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Release Notes

Topic:	**ANTAIRS™ TIM-LP / TIM-LF / EvalKit Release: Firmware V2.11**
	GPS.G3-MS3-03004-E
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Date:	16. June. 2003

1 Scope

The ANTARIS™ Technology from u-blox is the right choice for a wide spectrum of GPS solutions

A new firmware revision (V2.11) has been released for all ANTARIS™ GPS receivers being produced in May 2003 and later. This firmware is also available for download.

1.1 Affected Products

TIM-LP

All TIM-LP macro components, for which this release note is applicable, are identified with a production data code written on the stickers:

130000.1211.000.

TIM-LF

All TIM-LF macro components, for which this release note is applicable, are identified with a production data code written on the stickers:

130200.1211.000.

EvalKit

Release of evaluation kits starting in late May. They contain TIM-LP's with the corresponding data code on the sticker as described above.

u-blox will arrange delivery of TIM-LP's on plug-in adapter boards for owners of EvalKits which contain old TIM-LP's labeled with data code

130000.11xx.000 (xx = don't care).

Firmware Download

The new firmware can be downloaded to previously delivered TIM-LP's containing the data code

130000.12xx.000 (xx = a number less than 11).

A download utility is now available and can be called from u-center or console.

Attention !

Different firmware binary files will be available for TIM-LP and TIM-LF.

Do not download TIM-LP firmware into TIM-LF or vice versa.
Do not download this firmware to older hardware revision

Two methods are available to view the version information using u-center AE:

- Text Console: Version information appears after start-up
- Message viewer: Polling **UBX-MON-VER**

1.2 What's New

Software error found in V2.10 has been corrected in V2.11:

Concerning acquisition and reacquisition in V2.10, the time to stable GPS measurement (phase lock) could have been prolonged. This has been corrected in V2.11. This is the only change made in the latest release.

New features (applies to V2.11 and V2.10 equally):

- FixNow is now fully supported
- Active Antenna Supervision
- TIMEMARK function (precision time stamping of a digital input signal)
- Software optimization leads to reduced power consumption
- All new messages introduced to support the new functions are supported in the latest release of u-center V2.11 (June 2003).

2 Default Port Settings

This receiver is pre-configured with the following settings. No changes to prior firmware release.

Port 1 Output	9600 Baud, 8 bits, no parity bit, 1 stop bit Configured to transmit both NMEA and UBX protocols, but only following NMEA and no UBX messages have been activated at start-up: **GGA, GLL, GSA, GSV, RMC, VTG, ZDA** Additional messages can be activated with user appropriate input messages.
Port 1 Input	9600 Baud, 8 bits, no parity bit, 1 stop bit, Autobauding disabled Automatically accepts following protocols without need of explicit configuration: **UBX, NMEA, RTCM** The GPS receiver supports interleaved UBX and NMEA messages. However, interleaving RTCM with UBX or NMEA is not recommended.
Port 2 Output	57600 Baud, 8 bits, no parity bit, 1 stop bit Configured to transmit both NMEA and UBX protocols, but only following UBX and no NMEA messages have been activated at start-up: **NAV-POSLLH, NAV-SOL, NAV-SVINFO, NAV-STATUS** MON-IO, MON-SCHD, MON-TXBUF, INF-Warning, INF-Error, INF-Notice Additional messages can be activated with appropriate input messages. The ANTARIS Evaluation Kit sends out additional messages. They are described in section 8.1.
Port 2 Input	57600 Baud, 8 bits, no parity bit, 1 stop bit, Autobauding disabled Automatically accepts following protocols without need of explicit configuration: **UBX, NMEA, RTCM** The GPS receiver supports interleaved UBX and NMEA messages. However, interleaving RTCM with UBX or NMEA is not recommended.

3 Default Functional Settings

Acquisition Mode	Normal Acquisition (For Evaluation Kits: Fast Acquisition Mode has been pre-configured)
Navigation Platform:	Automotive
Almanac Navigation:	Enabled
Navigation rate:	1 Hz
Operating Mode	Continuous Tracking Mode

4 Processing TIM-LP's

Applicable to TIM-LP and TIM-LF Macro-components delivered as samples: These macro-components are not taped, reeled and sealed in a dry bag. Since the macro-component is a humidity-sensitive device (JEDEC specification J-STD-020), do not solder these samples in an automatic reflow or vapor phase soldering machine. Solder them manually with a soldering iron.

5 Unsupported Functionality and known Limitations

5.1 AID-EPH and AID-ALM

Polling of ephemeris and almanac with the messages **UBX-AID-EPH** and **UBX-AID-ALM** does not work yet. Workaround with **UBX-RXM-ALM** and **UBX-RXM-EPH** exists.

5.2 Battery Backup

The battery backup current will be at an undefined level if the backup voltage is applied to the GPS receiver without having the GPS receiver turned on once to put the real-time-clock (RTC) into a known state. If you are using the GPS receiver with backup battery connected, turn the GPS receiver on for the first time to bring it into a known state.

In the evaluation kit, the GPS receiver has already been turned on once and the problem does no longer apply.

6 New Features

6.1 FixNow

FixNow is fully operational. For details, please refer to the System Integration Manuals.

6.2 Antenna Supervision

The latest firmware supports antenna supervision for active antennas. It is able to detect and report both open and short circuits. Short circuit detection is useful to invoke immediate shutdown of supply voltage to the active antenna in order to avoid high current draws and permanent damages. Open circuit detection is useful for system monitoring, testing the end product after production (antenna connected properly?) and fraud detection in specific vehicle applications (e.g. road pricing devices). Please note that open circuit detection requires additional external circuitry. For details, see the System Integration Manual (GPS.G3-MS3-01001).

The **UBX-CFG-ANT** input message has been introduced to configure the antenna supervisor

Antenna status information is given out in readable text format via **UBX-INF-...** output messages and the newly introduced **NMEA $GPTXT** messages after start-up and in case the antenna status changes.

The **UBX-MON-HW** output message contains antenna status and other hardware related information (GPIO configuration and automatic gain control (AGC) monitor).

6.3 Timing

Time pulse output: The **UBX-TIM-TP** output message issues information on time and quantization error of the time pulses based on GPS or UTC time base.

Time mark input: The EXTINT pin can be configured as a TIMEMARK input to make precise time stamping of incoming signal events based on UTC or GPS time base. The resolution is 0.25 ms. This feature is suitable for precision stopwatch applications. The **UBX-CFG-TM** input message provides means to configure and activate the TIMEMARK. The **UBX-TIM-TM** output message reports time of event marks recognized.

7 Technical Information

7.1 High Sensitivity

This GPS receiver is pre-configured for normal acquisition mode. However, the optimal setting for an active antenna setup is 'Fast Acquisition'. It's strongly recommended to reconfigure the receiver to 'Fast Acquisition' using UBX-CFG-RXM message if used in conjunction with an active high-gain antenna.

For Evaluation Kits, Fast Acquisition Mode is already configured into the Flash EPROM.

If Normal- or High Sensitivity Mode is used in combination with an active antenna with high gain (e.g. u-blox ANN), the receiver may start to track code aliases (i.e. Cross Correlation peaks of the own and from neighboring SVs). This state can be identified by spurious GPS signals at low C/N0. In this case, switch back to Fast Acquisition Mode (with Message UBX-CFG-RXM).

8 ANTARIS™ EvalKit (AEK)

8.1 Functional Differences compared to TIM-LP Macro-Component

The TIM-LP macro-component comes with a defined set of port and protocol settings described in this document and in more detail in the TIM-LP Hardware Integration Manual.

For the ANTARIS™ Evaluation Kit (AEK), following functional differences apply for Serial Port 2 (Output):

- The AEK is configured to operate in Fast Acquisition Mode
- Following additional UBX-NAV messages are activated with output rate of 1 per second:

  - **UBX-NAV-VELNED** (Speed and Velocities in North/East/Down directions)
  - **UBX-NAV-TIMEUTC** (GPS Time Solution in UTC)
  - **UBX-NAV-DOP** (Dilution of Precision)

9 Further Information

9.1 Documentation

The documentation is in preliminary stage and provided as-is. Updates will be made available at

http://www.u-blox.com

Contact Information for technical and commercial issues may be retrieved from

- http://www.u-blox.ch/contact/index.html
- http://www.u-blox.ch/customersupport/help.html