

# Z1

## GNSS RECEIVER

Accurate in Your Palm



### ACCURATE IN PALM SIZE

Ultra-compact design of only  $\Phi 107\text{ mm} \times 58.7\text{ mm}$ , Z1 GNSS receiver keeps its body as small as an apple without compromising on functionality, easily fit in your palm. Inside this ultra-small body, Z1 features full-constellation tracking and anti-interference capability, delivering centimeter-level positioning even under challenging environment.

### FLEXIBLE WORK MODES

In order to cope with different using scenarios, Z1 supports comprehensive working modes - 8GB storage for static measurement, enhanced UHF modem for up to 15km internal radio mode for both RTK base & rover, and Bluetooth connectivity that allows PDA CORS mode to access the local CORS network.

### VERSATILE FUNCTIONALITY

Aiming to provide users with first-class working experience, Z1 combines all common functionalities in rugged IP67 housing. Equipped with UHF/WiFi/Bluetooth/USB for flexible transmission, built-in IMU for 60° tilt measurement, NFC for simple connection, web UI for easy download and upgrade, Z1 can always meet your needs.

## SATELLITES TRACKING

|                                |                                  |
|--------------------------------|----------------------------------|
| Channels                       | 1408                             |
| BDS                            | B1I, B2I, B3I, B1C, B2a, B2b     |
| GPS                            | L1C/A, L1C, L2C, L2P(Y), L5      |
| GLONASS                        | G1, G2, G3                       |
| Galileo                        | E1, E5a, E5b, E6                 |
| QZSS                           | L1C/A, L1C, L2C, L5              |
| NavIC                          | L5                               |
| SBAS                           | WAAS, EGNOS, SDCM, BDSBAS, GAGAN |
| L-Band                         | Support                          |
| Cold start                     | <30s                             |
| RTK Initialization Time        | <5s(typical)                     |
| RTK initialization reliability | >99.9%                           |
| Re-acquisition                 | <1s                              |

## ACCURACY

|                        |                                                    |
|------------------------|----------------------------------------------------|
| Standalone             | 1.5m Horizontally<br>2.5m Vertically               |
| DGPS                   | 0.4m Horizontally<br>0.8m Vertically               |
| Static Post-processing | 2.5mm+0.5ppm Horizontally<br>5mm+0.5ppm Vertically |
| RTK                    | 8mm+1ppm Horizontally<br>15mm+1ppm Vertically      |
| PPP                    | 5cm Horizontally<br>10cm Vertically                |
| SBAS                   | < 1.0 m 3D RMS                                     |
| Time Accuracy          | 20ns                                               |
| Tilt Surveying         | < ±2.5cm, within 60° Tilt Range                    |

## DATA FORMAT

|                        |                                                           |
|------------------------|-----------------------------------------------------------|
| Data Output Format     | - NMEA-0183<br>- RINEX 3.02/3.04<br>- Binary Format *.xyz |
| Data Update Rate       | 1~50Hz selectable                                         |
| Correction Data Format | - RTCM v3.3/3.2/3.1/3.0                                   |
| Supported Protocols    | Ntrip client, Ntrip Server, Ntrip Caster, TCP, UDP        |

## COMMUNICATION

|                        |                                                                                                                                                                                                                                                       |
|------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| UHF Modem <sup>1</sup> | - Working range: Up to 15km with optimal conditions<br>- Frequency range: 410-470MHz<br>- Protocol (TX & RX): LoRa<br>- Protocol (RX): TRIMATLK, SATEL, TRANSEOT, TRIMMARK3, etc.<br>- Channel spacing: 25KHz<br>- Transmit power: 0.5W~2W Selectable |
| Bluetooth              | BT4.0 Dual Mode                                                                                                                                                                                                                                       |

|           |                                                                                              |
|-----------|----------------------------------------------------------------------------------------------|
| NFC       | Support NFC Connection                                                                       |
| WiFi      | 802.11 a/b/g/n/ac                                                                            |
| Interface | - 1 Type-C Interface for Data Transmission and Charging<br>- 1 SMA Connector for UHF Antenna |

## USER INTERACTION

|             |                                                                                                                           |
|-------------|---------------------------------------------------------------------------------------------------------------------------|
| Front Panel | - 3 LED indicators indicating satellite tracking, differential data transmission and power<br>- 1 button for power on/off |
| WebUI       | - Accessible via Wi-Fi<br>- Support configuration, status checking, data transfer, data storage and system upgrade        |

## ELECTRICAL

|                   |                                                                                  |
|-------------------|----------------------------------------------------------------------------------|
| Power Consumption | 1.5 W <sup>2</sup>                                                               |
| Input Voltage     | DC 5-15V                                                                         |
| Battery           | - 4200 mAh, over 15 Hours Working Time<br>- Fast Charge of 3 Hours Charging Time |

## PHYSICAL

|                  |                          |
|------------------|--------------------------|
| Size             | Φ107 mm × 58.7 mm        |
| Weight           | 547 g                    |
| Storage          | 8 GB <sup>3</sup>        |
| Housing Material | Magnesium-aluminum Alloy |

## ENVIRONMENTAL

|                        |                                             |
|------------------------|---------------------------------------------|
| Working Temperature    | -40 °C to + 65 °C                           |
| Storage Temperature    | -55 °C to + 85 °C                           |
| Humidity               | 100% Non-condensing                         |
| Waterproof & Dustproof | IP67                                        |
| Drop                   | Designed to Survive a 2m Drop onto Concrete |

1. The enhanced UHF base is not compatible with normal UHF rovers on the market. For different user needs, SingularXYZ also provides normal UHF as an option compatible with UHF of other brands. Please clarify your requirements when placing the order.
2. The power consumption varies with the different work modes.
3. Storage can be expanded according to user demands.

All specifications are subject to change without notice.

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