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Firmware Release Notice — Survey/Mapping

Date: May 27, 2004

Product: ProMark 2

Subject: Version 2.40

Number: ProMark 2 2004_01 updated

Introduction:
Version 2.40 is a cost upgrade for the ProMark 2 with firmware version 1.00 or 1.10. Please contact your Regional Sales Manager for details and pricing. This is a no cost upgrade for ProMark 2 with firmware version 2.00, 2.10 or 2.20.
A PDF version of the ProMark 2 manual for version 2.00 and above is available in English, French, German and Spanish in the Reference Manual folder on our ftp site at ftp://ftp.thalesnavigation.com.

New Feature from version 2.20:
1. The ProMark2 operates with the latest version of MapSend software.
2. The maximum number of control points stored in the receiver memory has been increased to 50.
3. The maximum number of point descriptors stored in the receiver memory has been increased to 50.
4. In case a particular point number is being reused while revisiting a site, the receiver will continue auto-incrementing point ID from the last automatically generated number instead of the current number.
5. 2-second recording interval option has been added to the list of predefined intervals.
6. A possibility of uploading the control point information from Ashtech Solutions office software has been added.
NOTE: New control points uploaded from the office software will replace the existing control points in the receiver.
7. A possibility of navigating to control points while receiver is operating in the Navigate mode.

New Feature from version 2.10:
1. Fimware will ignore erroneous SBAS satellite navigation messages.

New Features from version 2.00:
1. All screens and warnings are now available in French, Spanish and German. There is no need to upgrade to version 2.10 unless the additional language features are required.

New Features from versions 1.00 or 1.10:

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1. Added Stop-and-Go and continuous kinematic data collection. Features to support kinematic capability was added including a kinematic alarm to indicate satellite loss of lock.
2. Added the "serialization" feature. With this feature, the receiver needs to have a serial number loaded before firmware can be uploaded. This is true for any receiver with firmware version previous to 2.00. New units are currently shipped with serial numbers.
3. The Recording Interval rate can be set to any value between 1 and 120.
4. The memory indicator in the Survey Status screen blinks every recording interval to indicate that data is being recorded into memory. In previous versions, it blinked every 10 seconds.
5. In addition to RTCM Type 9, RTCM Type 1 messages can now be used for DGPS operation.

Fixes from version 2.20:

1. Input of a point number has been improved. For example, if '3' is entered, the point number is now '0003' instead of '3000'.

Fixes from version 1.00:

1. To return to the Mode screen from Survey screen, the Esc button needed to be pressed twice. This problem has been fixed.
2. The incorrect week number in the ephemeris for data colleted at the week rollover has been fixed.

Known Problems:

1. Once the control point information is uploaded from the office software, it becomes available after power cycling the unit
2. After using the Del All key to clear all files from the file manager list, the next file created will be named using the next sequential letter from previous list, rather than beginning with session A. This is true for files deleted during the same day. After day roll over, names always start with session A. The same is true if the Receiver ID is changed. If some sessions are logged using a certain receiver ID, then this receiver ID is changed, sessions created with the new Receiver ID will be named using the next sequential letter from the previous Receiver ID, rather than start with A. Also, after a Detail map is loaded (using the Map Send software), if a new data file is created, the file name will skip one letter from the last one created. For example, if files A, B, C are created, and then a Detail map loaded, the next data file created will be E and not D. This does not have any adverse effect on processing
3. If the receiver has a full memory (File Manager screen shows no memory available for data recording) and the unit is power cycled, all parameters will reset to default values.
4. Occasionally (about 2% of the time) when a file is downloaded, Ashtech Solutions download module reports the error "one epoch skipped due to bad checksum". The epoch with incorrect checksum is the last or the one before last. The problem is due to an incomplete record when closing the file. Note that the problem occurs

when the receiver is powered using the front panel On/Off key (unit properly powered off). When this happens, the B-file, E-file and D-file are fully retrievable from the receiver memory and usable. No data lost other than one missing epoch occurs.

5. If a value is entered in the description field and saved, and then 1, 2, or 3 characters are entered in the site ID field (empty fields are filled with -), the value in the description field will be deleted and this field will be empty. If 4 characters are entered in the site ID field, the description field will still display the value previously saved.
6. When entering in a slant antenna height, the display allows you to change the 10's and the 1's digit, but when you go to change the decimal 10ths digit (the first one to the right of the decimal point) it locks and will not let you change it. If you move over and change the decimal 100ths digit, then go back to the 10ths, it works fine.
7. If in Static mode, and while logging data, the recording interval value is changed, the Elapsed time field in the Survey Status screen jumps to an unexpected value (significantly bigger if the recording interval is bigger than that previously setup, or significantly smaller if the recording interval is smaller than that). After the jump, the time increases properly (every RCI).
8. With an existing known point list table, if known is select in the “Initialize” field, the Site ID field will display the first site in the Known point list table (which is correct) but the Site Descriptor field will display the last value selected instead of the descriptor associated with that first known site ID point. If then, a value is selected from the Site ID table, the Site Descriptor field will display the correct descriptor associated with the selected known site ID point.
9. If the Survey Mode is set to Static, the recording interval value is changed, and then the Survey mode is changed to Stop-and-Go, the Time on Site value in the Point Attribute screen will display the Recording Interval value instead of the last set time on site value.
10. In Kinematic mode, when initializing with Bar or Known point, the remain time field decrements from the set value to 00:00:00 instead of incrementing. Also, the Site ID field increments as if normal kinematic data is being logged. When this happens, the user will have to manually terminate the initialization logging when the desired time is reached by pressing the stop button. Note that the information is logged properly so this problem has no effect in post processing.
11. When a kinematic alarm is displayed, if the user acknowledges the alarm (press any key from the front panel) within 2 seconds since it was generated, the alarm will be generated again. Allow at least 2 seconds to elapse before kinematic alarm is cleared.
12. If while collecting static data (Survey Status screen being displayed), the power button is pressed to power the unit off, but immediately another button is pressed to cancel the power off operation, the unit will not power off. However, the Survey Status screen will display empty #Sats and PDOP fields and the unit will freeze in that mode. To recover, the ESC button needs to be pressed. The receiver will then restart the data collection process and data will be written into a new file.
13. After a full memory reset is completed, if data is collected before almanac information is available, extension of the file will be .143.

14. If the receiver is power off improperly (batteries removed) or batteries die while collecting data, up to 10 minutes of data can the lost.
15. The receiver is designed to generate "two" Low Battery Warning alarms accompanied by a beep. When the second alarm is generated, the battery will not have enough power to generate the beep, so the user will probably miss the second alarm and might just notice the receiver off. It is important to note that after the first alarm is generated, the user will have at least another ½ hour of power, but the suggestion is to replace batteries as soon as possible. NOTE THAT LOW BATTERY ALARMS ARE GENERATED ONLY FOR INTERNAL BATTERIES.
16. The Low Data memory alarm is generated when there are approximately 350KB left of external memory (memory indicator will display approximately 5%). Once the alarm is acknowledged, it will not be displayed again unless the unit is power cycle.
17. While in the Survey Status, if the power changes from external to internal (or vice versa), the power indicator will not change unless the screen is exit and access again. (the same is true when in the Satellite Plot screen).
18. ProMark2 does not support MapSend Topo.
19. If the receiver values are set to default (using the Navigate / Menu/ Setup/ Clear memory screen), and the unit power cycle, immediately after powering on, the receiver blinks and then automatically displays the Navigation screen. It should display the MODE screen.

Additional Information:

Following you will find information related with the ProMark2 receiver operation that is considered useful to have a better understanding of the operation of the product.

<u>New for release 2.00 and 2.10:</u>

1. Data recording starts has soon as "Collect Data" is selected and the receiver is locked to at least 4 healthy satellite with elevation over 10 degrees. The START and STOP buttons in the Survey Status screen that are available when the survey mode of operation is set to Stop and Go or Kinematic, controls attributing for data recording.
2. Following is a description of the implementation of the kinematic loss of lock alarm:

- Alarm detection starts 60 sec after first epoch of data is recorded in external memory.
- The alarm message, together with its associated beep, is displayed immediately after the first bad condition occurs (less than 5 SVs with no loss of lock flag).
- The alarm message box stays on screen until the user acknowledges the alarm by pressing any key in the front panel. The alarm stays even if the bad condition is cleared. The user needs to acknowledge the alarm for it to disappear from screen.
- The alarm beeper is disabled automatically after 30 sec, or it is disabled when the user acknowledges the alarm, which ever happens first.
- Alarm detection is as follows:

- If a bad condition occurs and the alarm is acknowledged before the bad condition disappears, there will be a 30 seconds silence period after the alarm is acknowledge. If after the 30 seconds silence period, the same bad condition still persists, immediately after the 30 seconds, the alarm together with the beep will be generated again until it is acknowledge. If after acknowledgement, the same bad condition still persists, after 30 seconds, the alarm will again be generated with the beep. And so on.

3. Following is a list of the default parameters in the Receiver:

- Recording Interval: Recording Interval = 10
- Antenna: Height Type = Slant, Antenna Height = 0.000
- Units: Units = Int Feet
- Receiver ID: Receiver ID = 1234
- Contrast: Contrast = 38%.
- Point Attribute Static: Site ID = ????, Site Description = empty
- Point Attribute Stop and Go: Site ID = 0001, Time on Site = 15 (None, Known), 300 (Bar), Site Description = empty, Initialize = None, Control = No
- Point Attribute Kinematic: Site ID = 0001, Time on Site = 15 (Known), 300 (Bar), Site Description = empty, Initialize = None

4. After a power cycle, ALL values in all screens in the receiver are saved except for the following, which return to default settings:

Static: site ID returns to ????

Stop and Go: Initialize returns to None, Control returns to No
Kinematic: Initialize returns to None.

5. All fields in the Point Attribute screen, with the exception of the Site ID field, are common in between the different modes of operation. This means that any changes in the Point Attribute fields while in one mode of operation, will reflect in the other. For example, if a new Site Descriptor is added while in Static mode, it will reflect in the Descriptor field when selecting Kinematic or Stop and Go. Another example, if Time on Site is changed to a certain value while in Stop and Go mode, this value will reflect in the Time on Site field when selecting Kinematic mode.
6. As mentioned in the above step, the Site ID value is not common to all modes of operation. Site ID fields between Stop and Go and Kinematic are common, but they are not with Static mode. For example, if while in Stop-and-Go mode, the Site ID field is edit to the value 0246, and then Kinematic mode of operation is selected, the Site ID field will reflect 0246. But if Static mode is selected, the Site ID field will not reflect 0246 but it will display the last Site ID value selected while in Static mode or ???? (default value).
7. When in Stop and Go or Kinematic mode of operation, the option “known” in the Initialize field (Point Attribute screen) will only be displayed if a Control point has been logged (CONTROL field in the Attribute Point screen set to Yes). To reinitialize on a point that has not yet been set as a control point, simply reoccupy and give the point the same site ID as when previously occupied.

8. The ProMark2 receiver does not have SITE ID validation. This means that if in Stop and Go or Kinematic mode, the user occupies different points with the same site ID during the same session, there will be no warning generated by the receiver.
9. In the Point Attribute screen, if "Time on Site" is set to a value less than recording interval, Time on Site field will be automatically set to the recording interval setting.
10. If the receiver is power cycled while logging a Stop and Go point, the receiver will not write an end of time record in the D-file for the point being logged, and Ashtech Solutions will not process this last point.
11. In the Survey Status screen, the memory indicator blinks once every RCI to indicate data is being recorded into memory. The blinking requires about 40 seconds to stabilize after data collection starts, beginning with fast blinking (every second) and slowing down on time. So during the first 40 seconds, the blinking will not reflect RCI. This is not noticeable for small recording intervals but it is for RCI 5 or larger.
12. For Kinematic mode, in the Survey Status screen, the site ID for the first point does not increment until two times the recording interval. After that, it increments properly (once every recording interval).

Known Incompatibilities in versions 2.00, 2.10, 2.20, 2.40:

1. The ProMark2 receiver will only work with Ashtech Solutions version 2.50 or later.
2. ProMark2 will download an almanac only with Ashtech Solutions version 2.60 or later.
3. For Kinematic Post- processing, Ashtech Solutions version 2.60 or later should be used.
4. Firmware upload cannot be done with UPL (Universal Program Loader). The program magup.exe needs to be used.
5. MAGUP.EXE version 1.70 must be used to load the firmware file (prm_200.hex).