Firmware Release Notes **Survey/GIS**

Date: March 22, 2007

Product: Z-Max.Net

Subject: Firmware Release Maintenance Version MD00 - revD

Number: ZMax2007_03

Introduction:

The Z-Max.Net maintenance version MD00 is a no-cost firmware update for the Z-Max receiver.
It fixes some firmware defects that have been reported by users, dealers and Thales Navigation Technical Support staff.
New functions have also been implemented making Z-Max operation easier and more flexible, especially in an RTK network environment. It supports, in particular, full operation using NTRIP protocols, RTCM V3.0 data format, and GPRS communication.

Z-Max.Net firmware version MD00 requires the use of FAST Survey version 2.0 (see appropriate Release Note) to access full RTK network environment functionality.

A new Getting Started Guide and a new Reference Manual are available in English, French, German and Spanish.

It has been reported spurious data communication problems when operating in GPRS/FKP networks. This version shall not be used in this type of operating mode.

Upgrade procedure

The upgrade procedure is as follows:

1. copy ZA00MD00.BIN file from your hard disk on an empty SD-card (preferably 32 or 64 MB). ZA00MD00.BIN file can downloaded from \Land Survey\Z-Max\Firmware\MD00\ folder of ftp.magellangps.com
2. Verify the Z-Max receiver is powered off
3. Insert the SD-card into the Z-Max receiver
4. We recommend attaching the Z-Max receiver to an external power source for uploading firmware.
5. Plug-in your communication module: MD00 includes a communication module firmware upgrade
6. Press the up-arrow button for a few seconds while switching the Z-Max receiver on
7. Firmware upgrade is divided in 5 stages corresponding to the different parts of the Z-Max receiver. The upgrade process takes about 1 minute.
8. At the end of the upgrade process, the Z-Max.Net receiver reboots automatically and ends in SYSINFO menu. Verify the version reference “VER:MD00” using the embedded keyboard/display. Alternatively, send the commands $PASHQ,GETVER and $PASHQ,VERSION. Communication module F/W version must be CV09.

9. If you have several communication modules, redo all the previous stages with every communication module plugged in.
10. Turn off the Z-Max receiver, depress the green power button until the word "re-init" appears on the front panel and let go of the power button.

Note:

- some stages may be skipped if no battery module (stage 1) or no communication module (stage 2) is plugged-in.
- During upload process, step#2 is sometimes skipped. To bypass the problem, send via Fast Survey , the following Command: `$PASHS,UPLOAD,COMM`
- Re-initialization process clears all internal and data card memory and prepares the SD card for logging data. Preparing the card for logging takes approximately 3 minutes during which the data card cannot be accessed. Depending on the stage of data card preparation and which buttons you might press, the receiver will display alert messages such as “No data card found” or “Data card error: Access” to remind you that you must wait 3 minutes before logging data. These messages indicate that re-initialization is proceeding normally. You may at any time press the red Cancel button on the front panel to remove these alert messages, but you should wait until the alert messages are no longer displayed (approximately 3 minutes) before logging data to the card.

New features

1. **GPRS communication**. Z-Max.Net is fully operational in both GSM and GPRS communication modes. No hardware modification is required. MD00 includes both a receiver and communication module firmware upgrade.

2. **NTRIP client embedded**. Z-Max.Net can act as a rover in a NTRIP network.

3. **RTCM 3.0.** Messages 1001 thru 1008 and 1013 are implemented. Z-Max.Net can act as a base or as a rover using the new data format. It has been tested successfully in conjunction with Thales, Trimble and Leica receivers.

4. **Direct IP functionality**. A Z-Max.Net rover can connect to a fixed-IP-address base using TCP/IP communication, notably when in GPRS mode.

5. **Support for a new communication module utilizing the Motorola G20 GSM/GPRS dual-band (850/1900) modem**. This new modem covers the 2 frequency bands used in North/Central/South America. This new G20-based communication module is only offered as a standard accessory to North/Central/South American customers. The existing communication module, based on the Motorola G18 tri-band (900/800/1900) modem, is still offered with the standard Z-Max.Net configuration in other areas of the world (although the G20-based modem is available as an option).

6. **New COM Module Firmware** version CV09 (embedded in MD00) now drives both the G18- and G20-based GSM/GPRS communication modules.

7. **SBAS satellites** are now tracked and can be used for DGPS operation. SBAS satellites are not used in RTK mode.

8. **Default recording interval** is now 5 seconds.

Resolved Problems

From MD00

1. Operation in FKP networks using GNSMART Caster from Geo++, in NTRIP protocol with internal G18/G20 modem, now provides a stable correction age

2. Source table uploading from some NTRIP caster is corrected

3. Rate error rate in CMR+ message format is now at a standard error rate

4. All numbers and letters in NTRIP password are now accepted

From MC00

1. Automatic restart of Thales radio after power cycling
2. PDL radio port baud rate saving for 19,200 bps
3. Several TRAP 700 issues resolved
4. Front panel harmonization and localization
5. Alert messages now tell the user when the data card is still being prepared for data logging

From MB00

6. Antenna parameters are now saved under THA-Z-MAX
7. FKP correction ($PASHS,CPD,NET) is now fully operational

Known Issues

1. With previous Z-Max firmware versions there were some complaints that the user could start recording a session before the data card was mounted (i.e., “prepared”) for recording. Firmware version MD00 displays alert messages such as "No data card detected" and "Data card error: Access" until the data card is fully prepared for logging. As long as the user waits for these messages to clear (approximately 3 minutes), they may be ignored or removed from display by pressing the red Cancel button on the front of the receiver.

2. When communicating via NTRIP protocol with FKP networks using the GNSMART caster from Geo++, the correction age reported by FAST Survey is sometimes not stable (it increases and then decreases). Operation is otherwise not affected. Further investigation is in progress.

3. When a USB cable is connected to USB port and active, for example when downloading through USB port, external serial port A is inactive.

4. On rare occasions, the receiver can either display a TRAP700 error message to the LED display or automatically power-cycle. This is a result of an illegal instruction sent by the firmware. While this defect has been largely eliminated with MD00, it may still appear occasionally.

5. If a session is programmed to start before day roll over and finish after day roll over, and if there is a power cycle after the day roll over but before the session is completed, the session does not restart automatically after the power cycle.

6. Power supply through power A or port B: If using internal battery, no power will be available on port A or port B. Power is only available if an external power greater than 9V is applied.

Recommendations

1. Operate the Z-Max.Net receiver in “FST,ON” mode (default value of the receiver) when operating in Rover Configuration using CMR/CMR+ corrections.

2. Clear receiver memory once a week, either through front panel power button or $PASHS,INI command. i.e., by turning off the receiver and then depressing the ON button until “re-init” appears on the LED display. As indicated by data card status messages flashing on the LED display, you must wait approximately 3 minutes for the data card to be properly prepared for session logging.

3. Never take the SD Card out of the receiver while recording data.

4. Reformat every 2 weeks the SD-card through the initialization process.