# Tersus BX40C

## Full Constellation GNSS RTK Board

## Overview

The Tersus BX40C is a compact GNSS RTK board with full constellation tracking for providing cm-level accuracy positioning. It can be integrated with autopilots and inertial navigation units.

The BX40C board supports multiple constellations and multiple frequencies to improve the continuity and reliability of the RTK solution even in harsh environments. In-built 8GB memory makes data collection easy. It features compatibility with other GNSS boards in the market via flexible interfaces, smart hardware design, and commonly used log/command formats.

## Key Features

Powered by new Tersus ExtremeRTK™ GNSS Technology, BX40C supports multi-constellation and multi-frequency all-in-view satellite tracking

Supports multiple constellations & frequencies:
- GPS L1 C/A, L2C, L2P, L5
- GLONASS L1 C/A, L2 C/A
- BeiDou B1, B2, B3, support BDS-3
- Galileo E1, E5a, E5b
- QZSS L1 C/A, L2C, L5

Supports 576 channels

Centimeter-level position accuracy

Flexible interfaces such as RS232, TTL, USB, CAN, Ethernet

Supports PPS output and event mark input

Supports up to 20Hz RTK solution updates and raw data output

In-built 8GB memory makes data collection easy

Pin-to-pin compatible with Trimble BD970

Log/command compatible with NovAtel protocol

# Technical Specifications

## Performance

Signal Tracking:

|  |  |  |
|---|---|---|
| GPS | L1 C/A, L2C, L2P, L5; |
| GLONASS | L1 C/A, L2 C/A; |
| BeiDou | B1, B2, B3,support BDS-3; |
| Galileo | E1, E5a, E5b; |
| QZSS | L1 C/A, L2C, L5 |

| | |
|---|---|
| GNSS Channels: | 576 |

Single Point Positioning Accuracy (RMS):
| | |
|---|---|
| – Horizontal: | 1.5m |
| – Vertical: | 3.0m |

DGPS Positioning Accuracy (RMS):
| | |
|---|---|
| – Horizontal: | 0.25m |
| – Vertical: | 0.5m |

RTK Positioning Accuracy (RMS):
| | |
|---|---|
| – Horizontal: | 8mm+1ppm |
| – Vertical: | 15mm+1ppm |

High-Precision Static (RMS):
| | |
|---|---|
| – Horizontal: | 2.5mm+0.1ppm |
| – Vertical: | 3.5mm+0.4ppm |

Observation Accuracy (zenith direction):
| | |
|---|---|
| – C/A Code: | 10cm |
| – P Code: | 10cm |
| – Carrier Phase: | 1mm |

Time To First Fix (TTFF):
| | |
|---|---|
| – Cold Start: | <50s |
| – Warm Start: | <30s |

| | |
|---|---|
| Reacquisition: | <2s |
| 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+ |
| Data Output: | NMEA-0183 and Tersus Binary Format |
| Max. Update Rate: | 20Hz |
| Storage: | In-built 8GB memory |

## Communication

| | |
|---|---|
| Serial ports: | RS-232 x1, TTL x2 |
| COM baud rate: | Up to 921600bps |
| USB ports: | USB 2.0 device x1 |
| CAN ports: | ISO/DIS 11898 x1* |
| PPS ports: | LVTTL x1 |
| Event mark: | LVTTL x2 |
| Ethernet: | 10BaseT/100BaseTx1*(1) |

* This port's function is related to firmware version.
(1) Hardware of ethernet is ready, reserved for future upgrade.

## Electrical and Physical

| | |
|---|---|
| Input voltage: | 3.45V DC |
| Power consumption (typical): | 3.6W |
| Dimension: | 100x60x10.1mm |
| Weight: | 44g |
| IO connectors: | 24pin header + 6pin header |
| Antenna Connector: | MMCX female x1 |

## Environmental

| | |
|---|---|
| Operating temperature: | -40℃ ~ +75℃ |
| Storage temperature: | -55℃ ~ +85℃ |