



# mmVu<sup>®</sup> Solver

## GNSS Deformation Monitoring Software

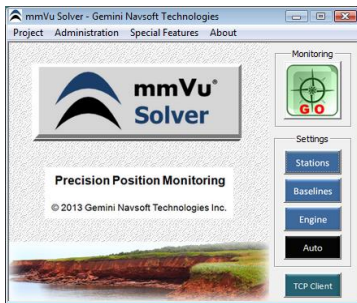


mmVu<sup>®</sup> Solver is a real-time GNSS deformation monitoring software that processes single-frequency baselines from single- or dual-frequency GNSS receivers. It is equipped with the GNT's unique, proprietary dual-processing engines (TDD and DDC filters) and utilizes GNT's parallel processing technology. The mmVu<sup>®</sup> Solver is highly scalable and can easily configure a project with a number of monitored stations. It is specifically designed for budget-sensitive projects. GNT's dual-processing engines can be easily tuned-up so that the mmVu<sup>®</sup> Solver can deliver mm-level accuracy in real-time even at a high data rate.

### Features

The mmVu<sup>®</sup> Solver uses redundant processing modules to ensure the integrity of its results.

- Provides TDD and DDC solutions by adjustable, selectable filters
- Detects sudden displacements and long-term stability trends
- Delivers up to millimetre level accuracy
- Designed to overcome GNSS challenges such as high multipath, ionospheric and tropospheric errors
- Suitable for budget-sensitive small projects with up to 10 km baseline length
- Archives solutions, observations, and Solver activity
- Processes up to 100 baselines
- Supports structure specific coordinate system



- Built-in system Integrity Monitoring Services.
- Supports multiple input data formats from single-frequency GNSS receivers.
- Simple to configure and easy to use.

### Application

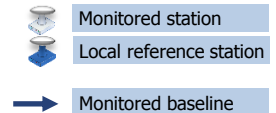
The mmVu<sup>®</sup> Solver fits in short baseline deformation monitoring applications using single- or dual-frequency receivers such as civil structures, localized natural features and industrial applications.

Civil Structures	Bridges, Dams, Weirs, Dykes, Buildings, Towers, Breakwaters, Wind turbines
Natural Features	Landslides, Ground subsidence
Industrial Applications	Construction sites, Mines, Railways, Roads, Tailings ponds

### System Deployment Diagram



- Single-frequency GNSS monitored receivers are located at the structure of interest.
- Single-frequency or dual-frequency reference station is located outside of the deformation zone.





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### mmVu<sup>®</sup> Solver Products

GNT offers three different types of mmVu<sup>®</sup> Solver products for customers to choose the right one that fits their monitoring needs.

mmVu <sup>®</sup> Solver Basic	an economical solution for small scale projects with up to 5 km baseline length
mmVu <sup>®</sup> Solver Plus	an optimal solution for complex projects with large numbers and up to 10 km baseline length
mmVu <sup>®</sup> Solver Premium	a customized solution for projects with special requirements



### mmVu<sup>®</sup> Solver Basic

- Economical: suitable for budget-sensitive monitoring projects
- Target Applications: fits small projects with up to 5 km baseline length

### mmVu<sup>®</sup> Solver Plus

- Optimal: suitable for medium budgets
- Oriented Applications: fits complex monitoring applications with large numbers of baselines

### mmVu<sup>®</sup> Solver Premium

mmVu<sup>®</sup> Solver Premium is available for applications requiring customized solution for projects with special requirements either in medium or large scale projects.

### Performance

The mmVu<sup>®</sup> Solver delivers mm-level accuracy in real-time even in challenging GNSS environments.

### Capabilities

License Options	mmVu <sup>®</sup> Solver Basic	mmVu <sup>®</sup> Solver Plus
Filter Type	TDD, DDC	TDD, DDC
Monitoring Application	Real-time, Static	Real-time, Static
Data Rate	Up to 1 Hz	Up to 10 Hz
Baseline Length	Up to 5 km	Up to 10 km
No. of Baseline	Up to 5 baselines	Up to 20 baselines
GNSS Environmental Challenge	Lower	Medium

### Local Server Computer and GNSS Stations

The mmVu<sup>®</sup> Solver can be integrated with customer's existing system or operated as a stand-alone system. GNT offers GNT's hardware solutions for customers who look for pre-configured hardware products.

The PS100 Local Server computer is a dedicated computer on which mmVu<sup>®</sup> Solver is preloaded and configured for individual applications.

The SGS100 single-frequency GNSS station is used to monitor locations of interest or serve as reference stations. The SGS100 consists of a high quality GNSS receiver and antenna, wired or wireless Ethernet-to-serial controller and an optional high-volume data logger.