α-GEO

MATRIX III Pro

Matrix III Pro

Long-range laser+AR













Innovation Breakthrough!
Brand-New Matrix III Pro
Ushers in a New Era of 100-Meter Laser Measurement

With the rapid advancement of technology, laser measurement has reached a groundbreaking milestone! ALPHAGEO Matrix III Pro, equipped with a high-performance laser module, redefines industry standards with exceptional stability and precision, delivering a maximum measurement range of 100 meters—effortlessly meeting long-distance ranging demands in complex environments.

• Extended Range: Shattering traditional limitations, it effectively covers distances up to 100 meters.

• High Precision: Incorporating advanced algorithms and optical design, it achieves centimeter-level accuracy, ensuring reliable data output.

• Superior Environmental Adaptability: With strong anti-interference capabilities, it maintains stable performance even in low-light conditions and under

Right to the point
with AR real scene stakeout

• When the stakeout points are marked directly on the ground, surveyors can easily find the exact location of the stakeout points.
• By following the arrows on the real-life map, you can stake out points in one go, without having to move the pole back and forth, making the stakeout work more accurate and efficient.



Dual-Dimensional Empowerment! Matrix III Pro Features 5MP HD Auxiliary Camera for Laser-Assisted Coordinate Positioning

The Matrix III Pro laser module innovatively integrates a 5MP high-definition auxiliary camera, significantly enhancing measurement reliability in complex environments through multispectral cooperative technology. Equipped with an f/2.08mm large-aperture lens, this auxiliary system can clearly capture target feature points in environments with illumination below 500 Lux, effectively addressing the
"blind aiming" challenge inherent in traditional laser measurement.



Super IMU say goodbye to repeated initialization

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

Advanced Multi-Constellation Tracking & PPP Technology



Equipped with a 1680/1760/2050(Optional) channel high-performance GNSS board, the Matrix III Pro 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 Pro supports state-of-the-art PPP technologies, such a highlight performance makes Matrix III Pro achieve centimeter-level standalone accuracy with BDS PPP
and sub-decimeter precision with Galileo HAS.



Worry-free storage

Built in 64GB (SSD Optional) memory, which can meet most needs of field work. And the feature of cyclic storage helps receiver to automatically remove the previous observation data while there is not enough space in the memory, with this excellent performance, data storage can last almost 4 years based on 5s sampling interval. And the design of embedded memory chip can ensure the safety of observation data.

GNSS Performance

Signals tracking	GPS:L1,L1C/A,L2C,L2P,L5 GLONASS:L1,L2,L3 BDS:B1I, B2I, B3L, B1C, B2A, B2B GALILEO:E1,E5a,E5b,E6,AltBOC QZSS:L1,L2,L5,L6 SBAS:L1C,L1A
Channels	1680/1760/2050(Optional)
Cold start	<60s
Hot start	<15s
Positioning output rate	1HZ~50HZ
Signal reacquisition	<1s
RTK initialization time	<5s
Initialization reliability	>99.99%
Time accuracy	20ns

Positioning accuracy[1]

Code differential GNSS positioning	H:0.25m+ 1ppm RMS V:0.50m+ 1ppm RMS
SBAS differential positioning accuracy[2]	Typically < 5m 3DRMS
Static GNSS surveying	H:2.5mm+ 0.1ppm RMS V:3mm+ 0.4ppm RMS
PPK	H:3mm+ 1ppm RMS V:5mm+ 1ppm RMS
RTK surveying (baseline<30km)	H:8mm+ 1ppm RMS V:15mm+ 1ppm RMS
Network RTK[3]	H:8mm+ 0.5ppm RMS V:15mm+0.5ppm RMS
Laser measurement	±2mm+100x10-6xD (D is themeasuring distance, unit:mm) 0.05m~100m

Sensor

IMU	Supported, 4D IMU initialization in 3 seconds
Update rate	400Hz
Accuracy	8mm+0.7mm/°tilt 0~120°
Electronic bubble	Checking leveling status of the carbon pole in real-time

Camera

Laser assisted	5MP / 8MP (Optional) HD camera
AR camera	2MP / 5MP (Optional)
FOV	84°

Physical

Materials	Magnesium alloy
Dimensions	129mmx129mmx99mm
Weight	<0.8kg
Operating temperature	-45°C~+75°C
Storage temperature	-55°C~+85°C
Waterproof/Dustproof	IP68 standard, protected from 30min immersion to depth of 1m
Shock	Survive a 2m pole drop onto concrete
Vibration	MIL-STD-810G 100% non-condensing

Eletrical

Power supply	9~24V DC external power input to 5-pin LEMO port Supports Type-C fast charging
Battery	Built-in 7000mAh-7.4V Li-ion battery
Battery life	Rover mode:20hours Laser mode: 10.5 hours Static mode:24hours
Battery solution	27000mAh (Optional)

Communications

I/O interface	1*5-pin LEMO port, power supply, RS232, external radio communication port 1*USB Type-C port(Charge, USB, OTG, Ethernet) 1*SIM card slot, Nano SIM 1* UHF antenna interface
Internal UHF	2W receiver and transmitter,up to 15km
Frequency band	410MHz~470MHz, supports frequency modification
Protocols	Trimtalk450S, Alphatalk15, South, Satel, PCC-EOT
Cellular network	Full frequency multi-band 4G modem,supports TDD-LTE /FDD-LTE/WCDMA/CDMA2000
WiFi	802.11 b/g standard, access point & client mode, supports accessing to hotspot for correction transmission
Bluetooth	Bluetooth 5.2 classical/BLE proprietary dual-mode
NFC	Support
Differential data format	RTCM2x, RTCM3x, CMR&CMR+
GPS output data format	RINEX2.01,Rinex3.02,NMEA-0183,NTRIP

Date storage

Memory	64GB (SSD Optional),supports cyclic storage,with ability to collect almost 4 years raw observation based on 5s interval

User interaction

Operating system	Linux OS
Buttons	Power key
Indicators	1* Power indicator 1* Bluetooth indicator 1* Satellite indicator 1* Data link indicator
Voice	Intelligent voice prompts
Web UI	Supports monitor the status and change the configurations of GNSS Receiver
Cloud service	Online services like remote manage, firmware update, online register and etc.

GUANGZHOU ALPHA GEO-INFO CO.,LTD
Address: Building A, Runhui Science and Technology Park, Shenzhou Road, Huangpu District, Guangzhou 510663, Guangdong, China
Website: www.alphageo-info.com
E-mail: Sales@alphageo-info.com, Support@alphageo-info.com
Phone: +8618565149475

1*Precision and reliability may be subiectto anomalies dueto mutipath, obstruction, satelite geomety,and atmospheric conditions,the specifcation stated recommend the use of stable months in an open sky view, EMI and multipath clean environment, optimal GNSS constellation configurations. Baselines longer than 30km require ephemeris and occupations up to24 hours may be required to achieve the high precision static specification.
2*Depends on SBAS system performance.
3*Network RTK ppm values are referenced to the closest physical base station and depends on network performance.

Descriptions and Specifications are subject to change without notice.