



mmVu® Synergizer

GNSS Deformation Monitoring Software



mmVu® Synergizer is a real-time GNSS deformation monitoring software which is built to process mixed baselines from both single-frequency GNSS receivers monitoring the deformation of objects and dual-frequency GNSS receivers monitoring the stability of the reference stations. The mmVu® Synergizer is equipped with GNT's unique, proprietary dual-processor engines (TDD and DDC filters) and utilizes GNT's parallel processing technology. It is one of the most advanced, sophisticated, reliable and affordable software that can process both single- and dual-frequency GNSS baseline data in real-time with high level of accuracy, and at the same time it can monitor the reference stations in a project site using global or public reference stations.

Features

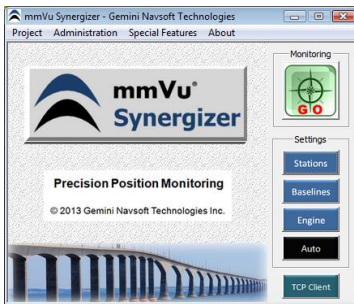
The mmVu® Synergizer software is designed to enhance flexibility and scalability of GNSS monitoring applications and to satisfy requirements from various applications.

- Provides TDD and DDC solutions for both single- and dual-frequency GNSS receivers
- Supports the use of third party Continuously Operating Reference Stations (CORS) available within 100km of the project site
- Provides millimetre-level deformation detection and sub-mm trend monitoring
- Designed to overcome GNSS challenges such as multipath, ionospheric and tropospheric errors
- Archives solutions, observations, and server activity
- Supports structure specific coordinate system

Application

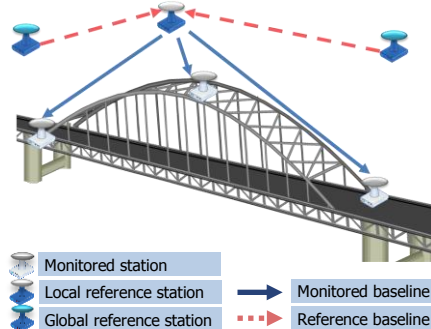
The mmVu® Synergizer is suitable for the projects where (single-frequency) monitored stations are located within short distance and (dual-frequency) reference stations need to be monitored as well. It fits most real-time deformation monitoring applications such as civil structures, localized natural 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



- Built-in system Integrity Monitoring Services.
- Supports multiple input data formats from various GNSS receivers including RTCM version 3.1
- Supports Networked Transport of RTCM via Internet protocol (NTRIP)
- Possible to be integrated with other systems

System Deployment Diagram



- Single-frequency GNSS monitored receivers are located at the structure of interest.
- A Dual-frequency local reference station is located outside of the structure.
- The position of local reference station is monitored using CORS or global reference stations.



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mmVu[®] Synergizer Products

GNT offers three different types of mmVu[®] Synergizer products for customers to choose the right one that fits their monitoring needs.

mmVu [®] Synergizer Basic	For small projects with up to 5 km monitored baseline length, and up to 50 km reference baseline length
mmVu [®] Synergizer Plus	For projects having more monitored baselines with up to 10 km and up to 100 km reference baselines length
mmVu [®] Synergizer Premium	A customized solution for projects with special requirements



mmVu[®] Synergizer Basic

- Economical: suitable for low budgets
- Focused Applications: suitable for budget-sensitive projects
- Simple Configuration: fits small scale projects

mmVu[®] Synergizer Plus

- Optimal: suitable for medium budgets
- Oriented Applications: fits complex monitoring applications with large numbers of baselines
- Medium Configuration: up to 10 km monitored baselines and higher data rate

mmVu[®] Synergizer Premium

mmVu[®] Synergizer Premium is available for applications requiring customized solutions for projects with special requirements

Performance

The mmVu[®] Synergizer delivers mm-level accuracy in real-time even in challenging GNSS environments.

Capabilities

License Options		mmVu [®] Synergizer Basic	mmVu [®] Synergizer Plus
Filter Type		TDD, DDC	TDD, DDC
Monitoring Application		Real-time, Static	Real-time, Static
Data Rate	Single-frequency	Up to 1 Hz	Up to 10 Hz
	Dual-frequency	Up to 1 Hz	Up to 10 Hz
Baseline Length	Monitored	Up to 5 km	Up to 10 km
	Reference	Up to 50 km	Up to 100 km
No. of Baseline	Monitored & Reference	Up to 7 baselines	Up to 25 baselines

Local Server Computer and GNSS stations

The mmVu[®] Synergizer 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 is a dedicated local server computer with mmVu[®] Synergizer preloaded and configured for individual applications.

The SGS100 single-frequency GNSS station is used to monitor locations of interest, and the DGS100 dual-frequency GNSS station serves as reference stations.

