Operating Handbook
Automotive applications

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This operating handbook aims to guide IG-500N and IG-500E users during sensor installation and configuration in automotive environments.

If carefully followed, those instructions will enable full IG-Device performance.

The sbgCenter is used to configure the products.

> *Note: This document covers conventional vehicles (cars, trucks etc). Please contact SBG Systems support team if a special vehicle is being used (tanks, or vehicles with more than 4 wheels for example).*

Mechanical installation

When used in automotive application, the IG-500 performs some velocity assumptions: No lateral velocity is allowed and therefore, a good sensor installation is a key point to follow.

IG-500N or IG-500E placement in the vehicle

For best performance, the IG-500 should be placed as close as possible from the rear axle. In practice, a 1 meter distance between rear axle and the IMU provides good performance level.

In addition, the IG-500 MUST be mechanically aligned with the vehicle direction of travel, as explained in the following diagram. **Alignment accuracy should be less than 0.5°.**
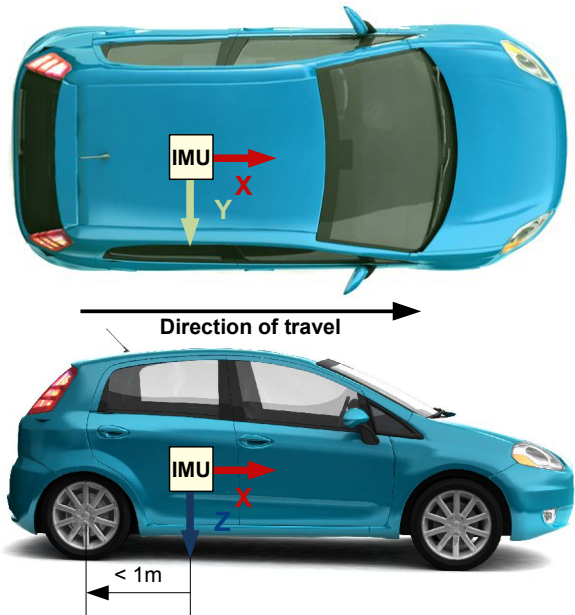
> *Note: If such mechanical alignment is not possible, then a software alignment can be used (pre rotations)*

GPS Antenna placement

Distance between GPS antenna and IMU should be measured on all 3 axes with less than 5 cm accuracy.

Lever arm is measured in the IG-500 coordinate frame, **FROM** the IG-500 **TO** the GPS antenna.

In addition, this distance should be lower than 5m for best performance.

GPS antenna must be fixed with respect to the IG-500.

1.1m

ANT

-0.9m

IMU

x

z
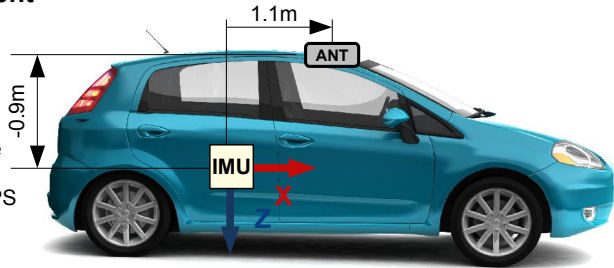
Note: In case of dual antenna GPS receivers, only the antenna used for tracking position should be considered in the lever arm measurement.

Odometer placement (IG-500E only)

Odometer has to be placed on a **non steering wheel** (rear wheel in most applications).

Odometer lever arm has to be measured with 5cm accuracy, and should be lower than 5m for best performance.
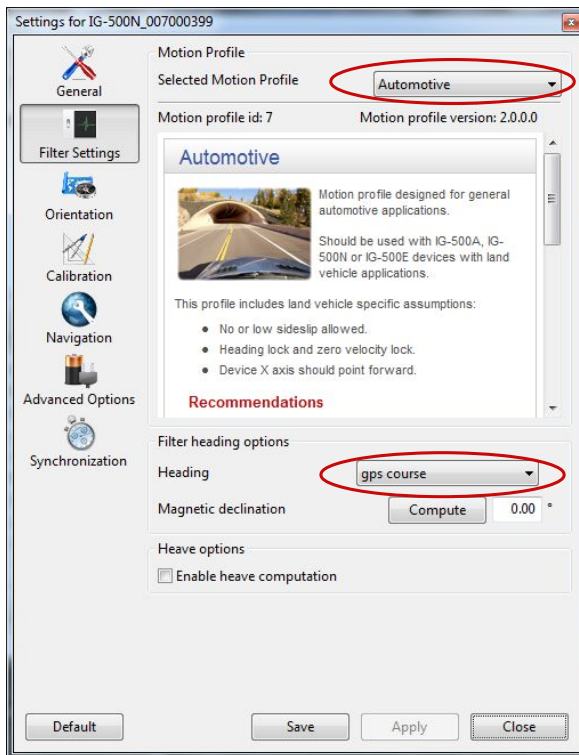
Lever arm is measured in the IG-500 coordinate frame, **FROM** the IG-500 **TO** the odometer.

-0.85m

ANT

0.5m

IMU

x

z
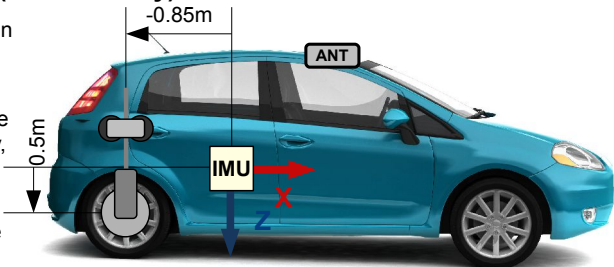
Software configuration

Motion profile

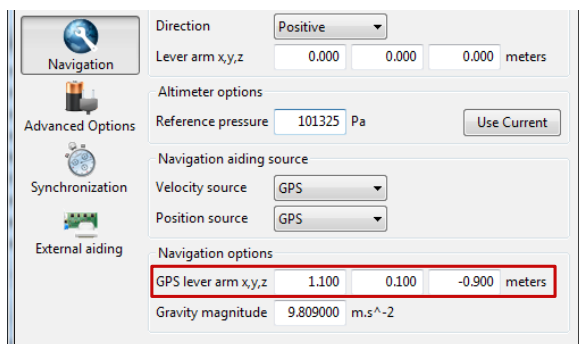Conventional vehicles should use the "Automotive" motion profile.

Heading Source

Conventional vehicles should use the GPS Course heading option.

GPS lever arm

Once measured, the GPS lever arm should be entered in the corresponding configuration.

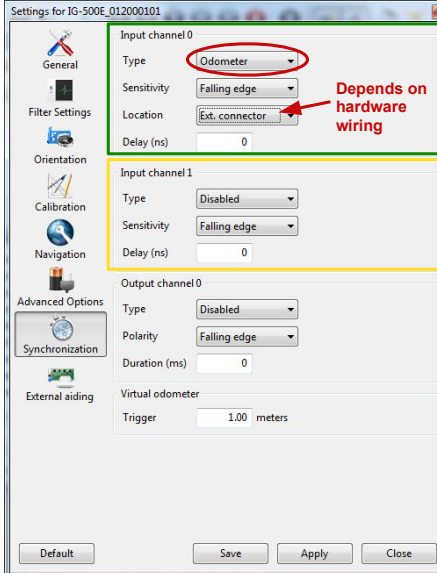Don't forget to apply and save the settings to flash memory.
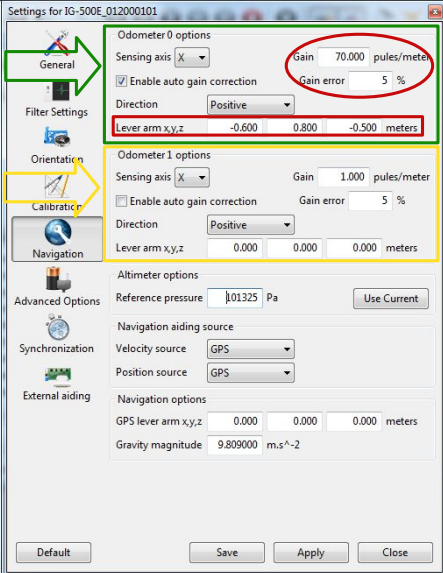
Odometer configuration (IG-500E only)

Using an odometer requires a few configuration steps.

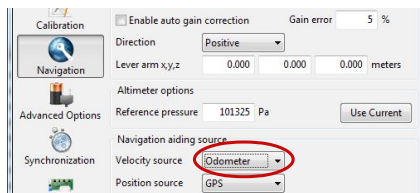In this example, the odometer **channel 0** is configured.

Step 1: Configure odometer Logic input   **Step 2:** Configure odometer parameters

Step 3: Select velocity source

Step 4: Press "Apply" button, and finally press "Save" button to save configuration to flash memory.

Support

If you have any trouble or question with the use of the IG device, feel free to contact our support team by email, at support@sbg-systems.com.