

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

InSight™

Integrated Flight Deck

Advanced Airport Maps, Runways and Special Use Airspace
Embedded SVS, Charts, Radio Tuning
and Broadcast Weather*



InSight [\ˈin-,sīt\] n. The capacity to gain understanding. Intuition, discernment, perce

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.

Culminating over five years of development, we've combined our passion and vision into the future of avionics with our customers' desires and high expectations for quality, to present the *InSight Integrated Flight Deck*.

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, radio control and broadcast weather. With fewer required external Line Replaceable Units (LRU) for essential functions than traditional avionics systems, the InSight Integrated Flight Deck means less avionics weight and wiring for your aircraft.

As an integrated system, 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. The InSight Integrated Flight Deck translates into lower operating and maintenance costs for your flight operations while providing enhanced safety, situational awareness and functionality for pilots.

Next Gen Synthetic Vision

The embedded, next generation Synthetic Vision System (SVS) provides cutting-edge high-resolution graphics, including runway depiction, terrain, ice and water features, advanced airport maps (ramp areas, terminal buildings, taxiways, hold lines and more), special use airspace and urban area outlines. As the leading developer of SVS, 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.

Broadcast Weather

The latest graphical weather information, essential for planning while enroute and increasing flight safety with important strategic weather planning data, is presented by the InSight system. Greatly demanded by operators, this powerful embedded feature is easy to use and further enhances situational awareness. Control and display of NexRad RADAR, Meteorological Aviation Reports (METAR) / Terminal Area Forecasts (TAF), Airmen's Meteorological Information (AIRMET) / Significant Meteorological Information (SIGMET), Temporary Flight Restrictions (TFR), lighting and winds aloft is supported by InSight when integrated with a broadcast weather receiver.

Advanced Radio Control

The embedded radio tuning and control functionality provides the pilot with a simple, easy-to-use interface with no separate radio controls. We've taken our time-proven and pilot-friendly Radio Control Unit (RCU) product and planted it within the InSight system software. Communication and navigation radios can be easily tuned from the Electronic Control Display Unit (ECDU) pages or from the moving map display with straightforward cursor clicks. User control is also provided for transponder, Traffic Collision Avoidance System (TCAS) and Automatic Direction Finder (ADF).

Embedded Electronic Charts

Electronic charts are another embedded function in the InSight Integrated Flight Deck, providing critical situational awareness information for pilots and meeting Class 3 Electronic Flight Bag (EFB) requirements. 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.

an accurate and deep intuitive
 option, awareness, comprehension.



Cessna Citation VII with InSight Integrated Flight Deck

Retrofit and Forward-Fit Flight Deck

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

The first installation of InSight is on Universal Avionics' Cessna Citation VII with the Supplemental Type Certificate (STC) expected in the third quarter of 2015. MD Helicopters, Inc., is the launch OEM customer with the InSight Integrated Flight Deck on the Next Generation MD Explorer® helicopter.

Preparing You for NextGen and SESAR

Integrated with Universal Avionics SBAS-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.

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

Primary Flight Display

The Primary Flight Display (PFD) is an advanced EFIS display, presenting flight critical data such as flight guidance, air data, vertical and lateral deviation indicators, navigation data, Angle of Attack (AOA), radio altimeter, attitude, heading, flight director, Horizontal Situation Indicator, airspeed, altitude, vertical speed and turn coordination instruments into one advanced flat panel PFD. Situational awareness is expanded by incorporating engine information, advanced mapping, weather, terrain and 3D SVS display.

The SVS features two views - map and 3D - and includes obstacles and Terrain Awareness and Warning System (TAWS) terrain mapping for a realistic perspective, as if looking out the flight deck window.

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

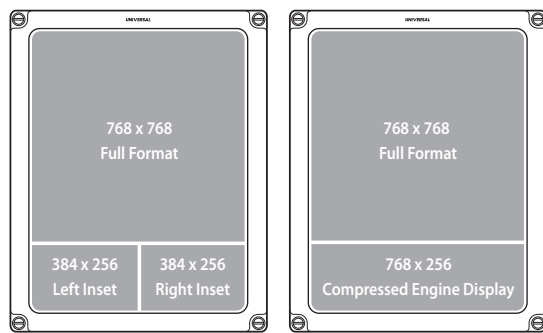
The Next Generation SVS features enhanced mapping capability, spectacular terrain shading and a multitude of screen layout options to offer a new level of situational awareness.



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, 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
- Broadcast Weather On/Off
- SVS Terrain On/Off



PFD with Arc HSI, Left Inset with Flight Plan Data, Right Inset with SVS



PFD with Arc HSI, Left Inset with SVS and Traffic, Right Inset with Flight Plan Data



PFD with Arc HSI, Left Inset with Flight Plan Data, Right Inset with Map and Weather

Multi-Function Display

The Multi-Function Display (MFD) presents map data such as flight plan, Navigational Aids (NAVAID), airports, airways, controlled airspace, charts, terrain, traffic, weather and lightning depiction. Engine data, video data and waypoint search are also presented along with a status bar that provides a “dashboard” that the pilot monitors for phase of flight and performance.

The MFD may also display SVS terrain maps, enhanced multi-layered moving maps with own-ship position and an SVS 3D map for increased situational awareness. The MFD may be used to display satellite weather from a connected source, either uplink or satellite broadcast. A connected satellite weather system also supplies weather information such as Aviation Routine Weather Reports (METARs), Airmen’s Meteorological Information (AIRMETs),

Significant Meteorological Information (SIGMETs) and Temporary Flight Restrictions (TFRs) that are cursor selectable on the map.

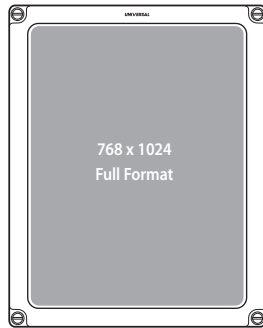
The Universal Avionics Terrain Awareness and Warning System (TAWS) alerts and UniLink UL-800/801 CMU imagery such as wind, weather and ground communication information may also be displayed on the MFD.



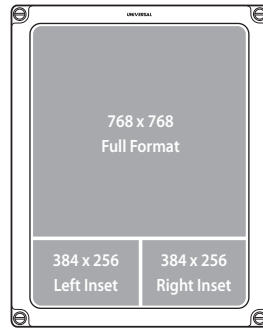
Map Full Format with SVS and Airport Selection

Pilot-Selectable Screen Layout

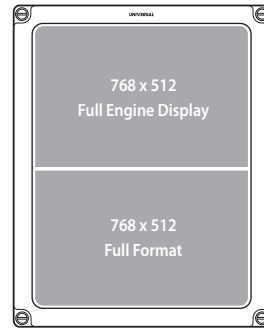
The MFD features multiple pilot-selectable formats with a configurable power-on default option.



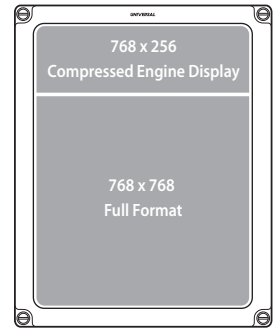
MFD Full Format Display



MFD with Insets



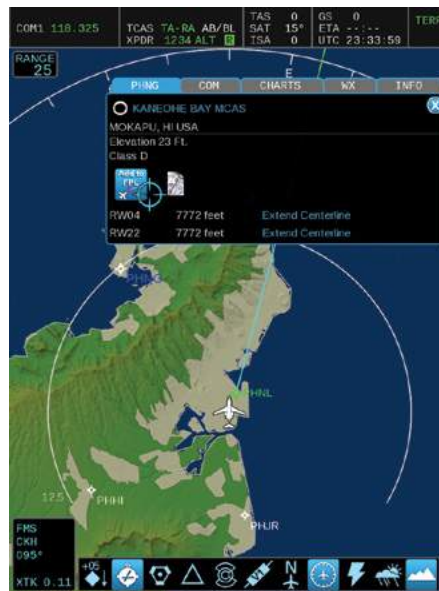
MFD with Full Engine Display



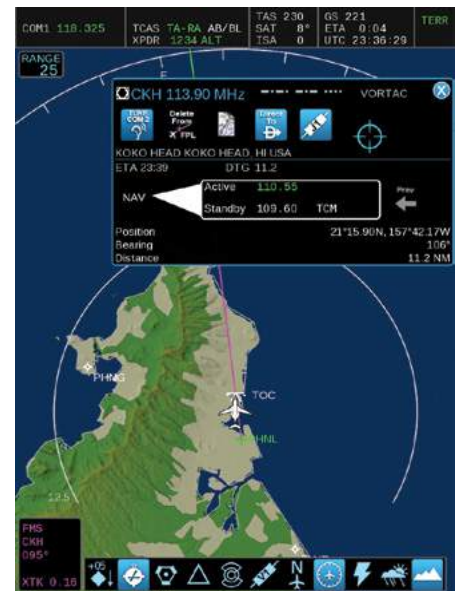
MFD with Compressed Engine Display



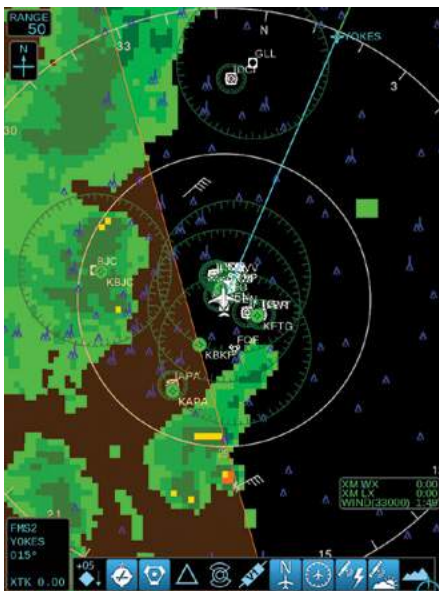
MFD Full Format with Airport Chart



MFD Full Format with Airport Menu



MFD Full Format with Navaid Menu



MFD Full Format with Broadcast Weather



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 ECDU, a 5.0" flat panel display and Cursor Control Panel (CCP), a unique and intuitive 'Point & Click' system controller. 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 also provides pilot interface and control for the Universal Avionics SBAS-FMS, eliminating the need for separate FMS Control Display Units (CDU). The ECDU may also be connected to the Reference Select Panel (RSP) and / or Course Heading Panel (CHP).

The ECDU includes 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.



Electronic 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. When a single CCP is connected, it may be used to control the cursor on all EFI Displays. 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

Installation Design and Configuration

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

The IDC is a cloud-based configuration application, controlled by a web browser, for the InSight system. The user is able to create and edit configurations for the entire InSight system at once, save for multiple aircraft, 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 the Ethernet connection.

Logging onto the IDC 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, FMS Navigation, 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, or through Jeppesen Sanderson, Inc. 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 Ethernet 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 and field-loadable software updates, InSight is designed to lower overall installation cost and ongoing maintenance, providing a best value solution for retrofit and forward-fit aircraft alike.

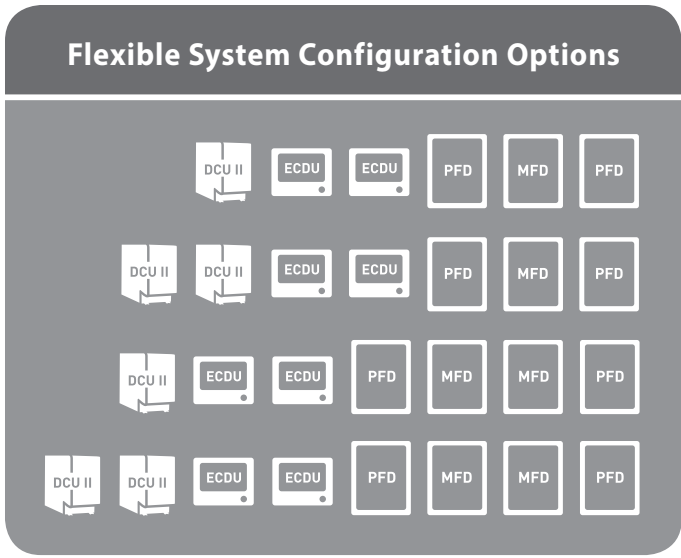


EFI-1040 Display

The centerpiece of the InSight system is the 10.4" diagonal high-resolution LCD, LED-backlit EFI-1040 Display (PFD and MFD). The EFI Display is designed to be compatible with multiple LCD sizes and orientations while utilizing the same rear chassis and internal hardware.

Electronic 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.



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 rotary (SEL) knob.

Data Concentrator Unit II

The Data Concentrator Unit (DCU) II is an enhanced variant of the Universal Avionics DCU. Housed in a 3 MCU box, it provides various avionics discrete, analog and serial data interface inputs, passing that data through to other controlling devices in the aircraft. It is a 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) to drive 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: 12.0 lbs.
 Faceplate Color: Gray or Black

ECDU

Bezel Size: 3.93 in. H x 3.55 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 5.55 in. W
 Depth: 5.16 in.*
 Weight: 1.5 lbs.
 Faceplate Color: Gray or Black

DCU II

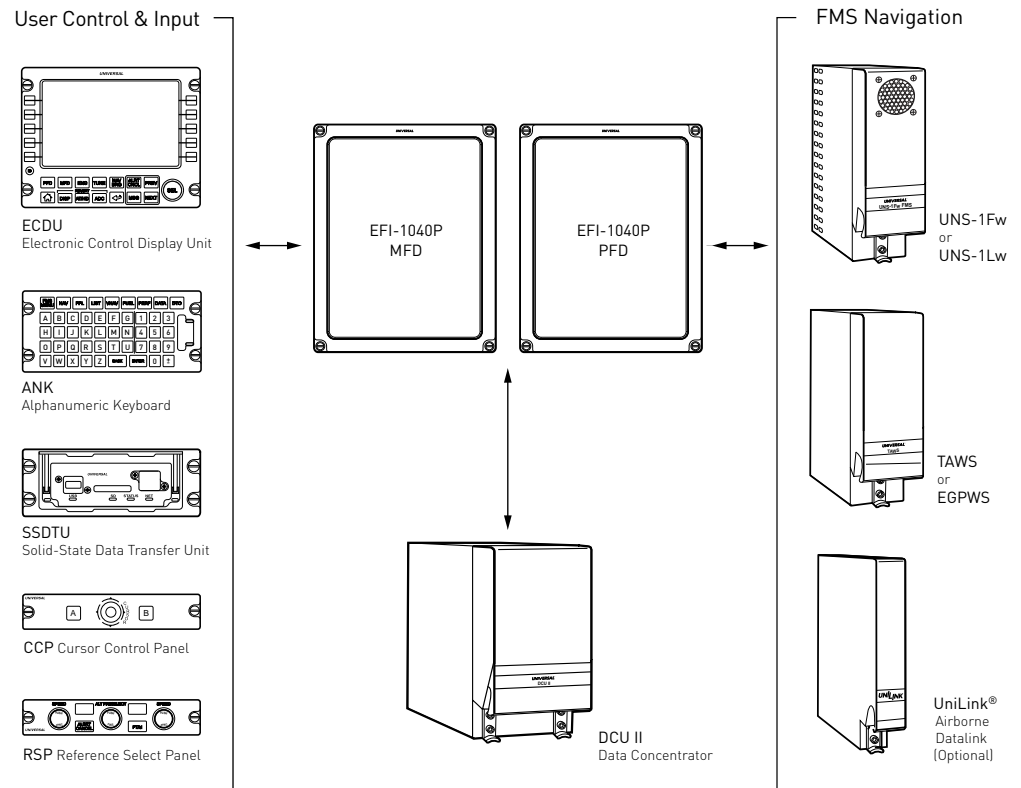
Size: 3 MCU LRU
 Weight: 13.0 lbs.

* Back of bezel to rear of connector

Supported Interfaces

- Analog and Digital Heading Sources
- 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)
- Enhanced Vision System (EVS) (via RS-170 video)
- 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



UNIVERSAL AVIONICS SYSTEMS CORPORATION

Specifications and graphic displays contained herein are subject to change without notice. Features and capabilities may be limited due to installation or interfacing equipment.

*Optional external broadcast weather receiver required for broadcast weather.

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