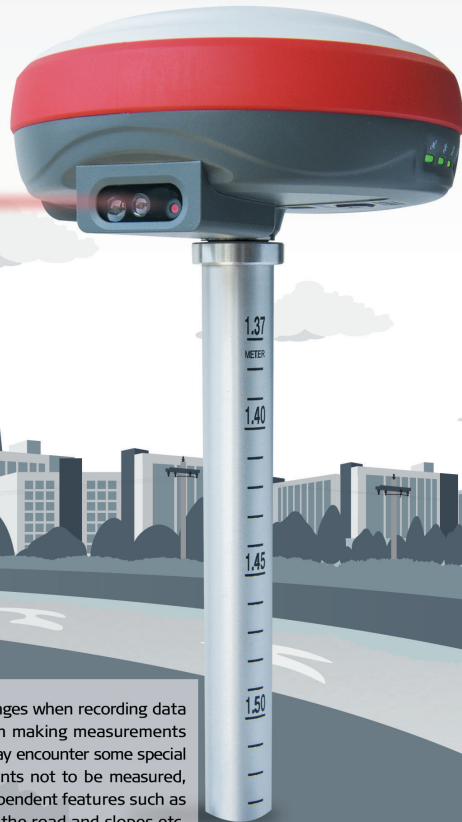


MATRIX

Laser RTK



save your time
save your money



As a surveying professional you face many challenges when recording data that increase the risk of errors and delays when making measurements and layout tasks. During a day of field work, you may encounter some special or dangerous environments that cause some points not to be measured, such as: hidden points (house corners, walls), independent features such as utility poles, across the river, manhole covers on the road and slopes etc. Now experience new surveying technology like never before with the new Alpha Geo laser RTK, the first laser RTK in the world, the terminator of the inaccessible points. With the help of a special tripod, users do not need to worry about errors caused by slight shaking. The fusion of laser ranging and IMU technology makes your measurement faster.



IMU TILT UHF RADIO WEBUI FULL GNSS

Performance specification

Satellite signals tracked simultaneously	GPS: L1 C/A, L2C, L2P, L5	
	GLONASS: L1C/A, L1P, L2 C/A, L2P	
	BEIDOU: B1, B2, B3, B1C, B2a, B2b	
	GALILEO: E1, E5a, E5b	
	QZSS: L1, L2C, L5	
	SBAS: WAAS, EGNOS, MSAS, GAGAN, SDCM	
	IRNSS: L5	
	Channels	965 (1032 optional) 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	

Positioning¹

Code differential GNSS positioning	Horizontal: 0.25 m + 1 ppm RMS
	Vertical: 0.50 m + 1 ppm RMS
	SBAS differential positioning accuracy ² : 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

PHYSICAL	
Material	Magnesium alloy
Dimensions	150mm * 71mm (without bottom connector 60mm)
weight	≤1.0 Kg
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 a 2m pole drop onto concrete
Vibration	MIL-STD-810G
Humidity	100%, condensing

Laser distance module

working range	40 m
accuracy	± 5cm @ 15m
resolution of camera	2 MPixel

ELECTRYCAL

Power: 9~24 V DC external power input on 5 pin LEMO port
Support USB Type-C fast charging
Internal 6800mA lithium-ion battery

Battery Life	Rover Mode: 12 hours
	Base Mode: 7 hours
	Static Mode: 15 hours

Communication & Data Storage

I/O interface	
LEMO port (5pin)	Supports power input, serial port control, and external radio communication
USB Type-C port	Data download / Charging
Sim card slot	Supports Nano-SIM
Antenna port	UHF antenna interface

Radio modem (optional)

Transmit power	1/2 w switchable, Work range is longer than 4km
Frequency band	410MHz-470MHz; supports to set the frequency

Supports retransmitting correction from CORS; compatible with other brands

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 V4.0, range ≤ 50m

Data format

RTCMz, RTCM3x, CMR & CMR+, sCMR+
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

Others

System integration

OS system:	Intelligent LINUX operating system
Tilt Compensation	IMU up to 60° (Calibration free)
Relay station	CORS relay, Radio relay
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

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, optimal GNSS 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.

2- Depends on SBAS system performance

3- Network RTK PPM values are referenced to the closest physical base station and depends on network performances.

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MATRIX

Laser RTK

MATRIX is a compact new generation of smart laser RTK 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 MATRIX receivers.



■ 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. MATRIX comes with an integrated 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.



■ Multi constellation

MATRIX with its 965 (1032 optional) channels new generation full GNSS chipset & ability to support multiple satellite constellation including GPS, GLONASS, BEIDOU, GALILEO, QZSS, SBAS and IRNSS provides precise and accurate spatial data for all users around the world.



■ Battery & Power

MATRIX is delivered with an internal large capacity 6800mAh lithium-ion internal battery supporting USB type-C fast charging which allows users to work for more than 9 hours in daily field work.



■ WiFi and WebUI

MATRIX 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.



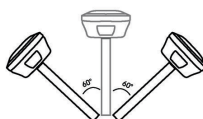
■ IP67

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



■ IMU Tilt Sensor

MATRIX 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 60°.



■ Working mode

Every surveyor needs to operators 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. MATRIX is offering all you need in a package!

