

# Stonex 'Cube A' S850 GNSS - Quick guide

## **Getting started:**

Turn on the S850 receiver by holding down the On/Off button for 2 seconds. Put S850 on the survey pole. Turning on the tablet and slide up with finger to show the main screen. There is no password.

Tap on the '**Cube A**' App in the middle of the screen and **then let it go through its intialisation process**. If outside in view of satellites it will show how many satellites it is receiving.

It will display **DGNSS, Float or Fixed** when it is receiving an RTK signal with Beidou PPP.

H:0.020 means the expected horizontal accuracy is 20mm and V: 0.026 is 26mm accuracy. Example below The **RTK** Icon gives the amount of time from receiving an RTK / DGPS correction signal.

Using the mobile phone internet is will show between 1 and 15 secs. L-Band should be between 10 and 30 seconds. The **battery level** of the receiver is to the right of the RTK status.

On the main front page at the bottom of the screen are the 6 menu tabs. **Project, Device and Survey** etc.

A **Project** name will have been created or it can be done in the Project menu in **Project Manager**.

The **Device** menu is where communication link is established. It should already be configured for the S850.

## **Surveying:**

On the bottom of the screen you will see **Survey**.

In this menu use **Point Survey** to record a point.

Tap on the bottom right **REC** teardrop Icon to record a point at your location. The point is where ever the GPS antenna is located.

Above the REC icon there is P1, P2, P3 list. This is where you can view and edit points.

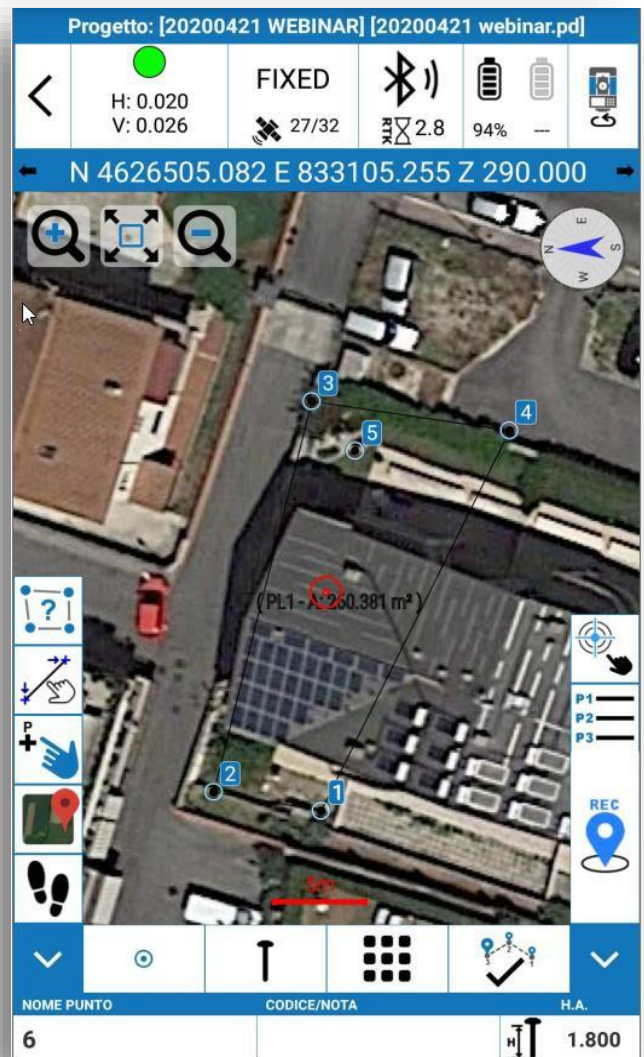
Below the REC icon is where the **antenna height** from ground is entered. If its on a pole, it is 2m.

**Setting out a point** is done in the Survey menu by selecting the **Point Stakeout** menu. This will allow you to navigate to a selected point. The point is selected from a list or from the map.

Record a **track log** at defined distance or time interval. Click on the pole Icon in the bottom centre of the screen. Select **Auto Point** in the drop down menu and then set the distance or time interval. Distance is refered as Step.

The Google image on the left side of the screen will Bring up a google map of the area. You need to have an Internet connection for this function.

Always remember to keep an eye on H: & V: at top of screen to make sure you know the estimated accuracy.



To **Export** your recorded points go to the **Projects menu** in the main screen. Then open Export Data. Select Point Id, East, North, Height and Code in the list. **Also tick the box to share after export**.

This will let you email the data to your personal email. The other way to export data is using the **USB C** cable connected to a PC. Swipe down with your finger from the top of the tablet screen and you will see Android System – Charging this device via USB.

Tap on this message to bring up other options. Now select **File Transfer**. On your computer open the **Internal shared storage**, then open **StonexCube**, then open the **Export** folder. Your exported CSV will be in this folder.

In the **Project** menu you are able to **Import points** into your job it is the reverse procedure. You copy and paste a CSV file with 5 columns. Name, Easting, Northing, Height, Code into the Input folder of StonexCube. Then select this file and miss the first line of the spreadsheet if it has a header line.

**Feature Codes** can be created for your own list of codes. Simply create New and call it Exploration and then put in codes for common features such as drill hole collars.

Other useful information when using the CubeA main menus is as follows.

In the **Configure** menu at bottom of screen you will see the following menu tabs

**Coordinate System** is where **Ellipsoid** is set to **GRS80** when working in Australia

**Projection** is set to UTM and it is here that you select a different UTM zone. The Central Meridian for Zone 50 is 117 degrees and for zone 51 it is 123 degrees. This can be auto selected by tapping the icon to the right.

**Geoid** is where a model of mean sea level is selected to change heights from Ellipsoid to AHD. Import the file for your project area.

**Local Offsets** is sometimes enabled to adjust for a local change in coordinates and height.

**Display Settings – Display point Name** should be selected to show your points on the map screen.

**Record Settings** is where you can set the acceptable tolerance for the survey points that you collect. The points you collect will be called **Topo points**. When you are using L-Band DGPS solution The best settings would be as follows

**Solution Limit Float**

HMRS 0.20 which is 20cm - this is just so you don't get the warning message pop up. Always look at VRMS 0.30 which is 30cm the estimated accuracy at the top of screen before recording a point.

**Auto Point** in the Record Settings menu allows you to create a track log of points using a time interval or a distance interval (labelled Record according to Step).

The **Device** menu at bottom of screen

**Working Mode** is where you can check the S850 receivers settings.

Select **Rover** Check that in the Communication Mode box that **Atlas L-Band** or **Phone Network** or **UHF Radio** is selected. Double check that all the Satellite constellations have been enabled.

Then press Apply to ensure that any changes have been saved.

Working Mode is where you can make it either a **Rover** or a **Base** and change settings. When in UHF mode radio channels can be selected. A **radio frequencies can be assigned in Channel 8**. The output radio power for the Base can also be set. The rover need only be set to Low power.

**Static Survey is in working mode** and is used to record a static survey session. Raw GPS data can be collected for a single point and later post processed to get a very accurate 3D position. A session can be from 1 minute to 20 minutes depending on how far you are away from a Base station / CORS. The raw GPS file for the session is found in the GPS receiver. It is down loaded via the WebUI, please read below.

When **Phone network** is selected as the data link, you need to select a reference station near where you are working. When close to a reference station you get the accuracy to 1cm but if you are 80km distant it will get to around 10cm accuracy and take longer to get a **Fixed** solution.

NTrip Access Points when using Auscors can be found on <https://portal.ga.gov.au/persona/pa>  
Near Coolgardie are two reference stations these are Kalgoorlie, Noresman, Leonora, Laverton and Yellowdine. **KALG00AUS0, NORS00AUS0, LONA00AUS0, LAVE00AUS0 and YELO00AUS0**

In the Pilbara close to Karratha / Roeborne is **KARR00AUS0** and to South of Hedland is **PTHL00AUS0**  
near Tom Price is **TOMP00AUS0**

**Note** that the current data link signal has to be stopped before a mount point can be changed.

If you have selected **UHF radio** for the data link you need to make sure the S850 is on the same frequency as the Base GPS. If needed you can edit the frequency for the radio in **Channel 8**.

Other features such as the **IMU tilt function** are found in the **Calibrate menu**. There is a visual display on how to calibrate the IMU. Please view the Stonex manuals and tutorials that are on the included USB stick for more detailed information on the CubeA software and the S850 GNSS receiver.

**To Exit** the Cube A software press the Return button near the On/Off button. The S850 receiver can be turned off by **ticking the box** and turning off at the same time. To turn off the S850 manually press the On/Off button for 2 second; you will hear a voice saying turn Off. **Then a second short press to turn Off.**

### Using the Web UI and configuring the receiver

Firstly connect the S850 via WiFi on your computer. Ignore messages such as no internet.  
Then open a Web browser like Internet Explorer or Chrome and Type **192.168.10.1** in the browser window. It will ask for username and password which is **admin** and **password** respectively.  
You can now access the receivers information and make changes to the settings.

**Download Raw Data** is where Raw GNSS data that has been recorded is stored. This can be used for Post Processing and to send off to get an **Auspos report** or post processed on the SmartNetAus portal. Around 3 hours or more data is need for a good Auspos report. Only a few minutes is needed for SmartNetAus processing.

**Management** is where New Firmware can be installed.