

Release Note

Topic	ZED-F9P FW 1.00 HPG 1.13 UBX-20019211
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1 General information

1.1 Scope

This Release Note applies to ZED-F9P module firmware version 1.00 HPG 1.13.

The document covers the changes in the ZED-F9P firmware compared to firmware version 1.00 HPG 1.12. Please refer to release notes [4], [5], [6] and [7] for a full description.

1.2 Related documentation

- [1] u-blox ZED-F9P Interface Description, [UBX-18010854](#)
- [2] u-blox ZED-F9P Data Sheet, [UBX-17051259](#)
- [3] u-blox ZED-F9P Integration Manual, [UBX-18010802](#)
- [4] u-blox ZED-F9P Release Note FW 1.00 HPG 1.00, [UBX-18052237](#)
- [5] u-blox ZED-F9P Release Note FW 1.00 HPG 1.10, [UBX-18070245](#)
- [6] u-blox ZED-F9P Release Note FW 1.00 HPG 1.11, [UBX-19004753](#)
- [7] u-blox ZED-F9P Release Note FW 1.00 HPG 1.12, [UBX-19026698](#)

2 Released firmware image

Released firmware image for u-blox ZED-F9P	
File	UBX_F9_100_HPG_113_ZED_F9P.7e6e899c5597acddf2f5f2f70fdf5f5be.bin
Firmware version	EXT CORE 1.00 (f10c36) FWVER=HPG 1.13
ROM base support	ROM 1.02 - ROM BASE 0x118B2060 ROM 1.01 - ROM BASE 0xDD3FE36C ROM 0.40 - ROM BASE 0xCAAF619C

2.1 Related software

It is recommended to use u-center GNSS evaluation software version 20.06 (or later) with the released product.

3 Message interface

3.1 UBX protocol

This firmware supports UBX protocol version 27.12.

3.2 NMEA protocol

This firmware adds support for NMEA version 4.11. Five NMEA standards are supported. The default NMEA version is 4.10, and, alternatively, versions 4.11, 4.0, 2.3, and 2.1 can be enabled. The main differences between NMEA 4.11 and NMEA 4.10 are the talker ID, system ID and signal ID introduced for QZSS and BeiDou.

- For BeiDou, the talker ID, system ID and signal ID used by u-blox for version 4.10 were aligned to those specified in the new NMEA 4.11, except for the BeiDou B2I signal ID. The signal ID for BeiDou B2I in NMEA version 4.11 is set to '11'.
- For QZSS, the specific talker ID ('GQ') and system ID ('5') are introduced. The signal ID remains unchanged.

3.3 Interface changes

3.3.1 New messages

Message / Configuration item	Description / Comment
NMEA-GQQ	Poll standard message for QZSS (talker ID GQ)
NMEA-RLM	Galileo Return Link Message (RLM)
CFG-RTCM-DF003_OUT	Configuration item to set the reference station ID RTCM data field (DF003) for output RTCM messages
CFG-RTCM-DF003_IN CFG-RTCM-DF003_IN_FILTER	Configuration items to filter out input RTCM messages based on their reference station ID RTCM data field (DF003)
CFG-NMEA-FILT_QZSS	Disable reporting of QZSS
CFG_NMEA_PROTVR	CFG_NMEA_PROTVR_V411 added for enabling NMEA 4.11
UBX-MON-SPAN	Message reporting signal info to be used as a basic spectrum analyzer
UBX-NAV-SBAS	SBAS-related output message
UBX-CFG-SBAS	SBAS-related (deprecated) configuration message
CFG-NMEA-FILT_SBAS CFG-SIGNAL-SBAS-* CFG-SBAS-*	SBAS-related configuration items
UBX-NAV-SLAS	SLAS-related output message
UBX-NAV-TIMEQZSS	QZSS time solution
CFG-SIGNAL-QZSS_L1S_ENA	Configuration item to enable QZSS L1S support
CFG-QZSS-USE_SLAS_*	SLAS-related configuration items
CFG-BDS-USE_PRN_1_TO_5	Enable BeiDou geostationary satellites

3.3.2 Modified messages

Message / Configuration item	Description / Comment
UBX-RXM-RTCM	RTCM reference station ID reported. If the RTCM message has no reference station ID, it is reported as not available. New <i>msgUsed</i> flag to indicate if an input RTCM message was used or not.
UBX-NAV-STATUS	Added <i>carrSoln</i> flag to indicate RTK status
UBX-TIM-TP	New flag to indicate if the reported quantization error is valid

3.3.3 Removed messages

Message / Configuration item	Description / Comment
CFG-NAVSPG-USE_PPP	Use Precise Point Positioning (PPP feature not supported on HPG or HDG products)

4 Firmware changes

4.1 New features

- BeiDou geostationary satellites (Space Vehicles ID 1 to 5) are supported. The use of these satellites can be enabled using the CFG-BDS-USE_PRN_1_TO_5 configuration key. Default configuration is false.
- SBAS support is added. SBAS (WAAS, EGNOS, MSAS, GAGAN) corrections are used when no RTCM corrections are available. SBAS is enabled in the default configuration.
- SLAS (QZSS L1S) support is added. SLAS corrections are used when no RTCM corrections are available. SLAS corrections take precedence over SBAS corrections. The use of SLAS correction is disabled in the default configuration.
- Added NMEA version 4.11 support.

4.2 Improvements

- Improved RTK and receiver performance.
- Increased navigation update rate for the moving base setup.
- In a moving base setup the RTCM MSM4 message can replace RTCM MSM7. In addition, the proprietary RTCM MT 4072.1 is no longer needed. Changing from MSM7 to MSM4 does not compromise performance, and is therefore recommended as this will lower the load on the communication channel.
- Extended support for legacy base stations in RTCM MT1033. It is still recommended that third party base stations are configured to output Message MT1230 instead of MT1033, if available.
- NMEA and RTCM output on UART2 is available regardless of UART1 configuration.
- Improved USB and I2C interface robustness.
- Message UBX-CFG-VALGET returns NAK for unsupported configuration items.

- Survey-in can be restarted by setting CFG-TMODE-MODE to DISABLED, and then back to SURVEY-IN.
- Fixed SBAS/RTCM/SLAS correction flags in UBX-NAV-SAT message.
- RTC reset mechanism

4.3 Firmware known limitations

- A receiver moving at very slow speed (<10 cm/s) does not update the heading information in UBX-NAV-PVT. The velocity vectors can be used reliably.
- The Geofence status pin is only available in the default pin configuration.
- If the receiver is configured to output RTCM messages on several ports, the ports must have the same RTCM configuration, otherwise the MSM multiple message bit might not be set correctly.
- No support for RTCM MT MSM 1131-1137 (NavIC). If the receiver is fed a correction stream ending with a NavIC MSM message, the receiver will not be able to get into differential mode.
- Time pulse can only be synced to GNSS. Configuration items and relevant flag cannot be set to false (CFG-TP-SYNC_GNSS_TP1, UBX -CFG-TP5).