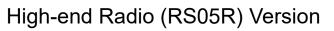# BX305 GNSS Kit

High-end Radio (RS05R) Version

Overview

The BX305 is a compact GNSS RTK receiver which offers real-time, centimeter-level positioning capability as well as flexible interfaces for a number of applications, such as precision navigation, precision agriculture, surveying, and UAVs.

The BX305 can be integrated into other host devices or can serve as an independent positioning system that is dedicated to delivering high-precision, reliable position information.

Key Features

Supports GPS L1/L2, GLONASS L1, and BeiDou B1/B3
Provides centimeter-level positioning accuracy
Up to 20Hz position/velocity/time solutions
Serial ports with LVTTL
Easy to integrate with Pixhawk and other autopilots
External antenna input through SMA connector
Data output: NMEA-0183
Correction: RTCM 2.x/3.x and CMR
Supports IMU raw data output
Supports logging of raw observation data

The RS05R High-end Radio

The Tersus radio station RS05R is a rover radio solution for wireless applications. It provides reliable data communications for mission-critical applications where a combination of stability, superior performance and long communication range are required.

The RS05R is a lightweight, ruggedized UHF receiver designed for digital radio communications between 410 MHz and 470 MHz in either 12.5 kHz or 25 kHz channels, which can be widely used in GNSS/RTK surveying and precise positioning systems. The RS05R is equipped with a LED display and a keypad, which can be used for checking the operating status, changing the operating channel, and transmitter power level.

In the Box

– 2x BX305 RTK receivers
– 2x GNSS antennas
– 2x 3m GNSS antenna cables
– 2x RS05R radio station modems
– 2x RS05R radio station antennas
– 2x RS05R radio station cable assemblies
– 2x TTL-RS-232 converters
– 2x UART TTL-USB converters
– 2x 20-pin external cables
– 2x Power cables

Technical Specifications

Performance

Channel Number:	192
Frequencies:	
GPS L1/L2, GLONASS L1, BeiDou B1/B3	
Standard Positioning Accuracy:	
– Horizontal (RMS):	1.5m
– Vertical (RMS):	3.0m
RTK Positioning Accuracy:	
– Horizontal (RMS):	10mm+1ppm
– Vertical (RMS):	15mm+1ppm
Observation Accuracy:	
– C/A Code (zenith direction):	10cm
– P Code (zenith direction):	10cm
– Carrier Phase (zenith direction):	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
Max. Update Rate:	20Hz

Communication

Serial Ports:	LVTTL x3
PPS Ports:	LVTTL x1

Physical

Input Voltage:	5V DC
Power Consumption (typical):	1.56W
Active Antenna Input Impedance:	50Ω
Max. Antenna Bias Current Draw:	100mA
GNSS Input Sensitivity:	-85 dBm ~ -105 dBm
Size:	92x54x13mm
Weight:	104g
Antenna Connector:	SMA female x1
COM Baud Rate:	Up to 230400bps
Operating Temperature:	-40℃ ~ +85℃