Tersus BX316 Firmware Version (FW0522) Release

Dec 02, 2019

Overview

Tersus GNSS Inc. ("Tersus") is glad to release the firmware to BX316 OEM board. Firmware version (FW0522) is available for download at www.tersus-gnss.com/pages/software and support documents are available at www.tersus-gnss.com/pages/documents.

Features

➢ The firmware tracks three constellations: GPS (L1/L2), GLONASS (L1/L2) and BeiDou (B1/B2).

➢ This firmware provides centimeter-level accurate positioning to meet the wide range of precision positioning applications.

➢ The 4 GB onboard data storage makes it possible to store raw measurements for post-processing application.

➢ The maximum update rate is 20Hz for RTK and 20Hz for raw measurements.

➢ With a number of configurations, the firmware matches the needs for post-processing workflows, and for the use as a base/rover station or rover.

Change from Previous Versions

Issue	Type	FW
BX316 changes PPS pulse polar to align with spec.	Bug Fix	FW0522
Transfer 316 FPGA project into new design tool VIVADO 18.2 and implemented in new strategy.	Enhancement	

Fix the error of "undulation user x.xxx"	Bug Fix	FW0498
Add RTCM1013 log.	Enhancement	FW0462
Add the feature of nPPS.	Enhancement	
Add 'baseantenna' log and modified Ionosphere model.	Enhancement	FW0441
Fix cmr encoding and decoding bugs.	Bug Fix	FW0434
Fix on changed log behavior.	Bug Fix	FW0394
Fix the bug of RTCM2 decoding.	Bug Fix	FW0307
Fix the bug of 'log undulation'	Bug Fix	FW0306
Increase the number of decimal places for latitude and longitude std for log gpgst and log bestpos.	Bug Fix	FW0278
Fix a convert GLONASS ephemeris time bug.	Bug Fix	FW0268
Fix the bug of ephemeris log.	Bug Fix	FW0259
Fix the SATVIS log.	Bug Fix	FW0243
Make the 'rtkcommand reset' work.	Bug Fix	FW0179
Optimize the heading code.	Enhancement	
Baseband fix a Time Quality upgrade without firstly set time possible bug.	Bug Fix	FW0173
Switch back AP RTK callback calling order	Bug Fix	
Make synchronous logs have priority over asynchronous	Bug Fix	
Add antenna type field in "thisantenna" log and this information can be converted to RINEX header.	Enhancement	
Change FSBL	Enhancement	
Optimize the heading code.	Enhancement	
Fixed the GLONASS string count=0 problem which would cause GLONASS have no	Bug fix	FW0138

observations when the UTC time equals 3 a.m.		
Expanded the size of RTK ephemeris array. This problem would cause the newly raised GPS satellites not to participate in RTK solution.	Bug fix	
Fixed the problem of ionospheric model jumping.	Bug fix	
Added the function of smoothing RTK solution to get POSAVE coordinates.	Enhancement	
Fixed the bug of RTCM3 encoding and decoding of FW0114	Bug fix	FW0131
If the input coordinates and actual coordinates differ by more than 30m in one direction,it will stop broadcasting RTCM messages although the RTCM logs are input.	Enhancement	FW0114
The RTK engine is updated.	Enhancement	
Fixed the bug of solution type in heading log	Bug fix	FW0089
Optimized cycle slip detecting method.	Enhancement	
Fixed the bug of log headingb	Bug fix	FW0087
Optimized heading function.	Bug fix	FW0086
Fixed the problem of invalid 'RTKSOURCE' command.	Bug fix	
Changed new BX316 (serial number start with 022) default storage medium to eMMC.	Enhancement	
When input have TAB(it maybe copy from pdf,html..etc.). Make Response enable.	Enhancement	
The RTCM date will be broadcast only when the coordinates are fixed.	Bug fix	FW0082
Changed the RTCM1230 encoding and RTCM1033 decoding.	Bug fix	

AP added more checks for response.	Enhancement	
Make file downloads more robust.	Enhancement	
Fixed the bug of Galileo and BeiDou sig mask and GPS and GLONASS sig mask.	Bug fix	
Add DAC control clock drift range protection to +/- 0.6 ppm	Enhancement	
Consider clock drift error at recover clock drift stage.	Enhancement	
Expand clock drift recover range to 15Hz and expand clock drift tuning range to 40Hz.	Enhancement	
The RTK engine is updated to version 3.0 which is more stable re reliable.	Enhancement	
The maximum update rate is 20Hz for RTK.	Enhancement	
Add RTCMv3 messages, including GPS ephemeris (MT1019), GLONASS ephemeris (MT1020), BDS ephemeris (MT1042), GLONASS bias information (MT1230).	Enhancement	
Optimizing the upgrade program. Even if the OEM board is unable to boot, the upgrade program may be enforced.	Enhancement	FW0041
The logic of firmware update has been optimized.	Enhancement	
The USB feature of firmware has been optimized.	Enhancement	
Fixed the bug when the updating is not successful.	Bug fix	
Changed the naming method of storage files. The time when the file was created is taken as the file name.	Enhancement	

Added a new feature of [base network]. (refer to < User Manual For BX Series GNSS Receiver >, 2.6.1)	Enhancement	