USER MANUAL:
Wireless RC Link
For GoPro Control

By: NES Custom Design
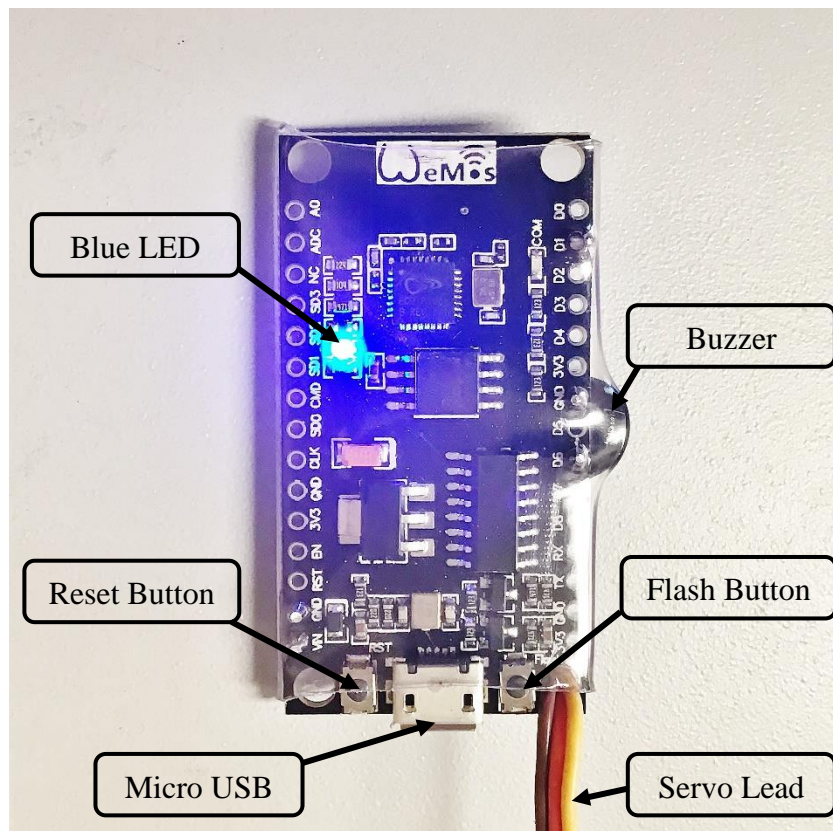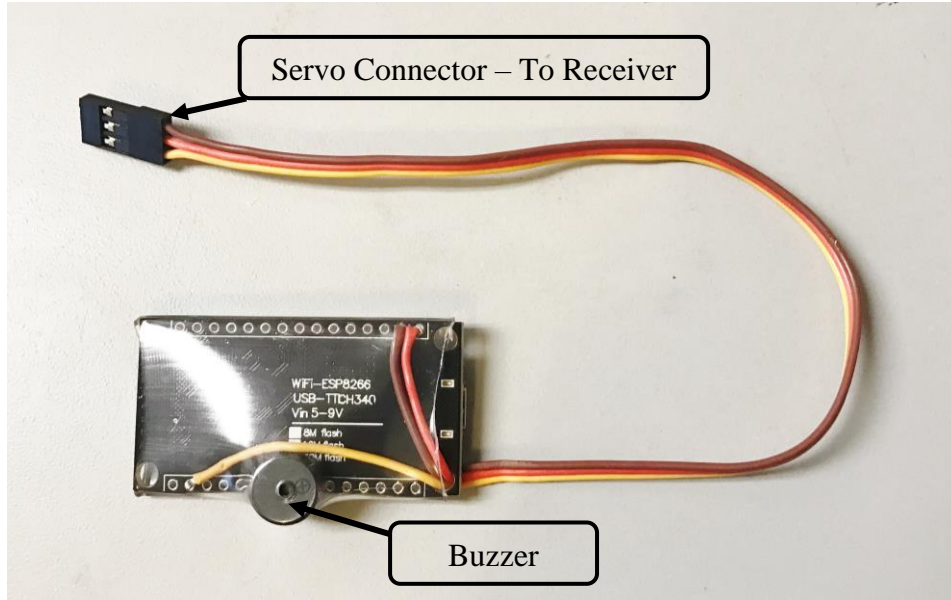
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Getting Started

This is a Remote for GoPro cameras that allows them to be easily controlled from your RC Transmitter to take pictures and videos all from a single channel. It is easy to setup and configure to your specific camera and can easily be reconfigured to another camera if need be.

Pictures

Servo Connector – To Receiver

Buzzer

Blue LED

Buzzer

Reset Button

Flash Button

Micro USB

Servo Lead

How it Works

- This remote plugs into an RC receiver and uses a single channel and switch to trigger both pictures and videos.
- The remote connects to the WiFi signal from the GoPro and sends commands wirelessly.
- Programming the remote with your individual GoPro's WiFi settings (same used to connect with GoPro App) is very simple (see Configuration and Setup).
- Changing the configuration of the remote can be done at any time and is fast and convenient. The remote can be configured to utilize either a 2 or 3 position switch.

Basic Operation

2 Position Switch (lo-hi)

1. **Take Picture:** Flipping the switch (**hi–lo** or **lo–hi**) triggers a picture.
2. **Starting Video:** If the switch is flipped twice quickly (**hi–lo–hi** or **lo-hi-lo**), it starts a video recording.
3. **Stopping Video:** Flipping the switch once again (**hi-lo** or **lo-hi**), ends the recording.

3 Position Switch (lo-mid-hi)

1. **Take Picture:** Flipping the switch between **lo** and **mid (lo-mid** or **mid-lo**) positions triggers a picture.
2. **Starting Video:** If the switch is flipped into the **hi** position, a video is started.
3. **Stopping Video:** Flipping the switch from the **hi** position into either the **mid** or **lo** positions stops the video.

Features:

- Includes 1 GoPro RC Remote with servo connector
- User Manual
- Status LED and Buzzer
- Wireless Control
- PWM Input – Plug and Play
- User Configuration Saved to Memory during Power Off
- Wide Input Voltage Range (4-12V)
- Simple Configuration and Setup – See Video
- Free Firmware Updates
- Low Power Consumption: 80mA @ 5VDC
- Line of Sight Range (Between Remote and GoPro Camera, tested with Hero 3+, Hero Session, and Hero+ LCD): 20 yds
- Has little to no effect on transmitter/receiver range.
  - Note: Range was tested with and without the GoPro Remote in operation next to the receiver and no distinguishable difference could be noted in the resulting range of the transmitter/receiver connection. 2.4Ghz DSMX Protocol was used for testing purposes.

Technical Specifications

- Input: 4-12V DC
- Signal Input: PWM
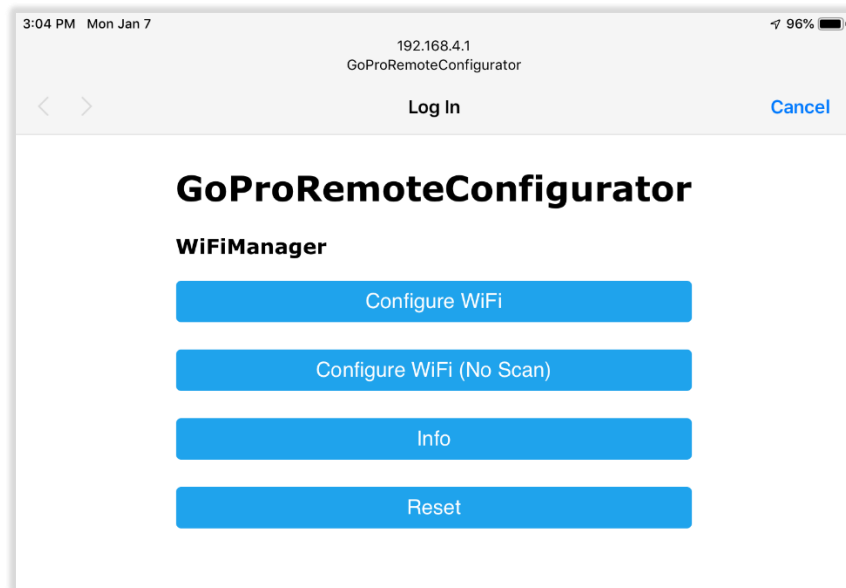- Power Consumption: 80 mA @ 5 VDC

Compatible Cameras
- GoPro Hero 3, 3+
- GoPro Hero 4, Hero 4 Session , Hero Session
- GoPro Hero+, Hero+ LCD

Note: Future compatibility with Hero 5, 6, & 7 is currently being developed. Future updates will be available via a free firmware update.

Configuration and Setup

Instructions

1. Required: Turn on your GoPro's WiFi (App)
2. Required: Click the reset button on the remote twice within 3 seconds to enter configuration mode. See Pictures for location of Reset Button.
   a. The Blue LED should turn solid indicating configuration mode, if not, press the reset button until the LED turns solid.
3. Required: Connect to the WiFi Network on any device: **GoProRemoteConfiguration**
4. Required: Go to the internet browser on your device and you should be redirected to the configuration page. If not, type **192.168.4.1** in the address bar.
5. Required: Click on **Configure WiFi**. See image below.

   a.

6. Required: First, select the WiFi name (SSID) of your GoPro and enter the corresponding WiFi password. The GoPro WiFi credentials must be reentered every time you change any configuration details.
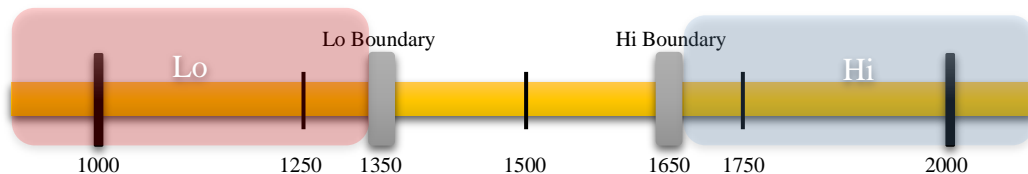   a. The following configuration options have prompts in the input boxes when they are blank.

b.

c. **Pairing –** If you have never set up your GoPro with an App, you will have to follow the instructions included with your GoPro initiate the GoPro WiFi in App mode. Some GoPro's require pairing with the device being connected to the GoPro. If prompted with a PIN on the GoPro, please enter this in the Pairing field on the configuration page. This only needs to be entered the first time the GoPro is paired with the remote.

7. Required: Determine the model number of your GoPro using the chart below and enter in the first input box.

8. Specify the PWM (pulse in microseconds) for the boundaries of the switch positions. These two values can be used to define both a 2 position and 3 position switch configuration. The standard range of an RC channel is from 1000 to 2000 microseconds.

a. 2 Position Switch

b. 3 Position Switch

9. Required: Enter **2** or **3** to specify the number of positions your switch has and the resulting mode of operation. For details see Basic Operation.
10. Enter **ON** or **OFF** to turn the Buzzer Status on or off. See Buzzer Indicator for more details.
11. Enter **ON** or **OFF** to turn the LED Status on or off. See LED Indicator for more details.
12. Changing the WiFi SSID and Password is supported for all cameras *except the GoPro Hero 3 and 3+.* Enter current credentials at the top of the page along with BOTH the new SSID and Password in the boxes at the bottom.
    a.   Note: SSID and Password must be 8 or more characters in length.
13. Required: Press **Save** to send the configuration values to the Remote and connect to the GoPro. If it does not connect to the GoPro within 15 seconds, refresh the webpage. For connection status see Status LED and Buzzer Tones.

Configuration Options and Default Values

Model Number Chart

Camera	Model Number to Enter
Hero 3 Black	3
Hero 3 Silver	3
Hero 3 White	3
Hero 3+ Silver	3
Hero 3+ Black	3
Hero+	0
Hero+ LCD	0
Hero 4 Black	4
Hero 4 Silver	4
Hero 4 Session	4
Hero Session	4

GoProHero+   🔒100%

SSID

password

Gopro Model NUMBER ONLY

Switch Type (2 or 3 Position)

Low Threshold (800-1500)

High Threshold (1500-2200)

Buzzer? Enter: ON / OFF

LED Indicator? Enter: ON / OFF

Enter PIN for WiFi Pairing

Enter New GoPro WiFi SSID
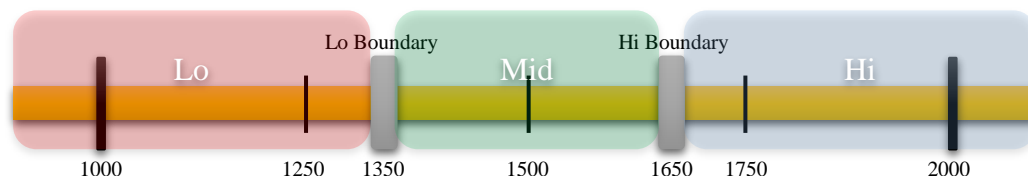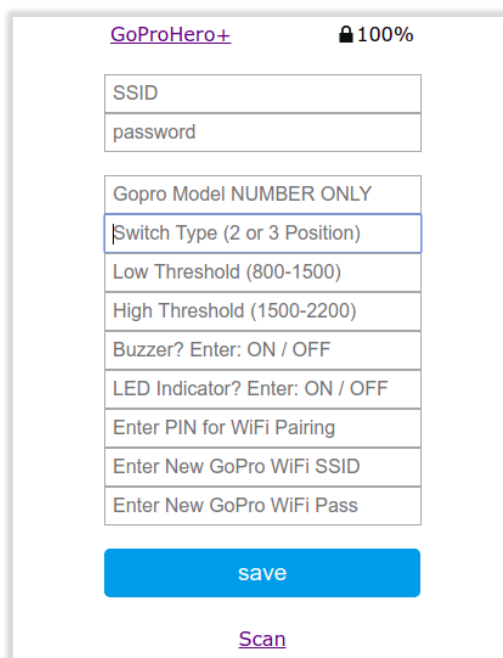
Enter New GoPro WiFi Pass

save

Scan

Note: Future compatibility with Hero 5, 6, & 7 is currently being developed. Future updates will be available via free firmware update.

1. GoPro WiFi SSID (App) -- Default: N/A
2. GoPro WiFi Password (App) -------------------------------- Default: N/A
3. GoPro Model # -- Default: 4
4. PWM (µs) above which a high signal is triggered --------- Default: **1650**
5. PWM (µs) below which a low signal is triggered ---------- Default: **1350**
6. Switch type: **3** or **4** position ----------------------------------- Default: **3**
7. Status Buzzer: **ON** or **OFF** ----------------------------------- Default: **ON**
8. Status LED: **ON** or **OFF** -- Default: **ON**
9. Pin for WiFi Pairing: **XXXX** ---------------------------------- Default: N/A
10. New WiFi SSID -- Default: N/A
11. New WiFi Password -- Default: N/A

Status LED and Buzzer Tones

LED Indicator

LED Indicator Can be Turned Off During Configuration.

- **LED Off:** Remote Disconnected from GoPro WiFi and Trying to Reconnect.
- **LED On Solid:** Remote in Configuration Mode
- **LED Breathing (Fading On and Off):** Remote Connected to GoPro WiFi and Ready to Use.
- **LED Blinking On and OFF:** GoPro is Recording Video.

Buzzer Indicator

Buzzing Indicator Can be Turned Off During Configuration.

- **WiFi Connected Melody:**...
   - Plays as soon as WiFi becomes Connected.

- **WiFi Disconnected Melody:**…………………………….....................
   - Plays as soon as WiFi becomes Disconnected.

- **Video Recording Started:**………………………………………..
   - Plays as soon as a Video begins Recording.

- **Video Recording Ended:**..
   - Plays as soon as a Video is Stopped.

Microcontroller Use

This RC Remote also makes it very easy to implement with any project that you want to add an automated wireless camera to. To do so, just put the remote in the 3 position switch configuration and use the Servo Arduino library to output PWM pulses in the range for the command you want to send. Make sure the Arduino and the Remote have a common ground in addition to the signal wire.

https://www.arduino.cc/en/reference/servo

Troubleshooting & FAQ

Q: GoPro WiFi SSID does not show up during Configuration.
   A: Turn GoPro WiFi Off and Turn it back On. Then, click **Scan** on the configuration page to refresh the available WiFi networks.
Q: Configuration Fails to update Options or connect to GoPro.
   A: If after 15 seconds, the remote fails to connect, refresh the webpage. If that doesn't help:
   A: Make sure your entered WiFi Password is correct.
   A: Turn the GoPro WiFi Off and back On and Try Again.
   A: Turn the Remote Off and Start the Configuration Again.
Q: Camera is in an unresponsive state (frozen).
   A: You will have to force power it off (method varies by camera) but, in general can be accomplished by holding the shutter and power buttons simultaneously for ~10 seconds.

Q: What is the Default GoPro Password?
  A: For most cameras, the default WiFi password is "goprohero"
Q: Problems connecting Remote to GoPro Hero Session
  A: The Session Cameras have an Auto-Off feature to save battery life. When configuring the first time, be sure to keep the camera alive so that the WiFi signal is active.
  A: Afterwards, if the camera goes to sleep, the remote is able to wake the camera when a command is sent.
Q: Remote Connects to GoPro WiFi, but commands are not received (Especially Hero 3).
  A: Make sure the status LED (breathing) indicates that the remote is ready.
  A: If so, turn the GoPro Off and back On. This should fix the problem.
Q: WiFi Doesn't Connect Immediately
  A: This is normal. Sometimes it takes longer than others to connect.
Q: My remote was configured, but now it won't connect.
  A: If the reset button got bumped, it may have accidentally put the remote in configuration mode and by doing so, erased the WiFi credentials. Simply start the configuration mode and reenter your GoPro's WiFi credentials to continue.
Q: How do I change the WiFi credentials for a GoPro Hero 3?
  A: You can use the GoPro App or reset the WiFi connections from GoPro's Website.
  A: https://gopro.com/help/articles/block/How-to-Reset-the-Camera-s-Wi-Fi-Name-and-Password

Updating Firmware

Once Firmware Updates are completed, they will be made available on the website. However, in order to download the firmware update, you will have to fill out the form to request a password to access the page with the firmware downloads. Once it is confirmed that you have purchased the product, the password will be sent to you. Currently, you must have access to a Windows PC to update the firmware.

All you have to do is:

1. Download the latest firmware version.
2. Extract the zipped folder containing the executable.
3. Run the .EXE program which contains the updated firmware.
4. It will search for the connected RC GoPro Link (via micro USB)
    a. If not found, it will prompt you to install the necessary drivers.
5. Once you select the correct COM port, it will attempt to install the new firmware.
    a. It may take several tries to successfully install the update. This is normal
    b. You may need to hold the flash button while pressing and releasing the reset button once, to get it to work. See the pictures.
6. Once it successfully installs the firmware, the program will close.

Support – Contact

If you have any questions, please do not hesitate to contact us using email or the contact form on the website.

Website Contact Form: www.NESCustomDesign.com/contact

Email: NES3Printing@gmail.com