Critical Frequency Design

# OPTICAL HEAD UNIT (OHU): LOW-SWAP LASER COMMUNICATIONS FOR CONTESTED ENVIRONMENTS

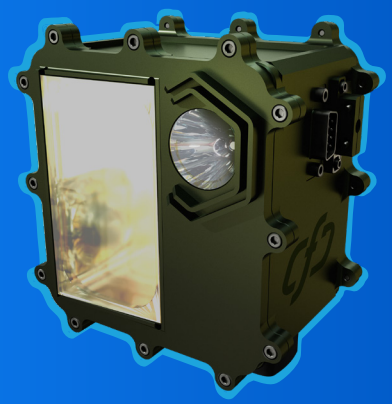
## *Secure Solutions for the Tactical Edge*

Today's battlespace demands faster acquisition and sharing of intelligence, surveillance, and reconnaissance (ISR) data across dynamic, contested environments. Traditional RF systems face increasing challenges, creating a growing need for secure, high-bandwidth alternatives.

The Critical Frequency Design Optical Head Unit (OHU) delivers covert, high-data-rate Free Space Optical (FSO) communications in GPS-denied and electromagnetically contested conditions. Designed to connect Group 2 UAS, mobile convoys and stationary operation centers, the OHU offers a compact, rugged solution with low Size, Weight, Power and Cost (SWaP-C).

Built on advanced beam-steering photonic technologies, the OHU provides low probability of intercept/detection (LPI/LPD) and jam-resilient communications. It supports stationary and Comms-on-the-Move (COTM) operations—enabling secure, real-time connectivity across mobile, dispersed forces.

**Contact CFD to see how FSO can be integrated on your system.**



## CONTACT US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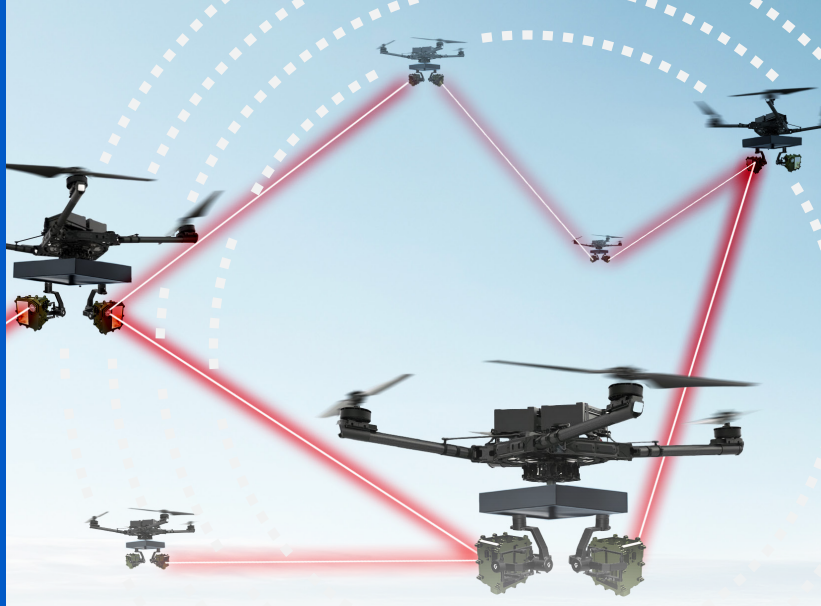

## KEY FEATURES AND CAPABILITIES:

- Low-SWaP-C design connects airborne, mobile platforms and stationary operation centers
- Secure, jam-resilient LPI/LPD communications
- Advanced beam-steering photonics with automated pointing, acquisition and tracking
- Supports COTM operations
- Scalable architecture customizable for mission-specific range and platform needs

| INTERFACE | CURRENT | FUTURE |
|---|---|---|
| Power Input | 12 VDC | |
| Power (1 Terminal) | 55 Watts | 25 Watts |
| Power (2 Terminals) | 110 Watts | 50 Watts |
| Modem Data Input | 1/10/100/1000 Ethernet RJ45 User Selectable | 1/10/100/1000 Ethernet RJ45 or Other Auto negotiated |
| Command and Control | 1G Ethernet | |
| Modem Channels | 2 | 4 |
| Modem Channel Interface | Single Mode Fiber | |
| Modem Size | 12”X12”X3” | 4”X4”X3” |
| Modem Weight | 8 lbs | 3 lbs |
| Optical Terminal Size | 4.2”X3.7”X2.6” | 2.5”X2.5”X2.5” |
| Optical Terminal Weight | 2 lbs | |

| PERFORMANCE | CURRENT | FUTURE |
|---|---|---|
| Link Distance (Good Visibility/Eye Safe) | 15-90 Meters 150-800 Meters[1] | 2,200-10,000 Meters |
| Link Distance (Good Visibility/Non-Eye Safe) | 100-600 Meters 900-3,800 Meters[1] | 7,000-15,000 Meters |
| Data Rate | 1Gb at min link distance 1Mb at max link distance | 1Gb at min link distance 1Mb at max link distance |
| Field of Regard (No Gimbal) | 15° | 40° |
| Field of Regard (Gimbal) | Half-hemisphere | |

[1] Please contact CFD regarding specific range requirements. Modifications can be made to achieve these range distances.

*SOLUTIONS AT THE* ***SPEED OF LIGHT***



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