ashtech

Firmware Release Notes	**Survey**

Date: September 22, 2010

Product: ProMark 500

Subject: ProMark 500 v4.2 (S403Gv21) GNSS firmware

Introduction

This document is the firmware release note of the ProMark 500 v4.2 (S403Gv21).

Upgrade procedure

CAUTION

The upgrade process depends on the receiver current firmware release. Please follow the instructions below.

Make sure that after upgrading the receiver, the options are still activated ($PASHQ,OPTION).

Upgrade from S073Gg19 (V3) to S403Gv21 (V4.2)

1. Copy the following files to a USB memory key:
   - **pm500_upgrade-main-0.0.403.tar.bz2**
   - **pm500_upgrade-rescue-0.0.403.tar.bz2**
   - **p_500_upgrade_Vv21.tar.bz2**
2. Make sure that there are at least 10Mb of free memory space after having copied these files (on USB key).
3. Switch off the ProMark 500
4. Plug the ProMark 500 into an external power and make sure that there is also an internal battery
5. Connect the USB memory key to the ProMark 500 using the USB Host cable (shorter USB cable, part number 702104)
6. Turn on the ProMark 500 while keeping pressed the button 'Scroll' (during about 5 seconds).
7. Wait for the complete upgrade, which should take about 10 minutes. At the end, you should see "Upgrade done" and the receiver reboots.
8. Switch off the ProMark 500
9. Turn on the ProMark 500 while keeping pressed the button 'Scroll' (during about 5 seconds)
10. Wait for the complete upgrade, which should take about 5 minutes. At the end, you should see "Upgrade done" and the receiver reboots.

11. Check that the receiver displays **S403Gv21** on the 3ʳᵈ screen. Few seconds could be needed for the version to be displayed on this screen.

Upgrade from S403Gu21 (V4.1) to S403Gv21 (V4.2)

1. Copy the following files to a USB memory key:
   - **p_500_upgrade_Vv21.tar.bz2**
2. Make sure that there are at least 10Mb of free memory space after having copied these files (on USB key).
3. Switch off the ProMark 500
4. Plug the ProMark 500 into an external power and make sure that there is also an internal battery
5. Connect the USB memory key to the ProMark 500 using the USB Host cable (shorter USB cable, part number 702104)
6. Turn on the ProMark 500 while keeping pressed the button 'Scroll' (during about 5 seconds).
7. Wait for the complete upgrade, which should take about 10 minutes. At the end, you should see "Upgrade done" and the receiver reboots.
8. Switch off the ProMark 500
9. Turn on the ProMark 500 while keeping pressed the button 'Scroll' (during about 5 seconds)
10. Wait for the complete upgrade, which should take about 5 minutes. At the end, you should see "Upgrade done" and the receiver reboots.
11. Check that the receiver displays **S403Gv21** on the 3rd screen. Few seconds could be needed for the version to be displayed on this screen.

Downgrade procedure

If for any reason you need or want to go back to the previous version **S073Gg19**, the procedure is the following:

1. Copy the file **p_500_upgrade_V073Gg19.tar.bz2** to a USB memory key
2. Make sure that there are at least 10Mb of free memory space after having copied these files (on USB key).
3. Switch off the ProMark 500
4. Plug the ProMark 500 into an external power and make sure that there is also an internal battery
5. Connect the USB memory key to the ProMark 500 using the USB Host cable (shorter USB cable, part number 702104)
6. Turn on the ProMark 500 while keeping pressed the button 'Scroll' (during about 5 seconds).
7. Wait for the complete upgrade, which should take about 20 minutes. At the end, you should see "Upgrade done" and the receiver reboots.
8. Check that the receiver displays **S073Gg19** on the 3ʳᵈ screen

Firmware list and versions

General version number: S403Gv21

SYS FW: S056
GNSS FW: Gv21
RFS: 403
BOOT LOADER: 1.1.5.8
KERNEL: 2.6.19
PMU: 2.31
GSM: 6.63c or 7.3

The version is available on following ftp for free upgrade:
ftp://ftp.promagellangps.com/Land Survey/PM500/Firmware/

The radio firmware to be used with the ProMark500 v4 are:
• Internal Pacific Crest: 2.58
• External Pacific Crest: 2.58 or 2.42
• Internal U-Link: 1.01
• External U-Link: 1.03 or 1.04

FAST Survey 2.3.5.4 and GNSS Solutions 3.10.11 or higher must be used with the ProMark500 v4.

New features

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Resolved Problems/Improvements

The following issues have been improved:

- **FNC#1895**: Loss of the Fix in NTRIP mode with the V4

- VRS-processing using RTCM3 message type 1032 is changed to ensure better accuracy, when VRS is generated from a close-by station (<20km) and yet to ensure declared reliability for VRS stations, which are generated from distant network.

- The estimated RMSs are now more adequate in case of kinematic mode.

Known issues

1. RNX Super Compact is not available. When this mode is selected, user will receive RNX Compact.
2. Some USB Keys can be corrupted when the key is full. Only seen on one 4GB USB key branded Dane-Elec, and even on this key the occurrence of this issue is low
3. PM500 V2 configured as a CMR rover (DIP or NTRIP mode) works well against all other Trimble receivers and Networks, except with a Trimble 4700 base or a Trimble 5800 base. This issue has low customer impact because Trimble 4700 and Trimble 5800 are rarely used as bases. (None of the 10+ known networks are using Trimble 4700 or Trimble 5800 as bases.)
4. It is impossible to get a fixed point (only a float ambiguity resolution with sub meter accuracy) on a PM500 V2 rover using an AQUARIUS base sending RTCM 2.3 corrections.
5. Very rarely, one erroneous epoch in POS or GGA messages can be output during long recording sessions of 48h. The erroneous epoch is time tagged 30s later than expected.
6. A base station configured in RTCM2 will transmit MT1 and MT31 corrections (DGPS mode) in full accordance with the user requested interval. However these messages will be processed on the rover with 3-times decimation (e.g. if the base send 1Hz correction, corrections well be updated every 3s on rover). This issue will not impact the quality of the rover position.
7. Latency of GGA messages compared to PPS output (in POP20 mode) can vary from 25ms to 40ms with some spikes up to 80ms. In POP10 mode, variation is between 80 and 200ms.
8. The command $PASHS,PPS,0 does not work. After issuing this command, the PPS is still valid.
9. The receiver does not support USB memory key whose size is larger than 16GB. During the test of the receiver, the size of USB memory key was 2GB.
10. In GPRS or CSD mode, it may take a while, up to 10 minutes, before detecting that the communication is stopped and automatically re-dialing the server. It is not systematic and depends on the cause of the interruption.
11. The ATOM format is not public so there is no description in the manual. The receiver outputs or records only the message ATOM type MES, NAV, ATR, PVT.

Recommendations

- The ProMark500 configured as a CMR base works well against all rovers except Trimbl5800. So, it is recommended to configure the ProMark500 in RTCM 2.3 or CMR+ protocols to work with a Trimble 5800 rover- It is recommended to not to use higher rate than 1Hz RTCM-2 data for both ProMark500 rover and base. If a higher rate of transmission/reception is required, use RTCM-3, ATOM or CMR/CMR+ protocols.

- It is recommended not to run RTK rover when a ProMark500 base or rover is configured in L2C mode. In L2C mode, the number of available L2 data would be low (L2C constellation is poor) and rover will primarily stay in float mode.