Tersus BX50C
LAI GNSS RTK Board

Overview

Using the Low-power Anti-interference(LAI) algorithms, the Tersus BX50C provides real-time monitoring of interference signals and automatic filtering. It tracks all current GNSS constellations including GPS, GLONASS, Galileo, Beidou, QZSS, SBAS, and IRNSS to improve continuity and reliability of RTK solutions that provide centimetre positioning. It has low power consumption, flexible interface, intelligent hardware design and common log/command format for easy integration.

Key Features

- ✓ Supports multiple constellations and frequencies
- - GPS L1 C/A, L1C, L2C, L2P, L5C
- - GLONASS L1OF, L1OC, L2OF, L2OC, L3OC
- - BeiDou B1I, B2I, B3I, B1C, B2a, B2b
- - Galileo E1, E5a, E5b, E5AltBOC, E6
- - QZSS L1 C/A, L1C, L2C, L5C
- - SBAS L1 C/A, L5
- - IRNSS L5
- ✓ Supports 1792 channels
- ✓ Advanced LAI algorithms monitor interfering signals in real time and filter them automatically
- ✓ Centimeter-level position accuracy
- ✓ Low power consumption
- ✓ Supports up to 20Hz RTK solution updates and raw data output
- ✓ Flexible interfaces such as COM, USB, CAN
- ✓ Supports PPS output and event mark input
- ✓ Easy to integrate

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Technical Specifications

Performance

Signal Tracking:

- GPS:	L1 C/A, L1C, L2C, L2P, L5C
- GLONASS:	L1OF, L1OC, L2OF, L2OC, L3OC
- BDS:	B1I, B2I, B3I, B1C, B2a, B2b
- Galileo:	E1, E5a , E5b, E5AltBOC, E6
- QZSS:	L1 C/A, L1C, L2C, L5C
- SBAS:	L1 C/A, L5
- IRNSS:	L5
Channels:	1792

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):	4s[1]
Initialization Reliability:	>99.99%[2]

Observation Accuracy (zenith direction):

- C/A Code:	10cm
- P Code:	10cm
- Carrier Phase:	1mm

Time Accuracy(RMS):	20ns
Velocity Accuracy (RMS):	0.03m/s
Time To First Fix (TTFF):	
- Cold Start:	<35s
- Warm Start:	<10s
Reacquisition:	<1s

System & Data

Data Output:	NMEA-0183 and Tersus Binary
Max. Update Rate:	20Hz
Differential Correction Format:	
	RTCM 2.3/3.0/3.1/3.2,CMR,CMR+
Storage:	In-built 8GB Memory

Communication Ports

PPS Output:	x1
Event Input:	x2[3]
USB:	USB 2.0x1
CAN:	1 Mbps[4]
COM:	x3[5]
COM Baud-rate:	Up to 921600 bps
IO Connector:	20-pin Dual Row Male Header
Antenna Connector:	MCX Female x1

Technical Specifications

Environmental

Operating Temperature:	-40℃ ~ +85℃
Storage Temperature:	-55℃ ~ +95℃
Humidity:	95% not condensed
Vibration	
Random:	MIL-STD-810G (Cat 24, 7.7g RMS)
Sinusoidal:	IEC 60068-2-6
Bump:	ISO 9022-31-06 (25 g)
Shock:	MIL-STD-810G (40 g) Survival (75 g)

Physical

Dimension:	46x71x11mm[6]
Weight:	< 24g[6]

Electrical

Input Voltage:	+3.3 VDC±5%
Power Consumption(Typical)	
GPS L1/L2:	< 1.6W
GPS/GLONASS L1/L2:	1.7W
All ON:	1.8W
In-Rush Power Consumption(Typical):	6.0A for less than 60 μs
Antenna LNA Power	
Input Voltage:	3.3 VDC~12 VD
Output Voltage:	5.0 VDC
Max Output Current:	100mA[7]

Note:
(1) The initialization time depends on various factors, including the number of satellites, observation time, atmospheric conditions, multi-path, obstructions, satellite geometry, etc.
(2) The initialization reliability may be affected by atmospheric conditions, signal multipath, and satellite geometry.
(3) Event2 is enabled by default, but is multiplexed with CAN1. CAN functionality must be disabled for Event2 to work properly.
(4) CAN Bus optional.
(5) COM3 is disabled by default. The COM3 UART can be configured with firmware on pins 4 and 9.
(6) The actual size/weight may vary depending on the manufacturing process and measurement method.
(7) The output current in all instances is limited to 100 mA and above an input voltage of 6 V the output current limit is further reduced (derated).

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Right to the Point