KONGSBERG GEOSPATIAL

IRIS UxS

Ground Control Station

Airspace Awareness for BVLOS UAS Missions

IRIS UxS is an airspace situational awareness system developed to provide Unmanned Systems (UAS, UUV, USV) operators, with the necessary situational awareness to safely operate Unmanned Systems Beyond Visual Line-of-Sight (BVLOS). The platform presents users with 2D and 3D map and terrain data, aeronautical information such as aerodrome locations, obstacles and airspace, and real-time data from sensors, cameras, and weather data sources - all integrated within a single, common operating picture display that's easy to use, and customizable on a per-mission basis.

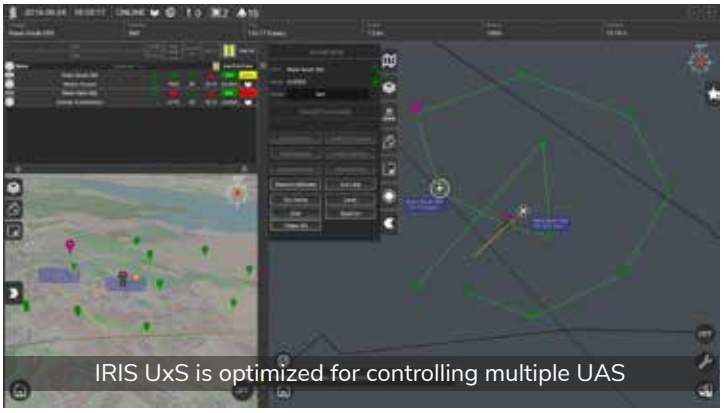
A BVLOS Fleet Control Solution

IRIS is a combination of software and sensor technology that gives operators a precise real-time picture of their operational airspace when piloting one or more unmanned vehicles beyond visual line-of-sight (BVLOS).

The IRIS UxS system functions as full-featured Fleet Control Station, providing operators with a real time, comprehensive picture of their mission airspace, as well as the capacity to directly control multiple UAS with an integrated autopilot of your choice.

The IRIS UxS system greatly enhances the situational awareness of UAS operators in BVLOS operations by presenting a single situational awareness display that aggregates a broad array of external and ownship information sources that are not normally available or presented to a UAS operator by typical Ground Control Station (GCS) displays. The IRIS display is ideal for fleet operations, since it makes it easy to track and control multiple ownship UAS.

A Common Operating Picture for BVLOS Operations



IRIS UxS is optimized for controlling multiple UAS

IRIS UxS is an airspace visualization system that provides Unmanned Systems (UxS) operators with real-time situational awareness for BVLOS operations in an integrated UTM (Unmanned Traffic Management) airspace.

The system presents users with a single integrated operating picture that includes 2D and 3D map and terrain data; aeronautical information including aerodrome locations, obstacles, and airspaces; and real-time data from sensors, cameras and drone telemetry. IRIS UxS is also integrated with near-time ATM / UTM data sources including the Harris® National ATM feed and LATAS®.

As the Commercial UAS sector matures, the prospect of conducting BVLOS in an integrated UTM airspace is becoming more immediate.

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Some commercial enterprises in North America are already conducting BVLOS operations under FAA waivers. The need to effectively visualize all air traffic and navigations in an operational airspace is becoming increasingly acute, and will continue to do so as the volume of unmanned traffic increases.

IRIS UxS is optimized as an edge monitoring display for restricted airspaces – fusing near-time ATM / UTM traffic data with real-time RADAR, ADS-B, and telemetry data. The IRIS UxS system is also fully integrated with the a wide range of autopilots, allowing direct control of a wide range of fixed-wing and rotary wing UAS directly from the IRIS console. The IRIS UAS airspace awareness is built around an innovative, touch-driven user interface that allows operators to easily visualize and manage multiple data feeds.

How IRIS UxS Works

The IRIS UxS system comprises a software engine connected to a Data Distribution Service (DDS) bus. The software engine accepts real-time updates from a variety of sensor inputs and performs target fusion between multiple dissimilar sensor types. The resulting airspace picture is layered over the terrain and environment and displayed in real-time, using Kongsberg Geospatial's TerraLens® geospatial engine.

IRIS UxS supports integration with a variety of sensor types and data feeds out of the box, including RADAR, ADS-B, and GPS receivers. Additional sensor support can readily be added via the DDS bus.

IRIS UAS includes cloud integration for mission planning, updating and reporting purposes. A cloud-based application provides access to aeronautical data provided by the FAA and NAV Canada for mission planning purposes, and provides an easy way to store a mission file - both as a flight data recorder function and for any Flight Operations Quality Assurance (FOQA) analysis by the operator.

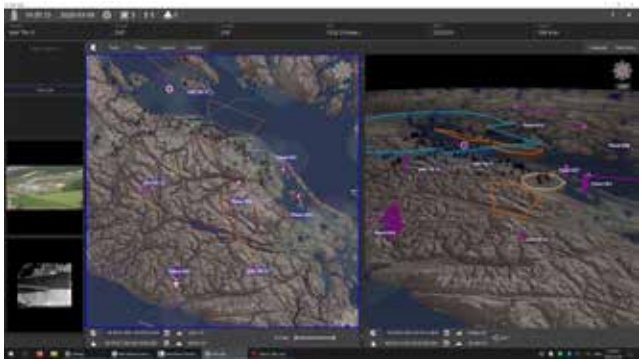
Multi-Domain Capabilities

While IRIS UxS is most frequently used for managing UAS missions, it is a multi-domain-capable system, and can be used to pilot any combination of aerial, surface, and underwater vehicles. The system can also present operators with a picture displaying marine navigational data, or a bathymetric picture of the underwater environment.

A specialized version of IRIS UxS called MEDUSA has been developed for naval, military, and homeland security missions, and IRIS UxS can be adapted to your particular mission needs and domain environment.

Features

- Displays ownship UAS feeds, including telemetry and video
- Live track data from ADS-B, Harris NEXTGEN™ and LATAS™
- Live ADS-B data integration with uAvionix PingStation™
- Integrated with Cloud Cap Piccolo, ArduPilot, PixHawk, Cube and Micropilot autopilots
- High-performance plotting of up to 10,000 simultaneous tracks
- High-performance 3D map and terrain engine powered by TerraLens®
- Deployable to multiple form factors, from mobile devices to 4K touch
- Pilot-configurable UI, map styling, and data layers
- Integrates feeds from cameras, sensors, and web sources
- Supports multiple map data formats and coordinate systems



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