

8 February 2012

## Trimble Juno Series Handhelds: FAQs for Customers

These FAQs cover Trimble® Juno® 3B and 3D handhelds only. They do not apply to earlier Trimble Juno series handheld variants.

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### General Questions

#### What are Juno series handhelds?

The Trimble Juno series is a range of IP54 rugged, lightweight GNSS handhelds integrating an array of powerful features. Providing photo capture, a high yield GNSS receiver, and integrated cellular modem and voice call capability options, Juno series handhelds are the perfect solution to increase the productivity of your entire workforce.

There are two models of Juno series handhelds:

- The Juno 3B handheld has a high-sensitivity GNSS receiver with 2 to 5 meter positioning accuracy in real time (SBAS) or 1 to 3 meter postprocessed, Bluetooth® wireless technology and Wireless LAN technology, a built-in 5 Megapixel digital camera, a MicroSD/SDHC storage slot, and is powered by the Windows® Embedded Handheld 6.5 Professional operating system.
- The Juno 3D handheld has all the capabilities of the Juno 3B handheld and additionally contains a 3.75G cellular modem for data transfer and voice call capability, Microsoft® Office Mobile applications such as Excel®, Word, and Outlook® for increased productivity, and a camera flash.

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## What are the key features of Juno series handhelds?

All Trimble Juno series handhelds offer the following features:

- Integrated digital camera: 5 Megapixel, autofocus, selectable resolution and video capability.
- High-yield GNSS capability: Integrated SBAS (WAAS/EGNOS/MSAS) support for 2 to 5 meter accuracy in real time or 1 to 3 meter accuracy after postprocessing.
- 3.75G cellular data and voice capability: The Trimble Juno 3D handheld's integrated 3.75G HSPA+ cellular capability keeps your entire field workforce in contact with the office and the data they need. See the [Cellular Modem](#) section of these FAQs for details of the Juno 3D handheld's wireless data, voice call, and SMS capabilities.
- Bluetooth and Wi-Fi connectivity options: Use the built-in Wi-Fi connectivity to access secure networks and to get the most up-to-date information. Use the built-in Bluetooth wireless technology to connect the handheld to a variety of Bluetooth-enabled devices.
- 2 GB onboard storage plus a MicroSD slot for removable cards: Take all the background data you need into the field. The maximum capacity for MicroSD/SDHC is currently 32 GB.
- 800 MHz processor and 256 MB of RAM to provide the processing power and memory required to run large applications.
- 3.5 inch sunlight readable display.
- Windows Embedded Handheld 6.5 Professional operating system: Includes familiar Microsoft software, giving you the tools you need for a seamless exchange of data between the field and the office. The operating system is available in 10 different languages, selectable by the user.
- Designed for the field: The handheld is IP54 rugged and protected against water and dust ingress, and comes with an all-day battery, so it works as hard as you do, wherever you work.

## How do Juno series handhelds differ from a consumer PDA with GNSS?

Trimble Juno series handhelds are designed for professional data collection and all-day use in the field. They are IP54 rugged to protect against water and dust penetrating the unit, with no exposed slots or ports to collect dirt, and are drop-tested to 1.2 m (4 ft). Unlike most consumer PDAs, where GNSS performance is a secondary consideration, Juno series handhelds have been carefully tuned to maximize GNSS and SBAS performance. Finally, most consumer PDAs are designed for occasional use only; their batteries cannot sustain continuous use for a full day's field work. In contrast, Juno series handhelds have a high-capacity (3060 mAh) battery allowing for all-day operation.

## Are Juno series handhelds ruggedized?

Trimble Juno series handhelds have an IP54 rating and have been designed for ruggedness through:

- *Drop testing:* The device is dropped from 1.2 m (4 ft) on all six sides then tested for operability.
- *Tumble testing:* The device is tumbled 100 rotations (200 drops) at a height of 50 cm (1.64 ft) then tested for operability.

- *Coverings for all openings:* All ports and openings on the handheld have covers—including external GNSS antenna connector, USB port, and power connector. The memory and SIM card slots are located under the battery for further protection.

## How are Juno series handhelds charged and powered?

Trimble Juno series handhelds are powered by a high-capacity (3060 mAh) Li-ion battery. This battery can be charged in the unit using the supplied AC adapter or the optional vehicle power adapter, or the external battery charger which is available as an accessory. The battery can also be charged overnight when connected to a computer using a USB cable (it will take longer to charge the higher-capacity battery due to the level of power provided over USB).

## What can I do to prolong battery charge?

The major drains on battery charge are the backlight, the GNSS receiver, the cellular module (Juno 3D handheld only) and the Bluetooth and Wi-Fi radios. If you rarely or never use one or more of these features, turning them off will significantly increase battery charge.

## Is there an extended warranty for Juno series handhelds?

The Trimble standard hardware warranty period is 12 months. Trimble also offers a 12 month extended hardware warranty for Juno series handhelds, and up to four of these may be purchased to extend the total warranty to a maximum of five years.

## Software Questions

### What software applications can I run on a Juno series handheld?

Trimble Juno series handhelds are powered by the Windows Embedded Handheld 6.5 Professional operating system. A wide range of application software is compatible with this operating system, including many GNSS navigation and data collection applications. See [www.microsoft.com/windowsmobile/catalog/cataloghome.aspx](http://www.microsoft.com/windowsmobile/catalog/cataloghome.aspx) for more details.

Juno series handhelds can be purchased with a selection of field software, including:

- Trimble TerraSync™ software ([www.trimble.com/terrasync.shtml](http://www.trimble.com/terrasync.shtml))
- Esri ArcPad software, with the Trimble GPScorrect™ extension ([www.trimble.com/gpscorrect.shtml](http://www.trimble.com/gpscorrect.shtml))

### What are the features and benefits of the Windows Embedded Handheld 6.5 Professional operating system?

Windows Embedded Handheld is Microsoft's premier operating system for mobile devices. With a familiar Microsoft user interface, it includes a wide range of standard software applications that work seamlessly with your desktop operating system. The Windows Embedded Handheld operating system supports a host of communication options so you can be mobile and still have access to your enterprise data, email, and the Internet. The Juno 3B and 3D handhelds are powered by the Windows Embedded Handheld 6.5 Professional operating system. The Windows Embedded Handheld operating system allows you to choose from the most comprehensive range of software available to meet your field requirements. In addition, the operating system features new security enhancements for more robust use when connected to a network, and persistent storage so data is protected from unexpected power loss.

## Will software applications developed for earlier Windows Mobile versions run on the Windows Embedded Handheld 6.5 operating system?

Most applications developed for Windows Mobile® version 5.0 or later will run under the Windows Embedded Handheld 6.5 operating system. Applications which interface to the cellular modem should be tested for compatibility. Applications designed specifically for deployment on the Windows Mobile powered Smartphone platform should be implemented on the Juno 3D model (as they may presume voice call capability), although they may also run on the Juno 3B handheld.

## Can I change the language used by the Windows Embedded Handheld 6.5 operating system?

The first time you turn on your Juno series handheld, you must select the language used by the Windows Embedded Handheld 6.5 operating system. You can choose from English, Chinese (Simplified), French, German, Italian, Japanese, Korean, Portuguese (Brazilian), Russian and Spanish.

You can only select the language once. Once you choose a language, the device will configure itself to your selection, and you will not be able to change the language used on the handheld without reinstalling the operating system (and all application software).

## What versions of Trimble software support Juno series handhelds?

Trimble Juno series handhelds achieve optimal GNSS results when used with the following field software applications:

- Trimble TerraSync software, version 5.30 or later
- Trimble GPSCorrect extension for Esri ArcPad software, version 3.40 or later
- Applications developed with the Trimble GPS Pathfinder® Field Toolkit, version 1.22 or later

## Do Juno series handhelds run ArcGIS Mobile software?

Yes. With default installation settings, Esri ArcGIS Mobile software will auto-detect the GPS port on a Trimble Juno series handheld. If the ArcGIS Mobile software does not automatically connect to GPS on a Juno series handheld, you can manually (re)configure it by setting the Serial Port to *COM4 – GPS* and the Baud Rate to *BaudRate4800*.

## GNSS Questions

### What GNSS technology is in Juno series handhelds?

Trimble Juno series handhelds contain an integrated SiRFStar III GNSS receiver. Trimble has set the firmware settings to ensure the best possible performance in the field for data collection, and full compatibility with Trimble field and office software.

### What GNSS software can I run on Juno series handhelds?

A wide range of application software is compatible with the Windows Embedded Handheld 6.5 operating system, including many GNSS navigation and data collection applications. To access the internal GNSS receiver of a Trimble Juno series handheld, an application must support one or more of:

- the SiRF binary protocol,
- the NMEA-0183 ASCII protocol, or
- the Windows Mobile GPS API.

Applications wishing to use the SiRF or NMEA protocols should be configured to communicate with the GNSS receiver on COM4. Unless reconfigured (or whenever the unit is hard reset or reset to factory defaults), this port will emit NMEA GNSS data at 4800 baud.

### **How do I ensure the best GNSS performance with Juno series handhelds?**

Trimble Juno series handhelds have a tuned GNSS patch antenna located at the top of the device. For optimal GNSS reception, hold the handheld at or close to vertical. When collecting point data with a Juno series handheld, Trimble recommends that you remain stationary at the point for at least 10 seconds before beginning to log GNSS positions. This allows the GNSS receiver's internal algorithms to stabilize, and ensures the best possible point feature accuracy.

### **How do Juno series handhelds perform in harsh GNSS conditions?**

The GNSS receiver in Trimble Juno series handhelds is optimized for difficult GNSS environments, ensuring that you will have a GNSS position in even the toughest locations. However you should be aware that in environments where GNSS signals may reflect off objects such as buildings, vehicles, or trees, the positional accuracy will significantly degrade. The DGNSS accuracy specification of Juno series handhelds applies in open environments with few obstacles to block or reflect GNSS signals.

### **Can I use postprocessed differential corrections with Juno series handhelds?**

Provided your field software stores raw GNSS measurements (for example, Trimble TerraSync software, Trimble GPSCorrect extension, or an application created with the Trimble GPS Pathfinder Field Toolkit), you can differentially correct this data back in the office.

In addition to having the appropriate field software, you also require at least one license for Trimble GPS Pathfinder Office software or Trimble GPS Analyst™ extension for Esri ArcGIS Desktop software, to actually perform the postprocessing of your GNSS data.

Trimble Juno series handhelds do not output GNSS carrier data, so it is not possible to use carrier postprocessing techniques. However, Trimble DeltaPhase™ postprocessing technology enhances the code postprocessing accuracy achievable with Trimble Juno series handhelds, enabling accuracy in the 1 to 3 meter range after postprocessing. Trimble DeltaPhase postprocessing technology was introduced in GPS Pathfinder Office software version 4.20 and GPS Analyst extension version 2.20.

### **Can I use accuracy-based logging with a Juno series handheld?**

If your field software supports accuracy-based logging (for example Trimble TerraSync software), you can specify an accuracy threshold, for either real-time or postprocessed accuracy. Only positions with accuracy estimates better than the specified threshold will be logged. Be aware, however, that accuracy thresholds for SiRF-based receivers have a higher degree of uncertainty. For this reason, accuracy estimates will be no lower than 2 meters, even though the receiver will achieve accuracy in the 1 to 3 meter range after postprocessing. You should therefore ensure that your accuracy-based logging threshold is not set lower than 2 meters.

### **What real-time correction options are available with Juno series handhelds?**

Trimble Juno series handhelds support all three available SBAS correction services (WAAS in North America, EGNOS in Europe, and MSAS in Japan). In open GNSS environments, Juno series handhelds typically achieve 2 to 5 meter accuracy using SBAS.

### **Can I connect a Juno series handheld to a higher accuracy GNSS receiver?**

Yes. Supported receivers include Trimble GPS Pathfinder ProXT™, ProXH™, and ProXRT receivers. The connection is supported using Bluetooth wireless technology.

### **Can I use corrections from a Trimble VRS network over the Internet with the Juno 3D handheld?**

Trimble Juno 3D handhelds can receive corrections from a Trimble VRS™ network through the internal cellular modem, and then transmit these over Bluetooth to an external GNSS receiver such as the GPS Pathfinder ProXRT receiver. However, corrections from a VRS network cannot be applied to the internal GNSS receiver of a Juno series handheld.

### **Can I use an external GNSS antenna with a Juno series handheld?**

Yes. The optional external GNSS antenna (part number 62960-00) may be convenient when using a Trimble Juno series handheld in a vehicle, particularly if that vehicle's windshield has a GNSS-resistant UV coating.

### **Can Juno series handhelds be upgraded to include cellular modem or voice call capability?**

No. Customers who anticipate requiring cellular modem support or voice call capability in the future should purchase a Trimble Juno 3D handheld.




## What ships standard in the box?

Trimble Juno series handheld ship with the following standard parts and accessories:



## What optional accessories are available with Juno series handheld?



The following optional accessories are available for purchase:

Part number	Description	Picture
70934-00	Vehicle power adapter	
85716-00	External battery charger	
85715-00	Carry case with belt clip	




Part number	Description	Picture
85714-00	Vehicle mount	
85717-00	Range pole bracket	
70948-00	Anti-glare screen protectors (2-pack)	
70956-00	Clear screen protectors (2-pack)	
62960-00	External GNSS antenna	

The following standard accessories can also be purchased separately as spare or replacement parts:

Part number	Description	Picture
85713-00	Juno series 3060 mAh battery	
85712-00	Juno series stylus (2-pack)	



Part number	Description	Picture
85718-00	AC adapter	

## Cellular Modem Questions (Juno 3D Handheld Only)

**Caution:** Use of the cellular modem data or voice call capability will incur charges which may be fixed (per month) or may be based on the data bandwidth you use. Charges when roaming outside your home network (for example, abroad) are significantly higher than those incurred when on your home network. Please check with your carrier for full details of usage charges, both on their own network and when roaming.

### What can I use the Juno 3D handheld’s cellular modem connectivity for?

The Trimble Juno 3D handheld’s internal 3.75G broadband cellular modem allows you to connect to the Internet or directly to an IP address, using a supported 2.5G, 3G or 3.5G cellular network. The most common application is to connect to your organization’s network remotely to access enterprise data, maps, and other information.

Other potential applications include:

- Accessing private or publically available Internet sites and services, such as WMS (Web Map Servers) for background maps in the field.
- Tracking each Juno 3D handheld by sending GNSS positions periodically to a central location.
- Dynamic work order allocation across a dispersed field workforce.
- Instantly reporting on field conditions in time-critical situations, such as natural disaster management and utility outages.
- Sending and receiving email in the field.
- Receiving real-time corrections from VRS networks for use with a GPS Pathfinder ProXRT receiver for high accuracy GIS data collection.

### Can I use the Juno 3D handheld as a dial-up modem to access the Internet?

No. There is no need to use the old-fashioned dial-up modem approach to get connected. Simply configure the cellular modem to connect directly to the (cellular) network, in the same way that you would configure the WLAN radio to connect to a Wi-Fi network. Once connected to the network, you are already “online”.

### **Can I make phone calls with the Juno series handhelds?**

Yes, the Trimble Juno 3D handheld supports voice calls over the cellular network, or you can also use VOIP (Voice Over Internet Protocol). You can use either the integrated speaker or a wireless (Bluetooth) headset to listen and talk during a call.

**Caution:** *VOIP calls consume a high amount of network bandwidth and will rarely be cost-effective when compared to regular cellular voice calls.*

### **Can I send and receive text messages with a Juno series handheld?**

Yes, the Trimble Juno 3D handheld supports text messaging.

### **Will using the voice call capability degrade the accuracy of my GNSS data?**

No, the voice call capability will not degrade the accuracy of your GNSS data. Trimble suggests however that you pause/stop GNSS logging or close the feature before taking a call to avoid moving the GNSS antenna while capturing a feature.

### **The screen is disabled when I receive or make a voice call. Is that normal?**

Yes, the Trimble Juno 3D handheld temporarily disables the screen when a phone call is made or received. This prevents you from accidentally operating the touch screen when you are on a call. To use the touch screen while on a call, press the left softkey to unlock the screen.

### **What happens to my Internet connection when I take or make a voice call? Is software still able to send and receive data?**

Trimble Juno 3D handhelds can still send and receive data when the cellular connection is in 3G mode. In GSM mode, packet data connections are put on hold while you are on a voice call.

### **What's the impact of voice calls on battery charge?**

The Trimble Juno 3D handheld standby time is approximately 158 hours with the cellular voice-call functionality enabled, and 878 hours with this functionality disabled.

The Juno 3D handheld talk time is approximately eight and a half hours in GSM mode, and seven and a half hours in UMTS mode.

### **Can I use a Bluetooth headset for voice calls?**

Yes, the Trimble Juno 3D handheld is compatible with Bluetooth headsets.

## ***Other Wireless Questions***

### **Do Juno series handhelds have a flight mode for use in an aircraft?**

Trimble Juno series handhelds do not have an explicit "flight mode". The Wireless Manager application can be used to turn off the Wi-Fi and Bluetooth radios and the Juno 3D handheld's cellular modem. Alternatively, to perform a full power down of the device, press and hold the Power button and select Shutdown.

## What can I use the Wi-Fi capabilities of Juno series handhelds for?

Trimble Juno series handhelds have an integrated wireless Local Area Network radio, compliant with IEEE 802.11 b/g, that you can use to receive data anywhere within the range of a wireless LAN access point. Wireless LAN is often referred to as Wi-Fi. There are many publicly available Wi-Fi access points (also known as “hotspots”). To locate nearby access points, use Internet sites such as [www.jiwire.com](http://www.jiwire.com). Using the Wi-Fi radio in a Juno series handheld does not impact GNSS performance, but battery power is consumed faster when there is an active connection to an access point.

## What can I use the Bluetooth capabilities of Juno series handhelds for?

Trimble Juno series handhelds have an integrated Bluetooth radio that you can use to establish cable-free connections to other Bluetooth devices within a range of 10 meters. Using a Bluetooth wireless connection, you can communicate with Bluetooth-enabled devices such as laser rangefinders, wireless headsets, or barcode scanners.

Using the Bluetooth radio in a Juno series handheld does not impact GNSS performance, but battery power is consumed faster when there is an active connection to another Bluetooth-enabled device.

## Camera Questions

### What are the functions of the integrated digital camera of Juno series handhelds?

Trimble Juno series handhelds feature a 5 megapixel digital camera. Still photos are stored in the JPEG format which is widely readable on all types of computer. Photos can be previewed on a Juno series handheld, using the Pictures & Videos application.

Video clips can be recorded in either VGA or QVGA resolution, and are stored in .WMV format, which can be viewed (in Pictures & Videos) on a Juno series handheld, and also on most computers using an application such as Windows Media Player.

The camera has built-in geotagging capabilities which allow the user to select if the GNSS location and date is stamped onto the image or stored into the EXIF file header. With this information stored in the file you can easily map your photos or identify where they were taken and the asset they refer to.

### Does the integrated camera have a flash (“strobe”)?

The Trimble Juno 3B handheld does not have a camera flash; there is one built into the Trimble Juno 3D handheld. In low light situations, you can also adjust the brightness level in the Juno series handhelds camera application to improve subject visibility.

### Can I use the camera as a barcode reader?

Some proprietary business applications allow you to use the digital camera as a barcode scanner, but this capability is not currently available as a stand-alone application. For companies wishing to implement this capability in their application, SDK packages exist.

### **Can I take portrait oriented pictures?**

Trimble Juno series handhelds do not have an orientation sensor to distinguish portrait from landscape photos. You will need to rotate any pictures which have portrait orientation once they have been downloaded to your computer or network.

### **Can I link pictures to GIS features that I am capturing?**

Yes. You can use Trimble TerraSync software to control the taking of still photographs. Any photographs initiated from within TerraSync software are automatically associated with the current GIS feature and are moved to the folder in which your TerraSync data is stored. This file association is preserved during data download and export using GPS Pathfinder Office software.

### **Are the pictures time-, date-, and position-stamped?**

For all photos captured with the Trimble Juno series handheld's camera, the file is automatically time and date-stamped using the handheld's internal clock. You can also geotag the photo and have the date and/or GNSS position (decimal degrees) indicated on the image itself or stored in the EXIF header of the file.

If you take a picture using Trimble TerraSync software, not only is the picture time- and date-stamped, but the TerraSync software automatically writes the current GNSS position to the picture's EXIF header and creates a link between the image and the feature.

This means the picture can always be identified in space and time, even if it is subsequently separated from the GIS data you were collecting at the time the picture was taken.

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

Go to [www.trimble.com](http://www.trimble.com) or contact your [local Trimble Distributor](#).