Miniaturized, Easily Deployed Multi-mode Repeater

Today’s constantly transforming global environment has created a need for a flexible, Over-the-Horizon (OTH) communication capability to overcome the limitations of traditional, Line-of-Sight (LOS) devices to operate in mountainous terrain and urban environments. The General Dynamics UHF/VHF Crossband Communications Repeater is a lightweight, miniaturized device that can be easily deployed in Unmanned Aerial Vehicles (UAV), fixed sites or aboard vehicles to remotely relay or retransmit critical data. When flown on a UAV or deployed in urban sites, the Crossband Repeater can provide a flexible solution to meet dynamic and ever-changing demands in a variety of applications: military, combat (including Search And Rescue), federal law enforcement, Homeland Security, and State and Local operations.

Applications
- Turns a UAV into UHF SATCOM satellite channel(s)
- Extends and crossbands current communications channel for joint Homeland Security, military, federal law enforcement, State and Local operations
- Provides and extends communications capabilities in urban environments and mountainous terrain
- Easily deployable to fixed locations (mountain, urban) with battery or solar cell power source
- Acts as a pass-through link for black-black operation, providing secure re-transmission
- Repeat or re-transmit HOOK data bursts for Combat Search and Rescue missions

Available Now*

Provides Over-the-Horizon capability to Line-of-Sight devices

*Prototype only. Call for availability.
UHF/VHF Crossband Communications Repeater

UAV Applications

UAVs and urban structures equipped with the Repeater's crossband/inband capability can easily provide infrastructure-independent UHF surrogate satellite channel(s) to extend ground forces' communications beyond LOS.

The Repeater allows a UAV to serve as an OTH relay platform that can be remotely controlled from a Control Station. In addition, the UAV/Repeater combination can perform sensor data exfiltration which can then be re-transmitted back to ground locations. The Repeater also provides cross band bridging between different UHF and VHF radios. Flight-proven on a small, tactical UAV, its small form factor makes it suitable for constrained environments but it is also scalable for simultaneous, multi-channel operations.

Flexible and Easy to Use

The Crossband Repeater is easy to use: it is programmable with a laptop computer and operates on standard 12 Volt DC power. The Repeater can serve as a pass-through device for black-black operations, providing secure re-transmissions.

Benefits

- Lightweight, miniaturized crossband repeater for UAV applications
- Flight-proven on small, tactical UAV
- Acts as a surrogate UHF SATCOM satellite
- Easy to use: programmable with laptop software
- Flexible: operates with standard DC source, using battery or vehicle power
- Provides BLOS and OTH communications relay capabilities
- Mitigates transmission barriers in urban environments and mountainous terrain
- Provides secure relay without cumbersome CCI device tracking
- Scalable: multiple units can be cascaded for simultaneous, multi-channel operations
- Supports data exfiltration from remote, unattended ground sensors
- Burst-Store-Forward mode provides flexible communications options

Technical Specifications

Frequency Range:
UHF: 225 – 320 MHz at 1 W, typical
VHF: 118 - 125 MHz at 100 mw, typical

Retransmit Modes:
16 KBPS FM CT (secure)
2.4 KBPS ANDVT SBPSK (secure)
AM PT
FM PT
HOOK

Size:
36 cu. in. (6” x 3" x 2”)

Weight:
<2 lbs.

Operational Temperature:
-40° C to +55° C

Battery:
Uses standard 12V batteries

Power supply requirements:
8-13.4 VDC, 13 watts max.

Crossband communications repeater deployed in remote, urban and UAV locations.