

Seagull #RADIO

User Manual



Product: Seagull #RADIO
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GENERAL INFORMATION

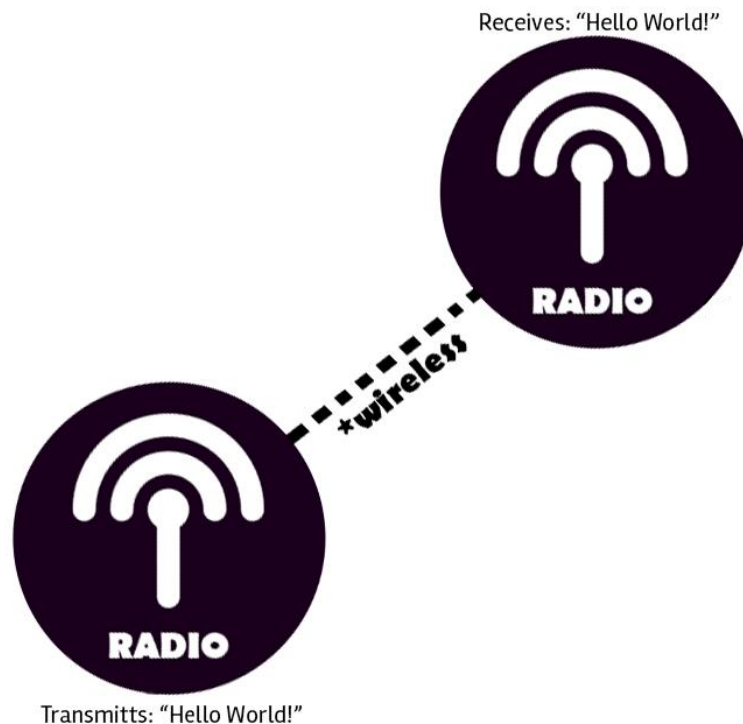
***** Please read this manual thoroughly before connecting and configuring Seagull #RADIO *****

Seagull #RADIO is a fully configurable transceiver module designed for use in platforms where unrestricted data size and continuous transmission/receiving is required, as well as long range - stretching up to 6 kilometers!

#RADIO is perfect solution to use as a telemetry module to transmit data back to the ground control software from your Flight Controller or use the modules with Seagull #GPK to handle RTCM data streams in order to achieve RTK FIX.

#RADIO features:

- **Unlimited size data packages transfer/receive!**
- **Adjustable output power from 100mW to 1WATT**
- **Adjustable frequency and target addresses**
- **Air data rate up to 168kbps**
- **Range up to 6km**
- **UART Interface**



FLIGHT CONTROLLER INTEGRATION

#RADIO modules can be used to replace your current telemetry radios for increased operation distance and overall performance. #RADIO kit comes with two JST-GH cables that can be used to interface to flight controllers. Make sure that the #RADIO and your Flight Controller are operating at same baud rate.

NOTE: Modification to cables might be needed for compatibility with Pixhawk 1. When connecting to the Flight Controller all 4 wires from #RADIO have to be used for correct telemetry operation.

Below is a representation of Pixhawk 1 and Pixhawk 2.1 port outputs for wiring guidance.

- 5V
- RADIO TX
- RTS
- RADIO RX
- CTS
- GND



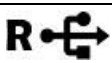

INTEGRATION

#RADIO kit comes with two types of GH-JST cables, depending on the configuration and the direction of the transmission.

GPK Rover - operation is selected please connect **GREEN** sleeve GH-JST cable to your radio platform.

GPK Base - operation is selected please connect **PURPLE** sleeve GH-JST cable to your radio platform.

PORT / PIN DEFINITIONS

PORT	DEFINITION	PINS			
JST-GH	Communication port	1: VIN (3.9 -12V)	2: RX (3.3V)	3: TX (3.3V)	4: GND
	USB Port for adjusting settings	VIN (5V)			
	Button for adjusting settings				
SMA	Antenna				



CONFIGURATION

GENERAL

#RADIO modules are configured through a WINDOWS application.

*** Download Seagull_RADIO_config_v3.45.exe from [HERE](#) ***

To configure the module simply launch the "Seagull RADIO.exe", plug in the USB cable into the radio and PC. Choose the PORT that the #RADIO is connected to on your PC and click "OPEN PORT". Next HOLD DOWN the button that is on the #RADIO to enter configuration mode and click "GET PARAM". Set your desired values and HOLD DOWN the button on the #RADIO module – then click "SET PARAM". All done now your #RADIO module is configured with your desired settings.

SETTINGS AND VALUES TABLE

SETTINGS NAME	RANGE	DEFAULT	DESCRIPTION
UART RATE			
Baud rate	1200 - 115200	115200	Baudrate setting for communication with the interfaced device
UART PARITY			
Parity	8N1, 8O1, 8E1	8N1	UART mode can be different between communication parties
AIR RATE			
Air data rate	2.5 – 168kbps	2.5kbps	This setting can be ignored. Module will AUTO adjust.
POWER			
Transmission Power	21dBm – 30dBm	30dBm	Transmission power setting ranging from 100mW to 1WATT.
FEC			
Forward Error Correction	Disable – Enable	Enable	If sudden interference occurs the data pack can be corrected instead of dropping the packet. With FEC enabled the range is improved greatly.
FIXED MODE			
Targeted transmission and receiving	Disable – Enable	Disable	If enabled both transmitting and receiving modules must have same address and channel setting. It allows modules to exclusively communicate while ignoring interference from signals that are operating on same frequency. (similar to MODBUS)
WOR TIMING			
Wake on receive	500 – 4000mS	-	This setting can be ignored, since the module will never be put into sleep mode for #RADIO REV1.
IO MODE			
RX & TX pin mode	PushPull - OpenDrain	Push Pull	-
PLENGTH			
Packet length	16 – 2000 Bytes	64	Can be ignored. Module is set to unlimited packet size.

TROUBLESHOOTING

In a case if the data is not being transmitted or received, please check the wiring and module settings to ensure that the communicating devices are operating the same baud rate, channel and target address.

The #RADIO module contains a simple power LED, so quickly determine if the module is powered up.

RED LED	ACTION
Solid on	Module is powered
Off	Module is turned off

TECHNICAL SPECIFICATIONS

- Supply voltage: 3.9 – 12v (5v recommended – do **NOT** exceed 12v!)
- Communication level: 3.3v
- Current draw - transmitting: 100mW = 31.8mA | 500mW = 159mA | 1Watt = 318mA
- Current draw - receiving: 29mA
- Dimensions: 45mm x 41mm x 11mm
- Weight: 16 grams