

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 Receiver, which provides cm-level positioning in real time, and accurate raw observation for static post processing and post processing kinematic (PPK).

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 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 |
| PPK 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: | 5~15V DC |
| Power Consumption (typical): | 3W |
| Active Antenna Input Impedance: | 50Ω |
| Storage: | In-built 4GB memory |

Communication

| | |
|--------------------|-------------------|
| Serial Ports: | LVTTTL x2 |
| COM Baud Rate: | Up to 460800bps |
| USB Ports: | USB device x1 |
| CAN Ports: | ISO/DIS 11898 x1* |
| PPS Ports: | LVTTTL x1 |
| Event Mark: | LVTTTL x1 |
| Antenna Connector: | SMA female x1 |

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

Physical

| | |
|------------------------|-----------------|
| Size: | 100.2x57.4x24mm |
| Weight: | 150g |
| 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 ⁻⁶ |

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 |

