

# BFS- UAV System for Forest Fire Detection



*Brican Flight Systems is pleased to announce the launch of the Brican Forest Fire Detection and Mapping System (AFFDM)*



*The TD100 Unmanned Aircraft System™ (small class UAS) equipped with the Advanced Forest Fire Detection and Mapping System (AFFDM)*



TD100 is a fully autonomous unmanned aerial system from launch to recovery. The UAV is designed by utilizing state of the art structural and aerodynamic design

principles to achieve superior performance. This along with state of the art materials result in an UAV that delivers consistent performance and operation characteristics over a wide range of flight requirements. The system also consist of a proven mobile aircraft launcher and a rugged aircraft recovery system that can be deployed in minutes

**Forest Fire Detection and Mapping:** The key to combatting forest fires, is persistence surveillance, accurate detection and active mapping. Working with Applanix, FLIR and Aventech, Brican has revolutionized the Forest Fire Detection and Mapping Capabilities from a UAV platform through TD100 Advanced Forest Fire Detection and Mapping system.

Bush and forest fires are the commonest forms of natural disaster in many countries. Such fires cause vast environmental and economic damage. The primary goal is to detect fires as soon as possible after they start. The Advanced Forest Fire Detection and Mapping System combines three Flir A65 cameras with a high resolution EO Sensor (Nikon D800) that provide automatic forest fire

detection and reporting capabilities. Aventech Weather Mapping System provides local environmental parameters essential for understanding the fire spread patterns.

## BFS- AFFDM Highlights

- The synchronization of A65 Cameras offer simultaneous mapping of a wider area: Three Flir A65 Cameras provide up to 70 degree field of view to detect fires along the flight track.
- Compact and light weight A65 camera offer higher sensitivity (<50mK), wide temperature range (-40 to 550C) and higher bit resolution that drastically improves forest fire detection accuracies
- Offers automatic detection and Mapping: The system apart from storing all data for post analysis has the capability to automatically classify forest fires
- Provides real-time forest fire monitoring capability from forest fire command centers:
- The Aventech weather mapping system provides accurate wind speed, turbulence, air-temperature and humidity profiles essential for combatting forest fires
- The daylight camera offers 36MPix resolution, combined with the A65 thermal cameras offer highly accurate detection results
- The slow and low flying characteristics of the TD100 long endurance platform increases the fire detection accuracies to a higher level

## TD100 Specifications

Empty weight:	<i>Electric:</i> 15.87 Kg/ 35lb <i>Multi Fuel:</i> 15.87 Kg/ 35lb
Maximum take-off weight:	25 kg/55 lb
Useful Payload	9.1 kg / 20 Lbs
Wingspan:	5.0 m/ 16ft
Length:	2.0 m/ 6 ft 6"
Air frame:	Composite Carbon Fibre
Autopilot:	Piccolo/Rockwell Collins Athena 111m

## Consistence Performance

The TD100 is based on a proven conventional layout with high wing and dihedral for stability and a t-tail configuration utilizing state of the art structural and aerodynamic design to achieve superior performance. This along with state of the art materials result in an UAV that delivers consistent performance and operation characteristics over a wide range of flight requirements.

Brican's UAV design is focussed on the current MTOW with Transport Canada (Small Category). With an empty weight of 35 Lbs, the aircrafts deliverable is a full 20 lbs of useful airborne sensor and or associated technologies. The Multifuel engine will operate on Bio-fuel, Diesel and a variety of other fuels.

Specifications and performance criteria for two aircraft configurations are as follows:

	<b>Electric</b>	<b>Multi Fuel</b>
• <b>Cruise Speed</b>	83 kph (45 knots)	83 kph (45 knots)
• <b>Max Speed</b>	185 kph (100 knots)	185 kph (100 knots)
• <b>Ceiling</b>	7600 m	7600 m
• <b>Endurance</b>	Up to 3 hrs	Up to 40 hrs
• <b>Range</b>	Up to 200 km (108 nm)	Up to 3000 km (1620 nm)
• <b>Operating Temperature</b>	-20 <sup>0</sup> C to 45 <sup>0</sup> C (-4 <sup>0</sup> F to 113 <sup>0</sup> F)	

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