

# SPEEDBOX-INS Distance Verification - Application Notes

This application note describes a method for comparing the distance measurements from a CATS-INS or SPEEDBOX-INS with DASH4PRO to those from a class 1 tape measure.

## Equipment Used:

- CATS-INS or SPEEDBOX-INS with DASH4PRO
- Laser barrier
- Class 1 tape measure



The distance verification works by using a laser barrier to trigger the SPEEDBOX INS system to start and stop distance measurement as the vehicle passes each barrier. The distance between the barriers can then be measured independently of the CATS-INS. By testing in this way, it is possible for system users to verify for themselves the system accuracy.

## Changes required from default configuration:

By default the DASH4PRO is configured to test from different start speeds down to 2km/h. The system will need to be changed to trigger on subsequent barrier inputs. Load up the default configuration for brake testing on the DASH4PRO and edit the first test to be as shown here:

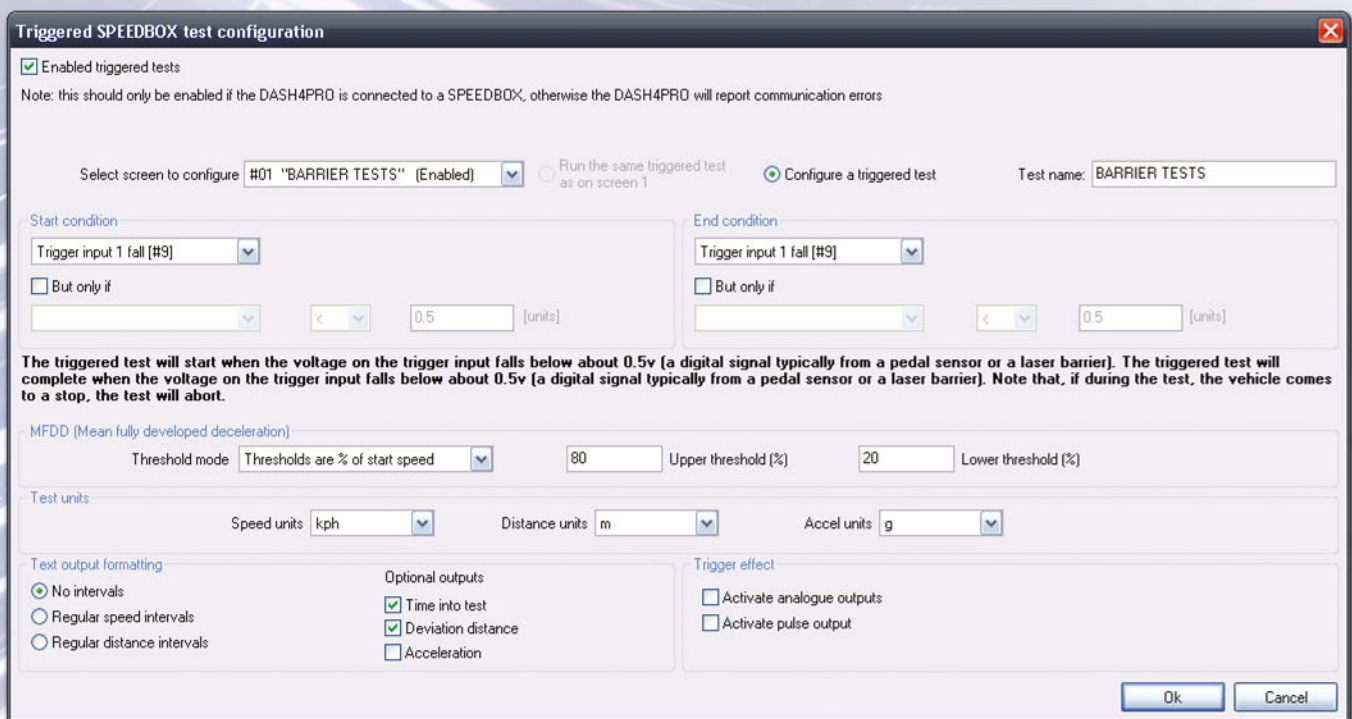


Fig 1. DASH4PRO software configuration

Save and send the new configuration to the DASH4PRO

Connect the output of the laser barrier to the trigger input on the SPEEDBOX INS:



Fig 2. Trigger input location

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## Testing the system

With the CATS-INS turned on, trigger the light barrier and check that the "T" on the bottom right hand corner of the dashboard changes state when the reflective strip is in front of the laser barrier sensor.

## Performing the test

Mount the laser barrier on the vehicle. This is best mounted pointing downwards as close to the ground as is reasonable. The longer the distance from the sensor to the target, the more chance there is of variations in the distance due to the mounting flexing on the sensor.

Securely mount the SPEEDBOX-INS / DL2 in the vehicle, fit the sensor assembly on to the roof and fix the DASH4PRO to the inside of the windscreen where it can be seen.

Start the vehicle and power the system.

Drive the vehicle around until the SPEEDBOX-INS converges, this will be indicated by a message on the display. The system is now ready for testing. Further driving with significant dynamics such as changing direction or acceleration / braking will further improve the INS accuracy, which is shown as INS ACC on the display.

When the vehicle is driven between the two barriers the SPEEDBOX-INS measurement will trigger and the path distance will be displayed on the DASH4PRO. If for any reason one of the barriers is missed, bringing the vehicle to a halt will reset the distance measurement.

Compare the distances from the DASH4PRO with those measured with a class 1 tape. Making sure to measure between the same points on the two strips i.e. back edge to back edge of reflective strip.



Fig 3. Laser barrier recommended installation



Fig 4. Testing diagram