# BX316D GNSS Kit

## With 2W/460MHz Radio

## Overview

BX316D Kit consists of BX316D Basic and 2W Radio Option. BX316D GNSS receiver is a dual frequency GNSS receiver, which provides cm-level positioning and heading in real time, and accurate raw observation for static post processing and post processing kinematic (PPK). Its flexible interfaces can be used in a variety of applications, such as precision navigation, precision agriculture, surveying, and UAVs.

2W Radio option provides reliable data communications between 457 MHz and 467 MHz for mission-critical applications where a combination of stability, superior performance and long distance are required. Equipped with dual antenna design for precise heading, the BX316D Kit is ideal for precision navigation, precision agriculture, and surveying.

## Key Features

- Supports RTK positioning mode or RTK positioning + heading mode. The two modes are software configurable
- Supports 384 channels
- Command compatible with NovAtel protocol
- Pin-to-Pin compatible with NovAtel OEM617D
- Supports 20Hz RTK solution updates and raw data outputs
- Supports in-built 4GB memory, which makes data collection easy
- Supports PPS output and event mark input
- Serial ports with LVTTL level
- External antenna inputs through SMA connectors
- 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 - BX316D enclosure

## Performance

| | |
|---|---|
| Signal Tracking for Primary Antenna: | |
| GPS L1/L2, GLONASS L1/L2, BeiDou B1/B2 | |
| Signal Tracking for Secondary Antenna: | |
| GPS L1+GLONASS L1 or GPS L1+BeiDou B1 | |
| 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 |
| Heading Accuracy: | |
| – 1m Baseline (RMS): | 0.15° |
| 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: | LVTTL x2 |
| USB Ports: | USB 2.0 device x1 |
| CAN Ports: | ISO/DIS 11898 x1* |
| PPS Ports: | LVTTL x1 |
| Event Mark: | LVTTL x1 |
| Antenna Connector: | SMA female x2 |
| COM Baud Rate: | Up to 460800bps |

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

## Physical

| | |
|---|---|
| Size: | 100.2x57.4x24mm |
| Weight: | 150g |
| Operating Temperature: | -40℃ ~ +85℃ |

Website | www.tersus-gnss.com
Sales Inquiry | sales@tersus-gnss.com
Technical Support | support@tersus-gnss.com

# Technical Specifications - 2W Radio RS460

## General

| | |
|---|---|
| Frequency Range: | 457MHz~467MHz |
| Band Width: | 10 MHz |
| Channel Width: | 25KHz |
| Operation Voltage: | 5V~12V |
| Power Consumption (typical): | |
| – Transmitting 2W: | 6.5W@DC5.5V |
| – Transmitting 1W: | 4W@DC5.5V |
| – Receiving: | < 400mW@DC5.5V |
| Dimension: | 107x62x26.6mm |
| Weight: | ≈213g |
| Operation Temperature: | -30℃ ~ +60℃ |
| Storage Temperature: | -40℃ ~ +85℃ |
| Antenna Port: | TNC Female |
| Antenna Impedance: | 50Ω |
| VSMR: | ≤ 1.5 |

## Transmitter

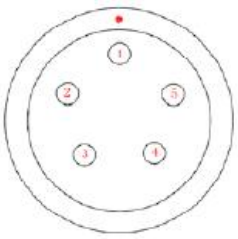
| | |
|---|---|
| Frequency Stability (at 25℃): | ≤±1.5ppm |
| Configurable Channels: | 10 |
| Adjacent Channel Selectivity: | ≥ 60dB |
| RF Output Power: | |
| – High Power Level (2W): | 33.5±0.5dBm@DC5.5V |
| – Low Power Level (1W): | 30±0.5dBm@DC5.5V |

## Modem

| | |
|---|---|
| Air Baud Rate: | 9600bps @ 25KHz |
| Modulation Type: | GMSK |
| RF Sensitivity: | Better than 13dB @ -119dBm |
| Decode Sensitivity: | -116 dBm BER 10E-5 @ 9600bps |
| Protocol: | Transparent EOT, TT450S and Tersus |

## Interface (Pin) Definition

| | |
|---|---|
| Type: | RS232 |
| Pin 1: | Power Ground, GND |
| Pin 2: | Power Ground, GND |
| Pin 3: | Power, 5V~12V DC |
| Pin 4: | RXD |
| Pin 5: | TXD |




Overview of Interface (Pin)

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