*Are you expecting a GNSS Receiver with less weight but higher productivity? Will you worry about the functionality of the GNSS Receivers while they are becoming lighter and smaller?*

# Land Survey - A New Lightweight GNSS Receiver Hi-Target V200

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## Abstract:

*The electronics technology and manufacturing capabilities of industries are developing rapidly. Thus, the GNSS receiver for the land survey is evolving to be lighter, smaller with more functionalities. Hi-Target, as a leading company in the Geo-spatial industry, now introduces its latest GNSS receiver, the V200. It will bring a new RTK experience to land survey users.*

**Key Words**:

- *GNSS Receiver*
- *Land Survey*
- *RTK*

## 1. Developing Trend of GNSS Receiver

Compared to smartphones, which are getting bigger to display more content, GNSS receivers are clearly going in the opposite direction. However, in terms of other physical features, such as weight and battery, products share the same trends. Apparently, a lighter weight, more durable battery is obviously important for people who carry them around a lot. Certainly, there is a premise that the performance of the product can be prioritized.

In the history of GNSS receiver development, it is not unheard of having small size compact RTK receivers. Unfortunately, due to the technology level at that time, the application scenarios of small size GNSS receivers were finite. Simultaneously, their performance was not comparable to large size full-featured GNSS receivers.

For land surveyors with changing scenarios, although the network RTK technology has been very mature, the limitation of the complexity and instability of the communication environment still exists. So, a full-featured GNSS receiver is still their first choice. This equipment better ensures that the land survey work can run smoothly. The size and weight of the weapon becomes less important under this situation.

## New Product Arrives


Change has finally arrived. With the innovation of technology, Hi-Target has designed a new generation of compact GNSS receiver V200. It can perfectly handle the situations encountered in all kinds of land surveys. This new product aims at providing a lighter and smaller surveying experience. It also guarantees RTK performance meanwhile minimizing the burden of land survey jobs.

## 2. Contribute More to Land Survey

The name V200 is very reminiscent of its predecessor. In December 2015, Hi-Target released the first ultra-compact RTK GNSS receiver, V100. This device caused quite a heated discussion in the GNSS market at the time. The primary reason was that few RTK devices of this size in this class were successful. As mentioned above, due to the complexity of the working environment, land surveyors prefer larger devices with weight, such as the most successful V30 series and V90 Plus from the brand.

Not surprisingly, the V100's performance in the market is only moderate. Although sales are fair and favored by specific user groups, such as the users of machine control or GIS data collection, the lack of UHF functionality is really unsatisfactory for most land survey users.

But the advent of this ultra-compact GNSS receiver has been a bright spot for surveyors who suffer from heavy equipment and bulky cases all day long. In limited areas with good communication and good network RTK facilities, if the economic condition allows, users are willing to use the V100 to reduce unnecessary burden.

V100 GNSS RTK System

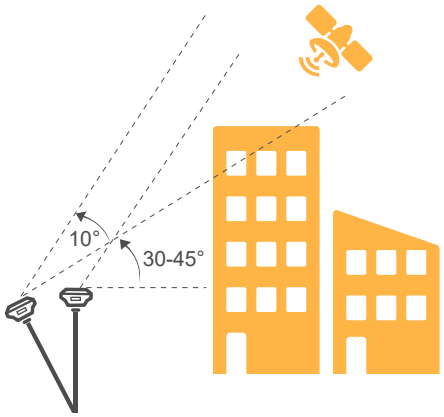
## V200 Meets Better Performance

The V200, therefore, can contribute more to the land survey. Hi-Target has set its self-developed multi-protocol UHF modem into the 5.2” enclosure, while the weight is only 800g. This change of configuration allows it to receive correction data from all the popular UHF base stations. It would make up for the biggest shortcoming of ultra-compact RTK receivers. Besides, thanks to good control of power consumption, the V200's built-in **6800 mAh** lithium battery can work continuously for more than **12 hours** in rover mode, meeting the user's needs for a full day of land survey. Furthermore, in order to minimize physical exertion, the case of the equipment has also been redesigned to reduce the weight by more than 50%, making it easier to carry. Yet, this is only the basic part of the update.

## 3. Advanced RTK Technology Empowers the Capability

The innovation and application of technology is a key factor in the improvement of work efficiency. Therefore, as the latest product released by Hi-Target, the V200 also undoubtedly adopts new features to satisfy more work scenarios and usage needs.

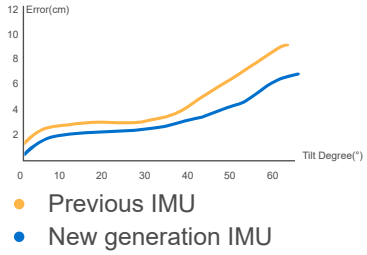
### 3.1 Full-constellation and Signal Tracking



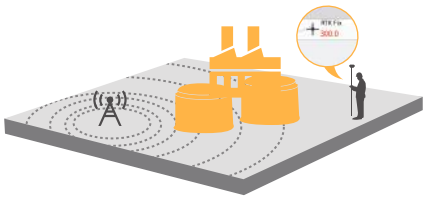

Whether it can track and utilize more constellations and signals becomes an inevitable requirement to evaluate the excellence of a GNSS receiver. The V200 applies the new full-constellation and all satellite signal tracking technology to ensure stable signal reception. This makes the V200 able to achieve stable and reliable high-precision positioning under various harsh environment.

### 3.2 Tilt Compensation

The V200 GNSS receiver integrates Hi-Target's latest tilt compensation algorithm and built-in high-performance inertial measurement unit (IMU). The algorithm utilizes the attitude measurement data at high frequency provided by the IMU, combined with GNSS observations, to perform compensation calculations. The device can output reliable and high-precision RTK positioning results even when it is at a tilt. This function solves the problem that the GNSS receiver cannot be kept upright for high-precision data acquisition in many measurement situations.

## 3.3 Hi-Fix



For land survey scenarios, it is inevitable that the RTK correction source will become unstable or even disconnected. The V200 is equipped with the Hi-Fix function of Hi-Target. It ensures that the GNSS receiver still maintains the output of high precision RTK positioning results when the correction data is lost. This also ensures the fieldwork can continue to the maximum extent.

## 4. Last but Not Least

Of course, with the launch of the V200 device, the well-known **Hi-Survey Road** software from Hi-Target has also added new features. Many improvements will provide users with a smoother, more flexible and efficient interactive experience. For example, with the help of **AR**, the staking-out has become easier and more efficient. Whereas the **CAD function has been optimized** to load large drawing files, both loading speed and smooth operation step up.

The Hi-Target V200 GNSS receiver is a product that represents a step forward in the development of GNSS receivers towards miniaturization, lightweight and full functionality. All the advanced RTK functions are integrated into this small body, which not only reveals the trend of GNSS receiver development, but also is the best suggestion of "to do a good job, an artisan needs the best tools".


More information at https://en.hi-target.com.cn/become-our-partner/

## About Hi-Target

Established in 1999, Hi-Target is the first professional high-precision surveying and mapping instrument brand to be successfully listed in China.

Hi-Target provides a wide range of surveying equipment including GNSS receivers, CORS stations, Total Station, 3D Laser Scanners, GIS Data Collectors, UAV/UAS, and Hydrographic products to offer complete commercial solutions for various industries.

As the leading brand in the geospatial industry, Hi-Target invests heavily in research and development, on top of collaborating with more than 100 universities globally to bring the latest positioning technology and innovation for product development.

For over 20 years, Hi-Target has approximately 3,300 employees worldwide, with an established network of 64 subsidiaries, 28 branches and more than 200 partners in over 60 countries to service and support our customers.

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