



TD 100 Class II UAV – UXO Advanced Airborne UXO Detection



Brican's TD100-UXO aircraft combines the power of the Geometrics's G-824A Cesium Magnetometers with the high performance TD100 aerial platform to deliver safe and accurate unexploded ordnance detection (UXO). Geometrics is a world leader in advanced geophysical instrumentation, and their model G-824A combines a high-performance cesium sensor, a new sensitive new internal sensor driver, and high sensitivity Larmor counter electronics to provide a complete self-contained UXO sensor package. Improved low noise amplifiers reduce the noise floor to approximately 350 fT (femto-Tesla) providing unmatched versatility in performance, size and weight for a wide range of applications.

Unexploded ordnances are munitions including rockets, artillery shells, and missiles buried in unknown locations and present a significant danger to civilians. The magnetic field around an ordnance item is distorted by the ferrous material in the steel casing. The BFS-UXO system offers an order of magnitude increase in sensitivity over other systems when combined with the slow and low flying characteristics of the TD100 UAV over the many terrain elements that make UXO discovery challenging.

Capabilities:

- Acquire ultra-sensitive magnetic data from UXO sites using G824-A Cesium Sensors
 - Extreme Sensitivity and processing Speed - 350 fT/ $\sqrt{\text{Hz}}$ RMS and 1000 Hz with internal counter
 - Very Low Heading Error — $\pm 0.15\text{nT}$ over 360° equatorial and polar spins
 - Versatility is enhanced by the 6 channel 12 bit A/D converters for real-time digitization of altimeter or other analog signals, and digital data stream concatenation and telemetry functions
 - The cesium magnetometers never need to be returned to the factory for calibration or tuning ensuring reliability and ruggedness
 - Gradiometer arrays offer simultaneous operation of up to eight separate sensors using the custom designed serial port concatenation capabilities
 - The TD100 UAV can fly low and slow over the terrain to increase the detection accuracy
- Brican's TD100 design has been electronically mapped and optimized to ensure the aircraft is magnetically quiet
 - The TD100 RPAS increases safety and expedites the Georeferenced detection of the targets



Brican Flight Systems Inc. - UXO

The BFS-UXO RPAS is a fully integrated package with all components engineered and integrated directly into the TD100 series UAV providing the latest in technologies to detect unexploded ordnance. Working with Geometrics and NRC (National Research Council) engineers and Canada's DRDC scientists, the TD100 design has optimized to eliminate aircraft generated magnetic noises improving the G-824A sensors detection accuracy. The TD100 series design meets the current MTOW requirements of Transport Canada (Small UAV Category). TD100-UXO can be equipped with either an Electric motor or a Multi Fuel engine capable of operating on Bio-fuel, Diesel and a variety of other fuels.

The entire UXO sensor package is built into Brican's high performance UAV aerial systems platform and delivers affordable and accurate data in even the most remote and harsh environments.

Launch and recovery is managed by a custom pneumatic launcher and inflatable landing strip, both lightweight and portable and therefore provides unrestricted operations on land, sea (Heli Pad) or snow.

TD100 SPECIFICATIONS

Weight:

Electric 15.87 Kg/ 35lb
 Multi Fuel 15.87 Kg/ 35lb

Max take-off: 25 kg/55 lb

Useful Payload: 9.1 kg / 20 Lbs

Wingspan: 5.0 m/ 16'

Length: 2.0 m/ 6' 6"

Air frame: Composite Carbon Fibre

Autopilot Options: Cloud Cap Piccolo
 Rockwell Collins Athena 111m

Ground Control: MaxVision Portable Computers



SPECIFICATIONS AND PERFORMANCE CRITERIA:

	Electric	Multi Fuel
• Payload Cruise Speed	83 kph (45 knots)	83 kph (45 knots)
• Max Speed	185 kph (100 knots)	185 kph (100 knots)
• Ceiling	7600 m	7600 m
• Endurance	Up to 2.5 hrs	Up to 23 hrs
• Range	Up to 200 km (108 nm)	Up to 1945 km (1050 nm)
• Operating Temperature	-20 ⁰ C to 45 ⁰ C (-4 ⁰ F to 113 ⁰ F)	

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Designed and built to be RPAS compliant that meets Canadian Best Practice Standards and Certifications

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