

ANALOG FLY-BY-FIBER SYSTEM (AFFS)

Resilient crystal-clear first-person view video and UART command and control in a lightweight small form-factor NDAA-compliant package

As military forces worldwide deploy small Unmanned Aerial Systems (sUAS) for surveillance, reconnaissance and strike operations in contested environments, electronic warfare (EW) threats pose a critical vulnerability. L3Harris AFFS paired with our Drone Fiber Optic Tethers (DFT) offers an RF-silent command and control package that defeats attacks and provides mission assurance in RF-challenged environments.

OPTIMIZED PERFORMANCE

Purpose-Built for Harsh Environments

L3Harris AFFS media converters deliver reliable performance under the most demanding operational conditions. Converters are fully integrated and packaged for immediate use with any UART-controlled RF drone and the Radiomaster Pocket controller.

Mission-Focused Design

AFFS is a low-cost solution designed to support attritable one-way attack (OWA) mission sets. Engineered for extreme temperature operation, the system works seamlessly with standard and low-light cameras without adjustment and operates over fiber optic links up to 80 km. Compact form factors and lightweight components make it ideal for sUAS platforms.

Platform Integrator. Mission Partner.

Mission partners trust L3Harris to transform existing RF sUAS platforms into mission-ready systems with fiber optic command and control tailored to operational requirements. From 3D modeling, prototyping and fit checks to electrical integration, custom wiring and software development, L3Harris delivers fast, seamless fiber optic enablement for partner platforms. Backed by deep

technical expertise and advanced integration capabilities, L3Harris is built to solve the most demanding mission challenges.

SUAS FIBER OPTIC SUB-SYSTEM PROVIDER

L3Harris possesses the optical and mechanical engineering expertise to develop NDAA-compliant solutions that meet specific customer CONOPS. Our AFFS system is engineered to support transmission across a broad range of fiber lengths in a small, reliable, cost-effective package.



Far-end unit w/ LC-APC connector



BENEFITS

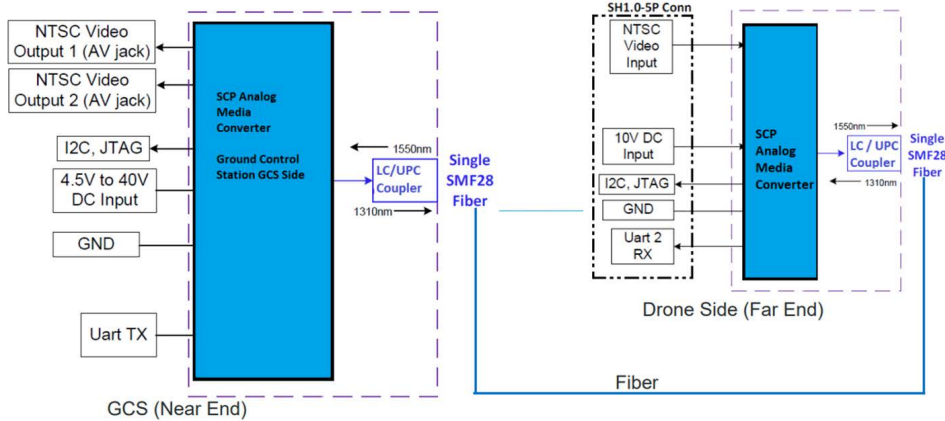
- > **Low power draw**
230 mW (drone unit)
- > **Extreme temperature operation**
-40°C to 85°C
- > **Crystal-clear video**
NTSC resolution optimized for all light conditions
- > **NDAA-compliant**
Carefully selected components; assembled in the U.S.
- > **Extended range**
Supports up to 80 km fiber optic link
- > **Integrated packaging**
Far-end unit integral within DFT drone ramp mount; near-end unit clips into controller
- > **Lightweight design**
Optimized for sUAS use



Fiber Pack Length from Left to Right:
20 km, 12 km, 5 km, 2 km

TESTING AND QUALITY

L3Harris has performed rigorous vibration and thermal testing on AFFS PCBs across the full operating temperature range (-40°C to +85°C) and validated attenuation performance from 1-80 km with satisfactory results.



SPECIFICATIONS	VALUES
Optical Fiber	Selectable; nominal cables are ITU-T G.652 compliant with bend-insensitive (G.657) variants available
Attenuation	≤ 0.25 dB/km @ 1550 nm (typical)
Size	Far-end (drone) 2.32 x 1.26 x 0.063 in Near-end 1 x 2.5 x .75 in
Weight (Far-end)	Air unit card only: 22 g Total with packaging: 100 g
Power Draw	Far-end (drone) 230 mW
Wavelength	1310 nm (UART) 1550 nm (NTSC Video)
Fiber Type	Single mode
Operating/Storage Temp	-40°C to 70°C
Connector	LC/UPC



Far-end unit w/ 2km DFT pack (left) and Near-end unit on Radiomaster Pocket Controller (right)

KEY FEATURES

- > **No controller modifications required** – Clip-on attachment
- > **Dual-mode operation**
Supports both wireless RF and fiber optic operation from the controller
- > **Integrated design**
Far-end unit packaged within DVT drone ramp mount; near-end unit clips into controller without attachments
- > **Simplified deployment**
No bulky ground control station, antennas or amplifiers
- > **Rapid integration**
Quick conversion of legacy RF based systems



Radiomaster Pocket Controller w/ Near-end unit disconnected

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