MAGELLAN®
PROFESSIONAL

Firmware Release Notes — Survey/GIS

Date: January 26, 2009

Product: ProMark 500

Subject: ProMark 500 V3 Firmware Release

Introduction:

This document is the firmware release note for ProMark 500 V3.

Reminder:

PM500 version	Former PM500 versions		New version V3	
	V1 S023G011	V2 S055Gb15		File name S073Gg19
GNSS Board fw	G011	Gb15	Gg19	pm500_upgrade-gnss-0.0.g19.tar.bz2
Application fw	S023	S035	S051	pm4_upgrade-dataflash-0.0.073.tar.bz2
PMU	2.21	2.30.7	2.31	pm500_upgrade-pmu-2.31.0.tar.bz2
GSM module fw	6.63_	6.63_	6.63C	pm500_upgrade-gsm-6.63.c.tar.bz2

Upgrade procedure

Note that if the ProMark500 contains version V1 (S023G011), you must upgrade it to V2 (S055Gb15) before upgrading to V3 (S073Gg19).
So, depending on the currently installed firmware version (V1, V2 or beta V3), the upgrade procedure is different:

- If V1 (S023G011) is installed in your receiver, perform procedure A (V1 to V2), then procedure B (V2 to V3).
- If V2 (S055Gb15) is installed in your receiver, just perform procedure B (V2 to V3).
- If a V3 Beta version (>= S067Gxxx) is intalled in your receiver, perform procedure C.

-

A- Procedure to upgrade from V1 (S023G011) to V2 (S055Gb15)

1- Copy these 3 files on a USB key:
   - pm4_upgrade-pmu-2.30.7.tar.bz2
   - pm4_upgrade-dataflash-0.0.055.tar.bz2
   - pm4_upgrade-gnss-0.0.b15.tar.bz2

2- Make sure that there are at least 10Mb of free memory after having copied these files
3- Switch off the ProMark500

4- Connect the ProMark500 to an external power and make sure there is also an internal battery
5- Connect the USB key to the ProMark500
6- **Turn on the ProMark500 while holding down the 'Scroll'** button. Release them when the loading start
7- Wait for the complete upgrade. At the end, the ProMark500 will automatically switch off
8- Switch ON the receiver by pressing **POWER, LOG, SCROLL** key at the same time. The message **"Reset done"** must be displayed on the screen and the receiver will start. If you don't see this message, please try again.
9- On the display screen, check that the release number is now "S055Gb15"

B- Procedure to upgrade from V2 (S055Gb15) to V3 (S073Gg19)

1- On an *empty USB Key* copy the following files**:**
- pm4_upgrade-dataflash-0.0.073.tar.bz2
- pm500_upgrade-pmu-2.31.0.tar.bz2
- pm500_upgrade-rescue-0.0.073.tar.bz2
- pm500_upgrade-gnss-0.0.g19.tar.bz2

2- Make sure there is at least 10Mb of free memory after having copied these files
3- Switch off the ProMark 500
4- Connect the ProMark 500 to an external power and make sure there is also an internal battery.
5 -Connect the USB key to the ProMark500.
6- **Turn on the ProMark 500 while holding down the 'Scroll' button**.
7- Wait for the complete upgrade, which should take about 20 minutes. At the end, the ProMark 500 will automatically switch off.
8- Keep the USB key plugged to the ProMark500

9- **Turn on the ProMark 500 while holding down the 'Scroll' button.**
10- Wait for the complete upgrade, which should take about 15 minutes. At the end, the ProMark 500 will automatically switch off.
11- Switch ON the receiver by pressing **POWER, LOG, SCROLL** key at the same time. The message **"Reset done"** must be displayed on the screen and the receiver will start. If you don't see this message, please try again.
12- Check the release number **"S073Gg19**" on the display.

C- Procedure to upgrade from beta V3 (S067 or later) or SR55 to V3 (S073Gg19)

1- On an **empty USB Key** copy the following files:
pm500_upgrade-main-0.0.073.tar.bz2
pm500_upgrade-pmu-2.31.0.tar.bz2
pm500_upgrade-gnss-0.0.g19.tar.bz2

2- Connect the USB key to the ProMark500.
3- **Turn ON the ProMark 500 while keeping pressed the 'SCROLL' button**.
Release them when the loading start.
4- Wait for the complete upgrade, which should take 15 minutes. At the end, the ProMark 500 will automatically make switch OFF.
5- Switch ON the receiver by pressing **POWER, LOG, SCROLL** key at the same time. The message "Reset done" must be displayed on the screen and the receiver will start. If you don't see this message, please try again..
6- Check the release number **"S073Gg19**" on the display.

Procedure to upgrade the modem (6.63c)

WARNING : this upgrade can only be done after the V3 upgrade and if the GSM option is activated.

1- On an **empty USB Key** copy the following files:
- pm500_upgrade-gsm-6.63.c.tar.bz2

2- Make sure there is at least 10Mb of free memory after having copied these files
3- Switch off the ProMark 500
4- Connect the ProMark 500 to an external power and make sure there is also an internal battery.
5 -Connect the USB key to the ProMark500.
6- **Turn ON the ProMark 500 while keeping pressed the button 'SCROLL'**.
Release them when the loading start.
7- Wait for the complete upgrade, which should take few minutes. At the end, the ProMark 500 will automatically restart.

Firmware list and versions

Enter command on Port A : $PASHQ,VERSION
You should have:

APPLICATION: S051Gg19
KERNEL: 2.6.19-pm4 #165 Mon Jul 7 10:35:50
RESCUE: 2.6.19-rescue
BOOT LOADER: 1.1.5.6
PMU: 2.31.0
API: 1.123
BSP: 1.0-108
GNSS uploader: pm4loader 0.22
GNSS S/N:
GNSS Options: TJKLEYGSVHC
RFS: 073

New features

1. CSD Mode (Direct dial) with the GPRS modem
2. The ProMark 500 generates GLONASS data in CMR/CMR+ format
3. The NMEA messages can be output and recorded at 10Hz
4. The ProMark500 antenna was calibrated by the NGS, and its name is MAG990596 on the NGS antenna web site
5. The new antenna offsets measured by NGS are taken into account by the ProMark 500
6. The PBN message is now generated
7. Mode 2 in the $PASHS,CPD,NET command has been removed
8. The ProMark 500 now contains a rescue image which allows re-uploading the firmware in case of a corrupted image
9. The ProMark 500 can work as a DBEN rover
10. The ProMark 500 can work as CMR+ rover if the base is a NovAtel-base receiver (Leica, Sokkia)
11. The Trimble 5800 rover can work with a CMR+ ProMark500 base
12. RTCM2.3 messages 9, 23, 31, 32, 34 and 36 can be generated by the ProMark 500
13. There is now advanced multipath mitigation for GLONASS L2 C/A
14. There is now an automatic redial in GPRS mode (base and rover)
15. The $PASHQ,VERSION command now displays the IMEI numbers of the GSM / GPRS Module

Resolved Problems/Improvements

Application firmware:

1. $PASHR,RST: the internal memory is now available after a reset if a USB key had been used previously to record data.
2. The false alarm '1.71 Unknown command' does not appear anymore
3. The GGA message is not sent automatically in direct IP base mode. It is sent only if the user asks for it.
4. At the rover, the base position returned by the ProMark 500 when the received format is RTCM2.3 is now correct ($PASHQ,CPD,POS)
5. After a reset of the receiver with the $PASHS,RST command, the site name is now set to "____" instead of the last four digits of the serial number.
6. Sometimes, the receiver hung up when receiving RTCM2.3 data via GPRS. This issue is resolved.
7. The connection to Sokkia NTRIP server now works properly.
8. The problem where the GNSS board was not detected has been corrected.
9. The possibility to update GPRS module firmware has been added.

GNSS firmware:

10. The occurrence of noisy fixed RTK positions in some cases has been resolved
11. 10-Hz differential data decoding and processing is implemented
12. Rover can now work with 'incorrect' Geo++ mount point in Israel
13. The navigation messages (ATM,NAV) are now output on query.
14. Rover now compatible with Trimble BD960 base

Known issues

Application firmware:

1. With the external Magellan transmitter (at 4800 bits per second), the RTCM2.3 format does not work properly at 2 s because there are too many satellites (GPS and GLONASS). With a rate of 3 s, it works.
2. If the receiver hangs up for any reason, it does not restart automatically. It must be powered off and powered on manually
3. Sometimes, the GNSS Board does not accept any more data from the System Board. When this happens, the receiver stays in autonomous mode even if differential data are received. The only thing to do is to power off and power on the receiver.
4. When the debug recording is enabled while some NMEA messages are output or recorded, it is possible that a few NMEA messages will be missing
5. When the receiver outputs NMEA message via Bluetooth (port C), a few messages may be corrupted.
6. Trimble rover does not work with ProMark 500 base in RTCM3 mode because Trimble does not recognize the ProMark 500 antenna name.

GNSS firmware:

7. CMR generation is unstable
8. ProMark 500 may have difficulty delivering a Float or Fixed positions for long baselines (It may stay in DGPS)

Recommendations

1. Use the following priority when selecting differential data transmission:
    a. RTCM3
    b. CMR
    c. RTCM2.3
    d. CMR+
2. Use the following priority when selecting differential data reception:
    a. RTCM3
    b. CMR
    c. RTCM2.3
    d. CMR+
3. Do not enable Time-Tagged RTK without a special need
4. With the Magellan transmitter, it is recommended to use the RTCM3 format because the size of the RTCM2.3 format with GPS and GLONASS is too large.
5. If you experience problems with ProMark 500 such as a program hang, cycle the power to correct the issue. Unlike with previous receivers from Magellan, it is NOT RECOMMENDED to do a three-button reset. This procedure should only be used as a last resort when cycling the power does not clear the problem.

    Remark: If you need to perform a three-button reset, please wait about 5 minutes after this reset before accessing ProMark 500 thru commands or thru its keyboard (After a three-button reset there are internal initializations which take some time to perform).