KestrelTWM

Flexible SCISR Waveform Module

The KestrelTWM is a miniature Bandwidth Efficient Common Data Link (BE-CDL) software-programmable radio module that provides Secure CDL Intelligence Surveillance Reconnaissance (ISR) (SCISR) radio interoperability, while simultaneously supporting additional tactical waveforms and algorithms. The commercial KestrelTWM retrofits existing tactical platforms with multi-band, multi-waveform secure communications in an ultra-low Size, Weight and Power (SWaP), fully ruggedized package.

KestrelTWV has been designed to support Group 2 - 5 UAS platforms with secure Common Data Link (CDL) interoperability. The ever changing tactical threat landscape demands game-changing, agile and affordable solutions. The small form factor, low power requirements, and RF and waveform adaptability of the KestrelTWM equips a new generation of airborne and surface applications where reduced SWaP and increased mission resiliency are required. The KestrelTWM is specifically designed with spectrally crowded or contested environments in mind.

Secure Software-Defined Adaptability for Tactical Superiority

The KestrelTWM is designed to meet both existing and future tactical communications needs. New protected waveforms and innovative signal-processing algorithms can be deployed via software updates to the platform. The KestrelTWM is identical in form and function to the flight proven United States Marine Corps' SCISR JaegerTR radio, but has a 10 dBm flexible wideband RF with separate TX and RX SMA ports. This makes it well-suited for in-band bidirectional operation and for connection to external HPA/LNA equipment.

The KestrelTWM supports ISR missions by providing DoD compliant BE-CDL at speeds up to 45 Mbps in L, S and C frequency bands. It supports full Type 1 encryption via the National Security Agency's new KIV/CCM 700 modules (backwards compatible to the KGV-135A). In addition to BE-CDL, the KestrelTWM also supports backwards compatibility with several legacy waveforms that include BE CDL Rev A and To-Be-Sunset (TBS) CDL waveforms (Vortex Native Waveform, Tactical Data Link, 466 Extended Range (ER). The

Base Features

- Compact, low SWaP
  - 5.05" x 2.25" x 0.6"
  - Less than 8 oz.
  - Less than 12 W power consumption
- Flexible RF Interface covering L, S, and C -Band
  - Tunable from 500 MHz to 6 GHz
  - Separate TX and RX SMA ports allow in-band operation
  - +10 dBm output power
- Fully MIL-STD-810F ruggedized
- Ethernet data interface, compliant SNMP control layer
- BE-CDL support to 45Mbps
- Support for NSA Type 1 Encryption

Optional Features

- 466ER
- Vortex Native Waveform
- Tactical Waveform

Future Protected Waveforms

- STD-CDL support to 45 Mbps
- Discovery CDL

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data and control interface to the radio are standard Ethernet enabling easy integration with existing data sources. Discovery CDL and Standard CDL can also be added to the KestrelTWM. The radio is also designed to support future protected waveforms as they become available to the DoD communications enterprise.

The KestrelTWM design can also be delivered in a non-crypto enabled version to support U.S. commercial applications and/ or testing and evaluations.

With mission ready ISR interoperability, multi-waveform support, and a host of protected communications, and networking capabilities, the KestrelTWM is a key enabler in achieving communications superiority, giving the warfighter command and control (C2), and ISR data assurance in today's complex operating environment.

Kestrel Product Specifications

Physical

- Size: 5.0" x 2.25" x 0.6"
- Weight: < 8 oz.
- Power consumption: 12W

Interfaces

- Dual 10/100 Ethernet via 25-pin Micro-D
- DS-101 via 25-pin Micro-D
- 10-32 VDC power via 25-pin Micro-D
- Two dedicated SMA ports – one input, one output

Environmental

- Shock & vibe: MIL-STD-810F
- EMI/EMC: MIL-STD-461
- Operating temp: -37C to +60C
- Two dedicated SMA ports – one input, one output

Performance Characteristics

- Tunable from 400 MHz to 6 GHz
- RF Output Power: 10 dBm

Waveform Options

- BE-CDL
- 466ER
- Tactical 1.6, 3.2, 6.4
- Vortex native

Encryption

- NSA Type 1
- KIV700/CCM
- AES

Use Cases

- Airborne data link allowing ISR and command and control C2 data transmission (manned and unmanned aircraft/payloads)
- Remote Video Terminals (RVT)
- Communications relay for payload or C2 - airborne or man carried