

Banff-AL

VISUAL & LASER GNSS RECEIVER

Visual, Laser, IMU – Never Just Surveying



BANFF-AL VISUAL & LASER RTK

To make surveying smarter, 3A GEOCANADA has added a starlight-grade camera and a precise laser module to the Banff-AL GNSS receiver, achieving deep fusion of multiple sensors.

While shrinking the device to the palm size, Banff-AL provides an advanced GNSS engine, immersive AR stakeout, non-contact laser surveying, 60° tilt IMU, 15km enhanced UHF, and rich features to empower your tasks.



DEEP FUSION OF GNSS, VISUAL, LASER & IMU

INTUITIVE AR VISUAL STAKEOUT

Immersive AR Stakeout

Seamlessly integrates visual AR technology for an immersive experience.

Over 50% Efficiency Up

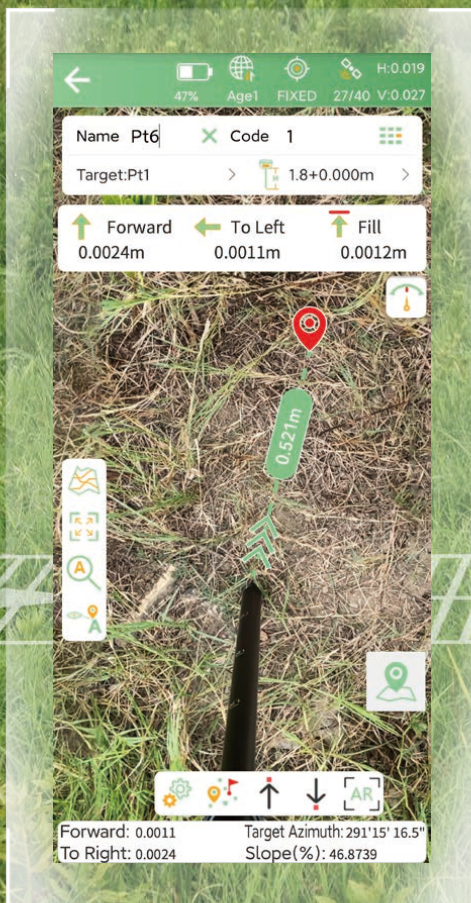
Precise and effortless compared to traditional stakeout methods.

Starlight-Grade Camera

Captures high-quality visuals in low-light or challenging conditions.

Intuitive & Precise Visual Guidance

Advanced algorithms ensure clear & accurate visual guidance for stakeout.



NON-CONTACT LASER SURVEY

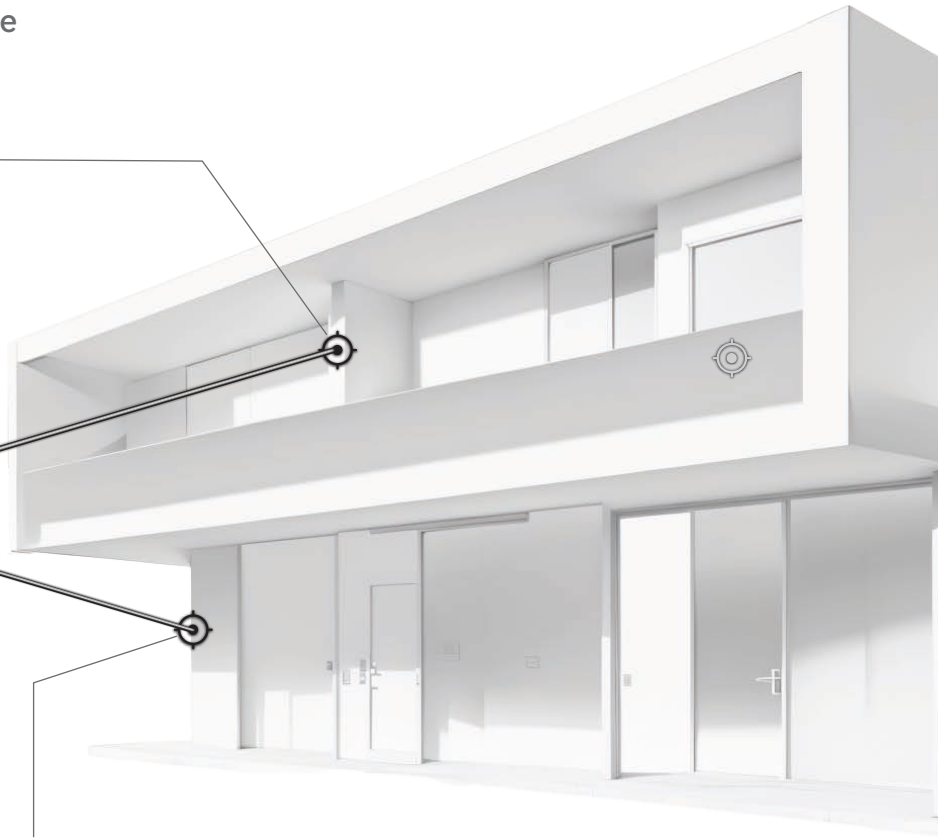
Stay in Place and Measure with Ease

For Difficult-to-Access Points

Enables secure and effective surveying, overcoming physical barriers.



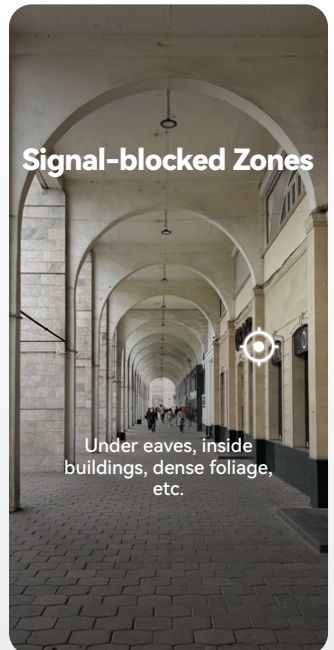
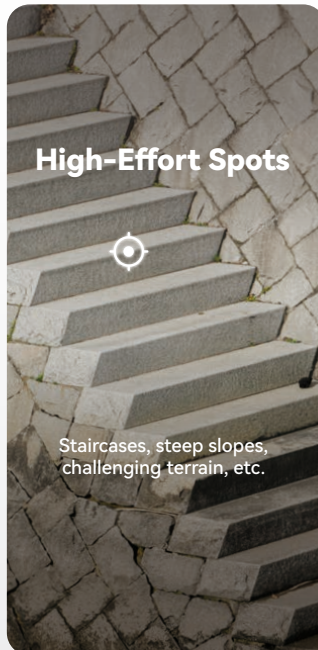
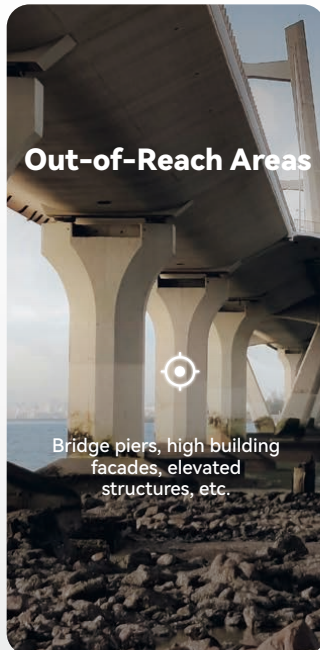
10m **60°**
Measure Range Tilt Range



For Areas Lack of Satellite Signals

Extends GNSS measurement range using laser in signal-blocked areas.

MORE SURVEYING POSSIBILITIES



SATELLITES TRACKING

Channels	1408
BDS	B1I, B2I, B3I, B1C, B2a, B2b
GPS	L1C/A, L1C, L2C, L2P(Y), L5
GLONASS	G1, G2, G3
Galileo	E1, E5a, E5b, E6
QZSS	L1C/A, L1C, L2C, L5
NavIC	L5
SBAS	WAAS, EGNOS, SDCM, BDSBAS, GAGAN
L-Band	Support
Cold start	<30s
RTK Initialization Time	<5s(typical)
RTK initialization reliability	>99.9%
Re-acquisition	<1s

ACCURACY

Standalone	1.5m Horizontally 2.5m Vertically
DGPS	0.4m Horizontally 0.8m Vertically
Static Post-processing	2.5mm+0.5ppm Horizontally 5mm+0.5ppm Vertically
RTK	8mm+1ppm Horizontally 15mm+1ppm Vertically
PPP	5cm Horizontally 10cm Vertically
SBAS	< 1.0 m 3D RMS
Time Accuracy	20ns
Tilt Surveying	< ±2.5cm, within 60° Tilt Range
AR Stakeout	8mm+1ppm Horizontally 15mm+1ppm Vertically
Laser Tilt Measurement	≤5.5cm (5m Range, ≤60°Tilt in Laser Mode)

DATA FORMAT

Data Output Format	- NMEA-0183 - RINEX 3.02/3.04 - Binary Format *.xyz
Data Update Rate	1 ~ 50Hz Selectable
Correction Data Format	- RTCM v3.3/3.2/3.1/3.0
Supported Protocols	Ntrip client, Ntrip Server, Ntrip Caster, TCP, UDP

COMMUNICATION

UHF Modem ¹	- Working Range: Up to 15km with optimal conditions - Frequency Range: 410-470MHz - Protocol (TX & RX): LoRa - Protocol (RX): TRIMATLK, SATEL, TRANSEOT, TRIMMARK3, etc. - Channel Spacing: 25KHz - Transmit Power: 0.5W~2W Selectable
Bluetooth	BT4.0 Dual Mode

All specifications are subject to change without notice.

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NFC	Support NFC Connection
WiFi	802.11 a/b/g/n/ac
Interface	- 1 Type-C Interface for Data Transmission and Charging - 1 SMA Connector for UHF Antenna

VISUAL SENSOR

Sensor Type	Camera
Pixel	Global Shutter with 2 MP
Frame	30 fps
FOV	75°
Feature	Starlight-grade Camera, HD Capture in Weak Light Environment

LASER SENSOR

Range	10m
Accuracy	(3-5)mm + 1ppm
Measuring Frequency	2Hz
Laser Injection Power	2mW~3mW
Laser Tilt Measurement	≤5.5cm (5m Range, ≤60°Tilt in Laser Mode)

USER INTERACTION

Front panel	- 3 LED indicators indicating satellite tracking, differential data transmission and power - 1 button for power on/off
WebUI	- Accessible via Wi-Fi - Support Configuration, Status Checking, Data Transfer, Data Storage and System Upgrade

ELECTRICAL

Power Consumption	1.8 W ²
Input Voltage	DC 5-15V
Battery	- 4200 mAh, up to 12 Hours Working Time - Fast Charge of 3 Hours Charging Time

PHYSICAL

Size	Φ107 mm × 58.7 mm
Weight	547 g
Storage	8 GB ³
Housing Material	Magnesium-aluminum Alloy

ENVIRONMENTAL

Working Temperature	-40 °C to + 65 °C
Storage Temperature	-55 °C to + 85 °C
Humidity	100% Non-condensing
Waterproof & Dustproof	IP67
Drop	Designed to Survive a 2m Drop onto Concrete

- 1 The enhanced UHF base is not compatible with normal UHF rovers on the market. For different user needs, 3A GEOCANADA also provides normal UHF as an option compatible with UHF of other brands. Please clarify your requirements when placing the order.
2. The power consumption varies with the different work modes.
3. Storage can be expanded to 32GB according to user demands.