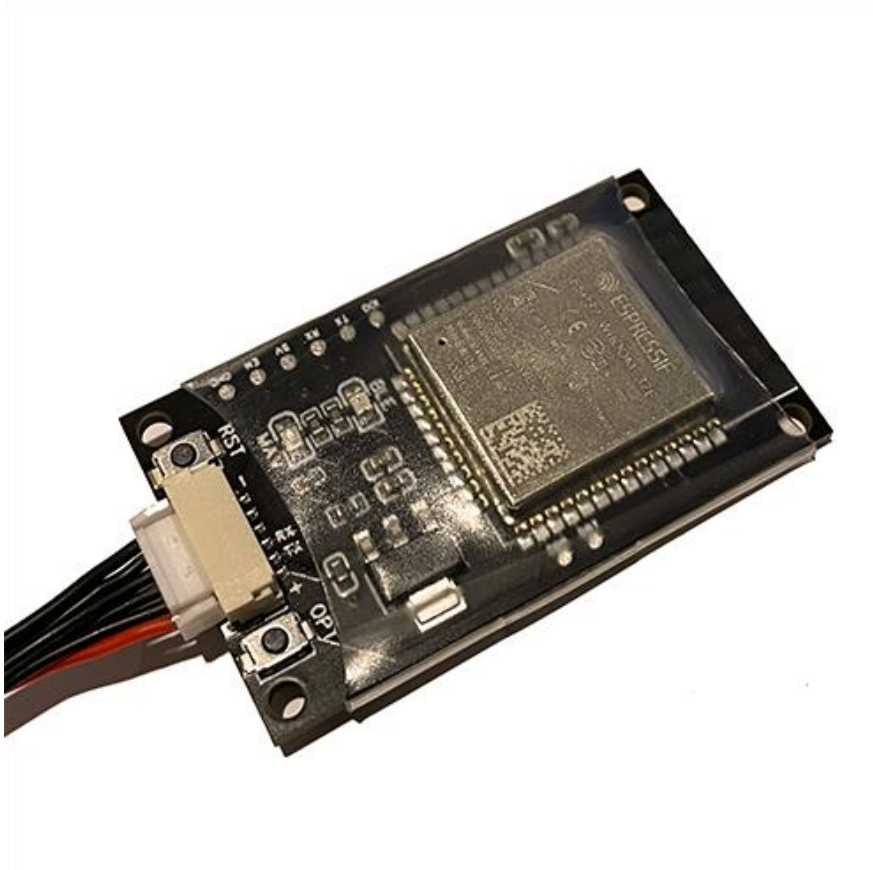
Overview .....	3
Installation Instructions .....	4
Instructions for use.....	4
Mission Planner Plugin .....	4
Web Interface.....	5
Firmware .....	5
Current Firmware version: v1.0 .....	5
Firmware Update.....	5
Troubleshooting .....	6
'I am unable to control my GoPro! Please Help!' .....	6
FAQ.....	6
Advanced.....	7
Configuration.....	7
Web UI GoPro Control .....	7
Controlling a specific GoPro.....	7
MAVLink Connection Details.....	7
Pin diagram:.....	8

## Overview

The *Mav GoPro Remote Controller* (MGRC) plugs into a flight controllers MAVLink serial port, allowing you to control your GoPro camera using MAVLink commands via ground station or RC control. Note: It does NOT enable any sort of video feed from GoPro, it just does command/control.

The MGRC uses the OpenGoPro BLE protocol to send commands to GoPro, enabling easy and reliable use, and uses the MAVLink protocol to speak to the flight controller (ArduPilot or PX4).

Compatible with the GoPro HERO10 Black, HERO9 Black, Max, HERO8 Black, HERO7 Black, Fusion, HERO6 Black and HERO5 Black.



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## Installation Instructions

Installing the *MGRC* is easy, just follow these steps:

1. Change your flight controllers' parameters using a GCS such as Mission Planner, set the following parameters:

Parameter	Value
<b>SERIALX_PROTOCOL</b>	1
<b>SERIALX_BAUD</b>	57

Where X is the serial port you are plugging the MGRC into.

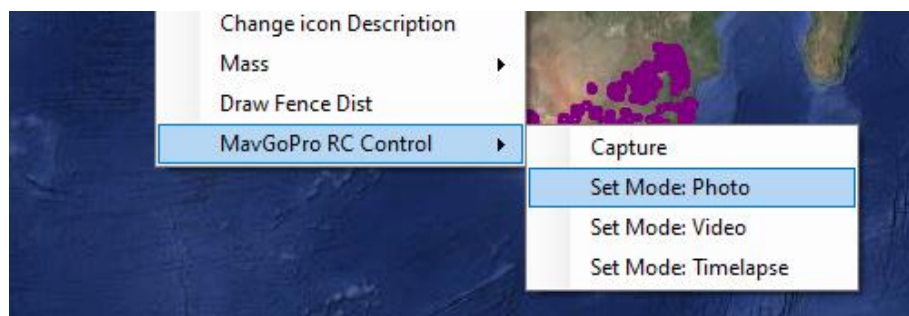
2. Turn off your flight controller and plug the *Mav GoPro Remote Controller* into the desired serial port using the included cable.
3. Turn on your flight controller and GoPro.
4. On your GoPro go to Preferences -> Connections -> WiFi Band and ensure it is set to 2.4GHz.
5. On your GoPro go to Preferences -> Connections -> Connect Device and select GoPro App'.
6. Pairing will begin and it will pick up the *MGRC* automatically. When pairing, the red LED will flash fast (If not flashing fast/paired within 20 seconds, press the *MGRC* reset button).
7. You are done! The red blinking light will turn solid when it has successfully connected to the camera. You can now control the shutter (take video, or start/stop recording) via a Trigger Camera action in Mission Planner.

## Instructions for use

Once the above installation steps are followed, for using the device in the future, simply turn on your flight controller/drone with the *MGRC* connected! It will automatically reconnect to your GoPro if in range (may need to be switched on manually), indicated by the solid red led on the MGRC. If it does not go solid after a minute or two, you may need to restart GoPro or restart the WiFi connection by tapping the 'RST' button.

## Mission Planner Plugin

A plugin for Mission Planner program is available for download [here](#). This allows the user to easily trigger the shutter, and change between Photo/Video/Timelapse modes. You can install this by placing the .cs file downloaded above into the plugins folder (usually located at C:\Program Files (x86)\Mission Planner\plugins\) and restarting mission planner. To use the plugin, right click the map and hover over the 'MavGoPro RC Control' button.



## Web Interface

The *MGRC* provides a web interface where you can check the MAVLink status, as well as GoPro information such as its current mode and battery status.

This interface is activated by tapping the 'OPT' button on the *MGRC*. A WiFi network will be started called 'MAV-GOPRO-RC'. Connect using your smartphone or PC, and navigate to <http://10.71.79.1/info>

**SSID:** MAV-GOPRO-RC

**Password:** MavlinkGoProRC

## Firmware

The *MGRC* firmware is updatable via a web upload. Only update packages provided by us can be installed, and will be available via the <https://store.sidepilot.net> website.

**Current Firmware version:** v1.0

### Firmware Update

1. First download the firmware update .bin file from the store.
2. Turn off your GoPro and remove the battery (to avoid it automatically turning on again).
3. Connect your phone/computer to the 'MAV-GOPRO-RC-BLE' WiFi network (enabled by tapping the 'OPT' button).
4. Navigate to <http://10.71.79.1/update>
5. Tap on 'Browse' and select the .bin firmware file.
6. Tap 'Update' and wait. The Green and Red LED's will flash while updating. The update process usually takes 20-30 seconds and the *MGRC* will automatically reboot when completed. The Web interface may not update upon reboot.
7. Verify the installation was successful by navigating to <http://10.71.79.1/info> and check the revision number.

## Troubleshooting

### 'I am unable to control my GoPro! Please Help!'

- If the RED (BLE) LED is flashing slowly, it is not connected to GoPro. Steps to resolve in order are:
  1. Restart GoPro
  2. Turn off GoPro, remove battery and wait 10 seconds. Reinsert and turn on.
  3. Re-pair GoPro and *MGRC*. Follow the installation instructions for pairing.
  4. Reset GoPro Connections in Preferences -> Connections -> Reset Connections.
  5. Contact [tom@sidepilot.net](mailto:tom@sidepilot.net)
- If the RED (BLE) LED flashes quickly but never turns solid, ensure the GoPro WiFi is set to 2.4GHz and re-pair the GoPro and *MGRC*.
- If the RED (BLE) LED is bright and steady (not flashing), but the GREEN (MAV) LED is not flashing at all, then there is no communication between your drone and *MGRC*. Check that the flight controller parameters are set as per the installation instructions. Flight controller may need to be restarted after changing parameters.
- RED (BLE) LED is stable, GREEN (MAV) LED is flashing, but I still cannot control my GoPro at all! In this case, please contact [tom@sidepilot.net](mailto:tom@sidepilot.net) with you GoPro model including its firmware version and Flight controller firmware version. Ideally also a video showing this behaviour.

## FAQ

Just some of the most common questions asked:

Q: What is the blinking green (MAV) LED underneath?

A: This is the MAVLink connection indicator of the *MGRC* and lights up when a MAVLink data packet is recieved. If it is not blinking 'randomly', and you are unable to control your GoPro, you should double check your parameter settings.

Q: I want X feature/Why doesn't this do X??

A: All feedback and improvement suggestions are welcome! Please contact [tom@sidepilot.net](mailto:tom@sidepilot.net), we are happy to hear from you!

## Advanced

### Configuration

The MAVLink System and Component IDs can be manually changed by enabling the web interface and navigating to <http://10.71.79.1/config>

### Web UI GoPro Control

GoPro commands are able to be sent directly from the web UI, by navigating to <http://10.71.79.1/control>

### Controlling a specific GoPro

Some users may have multiple GoPro's, which may cause the *MGRC* to not reliably connect to the desired GoPro, due to how *MGRC* will search and connect to the first available GoPro. It is possible to specify the only GoPro to connect to by connecting to the 'MAV-GOPRO-RC-BLE' WiFi network (Tap the 'OPT' button to enable this), and navigate to <http://10.71.79.1/pair> and entering 'GoPro XXXX' where XXXX is the last four digits of your GoPro serial number. This can be found easily by pairing the *MGRC* to the GoPro and going to <http://10.71.79.1/info> and seeing the GoPro Name section. If unchanged, it is also the last four digits of the GoPro WiFi network.

### MAVLink Connection Details

Baud Rate = 57600

Protocol = 1

System ID = 1

Component ID = MAV\_COMP\_ID\_CAMERA (#100)

Mav Type = MAV\_TYPE\_CAMERA

Autopilot type = MAV\_AUTOPILOT\_INVALID

#### Output:

MAVLINK\_MSG\_HEARTBEAT – 1HZ

MAVLINK\_MSG\_GOPRO\_HEARTBEAT – 1HZ

#### Input:

COMMAND\_LONG (#76)

- ➔ COMMAND = MAV\_CMD\_DO\_DIGICAM\_CONTROL (203)
  - ➔ TRIGGER SHUTTER
- ➔ COMMAND = MAV\_CMD\_DO\_DIGICAM\_CONFIGURE (202)
  - ➔ MODE

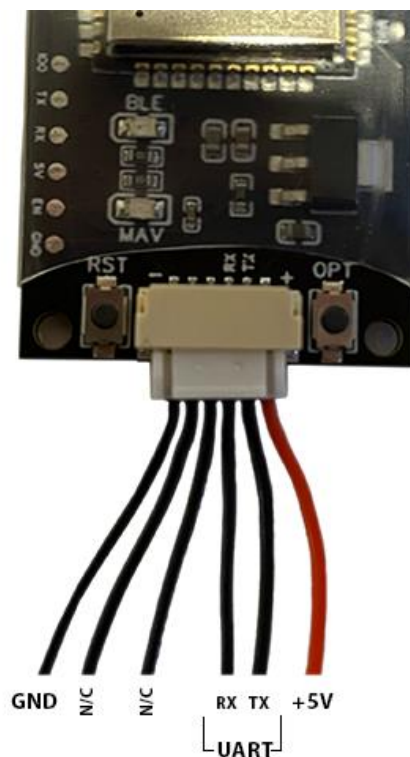
(0 = Photo, 1 = Video, 2 = Timelapse)

MAVLINK\_MSG\_ID\_GOPRO\_SET\_REQUEST (#218)

- CMD\_ID == GOPRO\_COMMAND\_CAPTURE\_MODE (1)
  - VALUE[0] == GOPRO\_CAPTURE\_MODE\_XXX  
(XXX = VIDEO/PHOTO/TIME\_LAPSE)
- CMD\_ID == GOPRO\_COMMAND\_SHUTTER (2)
  - VALUE[0] == TRIGGER SHUTTER (1 = START, 0 = STOP)

### Pin diagram:

The MGRC wiring header is a 6-pin JST-GH connector. The included cable (either 6-pin JST-GH to JST-GH or 6-pin JST-GH to DF13) can be modified if other pin connections are required. The layout of the cable is as follows (also labelled on the MGRC itself for reference):





Any other questions, please ask on the SidePilot  
Facebook page, or send via email to

[tom@sidepilot.net](mailto:tom@sidepilot.net)