

High-Resolution Display of SVS  
Versatile Retrofit or Forward-Fit Application

# EFI-890H Advanced Flight Display

Tailored to the tactical missions of helicopter operators

Collective Cue Display  
Night Vision Goggle Compatible  
Designed for IFR Flight

**UNIVERSAL™ AVIONICS**  
an **Elbit Systems** Company

Integrated flat panel displays offer significant improvement in situational awareness while reducing pilot workload, both of which are essential to supporting the unique tactical requirements of rotary wing aircraft. The high-vibration environment in which rotorcraft operate presents the need for flight deck displays to be rugged and high-utility, yet provide intuitive visual cues for optimal situational awareness.

Universal Avionics' EFI-890H Advanced Flight Display has been qualified to the rigorous vibration profile testing of RTCA / DO-160F Environmental standards for maximum performance during mission operations.

## The Perfect Fit™ for Helicopter Flight Decks

The EFI-890H offers flexibility for installation as a stand-alone Primary Flight Display (PFD) or Multi-Function Display (MFD), as well as a fully integrated PFD/Navigation Display (ND) cockpit system. The unit is optimally sized, featuring a light-weight, compact housing while offering a large, 8.9-inch diagonal active-matrix LCD display.

This high-resolution, high-contrast display provides superior readability throughout a full range of ambient lighting conditions including bright sunlight and dim nighttime environments. Extremely wide horizontal and vertical viewing angles are also accommodated.

For missions flown under night vision goggles, the EFI-890H includes a model option with lighting filters uniquely adapted for nighttime tactical missions.

The EFI-890H features a unique LED backlight system with reduced power requirements that produces lower unit operating temperature for superior reliability. This LED backlight system produces brighter, clearer displays with improved color uniformity and higher performance in low luminance operations.

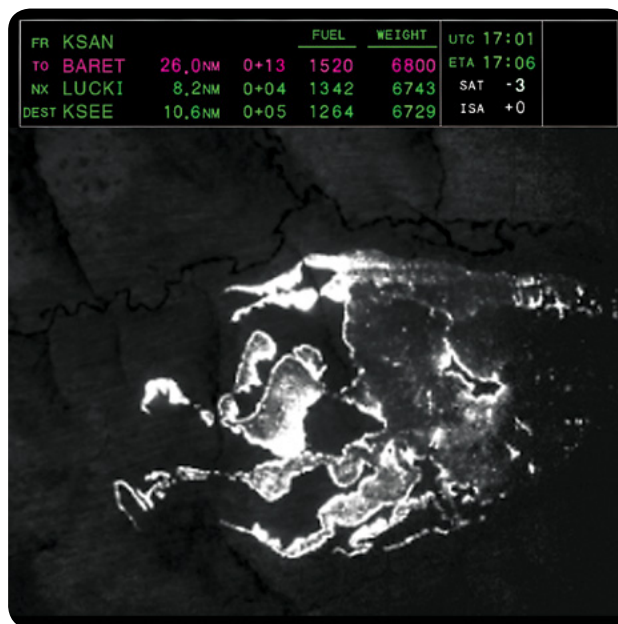


Compatible with electro-optical and infrared (EO/IR) imaging systems

## Mission Performance for IFR Conditions

The EFI-890H supports an array of information and display capabilities for helicopter operators. To complement the display of primary flight data, a collective cue flight guidance display provides for optimal collective control when in "4D" (4 axis) coupled autopilot mode, to aid in maintaining the desired flight path. Visual guidance on the PFD is presented in two configurable formats to meet operator preference, the "dual cue" cross pointer or "single cue" V-bar overlay.

The EFI-890H offers an advanced, large-format instrument suite that interfaces with many of your existing aircraft / flight deck systems. It supports the display of Enhanced Vision Systems (EVS), infrared and color cameras as well as a host of other interfaces.



Nav Display of imagery from infrared and thermal cameras.  
Above: Infrared aerial image of forest fire.

## Multi-Function Display

The MFD-890H Multi-Function Display is designed for rotorcraft operators who want the benefits of glass-cockpit displays at a fraction of the cost and complexity associated with a full avionics suite replacement. It is fully compatible with the EFI-890H system, allowing

the unit you install today to become part of a complete cockpit retrofit at a later time. This platform provides integral input/output ports and symbol generators in every display, and the use of display controls via discrete and common electronics.

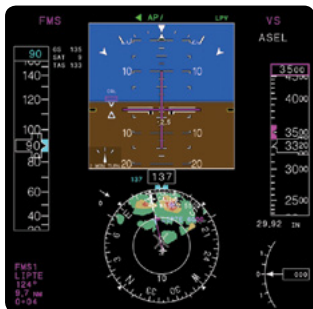


## Primary Flight Display with Vision-1™ Egocentric View

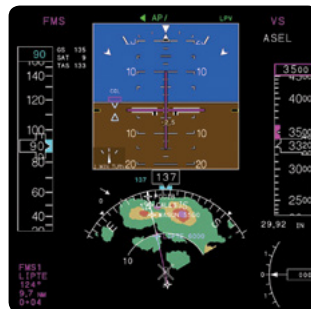
Advanced display technology and innovative presentation symbology combine to provide you with all the information you need, extensive, yet uncluttered.

The PFD displays flight guidance, airspeed, vertical speed, altitude and heading, along with every bug, marker and other detail desired over a full-screen ADI display. Multiple optional display formats are pilot-selectable, including Vision-1 Synthetic Vision System.

In composite mode, the PFD adds Map or HSI displays in 360° and 120° arc formats\* with weather radar display when interfaced to a compatible radar system.



Primary Flight Display with 360° Map View and Radar



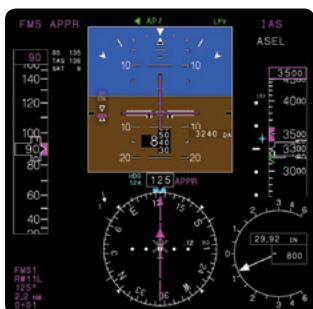
Primary Flight Display with 120° Map View and Radar



Full Primary Flight Display with Cross Pointer Overlay and Low Altitude Mode



Collective Cue Flight Guidance Display



Composite Primary Flight Display with 360° HSI and Low Altitude Mode



Composite Primary Flight Display with 120° HSI



Hover Steering Display



## Navigation Display with Mission Computer (EuroNav 7)

The Navigation Display (ND) presents Map and HSI views, as well as a host of interfacing components including the Vision-1 Synthetic Vision System and mission computers such as the EuroAvionics EuroNav 7.

As shown below, a navigation progress data block in the upper portion of the screen is provided for most ND modes. This progress bar provides information pertinent to the intended path of flight such as time and distance to the "TO" waypoint, next waypoint and destination along with UTC, ETA, SAT, and ISA variation.



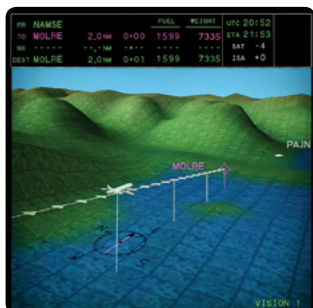
Nav Display with 360° Map View and Radar



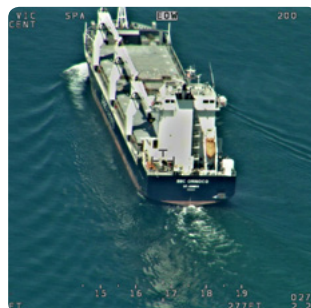
Nav Display with 120° Map View and Radar



Transition to Hover Map



Nav Display with Vision-1 Exocentric View



Nav Display with Video Interface  
Photo Credit: L-3 WESCAM - MX Series

# Control Panels

An array of Dzus-mounted control panels support 1-, 2-, 3-, 4- and 5-display configurations with dedicated / shared control. Model options for compatibility with night vision goggles are also available.



Vertical PFD Combined Display Control Panel



Course/Heading Control Panel



Reference Select Control Panel



PFD Combined Display Control Panel



Display and Radar Control Panel



Display Control Panel

**CHP** Course / Heading Control Panel is available in single or dual control format. It controls setting of the heading reference bug and short range NAV source course, with a "push to sync" function available for both.

**RSP** Reference Select Control Panel supports setting of Speed and Altitude Reference Bugs on the PFD, Altitude Preselect and airspeed / altitude units of measure. Available in either a single or dual control format.

**PFDCP** PFD Combined Display Control Panel provides for NAV / BRG source select, baro altitude / minimums select, RA / DA toggle, ADC revert, attitude / heading revert, display revert, and source transfer for the on-side PFD and ND/MFD. Also provides for selection of terrain, weather, and traffic for the on-side PFD. This is not a weather radar control panel. This control panel is also available in a vertical format.

**RCP** Display and Radar Control Panel provides for weather radar range, antenna tilt, and mode control for compatible weather radar systems. It also provides for traffic, terrain, and external video selection for the ND / MFD.

**DCP** Display Control Panel provides for traffic, terrain, weather and external video selection for the ND / MFD.

## Nav Display



ND supports HSI (360°/120°), Map (360°/120°), Vision-1, traffic, weather radar, lightning, video from onboard cameras and enhanced map presentations.

# Flexible Integration Capabilities

- More than 17 types of Attitude/Heading Sensors
- Over 14 types of Air Data Sensors
- Over 6 known Radio Altimeters
- Over 13 different Weather Radar Systems
- More than 10 different Flight Director/Autopilot systems (including ASCB Version A)
- More than 5 Traffic Collision and Avoidance Systems (TCAS)
- Supports Numerous Analog and Digital Radios

# Specifications

## Hardware

Bezel Size: 7.84 in. H x 7.42 in. W

Depth: 9.79 in. (back of bezel to rear of connector)

Image Size: 6.3 in. H x 6.3 in. W (8.9 in. diagonal)

Weight: 10.4 lbs.

Mounting: 4-point corner bolt-mounted from front

Faceplate Color: Gray or Black

Display: Active Matrix Color LCD with LED backlight system

Viewing Angle: +60 / -60 deg. Horizontal, +45 / -10 deg. Vertical

Resolution: 780 x 780, 124.5 color groups per inch (CGPI)

Night Vision: Models available

## Inputs/Outputs

- 6 ARINC 429 input ports (4 for external use)
- 2 ARINC 429 output ports
- 2 ARINC 708 input ports
- 5 CSDB input ports
- 2 CSDB output ports
- 3 input / 1 output Manchester bus ports
- 4 ARINC 407 synchro inputs with 2 ref inputs
- AC analog outputs to support Course Error and Hdg Error outputs to an analog autopilot
- 2 Differential DC and 4 single end DC outputs
- 15 DC analog inputs
- 14 +28V/Open discrete inputs
- 2 VGA input ports
- Discrete/Opto-encoder controller inputs
- 3 Monochrome RS-170/Color NTSC composite video

## Cooling

Integral fans; cold wall construction

## Configuration Module

EEPROM harness module for installation configuration

## Power

Primary Input: 28 VDC standard

Lighting: 5V or 28V

Consumption: 82 Watts

## FAA TSO/ETSO

C113 Airborne Multipurpose Electronic Displays

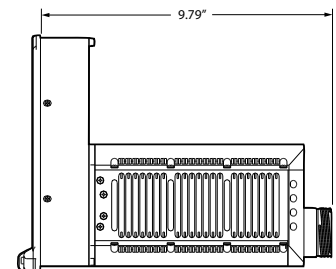
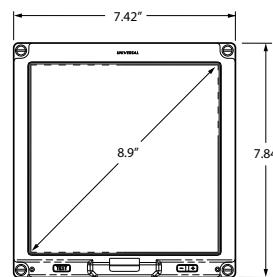
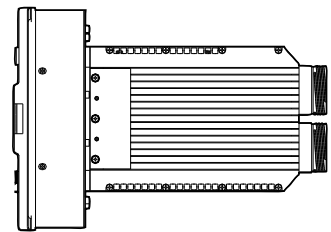
## RTCA Documents

Hardware: DO-160F

Software: DO-178B, Level A

# Supported Interfaces

- Flight Plan Data/Multi-Mission Management System
- Enhanced Ground Proximity Warning System (EGPWS)
- Vision-1 Synthetic Vision System
- Weather Radar Display
- Traffic Collision and Avoidance System (TCAS)/(T<sup>2</sup>CAS™)
- Enhanced Vision System (EVS)
- Mission Computers
- Moving Maps
- Displays Electro-Optical / Infrared Imaging Systems
- Analog Video



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Specifications and graphic displays contained herein are subject to change without notice.

\* Helicopter depiction on PFD and Nav Displays available in SCN 1017.1.7

Features and capabilities may be limited due to installation or interfacing equipment.