Seagull #MAP2 - Manual

General information

With Seagull #MAP2 you can easily trigger your camera – either with your R/C transmitter from the ground, or let your Flight Controller do the job.

Seagull #MAP2 is designed to connect your UAV mounted camera to an R/C receiver or Flight Controller and be able to trigger the camera either from a dedicated switch on your R/C transmitter - or automated by your Flight Controller for doing for example image mapping, agriculture analysis, 3D modelling and more.

Seagull #MAP2 features 6 modes:

AF-T (Autofocus-Trigger, 1 sec pre-AF then trigger)
IS-T (Instant-Trigger, instant trigger as soon as camera locks focus)
Camera On/Off (Turn camera power on/off – only with Sony "Multi" cameras!)
Timelapse (Shutter release with variable time interval)
Keep-alive (QX1 camera keep-alive function, prevents camera from shutting off)

Please read this manual thoroughly before connecting and configuring Seagull #MAP2 !

Configuring your Transmitter

Setting up Seagull #MAP2 could not be easier!
Simply select the channel that the device is plugged into and trim the LOW/HIGH values for that channel, until desired modes are met – refer to the table below:

Channel	State / Mode	Value	Value range
1, 2	Neutral	1500 μS	1400 <> 1600 μS
1	AF-T	1300 μS	1200 <> 1400 μS
1	IS-T	1700 μS	1600 <> 1800 μS
1	Camera On/Off *	1100 / 1900 μS	1000 <> 1200 μS / 1800 <> 2000 μS
2	Timelapse - 1 Second - 2 Second - 3 Seconds - 4 Seconds - 5 Seconds - 10 Seconds - 15 Seconds - 20 Seconds	1375 μS 1325 μS 1275 μS 1225 μS 1175 μS 1125 μS 1075 μS 1025 μS	1351 <> 1399 μS 1301 <> 1350 μS 1251 <> 1300 μS 1201 <> 1250 μS 1151 <> 1200 μS 1101 <> 1150 μS 1051 <> 1100 μS 1000 <> 1050 μS
2	Keep-alive	1700 μS	1600 <> 1800 μS
2	Camera On/Off *	1900 μS	1800 <> 2000 μS
1 & 2	No signal **	n/a	0 <> 1000 μS / 2000 <> ∞ μS

* Only with Sony "Multi" cameras !
On/Off function is placed at either extremes of the signal range to be able to utilize a 3-position switch and still reach both trigger functions.

** Signal out of scope or no input signal !
No signal state will occur when signal is out of the standard R/C PWM signal range or if no signal is received.

Example with Seagull #MAP2 configured to CH7 on a Taranis X9D transmitter:

Connecting to your Receiver / Flight Controller

Connect the servo cable by following the polarity markings on Seagull MAP2 and connect the other end of servo cable to your Receiver / Flight Controller, with the correct polarity.
("Otherwise the magic smoke escapes!! - don't worry, it's protected against reversed connection ☺")

Please refer to the manual of your specific R/C radio system or Flight Controller to find out more about how to
connect accessories and what ports to utilize.

NOTE: for Pixhawk users –#MAP2 is powered by Pixhawks' power rail (the middle pin +).
Ensure that the rail is powered by BEC or other power source ranging from 3.5-5.5 Volts
in order for #MAP2 to function properly.

Flexible trigger port selection:
from RC5 to RC11

#MAP2

Camera ON / OFF

If you wish to integrate camera turn ON or OFF into your Survey/Mission plan via use of Ground control or Mission Planner software, simply follow the steps below.
In this scenario we want to turn on the camera after the take-off.

RC (Channel) number on your flight controller that ON/OFF is plugged into

MODE VALUE

If using channel 1 on #MAP2 : 1100/1900
If using channel 2 on #MAP2 : 1900 } value on RC9 (AUX1) "turn on the camera"

1500 value on RC9 (AUX1) "return Seagull #MAP2 to neautral mode"

	Command	Ser No	PWM	Rad				Delete	Up	Down	Grad %	Dist	AZ
1	TAKEOFF	0	0	0	0	0	30	X	⬆	⬇	0	0	0
2	DO_CHANGE_SPEED	0	5	0	0	0	0	X	⬆	⬇	0	0	0
3	WAYPOINT	0	0	0	0		100	X	⬆	⬇	0		140
▷ 4	DO_SET_SERVO	9	1900	0	0	0	0	X	⬆	⬇	0.0		
5	DO_SET_SERVO	9	1500	0	0	0	0	X	⬆	⬇	0.0		
6	WAYPOINT	0	0	0			100	X	⬆	⬇	0.0	11.0	259
7	DO_DIGICAM_CONTROL	0	0	0	0	0	0	X	⬆	⬇	0.0	13.0	259
8	WAYPOINT	0	0	0	0		100	X	⬆	⬇	0.0	13.0	259
9	DO_DIGICAM_CONTROL	0	0	0	0	0	0	X	⬆	⬇	0.0	13.0	259
10	WAYPOINT	0	0	0	0		100	X	⬆	⬇	0.0	13.0	259

NOTE: Make sure to let the signal be on for some period in the mission plan when doing DO_SET_SERVO command, in order for MAP2 to read it correctly. 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 platform in order to prevent dust coming into the lenses.

Keep-alive

This mode is specially designed for Sony QX1 users to prevent the camera from shutting off during flights or mission flights.

RC (channel) that Keep alive is plugged in to

Keep alive mode value

Number of times to repeat the signal

Interval to repeat the signal

	Command	Ser No	PWM	Re	Dela (s)				Delete	Up	Down	Grad %	Dist	AZ
▷ 1	DO_REPEAT_SERVO	9	1700	5	50	0	0	0	X	⬆	⬇	0.0	239.8	312

In the example above, channel 9 would be moved to PWM 1700 (Keep-alive), then after 50 seconds, back to "Neutral mode" (which is set to 1500 in the RC9_TRIM parameter), after another 60 seconds it would be moved to 1700 (Keep-alive) again, then finally after 50 more seconds it would be moved back to "Neutral mode". This loop will continue depending on how many repetitions you have set to repeat the signal.

Setting up Mission Planner / Ground Control

If you wish to trigger Seagull #MAP2 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 tha11t Seagull #MAP2 is connected to.

3. **"PUSHED"** - Set the "Value" for the desired trigger mode (AF-T or IS-T see table below)

State / Mode	Value	Range
Neutral	1500 µS	1400 <> 1600 µS
AF-T	1300 µS	1200 <> 1400 µS
IS-T	1700 µS	1600 <> 1800 µS

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)

Example from Mission Planner:

Troubleshooting

To determine what state Seagull #MAP2 is currently in - simply read the output of the "STATE LED" and match it with the "Action" in the table below.

The following table shows the STATE LED readout for the different states / modes.

STATE LED	Action
Blinking	No Signal - check connections and mode values
Fading	Ready - waiting for next command
Solid on	Active in one of the 5 modes – return to "Neutral" before next command
Fade >> Solid on	Keep-alive mode activated - return to "Neutral" to exit the mode
Fade >> Solid on	AF-T mode activated - return to "Neutral" before next command
Fade >> Solid on (repeat)	Timelapse mode activated – return to "Neutral" to exit the mode
Blink >> Solid on	IS-T mode activated - return to "Neutral" before new command
Blink >> Solid on	Camera On/Off activated (Only Sony "Multi" cameras)

Technical specifications

- Dimensions: 28.6 x 10.3 x 7.7 mm

- Weight: 1.6g (~ 12g with cables - depending on cable type)

- Voltage: 3.5 – 5.5 volts (5 volts recommended – do NOT exceed 5.5 volts !!)

- Current: 21.75mA max (when STATE LED is Solid ON - varies when Fading)

- Input signal: Standard R/C PWM between 1000 – 2000µS