

APPLICATION NOTE



FLIR Fido B2 Vehicle Deployment

VEHICLE MOUNTED BIO-AEROSOL THREAT MONITORING

FLIR offers mounted sensors for bio-aerosol monitoring and sample collection in a broad range of vehicles.

OVERVIEW

There is a growing desire to mount biological detection systems into mobile platforms for reconnaissance and emergency response missions. Fixed-site point sensors monitor small, localized areas. The bio-threat must travel and reach the sensor to be detected. The integration of a biological sensor onto a mobile platform widens the area of detection. It enables a response team to travel toward and detect the threat before it reaches a vulnerable position. A mounted biological detection system provides reconnaissance vehicles early warning of biological aerosol threats so they can be contained quickly, treated effectively, and decontaminated rapidly.

The FLIR **Fido B2** - IBAC is the most mature and widely used biological detector and collector system available. Over 1,000 sensors are deployed globally in active biological monitoring operations. The system is used to support a variety of applications, from tactical missions such as special event monitoring and emergency response to longer-term, fixed installation facility protection. The Fido B2 is well suited for integration into military vehicles and mobile laboratories where extreme environmental conditions and shock/vibration are expected (Figure 1). It provides real-time biological threat detection and sample collection for subsequent threat identification.

FEATURES & BENEFITS

- Affordable, COTS biological detection and collection system
- Low power and small footprint
- Continuous monitoring, real-time bio-detection
- Triggered or continuous sample collection for subsequent threat identification
- Wet and dry sample collection configurations



Figure 1 – Fido B2 Integrated in Military Vehicle Collector Stack (Left); Detector Stack (Right)

APPLICATION NOTE

FIDO B2 VEHICLE PACKAGES

Based on the specific vehicle project or program requirements, custom bio-monitoring configurations can be accommodated. Three vehicle packages are offered:

1. **Fido B2-IBAC:** Biological detection only
2. **Fido B2-IBAC with C100 Collector:** Biological detection and sample collection with manual sample rinse
3. **Fido B2-IBAC with C100 Collector and BioXC:** Biological detection and sample collection with automated sample rinse

The Fido B2 combines real-time bio-aerosol monitoring with triggered or continuous aerosol sample collection. In vehicle packages #2 and #3, the optional C100 collects bio-aerosol particles outside the vehicle for subsequent confirmatory testing. Each vehicle package is designed for seamless integration with standard bio-identification practices and has been validated with PCR, immuno-assay, and other laboratory techniques.

The C100 collector offers the ability to provide dry or wet samples. The C100 collects a dry sample that can be rinsed into liquid via one of two methods. In vehicle package #2, the user can manually retrieve the filter and extract the particles into liquid. In vehicle package #3, the sample is automatically rinsed into liquid form and pumped from the C100 collector into a sample vial located in the optional BioXC™.

In vehicle package #3, the dry aerosol sample collected outside the vehicle is remotely rinsed using the BioXC installed in the glove box. Rinse fluid is pumped via flexible tubing from the BioXC through a sealed connector to the rooftop collector. The dry sample is rinsed and pumped back inside the glove box where it is available for subsequent biological threat identification (Figure 2).

INSTALLATION

For vehicle deployment, the Fido B2 is typically installed in an internal glove box (Figure 3). The air intake and C100 collector are installed on the vehicle rooftop (Figure 4). The rugged air intake and collector allow the sensor to operate in all weather conditions (i.e. rain, snow, dust, and high winds). The remote sampling stacks are connected to the sensor by tubing and electrical connections. These connections are routed through the vehicle's exterior wall and are O-ring-sealed. The air flow path is closed loop, which prevents outside contamination from entering the vehicle and protects the vehicle occupants. The Fido B2 system provides a safe, affordable and flexible biological threat warning solution.

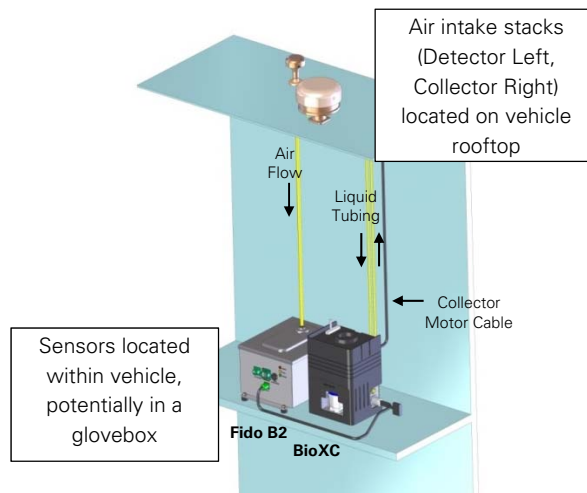


Figure 2. Fido B2 with BioXC for Automated Sample Rinse



Figure 3. Fido B2 within Vehicle Glove Box



Figure 4. Top, Bottom and Side Views of the Remote Detector and Collector Sampling Stacks

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