Frequently Asked Questions, ProMark2 v.2.2

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1. GENERAL

Q. Why is the ProMark2 hard to pull out of the cradle?

A. IMPORTANT! Be sure to disconnect the antenna cable on the back of the unit **before removing the unit from the survey bracket**. Failure to remove the antenna cable before removing the unit from the cradle may result in damage to the antenna cable connector.

Q. Can ProMark2 perform kinematic surveys?

A. Yes, see the ProMark2 kinematic section of this document for more information.

Q. Can ProMark2 be used for GIS?

A. Yes, ProMark2 can collect topographic data using post-processed kinematic techniques. Attributing capabilities currently consist of antenna height, a four-character alphanumeric site ID, and a 20-character alphanumeric descriptor.

Q. Can I use other GPS antennas with ProMark2?

A. No, the ProMark2 uses a specially designed antenna that is always shipped with the receiver.

Q. Is ProMark2 a replacement for ProMark X?

A. ProMarkX is a mapping system that has some surveying capabilities, and ProMark2 is a Surveying system with some mapping capabilities. ProMark2 is capable of static, stop-and-go kinematic, and continuous kinematic data collection.

Q. Is ProMark2 a replacement for Locus?

A. Although ProMark2 and Locus have different physical characteristics, ProMark2 is effectively an alternative for the surveying functionality of Locus, but the battery life is shorter and the operating temperature range is narrower.

Q. Why does my ProMark2 take so long to track satellites?

A. When the ProMark2 is used for the first time it doesn't have any information about where the satellites are. About 15 minutes of tracking at least one satellite allows the unit to acquire satellite almanac, which contains the rough location of each satellite. After almanac is acquired, tracking should occur within seconds of turning the unit on. Setting a user position can also help the receiver track faster the first time out. This is done by entering the navigate / setup / initialize menu and selecting the area where you are using the unit.

Q. How much memory capacity do I have for use with street maps and GPS data?

A. The ProMark2 has a total of 16Mb of on-board memory. 8Mb is dedicated to storage of the base map and can not be modified. Of the remaining available 8Mb, up to 4Mb can be used for street maps and waypoints. Whatever part of the available 8Mb that is not occupied by street maps and waypoints can be used for storage of GPS raw data.

Q. Does the ProMark2 let me download an almanac file?

A. Yes, with Ashtech Solutions 2.6 or higher. An almanac file is also available from the FTP site at ftp://ftp.thalesnavigation.com/almanacs/.

Q. Can Magellan 300 series firmware be used in the ProMark2?

A. No, the Magellan firmware is not compatible with the Ashtech ProMark2.

2. PROCESSOR SOFTWARE

Q. Can I process ProMark2 data with a copy of Ashtech Solutions I already have?

A. Ashtech Solutions version 2.5 or higher is required for ProMark2 static data processing. Ashtech Solutions version 2.6 is required for ProMark2 Stop & Go or Kinematic data processing.

Q. Do I receive a full version of Ashtech Solutions with a ProMark2 system?

A. Ashtech Solutions software shipped with ProMark2 is identical to the full version of Solutions except it will only process L1 data. Contact Thales Navigation Sales for information on upgrades to the full L1/L2 version.

Q. Can I process ProMark2 data with CORS data?

A. CORS data can be converted to Ashtech format with the RINEX converter supplied with Solutions software. The version of Solutions shipped with ProMark2 will only process L1.

Q. Can I process ProMark2 data with data from other Ashtech receivers?

A. Yes, but only the L1 data will be processed with ProMark2.

Q. Can I process ProMark X data with ProMark2 data using Solutions?

A. Only ProMark X **static** data can be processed in Solutions. A 1- or 2-second record interval is necessary; we recommend using a 2-second interval. The ProMark X data must be converted to RINEX format using Rinex converter version 1.9. This can be downloaded from: ftp://ftp.thalesnavigation.com/pub/software/mstar/RinexConverter/Rinex190/. Solutions 2.4 or higher will accept RINEX data directly. Accuracy results may vary depending on the type of ProMark X system used and environmental factors.

3. PROMARK2 NAVIGATION MODE

Q. How do I get the street maps for navigation?

A. At this time, ProMark2 only supports USA, Western Europe, and Canada street-level maps. These regional street maps must be ordered at the time of purchase.

Q. How do I tell the unit to track WAAS or EGNOS satellites?

A. When available, the unit tracks and uses WAAS and EGNOS satellites automatically.

Q. How do I set up the unit to navigate?

A. Please refer to the Magellan 330 manual that is shipped with the ProMark2 for a complete description of navigation procedures.

Q. Can I use RTCM corrections with the ProMark2?

A. Currently, the ProMark2 supports WAAS corrections to improve navigation accuracy. RTCM type 1 and type 9 corrections are also supported via the serial port. The ProMark2 cannot currently use differential corrections in survey mode.

Q. How do I set the receiver to display SPCS coordinates?

A. For the procedure, download ProMark2_NAD83SP.PDF from the Thales Navigation FTP site, ftp://ftp.thalesnavigation.com. The PDF is located in the Reference Manuals\ProMark2\English folder.

4. PROMARK2 STATIC SURVEY MODE

Q. The ProMark won't enter Data Collect mode, what's going on?

A. The ProMark2 external antenna must be connected before the unit will enter data collect mode. Setup mode can be entered even with no antenna connected.

Q. How should the antenna be oriented?

A. Prior to surveying, all antennas should be oriented the same direction to optimize the accuracy of the system. For antennas with a North arrow, orient with the arrow pointing North; for antennas without North indicated, the antenna connector should be oriented to the South.

Q. What are the antenna measurement offsets for the ProMark2 Antenna to be used in Ashtech Solutions?

A. Antenna Model: 110454
Description: ProMark2 external antenna
Antenna Radius: 0.0921 meters
Slant Height Measurement Point Vertical Offset: 0.0516 meters
L1 Phase Center Vertical Offset: 0.0694 meters
L2 Phase Center Vertical Offset: 0 meters

Q. What is the ProMark2 occupation timer?

A. The occupation timer is an indicator that the receiver has collected enough data to achieve the optimum system accuracy for a given length baseline. It is engineered to provide 95% reliability. For baselines longer than 10km , this reliability can be reduced by ionospheric and tropospheric irregularities. Adding occupation time for longer baselines will raise this reliability. In some cases when the processed results do not meet expectations, Ashtech Solutions data processing parameters can be adjusted, the data can be reprocessed, and baseline results can be improved.

Q. Does the ProMark2 occupation timer work around trees and obstructions?

A. The timer assumes the same satellites are tracked at both the base and rover site. Data with frequent cycle slips (trees) can limit the occupation timer's effectiveness. If two sites can communicate, then it would be best to wait until BOTH receiver's occupation timers indicate that enough data has been collected for a given length baseline.

5. PROMARK2 KINEMATIC SURVEY MODE

Q. What is ProMark2 Kinematic?

A. Kinematic is an adjective meaning to move or be in motion. The word kinematic used in conjunction with GPS positioning means you collect data while moving. Conventionally speaking, there are two types of kinematic GPS operation: **post-processed** and **real-time kinematic** (RTK). Post-processed kinematic, like the kind used in ProMark2 kinematic involves the user collecting GPS data while moving, and then performing the precise position computations at a later time. Complete operating procedures for Stop & Go and continuous Kinematic are detailed in the ProMark2 user manuals. These manuals are available for download at ftp://ftp.thalesnavigation.com. The manuals are located in the Reference Manuals/ProMark2 folder. For additional assistance, download the training materials located in the Training folder.

Q. How is ProMark2 in Kinematic mode different from ProMark2 in Static mode?

A. ProMark2 in static mode requires the unit to be stationary from 30-60 minutes to precisely determine point coordinates. The ProMark2 receiver in static mode collects data at a fixed rate of once every 10 seconds. ProMark2 used in kinematic mode contains all the static functionality of ProMark2 and is also capable of mobile, centimeter accurate, data collection using Stop & Go kinematic and continuous Kinematic techniques. Data can be recorded as fast as once per second.

Q. Why do I want ProMark2 with Kinematic?

A. In addition to the unique combination of static surveying and navigation functionality offered by ProMark2, the kinematic capability adds a powerful new way of surveying, which can be used to rapidly acquire and attribute centimeter accurate points. This functionality has the benefit of allowing field crews to collect points up to 100 times faster than with the ProMark2 limited to its static capability alone.

Q. I've never done kinematic surveying before, is it hard to learn?

A. The skill level required to learn and perform kinematic data collection is similar to that of traversing with a conventional theodolite. After field procedures are learned, the productivity of ProMark2 kinematic topographic data collection rivals total stations that cost about 2 times more. Complete operating procedures for the hardware and software are detailed in the user manuals.

Q. How do I tell the difference between the Promark2 with static only capability and the kinematic capable model?

A. When the receiver is powered up, the receiver firmware version will be displayed in the introduction screen of the receiver display. The receiver firmware version will be 2.0 or higher.

Q. How do I upgrade a version 1.x PM2 to one with kinematic capability?

A. Upgrading to kinematic capability requires new firmware for each receiver and one new piece of hardware for each kit. The process of upgrading is relatively easy and the first step in the upgrade process is to contact Thales Navigation or an Ashtech dealer near you. The contact phone numbers are available at http://www.thalesnavigation.com/.

Q. Can I use a PM2 static receiver for a kinematic base?

A. No, the PM2 static only collects data at a 10-second interval. The recommended recording interval for kinematic is 1 or 2 seconds.

Q. What is kinematic initialization?

A. In the world of GPS, initialization is the process of determining the centimeter-level position solution. There are various field approaches to initialization depending on the type of GPS equipment being used. ProMark2 allows for 2 kinds of initialization: occupation with the initializer bar, and occupation of a known point. Please see the user manuals for a full description of field procedures.

Q. What is an initializer bar?

A. The ProMark2 system uses the initializer bar to determine the centimeter-level GPS position rapidly and reliably. The bar is a mount for both the base and rover antennas with a quick-release system for the rover. The post-processing software knows the length of the bar and that information is used to "help" the processor resolve the centimeter-level solution. Once the system is initialized, continuous lock on at least 5 satellites must be maintained.

Q. Do I have to use an initializer bar to achieve centimeter results?

A. An alternate method of initialization is called "known point initialization." This is when the rover occupies a known point as the first step in the kinematic survey. The known point will be

used to initialize the centimeter-level solutions, therefore its accuracy must be known to centimeter level. Occupation time of a known point varies as a function of baseline length but a rule of thumb is 30 sec plus 15 sec per kilometer of baseline length.

Q. How long should I occupy each point?

A. The minimum recommended occupation time for each point is 15 seconds. The point occupation timer will indicate when the occupation is complete. More time on each point will increase the confidence in the point accuracy. About 30 seconds should be the most that is needed..

Q. What is the kinematic alarm?

A. The kinematic alarm informs you if continuous lock on at least 5 satellites has been interrupted. Once the kinematic alarm goes off, the system must be reinitialized either on the initializer bar, or on a previously surveyed point.

Q. Does the ProMark2 data collector have feature codes?

A. Yes, the system has a 20-character site descriptor that is associated with every point during the survey. The data collector also has a "most recently used" list that stores the last 20 descriptors. This list is editable and is saved even when the unit is turned off. The list can be completely cleared when the receiver memory is reset.

6. PROMARK2 POWER

Q. My batteries didn't last 8 hours, what's going on?

A. Alkaline battery capacity will vary depending on the quality of the battery and the temperature. Alkaline batteries typically lose capacity as the temperatures get colder. When working in cold weather, the use of the external battery pack is advised.

Q. Can I use rechargeable batteries?

A. Yes, but capacity is usually much lower with rechargeable batteries. **Alkaline or lithium ion batteries are recommended.** Some rechargeable batteries may not work.

Q. The batteries ran out during a survey, is my data OK?

A. The ProMark2 is designed to detect when batteries are about to run out and automatically close files. Simply replace the batteries and download the data normally. If the batteries are removed during data collection up to 10 minutes of data at the end of the current file can be lost.

Q. How do I know if the ProMark2 is using internal batteries or the external battery pack?

A. The battery icon located in the data collection screen will change to an A/C plug icon when the external battery is being used. The ProMark2 is designed to use the external battery pack first and then use the internal batteries. When the unit switches back to the internal batteries, the battery icon will still indicate the external battery pack. It will not change to the internal battery icon. It will not change to indicate internal batteries until the receiver is turned off, and then turned on again without the external battery pack connected.

7. TROUBLESHOOTING

Q. What do I do if my ProMark2 stops tracking or locks up after a firmware load?

A. Some hardware operation problems can be corrected by clearing the receiver memory with a "code 32". With the ProMark2 turned off, hold down the NAV button and tap the PWR button. In a couple of seconds a small box displays on the screen with "00" inside it. At this point, release the NAV button. Use the direction pad to change the "00" to "32", then press ENTER. DO NOT use any other key combinations, they may cause the ProMark2 to become unusable and void the warranty.

Executing the code 32 will cause the receiver to revert back to the default 4-character ID of "1234". Please note that each receiver ID must be unique among all receivers used together in a survey. Otherwise, raw data files will be given the same name, causing problems when the data is downloaded to the same location on the office computer for processing.

8. TRAINING

Q. Where can I get more training?

A. ProMark2 training publications are available in the Training folder at

ftp://ftp.thalesnavigation.com.

Individual training can be purchased. Contact Thales Navigation Sales at 1-800-922-2401.