



OXTS AV200 High Performance Navigation and Localisation System for Autonomous Applications User Guide

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OXTS AV200 High Performance Navigation and Localisation System for Autonomous Applications

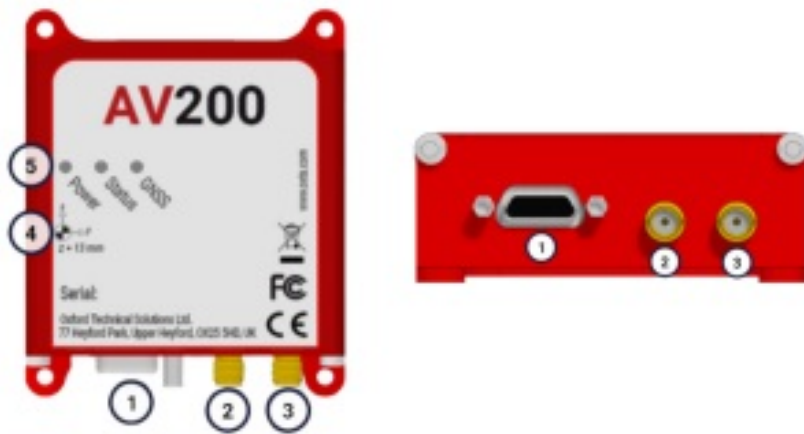


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At a glance

LED states	
Power	 Green. Power applied to system  Orange. Traffic present on Ethernet
Status	 Red and green flash. The system is asleep. Contact OxTS support for further information  Red flash. The operating system has booted but the GNSS receiver has not yet output a valid time, position, or velocity  Red. The GNSS receiver has locked-on to satellites and has adjusted its clock to valid (1 PPS output now valid). The INS is ready to initialise  Orange. The INS has initialised and data is being output, but the system is not yet real time  Green. The INS is running and the system is real time
GNSS	 Red flash. The GNSS receiver is active but has not yet determined heading  Red. The GNSS receiver has a differential heading lock  Orange. The GNSS receiver has a floating (poor) calibrated heading lock  Green. The GNSS receiver has an integer (good calibrated heading lock



Label	Description
1	Main I/O connector (15-way Micro-D) <ul style="list-style-type: none"> • Power • Ethernet • CAN • PPS
2	Primary GNSS connector (SMA)
3	Secondary GNSS connector (SMA)
4	Measurement origin point
5	LEDs

Equipment list

In the box



- 1 x AV200 inertial navigation system
- 2 x GPS/GLO/GAL/BDS multi-frequency GNSS antennas
- 2 x 5 metre SMA-SMA antenna cables
- 1 x user cable (14C0222)
- 4 x M3 mounting screws



Additional requirements

- PC with Ethernet port
- A 5–30 V DC power supply capable of at least 5 W



Setup

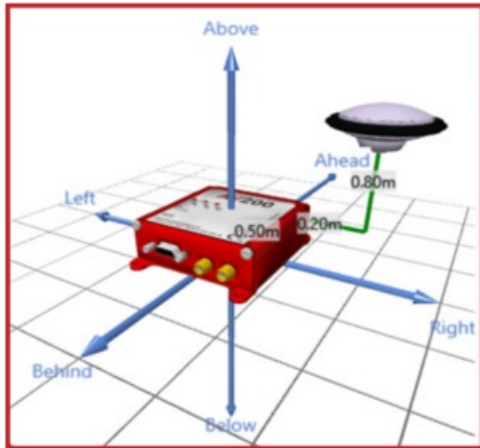


Install hardware

- Mount the INS rigidly in/on the vehicle.
- Position the GNSS antennas with a suitable ground plane. For dual antenna installations, mount the secondary antenna at the same height/orientation as the primary.

- Connect the GNSS cables and user cable.
- Supply power.
- Set up IP connection to the device on the same IP range.
- Move on to configuration in NAVconfig.

Configure in NAVconfig



- Select the INS IP address while connected to it via Ethernet.
- Set the orientation of the INS in relation to the vehicle.

The axes are shown on the measurement point on the label.

NOTE: Subsequent lever arm measurements should be measured in the vehicle frame defined in this step.

- Measure the lever arm offsets to the primary antenna.
If using a secondary antenna, measure the separation from the primary.
- Continue through the configuration wizard and commit the settings to the INS.
- Move on to initialisation.



Initialise

- Power up the INS with a clear view of the sky so it can search for a GNSS lock.
- If using static initialisation with dual antenna, the INS will search for a heading lock once GNSS lock is found.
- If using single antenna the INS must be kinematically initialised by travelling in a straight line and exceeding the initialisation speed (5 m/s default).

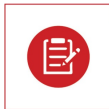


Operation



Warm-up

- During the first 1–3 minutes after initialisation (3 minutes for a new installation, 1 minute for an optimised setup) the Kalman filter will optimise several real-time states to refine the data output to be as accurate as possible.
- During this warm-up period, try to perform dynamic motion that will provide excitation to the IMU in every axis.
- Typical manoeuvres include straight line acceleration and braking, and turns in both directions.
- The real-time states of the system can be monitored in NAVdisplay or by decoding the NCOM output. Antenna lever arm accuracies and heading, pitch and roll accuracies will improve over the warm-up period.



Data logging

- The system starts logging data automatically on power-up.
- Logged raw data files (*.rd) can be post-processed using NAVsolve for analysis.
- NCOM navigation data can be logged and monitored in real time using NAVdisplay or with the OxTS ROS2 driver.

Need further assistance?

Visit the support website: support.oxts.com
Get in touch if you can't find what you need: support@oxts.com
+44(0)1869 814251



Documents / Resources



[OXTS AV200 High Performance Navigation and Localisation System for Autonomous Applications](#) [pdf] User Guide
AV200, AV200 High Performance Navigation and Localisation System for Autonomous Applications, High Performance Navigation and Localisation System for Autonomous Applications

[Manuals+](#)