MATRIX DM

One for Ground One for Beyond

The Industry's First
Dual-Laser GNSS Receiver

Dual-Laser

5MP
Auxiliary Camera

120° Calibration
-Free Super IMU

Integrated
Battery Grip

32 GB

Cyclic Storage

Phone Holder

1408-Channel

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BUILT AROUND REAL LASER MEASUREMENT

In real fieldwork, not every point is easy to reach. Ground points, walls, corners, facades and rooflines often force surveyors to adjust their position, tilt the pole, or repeat the measurement.

Though standard laser measurement solved part of the problem, we weren't satisfied. That’s why we created the Matrix DM. Featuring two lasers for two distinct scenarios, it is designed to make laser measurement more direct than ever before.

MATRIX DM

The Right Laser for Every Point.

Single-laser measurement often struggles with ground points: standing close creates excessive pole tilt, while stepping back increases laser distance and may affect precision.

The Bottom Laser Handles the Ground

MATRIX DM eliminates this trade-off with an optimized bottom-mounted laser module. Positioned at the ideal angle for ground measurement, it allows the antenna to remain upright and open to the sky—minimizing tilt, maximizing satellite visibility, and helping deliver reliable precision where it matters most.

The Front Laser Reaches the Distance

For elevated or hard-to-reach targets, the side-facing laser module continues to support long-range operation. With a maximum range of 120 meters, MATRIX DM makes it easy to capture walls, corners, facades, and other remote targets without physically reaching them.

Your Target, Right on Screen

Controller Bracket

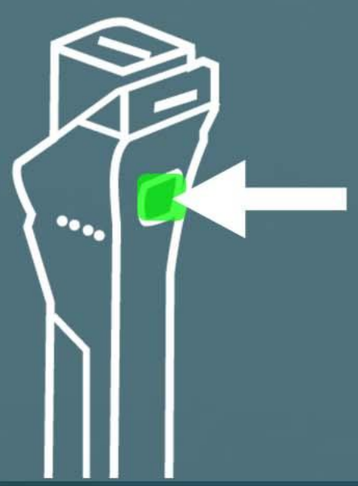
5MP Camera

Finding a faint laser dot in the field can be frustrating. To solve this, Matrix DM integrates a 5MP camera that displays your laser aiming directly on the screen. Simply secure your controller or smartphone to the adjustable bracket, launch SurPro 6.0, and experience a highly intuitive and comfortable workflow.

MATRIX DM

More than a Battery.
A Better Way to Measure.

This grip is also designed around using laser. It helps to hold Matrix DM steadier, trigger a laser measurement faster and work longer.



ONE-CLICK CONTROL

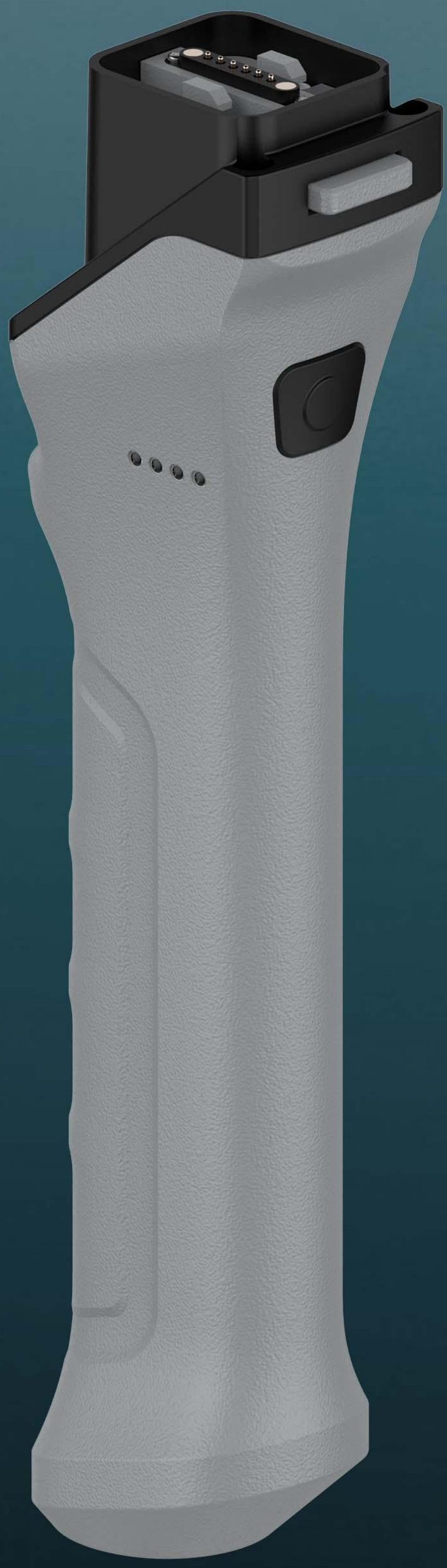
One-click to measure, double click to switch between two lasers, long-press to turn on/off laser. Everything you need in one button.

POWER INDICATOR

Real-time battery level at a glance.

QUICK-RELEASE DESIGN

Fast battery replacement for non-stop heavy-duty work.



Stable Positioning
Behind Every Laser Measurement

120° Calibration-Free Super IMU

Wide tilt measurement, anti-magnetic interference, accurate survey even with tilted poles.

1408-Channel GNSS Positioning

Track all satellite constellations, improves resistance to interference under canopy and near high-rise buildings, fast RTK fix.

32GB Cyclic Storage

Cyclic storage automatically overwrites older data when needed, long-term field data storage without manual maintenance.

Specifications

GNSS Performance[1]	
Signals tracking	GPS: L1C/A, L2C, L2P, L5 GLONASS: G1, G2, G3 BDS: B1, B1C, B2, B2a, B2b, B3 GALILEO: E1, E5a, E5b, E5AltBoC, E6 QZSS: L1, L2, L5, L6 NavIC (IRNSS) : L5 SBAS: L1, L5
Channels	1408
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[2]	
Code differential GNSS positioning	H: 0.25m + 1ppm RMS V: 0.50m + 1ppm RMS
SBAS differential positioning accuracy[3]	Typically < 5m 3D RMS
Static GNSS surveying	H: 2.5mm + 0.5ppm RMS V: 5mm + 0.5ppm RMS
RTK surveying (baseline<30km)	H: 8mm + 1ppm RMS V: 15mm + 1ppm RMS
Network RTK[4]	H: 8mm + 0.5ppm RMS V: 15mm + 0.5ppm RMS
Laser measurement	1cm+5mm/m
Laser distance	**Side:** 0.05m~120m (indoor) 0.05m~100m (outdoor overcast sky) 0.05m~40m (under strong light) **Bottom:** 0.05m~30m (indoor) 0.05m~30m (outdoor overcast sky) 0.05m~10m (under strong light)
Sensor	
Laser class	3R
IMU	Supported, 4D IMU initialization in 3 seconds
Update rate	400Hz
Accuracy	<2.5cm within 120°
Tilt compensation	0~120°
Camera	
Laser assisted	5MP HD camera
FOV	73°
Physical	
Materials	Magnesium alloy
Dimensions	128mm × 128mm × 130mm (without battery)
Weight	985g
Operating temperature	-40°C~+75°C
Storage temperature	-55°C~+85°C
Waterproof/Dustproof	IP67 standard
Shock	Survive a 2m pole drop onto concrete
Vibration	MIL-STD-810G
Humidity	100% non-condensing

Electrical	
Power supply	Supports Type-C fast charging
Battery	7000mAh-7.2V Li-ion battery
Battery life	Rover mode: 15 hours Base mode: 9 hours Static mode: 18 hours
Communications	
I/O interface	1* USB Type-C port, charging, data download 1* SIM card slot, Nano SIM 1* UHF antenna interface
Internal UHF Frequency band	1.5W receiver and transmitter 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
Differential data format	RTCM2x, RTCM3x, CMR&CMR+, sCMRx
GPS output data format	RINEX, NMEA-0183
Data storage	
Memory	32GB, 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 Web UI configuration

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*Signal tracking availability depends on satellite constellation status. Certain frequency bands may require a future GNSS board upgrade.

2*Precision and reliability may be subject to anomalies due to multipath, obstruction, satellite geometry and atmospheric conditions. The stated specifications recommend working in open-sky areas free of EMI and multipath interference with optimal GNSS constellation configurations. For baselines over 30 km, ephemeris data and up to 24 hours of observation duration are required to meet high-precision static survey standards.

3*Performance subject to SBAS system conditions.

4*Network RTK ppm accuracy figures are based on the nearest physical base station and rely on network stability.

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