

Custom User Profiles
High-Resolution Terrain with Ice/Water Features

InSight™ Display System

Advanced Airport Maps, Runways, and Special Use Airspace
Embedded SVS, Charts, and Frequency Management
Interface Flexibility



InSight [\ˈin-,sīt\] n. The capacity to gain an accurate and deep intuitive understanding. Intuition, discernment, perception, awareness, comprehension.

Over the years, we've gained a sound understanding of what pilots want in their flight deck; avionics to make operations easier and more intuitive, and most importantly – safer. We learned much of this through communication and interaction with our customer base on our current EFI-890R Advanced Flight Display.

With the InSight System, we've combined our passion and vision into the future of avionics with our customers' desires and high expectations for quality.

Integrated Flight Deck

The InSight Display System is designed as an integrated flight deck solution, featuring embedded synthetic vision with advanced mapping capability, electronic charts, and radio control. With fewer required external Line Replaceable Units (LRU) for essential functions than traditional avionics systems, InSight means less avionics weight and wiring for your aircraft, which equates to a cost savings on the installation.

As an integrated solution, InSight retains the ability to interface with a large number of federated components such as attitude/heading sensors, air data computers, radars, traffic systems, radios, and autopilots. InSight translates into lower operating and maintenance costs for your flight operations while providing enhanced safety, situational awareness, and functionality for pilots.

Cutting-Edge SVS

The embedded, next generation Synthetic Vision System (SVS) provides cutting-edge graphics, including runway depiction, terrain, ice and water features, advanced airport maps (ramp areas, terminal buildings, taxiways, hold lines, and more), and urban area outlines. Universal Avionics has pushed the envelope further than ever with a sharp and realistic portrayal of ice capped mountains and deep blue seas, providing even more advanced graphics than our industry-leading Vision-1™ product.

Advanced Radio Control

The embedded radio tuning (frequency management) and control functionality provides the pilot with a simple, easy-to-use interface. We've taken our time-proven and pilot-friendly Radio Control Unit (RCU) and included it within the InSight system software. Communication and navigation radios can easily be tuned from the EFIS Control Display Unit (ECDU) or from the moving map display. User control is also provided for transponder and Traffic Collision Avoidance System (TCAS).

Embedded Electronic Charts

Electronic charts are another embedded function supported by InSight, and provide critical situational awareness information for pilots, meeting FAA requirements for paperless charts. Aircraft Present Position (PPOS) or own-ship position is depicted with an aircraft symbol overlay on geo-referenced approach and airport charts, increasing situational awareness even while taxiing.



InSight Flight Deck

Retrofit and Forward-Fit Display System

An open architecture allows for flexible integration into new aircraft platforms, future customization, and upgrades on airframes, minimizing financial impact and complexity of integration.

Preparing You for NextGen and SESAR

Integrated with Universal Avionics Satellite-Based Augmentation System (SBAS)-Flight Management System (FMS) and UniLink™ UL-800/801 Communications Management Unit (CMU), InSight offers operators a path to meet future mandates and certifications. Equipping aircraft for future compliance and emerging technologies can bring significant benefits today.

- Federal Aviation Administration (FAA) NextGen
- Performance-Based Navigation (PBN)
- Communications, Navigation, Surveillance (CNS) / Air Traffic Management (ATM)
- Single European Sky ATM Research (SESAR)
- Controller-Pilot Data Link Communications (CPDLC)
- Future Air Navigation System (FANS) 1/A+
- FAA Data Comm and European Data Link

Primary Flight Display

The Primary Flight Display (PFD) is an advanced Electronic Flight Instrument System (EFIS) display, presenting all required flight critical data including attitude, airspeed, altitude, and heading. The PFD also presents Horizontal Situation Indicator (HSI) data including lateral and vertical navigation data. In addition, the PFD provides enhanced situational awareness including traffic, weather, terrain, and Synthetic Vision. Situational awareness is expanded by incorporating advanced mapping, weather, terrain, and 3D SVS display.

The SVS subsystem renders a background image for the PFD with the perspective of looking out the flight deck window. In addition, it provides a map terrain view which can include Terrain Awareness Warning System (TAWS) alerts. SVS also provides an offset view with selectable camera position.

Utilizing the latest technology in display design, the pilot can experience a crisp display and wide viewing angles with no color shift.

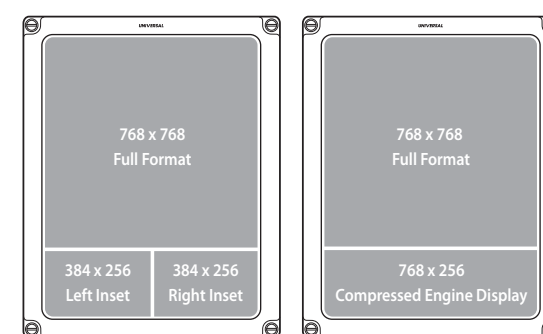
The next generation SVS features enhanced mapping capability, spectacular terrain shading, and a multitude of screen layout options to offer a new level of situational awareness.



PFD with 360° HSI, Left Inset with Map and Special Use Airspace, Right Inset with Flight Plan Data

Pilot-Selectable Screen Layout

The advanced PFD allows for several display formats, which can be saved as part of the pilot preferences settings with a configurable power-on default option. The lower portion of the PFD provides the pilot-selectable windows for either one window with engine data or two inset windows supporting Map or 3D SVS, terrain, weather radar, video, or flight plan data.



PFD with Insets

PFD with Compressed Engine Display

Graphical User Interface

- Traffic Display On/Off
- Airports On/Off
- Nav aids On/Off
- Fixes On/Off
- Special Use Airspaces On/Off
- Airways Lo/Hi/Off
- North Up Mode On/Off
- Compass On/Off
- Lightning On/Off
- SVS Terrain On/Off



PFD with 360° HSI, Left Inset with Flight Plan Data, Right Inset with Map and SVS



PFD with 360° HSI, Left Inset with Map, SVS, and Traffic, Right Inset with Video



PFD with 360° HSI, Left Inset with Flight Plan Data, Right Inset with Map and SVS

Multi-Function Display

The Multi-Function Display (MFD) presents navigational map data including the FMS flight plan and pilot-selectable map layer data like Navigational Aids, Airports, Special Use Airspace, Airways, and background waypoints from procedures.

Underlay of terrain or weather radar data is available. Terrain data is provided by the Synthetic Vision System (SVS) and includes TAWS functions including obstacles for alerting.

The MFD provides multiple formats to display engine data and inset windows for multiple map views with different data. External video is supported in either RS-170 monochromatic or NTSC composite full color video.

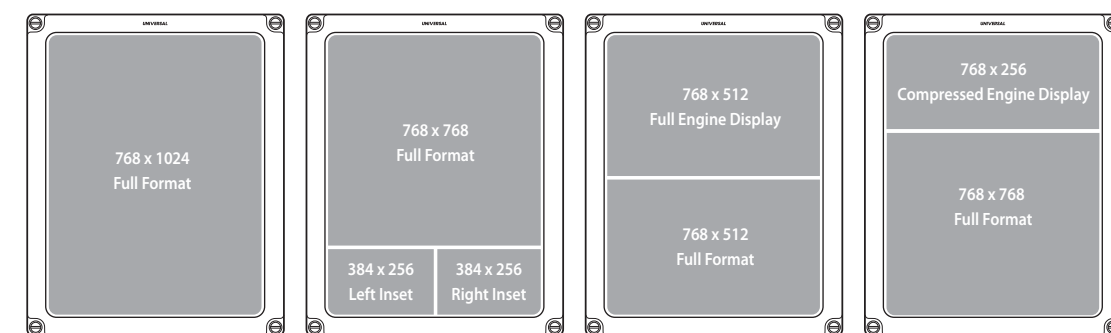
The electronic charting option provides charts to meet FAA requirements for paperless cockpits.



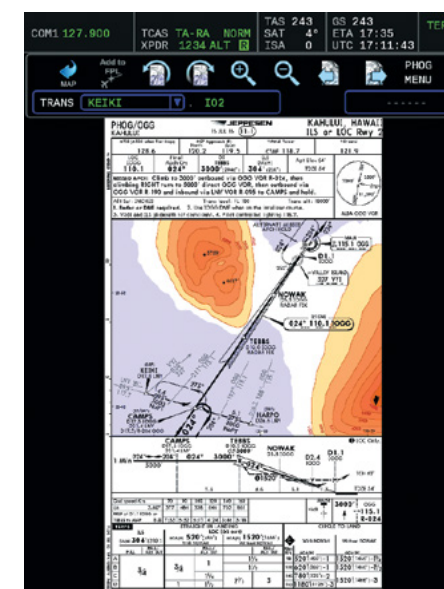
Map Full Format with SVS and Airport Selection

Pilot-Selectable Screen Layout

The MFD features multiple pilot-selectable formats with a configurable power-on default option.



MFD Full Format Display MFD with Insets MFD with Full Engine Display MFD with Compressed Engine Display



MFD Full Format with Approach Plate



MFD Full Format with Airport Menu



MFD Full Format with Navaid Menu



MFD with Taxi View and Engine Display



MFD Full Format with 3D View



MFD Full Format with Compressed Engine Display

User Control and Input

InSight takes centralized control into the next generation by combining the control of flight displays, FMS, radios, weather, traffic, and terrain into a centralized control device, the ECDU.

Pilot interface and control of the InSight system is conveniently provided through the EFIS Control Display Unit (ECDU). The ECDU eliminates the need for external panels that take up valuable cockpit space by integrating with the PFD/MFD and standalone radios. The ECDU with the Alphanumeric Keyboard (ANK) also provides pilot interface and control for Universal Avionics SBAS-FMSs, eliminating the need for separate FMS Control Display Units (CDU). The ECDU may also be used in conjunction with the Reference Select Panel (RSP) and/or Course Heading Panel (CHP).

Offering the ultimate in operator choice, the ECDU is available in 'touchscreen' or 'standard' versions.

The standard ECDU is used in conjunction with the Cursor Control Panel (CCP), a unique and intuitive 'Point & Click' system controller for system selections.

Designed for efficiency, the Touch ECDU provides fast, easy access of InSight user control and input. This model performs the same functions of the CCP controller for MFD map control and adds the capability for "pinch and stretch zoom."

Both the Touch ECDU and standard ECDU include ten programmable Line-Select Keys (LSK), fifteen fixed function keys and a dual-concentric rotary knob that are used to select, edit, and enter data. The same graphical icons that are used on the displays are presented on the ECDU soft keys for continuity with the 'Point & Click' cursor control.



EFIS Control Display Unit (ECDU)



Alphanumeric Keyboard (ANK)

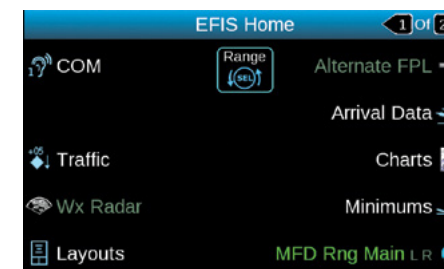


Cursor Control Panel (CCP)

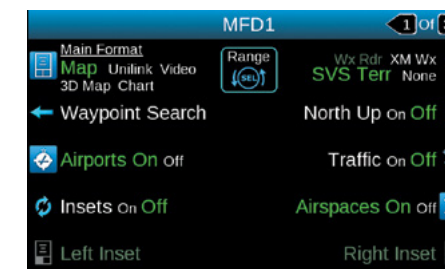
Cursor Control Panel

The remarkably compact Cursor Control Panel (CCP) drives the 'Point & Click' cursor for the map functions on the EFI-1040. In dual ECDU installations, two connected CCPs each provide outside control.

ECDU: Centralized Control



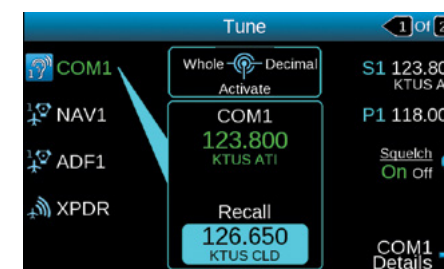
EFIS Home Page



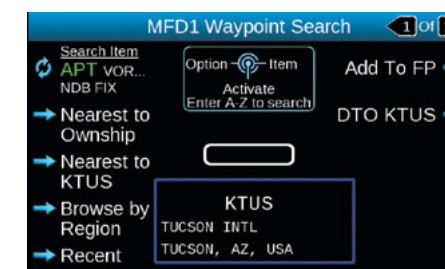
MFD Pilot-Selectable Settings Page



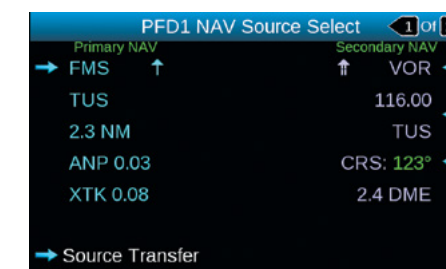
PFD Left Inset Page



Tune Page



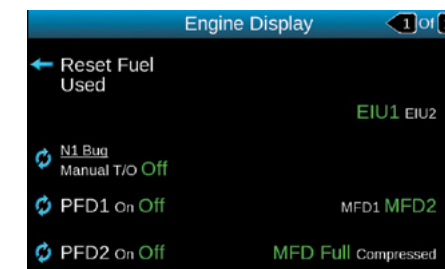
MFD Waypoint Search Page



PFD Nav Source Select Page



PFD Pilot-Selectable Settings Page



Engine Display Page



PFD BRG Source Select Page

External Configuration Editor

Ease of configuration is crucial. The web-based InSight External Configuration Editor (ECE) tool makes pre-design and system configuration a breeze, aiding Authorized Dealers/Integrators during installation and maintenance thereafter.

The ECE is a cloud-based configuration application, controlled via web browser, for the InSight system. The user is able to create and edit configurations for the entire InSight system and save for multiple aircraft, then copy and share configurations among other individuals in their organization. These configurations are viewable in various formats and are



output to a binary file that can be easily loaded into the InSight system via Ethernet connection. Logging onto the ECE is straightforward and made possible through UniNet, Universal Avionics Customer Portal.

Databases

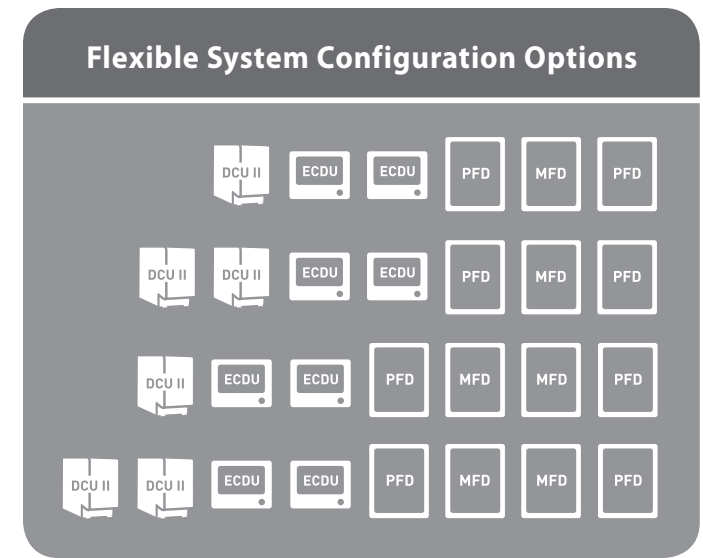
InSight includes a range of required and optional databases to meet your aircraft needs and flight requirements. Databases include: Terrain, Obstacle, Navigation Reference, Airport Mapping, and Electronic Terminal Charts (eCharts). Databases are downloaded using the Universal Avionics custom-designed Data Download Tool (DDT), a Microsoft® Windows® based PC tool. InSight databases are uploaded into the system via Secure Digital (SD) memory card through the ANK, which incorporates an SD card slot.

Advanced Hardware

A platform for next generation capabilities, InSight system components offer the latest in advanced hardware. With lightning-fast Ethernet busses, powerful internal processors, and LED back-lit displays, InSight secures the useful life of your aircraft avionics well into the future. With advanced functionality over legacy avionics, InSight provides excellent flexibility for future growth.

The standard system architecture consists of a complement of 10.4" diagonal EFI-1040 Displays, ECDU and ANK for input and control, and a Data Concentrator Unit (DCU) II for signal processing. The flight deck is complete when integrated with the FMS for navigation, Solid-State Data Transfer Unit (SSDTU) for data loading, and UniLink UL-800/801 CMU for advanced data link capabilities.

Using a high-speed Universal Network Bus, InSight requires less wiring and fewer terminations for display-to-display communication and display control. This provides more flexibility and greater redundancy, simpler hardware configurations, and weight and power savings. With a host of embedded functionality, InSight is designed to lower overall installation cost and ongoing maintenance, providing a best value solution for retrofit and forward-fit aircraft alike.



EFI-1040 Display

The centerpiece of the InSight system is the 10.4" diagonal high-resolution LCD, LED-backlit EFI-1040 Display (PFD and MFD).



EFIS Control Display Unit

The ECDU combines a multitude of flight deck controls, including the flight displays, FMS, radios, weather, traffic, and terrain into a centralized control device. It is available in touchscreen and traditional versions.



Alphanumeric Keyboard

The Alphanumeric Keyboard (ANK) provides tactile user input to the InSight system and integrated SBAS-FMS. It also provides a means for uploading InSight databases into the system via the SD card slot on the front of the bezel. Function keys such as NAV, FUEL, and DATA on the keyboard streamline control of FMS functions while alphanumeric keys can be used to edit and enter information as an alternative to the ECDU.

Data Concentrator Unit II

Housed in a 3 MCU box, the Data Concentrator Unit (DCU) II provides various avionics discrete, analog, and serial data interface inputs, passing that data through to other devices in the aircraft. It is part of the overall InSight system backbone, allowing for integration into aircraft with various analog and discrete native interfaces.

Cursor Control Panel

The EFI Display supports the Universal Avionics Cursor Control Panel (CCP) which drives the 'Point & Click' cursor for the map functions on the EFI-1040.

Reference Select Panel

The Reference Select Panel (RSP) provides the flight crew with dedicated knobs for altitude select, heading select, and the ability to set speed and altitude reference values.

Specifications

Hardware

EFI-1040

Bezel Size: 9.86 in. H x 7.86 in. W
 Depth: 8.70 in.*
 Image Size: 8.29 in. H x 6.21 in. W
 Weight: 12.13 lbs.
 Faceplate Color: Gray or Black

ECDU/Touch ECDU

Bezel Size: 3.93 in. H x 5.75 in. W
 Depth: 6.60 in.*
 Image Size: 2.55 in. H x 4.25 in. W
 Weight: 5.75 lbs.
 Faceplate Color: Gray or Black

ANK

Bezel Size: 2.06 in. H x 5.75 in. W
 Depth: 5.16 in.*
 Weight: 1.5 lbs.
 Faceplate Color: Gray or Black

DCU II

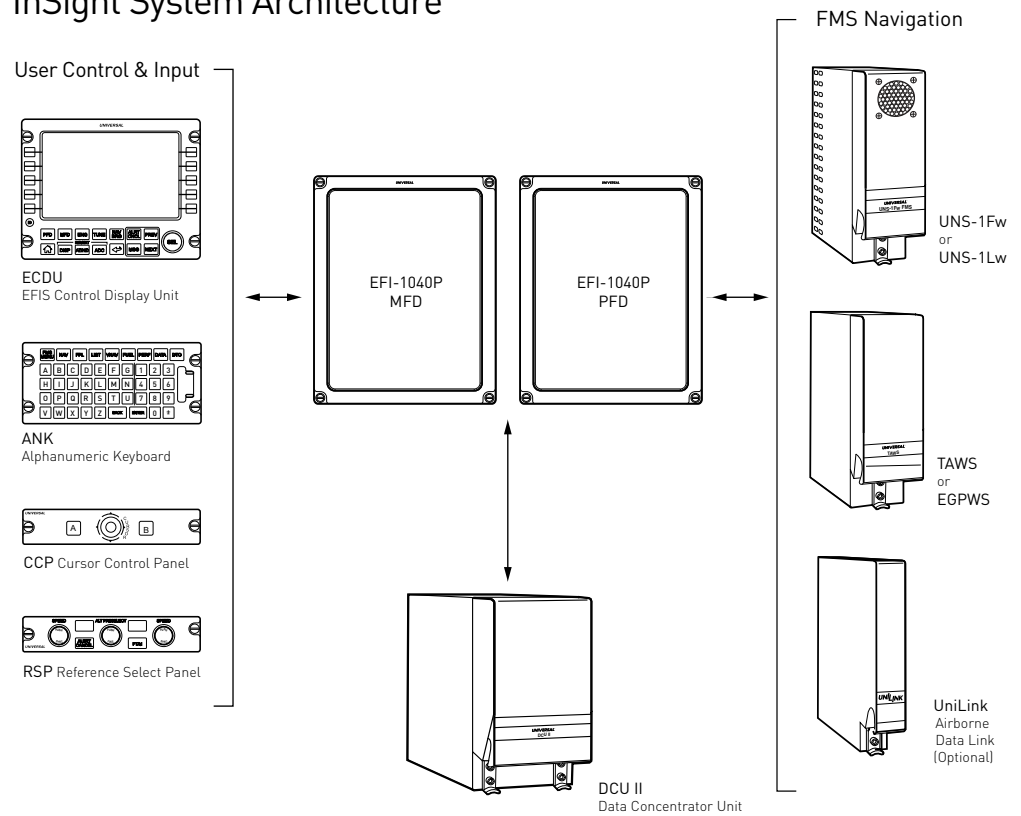
Size: 7.76 in. H x 3.56 in. W (3 MCU LRU)
 Depth: 15.23 in.
 Weight: 13.04 lbs.

* Back of bezel to rear of connector

Supported Interfaces

- Analog and Digital Air Data, Attitude, and Heading Sources
- Digital Engine Data
- Weather Radar Display (Profile Views when provided)
- Electro-Optical/Infrared Imaging Systems (via NTSC/RS-170 composite video)
- Analog Video/Mission Computers (via VGA/SGA/XGA)
- Embedded Synthetic Vision with Multiple Simultaneous Views
- Lightning Sensor system (via ARINC 429)
- Analog and Digital Flight Director/Autopilot
- Radio Altitude Systems
- Specific versions of the ASCB bus system
- Radio Tuning and Control via ARINC 429, CSDB, and Honeywell RSB

InSight System Architecture



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