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## GPS Pathfinder ProXH and ProXT Customer FAQs

### What is the GPS Pathfinder ProXH receiver?

The GPS Pathfinder<sup>®</sup> ProXH<sup>™</sup> receiver is a fully integrated receiver, antenna and battery unit with Trimble<sup>®</sup> H-Star<sup>™</sup> technology to provide subfoot (<30 cm) postprocessed accuracy. With an optional external Tornado<sup>™</sup> antenna, the ProXH receiver is even capable of delivering accuracy as good as decimeter (10 cm / 4 inch)) after H-Star processing. The ProXH receiver has Bluetooth<sup>®</sup> wireless technology, allowing cable-free connection to the field computer.

### What is the GPS Pathfinder ProXT receiver?

The GPS Pathfinder ProXT<sup>™</sup> receiver is a fully integrated receiver, antenna and battery unit that provides submeter accuracy in real-time and 50 cm accuracy after postprocessing. The ProXT receiver has Bluetooth wireless technology to allow cable-free connection to a field computer. The compact, lightweight ProXT receiver has a number of different mounting options, which allow it to be easily moved between a belt clip, backpack, range pole and vehicle mount.

### What are the key features of the GPS Pathfinder ProXH and ProXT receivers?

The GPS Pathfinder ProXH receiver provides postprocessed accuracies of subfoot (<30 cm) or as good as 10 cm (4 inch) when used with an optional Tornado external antenna. In real-time, the ProXH receiver delivers submeter accuracy. The GPS Pathfinder ProXT receiver provides reliable submeter positioning in real-time and 50 cm after postprocessing. Both the ProXH and ProXT receivers have the following features and benefits:

- Fully integrated GPS receiver, antenna and battery in one small and lightweight unit. The all-in-one design makes the receiver easy to set up and completely hassle-free.
- Bluetooth wireless technology for cable-free connectivity to the field computer. Eliminating cables makes it easier to traverse difficult terrain without snagging and breaking equipment.
- Rugged IP54 specifications means the ProXH and ProXT receivers will work in all of the difficult environments that you work in. The unit is weatherproof and built to withstand accidental drops.

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Trimble Navigation Limited, 10355 Westmoor Drive, Suite #100, Westminster, CO 80021, USA

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- Integrated SBAS (Satellite Based Augmentation Systems) in both the ProXH and ProXT receivers provide submeter real-time accuracy in the U.S. with WAAS (Wide Area Augmentation System) and in Europe with EGNOS (European Geostationary Navigation Overlay Service) at no extra cost.
- Supported by Trimble's range of field and office software for a seamless field-to-office workflow for GIS professionals.
- A powerful but lightweight lithium-ion battery that lasts all day and is integrated into the receiver unit. The battery is user replaceable and internally rechargeable for maximum convenience.
- Flexible mounting options, including a belt clip, backpack mount, range pole clip and vehicle mount, allow you to mount the ProXH and ProXT receivers to suit the way you work.

### What is H-Star technology?

Trimble's H-Star technology is a combination of GPS receiver and software improvements that allow you to achieve decimeter (10 cm / 4 inch) and subfoot (<30cm) accuracy. In the field, collect H-Star data using Trimble software. Using the Postprocessed Accuracy (PPA) indicator in the field software, you can see at a glance what accuracy you are likely to achieve when you postprocess the H-Star data back in the office. H-Star processing is designed to need no more than two minutes of data at any point, and can achieve the accuracy even faster if a lock on satellites is continuously maintained.

Back in the office, with GPS Pathfinder Office software or the Trimble GPS Analyst™ extension for ESRI ArcGIS Desktop software, simply select the H-Star processing option. H-Star processing gives you the choice of selecting multiple base stations to process data against, providing a multi-baseline solution. Using this combination of receiver technology, field data collection techniques, and multi-baseline processing in the office, H-Star processing can provide subfoot (<30 cm) accuracy with the GPS Pathfinder ProXH receiver and 10 cm (4 inch) accuracy when used with an external Tornado antenna.

### What accuracy can I expect with the ProXH and an external Tornado antenna?

After H-Star postprocessing, the ProXH receiver with the optional external Tornado antenna achieves horizontal accuracy of 10 cm + 1 ppm, and vertical accuracy of 10 cm + 2 ppm, except in conditions where most GPS signals are affected by trees, or buildings, or other objects.

The following factors increase the availability of 10 cm accuracy with H-Star receivers:

- Longer elapsed time tracking uninterrupted L1/L2 carrier phase data
- Tracking of more satellites with L2 carrier measurements
- Shorter distance to the base station(s)
- Use of more base stations for postprocessing

When GPS carrier data is logged for an period of at least 45 minutes without interruption, carrier postprocessing will yield horizontal accuracy of 1 cm + 1 ppm, and vertical accuracy of 2 cm + 2 ppm, provided the baseline length is no longer than 10 km.

## Is the GPS Pathfinder ProXH receiver dual frequency?

Using its internal antenna, the GPS Pathfinder ProXH is a single frequency receiver with 12 channels for tracking L1 code and carrier signals. When used with the optional external Tornado antenna, the ProXH receiver operates as a dual frequency receiver, tracking up to 12 L2 carrier signals.

**Note:** *The ProXH receiver is not RTK capable.*

## What trade-in programs are available for the GPS Pathfinder ProXH receiver?

Trimble has an attractive trade-in program on a new GPS Pathfinder ProXH receiver. For further information, please contact your local Trimble Distributor.

## If I purchase a GPS Pathfinder ProXT receiver, can I later upgrade it to a ProXH receiver?

It is not possible to convert a ProXT receiver to a ProXH receiver.

## What software is required to support the GPS Pathfinder ProXH and ProXT receivers?

For optimal GPS accuracy, use the field software:

- TerraSync™ software version 4.10 or later
- Trimble GPSCorrect™ extension for ESRI ArcPad software version 3.10 or later
- Applications developed with GPS Pathfinder Tools Software Development Kit (SDK) version 2.35 or later

Data for H-Star processing can only be collected with TerraSync software, the GPSCorrect extension or an application developed with the GPS Pathfinder Tools SDK.

For optimal postprocessing results, use the GPS Pathfinder Office software version 4.20 or later, or use the GPS Analyst extension version 2.20 or later.

## What are the base station requirements for H-Star processing with a GPS Pathfinder ProXH receiver?

Using the internal antenna of the ProXH only, H-Star processing requires three high-quality dual frequency base stations within 200 kilometers (125 miles) to achieve subfoot (30 cm) accuracy with a ProXH receiver. For decimeter (10 cm / 4 inch) accuracy, the optional external Tornado antenna is required.

## How does the GPS Pathfinder ProXT receiver achieve 50 cm accuracy?

Prior to version 4.20 of the GPS Pathfinder Office software and version 2.20 of the Trimble GPS Analyst extension for ESRI ArcGIS Desktop software, the postprocessed accuracy of the ProXT receiver was specified as submeter.

However since the introduction of the Trimble DeltaPhase™ technology in these new office software suites, the second-by-second postprocessed code accuracy specification for the ProXT receiver has been refined to 50 cm + 1 ppm.

If data logged with a ProXH receiver is postprocessed as “code only”, accuracy is comparable to that of the ProXT receiver.

### **What field computers can I use with the GPS Pathfinder ProXH and ProXT receivers?**

The GPS Pathfinder ProXH and ProXT receivers are designed to work with any standard Microsoft® Windows® computer, including Trimble’s range of rugged field computers. The Trimble Nomad® handheld, with integrated Bluetooth, is the ideal field computer for use with the ProXH and ProXT receivers. If you prefer a full keypad, the Trimble Ranger™ handheld is also compatible with the ProXH and ProXT receivers. Alternatively, you can use any standard laptop, Tablet PC, or PDA with the ProXH or ProXT receivers.

### **How can I connect the GPS Pathfinder ProXH and ProXT receivers to a field computer?**

The GPS Pathfinder ProXH and ProXT receivers are designed to use a Bluetooth connection to a field computer and other peripheral devices, such as real-time sources. The Bluetooth connection is easy to set up and manage from the field computer. If you prefer not to use Bluetooth for connection to the field computer, the ProXH and ProXT receivers also have a standard DE-9 serial port connector, and are provided with a null-modem cable for connection to a field computer.

### **How can I activate or deactivate the Bluetooth wireless connection in the GPS Pathfinder ProXH and ProXT receivers?**

To ensure simple out of the box operation, Bluetooth is activated by default in the ProXH and ProXT receivers when they are shipped from Trimble. The Bluetooth radio will power on as soon as the receiver is powered on.

The Bluetooth radio can be turned off with a simple button press. If you require that the Bluetooth radio be disabled so that it can not be accidentally turned on, run the Bluetooth Activation utility (available on the GPS Pathfinder Pro Series Companion CD and at [www.trimble.com/proxt\\_ts.asp](http://www.trimble.com/proxt_ts.asp)) to deactivate the Bluetooth radio. If, at some later stage, you wish to reactivate the Bluetooth radio, you can use the same application to do so.

### **What external antenna options are available for the GPS Pathfinder ProXH receiver?**

The Tornado antenna is required for the ProXH receiver to achieve decimeter (10 cm / 4 inch) accuracy. With the ProXH receiver internal antenna the accuracy specification is subfoot (<30 cm).

## What external antenna options are available for the GPS Pathfinder ProXT receiver?

The GPS Pathfinder ProXT receiver is designed to achieve submeter accuracy with the integrated antenna. However, for certain environments or operating styles it may be appropriate to add one of the following external antennas:

- The **External Patch antenna** can be added to the ProXT receiver for maximum yield. The External Patch antenna can be conveniently elevated with the optional baseball cap to prevent any signal blockage. Optimized for maximum yield the External Patch antenna will not improve GPS accuracy in comparison to the receiver's internal antenna. Using the patch antenna may degrade GPS accuracy in difficult environments as the EVEREST™ multipath rejection algorithms are not as effective when operating on data recorded with this antenna.
- The **Tempest™** antenna can be added to the ProXT receiver, for optimal GPS position yield in difficult environments such as heavy forest canopy.

## What real-time options are available for the GPS Pathfinder ProXH and ProXT receivers?

The GPS Pathfinder ProXH and ProXT receivers come standard with SBAS capability—WAAS for the U.S., EGNOS for Europe, and MSAS for East Asia. With Bluetooth wireless technology, a Trimble GeoBeacon™ receiver can easily be added to provide real-time beacon corrections to the ProXH and ProXT receivers. Standard RTCM corrections, including VRS corrections from a radio or cell phone, can also be added to the ProXH or ProXT receiver to provide accuracy in real-time.

## What GPS protocols are supported by the GPS Pathfinder ProXH and ProXT receivers?

Both the GPS Pathfinder ProXH and ProXT receivers output Trimble TSIP protocol by default. Using the Trimble GPS Controller or TerraSync software, the ProXH and ProXT receivers can be configured to output NMEA.

## What mounting options are available for the GPS Pathfinder ProXH and ProXT receivers, and when are they appropriate?

The GPS Pathfinder ProXH and ProXT receivers both come standard with a belt clip accessory. The belt clip is a rigid, clip-on mounting bracket designed to hold the ProXH or ProXT receiver horizontally, with the integrated antenna oriented to the sky. The key advantage of the belt clip mounting option is that it provides a wearable solution—you don't have to carry any additional equipment. If you need to maximize yield, you can simply push the receiver into a vertical position, and attach a Patch antenna that can be worn in a baseball cap.

Also standard with the ProXT and ProXH receivers is a 5/8 inch screw thread attachment. The screw thread allows you to easily mount the receiver on a backpack, range pole, a magnetic mount for a vehicle or any custom setup. You can optionally purchase the backpack, range pole or vehicle mounting option for the ProXH or ProXT receivers.

- The backpack option is ideal if you need to carry additional equipment into the field, or if you wish to elevate the antenna for best performance. The backpack option for the ProXH and ProXT receivers requires a high quality GPS Pathfinder backpack and a one foot pole. Note that to

achieve best accuracy, be sure to position the antenna directly over the object for which the position is required.

- The range pole option for the ProXT and ProXH receivers is the recommended mount for ensuring the best possible accuracy. Both the ProXT and ProXH receivers can be mounted directly to the top of a range pole using the 5/8 inch screw thread attachment. This is ideal when you need to be certain that the GPS antenna is positioned directly over the object being mapped.
- For 20 cm (8 inch) accuracy with the ProXH receiver a Tornado antenna is required. Using the side range pole mount, the ProXH receiver can be clipped to the side of the range pole and cabled to the Tornado antenna on the top of the pole. With either range pole configuration the field computer can be easily attached to the pole so you have all equipment in one setup.
- To mount the ProXH or ProXT receiver on a vehicle, use the 5/8 inch screw thread attachment and a standard magnetic mount. Bluetooth wireless technology allows the ProXH and ProXT receivers to communicate with a field computer inside the vehicle.

All mounting options have a convenient clip-on/clip-off interface, making it easy for you to switch between configurations. For example, if you are doing on-foot data collection with the ProXH or ProXT receiver mounted on the belt, you can easily clip off the receiver, and move it to the vehicle mount, so you can continue collecting data while in a vehicle.

### **How are the GPS Pathfinder ProXH and ProXT receivers powered?**

The ProXH and ProXT receivers come standard with an integrated lithium-ion battery that provides 13 hours of battery life in normal use. When used with a Tornado antenna, you should expect 8 hours of use from a ProXH receiver. The battery is internally rechargeable and can be removed and replaced. The battery can be charged while it is in the unit, or can be removed and recharged using the international power supply that comes with the system. It takes 5 hours to fully recharge the battery. If you work in the field for multiple days, you may choose to purchase additional batteries.

### **Can I use the GPS Pathfinder ProXH or ProXT receiver as a reference station?**

The GPS Pathfinder ProXH and ProXT receivers can be used with the TerraSync software as a temporary base station solution. The ProXH and ProXT receivers are not supported as base receivers in the GPSBase software or other Trimble reference station software.

### **What is standard out of the box?**

The GPS Pathfinder ProXH and ProXT receivers ship standard with:

- The GPS Pathfinder ProXH **or** ProXT receiver
- Power supply with international adapter kit, for charging the battery module
- Belt clip accessory
- 5/8 inch screw thread adapter—for mounting the ProXH or ProXT receiver on a backpack, range pole, or magnetic mount for vehicle use
- Null modem cable

- Companion CD including Getting Started Guide and GPS Controller software
- Release notes

### **What optional accessories are available for the GPS Pathfinder ProXH and ProXT receivers?**

- Range pole bracket—for mounting the ProXH or ProXT receiver vertically on the side of a range pole
- Two meter carbon fiber range pole
- Backpack
- One foot pole—for backpack mounting
- Magnetic mount—for vehicle use
- Tempest antenna (1.5 m or 5 m antenna cable purchased separately)
- External Patch antenna (1.5 m and 5 m cable options) with magnetic base
- Tornado antenna (1.5 m or 5 m antenna cable purchased separately)
- Spare battery module
- Hard carry case
- GeoBeacon receiver
- Serial port splitter cable

### **Where can I get more information?**

Visit the Trimble website at [www.trimble.com](http://www.trimble.com) for further information or contact your local Trimble Distributor.