**PERFORMANCE SPECIFICATIONS**

**SATELLITE SIGNALS TRACKED SIMULTANEOUSLY**
- **257 Channels**
  - GLONASS: L1, L2, L5, L1C/A, L1C, L2C
  - GPS: L1, L2, L5, L1C/A, L1C, L2C
  - Galileo: E1, E5a, E5b
  - BeiDou: B1, B2, B1-B2
  - QZSS: L1C, L1C/A
  - SBAS: E5
d- **505 Channels (Optional)**
  - BeiDou: B1, B2, B3
  - L-band: B1, B2
  - QZSS: L1C/A, L1C, L2C, L5
  - SBAS: L1, L5
  - BDS: B1, B2
  - GLONASS: L1C/A, L1C, L2C, L5

**POSINGIONING PERFORMANCE**
- Hot start: Typically <10s
- Cold start: Typically <15s

**High-Precision State**
- Horizontal: 2.5 mm + 0.5 ppm RMS
- Vertical: 3.5 mm + 0.5 ppm RMS

**Static and Real-Time State**
- Horizontal: 2.5 mm + 0.5 ppm RMS
- Vertical: 5 mm + 0.5 ppm RMS

**Post-Processing Kinematics (PPK) / Stop & Go (GNSS Surveying)**
- Horizontal: 15mm + 1ppm RMS
- Vertical: 40mm + 2ppm RMS

**Real-Time Kinematic (RTK) Surveying**
- Single Baseline: 20mm + 1ppm RMS
- Network RTK: 8mm + 0.5ppm RMS

**Code Differential GNSS Positioning**
- Horizontal: 15mm + 0.5ppm RMS
- Vertical: 25mm + 0.5ppm RMS
- Initialization time: Typically 10 minutes for base and 5 minutes for rover

**Hardware**
- **Physical**
  - Dimensions (W x H) ≤ 153mm x 83mm
  - Weight: 1.5kg (3.3lb) without battery
  - Operation temperature: -40°C ~ +75°C
  - Humidity: ≤ 95%

**Electrical**
- Power consumption: 2.5W
- Shock and Vibration: Designed to survive a 3.0m (10ft) natural fall onto concrete

**Hi-Target GNSS RTK System**

**Hi-Target External UHF Radio**
- Frequency: 460~470MHz
- Transmitting power: 1W, 1.5W adjustable
- Transmitting speed: 5 6kbaud, 9 6kbaud
- Supports multiple communication protocols

**Advanced External UHF Radio (Optional)**
- Frequency: 470~470MHz
- Transmitting power: 5W adjustable
- Transmitting speed: 5 6kbaud, 9 6kbaud
- Supports multiple communication protocols

**Hi-Target Surveying Instrument Co., Ltd.**
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With a hi-tech, fully integrated design, the conveniently sized V90 Plus is one of the most flexible choices for any measuring task. Built-in Linux 3.2.0 operating system, pre-loaded multiple smart applications such as tilt surveying, electronic bubble calibration, NFC and voice DIY. The V90 Plus GNSS system provides surveyor industry-leading GNSS operation.

### Multi-constellation Tracking
- 220 tracking channels
- NGS approved full-wave GNSS antenna
- Supports GPS, GLONASS, GALILEO, BDS, SBAS
- Supports a wide range of satellite signals
- A large receiving area designed for multipath mitigation
- Air dielectric is light and stable

### Smart Application
- Offers tilt survey with a maximum tilt angle of 30 degrees
- Supports electronic bubble
- Intelligent voice assistance guides field operations. Voice can be DIY
- Standard Rinex data and HI-TARGET raw data recorded simultaneously

### Optional Transceiver UHF Radio
- The transceiver UHF radio enables switchable working modes between base and rover
- Three types of internal UHF radio provide different frequencies based on users requirements. The SATEL internal UHF radio is compatible with other radios

### Multi-network Connection
- Supports GPRS, GSM and WCDMA
- Supports WiFi

### Powerful Battery
- Powered by high-capacity (5000mAh) Li-ion battery to ensure full day operation

### Rugged Design
- IP67 dustproof and waterproof
- Able to survive a 2-meter natural fall onto concrete

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### Key Features

#### V90 Plus GNSS RTK System
- Express interacting functions to greatly improve the work efficiency.
- Road functions, DTM survey, electric grid survey, mapping, 3D point measurement.
- Integrated professional measurement functions for engineering applications.

#### Survey Data Collection Software
- The Hi-Survey Road is an android software that is designed for all types of land survey and road engineering projects in the field. It is compatible with Hi-Target professional controllers, android phones, tablets and other third-party android devices. It is a sleek and easy-to-use software that supports the operating of big data with build-in tools. With customized industrial application solutions, more possibilities are created for users.

#### Hi-Hand30 Professional Field Controller
- Quick charge, with large capacity lithium battery to ensure all day work.
- Support for various algorithms to achieve high accuracy in corresponding measuring circumstances with a better reliability.

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### Hardware Configuration

<table>
<thead>
<tr>
<th>Feature</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>OS</td>
<td>Android 6.0</td>
</tr>
<tr>
<td>Processor</td>
<td>1.5GHz, 4 core</td>
</tr>
<tr>
<td>Storage</td>
<td>RAM 2G, ROM 16GB (up to 32GB extension Micro-SD)</td>
</tr>
<tr>
<td>Display</td>
<td>3.7'', 640 x 480, sunlight readable</td>
</tr>
<tr>
<td>Camera</td>
<td>8MP, tag available</td>
</tr>
<tr>
<td>Sensors</td>
<td>G-sensor, E-compass, barometer, light-field sensor, gyro</td>
</tr>
<tr>
<td>Cellular mode</td>
<td>Dual SIM card, dual stand-by</td>
</tr>
<tr>
<td>Cellular network</td>
<td>4G TDD-LTE, FDD-LTE, WCDMA, GPRS</td>
</tr>
<tr>
<td>Wi-Fi</td>
<td>IEEE 802.11b/g/n, 2.4GHz/5GHz</td>
</tr>
<tr>
<td>Bluetooth</td>
<td>V2.0/4.0</td>
</tr>
<tr>
<td>USB</td>
<td>Type-C, supports OTG</td>
</tr>
<tr>
<td>NFC</td>
<td></td>
</tr>
<tr>
<td>Weight</td>
<td>440g(within battery)</td>
</tr>
<tr>
<td>Size</td>
<td>208mm<em>83mm</em>24mm</td>
</tr>
<tr>
<td>Temperature</td>
<td>-20 ~ +60 °C</td>
</tr>
<tr>
<td>(Operating); -30 ~ +70 °C (Storage)</td>
<td></td>
</tr>
<tr>
<td>Free fall</td>
<td>1.2m</td>
</tr>
<tr>
<td>GNSS</td>
<td>GPS, GLONASS, AGPS, 20 channels</td>
</tr>
<tr>
<td>Update rate</td>
<td>1Hz</td>
</tr>
<tr>
<td>Battery</td>
<td>Removable 3.7V lithium battery, 5200mAh</td>
</tr>
<tr>
<td>Duration</td>
<td>15 hours</td>
</tr>
</tbody>
</table>

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### Communication

- Cellular mode: Dual SIM card, dual stand-by
- Cellular network: 4G TDD-LTE, FDD-LTE, WCDMA, GPRS
- Wi-Fi: IEEE 802.11b/g/n, 2.4GHz/5GHz
- Bluetooth: V2.0/4.0
- USB: Type-C, supports OTG
- NFC

### Physical

- Weight: 440g(within battery)
- Size: 208mm*83mm*24mm
- Temperature: -20 ~ +60 °C (Operating); -30 ~ +70 °C (Storage)
- Free fall: 1.2m
- IP67

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### Power Supply

- Battery: Removable 3.7V lithium battery, 5200mAh
- Duration: 15 hours