



# BX306 GNSS UAV Kit

With 1W/915MHz Radio (Eagle)

## Overview

BX306 UAV Kit consists of BX306 UAV Basic and Eagle Radio Option. BX306 GNSS receiver is a cost-efficient GNSS RTK receiver for cm-level positioning and providing accurate raw measurement output, which can be integrated with autopilots and inertial navigation units.

Eagle Radio option is used for transmitting and receiving correction data at 915MHz. It has high transmitting power to provide wide communication range. With AX3703 mini GNSS antenna for Rover, the overall light weight is ideal for UAV applications.

## Key Features

- Supports GPS L1/L2, GLONASS L1/L2, and BeiDou B1/B2
- Supports 384 channels
- Up to 20Hz RTK solution and raw data output
- Supports in-built 4GB memory, which makes data collection easy
- Pin-to-pin compatible with NovAtel OEM615
- Log/command compatible with NovAtel protocol
- Supports event mark and PPS
- Serial ports with LVTTTL
- External antenna input through SMA connector
- Data output: NMEA-0183 and Tersus binary format
- Correction: RTCM 2.x/3.x/CMR/CMR+
- Easy to integrate with Pixhawk and other autopilots



Note: If users want to customize the product portfolio, please contact [sales@tersus-gnss.com](mailto:sales@tersus-gnss.com) by email.



# Technical Specifications

## - BX306 enclosure

### Performance

Signal Tracking:	GPS L1/L2, GLONASS L1/L2, BeiDou B1/B2
GNSS Channels:	384
Single Point Positioning Accuracy (RMS):	
– Horizontal:	1.5m
– Vertical:	3.0m
RTK Positioning Accuracy (RMS):	
– Horizontal:	10mm+1ppm
– Vertical:	15mm+1ppm
Observation Accuracy (zenith direction):	
– C/A Code:	10cm
– P Code:	10cm
– Carrier Phase:	1mm
Time To First Fix (TTFF):	
– Cold Start:	<50s
– Warm Start:	<30s
Timing Accuracy (RMS):	20ns
Velocity Accuracy (RMS):	0.03m/s
Initialization (typical):	<10s
Initialization Reliability:	>99.9%
Correction:	RTCM 2.x/3.x/CMR/CMR+
Max. Update Rate:	20Hz
Input Voltage:	3.3V DC
Power Consumption (typical):	2.8W
Active Antenna Input Impedance:	50Ω
Storage:	In-built 4GB memory

### Communication

Serial Ports:	LVTTTL x2
USB Ports:	USB device x1
CAN Ports:	ISO/DIS 11898 x1*
PPS Ports:	LVTTTL x1
Event Mark:	LVTTTL x1

\* This port's function is related to firmware version.

### Physical

Size:	95x57x24mm
Weight:	153g
Antenna Connector:	SMA female x1
COM Baud Rate:	Up to 460800bps
Operating Temperature:	-40°C ~ +85°C





# Technical Specifications

## - 1W/915MHz Radio (Eagle)

### General

Frequency:	915MHz
Operating Mode:	Half-duplex
Operation Voltage:	7V~28V
Power Consumption (typical):	
– Transmitting:	1.2W@DC12V
– Receiving:	< 0.6W@DC12V
Dimension:	100x47x21mm
Weight:	≈80g
Operation Temperature:	-40°C ~ +85°C
Storage Temperature:	-40°C ~ +85°C
Antenna Port:	SMA
Antenna Impedance:	50Ω
Serial Port:	TTL

### Modem

Air Baud Rate:	20Kbps to 1Mbps
Serial Baud Rate:	1200bps to 115200bps
Modulation Type:	QPSK/BPSK +DSSS

### Transmitter

Frequency Stability (at 25°C):	±5ppm
RF Output Power:	1200mW
Output Current:	≤1000mA
Modulation Distortion:	≤ 3%
Carrier Frequency Tolerance:	≤ 5*10 <sup>-6</sup>

### Receiver

Sensitivity:	-125dBm@20kbps -112dBm@100kbps
Adjacent Channel Selectivity:	≥ 65dB
Distortion:	≤ 5%
Bit Error Rate:	≤ 0.001%

### Interface (Pin) Definition

Type:	TTL
Pin 1:	GND
Pin 2:	T/B
Pin 3:	R/A
Pin 4:	CFG
Pin 5:	GND
Pin 6:	7-28V

