Overview

The BX316 is a GNSS RTK board for providing accurate positioning and heading information. It supports multi-constellation (GPS L1/L2, GLONASS L1/L2, and BeiDou B1/B2) signals and can output continuous and reliable RTK position and headings, even in harsh environments.

The BX316 commands and logging are compatible with NovAtel protocols. Ethernet, USB, LVTTL / RS232, CAN, PPS, and event mark are supported. In-built 4GB memory supports data collection. The BX316 offers real-time, cost-efficient and cm-level positioning as well as flexible interfaces for a variety of applications, such as precision navigation, precision agriculture, surveying, and UAVs.

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
- 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 or RS232
- 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
- Supports large range of input power conditions
Technical Specifications

Performance

Signal Tracking for Primary Antenna:
- GPS L1/L2, GLONASS L1/L2, BeiDou B1/B2

Signal Tracking for Secondary Antenna:
- GPS L1+GLONASS L2 or GPS L1+BeiDou 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

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: 5V~12V DC

Power Consumption (typical): 3.5W

Active Antenna Input Impedance: 50Ω

Storage: In-built 4GB memory

Communication

Serial Ports: LVTTL x2 or RS232 x2

USB Ports: USB 2.0 device x1

CAN Ports: LVTTL or ISO/DIS 11898 x1*

PPS Ports: LVTTL x1

Event Mark: LVTTL x1

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

Physical

Size: 108x54x12mm

Weight: 50g

Antenna Connector: SMA female x2

COM Baud Rate: Up to 460800bps

Operating Temperature: -40°C ~ +85°C

Optional Accessories

AX3702 GNSS Antenna
3m GNSS antenna cable with TNC/SMA connectors
Tersus carrying case

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