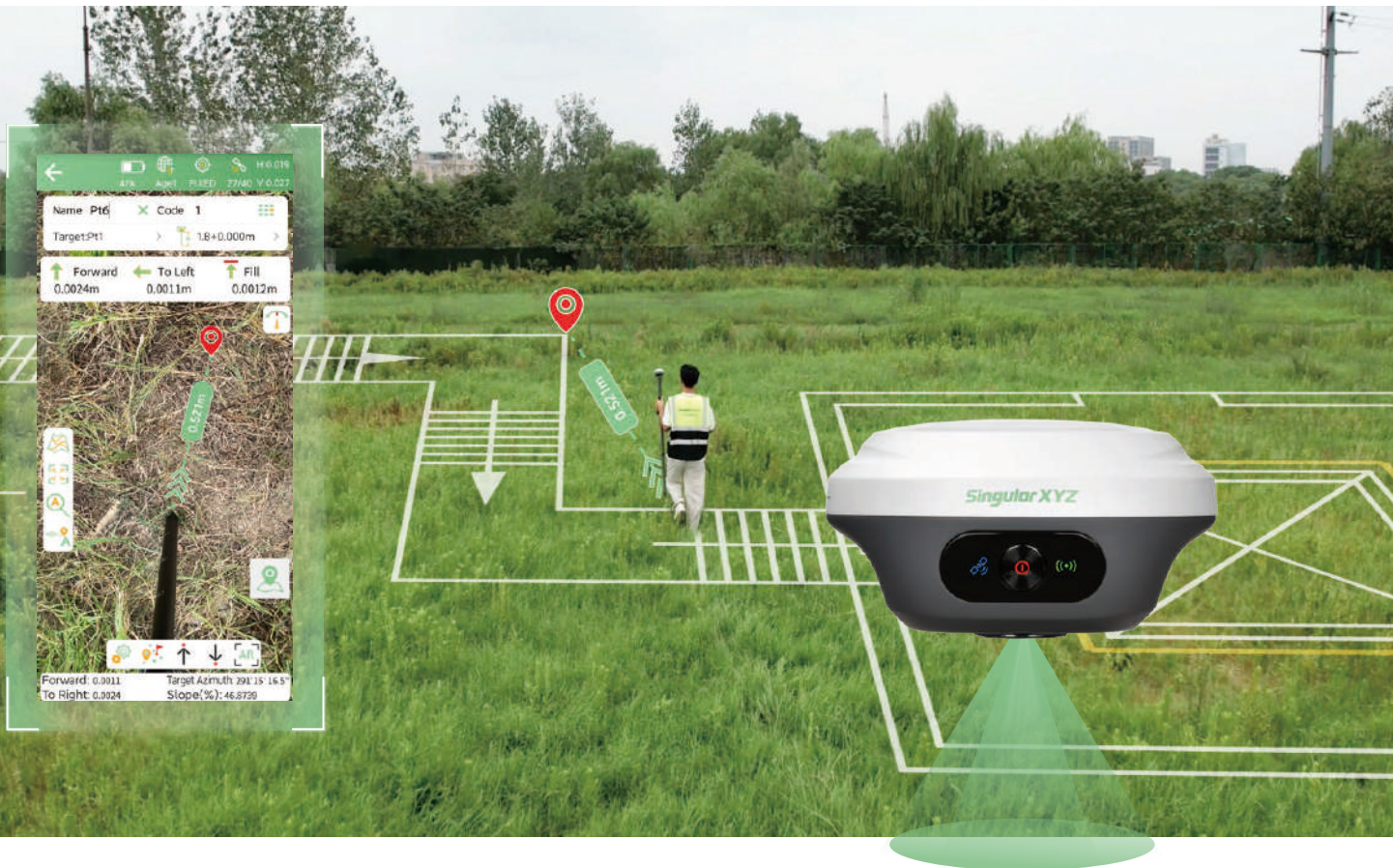


# ORION ONE-AR

## GNSS RECEIVER

Starlight-Grade Camera, Immersive AR Stakeout



### VISUAL AR STAKEOUT

The Orion ONE-AR revolutionizes stakeout processes with its visual AR (Augmented Reality) guidance. Equipped with a 2MP starlight-grade camera, it ensures clear visuals even in low-light conditions, while real-time AR guidance helps surveyors easily pinpoint and mark locations on-site. This feature largely simplifies stakeout tasks, allowing for 50% faster, more efficient work compared to traditional methods.

### COMPACT PRECISION IN YOUR HAND

Despite its compact design ( $\Phi 107\text{ mm} \times 58.7\text{ mm}$ ), the Orion ONE-AR delivers top-tier accuracy in a palm-sized form. Full-constellation GNSS tracking and anti-interference capability allow for high-precision positioning results, even in complex or constrained environments, all while maintaining portability for easy fieldwork.

### VERSATILITY AND COMPLETE FUNCTIONALITY

Designed for versatility, the Orion ONE-AR integrates immersive AR stakeout, tilt surveying, NFC/WiFi/Bluetooth/USB flexible transmission, built-in web UI, 8GB static storage, rugged IP67 protection and enhanced internal UHF radio, making it the perfect choice for all kinds of surveying tasks and ensuring that every project can be completed with precision and efficiency.

## 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                    |
| AR Stakeout            | 8mm+1ppm Horizontally<br>15mm+1ppm Vertically      |

## 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 |

## VISUAL SENSOR

|             |  |
|-------------|--|
| Sensor Type | Camera   |
| Pixel       | Global Shutter with 2 MP                                     |
| Frame       | 30 fps   |
| FOV         | 75°  |
| Feature     | Starlight-grade Camera, HD Capture in Weak Light Environment |

## 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 | 1.8 W <sup>2</sup>  |
| Input Voltage     | DC 5-15V  |
| Battery           | - 4200 mAh, up to 12 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 |

All specifications are subject to change without notice.

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- 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.
- The power consumption varies with the different work modes.
- Storage can be expanded to 32GB according to user demands.