Seagull #TRX - Manual

General information

Please read this manual thoroughly before connecting and configuring Seagull #TRX.

Seagull #TRX is an optional add-on for the precision mapping trigger - #MAP-X.

#TRX gives you live feedback of your cameras shutter count and current status of #MAP-X, displaying shutter actuations, notifications regarding micro SD card status, GPS lock status and current activity for #MAP-X.

Seagull #TRX features:

Telemetry (433MHz / 915MHz with adjustable channel and address)
OLED display (Display Confirmed image count, Failed image count, GPS Lock, µSD status)
Buzzer (Audio feedback of current statuses and actions)
Reset button (Easy reset for telemetry unit to return to default condition)

Other specifications

Seagull #TRX comes in 2 different frequency options: 433MHz and 915MHz.

433MHz is 100mW unit and has range up to 3km, depending on the antenna combo.
915MHz is 100mW unit and has range up to 2.2km, depending on the antenna combo.

Both the units are channel and address adjustable from the CONFIG.txt file located on the micro SD card of #MAP-X.

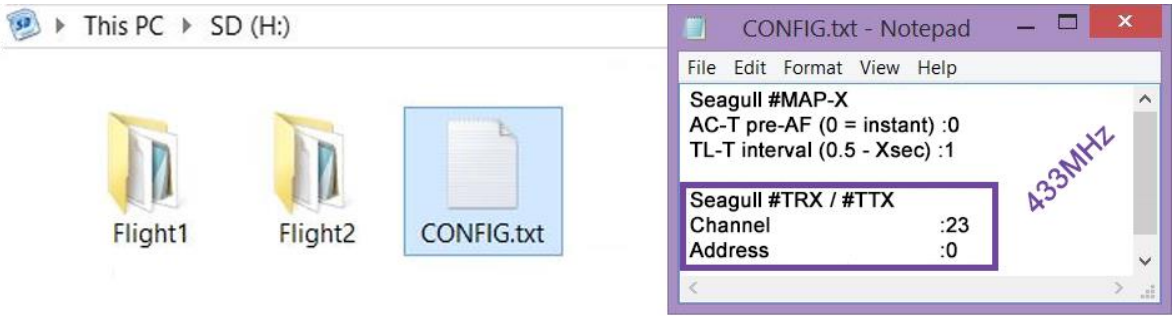
Configuring #TRX

The configuration of channel and address is defined by #MAP-X inside micro SD card in CONFIG.txt file.

It is recommended to adjust address or channel values depending if there are other modules that run on same channel 433MHz / 915MHz therefore different values must be set for either of the modules to assure that no interruption to either unit occurs.

#TRX unit can be reset and returned to default values by holding the reset button and following instruction on the OLED display or by simply deleting the CONFIG.txt file from #MAP-X if both the units were previously bound together and initiated successfully then #MAP-X will reset both of the units and generate a new CONFIG.txt file with default values, which are channel 0 and address 0.

Note: #MAP-X and #TRX have to be ON and previously bounded together to be able to reset through delete the CONFIG.txt file both units at the same time. If #TRX was OFF when deleting the CONFIG.txt then you will have to reset #TRX manually which is done by holding the RESET button on the #TRX unit



Frequency settings for 433MHz / 915MHz

Below is the table to show how to calculate the value you have to add into CONFIG.txt for channel in order to adjust to desirable frequency. The tables show values set for 433MHz with channel value of 23 and 915MHz with channel value of 150.

433MHz unit channel frequency adjustment guide	915MHz unit channel frequency adjustment guide
Unit frequency = 410MHz + (Channel * 1MHz)	Unit frequency = 900MHz + (Channel * 0.1MHz)
etc. We desire to have #TRX set to 433MHz 410MHz + (23 * 1MHz) = 433MHz	etc. We desire to have #TRX set to 915MHz 900MHz + (150 * 0.1MHz) = 915MHz

CONFIG.txt

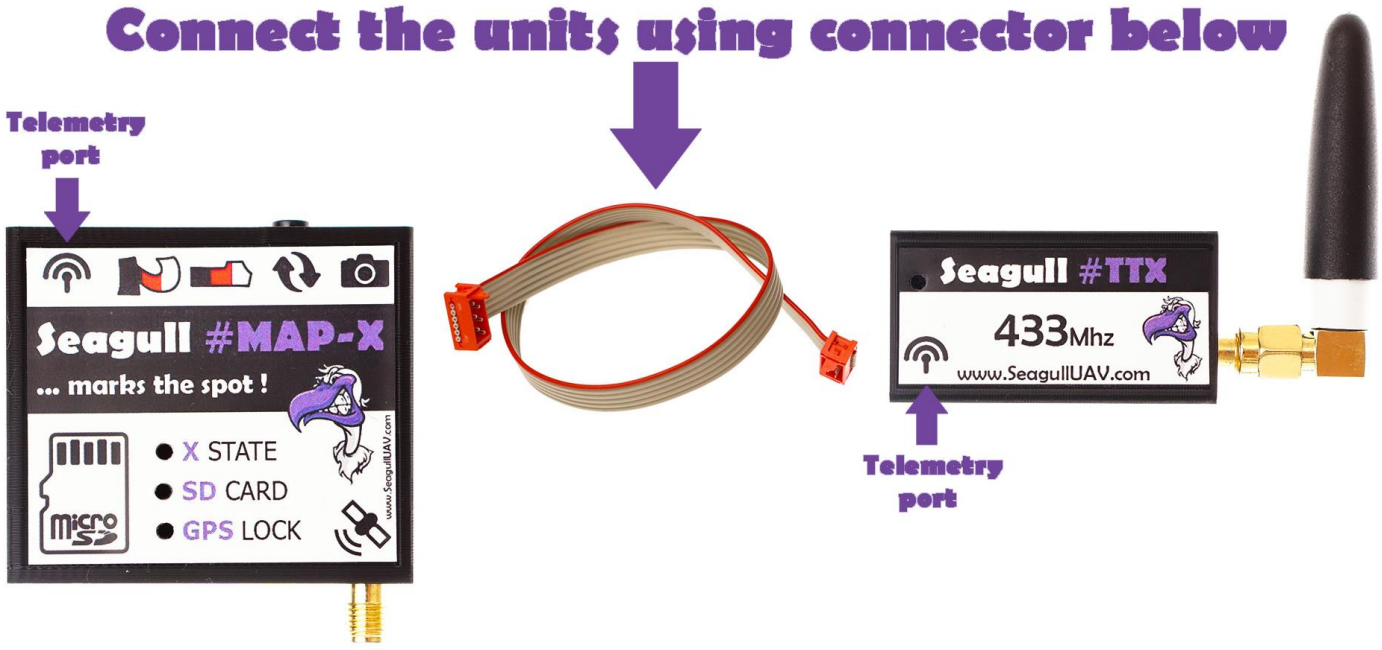
If CONFIG.txt file becomes corrupt or you accidentally delete it, do not worry - #MAP-X will generate the file with default values. Please be aware that if the file was deleted and generated automatically by #MAP-X the telemetry setting values will be reset back to default values which are channel 0 410MHz / 900MHz and address 0 for both frequencies.

Default CONFIG.txt format + Telemetry 433Mhz:	Default CONFIG.txt format + Telemetry 915Mhz:
Seagull #MAP-X AC-T pre-AF (0 = instant) :0 TL-T interval (0.5 - Xsec) :1 Seagull #TRX / #TTX Channel :23 Address :0	Seagull #MAP-X AC-T pre-AF (0 = instant) :0 TL-T interval (0.5 - Xsec) :1 Seagull #TRX / #TTX Channel :150 Address :0

Connecting #TTX

The #TRX kit includes #TTX unit that has to be connected to the #MAP-X in order to stream the data to ground unit #TRX.

Simply connect flat ribbon cable that comes in the #TRX kit to #TTX and other end to #MAP-X and you are ready to go! Refer to the connection image example below:



Troubleshooting

If an error occurs and #MAP-X is not able to communicate to #TRX, simply hold the RESET button on #TRX to return it to default parameters and restart the #MAP-X unit. After 20 seconds #MAP-X will reset itself and both of the units will start binding.

Below is #TRX status icons to indicate what #MAP-X is currently doing and the current state.

CONNECTING - #MAP-X and #TRX binding indicator with loading bar below the text

TLM! - connection to telemetry unit has been lost (out of range)

! - #MAP-X is inside Mission START / END mode - return back to neutral

! - #MAP-X is inside Camera ON / OFF - return back to neutral

! TL-T - failure TL-T mode while Mission START is active (refer to default camera icon to see shoe failure or GPS no lock)

! AC-T - failure AC-T mode while Mission START is active (refer to default camera icon to see shoe failure or GPS no lock)

! SS-T - failure SS-T mode while Mission START is active (will only occur when GPS has no lock !)

GPS! - default camera icon GPS no lock while Mission START is active

- default camera icon while Mission START is active (no errors)

TL-T - confirmed TL-T mode while Mission START is active (shutter on icon closes indication of camera taking picture)

AC-T - confirmed AC-T mode while Mission START is active (shutter on icon closes indication of camera taking picture)

SS-T - confirmed SS-T mode while Mission START is active (shutter on icon closes indication of camera taking picture)

- Camera ON / OFF mode indicator

- Mission START / END mode indicator

- micro SD card status indicator

- GPS lock status indicator

- confirmed – no errors (only shown when picture is triggered and the unit is in no Mission state / END)

- failure – hotshoe feedback failure or GPS no lock (only shown when picture is triggered and the unit is in no Mission state / END)

READY FOR TAKEOFF - default screen of no Mission / END to indicate that there is no errors and the unit is ready to receive Mission START command and take off

Buzzer feedback table

Buzzer	Status
1 buzz	Picture failure / Stuck inside Camera ON/OFF or Mission START/END
1 long buzz	Micro SD card initialization error – please check format!
2 buzzes	GPS – no lock
3 buzzes	Micro SD card – is not present

#TRX kit includes

Seagull #TRX comes with a #TTX unit that is connected directly to #MAP-X unit for the communication down to ground station #TRX.

- Seagull #TRX unit
- Seagull #TTX unit
- 2x antennas (433MHz / 915MHz)
- Micro USB cable (for powering #TRX)
- Link cable for connection between #TTX and #MAP-X

Technical specifications

Details for Seagull #TRX

- Dimensions: 45 x 25 x 18 mm
- Weight: 19 g (without antenna and micro USB cable)
- Voltage: 5v USB interface (can handle 4.5 – 15 volts - do **NOT** exceed 15 volts !!)

Details for Seagull #TTX

- Dimensions: 45 x 24.5 x 12.5 mm (without antenna connector)
- Weight: 15 g (without antenna and link cable)
- Voltage: N/A - powered by #MAP-X by the telemetry link cable