

July 2022

SP30 FAQs



What is the SP30 handheld?

The Spectra Geospatial SP30 handheld is an ultra-rugged, all-in-one smartphone and high accuracy GNSS data collector. It features an array of powerful features such as a bright 6-inch display, 2.2 GHz processor, Android™ 10 operating system, and large memory and storage. For high-accuracy positioning virtually anywhere in the world, the SP30 supports L band and can connect to Trimble Field point RTX service. The SP30 handheld is completely customizable with Google Mobile Services and is compatible with MobileMapper Field and office software, Trimble Penmap® for Android software, as well as third-party Android compatible apps such as Esri® Collector for ArcGIS®. With an enhanced all-day battery, 4G LTE connectivity, Bluetooth® 4.1, and durable exterior, this next generation SP30 handheld is a powerful, comprehensive solution for reliable communication and data collection.

What are the key features of the SP30 handheld?

High accuracy GNSS receiver, 6-inch touch screen, two cameras (front and back), up-to-date connectivity, dependable ruggedness, high processing power, high capacity replaceable battery, Android 10 operating system.

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Operating System

What operating systems does SP30 handheld support?

The SP30 handheld is powered by the Android 10 operating system. This is an open and fully GMS-certified operating system enabling you to run any application, for example, Spectra Geospatial MobileMapper Field, and third party applications such as Esri collector for ArcGIS, etc.

How do I activate Android 10 on the SP30 handheld?

The Android 10 operating system will guide you through the configuration process the first time you turn on the handheld. This process takes a few minutes. You should set up a Google account and user. After the initial setup, you can change the user settings and most of the other settings through the Settings menu

Inside the box

What is in the SP30 handheld packout?

The SP30 handheld packout includes the following items:

- Handheld with battery
- USB-C data cord
- Screen protector
- Hand strap
- A/C charger
- Quick start guide
- Pouch
- Monopole adaptor
- Battery opener tool
- Screw driver for handstrap hooks installation



What optional accessories are available for the SP30 handheld?

Pole mount, AC adapter, spare batteries, external antenna, and Dual Battery Charger. For more information, contact your Spectra Geospatial dealer.

What is the SP30 Android version?

SP30 is running Android 10. It can be checked in Setting Menu/About.

What is Google Over-The-Air?

Google Over-The-Air (GOTA) supports Android operating system updates to be pushed to the end-user rather than to manually connect and update. SP30 supports GOTA and the user will be prompted automatically when connected to the internet if a new version of the Android operating system is available. The upgrade will be done automatically over the air.

Can the SP30 Android version be upgraded?

SP30 is running Android 10.0 and can be upgraded to a new Android 10 version via GOTA (automatic upgrade over the air). SP30 will not be upgradable to Android 11.

For how long will security patches be available for SP30?

Android security updates provided until December 2024.

Software application

What is the SPace application?

Spectra Geospatial SPace is a free of charge application available from Google Play. Space provides all the settings needed to configure the SP30 high-accuracy GNSS receiver. SPace is needed for MobileMapper Field and for any 3rd party mock location-based application. SPace acts as the Android Mock location provider and feeds the Android Location service with high-accuracy data from the SP30 GNSS. Then, any 3rd party Mock location-based application will get the SP30 GNSS positions as well.

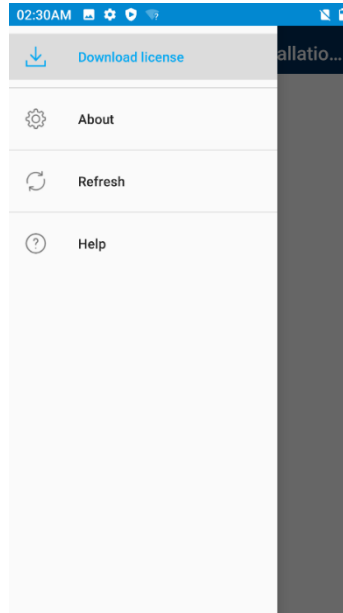
Is SPace needed all the time?

No, in some cases the applications are not using the mock location service because they can connect directly to the SP30 GNSS. This is the case with PenMap for example which is using Trimble TPSDK to access and configure the SP30 high-accuracy GNSS receiver. In that case SPace will not be needed and the control of the GNSS receiver is done directly from the application itself.

What is the SGIM application?

Spectra Geospatial Installation Manager (SGIM) is preinstalled on SP30 and will replace GNSS loader which was used for SP20. It will be used to install SP30 configurations and upgrade the GNSS firmware if needed,

- Install Accuracy configuration on SP30. Start Spectra Geospatial Installation Manager and select "Download license".



- Any configuration assigned to this device by the Spectra Geospatial distributor in Virtual Ware House will be listed here. Select the corresponding line to install the configuration on SP30.

How to enable Mock location on SP30?

Enable Mock Location in order for location-aware apps to have access to accurate positioning.

- Activate Developer mode: Settings/About Device, Tap 7 times on "Build number"
- Access to Developer options: Settings/System/Advanced/Developer options
- Activate Mock Locations: in Developer options/DEBUGGING/Select Mock location app.

For SP30, SPace should be selected (app available on Google Play) for use with MobileMapper Field or 3rd party applications.

Is the SP30 handheld ruggedized?

SP30 handhelds are designed for ruggedness:

- Operating temperature: -20° to +55°C (-4 to 131°F) (6), (7)
- Storage temperature: -40° to +70°C without battery (-40 to 158°F) (6)
- Humidity: 5% to 90% RH, non-condensing. According to MIL-STD-810H 507.6
- Water & dust proof: IP67 (IEC 60529)
- Salt fog (MIL STD 810 H method 509.7)
- Free drop: 1.2 m (3.9ft), 10 drops (2 faces, 4 edges and 4 corners) on concrete
- Shocks: MIL STD 810G (fig 516.6-10 Procedure I)
- Vibration: MIL-STD-810G (fig 514.6CI-Cat4)
- Altitude: MIL-STD-810G-2014 Method 500.5

Accelerometer

How do I enable the accelerometer and electronic compass?

The orientation sensors are active and applications can access and use the sensors. To see the sensor output, free tools are available from the Google Play Store.

What size is the SIM card?

The SP30 handheld requires a NanoSIM. SP30 has two slots for Sim cards.

How do I change the SD and SIM card?

The SIM card and SD card slots are located underneath the battery cover on the back of the device.

1. Turn off the handheld.
2. In a dust-free indoor environment, remove the battery cover on the back of the device, push the two top slides down, and push the four side locks down to the unlocked position.
3. Remove the battery; push the battery lock left to the unlocked position, then lift the battery out left-side first.
4. Insert one or two SIM cards into the SIM card slots; make sure you insert the card correctly as illustrated on the sticker, taking note of the direction of the notched corner.
5. If necessary insert a MicroSD memory card, metal contacts down, in the slot above the SIM card slots.
6. Replace the battery and push the battery lock right to the locked position.

7. Replace the battery cover and lock it into place.

Screen

Do I need a screen protector?

Yes. Spectra Geospatial strongly recommends using a screen protector. One screen protector is installed on SP30 handheld out of the box, you just need to remove the protection mask as shown below



One more screen protector is also provided in the SP30 box as a spare.

How do I apply the screen protector?

Make sure the screen is clean before you apply the screen protector; any dust or dirt between the screen and screen protector will be visible and degrade your display experience.

1. Place the device on a clean, flat surface.
2. Clean the touchscreen with a damp cloth, alcohol wipe, or similar.
3. Remove the protective film from the screen protector.
4. Align the screen protector with the glass portion of the display. The screen protector should line up evenly with the edges of the device.
5. Carefully lay the screen protector on the screen. If you make a mistake and the glass looks off-center, you can gently lift the screen protector up and realign it. Then, once the protector is on the screen, give it a soft press in the center and allow the adhesive surface to grip the screen naturally.
6. If there are any bubbles remaining, use a cloth to gently smooth them toward the edges of the screen protector.

How do I lock the screen rotation?

Go to **Settings / Display / Advanced** and tap **Auto-rotate screen** to toggle the rotation lock on/off.

What is important to know about capacitive touchscreens?

Capacitive touchscreens are very common in today's tablet computers and smartphones. The SP30 handheld has a capacitive touchscreen that is highly responsive to the touch of a finger. You can easily zoom into images or data (if the software used supports a dual touch user interface).

The capacitive touchscreen is based on the user being a conductor to enable the touchscreen properties. If you are using gloves, such as during very cold weather, Spectra Geospatial recommends using gloves that are designed for capacitive touchscreens, or the stylus.

To enable the Glove mode, go to Settings/Accessibility/Glove mode and check the box

The capacitive screen does also work in rain. However, in heavy rain false contacts may happen.

Use of polarized glasses with SP30

When using polarized glasses with SP30 you can experience difficulties to have clear vision of the display. In that case you can try to rotate the SP30 in order to improve visibility of the SP30 display.

How do I attach and use the handstrap of the SP30?

Screw the top and bottom hand strap attachments to the back of the handheld

Feed the hand strap ribbon ends through the attachments.

Pull one end of the ribbon back towards the center of the hand strap and velcro it to the strap.
Repeat with the other ribbon end.

Secure the hand strap wrap in place.



Connectivity

Can the SP30 handheld be used for voice calls?

Yes, the SP30 handheld supports voice call capabilities.

Which are the cellular networks supported by SP30?

It is difficult for us to give a detailed list of supported networks but SP30 will run on most of the LTE cellular networks worldwide. Note that SP30 is not specifically PTCRB certified even if the cellular component is the same as MobileMapper 60 which is PTCRB certified.

How can I switch between two mobile networks with the SP30 handheld?

The SP30 handheld has two nanoSIM slots that can be used for connection between two separate mobile carriers. To switch between networks, go to **Settings / Network & Internet / Mobile network / select the preferred SIM SLOT 1 or SIM SLOT 2**.

How can I transfer data with my SP30 handheld?

Data can be transferred from the SP30 handheld using the following methods:

- Via cloud-based file sync services (for example, Trimble Connect, Dropbox, Microsoft OneCloud, Google Drive sync, or with other cloud-based apps) over Wi-Fi or 4G.
- Via Wi-Fi connection using a wireless LAN connection to an access point
- Via Bluetooth using the file explorer application, by selecting the file to transfer and clicking on the share icon, then on Bluetooth icon
- Via USB cable to a laptop computer

How can I use the SP30 handheld Wi-Fi capability?

The SP30 handheld has integrated Wi-Fi that can be used to receive data anywhere within the range of a Wi-Fi access point. A Wi-Fi connection can be used to connect to the Internet (at broadband speeds) through an access point.

NOTE: When there is an active connection to a Wi-Fi access point, power consumption increases and the battery will discharge more rapidly.

How can I use the Bluetooth capability?

The SP30 handheld has an integrated Bluetooth® radio to establish cable-free connections to other Bluetooth devices that are within 10 meters.

Using a Bluetooth connection, you can communicate with other Bluetooth-enabled devices such as mobile phones, desktop computers and more. You can also communicate with Bluetooth-enabled peripheral devices instead of using USB connections.

NOTE: When there is an active connection to another Bluetooth device, power consumption increases and the battery will discharge more rapidly. Individual usage patterns will vary by

device and the frequency of the Bluetooth communications

What type of cable connections does the SP30 handheld support?

The SP30 handheld has a USB type C data transfer cable.

How can I reset my SP30 handheld?

Go to **Settings / System / Advanced /Reset options / Erase all data (factory reset)**. Note, this will erase all data from the device.

How do I update the Android operating system?

Go to **Settings / System / System update / Check for update** and update the system if it is not up to date.

Power

Will using WWAN impact my battery life?

Yes. However, battery life is a complex calculation, based on a variety of factors that include software applications in use, wireless features in use (Bluetooth, Wi-Fi, cellular modem), exposure to extreme heat or cold, age of the batteries, and battery storage and charging routines. Using the WWAN feature requires power and that comes from the battery when the device is not plugged into an electrical outlet.

Battery removal

There is no hot-swap capability on the SP30 so removing the battery will irremediably switch off the unit.

First unlock the 6 lockers, 2 at the top and 2 on each side.

Please use the battery opener provided with the product or any other tool. This is much easier and safer for your nails.

Removing the battery is needed to install a SIM card or an SD card memory.

Unlock the locker and insert the tool on the left side, as shown on the picture below.



How do I change the battery?

Do the following:

1. In a dust-free indoor environment, remove the battery cover on the back of the device—push the two top slides down, and push the four side locks down to the unlocked position.
2. Remove the battery; push the battery lock left to the unlocked position, then lift the battery out left-side first.
3. Replace the battery and push the battery lock right to the locked position.
4. Replace the battery cover and lock it into place.

Why are the batteries arriving "dead"?

The batteries are not dead but in sleep mode. This prevents the batteries from degrading when shipping or being on a shelf. The batteries will "wake up" once charged in a SP30 handheld or the charging dock (available as an accessory). The very first task after unpacking is to connect the AC power and charge the battery fully over a 4 hour time period

Can I charge the batteries in my SP30 handheld?

Yes. The battery can be charged in the SP30 handheld. A stand-alone Dual Battery Charger accessory is available if additional power is needed to support longer use days or to support workflows that require more than one battery.

How do I maximize battery life?

Ways to reduce power consumption and extend the battery life are:

- Battery Saver (Android 10 battery settings)
- Minimize the Screen timeout settings (Settings > Display > Advanced)
- Reduce the display backlight (Settings > Display or pull-down Quick Settings and drag slider)
- Lock screen rotation
- Turn off unneeded radios (Wi-Fi, WWAN, Bluetooth)
- Change sync settings (Settings > Accounts > Automatically sync data). Deselect the items you don't need.

How to save battery life on SP30

As any other portable device battery life is key

Adaptative brightness in Settings/Display can be set to on to automatically adapt display backlight to ambient light level.

100% backlight is the biggest consumption on SP30

Switch off when not used and not just sleep mode

Long press on power is necessary to switch all components off and then stop consuming power. In sleep mode (short press) only the display is off but all GNSS functions are still alive

Dual battery charger

No hot swap function is available on SP30 unfortunately but still the possibility to have an additional battery always fully charged in hands. An external battery charger is available as an accessory and can charge 2 batteries simultaneously. p/n: 228835-00



GNSS

SP30 GNSS, how does it work?

The SP30 is fitted with two distinct GNSS location providers:

- The u-blox Android GNSS (low accuracy)
- The Spectra high-accuracy GNSS module.

All location settings from the Android settings menu, only impact the Android GNSS, not the high-accuracy Spectra GNSS module, which should be controlled directly from the GIS or Survey application or with the SPace application.

When starting the SP30, by default both the Android GNSS and the high-accuracy GNSS module are running. At this stage, any application you will be using will receive low-accuracy positions from the Android GNSS, and only from it.

High-accuracy positions will be made available and used only if SPace – the specific Spectra mock location provider – is started. SPace may be started manually or automatically when starting MobileMapper Field. High-accuracy positioning will also be available for an application supporting direct access to the high-accuracy GNSS module. This will be the case with the PenMap application (through TPSDK). As soon as SPace, or any TPSDK-based application, is started, the Android GNSS is made idle and the displayed location settings in Android are all irrelevant.

Start/Stop Receiver and application

It is recommended to start the SP30 GNSS receiver outside with a maximum of satellites in view. That way the start time will be optimized and the risk of false initialization will be eliminated.

When starting SP30, GNSS reception is activated automatically and will remain on, even when the receiver is made idle. So it is important to switch the SP30 off when not used in order to save battery life.

What are the different SP30 configurations available for sale?

There are 4 different SP30 configurations available:

- Meter (standalone GPS L1 only, SBAS)
- Sub-meter (Full GNSS L1/L2, RTK, 30/30 accuracy)
- Decimeter (Full GNSS L1/L2, RTK, 7/2 accuracy)
- Centimeter (Full GNSS L1/L2, full RTK)

These configurations differ from each other because each offers a specific default achievable accuracy (all other functions are exactly the same: L1/L2, full GNSS, etc., except for the Meter version which is L1 GPS only).

Except for the Meter configuration which does not use any correction (autonomous/standalone only), all others, from 30 cm to cm, require a correction source from VRS for example.

Applying a better accuracy configuration will enable the new accuracy on SP30, whatever the previous lower accuracy.

The option management is made through the SGIM app (where you can also check what the currently installed accuracy option is). If several are installed this is always the highest accuracy that is applied.

Which corrections source can be used with SP30?

SP30 is able to handle any type of corrections except UHF ones. It can be SBAS, NTRIP, Direct IP or RTX (both from the Internet or L Band). The supported formats of corrections are: ATOM, CMR, CMR+, RTCM, CMRx and sCMRx.

Depending on the installed SP30 accuracy configuration, the GNSS engine is set to deliver the corresponding accuracy whatever the format of the correction stream.

Is post processing available on SP30?

Yes SP30 data can be post processed. Using MobileMapper Field for GIS, post processing will be possible if the Post-processing MobileMapper Field option has been validated and by using MobileMapper Office software (note that there is an option on MobileMapper Office to allow cm grade Post processing results). Without this option the results will be at a few dms level).

Note that raw data file recorded by MobileMapper Field (G file) can only be post processed by MobileMapper Office.

What is the SP30 Accuracy performance?

Accuracy of the different versions, both in real time and for post-processing (GIS and Survey)

	Real Time Corrections stream supported	Real Time Accuracy H/V RMS (Internal antenna, open sky)	Post Processing MMO Std/cm option
SP30 Meter	SBAS	<70/<90 cm	Need long occupations and very short base lines
SP30 Sub meter	Ntrip	30/30 cm	30 cm/1cm
SP30 dm	Ntrip	7/2 cm	30cm/1cm
SP30 cm	Ntrip	1 /2 cm	30cm/1cm

The best accuracy option installed on the receiver will always be applied.

How to easily demonstrate the different SP30 accuracy levels?

Customers might be interested in testing the SP30 accuracies before making their final decision.

To be able to demonstrate the 4 accuracy levels, you need to have an SP30 with cm level activated. This is because you can only demonstrate the levels of accuracy that are below the accuracy level of your receiver. So for example, if you decide to use a Dm version, then you will only be able to demonstrate the Sub meter and Meter versions (in addition to the DM version).

To switch from one level to the other, you will need the SPace application to be installed on the receiver. This application is available for free on Google play:

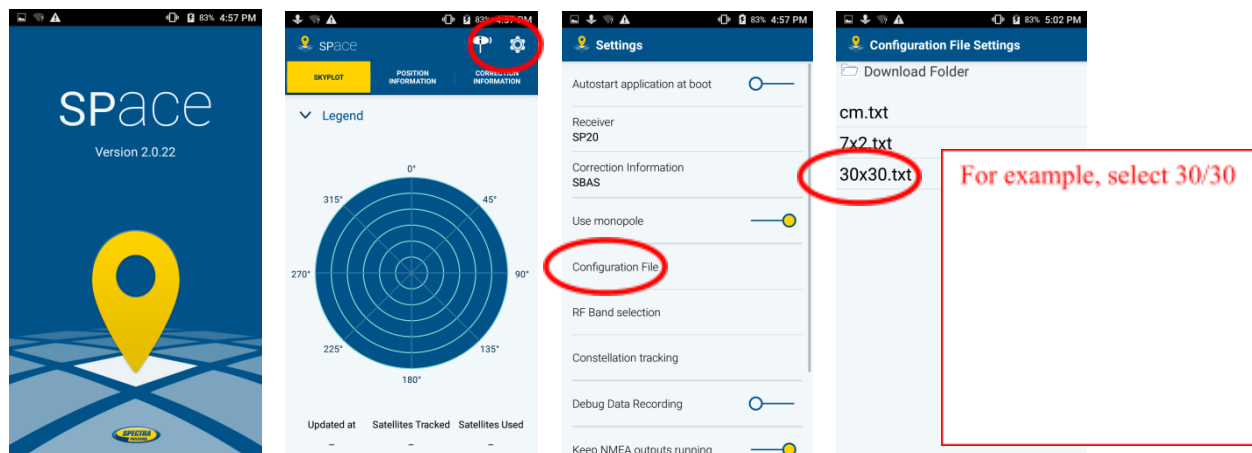
<https://play.google.com/store/apps/details?id=com.spectraprecision.android.space&hl=en>

Then the only thing you have to do is copy the 4 small txt files to the Download folder on the receiver. These files can be found here:

<http://trl.trimble.com/docushare/dsweb/View/Collection-128222>

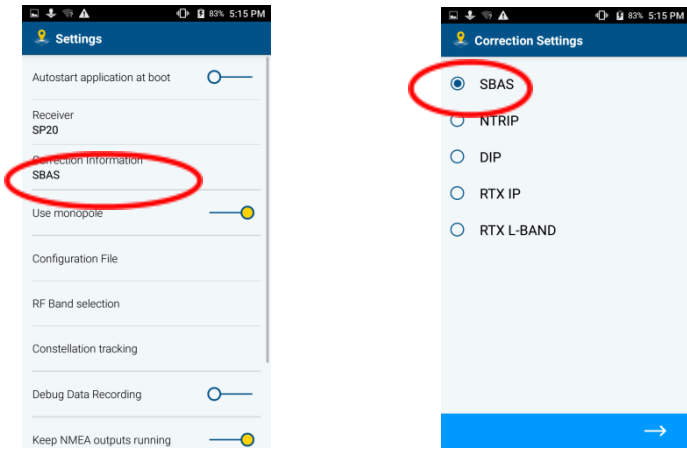
These files contain specific commands used to switch the accuracy level.

Once the files are in the download folder, open SPace and go to Setting/Configuration files



Select the file corresponding to the accuracy level you want to demonstrate. To change from an accuracy level to another, just come back to this screen and select another txt file.

The “Meter” level, lowest accuracy, will be achieved simply by selecting SBAS in the Settings/Correction information.



Use of the Monopole for accurate logging

The use of the monopole in conjunction with the SP30 is a very efficient way to guarantee the accuracy of the collected features, while keeping maximum product portability.



SP30 is shipped with an accessory to be mounted to the back of the antenna part in order to adapt on the monopole.

GNSS Antenna Height with Monopole

In order to use the SP30 on the monopole you need to install the monopole adaptor to the back of the SP30 unit. This adaptor is provided in the SP30 standard package. See above.




When used on top of the monopole accessory (see picture) the SP30 can deliver accurate vertical coordinates because the monopole gives the SP30 excellent vertical stability. When the monopole is used, the antenna height (H) you need to specify in your application (ex: MobileMapper Field) is the length

of the monopole (read the graduation directly on the monopole). For all Android applications using SSpace as interface, and when the monopole is used, you should enable **Use monopole** on the SSpace Settings screen. The application will automatically add together “H” and the distance (d) from the base of the monopole adapter to the phase center so that the application uses the real height of the GNSS antenna phase center above the ground.

What is the benefit of the “Camera logging” workflow?


In order to make accurate logging possible with the SP30, while still holding the receiver in your hand, we have implemented in Mobile Mapper Field and PenMap applications a special workflow consisting of using the rear camera to better aim at a point. When you are ready to log


a point you may touch  to get a real view of the ground, as seen by your device's rear camera. The camera view will show you something like this:



You then have to orientate your device so that the two crosshairs become concentric and green in color, meaning the SP30 device is leveled. Then gently move the device horizontally so that the two crosshairs aim at the desired ground point.



When you are precisely over the target, touch the  button located in the title bar, at the top right of the screen.

Be sure you keep the crosshairs green throughout the data collection otherwise the point logging will be aborted. This is especially critical if you have chosen a long averaging time. At the end of the data collection, MobileMapper Field comes back to the previous screen where you should save all the data  logged by pressing:

Survey Configuration

Spectra geospatial Origin Field software is available on SP30 to address survey workflows (from version 2022.00). Origin MAX, GNSS and LT are supported by SP30. Post Processing is not supported by SP30 and Origin.

GIS configuration

For GIS, the MobileMapper Field software can be used on the SP30. This GIS data collection application is a basic but efficient solution for any GIS job. MobileMapper Field needs to be used in combination with the SPace application. Also 3rd party applications can be used on SP30 by using SPace as the mock location provider.

Can SP30 be used with an external antenna?

Yes. In order to improve and secure data collection specifically in difficult conditions like Urban or shaded locations, it is possible to use an external antenna connected to SP30: the Trimble Zephyr 3.

The external antenna cable (P/N 116795) and SP30 pole bracket (P/N 129115-SPN) are available to mount SP30 on a pole with external antenna.

TIPS and Tricks

How is the time managed on SP30?

The system date and time can be updated:

- manually in the setting menu
- automatically by cellular modem
- automatically by WiFi network

It cannot be updated with GPS time due to Android design.

So when doing any recording it is important to control that the time is correct. And if no networks are connected the best is to adjust manually the time in the settings.

How do I capture screen snaps?

Power key + Volume Down will save a screen capture to the My Pictures / Screenshots folder.

How many function keys does the SP30 handheld have?

The SP30 handheld has 4 physical F-keys (function keys). They are located to the bottom of the screen on the front of the device, and one on the left side of the device.

What can I do with the function keys on the SP30 handheld?

The function keys can be programmed to open any application for quick access. To program the desired functionality, go to **Settings / Keymap** and apply the desired application in the proposed list to each key. Volume keys can also be used as function keys.

Could SP30 pictures be tagged with the position?

Yes, when taking a picture with SP30 from a GIS application (Picture attribute), then the position will be recorded in the EXIF metadata.

How do I update the Android operating system?

SP30 is compatible with Google GOTA automatic upgrade so at start up if a new operating system is available and if the unit is connected to the internet user will be prompted and invited to upgrade.

Also at any time it is possible to activate the upgrade manually, go to Settings / System / Advanced / System update / Check for update and update the system if it is not up to date.

Factory warranty

Spectra Geospatial SP30 has a 2 years factory warranty