α-GEO

# Matrix III Lite






## PRECISE you can trust




IMU Tilt Sensor




Battery & Power



IP67

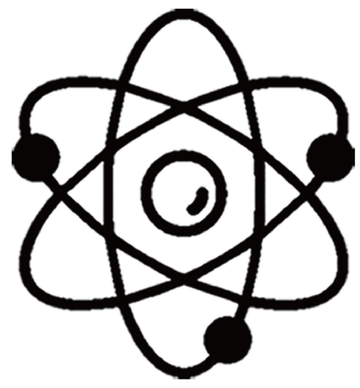
# Matrix III Lite
# PRECISE




## Product Introduction »»

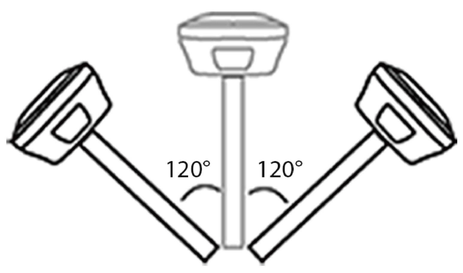
**Matrix III Lite** is a new generation of compact smart GNSS receivers designed for various surveying projects using latest GNSS features. This receiver equipped with modern required technologies such as Bluetooth module, IMU tilt sensor, 7000mAh lithium-ion internal battery, etc. **Matrix III Lite** is able to work in different work modes (Network RTK, Static & PPK) based on different required accuracy & conditions. **Matrix III Lite** is the most economic GNSS package you can purchase to fulfill your technical needs on field!

### Advanced Multi-Constellation Tracking & PPP Technology



Equipped with a 1408-channel high-performance GNSS board, **Matrix III Lite** delivers full signal tracking across all operational satellite constellations, including GPS, GLONASS, BDS, GALILEO, QZSS and IRNSS, ensuring continuous, high-precision spatial positioning even in challenging environments. At the meantime, **Matrix III Lite** supports state-of-the-art PPP technologies, such a highlight performance makes **Matrix III Lite** achieve centimeter-level standalone accuracy with BDS PPP and sub-decimeter precision with Galileo HAS.

### IMU Tilt Sensor




**Matrix III Lite** is equipped with a fast initialization, calibration free & immune to magnetic interference Inertial Measurement Unit (IMU). All users can use this technology to collect or stakeout topo points up to 120°.

### Battery & Power




**Matrix III Lite** is delivered with an internal large capacity 7000mAh lithium-ion battery supporting USB type-C fast charging which allows users to work for more than 24 hours in daily field work.

### IP67



Choosing a small, light but professional, reugged GNSS receiver has always been a concern among professional surveyors. **Matrix III Lite** with its high quality magnesium alloy body provides such advantages without decreasing quality or notable increase in price.

# specification

## Performance specification

| | |
|---|---|
| Satellite signals tracked simultaneously | GPS: L1 C/A, L2C, L2P, L5<br>GLONASS: L1, L2, L3<br>BEIDOU: B1, B2, B3, B1C, B2a, B2b<br>GALILEO: El/E5a/E5b/E6<br>QZSS: L1/L2/L5/L6<br>SBAS: WAAS, EGNOS, MSAS, GAGAN, SDCM<br>L-band: PPP, GALILEO-HAS |
| Channels | 1408 |
| Cold start | <60 s |
| Hot start | <15 s |
| Positioning output rate | 1Hz–20Hz |
| Signal Reacquisition | <1s |
| RTK Initialization time | <5s |
| Initialization Reliability | >99.99% |
| Time accuracy | 20 ns |

## Positioning[1]

| | |
|---|---|
| Static GNSS surveying | Horizontal: ±(2.5mm + 0.5ppm)<br>Vertical: ±(5mm + 0.5ppm) |
| RTK Surveying | Horizontal: ±(8mm + 1.0ppm)<br>Vertical: ±(15mm + 1.0ppm) |

## HARDWARE

### PHYSICAL

| | |
|---|---|
| Material | Magnesium alloy |
| Dimensions | 129mm×129mm×99mm |
| weight | 0.73kg |
| Operating temperature | -40°C to + 75°C |
| Storage temperature | -55°C to + 85°C |
| Protection IP | IP67 dust proof, protected from<br>30min immersion to depth of 1m |
| Shock | Survive 2 m drop onto the concrete |
| Vibration | MIL-STD-810G |
| Humidity | 100%, condensing |

### IMU

| | |
|---|---|
| IMU | Supported, 4D IMU initialization<br>in 3 seconds |
| IMU update rate | 400Hz |
| IMU accuracy | ＜2.5cm within 30° |
| IMU tilt compensation | 0-120° |

### ELECTRICAL

| | |
|---|---|
| Power | 9~24 V DC external power |
| USB Type-C fast charging | Support |
| Battery capacity | Internal 7000mAh lithium-ion battery |

### Working Time

| | |
|---|---|
| Network Mode | >24h |
| Radio Reception | >18h |
| Radio Transmission | >8h |

## Communication & Data Storage

| | |
|---|---|
| I/O interface | 5pin Lemo port, TNC port |

### RADIO MODEM

| | |
|---|---|
| internal radio | TX/RX internal module |
| internal radio frenquency | 410-470 MHZ |
| Communication protocols | Alphatalk15, Transparent transmission /TT450S/SOUTH |

### Cellular

Integrated full frequency multi band 4G modem, supports WCDMA/CDMA2000/TDD-LTE/FDD-LTE

### Bluetooth

Fully integrated Bluetooth V4.0, range ≤ 50m

### Data format

| | |
|---|---|
| Differential data | RTCM2.X、RTCM3.X |
| GPS output data format | NMEA 0183s RTK, Binary code |
| static data format | RINEX |

### Storage

8GB internal memory, supports cyclic storage; with ability to collect over one year raw observation based on 5 seconds interval

## Others

### System integration

| | |
|---|---|
| OS system | Intelligent LINUX operating system |
| Supported controllers | All android devices with supported software |

### Design

| | |
|---|---|
| Key | one button |
| Indicator | Power indicator, data link indicator,<br>satellite indicator, Bluetooth indicator |