

Tersus GNSS

BL40C_PPP Full Constellation GNSS RTK&PPP Board

Overview

The Tersus BL40C_PPP is a compact GNSS RTK&PPP board with full constellation tracking for providing cm-level accuracy positioning. It can be integrated with autopilots and inertial navigation units.

The BL40C_PPP 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.

The BL40C_PPP board includes “TAP”, the satellite-based precise point positioning service developed by Tersus GNSS. With TAP, the GNSS rover receiver will not need to work with the local RTK base station or CORS, but directly receives corrections broadcast by the satellites, such as ephemeris error, satellite clock error, etc.

Key Features

- ✓ Powered by new Tersus ExtremeRTK™ GNSS Technology, BX40C includes multi-constellation and multi-frequency all-in-view satellite tracking
- ✓ Multiple constellations and 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
 - L-Band
- ✓ 576 channels
- ✓ Centimeter-level position accuracy
- ✓ Flexible interfaces such as RS232, TTL, USB, CAN, Ethernet
- ✓ PPS output and event mark input
- ✓ 20Hz RTK solution updates and raw data output
- ✓ Built-in 8GB memory makes data collection easy
- ✓ Pin-to-pin compatible with Trimble BD970
- ✓ Log/command compatible with NovAtel protocol



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Technical Specifications

Performance

Signal Tracking:	
GPS L1 C/A, L2C, L2P, L5	
GLONASS L1 C/A, L2 C/A	
BDS B1, B2, B3, supports BDS-3	
Galileo E1, E5a, E5b	
QZSS L1 C/A, L2C, L5	
L-Band	
Channels:	576
Single Point Positioning Accuracy (RMS):	
- Horizontal:	1.5m
- Vertical :	3.0m
DGPS Positioning Accuracy (RMS):	
- Horizontal:	0.25m
- Vertical:	0.5m
High-Precision Static (RMS):	
- Horizontal:	2.5mm+0.1ppm
- Vertical:	3.5mm+0.4ppm
RTK Positioning Accuracy (RMS):	
- Horizontal:	8mm+1ppm
- Vertical:	15mm+1ppm
Initialization (Typical):	<10s
Initialization Reliability:	>99.99%
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
Re-acquisition:	<2s
Timing Accuracy (RMS):	20ns
Velocity Accuracy (RMS):	0.03m/s

Note:

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

(1) Hardware of ethernet is ready, reserved for future upgrade.

TAP Positioning Accuracy (RMS):	
- Horizontal:	15mm
- Vertical:	30mm
TAP Convergence Time:	3 minutes
TAP Coverage:	Global
TAP Signal Stability:	99.99%
Correction:	RTCM 2.x/3.x/CMR/CMR+
Data Output:	NMEA-0183 and Tersus Binary Format
Max. Update Rate:	20Hz
Storage:	Built-in 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:	LVTTTL x1
Event mark:	LVTTTL x2
Ethernet:	10BaseT/100BaseTx1*(1)

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°C ~ +70°C
Storage Temperature:	-55°C ~ +85°C