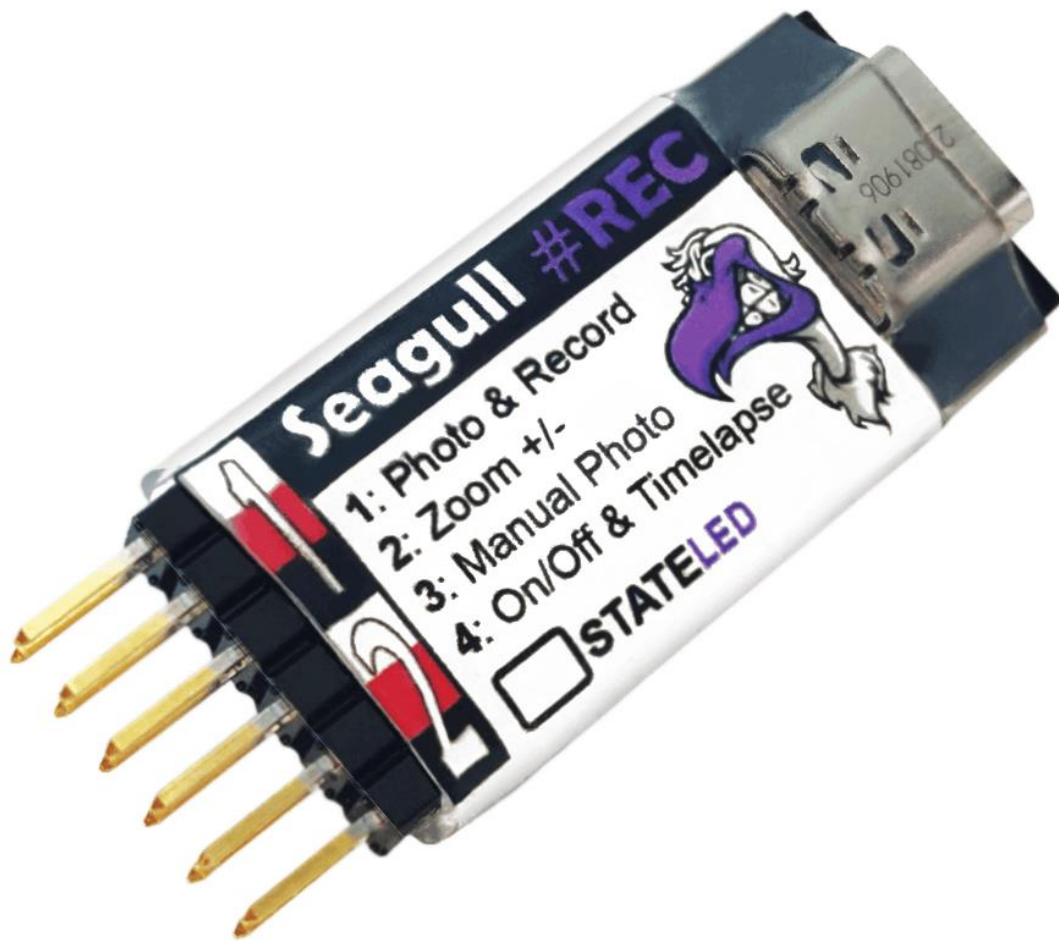


# Seagull #REC

User Manual



Product: Seagull #REC  
Released: 2021-02-10  
FW: 1.0

# CONTENTS

GENERAL INFORMATION .....	3
#REC CHANNEL VALUE TABLE .....	4
FLIGHT CONTROLLER / TRANSMITTER INTEGRATION .....	5
TRANSMITTER .....	5
PIXHAWK / PIXRACER / ARDUPILOT BASED FC .....	5
MISSION PLANNER.....	6
DJI FLIGHT CONTROLLERS / A3.....	7
AUTOMATED CAMERA ON / OFF .....	7
PORT / PIN DEFINITIONS.....	8
TROUBLESHOOTING.....	8
TECHNICAL SPECIFICATIONS.....	8

# GENERAL INFORMATION

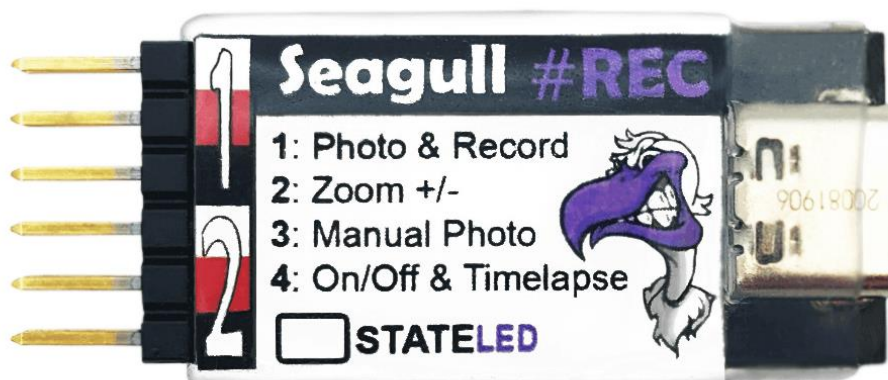
**\*\*\* Please read this manual thoroughly before connecting and configuring Seagull #REC \*\*\***

Seagull #REC is a camera controller, specially designed for Sony branded cameras. For full compatibility list please visit the following page: <https://www.seagulluav.com/rec-compatibility-list/>

#REC supports PWM input to control its functions. It is a perfect tool for Aerial Photography, Videography, Surveillance and more - where utmost control is required of your camera.

## #REC features:

- Video Record – START / STOP
- Zooming – IN / OUT with variable speeds
- Shutter Release
- Manual Photo – stages for focus and shutter release
- Camera ON / OFF
- Timelapse – user defined interval for shutter release
- PWM INPUT
- Digital Capture – \*shutter release only for Sony camcorders



# #REC CHANNEL VALUE TABLE

Setting up and using #REC is very simple. It can be controlled via transmitter or flight controller. Below you will find a table that illustrates #REC functions, which channels they are allocated to and the values for engaging the functions.

CH.	State / Mode	Value	Range
1	Record Video	1800 $\mu$ S	1601 $\leftrightarrow$ 2200 $\mu$ S
1	AF-T	1330 $\mu$ S	1266 $\leftrightarrow$ 1399 $\mu$ S
1	IS-T	1200 $\mu$ S	1132 $\leftrightarrow$ 1265 $\mu$ S
1	Digital Capture	1060 $\mu$ S	1000 $\leftrightarrow$ 1131 $\mu$ S
2	Zoom OUT **** - Speed 1 - Speed 2 - Speed 3 - Speed 4 - Speed 5 - Speed 6 - Speed 7  Zoom IN **** - Speed 1 - Speed 2 - Speed 3 - Speed 4 - Speed 5 - Speed 6 - Speed 7	1369 $\mu$ S 1308 $\mu$ S 1247 $\mu$ S 1186 $\mu$ S 1125 $\mu$ S 1064 $\mu$ S 1000 $\mu$ S  1631 $\mu$ S 1692 $\mu$ S 1753 $\mu$ S 1814 $\mu$ S 1875 $\mu$ S 1936 $\mu$ S 2000 $\mu$ S	1339 $\leftrightarrow$ 1399 $\mu$ S 1278 $\leftrightarrow$ 1338 $\mu$ S 1217 $\leftrightarrow$ 1277 $\mu$ S 1156 $\leftrightarrow$ 1216 $\mu$ S 1095 $\leftrightarrow$ 1155 $\mu$ S 1034 $\leftrightarrow$ 1094 $\mu$ S 850 $\leftrightarrow$ 1033 $\mu$ S  1601 $\leftrightarrow$ 1661 $\mu$ S 1662 $\leftrightarrow$ 1722 $\mu$ S 1723 $\leftrightarrow$ 1783 $\mu$ S 1784 $\leftrightarrow$ 1844 $\mu$ S 1845 $\leftrightarrow$ 1905 $\mu$ S 1906 $\leftrightarrow$ 1966 $\mu$ S 1967 $\leftrightarrow$ 2200 $\mu$ S
3	Manual Photo - Neutral ** - Focus - Shutter release	1175 $\mu$ S 1500 $\mu$ S 1800 $\mu$ S	1000 $\leftrightarrow$ 1349 $\mu$ S 1350 $\leftrightarrow$ 1650 $\mu$ S 1651 $\leftrightarrow$ 2200 $\mu$ S
4	Timelapse - 1 Second - 2 Second - 3 Seconds - 4 Seconds - 5 Seconds - 10 Seconds - 15 Seconds - 20 Seconds	1375 $\mu$ S 1325 $\mu$ S 1275 $\mu$ S 1225 $\mu$ S 1175 $\mu$ S 1125 $\mu$ S 1075 $\mu$ S 1025 $\mu$ S	1351 $\leftrightarrow$ 1399 $\mu$ S 1301 $\leftrightarrow$ 1350 $\mu$ S 1251 $\leftrightarrow$ 1300 $\mu$ S 1201 $\leftrightarrow$ 1250 $\mu$ S 1151 $\leftrightarrow$ 1200 $\mu$ S 1101 $\leftrightarrow$ 1150 $\mu$ S 1051 $\leftrightarrow$ 1100 $\mu$ S 1000 $\leftrightarrow$ 1050 $\mu$ S
4	Camera On/Off	1800 $\mu$ S	1605 $\leftrightarrow$ 2200 $\mu$ S
1, 2, 4	Neutral *	1500 $\mu$ S	1400 $\leftrightarrow$ 1600 $\mu$ S
3	Neutral **	1175 $\mu$ S	1000 $\leftrightarrow$ 1349 $\mu$ S
	No signal ***	n/a	0 $\leftrightarrow$ 800 $\mu$ S / 2200 $\leftrightarrow$ $\infty$ $\mu$ S

\* Neutral state has a value of 1500  $\mu$ S for all modes/states (except "Manual Photo" mode !)

\*\* Neutral state for "Manual Photo" has value of 1175  $\mu$ S

\*\*\* No signal state will occur when there are no SIGNAL INPUTS into the #REC's channels.

\*\*\*\* Zoom is limited to "Speed 1" while recording video with a still camera because of legal reasons from Sony Corp.

# FLIGHT CONTROLLER / TRANSMITTER INTEGRATION

## TRANSMITTER

#REC can be controller via transmitters PWM output interface.

If utilizing PWM based receivers simply plug in the channels that you wish to control on #REC into the receiver and adjust the output values required for activating the functions.

Conversion tables for most common transmitter brands can be found on the following link: <https://www.seagulluav.com/transmitter-pwm-conversion-table/>

## PIXHAWK / PIXRACER / ARDUPILOT BASED FC

#REC can be connected to a Flight Controller to control functions automatically or setting the Flight Controller to act as a passthrough for the signal activated by transmitter.

Please note that none of the Ardupilot based flight controllers output power through the rails - therefore #REC needs a power supply. To achieve this, it is recommended to utilize an external BEC of 5V to ensure proper functionality for #REC or any other accessories.

Below is an illustration of usable channels for connecting #REC for AUTOMATED TRIGGERING:

### Flexible trigger port selection from RC5 to R11



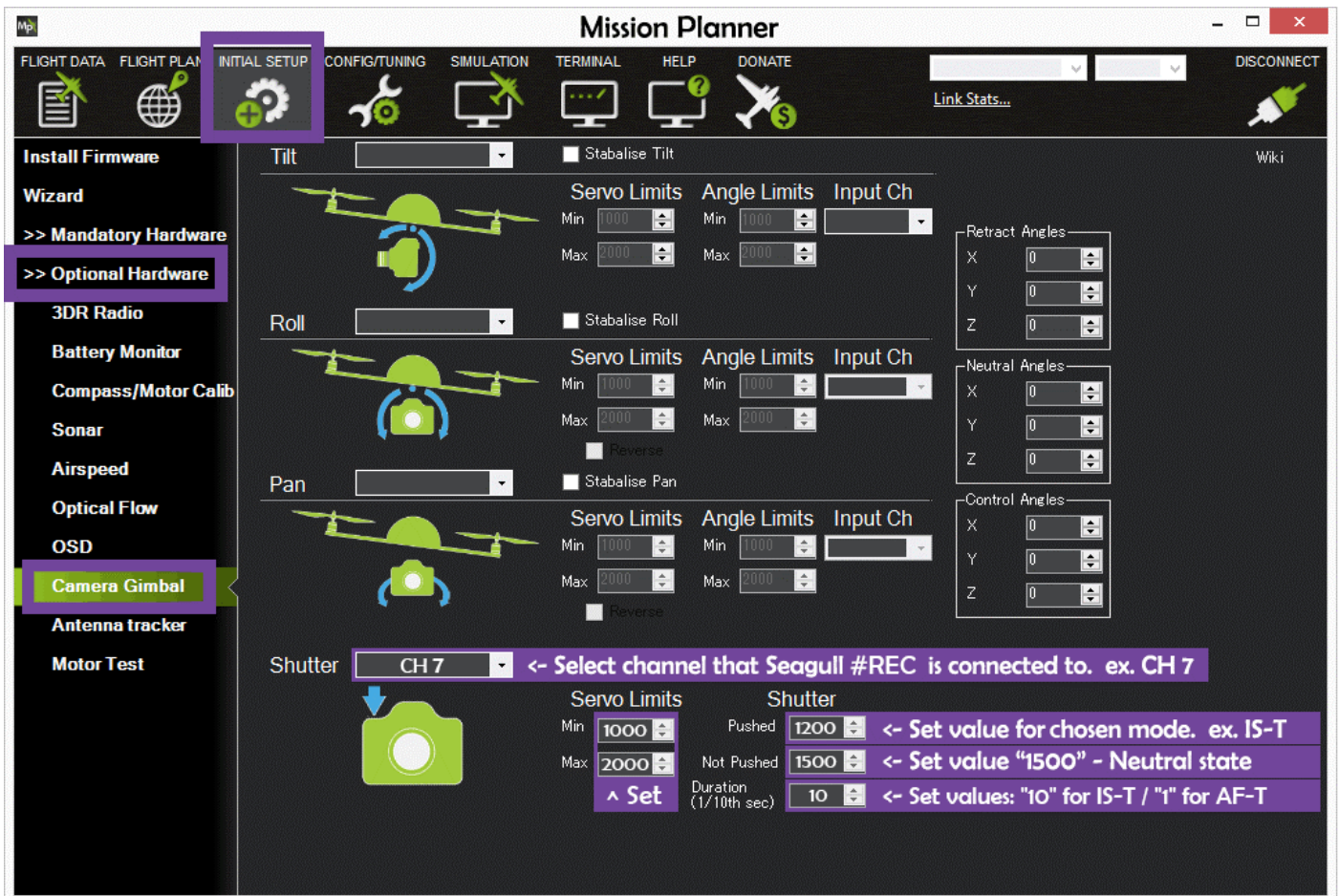
# MISSION PLANNER

If you wish to trigger Seagull #REC from a Flight Controller, setting it up in Mission Planner is also straight forward. Start Mission Planner and follow the steps below:

1. Click on **INITIAL SETUP >> OPTIONAL HARDWARE >> CAMERA GIMBAL**
2. **"SHUTTER"** - in the drop-down list, chose the channel that Seagull #REC CH1 SHUTTER RELEASE channel is connected to.
3. **"PUSHED"** - Set the "Value" as in the table:

State / Function	Value	Range
NEUTRAL	1500 $\mu$ S	1400 $\leftrightarrow$ 1600 $\mu$ S
AF-T	1330 $\mu$ S	1266 $\leftrightarrow$ 1399 $\mu$ S
IS-T	1200 $\mu$ S	1132 $\leftrightarrow$ 1265 $\mu$ S

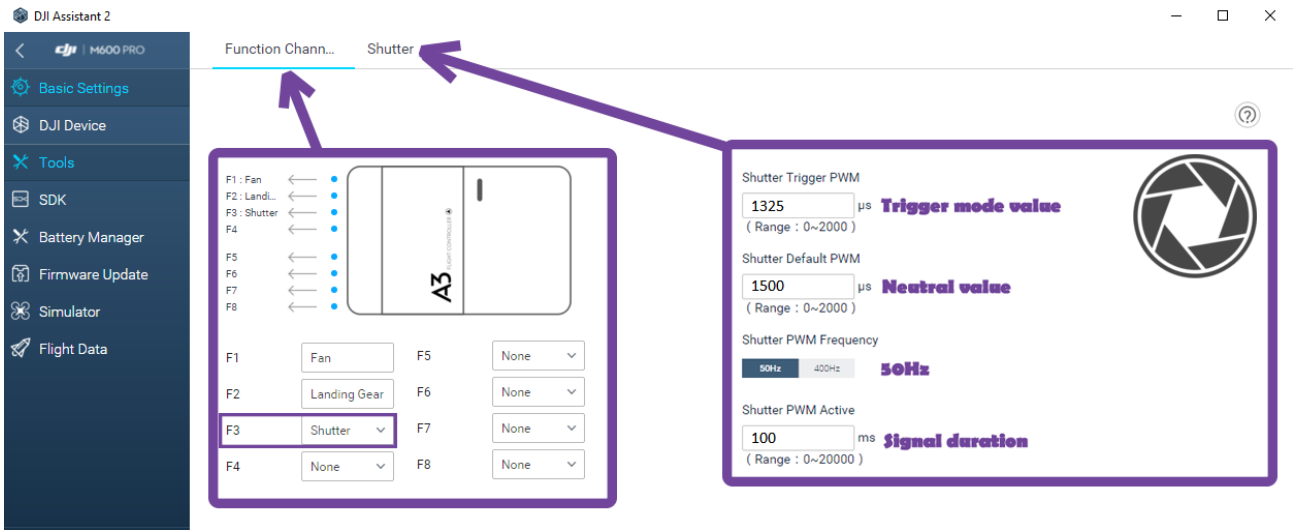
4. **"NOT PUSHED"** – Set the value "1500" ( Neutral state – see table above )
5. **"DURATION"** – Set the value "1" for **AF-T** mode or "10" for **IS-T** mode  
(values may vary depending on how long it takes for your specific camera model and lens configuration to lock focus. Try increasing or decreasing the values to find the sweet spot where the camera can keep up with the duration time that the shutter is held pushed/triggered for)



# DJI Flight Controllers / A3

#REC can be controlled via DJI A3 flight controller. It is very easy to setup automated flight photo capturing via DJI Assistant 2 software. For controlling more features of #REC an expansion kit is required, since by default it is not possible to utilize other F ports and bind them to the channels of LB transmitters.

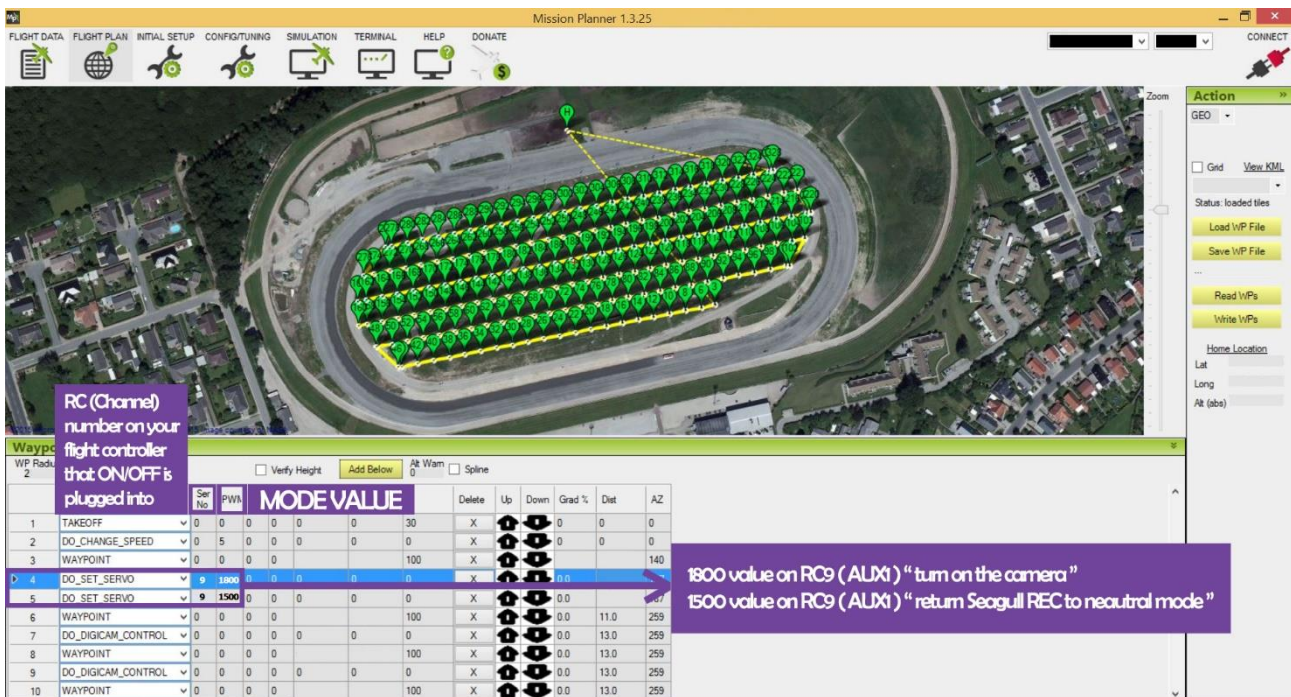
Below is an example of integrating #REC and configuring via DJI Assistant 2:



## AUTOMATED CAMERA ON / OFF

If you wish to integrate "Camera On/Off" into your Survey / Mission plan with Ground control or Mission Planner software, simply follow the steps below. (Please note that you might need to setup the Flight Controllers channels in the parameters to function as SERVO/PWM OUTPUT. As well as some of the Sony cameras require the power switch to be set onto ON position – then powered OFF via #REC command for below scenario to work)

In this scenario we want to turn on the camera after take-off.



**NOTE:** Repeat the sequence at the end of the mission in order to retract the lenses to protect the mechanism before landing. Very helpful on plane platforms as well as multirotor platforms in order to prevent dust getting into a retractable lens mechanism on a compact camera.

## PORT / PIN DEFINITIONS

PORT	DEFINITION	PINS		
CH1	CH1 PWM INPUT Shutter Release and Video	GND	INTERCONNECTED VIN (3.6V – 16V)	PWM SIGNAL IN
CH2	CH2 PWM INPUT Zoom IN / OUT	GND	INTERCONNECTED VIN (3.6V – 16V)	PWM SIGNAL IN
CH3	CH3 PWM INPUT Manual Focus / Shutter Release	GND	INTERCONNECTED VIN (3.6V – 16V)	PWM SIGNAL IN
CH4	CH4 PWM INPUT Timelapse and Camera ON / OFF	GND	INTERCONNECTED VIN (3.6V – 16V)	PWM SIGNAL IN

## TROUBLESHOOTING

To determine the current state of Seagull #REC - simply read the output of the LED and reference it to the table below:

RED LED	ACTION
Off	The unit is powered OFF
Blinking (1s interval)	Camera RECORDING VIDEO
3x Blink - OFF	CH INPUT is not present
Blinking Fast	Camera is OFF or NOT CONNECTED
Faded	Inside a function
Solid On	Inside a function
Fading	NEUTRAL

## TECHNICAL SPECIFICATIONS

- Supply voltage: 3.6 – 16v (5v recommended – do **NOT** exceed 16v!)
- Current draw: 25mA (average)
- Dimensions: 41mm x 17.5mm x 6.1mm
- Weight: 4g