Firmware Release Notes   Survey

Date: March 26, 2012

Product: ProMark 500

Subject: ProMark 500 V6.0 Firmware Release

Introduction:

This document is the firmware release note of the ProMark 500 V6.0.

Upgrade procedure

The procedure to upgrade the receiver is the following:
1- Copy the file p_500_upgrade_V6.0.S759x24.tar.bz2 to an USB memory key.
2- Make sure that there are at least 10Mb of free memory after having copied these files
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
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 30 minutes.

Firmware list and versions

General version number: V6.0 - S759Gx24

SYS: S125c
GNSS: Gx24
RFS: 759
BOOT LOADER: 1.1.5.9
KERNEL: 2.6.19
PMU: 2.31
GSM: R7.46

The radio firmware compatible with the ProMark 500 V6.0 are:

-Internal Pacific Crest PDL RXO: 2.58
-External Pacific Crest HPB: 2.58 or 2.42
-External Pacific Crest ADL Vantage: 3.04 (2280)
-External Pacific Crest ADL Vantage Pro: 3.04 (2280)
-Internal U-Link: 1.02
-External U-Link: 1.03 or 1.04 or 1.09 (if external Ulink with Connector)

The software compatible with ProMark 500 V6 are:

- FAST Survey: 2.9.1
- GNSS Solutions: 3.71
- RINEX Converter: 4.1.1
- Conf Radio: 2.1.0
- Spectra Precision Survey Pro: 5.0
- Spectra Precision Survey Office: 2.6

New features (compared to ProMark 500 V5.1)

1. **New antenna supported**. The following antennas are added to the internal antenna table: ASH802147, SPP39105.90, SPP67410_42, SPP67410_44, SPP67410_46, SPP68410_10, TRM59800.00 and TRM59800.80 .
2. **EPOCH 50 Antenna**. The EPOCH 50 antenna is added to the internal antenna table.
3. **Raw Data format**. The format of the raw data recorded in the G-File is now ATOM-RNX while it was ATOM-MES with the ProMark 500 V5.1. The ATOM-MES is not supported anymore.
4. **Base position**. The receiver raises an alarm when the base position entered with the command *$PASHS,POS* is too far from the computed position. In this case, the base position is not taken into account and the command returns NAK.
5. **Data Link Quality**. The new message $PASHR,DDS provides information regarding the data link quality and the received differential messages.
6. **Configuration file**. The ProMark 500 is able to save/load its configuration to/from a file (*.par). It allows setting several receivers with exactly the same configuration using the following new commands *$PASHS,PAR,SAV* and *$PASHS,PAR,LOD*. The configuration can be automatically loaded if the file exists in the USB key when it is plug to the receiver.
7. **Received base antenna parameters**. At the rover, the new command *$PASHQ,ANP,RCV* returns the offsets of received base antenna.
8. **ADL RXO**. The ProMark 500 supports the internal Pacific Crest ADL RXO UHF receiver. **ADL Vantage**. The ProMark 500 supports the external Pacific Crest ADL Vantage UHG transmitter.
9. **ADL Vantage Pro**. The ProMark 500 supports the external Pacific Crest ADL Vantage Pro UHF transmitter.
10. **NMEA GNS Message**. This message is now generated.
11. **ATL File**. It is possible to start and stop ATL recording by using only the OLED screen and the buttons, without sending any command.

12. **Satellite Messages**. The new Ashtech messages *$PASHR,SGP* (GPS) and *$PASHR,SGL* (GLONASS)contain the SNR of each signal (L1 andL2), the usage status in the position computation and the differential usage status.
13. **SBAS improvement**. Improved algorithm for SBAS ionosphere issue
14. **Position type for SBAS differential**. A new position type (9) is created for SBAS differential in the GGA and Ashtech messages (POS, VEC,…). The command *$PASHS,NPT* is used to output this new position type or to keep the legacy one.
15. **Temporary option**. The duration for the temporary option is now 1, 3 or 6 months.

Resolved Problems (compared to ProMark 500 V5.1)

1. **Received base position and antenna height**: when the command *$PASHS,CPD,RST* is issued at the rover, the command *$PASHQ,CPD,POS* and *$PASHQ,CPD,ANT* returns zero values until the base position and the base antenna height is received again.
2. **Message RTCM3.1 Type 1023**: The sign for horizontal residuals is now correct. But because the RTCM standard is not completely clear regarding the residual sign, the new command *$PASHS,LCS,HOR* and *$PASHS,LCS,VER* allow setting the sign for the horizontal and vertical residuals.

Known issues

1. When you connect the ProMark 500 to a PC with a USB cable and you delete any files of the internal memory with the Windows Explorer of the PC, the list of files returned by the *$PASHQ,FIL/FLS* commands may not be correct anymore (same applies to files displayed by FAST Survey). It is necessary to perform a power cycle in order to retrieve a correct list of files.
2. When the command *$PASHS,RST* is issued, the message *GNSS Board not detected* may appear. However after few seconds, the receiver will work properly.
3. When the base is a Trimble receiver or board configured in CMR or CMR+ and the rover is a ProMark 500, the age of corrections is not stable and high. This is due to the Trimble GLONASS messages which are not processed by the ProMark 500. In this case, it is recommended to use RTCM3 format.

Recommendations

1. User working with 3rd party NTRIP networks should be recommended not to connect to VRS mount points, if other, such as MAC or FKP mount points are available. This will guarantee a more stable performance.
2. User working with 3rd party bases/networks generating GLONASS reference data is recommended to idebtifywith the network provider the name (brand) of reference receivers. If this brand is known a priori, it can be specified on the rover by command $PASHS,RCP,REF,brand,1 (supported brand=TRIMBLE, NOVATEL, SEPTENTRIO, TOPCON). It this case, GPS+GLONASS rover RTK performance can be much better than in a case, when reference receiver name is not known.