

Stonex 'Cube A' S850+ GNSS - Quick guide

Getting started:

Turn on the S850+ receiver by holding down the On/Off button for 1 second. Put the unit 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 initialisation 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 via the internet or UHF radio.

H:0.020 means the expected horizontal accuracy is 20mm and V: 0.026 is 26mm accuracy in example below.

The RTK Icon gives the amount of time from receiving the RTK / DGPS correction signal.

Generally when using the mobile phone internet or UHF radio it will show between 1 and 10 secs.

The **battery level** of the receiver is to the right of the RTK status and is showing 94% full in below picture.

On the Main menu at bottom of the screen are 6 menu tabs. **Project, Device, Survey, Configure, Calibrate** and **Tools.**

In **Project** a job name can be created or an old job activated. In this menu you can import and export points.

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

Survey:

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.

The down arrow below the REC icon is where you can set the antenna height to the ground. If it is on a pole it will be 2m or with the quick release it is 2.1m.

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.

The google image on the left side of the screen will bring up a google map of the area. Don't use this function if you are low on battery life.

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 when you export. This will let

You email the data to your personal email. The other way to export data is by the USB C cable connected to a PC. Swipe down with your finger from the top of the UT10 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.



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 using RTK and topo point collection the best settings would be as follows

Solution Limit **Float**

HMRS 0.08 which is 8cm - this is just so you don't get the warning message pop up. Always look at VRMS 0.12 which is 12cm 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 S900A 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 70km 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 Mt Marion Mine are two reference stations KALG00AUS0 and NORS00AUS0

Albany has two ALBY00AUS0 (near airport) and ABNY00AUS0 in town,

Other location in WA's South West are Northcliffe, Karridale, Bussleton - BUSS00AUS0, Collie, Kattanning, Balingup, Nyabing, Wagin and Ravensthorpe in South West of WA. MURK00AUS0 near Northam.

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 S900A 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 S900A GNSS receiver.

To Exit the Cube A software press the Return button near the On/Off button. The S900A receiver can be turned off by **ticking the box** and turning off at the same time. To turn off the S900A 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 S900A 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 is installed and options activated.

The Cube A software is exited by pressing the return button near the On/Off button twice. The S850+ receiver can be turned off by checking the box and turning off at the same time. To turn off **manually** press the On/Off button for 2 second; you will hear a voice saying turn Off. **Then press a second time to turn Off.**

Charging the S850+ Do this at the end of the day using the larger USB AC charger and the cable with 2 x USB C connectors. Charge the 6" tablet via the smaller USB charger. Cigarette USB adapter included.