Software Release Notes

For OEM7

What's New in OEM7 FW 7.09.01

This is a release available on these OEM7 platforms (and associated variants) for agriculture customers: OEM719, OEM729, OEM7700, OEM7600, OEM7720, OEM7500, PwrPak7, PwrPak7D, SMART2, and SMART7. For agriculture customers, this release also includes changes first introduced in 7.09.00.

New Features

- PPP positioning improvements in environments affected by ionospheric scintillation to improve availability and accuracy of positioning:
  - Improved ionospheric modeling
  - Improved integrity algorithms

Additional Firmware Updates

- PPP seeding improvements

Changes to Commands/Logs

Logs

New logs:

- PGN127250 Vessel Heading – support for ALIGN Heading solution
- SYNCRELINSPVACMP

Updated logs:

- PGN129029 GNSS Position - height reference updated to ellipsoidal
- LOG – ONALL trigger added

What's New in OEM7 FW 7.09.00

This is a general release available on these OEM7 platforms (and associated variants): OEM719, OEM729, OEM7700, OEM7600, OEM7720, OEM7500, CPT7, CPT7700, PwrPak7, PwrPak7D, GT7800.

New Features

- Precision Time Protocol (PTP)

Additional Firmware Updates

- Improved time to first fix
- Improved PPP under scintillation conditions

- Improvements to SPAN initialization and performance
- Secondary SPAN solution for improved reliability in challenging conditions
- Support for the µIMU-IC with UART interface
- Export velocity limit increased to 600m/s
- Use of BeiDou B2b in RTK positioning
- New and improved Doppler Velocity filter
- Maximum number of logs increased to 128
- Updates to the INS position and velocity standard deviation reporting when a USER offset is applied

Changes to Commands/Logs

Commands

New commands:

- SETTIMESOURCE
- SET4BITSBASPREAMBLE
- USERCANCLOSE, USERCANOPEN, USERCANWRITE
- PTPMODE, PTPPROFILE, PTPTIMESCALE

Logs

New logs:

- RXCONFIGUSER
- PTPDELTATIME
- USERCANDATA, USERCANSTATUS

What's New in OEM7 FW 7.08.14

This is a general release based off of 7.08.10, available on these OEM7 platforms (and associated variants): OEM719, OEM729, OEM7700, OEM7600, OEM7720, OEM7500, CPT7, CPT7700, PwrPak7, PwrPak7D, GT7800.

New Features

- TerraStar C-PRO enhancements with global RTK From the Sky™ technology: improved performance and convergence using triple frequency in PPP (for OEM7600, OEM7500 and OEM7720)
- Oceanix with global RTK From the Sky™ technology for all platforms
- Store and update week number in NVM to automatically maintain GPS week era

Additional Firmware Updates

- Store Spoofing calibration
- Fix issue with SBAS12 log
- VARF re-activated for OEM719 HW Revision 1.05
- Fix issue with BDSBCNAV1RAWMESSAGE

What's New in OEM7 FW 7.08.13

This is an internal release.

What's New in OEM7 FW 7.08.12

This is an Agriculture market-specific release for these platforms, based on the 7.08.10 release: SMART7, SMART7-W, and SMART7-I variants (including support for RELAY7), and OEM719. Note: Includes all features from 7.06.03, 7.08.01, and 7.08.01R1 releases.

New Features

- TerraStar C-PRO enhancements with improved performance and convergence using quad frequency in PPP
  - Includes BeiDou B1C, B2a, B2b, B3
  - Includes Galileo E6B
- Improved implementation of Subscription Managed Channel Configuration with TerraStar-C PRO, TerraStar-X, RTK ASSIST PRO subscriptions: Automatic activation of the advanced channel configuration when a valid subscription is activated, for the duration of the subscription period
- Improved multipath mitigation using a new correlator type

Additional Firmware Updates

- Updates for improved tracking of the BeiDou system:
  - Use the almanac to determine the satellites in view
  - Prioritize MEO satellites for tracking
- Defaults to tracking Galileo E6B signal (previously defaulted to E6C)
- Increased idle time available
- Fix identification of QZSS and NavIC in NMEA logs
- Improved reliability when establishing a connection to the Wi-Fi access point
- Terrain Compensation log/command documentation updated to remove SMART7 base variant from the list of supported platforms

Changes to Commands/Logs

Commands

Updated commands:
PPPSOURCE – TERRASTAR_L and TERRASTAR_C source options removed

What's New in OEM7 FW 7.08.11

This is an internal release.

What's New in OEM7 FW 7.08.10 (revised Nov 1, 2022)

This is a general release available on these OEM7 platforms (and associated variants): OEM719, OEM729, OEM7700, CPT7700, PwrPak7 (not including PwrPak7D), GT7800.

New Features

- TerraStar C-PRO enhancements with global RTK From the Sky™ technology: improved performance and convergence using quad frequency in PPP
    - Includes BeiDou B1C, B2a, B2b, B3
    - Includes Galileo E6B
- Subscription Managed Channel Configuration with TerraStar-C PRO, TerraStar-X, RTK ASSIST PRO subscriptions: Automatic activation of the advanced channel configuration when a valid subscription is activated, for the duration of the subscription period.
- Improved multipath mitigation using a new correlator type
- Support OEM719 HW Revision 1.05
- Support OEM729 HW Revision 2.10

Additional Firmware Updates

- For the BeiDou system:
    - Use the almanac to determine the satellites in view
    - Prioritize MEO satellites for tracking
- Defaults to tracking Galileo E6B signal (previously defaulted to E6C)
- The COM2 TX pin (TXD2) can no longer be configured to output a periodic pulse and instead will be solely dedicated to the primary COM2 transmit data function on the OEM719
- Connect to newly inserted USB stick while operating
- Fix identification of QZSS and NavIC in NMEA logs
- Increased idle time available
- Update WIFI package to v1.7.12

Changes to Commands/Logs

Commands

New commands:

- LOCKOUTSATELLITE, UNLOCKOUTSATELLITE

Updated commands:

- COMCONTROL

Logs

New logs:

- BDSBCNAV1EPHEMERIS, BDSBCNAV2EPHEMERIS, BDSBCNAV3EPHEMERIS, BDSBCNAV1RAWMESSAGE, BDSBCNAV2RAWMESSAGE

What's New in OEM7 FW 7.08.09R1

This is a general release available on these OEM7 platforms (and associated variants): PwrPak7D.

Additional Firmware Updates

- Update WIFI package to v1.7.12
- Fix issue with INSCOMMAND and CONNECTIMU commands

What's New in OEM7 FW 7.08.09

This is a general release available on these OEM7 platforms (and associated variants): OEM719, OEM729.

New Features

- Support OEM719 HW Revision 1.05
- Support OEM729 HW Revision 2.10

Additional Firmware Updates

- The COM2 TX pin (TXD2) can no longer be configured to output a periodic pulse and instead will be solely dedicated to the primary COM2 transmit data function on the OEM719

Changes to Commands/Logs

Commands

Updated commands:

- COMCONTROL

What's New in OEM7 FW 7.08.08

This is an internal release.

What's New in OEM7 FW 7.08.07

This is an internal release.

What's New in OEM7 FW 7.08.06

This is an internal release.

What's New in OEM7 FW 7.08.05

This is an internal release.

What's New in OEM7 FW 7.08.04

This is an internal release.

What's New in OEM7 FW 7.08.03

This is an internal release.

What's New in OEM7 FW 7.08.02 (updated June 2021)

This is a general release based on 7.08.00 for these OEM7 platforms: CPT7 (all versions), CPT7700

New Features

- Support for new CPT7 hardware and the CPT7700, with the following functionality:
  - Internal data logging
  - Wheel sensor support (DMI)
  - New enclosure LEDs
  - Added Event 3 In/Out support
  - Support for the HG4930_AN04 IMU

Additional Firmware Updates

- Improvements to SPAN azimuth performance

What's New in OEM7 FW 7.08.01

This is an Agriculture market-specific release for these platforms, based on the 7.08.00 release: SMART2, SMART7 (all variants, including support for RELAY7), OEM719, OEM729, OEM7700 and OEM7500. Note: Includes all features included in the 7.06.03 (SMART7) and 7.06.02 (SMART2) releases.

New Features

- TerraStar-C PRO now supported on SMART2
- Use of BeiDou Phase III B1C and B2a in GLIDE
- Two-stage zeroing calibration for Terrain Compensation
- PPPSEED MANUAL command for manual PPP seeding in restricted movement conditions

Additional Firmware Updates

- Major improvements on PPP seeding robustness and reliability
- PPP quality indicator / standard deviation improvements
- PPP robustness improvements and fast recovery from erroneous seeding
- Support for Datum and plate tectonics correction for SPAN and ALIGN
- In RTK or PSRDIFF modes, correctly ignore datum transformation as the source datum is not known to the rover receiver
- Prevention of incorrect INS seeding for SPAN capable enclosures when inverted using SETALIGNMENTORIENTATION
- General robustness improvements for SPAN Agriculture profile
- Improved false alarm rate on automatic interference detection

Changes to Commands/Logs

Commands

Updated commands:

- PPPSEED
- TILTZERO

Logs

New logs:

- TILTDATA

What's New in OEM7 FW 7.08.00 (revised Nov 1, 2022)

This is a general release available on these OEM7 platforms: OEM719, OEM729, OEM7700, OEM7720, OEM7500, OEM7600, PP7, PP7D, CPT7.

New Features

- Track BeiDou B2b signal
- Support PwrPak7Q-E2 and PwrPak7DQ-E2, with no Wi-Fi
- Spoofing detection on GPS L1 C/A signals

Additional Firmware Updates

- Change in all channel configurations for models that support BeiDou
    - Increase number of BeiDou satellites tracked
    - Dual frequency models now track BeiDou B2b instead of B2a
    - All full frequency models now include BeiDou B2b
- Provide navigation data from BeiDou B1C and B2a signals
- Use of BeiDou B1C and B2a in RTK positioning
- Datum Handling (released)– Ability to transform between different datums to allow interoperability between different position engines
- Enhanced generic IMU support
- Load new firmware stored from internal memory
- Ability to establish multiple ethernet connections to a receiver
- Fixed issue with ITSPECTRALANALYSIS command
- Improved SPAN performance
- Use of OUTPUTDATUM command applies to all position types

Changes to Commands/Logs

Commands

New commands:

- SETALIGNMENTORIENTATION

Updated commands:

- SOFTLOADFILE
- SETINSROTATION
- EXTERNALPVAS

Removed commands:

- DIFFCODEBIASCONTROL – This command will no longer be supported

Logs

New logs:

- BDSBCNAV1EPHEMERIS, BDSBCNAV2EPHEMERIS
- PDPDATUMINFO, PSRDATUMINFO, RTKDATUMINFO, INSDATUMINFO
- INSVELUSER

Updated logs:

- GPGRS, GPGSV

What's New in OEM7 FW 7.07.04

This is a general release based off of 7.07.03 for these OEM7 platforms: PP7, PP7D.

New Features

- Support for all variants of the PP7 family with no WIFI and no internal memory

Additional Firmware Updates

- Improved ordered NMEA log sequence

What's New in OEM7 FW 7.07.03 (updated)

This is a general release based off of 7.07.01 for these OEM7 platforms: OEM719, OEM729, OEM7700, OEM7720, OEM7500, OEM7600, PP7, PP7D, CPT7, GT7800.

New Features

- TerraStar-X is now supported with a subscription and a receiver model that is unlocked for RTK.
- Support for the PwrPak7-E2 (with Epson370 IMU) and all variants
- Output information for use in interference location detection

What's New in OEM7 FW 7.07.02

This is an internal release.

What's New in OEM7 FW 7.07.01

This is a general release based off of 7.07.00 for these OEM7 platforms: OEM719, OEM729, OEM7700, OEM7720, OEM7500, OEM7600, PP7, PP7D, CPT7, GT7800.

New Features

- SPAN Marine Profile
- SPAN Rail Profile
- PP7 WiFi Client

Additional Firmware Updates

- Improvements to the SPAN system convergence robustness and efficiency
- Epson G320 IMUs support 200Hz data rate

Changes to Commands/Logs

- Final removal of deprecated OEM6 SPAN logs and commands as outlined in the *OEM6 to OEM7 Integration Guide*

Commands

New commands:

- SPAN: SETIMUEVENT, RAWDMI, DMICONFIG

Removed commands:

- SPAN: ASYNCHINSLOGGING, SETWHEELPARAMETERS, WHEELVELOCITY, HEAVEFILTERLogs

New logs:

- SPAN: INSPVASDCMP, INSPVACMP, CORRIMUS, RAWDMI

Updated logs:

- INSCONFIG – can now be logged ONTIME

Removed logs:

- SPAN: CORRIMUDATA, CORRIMUDATAS, TIMEDWHEELDATA, WHEELSIZE

What's New in OEM7 FW 7.07.00 (updated May 2021)

This is a limited release without SPAN support available on these OEM7 platforms: OEM719, OEM729, OEM7700, OEM7720, OEM7500, OEM7600, PP7, PP7D (not including PP7-E1 or PP7D-E1). Note: All changes since 7.05.00 are included in this release with the exception of 7.06.02.

New Features

- Introduce configurations with L5, E5a and B2a frequencies on the OEM7500
- Improved signal acquisition with better Time to First Fix (TTFF)

Additional Firmware Updates

- Compliant to NMEA 4.10
- Track Galileo E6 signal (not used in positioning)
- Track BeiDou B1C and B2a (not used in positioning), with no navigation data from these signals
    - Addition of B1C tracking channels to dual and full frequency models, in channel configurations 4&5
- Ability to track BeiDou PRNs > 30 (not used in positioning)
- Improved multifrequency RTK ambiguity resolution
- CAN port assignments on OEM7500 changed so that CAN0 port maps to physical port CAN1
- For the BeiDou system, use the ephemeris to determine the satellites in view
- TRACKSIGNAL command to disable non primary signal types
- Addition of NavIC L5 channels to the MF models in channel configurations 4&5 (not used in positioning by default)
- Reset data in ITK logs when ITK filters are disabled
- Improved interference detection thresholds
- Beta Feature: Basic CAN Read/Write support
- Accept the ASSIGNALL SBAS command on dual antenna receivers
- Respond with “ok” when an UNLOG command for a command not currently logged is received

Changes to Commands/Logs

Commands

New commands:

- NMEA: NMEABEIDOUTALKER
- ITK: ITWARNINGCONFIG
- RTK: RTKTRACKINGCONTROL, RTKTRACKINGCONTROL
- CONFIGCODE
- TRACKSIGNAL
- DOPPLERWINDOW
- APPROXPOSTIMEOUT
- DUALANTENNAALIGN
- PNGCONFIG

Updated commands:

- CLOCKOFFSET – increased offset field range

Removed commands:

- ITK: ITINTERFERENCEDETECT

Logs

New logs:

- Galileo Navigation data: GALFNAVRAWALMANAC, GALFNAVRAWEPHEMERIS, GALINAVRAWALMANAC, GALINAVRAWEPHEMERIS
- PPP: PPPSEEDAPPLICATIONSTATUS, PPPSEEDSTORESTATUS
- ITK: ITPSDDETECT

Updated logs:

- PASHR