GEOTEK PR LLC

COMPANY CATALOGUE

α-GEO EDITION 2026

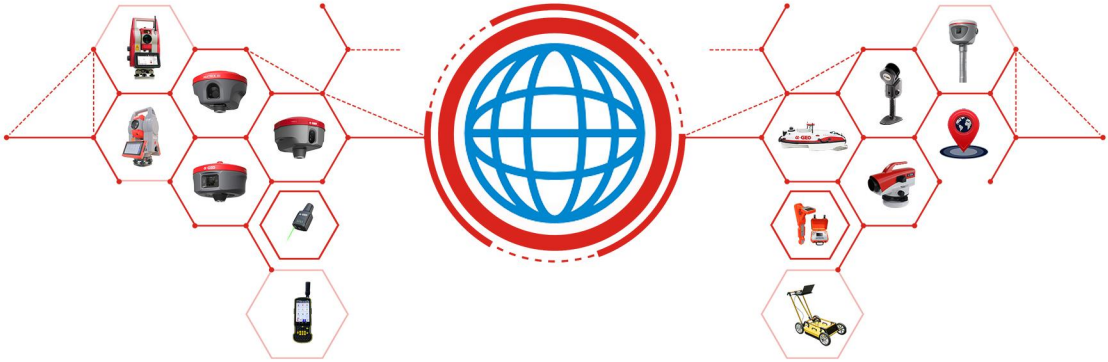
ALPHAGEO-INFO.COM

ABOUT α-GEO

α-GEO, founded in 2008, is a global market leading high-tech company focusing on high-precision GNSS technology. α-GEO is engaged in R&D, manufacturing, sales and services to develop and manufacture precise satellite and optical positioning products and software solutions for the geographic positioning, construction and agricultural industries.

15 years of industry cultivation α-GEO believes that quality, performance and reliability will make a difference. Every product of α-GEO has undergone strict quality control and passed the certification of international authoritative certification bodies. On the premise of ensuring performance and quality, we will provide the most cost-effective products for customers around the world.

By the end of 2024, α-GEO has sold its products and solutions to more than 50 countries. We cherish every opportunity of cooperation, from the product and solution developers in our most advanced research laboratories to the technicians who answer your support calls to those who work on the site α-GEO dealer network, we are all focused on helping you grow and prosper as a customer, no matter what challenges you face. We hope to communicate with you openly and frequently, build mutual trust, and help each dealer obtain greater benefits and provide excellent return on investment.



WHY CHOOSE US ?

Make your work more efficient and pursue the best GNSS technology and solutions for global users.

Make your business smarter, faster, more flexible, and more profitable.

MISSION

Where Precision Meets Innovation

VISION

Create the future of GNSS application with reasonable price and excellent technology

GOAL

Work hand in hand with global dealers for mutual benefit and win-win results

OUR ACHIEVEMENTS

98%

CUSTOMER SATISFACTION

50+

OUR PRODUCTS HAS BEEN SOLD TO OVER 50 COUNTRIES IN THE WORLDA

30000+

THE NUMBER OF USERS IN THE INDUSTRY HAS REACHED 30,000 +

15YEARS

OVER 15YEARS OF SURVEYING EXPERIENCE

PRODUCT CATEGORIES

GNSS RECEIVER

Where Precision Meets Innovation

TOTAL STATION

More Reliable & More Precise

MARINE SYSTEMS

Make underwater survey possible

LIDAR

Real Time, Real Reliable

FALCON X
RTK & SLAM
HYBRID MEASURING SYSTEM

FALCON X
SLAM RTK

INTRODUCE

ALPHA GEO proudly presents the Falcon X-a groundbreaking surveying mobile terminal that integrates GNSS, high-precision vision module, and LiDAR systems to redefine traditional RTK workflows. By comsbining SLAM technology with high-accuracy RTK and a powerful core processor, it delivers real-time point cloud coordinate calculations and establishes a unified coordinate system across both indoor and outdoor environments. With no need for post-processing, the data is immediately ready for engineering design, greatly improving efficiency and precision.

DUAL
OPERATING MODES

RTK MODE

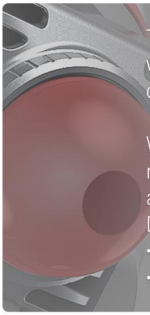
The Falcon X operates with a centering pole, delivering centimeter-level positioning accuracy in open-sky environments.This mode retains the precision of traditional surveying while providing real-time point cloud output, making it ideal for ground feature collection.

SLAM MODE

The Falcon X operates as a handheld scanner, enabling real-time point cloud mapping in GNSS-denied environments such as tunnels,underground spaces, and buildings. With dual side cameras,it provides a 360°panoramic view, producing true-color point clouds with high scene fidelity and situational awareness.

NON-CONTACT MEASUREMENT

01



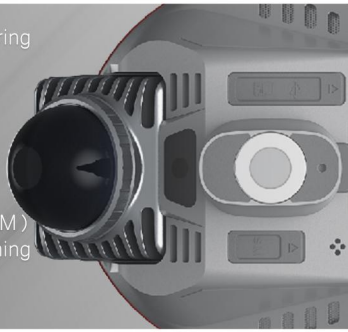
The system employs **active laser scanning technology** combined with **Simultaneous Localization and Mapping (SLAM) algorithms** to deliverhigh-precision spatial data acquisition, even in dynamic environments.

With a rapid 200,000 points-per-second sampling rate, it achieves a measuring range of 0.1 m-40 m at 10% reflectivity and 0.1m-70m at 80% reflectivity, adapting seamlessly to different surface materials.
Driven by an embedded real-time processing engine, the system provides:
- Instant point cloud coordinate output for immediate application.
- Post-processing point cloud optimization for enhanced accuracy.

ANY LINK, ANYWHERE

02

The Falcon X adopts a multi-mode communication architecture,ensuring reliable connectivity in diverse field conditions.
Supported channels include:
- 4G cellular networks for wide-area coverage.
- UHF radio for long-distance communication.
- Wi-Fi for fast local data exchange.
- Bluetooth for seamless device pairing.
- Supporting multi-source differential data access (e.g., NTRIP, RTCM) the Falcon X delivers all-weather, multi-path, high-precision positioning services. It ensures centimeter-level accuracy even in complex and challenging environments.



HDR TRUE-COLOR POINT CLOUDS MEET AR NAVIGATION

03

The Falcon X Integrates dual 48 MP panoramic lenses.Using binocular synchronous acquisition technology, the system achieves 360°omnidirectional imaging, generating true-color point clouds with outstanding scene fidelity and detail reproduction.

Equipped with a **5MP visual layout camera** and integrated **Augmented Reality (AR) navigation**, the Falcon X delivers real-time on-site positioning guidance with **centimeter-level accuracy**, significantly enhancing field operation efficiency.

MULTI-DIMENSIONAL DATA AT A GLANCE

04

The Falcon X features a 1.3-inch industrial-grade HD display with high brightness and a 240x240px resolution, ensuring clear real-time visualization of critical device information, including scanning time, distance,disk capacity, GNSS solutions, and other data streams,even under direct sunlight.

APPLICATION SCENARIOS

Tunnel Surveying

Forestry Survey

Urban Renewal

Volume Surveying

Underground utility tunnel surveying

Architectural plan and elevation surveying

SOFTWARE

PC

Alpha Studio

APP

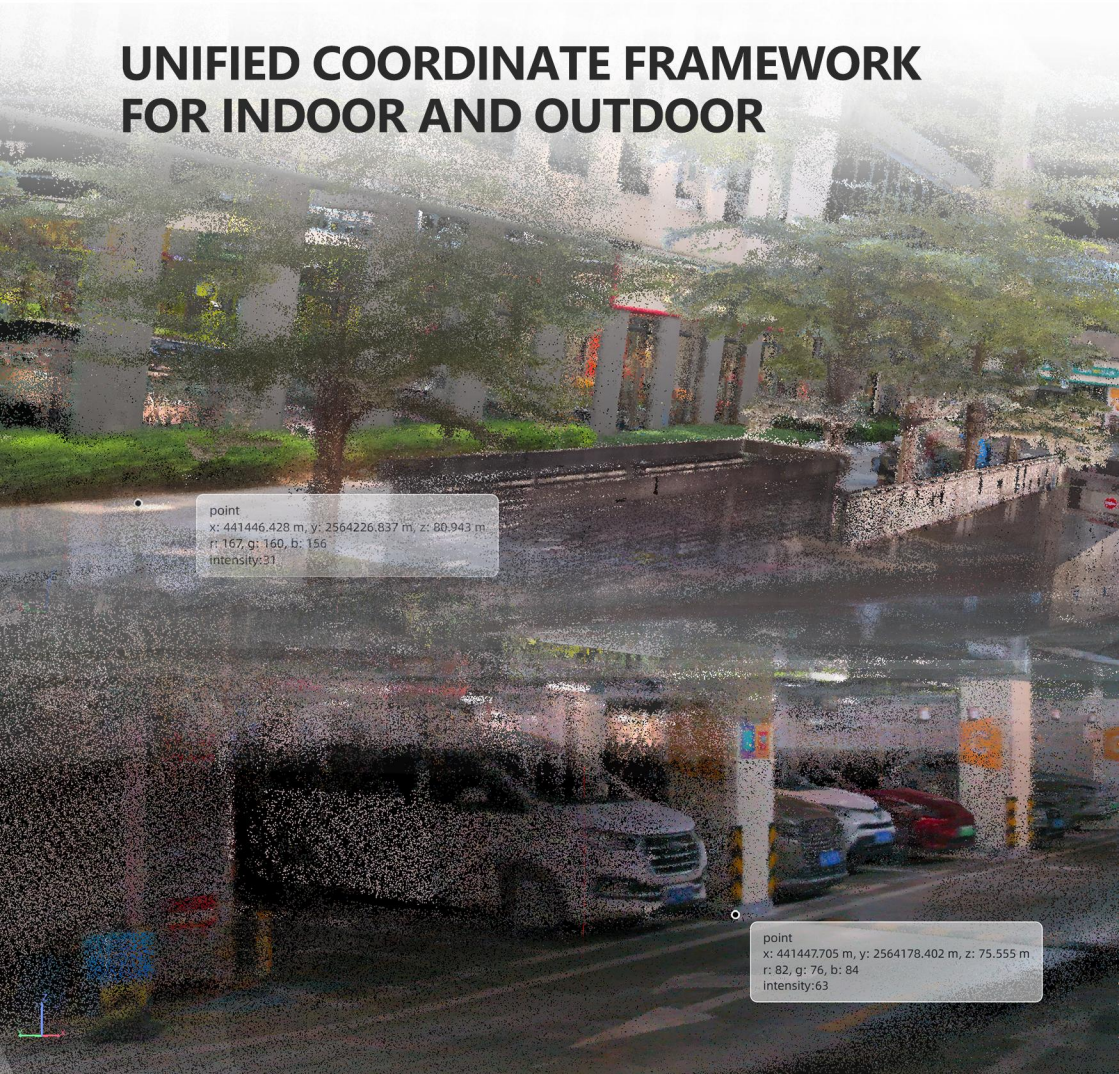
SurPro 6.0

WHAT WE CARE ABOUT

Falcon X delivers point cloud absolute accuracy of **≤6 cm** in RTK-favorable outdoor environments, and point cloud absolute accuracy of **≤5 cm** indoors environments (under experimental environment).

Even in RTK-denied conditions, the system maintains **≤5 cm** positioning accuracy within a 50-meter range, enabled by its multi-sensor fusion technology (GNSS/IMU/LiDAR/vision), adaptive SLAM algorithms, and real-time Kalman-filter-based trajectory optimization, the system ensures continuous positioning through advanced visual-inertial odometry, enabling **smooth accuracy transition between indoor/outdoor environments** while sustaining sub-decimeter performance in GNSS-challenged scenarios.

UNIFIED COORDINATE FRAMEWORK FOR INDOOR AND OUTDOOR



Specifications

GNSS PERFORMANCE	
Signal tracking	GPS: L1 C/A, L2C, L2P, L5 GLONASS: L1, L2, L3* BDS: B1, B1C, B2, B2a, B2b, B3 GALILEO: E1, E5a, E5b, E6* QZSS: L1, L2, L5, L6* IRNSS: L5* SBAS: L1, L5
L-Band	B2b（BDSPPP），E6B（HAS）
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

GNSS 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 + 0.5ppm 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

TILT PERFORMANCE	
IMU	4D IMU initialization in 3 seconds
Update rate	400Hz
Accuracy	<2.5cm within 120°
Tilt compensation	0~120°

SLAM PERFORMANCE	
Laser channels	40
Scanning range	0.1m~40m @10% reflectivity, 0.1m~70m @80% reflectivity
Measurement rate	200,000 points/s
Scanning speed	10Hz
Laser FOV	360°*-7°~52°
Laser safety class	CLASS 1
Laser wavelength	905 nm
Processing mode	Real-time & post-processing
Point cloud format	.las
Real-time color point cloud	No
Processing color point cloud	Yes
RTK fusion processing	Yes

SLAM ACCURACY

Absolute accuracy (Indoor)[2]	≤5cm
Absolute accuracy (RTK)[3]	≤6cm
Point cloud thickness	≤3cm
Relative accuracy	<1.2cm
Horizontal angle resolution	≤0.05°

CAMERA

Cameras	3
Coloring camera	2*48MP
FOV	190°*190°
AR camera	5MP

COMMUNICATIONS

I/O interface	1*LEMO5 1*TF card slot 1*NanoSIM card slot 1*Type-C interface 1*SMA UHF antenna interface 1*1.3-inch color LED with resolution 240*240
Internal UHF	Internal 1.5W UHF
Frequency band	410MHz ~ 470MHz
Protocols	Trimtalk450S, Alphatalk15, South, Satel, PCC-EOT
Cellular network	Full frequency multi-band 4G modem, supports TDD-LTE/FDD-LTE/WCDMA/CDMA2000
WiFi	802.11a/b/g/n/ac
Bluetooth	Bluetooth 5.2
Differential data format	RTCM2x, RTCM3x

DATA STORAGE

Memory	256GB, extendable up to 512GB

ELECTRICAL

Battery	14.4V, 47.52Wh Li-ion battery
Battery life	180min SLAM mode, typically 8 hours RTK mode (phone internet)
Battery charging	2 hours
Power consumption (SLAM)	<25W
Power consumption (RTK)	2.5W

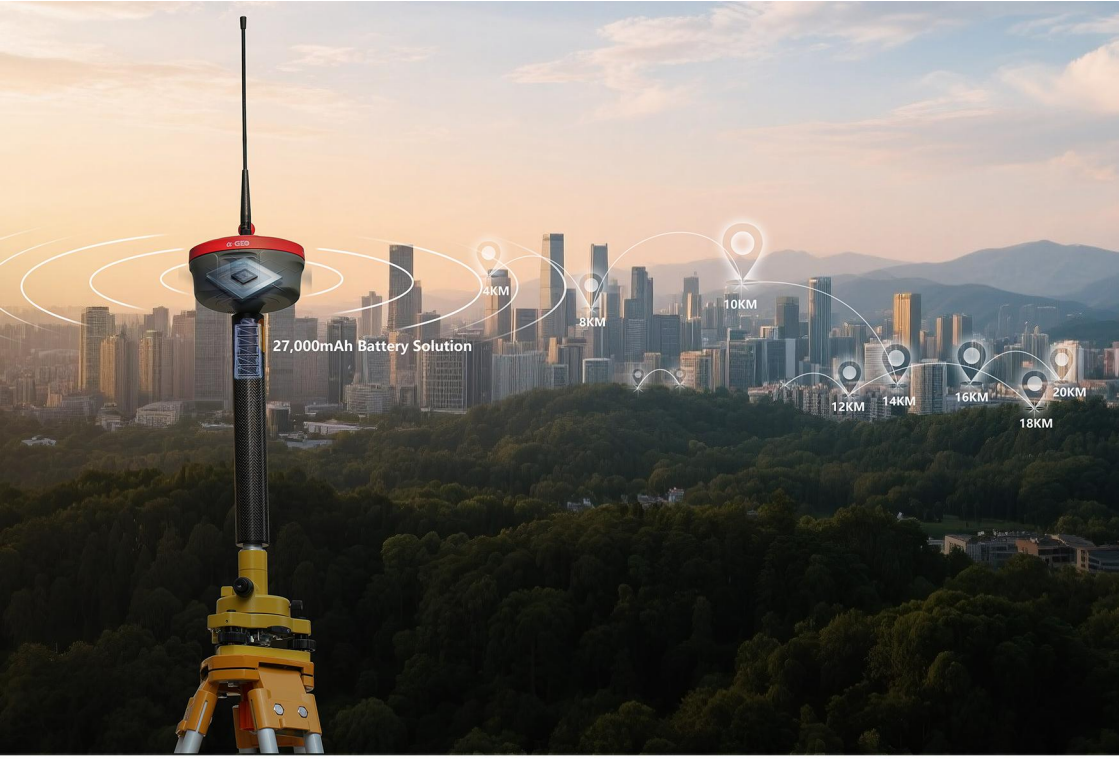
PHYSICAL

Materials	Magnesium alloy
Dimensions (with battery&plate)	138mm(Φ)*301mm(H)
Weight	1.8kg
Operating temperature	-20℃~+50℃
Storage temperature	-40℃~+80℃
Waterproof/Dustproof	IP67

[1] The accuracy performance and reliability may be subject to anomalies due to different factors such as signal obstruction, tilting angle, observation time, multipath and atmospheric conditions.

[2] [3] The accuracy obtained under ALPHAGEO test scenarios may deviate in certain situations.

[4] The battery life is tested in the ALPHAGEO experimental environment, the actual endurance is subjected to the actual usage environment.



MATRIX Ultra

AlphaGEO Matrix Ultra is a fully integrated GNSS receiver, which is designed for surveyors who require long working distance when using Base and Rover mode via UHF mode. With its 2/5W internal radio, the typical coverage of working area up to 10/20km under general environments, eliminating the need for a heavy external battery, external radio, antenna and cables.

Dual-Camera & Laser Hybrid Measurement System
Precision Data Acquisition Redefined

- Side Camera - Photogrammetry Engine
- Downward Camera - AR Stakeout Assistant
- Laser Measurement Module

Matrix Ultra-B
Super Base GNSS Receiver

- Reliable Long-Range RF Solution--Adopting 5W High-Power Industrial-Grade RF Module
- AlphaTalk15 Protocol Ensures 20km+ Stable Links
- Uninterruptible Power Solution for Mission-Critical Field Work
- Ionospheric Disturbance Mitigation Technology for Enhanced RTK Positioning Accuracy

Specifications

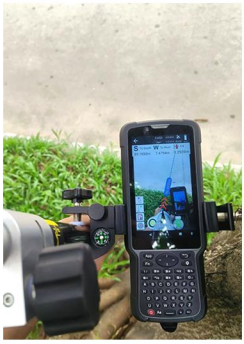
Model	Matrix Ultra Ultra UM980(BD990 Optional)	Super Base- Matrix Ultra-B
GNSS Performance		
Signal tracking	GPS: L 1 C/A, L2C, L2P, L5	GPS: L 1 C/A, L2C, L2P, L5
	GLONASS: L 1, L2	GLONASS: L 1, L2
	BDS: B1, B1C, B2, B2a, B2b, B3	BDS: B1, B1C, B2, B2a, B2b, B3
	GALILEO: E1, E5a, E5b, E6	GALILEO: E1, E5a, E5b, E6
	QZSS: L 1, L2, L5, L6	QZSS: L 1, L2, L5, L6
	IRNSS: L5	IRNSS: L5
	SBAS: L1, L5*	SBAS: L1, L5*
L-Band	B2b(BDSPPP), E6B(HAS)	B2b(BDSPPP), E6B(HAS)
Channels	1408	1408
Cold start	<60s	<60s
Hot start	<15s	<15s
Positioning output rate	1Hz ~ 50Hz	1Hz ~ 50Hz
Signal reacquisition	<1s	<1s
RTK initialization time	<5s	<5s
Initialization reliability	>99.99%	>99.99%
Time accuracy	20ns	20ns
Positioning accuracy[1]		
Code differential GNSS positioning	H: 0.25m + 1ppm RMS	H: 0.25m + 1ppm RMS
	V: 0.50m + 1ppm RMS	V: 0.50m + 1ppm RMS
SBAS differential positioning accuracy[2]	Typically < 5m 3DRMS	Typically < 5m 3DRMS
Static GNSS surveying	H: 2.5mm + 0.5ppm RMS	H: 2.5mm + 0.5ppm RMS
	V: 5mm + 0.5ppm RMS	V: 5mm + 0.5ppm RMS
RTK surveying(baseline<30km)	H: 8mm + 1ppm RMS	H: 8mm + 1ppm RMS
	V: 15mm + 1ppm RMS	V: 15mm + 1ppm RMS
Network RTK[3]	H: 8mm + 0.5ppm RMS	H: 8mm + 0.5ppm RMS
	V: 15mm + 0.5ppm RMS	V: 15mm + 0.5ppm RMS
Laser measurement	1cm + 5mm/m	None
Photogrammetry accuracy	2~4 cm 95% (2σ) (10m, normal lighting conditions)	None
Sensor		
IMU	Supported, 4D IMU initialization in 3 seconds	Supported, 4D IMU initialization in 3 seconds
Update rate	400Hz	400Hz
Accuracy	<2.5cm within 120°	<2.5cm within 120°
Tilt compensation	0~120°	0~120°
Camera		
Visual camera	Global shutter with 2MP	None
AR stakeout camera	5MP	None
FOV	84°	None
Physical		
Materials	Magnesium alloy	Magnesium alloy
Dimensions	149*149*111mm	149*149*111mm
Weight	1.02kg	1.2kg
Operating temperature	-40℃~+75℃	-40℃~+75℃
Storage temperature	-55℃~+85℃	
Waterproof/Dustproof	IP67 standard, protect from 30min immersion to depth of 1m	IP67 standard, protect from 30min immersion to depth of 1m
Shock	Survive a 2m pole drop onto concrete	Survive a 2m pole drop onto concrete
Vibration	MIL-STD-810G	MIL-STD-810G
Humidity	100% non-condensing	100% non-condensing
Electrical		
Power supply	9~24V DC external power input to 5-pin LEMO port,	9~24V DC external power input to 5-pin LEMO port,
	supports Type-C fast charging	supports Type-C fast charging
Battery	Built-in 7000mAh-7.4V Li-ion battery	Built-in 14000mAh-7.4V Li-ion battery
Battery life	20hrs Rover Bluetooth mode, 6hrs Base mode (2W),	40hrs Rover Bluetooth mode, 7hrs Base mode (5W),
	24hrs Static mode.	48hrs Static mode.
Battery solution	27000mAh (Optional)	27000mAh (Optional)
Communications		
I/O interface	1*5-pin LEMO port, power supply, RS232, external radio communication port	1*5-pin LEMO port, power supply, RS232, external radio communication port
	1*USB Type-C port, charging, data download	1*USB Type-C port, charging, data download
	1*SIM card slot, Nano SIM	1*SIM card slot, Nano SIM
	1*UHF antenna interface	1*UHF antenna interface
Internal UHF	2W receiver and transmitter, Typical 8km working distance	5W receiver and transmitter, Typical 20km working distance
Frequency band	410MHz ~ 470MHz, supports frequency modification	410MHz ~ 470MHz, supports frequency modification
Protocols	Trimtalk450S, Alphatalk15, South, Satel, PCC-EOT	Trimtalk450S, Alphatalk15, South, Satel, PCC-EOT
Cellular network	Full frequency multi-band 4G modem, supports TDD-LTE/FDD-LTE/WCDMA/CDMA2000	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	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	Bluetooth 5.2 classical/BLE proprietary dual-mode
Differential data format	RTCM2x, RTCM3x, CMR&CMR+, sCMRx	RTCM2x, RTCM3x, CMR&CMR+, sCMRx
Data storage		
Memory	64GB, supports cyclic storage, with ability to collect almost 4 years raw observation based in 5s interval	64GB, supports cyclic storage, with ability to collect almost 4 years raw observation based in 5s interval
User interaction		
Operating system	Linux OS	Linux OS
Buttons	Power key and Functional key	Power key and Functional key
Display	1.3-inch IPS display with 240*240 resolution	1.3-inch IPS display with 240*240 resolution
Voice	Intelligent voice prompts	Intelligent voice prompts
Web UI	Supports Web UI configuration	Supports Web UI configuration

MATRIX-VI

Matrix VI is a brand new functional GNSS receiver merges Visual Positioning, AR real-scene stakeout and Laser measurement technologies,once breaking through the limit ations of GNSS products, offering surveyors more convenience and productive solutions.

Measuring as sharp as eyes

MatrixVI, a survey-grade GNSS receiver merges Visual Positioning technology, built-in core algorithms of photogrammetry, offering productive solutions for professional or amateur surveyors to measure points which previously could not be measured with a regular GNSS RTK easily.
The surveyors can quickly capture the site with a set of images or a video, and measure the points coordinate from them, no matter in the field or later in office.



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, they can stake out point in one go, without having to move the pole back and forth, making the stakeout work more accurate and efficient.

Laser surveying opens a new mode of measurement

The world's exclusive patented laser coordinate measurement quick calibration technology can easily achieve centimeter-level measurement accuracy, making measurement more accurate and user-friendly, besides the camera used in the equipment overcome the difficulty of aiming under sunlight, making field measurement operations faster and more efficient.

Safer measurement

With the laser measurement, Matrix VI is able to minimize the risks or avoid dangers during surveying along the side or central areas on the road with heavy traffic, high voltage tower and transformer, with the laser aiming at the measured point and and maintain a certain safe distance from these dangerous locations.

Super IMU, say goodbye to repeated initialization

Based on a fast initialization, calibration free and immune to magnetic interference IMU sensor, measuring with Matrix VI, surveyors can flexibly capture points coordinate no matter leveling the receiver or inclining the pole,they can gain reliable results, in this way, each measurement will be faster and more efficient, moreover, the tilt angle can be up to 120°.

Worry-free storage

Built-in 64GB 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, that 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.

Specifications

GNSS Performance	
Signals tracking	GPS: L1C/A, L2C, L2P, L5 GLONASS: L1, L2 BDS: B1, B1C, B2, B2a, B2b, B3 GALILEO: E1, E5a, E5b, E6 QZSS: L1, L2, L5, L6 SBAS: WAAS, EGNOS, MSAS, GAGAN, SDCM
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 3DRMS
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
Photogrammetry accuracy	2~4 cm 95% (2σ) (10m, normal lighting conditions)
Sensor	
IMU	Supported, 4D IMU initialization in 3 seconds
Update rate	400Hz
Accuracy	<2.5cm within 120°
Tilt compensation	0 ~ 120°
Camera	
Visual camera	Global shutter with 2MP
AR camera	5MP
FOV	84°
Physical	
Materials	Magnesium alloy
Dimensions	129mm×129mm×99mm
Weight	<0.8kg
Operating temperature	-40℃ ~ +75℃
Storage temperature	-55℃ ~ +85℃
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

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: 12hours Base mode: 7hours Static mode: 15hours
Communications	
I/O interface	1* 5-pin LEMO port, power supply, RS232, external radio communication port 1* USB Type-C port, charging, data download 1* SIM card slot, Nano SIM 1* UHF antenna interface
Internal UHF	1.5W receiver and transmitter
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
Differential data format	RTCM2x, RTCM3x, CMR&CMR+, sCMRx
GPS output data format	RINEX, NMEA-0183
Date storage	
Memory	64GB, 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 configration

Matrix III

Long-range laser+AR

Laser survey | AR | Camera | IMU | IP67 | 64GB

Innovation Breakthrough!
Brand-New Matrix III
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, 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 temperature variations.

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 Features 5MP HD Auxiliary
Camera for Laser-Assisted Coordinate Positioning

The Matrix III 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 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 1408-channel high-performance GNSS board, the Matrix III 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 supports state-of-the-art PPP technologies, such a highlight performance makes Matrix III achieve centimeter-level standalone accuracy with BDS PPP and sub-decimeter precision with Galileo HAS.

Worry-free storage

Built in 64GB 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.

Specifications >>>

GNSS Performance	
Signals tracking	GPS: L1C/A, L2C, L2P, L5
	GLONASS: L1, L2
	BDS: B1, B1C, B2, B2a, B2b, B3
	GALILEO: E1, E5a, E5b, E6
	QZSS: L1, L2, L5, L6
	SBAS: WAAS, EGNOS, MSAS, GAGAN, SDCM
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 3DRMS
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	±2mm±100x10-6xD
	(D is the measuring distance, unit : mm)
Laser distance	0.05m~100m
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
AR camera	5MP
FOV	84°
Physical	
Materials	Magnesium alloy
Dimensions	129mm×129mm×99mm
Weight	<0.8kg
Operating temperature	-40℃ ~ +75℃
Storage temperature	-55℃ ~ +85℃
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

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: 12hours Base mode: 7hours Static mode: 15hours
Communications	
I/O interface	1* 5-pin LEMO port, power supply, RS232, external radio communication port
	1* USB Type-C port, charging, data download
	1* SIM card slot, Nano SIM
	1* UHF antenna interface
Internal UHF	1.5W receiver and transmitter
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
Differential data format	RTCM2x, RTCM3x, CMR&CMR+, sCMRx
GPS output data format	RINEX, NMEA-0183
Date storage	
Memory	64GB, 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 configration

L100 Pro+

L100 PRO+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. L100 PRO+ is able to work in different work modes (Network RTK, Static & PPK) based on different required accuracy & conditions. L100 PRO+ is the most economic GNSS package you can purchase to fulfill your technical needs on field!

AR

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.

Advanced Multi-Constellation Tracking & PPP Technology

Equipped with a 1408-channel high-performance GNSS board, the L100 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, L100 Pro+ supports state-of-the-art PPP technologies, such a highlight performance makes L100 Pro+ achieve centimeter-level standalone accuracy with BDS PPP and sub-decimeter precision with Galileo HAS.

WiFi and WebUI

L100 PRO+ serves as a WIFI hotspot, so users can easily access,manage the status, set the configuration or download static and PPK raw data through advanced WebUI using computer, smartphone or other electronic devices with WIFI support without any need to third party software or cable.

IMU Tilt Sensor

L100 PRO+ 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°.

GSM & UHF radio

A fast internet connection is guaranteed with a built-in 4G module that accelerate receiving correction data using all telecommunication signals and bands. L100 PRO+ comes with an integrated 15 km-range Tx/Rx internal UHF radio that ranges from 410 MHz to 470 MHz with selectable frequency providing ability to connect and collect accurate real time data in Base/Rover mode.

Battery & Power

L100 PRO+ is delivered with an internal large capacity 7000mAh lithium-ion internal battery supporting USB type-C fast charging which allows users to work for more than 12 hours in daily field work.

IP67

Choosing a small, light but professional, reugged GNSS receiver has always been a concern among professional surveyors. L100 PRO+ with its high quality magnesium alloy body provides such advantages without decreasing quality or notable increase in price.

Working mode

Every surveyor needs to operate and choose suitable working method based on project requirements and required accuracy. In order to work in such condition users will need a device to be able to work in different modes such as Static, Network RTK, UHF RTK, PPK & etc. L100 PRO+ is offering all you need in a package!

Specifications »»

Performance Specification	
Satellite signals tracked simultaneously	GPS: L1C/A, L1C, L2P(Y), L2C, L5 GLONASS: L1, L2,L3 BEIDOU: B1I, B2I, B3I, B1C, B2a, B2b GALILEO: E1, E5a, E5b,E6 QZSS: L1, L2, L5, L6 SBAS: L1, L5 IRNSS: L5
Channels	1408 tracking Channels
Cold start	<60 s
Hot start	<15 s
Positioning output rate	1Hz - 20Hz
Signal Reacquisition	<1s
RTK Initialization time	<10s
Initialization Reliability	>99.99%
Time accuracy	20 ns
Positioning[1]	
Code differential GNSS positioning	Horizontal: 0.25 m + 1 ppm RMS Vertical: 0.50 m + 1 ppm RMS SBAS differential positioning accuracy : typically <5m 3DRMS
Static GNSS surveying	Horizontal: 2.5 mm + 0.5 ppm RMS Vertical: 5 mm + 0.5 ppm RMS
Real Time Kinematic Surveying	
Single Baseline < 30 KM	Horizontal: 8 mm + 1 ppm RMS Vertical: 15 mm + 1ppm RMS
Network RTK[3]	Horizontal: 8 mm + 0.5 ppm RMS Vertical: 15 mm + 0.5 ppm RMS
HARDWARE	
PHYSYCAL	
Material	Magnesium alloy
Dimensions	131×64mm
weight	0.76kg
Operating temperature	-40°C to + 75°C
Storage temperature	-55°C to + 85°C
Protection IP	IP67 dust proof, protected from 30min immersion to depth of 1m
Shock	Survive 2 m drop onto the concrete
Vibration	MIL-STD-810G
Humidity	100%, condensing
ELECTRYCAL	
Power	9~24 V DC external power
USB Type-C fast charging	Support
Battery capacity	Internal 7000mAh lithium-ion battery
Battery Life	Rover Mode: 15 hours Base Mode: 7 hours Static Mode: 17 hours
Communication & Data Storage	
I/O interface	
LEMO port (5pin)	Supports power input, serial port control, and external radio communication
USB Type-C port	Charging
Sim card slot	Supports Nano-SIM
Antenna port	UHF antenna interface
Radio modem	
Transmit power	1/2 w switchable,Work range can reach to 15km under AlphaTalk15 protocol
Frequency band	410MHz-470MHz; supports to set the frequency
Protocols	AlphaTalk15, TrimTalk450s, SOUTH, Satel,PCC-EOT
Cellular	
Integrated full frequency multi band 4G modem, supports WCDMA/CDMA2000/TDD-LTE/FDD-LTE	
WIFI	
802.11 b/g standard, access point & client mode, supports access to hotspot for correction transmission	
Bluetooth	
Fully integrated Bluetooth V5.2, range ≤ 50m	
Data format	
RTCM2x, RTCM3x, CMR & CMR+, sCMRx, Dat, RINEX, NMEA outputs	
Storage	
8GB internal memory, supports cyclic storage; with ability to collect over one year raw observation based on 5 seconds interval	
Camera	
AR	5M high-definition camera with large viewing angle and support for live scene stakeout
Others	
System integration	
OS system	Intelligent LINUX operating system
Tilt Compensation	IMU up to 120° (Calibration free)
Supported controllers	All android devices with supported software
Design	
button	Power key
Indicator	Power indicator, data link indicator, satellite indicator, Bluetooth indicator
Voice	Intelligent voice prompts
WEBUI	Support WEBUI configuration

L2 Plus

As the saying goes, a sparrow may be small, but it has all the vital organs, same as to the L2 Plus of Alpha GEO, itis the smallest handheld RTK that integrates laser along with high-precision GNSS board and IMU in the compact body, offering a portable solution for most measurement scenarios.We are also compatible with the pole mode, which allows the laser measurement to be used even when the pole is used. L2 Plus is a product that surveyors really need.

Unforgettable at first sight

L2 Plus impresses with its unique design and ultra-small body size, the dimension of this RTK receiver is only 61(L)x41(W)x120(H)mm, such asmall size RTK receiver can take the place of cellphone that putting it into the pocketis not a problem. And the weight of L2 Plus is only 170g including internal battery,extremely lightweight that you almost don't feel tired while you hold it for along time in the field work. The housing of L2 Plus is made of polymer engineering materials,which has advantages of high strength, high temperature resistance and corrosion resistance, performing well in complex environments.

Walking ahead in the surveying

L2 Plus fusion laser measurement technology, which can quick calibrate and easily achieve centimeter-level measurement accuracy, capturing a high-precision coordinate for the target point.

With laser measurement, surveyors can collect the coordinate of points that they cannot reach directly or in dangerous places, like the high voltage towers, manhole covers on busy roads, ensuring the safety of personnel. L2 Plus shoots a green laser beam that brings unexpected results brighter laser beam can be found on the target easily, shoot further distance and achieve higher accuracy, which is more suitable for outdoor scenarios.

Military-level technology

Military-level processing technology, complete electromagnetic compatibility and shielding technology, minimize system electromagnetic interference, and ensure high-quality observation data and results.

Advanced Multi-Constellation Tracking & PPP Technology

Equipped with a 1408-channel high-performance GNSS board, the L2 Plus 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, L2 Plus supports state-of-the-art PPP technologies, such a highlight performance makes L2 Plus achieve centimeter-level standalone accuracy with BDS PPP and sub-decimeter precision with Galileo HAS.

IMU Tilt Sensor

L2 Plus 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 orstakeout topo points up to 120°.

Dual-mode Bluetooth

It supports Basic Rate and Enhanced Data Rate operation of traditional Bluetooth, and also supports the latest low-power standard, dual-mode industrial-grade high-speed SPP3.0+ble5.0, suitable for Android/ISO/PC.

Specifications

Performance specification

Satellite signals tracked simultaneously	GPS: L1 C/A, L2C, L2P, L5
	GLONASS: L1, L2
	BEIDOU: B1, B2, B3, B1C, B2a, B2b
	GALILEO: EI/E5a/E5b/E6
	QZSS: L1/L2/L5/L6
	SBAS: WAAS, EGNOS, MSAS, GAGAN, SDCM
Channels	1408 channels
Cold start	<60 s
Hot start	<15 s
Positioning output rate	1Hz–50Hz
Signal Reacquisition	<1s
RTK Initialization time	<5s
Initialization Reliability	>99.99%
Time accuracy	20 ns

Positioning

Static GNSS surveying	Horizontal: ±(2.5mm + 0.5ppm)
	Vertical: ±(5mm + 0.5ppm)
RTK surveying	Horizontal: ±(8mm + 1.0ppm)
	Vertical: ±(15mm + 1.0ppm)
Laser surveying	±1cm + 5mm/m

Communication & Data Storage

I/O interface	USB TypeC

Bluetooth

Dual-mode Bluetooth

Data format

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

1-Precision and reliability may be subject to anomalies due to multipath, obstructions, satellite geometry, and atmospheric conditions. The specifications stated recommend the use of stable mounts in an open sky view, EMI and multipath clean environment, optimalGNSS constellation configurations. Base lines longer than 30 km require precise ephemeris and occupations up to 24 hours may be required to achieve the high precision static specification.

ELECTRYCAL

Power: 5V/2A

Support USB Type-C fast charging

Internal 2000 mAh battery

Battery Life ＞12 h

Hardware

PHYSYCAL

Material	Polymer Engineering Materials
Dimensions	120x61x41 (mm)
Weight	170g
Key	Power button
Indicator	Power indicator, data link indicator, satellite indicator, Bluetooth indicator
Operating temperature	-20°C to + 75°C
Storage temperature	-40°C to + 85°C
Protection IP	IP67 dust proof, protected from 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 in 3 seconds
IMU update rate	400Hz
IMU accuracy	＜2.5cm within 120°
IMU tilt compensation	0-120°

ALPHA R1

Precise remote control,
efficient one-person operation
ROBOTIC TOTAL STATION

ALPHA R1 Robotic Total Station delivers exceptional measurement performance with 1" angular accuracy and ±(1mm + 1ppm) distance measurement precision. Integrated with a high-efficiency motorized drive system and intelligent program control, it significantly enhances operational efficiency in complex surveying tasks. Its modular design supports secondary development for cross-industry applications, providing scalable solutions for customized engineering needs.
As a professional surveying solution that combines power, performance, and productivity,
the ALPHA R1 utilizes industry-leading Automatic Precision Aiming and Automatic Prism Recognition (APR) technologies to enable fast prism locking and dynamic tracking, optimizing both time and cost efficiency.

Revolutionary onboard software, Power where you need it

Developed by integrating industry-leading surveying algorithms with decades of field-proven engineering experience, this professional surveying software establishes an efficient and reliable platform for field data collection and processing. Designed with user-friendly interfaces that align with modern surveying workflows.

- **High-Efficiency Data Acquisition**
- **Advanced COGO Computations**
- **Seamless CAD Integration**
- **Comprehensive Road Engineering Module**

Torque Drive: Powerhouse for Precision Surveying

Featuring an exceptional 180°/s rotation speed, the ALPHA R1 delivers superior dynamic performance through its innovative xTrak technology, offering unparalleled smoothness and speed in operation.

- **Automatic Prism Recognition (APR)**
- **Intelligent Prism Search**
- **Continuous Prism Tracking**

The New Era of Smart Surveying: Remote Precision, Solo Efficiency

• Our robotic total station enables remote intelligent control through 4G/5G/Wi-Fi connectivity, achieving kilometer-range operation to conduct precise measurements in hazardous or complex environments without on-site presence. The system supports multi-terminal compatibility with tablets and other terminal devices for seamless data transmission and real-time decision making. With assisted positioning, it automatically locks onto prism targets and intelligently tracks moving points, minimizing manual intervention while enhancing safety in high-risk applications like construction sites and tunnels.
• For single-operator efficiency, the integrated workflow combines automatic station setup, target recognition, and data collection, enabling one person to complete tasks traditionally requiring entire crews.

Specifications »»

Specifications

ANGLE	
Accuracy	1″
Method	Absolute Encoding
Detecting System	H: quadruple; V: quadruple
Minimum Reading	0.1″
Diameter of Circle	79mm
Vertical Angle	Zenith 0/ Horizontal 0
Unit	360°/400gon/6400mil
DISTANCE	
Single Prism Range	3,500m
Accuracy	1mm+1ppm
Non-prism Range	1,000m
Accuracy	3mm+2ppm
Measuring Time - Prism	Fine: <0.7s; Tracking: <0.3s
-Non-P	T<600m: 0.5-3s; T>600m: <10s
PPM Correction	Auto Sensor
TELESCOPIC	
Length	164.5mm
Diameter	45mm (EDM: 47mm)
Magnification	30x
Image	Erect
Field of View	1°30′
Resolving Power	3″
Minimum Focus	1.5m
Trak MOTORIZATION	
Type	Torque motor
Maximum Speed	180°/s
Auto Prism Recognize	
Working Range	1.5-1000m
Searching Time	5s
Prism Search	
Working Range	1.5-300m
Typical Searching Time	<10s
Field of View	V: ±10°, H: 360°

Prism Lock	
Tracking Speed	20°/s
LEVEL	
Plate Level	30″/2mm
Circular Level	8′/2mm
COMPENSATOR	
Tilt Sensor	Dual-axis Liquid electric sensor
Range	4′
Accuracy	1″
LASER PLUMMET	
Type	635nm, Class II
Accuracy	0.4mm at 1.5m height
Spot	1.8mm at 1.5m height
GENERAL	
Display	Two sides, 6-inch color touch LCD
Camera	5 MP
Guide Light	Red/Yellow, 635nm/593nm
OS	Android 9.0
Internal Memory	RAM 3GB, ROM 32GB
CPU	MSM8953
I/O Interfaces	RS232, USB, Micro USB, Bluetooth 4.0
WLAN	Dual-band 802.11/a/b/g/n
Battery	Li-Ion, 14.4V, 6400mAh
Working Duration	8 Hours
Waterproof/Dustproof	IP65
Operating Temperature	-20°C to +50°C
Dimension	430 (H)*255 (L)*235 (W) mm
Weight	9.3KG

ALPHA Y

GRAPHICAL STAKE OUT CLEAR AT A GLANCE

ANDROID TOTAL STATION

With the advantage of Android operatingsystem, ALPHA Y have the quick accessibilityto 3rd party software like Surpro 6.0onboard, with the powerful Surpro 6.0software, It can turn many impossiblemeasurement functions into reality. Withendless drive, ALPHA Y can achieve rapidaiming of the target, which greatly improvedthe efficient of the work.

Revolutionary onboard software, Power where you need it

Supports CAD graphics stake out, making stake out more efficient

Intelligent operating system

Android 11 system with open platform and strong scalability, which can customize APP according to the needs of different industries

Strong performance , smooth operation

Equipped with quad-core processor, ARM Cortex-A55 architecture, can clocked up to 2GHz

Variety of communication modes

Bluetooth, wifi, USB disk, Type-C, 4G full network (optional)

Extra memory and storage

4G RAM+32G ROM (expandable 8G+128G), running smoothly without lag

HD large screen

720P HD 5.5-inch large screen, 1280 *720 high resolution, clearly visible in strong light

Super endurance, efficient intelligence

Large capacity battery and intelligent power management support long working time and single and double side switching display

Advanced angle measurement system

Design of CCD array angle measurement system to effectively eliminate system errors

Multifunctional android measurement software

The new Android measurement software Surpro6.0 with rich measurement programs, easy to complete the internal and external business measurement

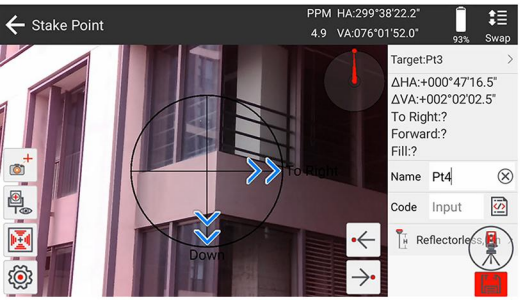
Convenient and fast data transfer

Easily import and export Csw/txt/dat files, support CAD drawing import, CAD lofting, and OTA upgrade

Graphical stake out, clear at a glance

Supports CAD graphics stake out, making stake out more efficient

Camera



Have you ever seen a Total Station with its own eyes?

The Alpha Y intelligent visual total station is equipped with a built-in auxiliary aimingcamera and image processing algorithm. Combined with the powerful Surpro 6.0software, it can achieve fast target aiming and realize fast stakeout, which greatlyimproving work efficiency.

Google Services

Alpha Y integrates Google Services: Real-Time Field Data Capture, Instant Global Information Access.

Alpha Y Total Station + Google Services = Productivity Leap!Field data captured in real-time, processed in seconds in thecloud, results shared globally. Simplify complex projects andsignificantly compress timelines.

Specifications

ALPHA Y Android Total Station

Telescope	
Length	156mm
Image	Erect
Objective aperture	Telescope:Φ45mm(meas.dist.:Φ50mm)
Magnification	30×
Field of view	1°30′
Shortest focus distance	1.0m
Angle measurement	
Reading system	Absolute encoder
Angle unit	360°/400gon/6400mil, selectable
Display resolution	1″/5″/10″(or 0.2mgon/1mgon/2mgon)
Accuracy	2″
Distance measurement	
Laser class(IEC60825-1)	
Reflectorless	Class 3R
Reflective sheet/RP60	Class 3R
Prism	Class 1
Measurement range (Good condition)*2	
Reflectorless*3	
Reflectorless	1 to 1000m
Reflective sheet/RP60	1 to 1500m
Single prism	1 to 5000m
Accuracy	
Prism	2mm+2ppm
Reflective sheet/RP60	2mm+2ppm
Reflectorless	2mm+2ppm
Measuring time	
Fine mode	0.5s
Tracking mode	0.3s
Display resolution(m/inch selectable)	0.1mm/1mm
Pressure input range	500hPa to 1500hPa(1hPa steps)
Temperature input range	-40°C to+60°C(1°C steps)
Prism constant correction	-99.9mm to +99.9mm
Compensator	Dual-axis
Range/Setting accuracy	±4′/1″

Level vial sensitivity	
Plate level vial	30″/2mm
Circular level vial	8′/2mm
Laser plummet(Standard)*4	
Accuracy	±1mm/0.8m-1.5m
Spot size	⩽2.0mm/0.8m-1.5m
Optical plummet(Factory Optional)	
Accuracy	±0.8mm/1.5m
Image	Erect
Magnification	3×
Field of view	4°
Focus range	0.5m to ∞
Power	
Battery	5200mAh Li-ion Rechargeable
Output voltage	7.4V DC
Continuous operation time	Approx.8 hours(At+20°C)
Charging time(at +20°C)	Approx. 4 hours
Third Party software supported	
Surpro 6.0	
Others	
Display	5.5 inch; Resolution 720*1280
CPU	4-core 64 bit ARM A55 CPU 2GHZ
Memory	4G RAM+32G ROM(8G+128G optional)
Keyboard	15 keys under the display
Interface USB /Type C/Bluetooth/WIFI/ RS-232C(4G module optional)Trigger key/ TF card/Voice output/Buzz output/RTC/ Screen backlight adjustment/ Temperature and air pressure sensor	Supported
Network	4G
System	ANDROID 11.0
Water and dust protection	IP55(IEC60529)
Operating temperature	-20°C-+50°C
Storage temperature	-40°C-+55°C
Camera	8 MP

* 1 Standard deviation based on ISO17123-3
* 2 Good conditions: no haze, visibility about 40km, no heat shimmer, breeze
* 3 Reflector: White side of Kodak Gray Card with 90% reflective
* 4 Laser plummet mounted on the bottom of the vertical axis

Illustrations, descriptions and technical specifications are not binding and may change

ALPHA Z

GRAPHICAL STAKE OUT
CLEAR AT A GLANCE

ANDROID
TOTAL STATION

Android Total Station ALPHA Z With Surpro 6.0 Onboard

With the advantage of Android operating system, ALPHA Z has the quick accessibility to 3rd party software like Surpro 6.0 onboard, with the powerful Surpro 6.0 software, it can turn many impossible measurement functions into reality.

Intelligent operating system

Android 12 system with open platform and strong scalability, which can customize APP according to the needs of different industries

Strong performance , smooth operation

Equipped with quad-core processor, ARM Cortex-A55 architecture, can clocked up to 2GHz

Variety of communication modes

Bluetooth, wifi, USB disk, Type-C, 4G full network

Super endurance, efficient intelligence

Large capacity battery and intelligent power management support long working time and single and double side switching display

Advanced angle measurement system

Design of CCD array angle measurement system to effectively eliminate system errors

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HD large screen

720P HD 5.5-inch large screen, 1280 "720 high resolution, clearly visible in strong light

Graphical stake out, clear at a glance

Supports CAD graphics stake out,making stake out more efficient

Convenient and fast data transfer

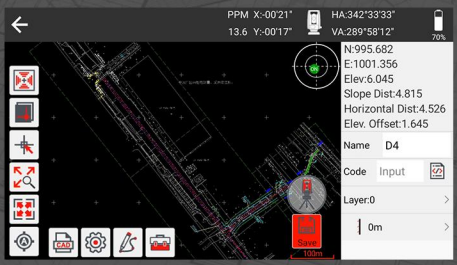
Easily import and export Csw/txt/dat files, support CAD drawing import, CAD lofting

PRODUCT **FEATURE**

GRAPHICAL STAKE OUT CLEAR AT A GLANCE

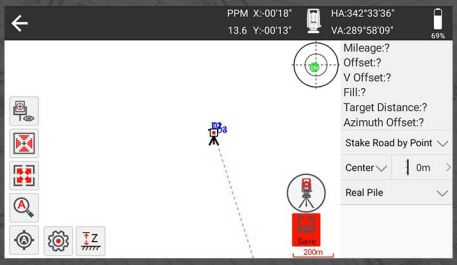
SUPPORTS CAD GRAPHICS STAKE OUT, MAKING STAKE OUT MORE EFFICIENT

SOFTWARE INTERFACE

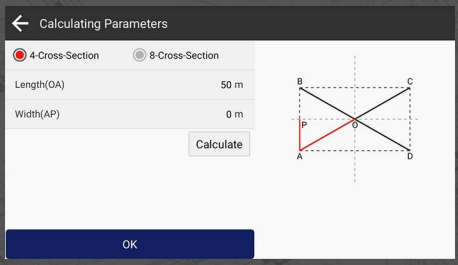


CAD Stakeout

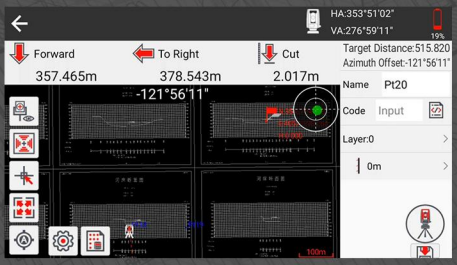
CAD Mapping



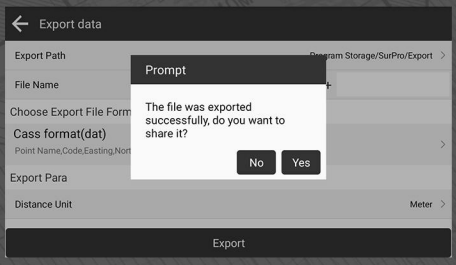
Road Stakeout



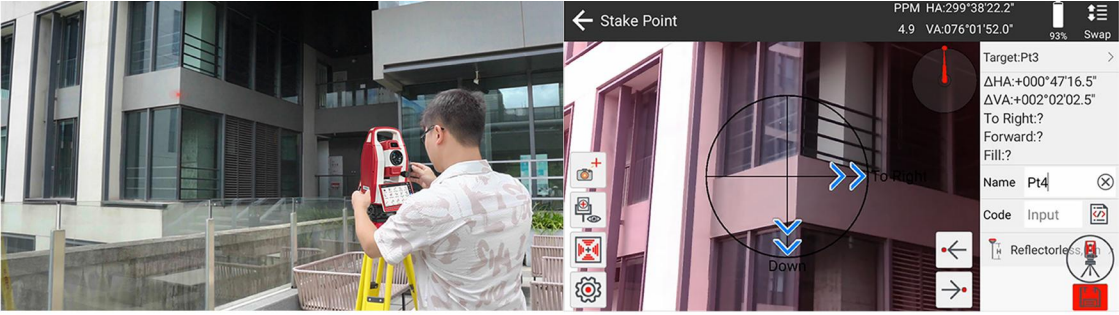
Tower Stakeout



Point Stakeout



Data Share



Have you ever seen a Total Station with its own eyes?

The Alpha Z intelligent visual total station is equipped with a built-in auxiliary aiming camera and image processing algorithm. Combined with the powerful Surpro 6.0 software, it can achieve fast target aiming and realize fast stakeout, which greatly improving work efficiency.

•Rapid and Precise Aiming

Operators no longer need to spend significant time and effort searching and roughly aligning targets through traditional eyepieces. The auxiliary camera quickly captures and identifies targets (such as prisms, reflectors, or specific markers), while powerful image processing algorithms analyze the image in real-time, intelligently locking onto the target center. This drastically reduces aiming time, especially offering significant advantages in challenging conditions like poor visibility, long distances, or complex backqrounds.

•Fast Stakeout

Integrated with the industry-leading Surpro6.0 professional surveying software, this vision system achieves a high degree of process automation. The software not only receives precise coordinate data measured by the instrument but also seamlessly integrates visual recognition information. During stakeout operations, the system can intuitively display the real-time image captured by the instrument on the software screen, overlaying directional arrows or deviation information to guide the operator inquickly and intuitively moving the prism to the design point, Operators simply follow the visual guidance on the screen, greatly reducing the time spent on trial-and-error and manual deviation calculations.

The combination of "Intelligent Visual Aiming" and "Software-Guided Stakeout creates a highly efficient workflow loop. It significantly reduces operation time per station, lowers aiming error rates, simplifies the operation process (especially making it more user-friendly

Alpha Z integrates Google Services: Real-Time Field Data Capture, nstant Global information Access.

Alpha Z Total Station + Google Services = Productivity Leap! Field data captured in real-time, processed in seconds in the cloud, results shared globally. Simplify complex projects and significantly compress timelines.

- **Geospatial Database Integration:** Directly connects to Google Earth Engine, accessing global historical imagery and terrain data. Background basemaps are automatically overlaid during field surveys, enabling "What You See Is What You Survey.
- **AI Model Empowerment:** Integrates the Google Vertex AI platform, supporting intelligent analysis like semantic segmentation (e.g., automatic feature boundary recognition) and change detection (e.g., construction progress comparison), transforming raw data into structured information.
- **Global Service Support:** Leverages Google Cloud's global nodes to ensure offline data synchronization in field environments without network coverage, with seconds-level upload to the cloud upon network restoration.


4G full network connectivity
High precision handwheel
Image assisted measurement
Trigger Key
Rich data communication interface

SPECIFICATIONS

Telescope	
Length	156mm
Image	Erect
Objective aperture	Telescope:Φ45mm(meas.dist.:Φ50mm)
Magnification	30x
Field of view	1°30'
Minimum focus	1m
Resolution	4"
Angle measurement	
Angle method	Absolute encoding
Accuracy	1"/2"
Detection method	Mirror 2/4 channel linear array CMOS
Angle unit	360°/400gon/6400mil,selectable
Minimum reading	0.1"/1" selectable
Distance measurement	
Laser class (IEC60825-1)	
Reflectorless[3]	Class 3R
Reflective sheet/RP60	Class 3R
Prism	Class 1
Measurement range(Good condition)[2]	
Single prism	5000m
Reflective sheet/RP60	1000m
Reflectorless	1000m
Accuracy	
Prism	2mm+2ppm
Reflective sheet/RP60	2mm+2ppm
Reflectorless	3mm+2ppm
Measuring time	
Precision measurement	0.5s
Fast measurement	0.3s
Tracking measurement	0.25s
Others	
Minimum reading	0.1mm/1mm selectable
PPM correction	Automatic temperature and pressure correction
Prism constant correction	-99.9mm ~ +99.9mm
Compensator	
Compensating sensor	Dual-axis
Compensation range	±6'
Accuracy	±2"/1'

Level vial sensitivity	
Plate level vial	30"/2mm
Circular level vial	8'/2mm
Laser plummet(Standard)[4]	
Accuracy	±1mm/0.8m-1.5m
Spot size	≤2.0mm/0.8m-1.5m
Power	
Battery	3200mAh Li-ion rechargeable battery
Output voltage	7.4V DC
Continuous operating time	Approx. 6 hours (at +20℃)
Charging time	Approx. 3 hours (at +20℃)
Third Party software supported	
Onboard software	SurPro6.0
General	
Display	5.5-inch capacitive touch screen with 1280*720 resolution
Operating system	Android 12
CPU	Quad-core Cortex-A55, 2.0GHz
Memory	2GB RAM + 16GB ROM
Keyboard	15 keys under the display
I/O interface	1*USB Type-A 1*USB Type-C 1*Nano SIM card slot 1*Trigger key
Communication	Virtual RS-232 (Type-C), Bluetooth, WiFi, cellular 4G
Operating temperature	-20℃~+50℃
Storage temperature	-40℃~+55℃
Water and dust protection	IP55 (IEC60529)
Weight	5.8 kg (with battery)

[1] Standard deviation based on ISO17123-3.
[2] Good conditions: no haze, visibility about 40km, not heat shimmer, breeze.
[3] Reflector: white side of Kodak Gray Card with 90% reflective.
[4] Laser plummet mounted at the bottom of the vertical axis.

ALPHA AL32

High precision automatic level

High Definition Objective Lens | Self-leveling | Measuring Stability | Horizontal brake screw | Upgrade Compensator | IP54

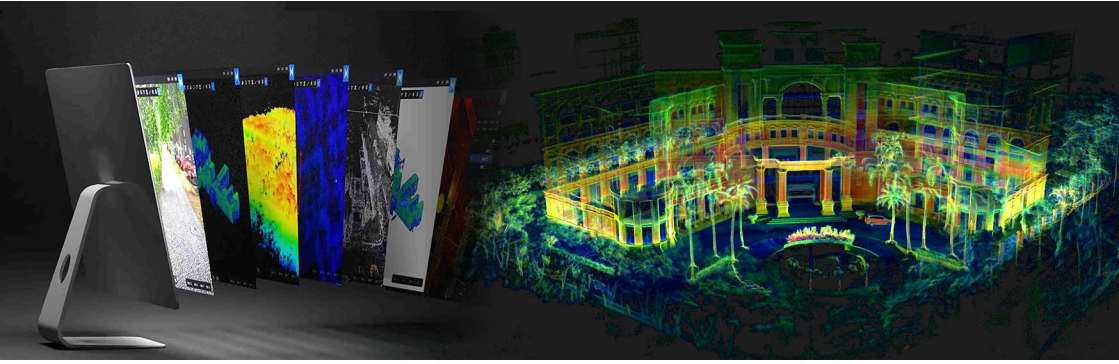
ALPHA AL32 Automatic Level

The ALPHA AL32 automatic level can be used for 3rd or 4th order leveling, building constructions and normal leveling surveying applications.

- The automatic compensator, which adopts crossed suspension tapes and air damper, greatly improves the work efficiency and leveling accuracy.
- The ALPHA AL32 is also equipped with a press button for compensator checking.
- The metal body design provides better protection.

Specifications

ALPHA AL32 Automatic Level	
Telescope Magnification	32X
Standard Deviation for 1km Double-run Leveling	1.0mm
Setting Accuracy	±0.3″
Compensator Working Range	±15′
Telescope Image	Erect
Effective Aperture Size of Objective	40mm
Angle of FOV	1°17.5′
Shortest Sighting Distance	0.5m
Stadia Multiplication / Addition Constants	100/0
Accuracy of Circular Level	8′/2mm
Graduation Value	360°or 400gon
Degrees of Protection	IP54
Compensator Type	X wire-hung and air-damping
Instrument Size	229mm x 145mmx175mm
Net Weight	1.8Kg



Lixel L2

120m working range

3 color cameras

320,000 p/s

Color point cloud output directly

±1.2cm accuracy[1]

Diverse sensor fusion improves performance to a higher level

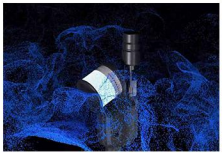
Highly integrated LIDAR, panoramic camera, high-precision IMU module and high-performance computing unit can achieve 360° panoramic scanning without external equipment. 120m measuring distance can cover a wider scanning range, making scanning job more efficient.

True color point cloud, real scene reproduction

Generating true-color point clouds in real-time with rich details, and delicate depiction of the real world.

Multi-SLAM core algorithm, strong scene adaptability

Built-in self-developed core algorithms, fusion of laser, vision, and gnss module, that ensures excellent performance in complex/degraded scenes such as open spaces, tunnels, and multiple parts.



Multi-channel LiDAR, panoramic scanning

With the 16-channel Lidar, coupling with the point rate of 320,000 points/second, really makes the distribution of point clouds more dense.

Real-time preview, what you see is what you get

The point cloud model is output directly in las format that the reconstruction effect can be viewed in real-time, modeling while scanning, deliver what you see and scan.

Specifications

Working range	0.5m ~ 120m
Laser class	Class 1/905nm
Laser FOV	360°×270°
Processing mode	Real-time/Post-processing
Scanning speed	320,000 points/second
Operating temperature	-20℃ ~ +50℃
Power consumption	<30W
Storage capacity	1TB
Operating time	1.5 hrs
Protection level	IP54
Horizontal accuracy	≤0.015°
Number of camera	3
Power supply	Fast-lock battery/external power
Dimensions (main body)	138.45mm(L)×90mm(W)×227.32mm(H)
Weight	<1.6kg
Visual-aided positioning	Supports
Real-time color point cloud	Supports
5G real-time transmission	Supports
RTK fusion	Supports
Resume scanning from break point	Supports
Point cloud format	*.las
Relative accuracy	±1.2cm
Absolute accuracy	≤3cm
Repeat accuracy	≤2cm
Battery capacity	46.8wh
RTK frequency	BDS: B1I, B2I, B3I
	GPS: L1C/A, L2P(Y), L2C, L5
	GLONASS: L1, L2
	GALILEO: E1, E5a, E5b

Lixel L2 Pro

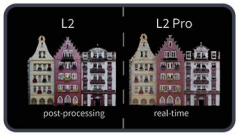
1mm
Point cloud spacing

1cm [1]
Relative accuracy

3cm [2]
Real-time absolute accuracy

Real-time true color point cloud

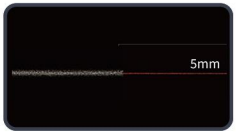
The new Lixel L2 Pro integrates LiDAR, visual, and IMU modules with AI, achieving breakthroughs in real-time data quality and usability. it's real-time point cloud data that rivals post-processed quality, ushering in the "zero post-processing era" for SLAM devices.



Real-time data comparable to post-processing quality direct output for immediate mapping and modeling

Real-time absolute accuracy of 3 cm

Exclusive LixelUpSample™ point cloud algorithm denser point clouds, sharper detail



5mm point cloud thickness enhanced precision for mapping and line drawing

SOFTWARE

An all-in-one 3D post-processing software offers a range of features, including point could viewing, editing,modeling generation,and post-processing.

It is a mobile APP for the regular scanning work-flow operation, preview of scanning results, and one-screen monitoring of device status.

Specifications

System Parameters	
Weight	1.7kg (without battery)
Size[1]	180mm×130mm×400mm
Outer Casing	Industrial-grade Aluminium
Power Consumption	<30W
Interfaces	USB 3.1 Gen2
Storage	1T SSD
Continuous Operation Time	90min
Wireless	Supports WiFi,
	Bluetooth:802.11a/b/g/n/ac,
	2.4G Wifi 2412-2472MHz
	5G2 Wifi 5180-5240MHz
	5G8 Wifi 5745-5825MHz

Environment	
Operating Temperature	-20°C~50°C
	-4°F-122°F
IP Rating	IP54

Functions	
Visual Positioning	Supported
Real-time RGB	Supported
Real-time RTK Fusion	Supported

Output	
Point Cloud Formats	.las .ply
Image Formats	.jpg

Accessories	
Backpack with Stabilizing Arm	Dimensions: 60cmx60cmx15cm
	Weight: 2.5kG
Backpack with Padding	Dimensions: 55cmx35cmx25cm
	Weight: 2.7KG
Shipping case	Dimension: 42cm*34cm*18cm
	Weight with System: 6.6kg
2m Extension Pole	Supported
Mobile Phone Mount	Supported
Control Point Plate	Supported

System Parameters	
Absolute Vertical/Horizontal Accuracy (RMSE)[2]	3cm
Real -time Relative Accuracy (RMSE)[3]	2cm
Processed Relativet Accuracy (RMSE)[3]	1cm
Repeat Accuracy(RMSE)[4]	2cm
Point Cloud Thickness[5]	0.5cm
LixelUpSample™	Supported

LiDAR	
Operating Range	0.5m~120m
	0.5m~300m
LiDAR Sensor	Class 1/905nm
Sensor FOV	360°x270°
Scanning Frequency	320,000 points/s
	640,000 points/s

Camera for Panoramic Images	
Resolution	2x48 Megapixels
Focal Length	2mm
Aperture	F/2.0
CMOS	1/2"
Shutter	Rolling shutter
FOV	190°x190°

Camera for Visual Positioning	
Resolution	1x1MP
Shutter	Global shutter
FOV	190°x119°

Battery	
Voltage	14.4V
Capacity	46.8wh

A-Tab

RUGGED DATA CONTROLLER

A-Tab, a new data collector of ALPHAGEO featuring the latest industrial-grade processor, designed for field measurements and mapping operations with its slim form factor and a standard English keyboard. The 5.5-inch 550nit brightness display utilizes Gorila Glass, enhancing durability while offering exceptional sunlight readability.

CPU
High-performance

Wi-Fi

android

4G

12nm

IP68

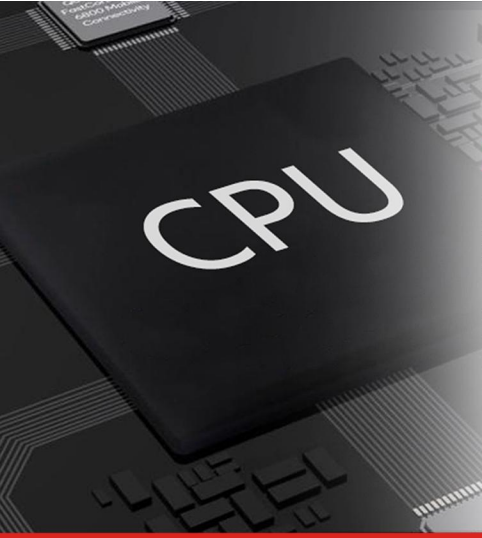
Rain or Shine
Your Data Stays Precise

The 5.5-inch industrial-grade display features full HD (1080P) resolution and 550nit high luminance, ensuring superior sunlight readability for outdoor data collection.
It incorporates Corning scratch-resistant toughened glass and supports advanced wet-touch tracking technology, effectively mitigating liquid interference for reliable operation in wet conditions.

A-Tab
Rugged-Connected-Unstoppable

A-Tab provides various connectivity options, including Bluetooth 5.0, dual-band 2.4G and 5G W-Fi, and a 4G modem supporting global networks, ensuring seamless and reliable connectivity with your preferred GNSS receivers and RTK network correction sources.

The built-in 9000mAh battery provides long-lasting performance, designed for extreme durability. It can with stand drops from heights of up to 1.5 meters and complies with stringent IP68 standards, A-Tab excels in challenging environments, making data collection tasks easier and more efficient.



Engineered for Speed
Built for the Field

The A-Tab is equipped with the high-performance processor, designed with an 12nm fabrication process, providing powerful performance for smooth CAD drawing management and basemap display, greatly enhancing productivity.

Dual-band Wi-Fi and 4G cellular network ensure stable and reliable internet connectivity, while the physical Type-C USB interface allows faster data transferring, enabling instant uploads of large project files.

Lightweight Agility
Industrial Strength

The A-Tab features a popular slim and lightweight design, yet it comes with a high-capacity internal battery, weighing just a light 436g. Designed to IP68 standard waterproofing to ensure outstanding protection for your data terminal in harsh environments.

The QWERTY keyboard design allows to input data quickly without changing user habits. Moreover, without increasing the device's size, we've thoughtfully reserved multiple shortcut buttons to assist you in swiftly completing various operations in industry applications.

The 9000mAh large-capacity battery design ensures uninterrupted data collection tasks, making the A-Tab an efficient handheld terminal for measurement and mapping applications.

Big Memory
Massive Storage

The A-Tab is equipped with 6GB of high-speed RAM and 128GB of internal storage (ROM), expandable up to 512GB, effortlessly handling multitasking and massive data storage needs.

Whether it's high-precision mapping files, GIS databases, or on-site captured images, the device ensures smooth operation and secure storage, eliminating performance and capacity concerns for outdoor operations.

PRODUCT APPEARANCE DISPLAY

Specifications

System	
Operating system	Android 10 (GMS supports)
Online update	FOTA update
CPU	MediaTek MT6769 Octa-core 2.0 GHz
RAM	6GB
Flash memory	128GB eMMC
Extendable memory	MicroSDHC up to 512GB
Physical	
Dimensions (L×W×H)	226.3mm×90.6mm×16.9mm
Weight	436g with battery
Operating temperature	-25℃~+65℃
Storage temperature	-40℃~+70℃
Waterproof/Dustproof	IP68
Shock and vibration	1.5m (4 ft) fall onto concrete
Humidity	5% ~ 95% non-condensing
Display	5.5-inch, 1920×1080 pixels HD,
	550nit brightness
Touch screen	Capacitive multi-touch, supports stylus
	and gloves mode, wet touch mode
Keypad	QWERT key
Camera	13 MP with auto-focus and flash
Communications	
	GSM: 850/900/1800/1900
	WCDMA: B1/B2/B4/B5/B8
Cellular network	LTE-TDD: B34/B38/B39/B40/B41
	LTE-FDD: B1/B2/B3/B4/B5/B7/B8/B12
	B13/B17/B20/B25/B26/B28/B66
SIM card type	Nano-SIM card
WiFi	802.11a/b/g/n/ac (Dual Band 2.4 & 5GHz)
Bluetooth	BT5.0
USB	Type-C USB 2.0
NFC	Supports

Electrical	
Battery	9000 mAh Li-ion battery
Battery life	>22 hrs
Charging time	<4 hrs (typically)
Sensors	
GNSS	GNSS (BDS, GPS, GLONASS),
	A-GPS supports
G-Sensor	Supports
Gyroscope	Supports
E-Compass	Supports
Accelerometer	Supports
Light sensor	Supports
Speaker	Supports
Microphone	Supports
Standard accessories	
A/C charger	Yes
USB cable	Yes
Stylus	Yes
Handstrap	Yes
Certifications	
CE	Yes
FCC	Yes
MSDS	Yes

S60III Pro

RTK handheld terminal, unrestricted, efficient measurement

RUGGED RTK DATA COLLECTOR

662 Qualcomm | Wi-Fi | android 12 | 4G | 11nm | IP68

S60III Pro Product Features

The S60III pro RTK handheld terminal is the ultimate solution for enhancing efficiency and productivity in mobile field operations. With centimeter to decimeter-level positioning accuracy, it is an extremely portable, durable, and versatile device, ideal for precision GIS data collection, power line inspections, construction site development, environmental research, landscaping, and various other applications. Equipped with a 5.5-inch sunlight-readable display, users can easily view GIS data tables, complex vector and raster maps, and high-resolution images even in bright sunlight and high-light conditions. Its industrial design, compliant with the IP68 standard, ensures reliable performance in extreme and challenging environments, making it the preferred choice for field professionals, particularly those with demanding equipment requirements.

The S60III pro integrates precision GNSS positioning technology and long-range RFID technology, empowering efficient data collection for both individual operators and large field teams.

Leading Industry Data Collection Terminal

Powered by Android 12 OS with GMS Certification

The S60III pro is equipped with the Qualcomm 662 processor, designed with an 11nm fabrication process, providing powerful performance for smooth CAD drawing management and base map display, greatly enhancing productivity.

Dual-band Wi-Fi and 4G support ensure stable and reliable internet connectivity, while the physical USB 3.0 interface allows for faster data transfer, enabling instant uploads of large project files.

The 5.5-inch 1080P resolution industrial display with 500 nits brightness enhances outdoor data collection visibility even in sunlight.

Designed for complex mobile office scenarios

Innovative keypad design aimed at providing an exceptional user experience

The S60III pro features a popular slim and lightweight design, yet it comes equipped with a high-capacity 9000mAh battery, weighing just a light 420 grams. Additionally, we've incorporated a scratch-resistant and durable Corning glass screen and designed it with IP68 waterproofing to ensure outstanding protection for your data terminal in harsh environments.

The brand-new British-style keyboard design has been optimized, allowing for fast data input without changing user habits. Moreover, without increasing the device's size, we've thoughtfully reserved multiple shortcut buttons to assist you in swiftly completing various operations in industry applications. The large-capacity battery design ensures uninterrupted data collection tasks, making the S60III pro an efficient handheld terminal for measurement and mapping applications.

Specifications »»

System

Operating system	Android 12 GMS support
CPU	Qualcomm SDM 662 octa-core 2.0 GHz
RAM	4 GB SDRAM
Flash memory	64 GB
Memory card	MicroSDHC up to 128 GB

Physical

Size (L × W × H)	228 mm × 96 mm × 21 mm
Weight	420 g (14.42 oz) with battery
Environment	Operating: -20°C to +65 °C (-4°F to +149°F) Storage: -30°C to +70°C (-22°F to +158°F)
Dust and water proof	IP68
Humidity	5% ~ 95% (non-condensing)
Shock and vibration	1.2 m (4 ft) fall on concrete
Display	5.5" IPS LTPS LCD capacitive multi-touch 1920 × 1080 pixels HD+ 401 ppi Brightness 500 nit
Keypad	QWERT KEY

GNSS Accuracies(1)(2)

Channel	1408
Constellation	BDS: B1I, B2I, B3I, B1C, B2a, B2b GPS: L1C/A, L1C, L2P (Y), L2C, L5 GLONASS: L1, L2 Galileo: E1, E5a, E5b, E6* QZSS: L1, L2, L5, L6* SBAS*: L1, L5
RTK	2 cm HRMS
SBAS	< 1 m HRMS
PPP，E6 HAS	Support

Communications

SIM Card Type	Nano-SIM card
Network modem	GSM: 850/900/1800/1900 WCDMA: B1/B2/B4/B5/B8 LTE-TDD: B34/B38/B39/B40/B41 LTE-FDD: B1/B2/B3/B4/B5/B7/B8/B12 /B13/B17/B20/B25/B26/B28
Wi-Fi	802.11 a/b/g/n/ac access point mode (2.4 G / 5G)
Bluetooth ®	V 5.0
USB	Type C, OTG supported
NFC	Support

Electrical

Li-ion battery capacity	9000 mAh
Operating time (1)	22 h
Charging time	4 h (typical)

Sensors and Multimedia

13 MP rear camera with auto-focus and flash
GNSS (BDS, GPS, GLONASS) A-GPS support
G-sensor
Gyroscope
E-compass
Light sensor
Speaker
Microphone

Standard Accessories

A/C charger
USB cable
Stylus
Handstrap

Field Software

Certifications

CE, FCC

*All specifications are subject to change without notice.
(1) Operating time varies based on temperature.

L300

L300 is a compact smart GNSS receiver designed for any surveying project using the latest GNSS technology.This receiver is equipped with all modern required connectivity modules: Bluetooth, Internal radio,WIFI & 4G modem. 6800mAh Built-in battery, IMU tilt technology and WebUI are other latest technologies used in L300 receivers.

NETBOX2

NetBOX2 is a GNSS device with 1408 channels. It is small, but it is equipped with all required connectivity modules.

ALPHA X

ALPHA X is a compact new design Total station ,equipped with Dual-axis compensator, alphanumeric keyboard; LCD display with 6 lines x 20 characters and trigger key, which can make your survey easier. with standard bluetooth onboard,you can use data controller with Surpro 6.0 software freely, which can make your job more efficient.

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