



## APPLICATION NOTE: Turbine Flow Meter Measures Fuel Burn in Military Unmanned Aerial Vehicles (UAV)

Military unmanned aerial vehicles (UAV) are an important part of our nation's defense, providing surveillance, communications, search and rescue and weapons deployment missions. UAV use continues to grow at unprecedented levels as mission capabilities evolve. Mission success requires careful planning, and accurate and reliable remote data to implement.



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One of the most critical mission data requirements is fuel burn data to determine the amount of fuel available for the remaining mission flight envelope. The fuel burn data can also provide real-time feedback to the controllers for analysis of parameters that can affect the aircraft's performance during critical parts of the mission.

Flow Technology's turbine flow meter technology provides a proven platform for this type of application. The turbine flow meter technology offers reliable, accurate, high-speed acquisition of the fuel flow data. To account for the extreme environmental changes encountered during a mission, the turbine flow meter is integrated with Flow Technology's advanced signal conditioning which provides high-speed compensation for changes in fuel viscosity due to temperature. The electronics also provide high-speed processing to enhance the linear response of the turbine flow meter to extend the usable flow range. Available outputs include frequency, analog, and digital on some platforms.

The flow meter and electronics are housed in a lightweight enclosure that can be modified to accommodate a compact application envelope.

### HIGHLIGHTS

**Industry:** Aerospace  
**Service:** Flow Rate/Total  
**Fluid:** Jet Fuel

#### **Application**

Provide real-time fuel burn rate and total fuel used data for unmanned aerial vehicles (UAV)

#### **Problem**

- UAV mission success requires careful planning and accurate feedback from remote sensors
- Real-time fuel burn rates are required in order to determine critical flight mission operations
- Environmental conditions encountered during the flight envelope are severe

#### **Solution**

- Flow Technology turbine flow meter housed in a lightweight enclosure and integrated with advanced high-speed, temperature-compensating electronics, providing a mass output