



# 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 LVTTTL 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](mailto: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:	LVTTTL x2
USB Ports:	USB 2.0 device x1
CAN Ports:	ISO/DIS 11898 x1*
PPS Ports:	LVTTTL x1
Event Mark:	LVTTTL x1
Antenna Connector:	SMA female x2
COM Baud Rate:	Up to 460800bps

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

## Physical

Size:	100x57x24mm
Weight:	150g
Operating Temperature:	-40°C ~ +85°C





# 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°C ~ +60°C
Storage Temperature:	-40°C ~ +85°C
Antenna Port:	TNC Female
Antenna Impedance:	50Ω
VSMR:	≤ 1.5

## Transmitter

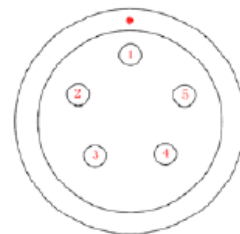
Frequency Stability (at 25°C):	≤±1.5ppm
Configurable Channels:	10
Adjacent Channel Selectivity:	≥ 60dB
RF Output Power:	
– High Power Level (2W):	33.5±0.5dBm@DC5.5V
– Low Power Level (1W):	30±0.5dBm@DC5.5V

## 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)

