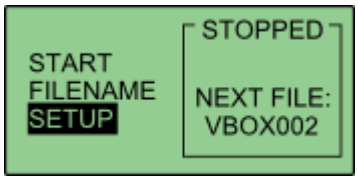
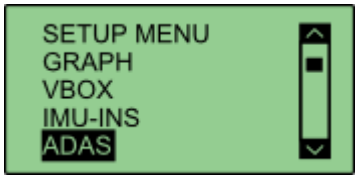
TSR - Traffic Sign Recognition Testing (Multi Static Point)

Enabling Multi Static Point Mode

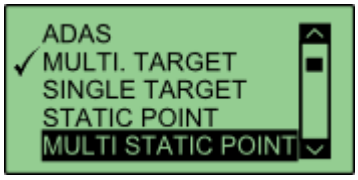
1. Using the VBOX Manager enter the SETUP menu.



2. Then select ADAS.

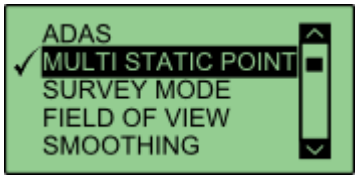


3. Select MULTI STATIC POINTS.



4. Once selected, a ‘tick’ icon will be displayed next to the MULTI STATIC POINT menu and it would have expanded to include:

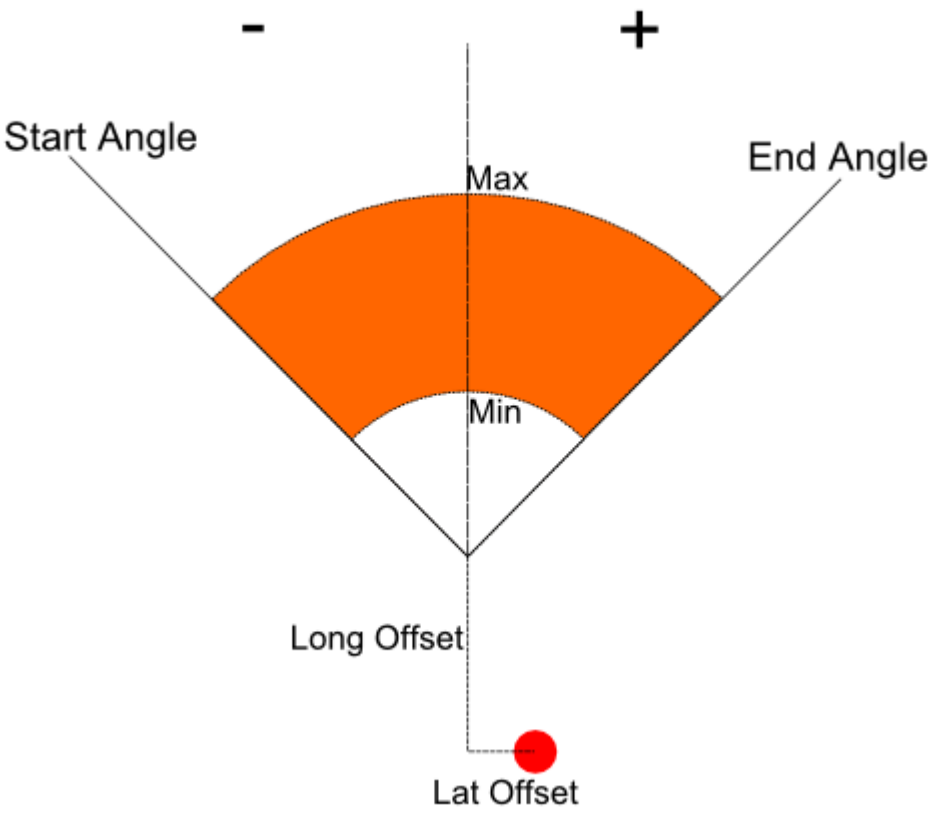
- Survey Mode
- Field of View
- Smoothing



The VBOX is now set to ‘Multi Static Points’ mode.

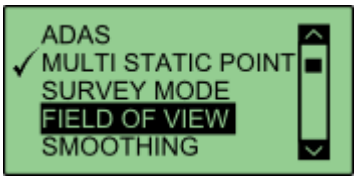
Setting the ‘Field of View’

The Field of view is a circular arc that defines when a feature should be referenced, represented as the orange area in the diagram below. If a static point lies outside of this area, it will be ignored until it enters the field of view.

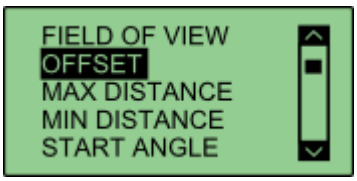


Defining the Field of View using VBOX Manager

1. Under the MULTI STATIC POINT menu, enter the FIELD OF VIEW menu.

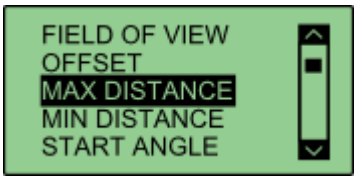


2. Enter the OFFSET menu. This menu allows the user to translate the antenna position to another position on the vehicle (usually the sensor position).



3. The offset point will be the start of the field of view. This is done by entering either a LNG RANGE and LAT RANGE offset, with forwards and right directions being positive.

4. Enter the MAX DISTANCE menu. In this menu it is possible to define the distance, in metres, from the offset point that the field of view will end.



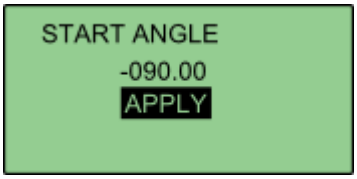
5. Once the distance has been set, press the APPLY button.

6. Enter the MIN DISTANCE menu. Similar to the MAX DISTANCE menu, this allows the user to define the distance from the offset point that the field of view will start.

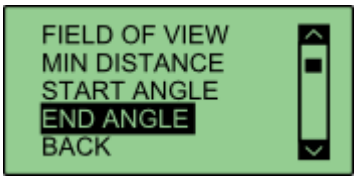
7. Once the distance has been set, press the APPLY button.

8. Enter the START ANGLE menu. This allows the user to define the angle from the centreline at which the field of view will start. Anything to the left of the centre line will be negative, anything to the right hand side will be positive.

9. Once the angle has been set, press the APPLY button.



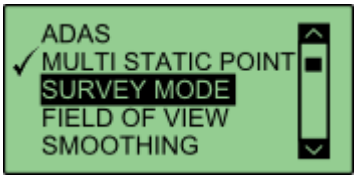
10. Enter the END ANGLE menu. This allows the user to define the angle from the centreline at which the field of view will end. Anything to the left of the centre line will be negative, anything to the right hand side will be positive.



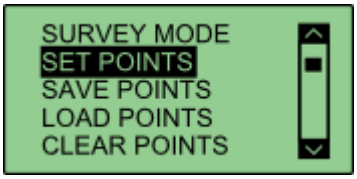
11. Once the angle has been set, press the APPLY button.

Setting Static Points

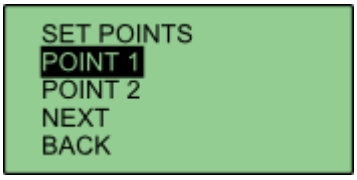
1. Under the MULTI STATIC POINTS menu, enter the SURVEY MODE menu.



2. Select the EDIT POINTS menu.



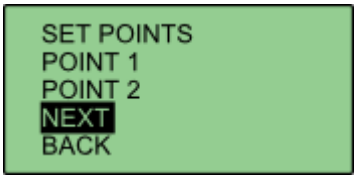
3. To define the first point of a feature, move the antenna to the required position and press POINT 1.
If successfully saved, the VBOX manager will display the OK message.



To define the second point of a feature, move the antenna to the required position and press POINT 2.
If successfully saved, the VBOX manager will display the OK message.

NB: this step can be skipped if the user requires the feature to only have one point.

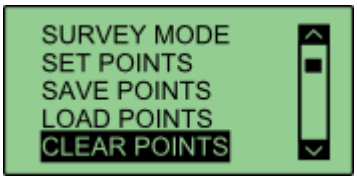
4. Once one/both points have been surveyed, select NEXT.



5. The VBOX Manager will then display FEATURE 1 SAVED message.

Repeat this process as required.

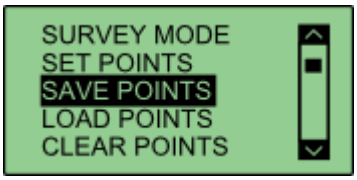
The saved features can be cleared at any time using the CLEAR POINTS option under the SURVEY MODE menu.



Saving Static Points

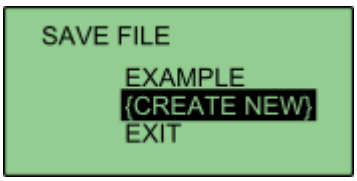
Once the static points have been surveyed, it is possible to save all surveyed static points.

1. Under the SURVEY MODE menu, select SAVE POINTS. This allows the user to either create a new save file, or replace an existing file.



2. To replace a file, simply select the file name you wish to replace, in this case, the file called EXAMPLE.

3. To create a new file, select {CREATE NEW}. This will bring up an alpha numeric scroll wheel where the user can enter the desired file name.

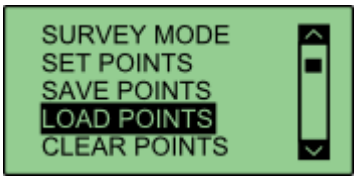


4. Once saved, the VBOX Manager will display a SAVE SUCCESSFUL message.

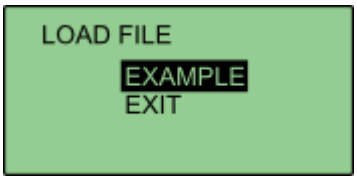
Loading Static Points

If a previously saved file is present on the compact flash card, it is possible to load those points.

1. Under the SURVEY MODE menu, select LOAD POINTS. This will bring up a list of all previously saved files that are present on the compact flash card.



2. Selecting a file name will load that file into the VBOX.



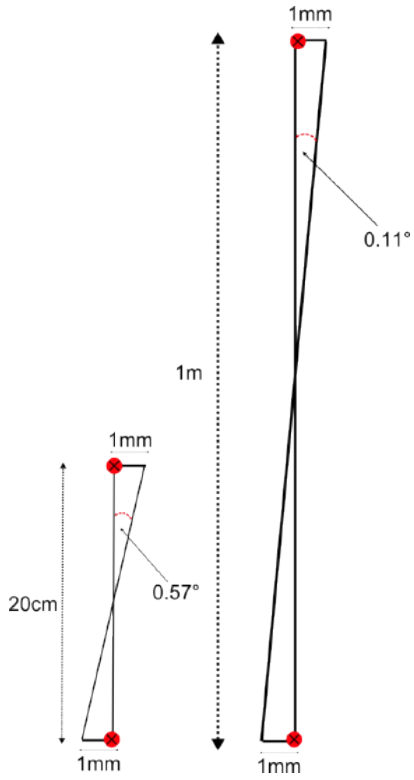
Smoothing

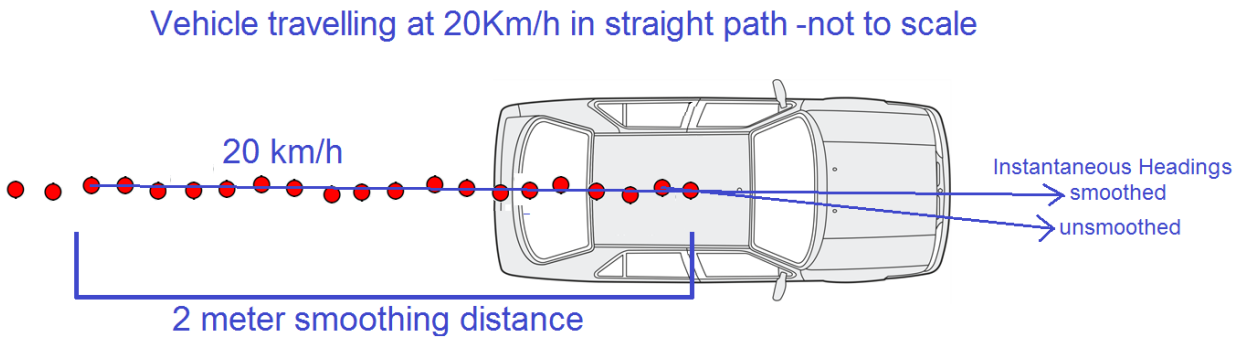
There are two configurable variables linked to heading smoothing; ‘Smoothing Distance’ and ‘Speed Threshold’. Due to the nature of the vehicle separation measurement and calculation process many channels are derived using the heading of the vehicle which can inherently be noisy. To overcome this heading can be smoothed with a dynamic smoothing routine.

Smoothing Distance

The vehicle heading is normally calculated between the current and previous sample. Even with the stability of RTK position GPS position can vary by a few millimetres with respect to the original. When the travelled distance between subsequent samples is short (low speeds) this leads to a potential larger potential error in the calculated heading.

This smoothing routine allows the user to force a ‘Smoothing Distance’ over which heading is calculated. This is therefore dynamic, resulting in a variable number of samples used to determine the smoothing level on the heading; the lower the speed the more samples that are used. With 100Hz logging and a smoothing distance of 1m at 72kph the heading is calculated over the previous 5 samples whilst at 15kph the heading would be calculated over the previous 26 samples.

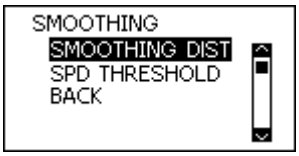




Setting A Smoothing Distance

1. Select SMOOTHING from the MULTI STATIC POINTS menu.

2. Select SMOOTHING DIST and enter the smoothing option for the Subject Vehicle, from the options between 0.00m and 2.00m.

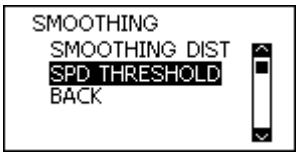


3. For typical Vehicle Separation applications we recommend a smoothing distance of 1m.

Speed Threshold

Due to the nature of how heading is calculated, even when Smoothing is applied at very low speeds and when the vehicle is stationary the heading channel can become very noisy and unusable, this in turn results in many of the Vehicle Separation channels becoming noisy at low speed and unusable when stationary. This is solved by fixing the heading below a configurable Speed Threshold.

1. To set the speed threshold repeat steps 1 above, then select SPD THRESHOLD and enter the speed threshold option for the Subject Vehicle.



2. We recommend a Speed Threshold of 5km/h.