MATRIX DM

DUAL LASER RTK
DIRECT MEASUREMENT

Redefine field surveying.
Capture ground and elevated
points with efficiency,
precision and simplicity.



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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MATRIX DM

Dual Lasers,
Direct Measurement

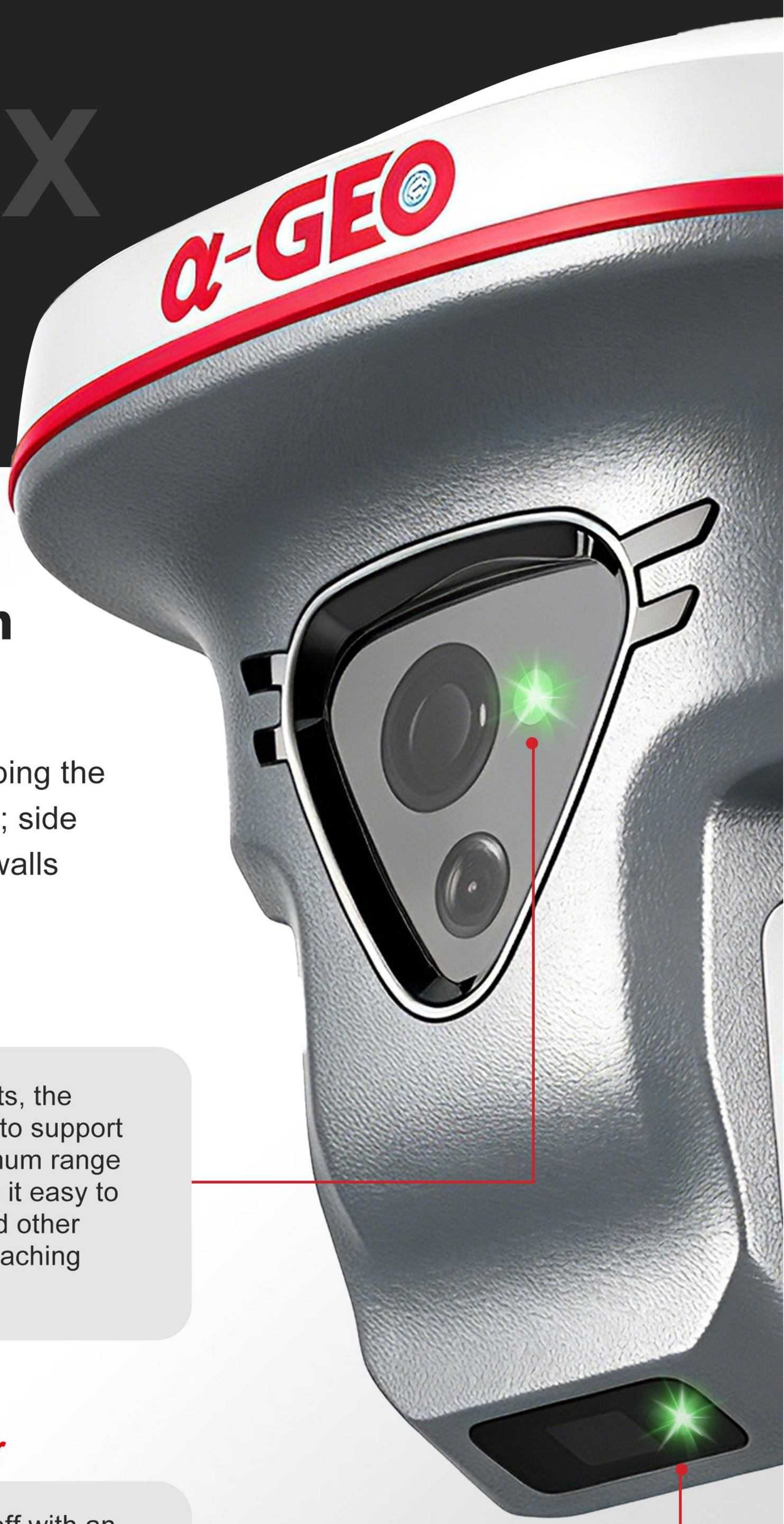
Introduction

Equipped with dual laser modules, the MATRIX DM features a bottom laser for ground measurement without blocking satellite signals, and a side laser that captures elevated points up to 120 meters away. It boasts a 120° wide-tilt calibration-free IMU and a 1408-channel GNSS positioning for reliable performance in challenging environments. With an integrated battery grip for one-click point capture, a phone holder and 32GB cyclic storage, it delivers efficient and hassle-free field surveying.

MATRIX DM

Dual-Laser Measuring System

Bottom laser for direct ground measurement without while keeping the antenna open to satellite signals; side laser with **120m max** range for walls and high targets.



Side Long-Range Laser

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, façades, and other remote targets without physically reaching them.

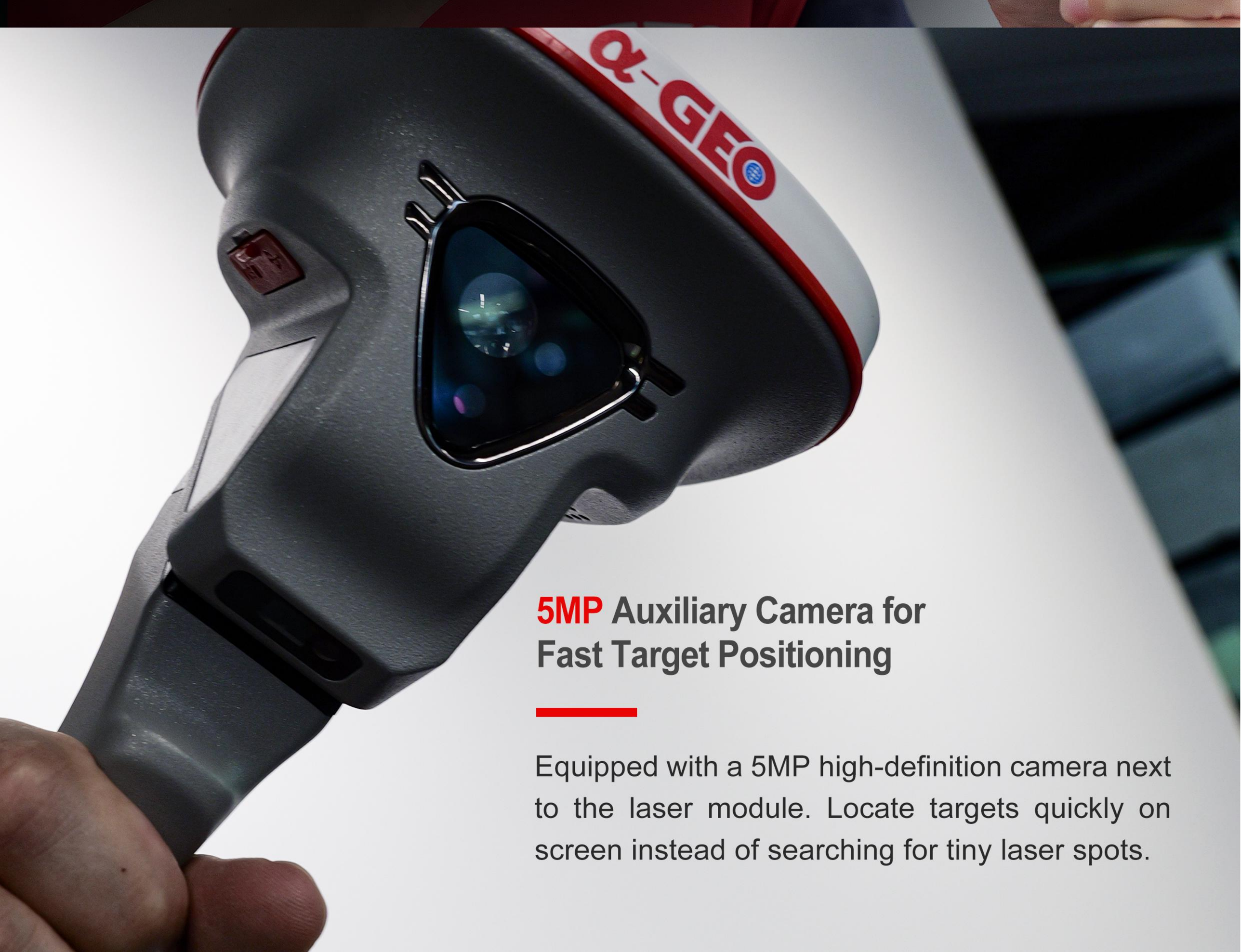
Dedicated Bottom Laser

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.

Your Target, Right on Screen

Adjustable Phone Holder for Seamless Operation

The adjustable phone holder secures the controller and allows flexible angle adjustment. The all-in-one design enables one-hand operation for easy aiming and viewing, bringing comfortable working posture and better focus.

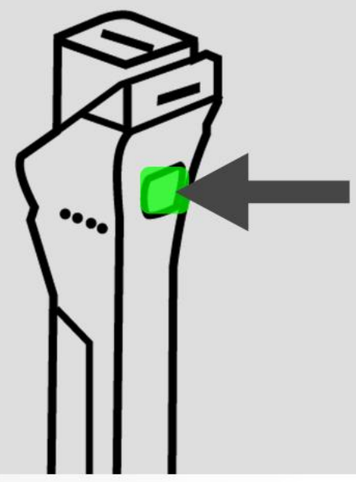


5MP Auxiliary Camera for Fast Target Positioning

Equipped with a 5MP high-definition camera next to the laser module. Locate targets quickly on screen instead of searching for tiny laser spots.

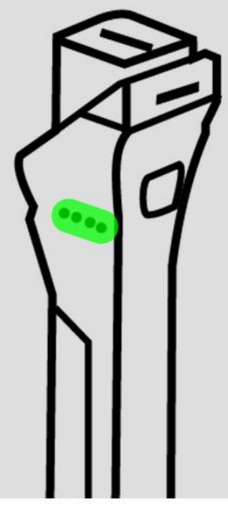
Integrated Battery Grip

The built-in battery grip balances extended runtime and ergonomic feel, enabling firmer grip and more accurate aiming.



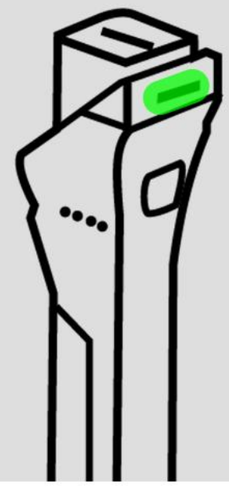
ONE-CLICK MEASUREMENT

Built-in trigger button. No menu operation needed. Complete measurement with one tap.



POWER INDICATOR

Real-time battery level at a glance.

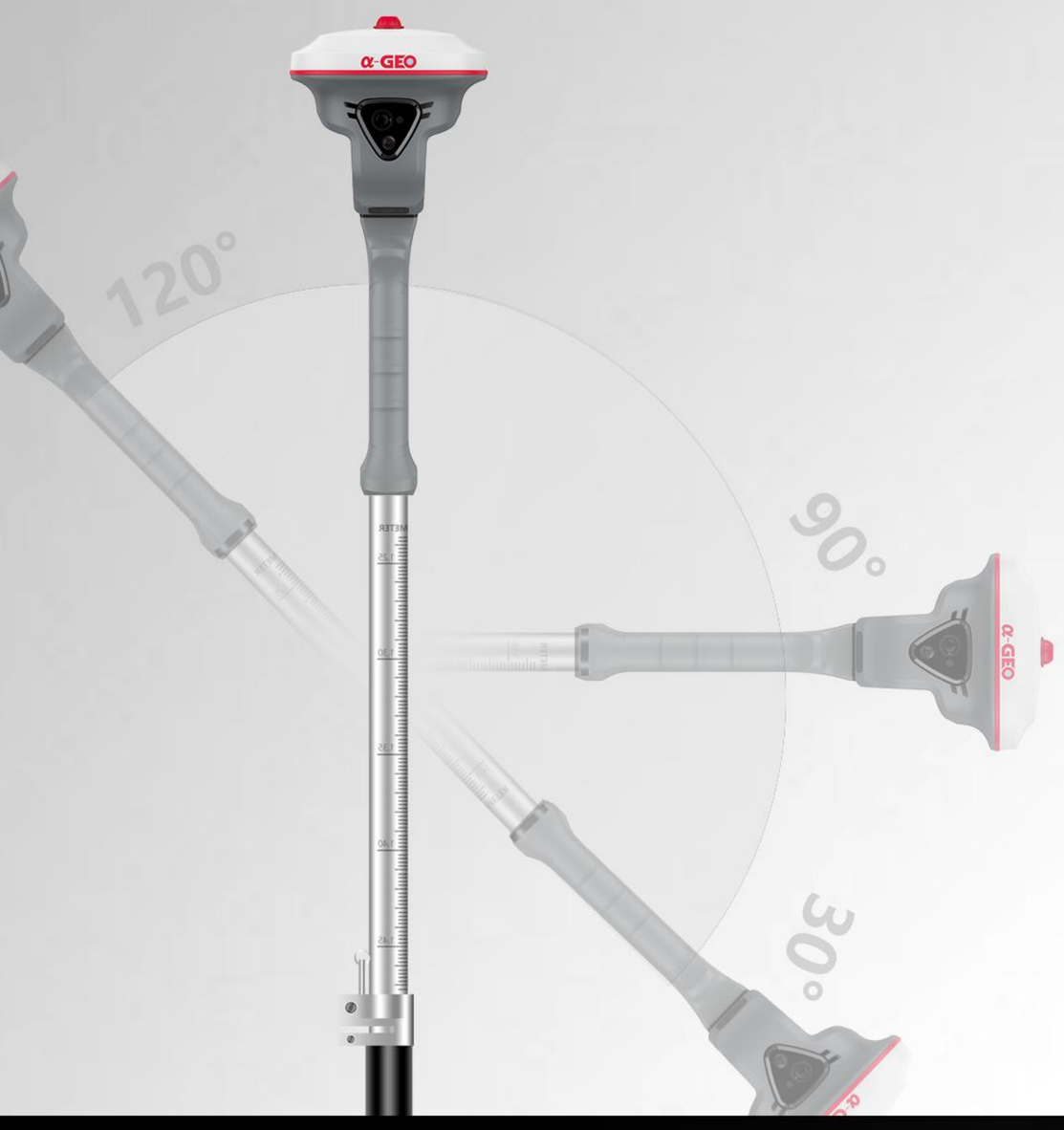


QUICK -RELEASE DESIGN

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



Dual Lasers, Direct Measurement

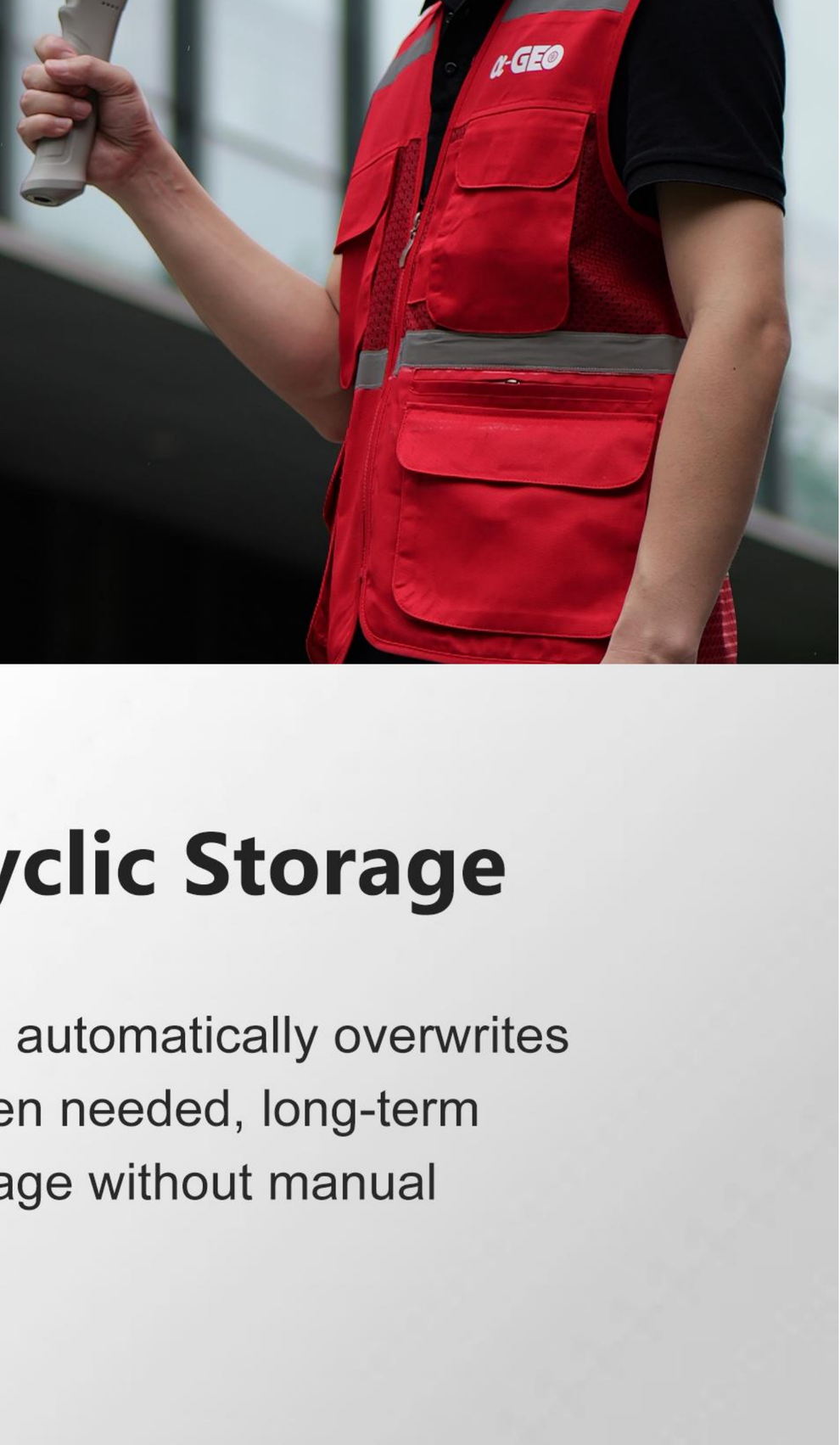


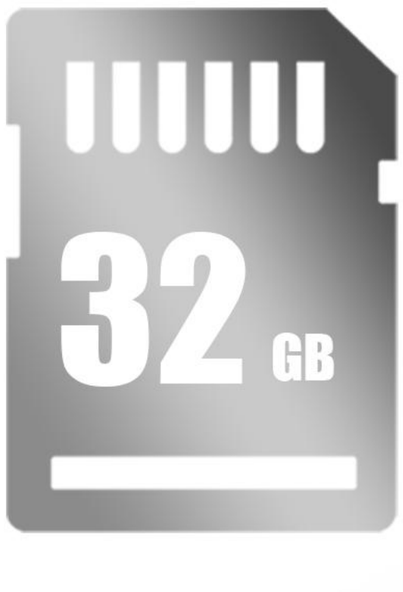
120° Calibration-Free Super IMU

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

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[1]

Code differential GNSS positioning	H:0.25m+ 1ppm RMS V:0.50m+ 1ppm RMS
SBAS differential positioning accuracy[2]	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[3]	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

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 × 90mm (without battery)
Weight	1kg
Operating temperature	-40°C~+75°C
Storage temperature	-55°C~+85°C
Waterproof/Dustproof	IP67 standard, protected from 30min immersion to depth of 1m
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	Built-in 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

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1*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.
2*Performance subject to SBAS system conditions.
3*Network RTK ppm accuracy figures are based on the nearest physical base station and rely on network stability.

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