BX306 GNSS Kit

High-end Radio (RS05R) Version

Overview

The BX306 is a cost-efficient GNSS RTK board for cm-level positioning and providing accurate raw measurement output, which can be integrated with autopilots and inertial navigation units.

The BX306 board supports three constellations (GPS L1/L2, GLONASS G1/G2, and BeiDou B1/B2) to improve the continuity and reliability of the RTK solution even in harsh environments. In-built 4GB memory supports data collection. It features compatibility with other GNSS boards in the market via flexible interfaces, smart hardware design, and commonly used log/command formats.

In the Box

- 2x BX306 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-RS232 converters
- 2x UART TTL-USB converters
- 2x 20-pin external cables
- 2x Power cables

Key Features

Supports GPS L1/L2, GLONASS G1/G2, and BeiDou B1/B2

Up to 20Hz RTK solution and raw data output

Supports IMU 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 LVTTL

External antenna input through MCX 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

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.

Technical Specifications

Performance

Frequencies:	
GPS L1/L2, GLONASS G1/G2, BeiDou B1/B2	
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/CMR+
Max. Update Rate:	20Hz

Communication

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

* This port's function is related to FW version

Physical

Input Voltage:	3.3V DC
Power Consumption (typical):	2.8W
Active Antenna Input Impedance:	50Ω
Storage:	In-built 4GB memory
Size:	46x71x12mm
Weight:	23g
Antenna Connector:	MCX female x1
COM Baud Rate:	Up to 921600bps
Operating Temperature:	-40℃ ~ +85℃

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