Kinematica is a GNSS/INS post processed kinematic (PPK) software. It processes raw GNSS and INS data to achieve a higher level of accuracy than real-time INS. Kinematica is compatible with all of Advanced Navigation’s INS solutions.

APPLICATIONS
- LIDAR AERIAL PHOTOGRAPHY
- MARINE SURVEY
- LAND SURVEY
- LIDAR
- AERIAL PHOTOGRAPHY

PERFORMANCE

SPATIAL
- 0.04 ° Roll and Pitch
- 0.08 ° Heading

SPATIAL FOG DUAL
- 0.005 ° Roll and Pitch
- 0.007 ° Heading

KEY FEATURES
- Dual Antenna Heading Support
- Forward and Reverse Processing
- Precise Orbits and Clocks
- Odometer Aiding Support
Kinematica processes data backward and forward in time with advanced algorithms. This allows it to significantly reduce errors and extract the very best performance possible from an inertial navigation system.

The Precise point positioning (PPP) algorithm models GNSS errors to provide decimetre-level positioning accuracy. PPP can be used anywhere in the world, for example at sea or in remote areas, where real-time kinematic (RTK) accuracy is unavailable.

Kinematica features kinematic GNSS post processing which provides a 200x increase in position accuracy over standard GNSS. Kinematica automatically downloads the closest RINEX base station data and outputs position to an accuracy of 8 mm.

Kinematica’s PPK algorithm parses data forwards and backwards to fill satellite outages and ignore errors that would normally affect a real time solution. Data is processed in both directions multiple times in order to obtain the highest accuracy results.

For dual antenna systems, Kinematica supports tightly coupled dual antenna heading processing which significantly increases heading accuracy.
SPECIFICATIONS

SPATIAL ACCURACY

Horizontal Position Accuracy (no base station) 0.9 m
Vertical Position Accuracy (no base station) 1.2 m
Horizontal Position Accuracy (with base station) 0.02 m
Vertical Position Accuracy (with base station) 0.03 m
Horizontal Position Accuracy (60s after outage) 0.18 m
Vertical Position Accuracy (60s after outage) 0.22 m
Velocity Accuracy 0.005 m/s
Roll & Pitch Accuracy 0.04°
Heading Accuracy 0.08°

Horizontal Position Accuracy (no base station) 0.7 m
Vertical Position Accuracy (no base station) 1.1 m
Horizontal Position Accuracy (with base station) 0.008 m
Vertical Position Accuracy (with base station) 0.015 m
Horizontal Position Accuracy (60s after outage) 0.13 m
Vertical Position Accuracy (60s after outage) 0.14 m
Velocity Accuracy 0.005 m/s
Roll & Pitch Accuracy 0.005°
Heading Accuracy 0.01°

TECHNICAL FEATURES

Supported Navigation Systems GPS L1, L2, L5
GLONASS L1, L2
Galileo E1, E5
BeiDou B1, B2

GNSS/INS Log File Format ANPP
Base Station Log File Format RINEX v2, RINEX v3

Configuration Fully Automatic
Kinematic Processing Yes
Dual Antenna Heading Support Yes
Odometer Aiding Support Yes
Precise Orbits and Clocks Yes
Forward and Reverse Processing Yes
Zero Velocity Updates Yes

SPATIAL FOG ACCURACY

Horizontal Position Accuracy (no base station) 0.9 m
Vertical Position Accuracy (no base station) 1.2 m
Horizontal Position Accuracy (with base station) 0.008 m
Vertical Position Accuracy (with base station) 0.015 m
Horizontal Position Accuracy (60s after outage) 0.16 m
Vertical Position Accuracy (60s after outage) 0.19 m
Velocity Accuracy 0.005 m/s
Roll & Pitch Accuracy 0.03°
Heading Accuracy 0.06°

Horizontal Position Accuracy (no base station) 0.7 m
Vertical Position Accuracy (no base station) 1.1 m
Horizontal Position Accuracy (with base station) 0.008 m
Vertical Position Accuracy (with base station) 0.015 m
Horizontal Position Accuracy (60s after outage) 0.10 m
Vertical Position Accuracy (60s after outage) 0.11 m
Velocity Accuracy 0.005 m/s
Roll & Pitch Accuracy 0.005°
Heading Accuracy 0.007°

SPATIAL DUAL ACCURACY

Horizontal Position Accuracy (no base station) 0.9 m
Vertical Position Accuracy (no base station) 1.2 m
Horizontal Position Accuracy (with base station) 0.008 m
Vertical Position Accuracy (with base station) 0.015 m
Horizontal Position Accuracy (60s after outage) 0.16 m
Vertical Position Accuracy (60s after outage) 0.19 m
Velocity Accuracy 0.005 m/s
Roll & Pitch Accuracy 0.03°
Heading Accuracy 0.06°

Horizontal Position Accuracy (no base station) 0.7 m
Vertical Position Accuracy (no base station) 1.1 m
Horizontal Position Accuracy (with base station) 0.008 m
Vertical Position Accuracy (with base station) 0.015 m
Horizontal Position Accuracy (60s after outage) 0.10 m
Vertical Position Accuracy (60s after outage) 0.11 m
Velocity Accuracy 0.005 m/s
Roll & Pitch Accuracy 0.005°
Heading Accuracy 0.007°