α-GEO

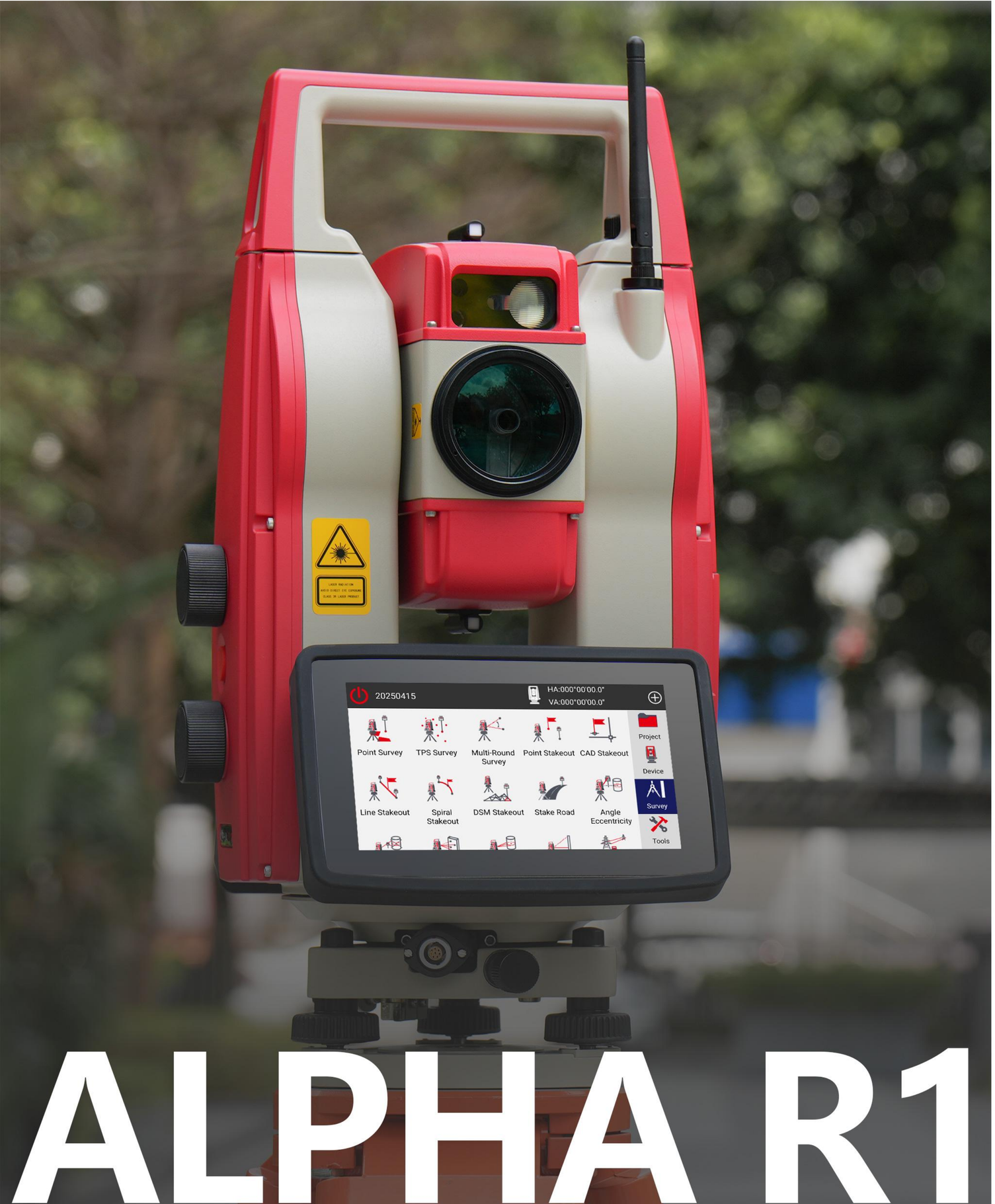
ALPHA R1

Precise remote control,
efficient one-person operation

ROBOTIC TOTAL STATION



- Intelligent operating system
- Strong performance smooth operation
- Advanced angle measurement system
- Multifunctional android measurement software
- Convenient and fast data transfer



ALPHA R1
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.



Surpro 6.0





ALPHA R1
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
Supports continuous point collection and rapid measurement modes to meet diverse accuracy requirements
•Advanced COGO Computations
Incorporates comprehensive coordinate geometry calculations including forward/inverse computations, intersection solutions, and precise area/volume measurements
•Seamless CAD Integration
Provides full compatibility with DWG/DXF formats for bidirectional data conversion between survey measurements and design drawings
•Comprehensive Road Engineering Module
Supports alignment design through both intersection and element methods, with multi-format data import functionality for highway and linear engineering projects

Engineered with operational efficiency, powerful functionality, and measurement reliability at its core, this solution has been widely adopted in land surveying, engineering surveys, and infrastructure construction, serving as an indispensable tool for enhancing surveying productivity and accuracy.

ALPHA R1

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.







ALPHA R1
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)

•Automatically identifies and measures prisms at distances up to 1000m

•Ensures precise target acquisition without manual intervention

Intelligent Prism Search

•Performs 360° prism detection within a 300m radius

•Reduces measurement steps by approximately 67% compared to manual total stations

•Significantly enhances field work efficiency.

Continuous Prism Tracking

•Maintains lock on moving prisms at speeds up to 20°/s

•Enables continuous monitoring of mobile targets

The system's advanced electro-optical technology combines high-speed servo motors with precision angle measurement, delivering industry-leading performance for dynamic measurement applications. This integrated solution dramatically reduces field operation time while maintaining survey-grade accuracy throughout all tracking operations.





Specifications

ANGLE		**Prism Lock**	
Accuracy	1″	Tracking Speed	20°/s
Method	Absolute Encoding	**LEVEL**	
Detecting System	H: quadruple; V: quadruple	Plate Level	30″/2mm
Minimum Reading	0.1″	Circular Level	8′/2mm
Diameter of Circle	79mm	**COMPENSATOR**	
Vertical Angle	Zenith 0/ Horizontal 0	Tilt Sensor	Dual-axis Liquid electric sensor
Unit	360°/400gon/6400mil	Range	4′
DISTANCE		Accuracy	1″
Single Prism Range	3,500m	**LASER PLUMMET**	
Accuracy	1mm+1ppm	Type	635nm, Class II
Non-prism Range	1,000m	Accuracy	0.4mm at 1.5m height
Accuracy	3mm+2ppm	Spot	1.8mm at 1.5m height
Measuring Time - Prism	Fine: <0.7s; Tracking: <0.3s	**GENERAL**	
-Non-P	T<600m: 0.5-3s; T>600m: <10s	Display	Two sides, 6-inch color touch LCD
PPM Correction	Auto Sensor	Camera	5 MP
TELESCOPIC		Guide Light	Red/Yellow, 635nm/593nm
Length	164.5mm	OS	Android 9.0
Diameter	45mm (EDM: 47mm)	Internal Memory	RAM 3GB, ROM 32GB
Magnification	30x	CPU	MSM8953
Image	Erect	I/O Interfaces	RS232, USB, Micro USB, Bluetooth 4.0
Field of View	1°30′	WLAN	Dual-band 802.11/a/b/g/n
Resolving Power	3″	Battery	Li-Ion, 14.4V, 6400mAh
Minimum Focus	1.5m	Working Duration	8 Hours
Trak MOTORIZATION		Waterproof/Dustproof	IP65
Type	Torque motor	Operating Temperature	-20°C to +50°C
Maximum Speed	180°/s	Dimension	430 (H)*255 (L)*235 (W) mm
Auto Prism Recognize		Weight	9.3KG
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°		

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