Innovative
Solutions & Support

C-130 Flight Deck Upgrade Solutions

Affordable C-130 Cockpit Upgrade Solutions

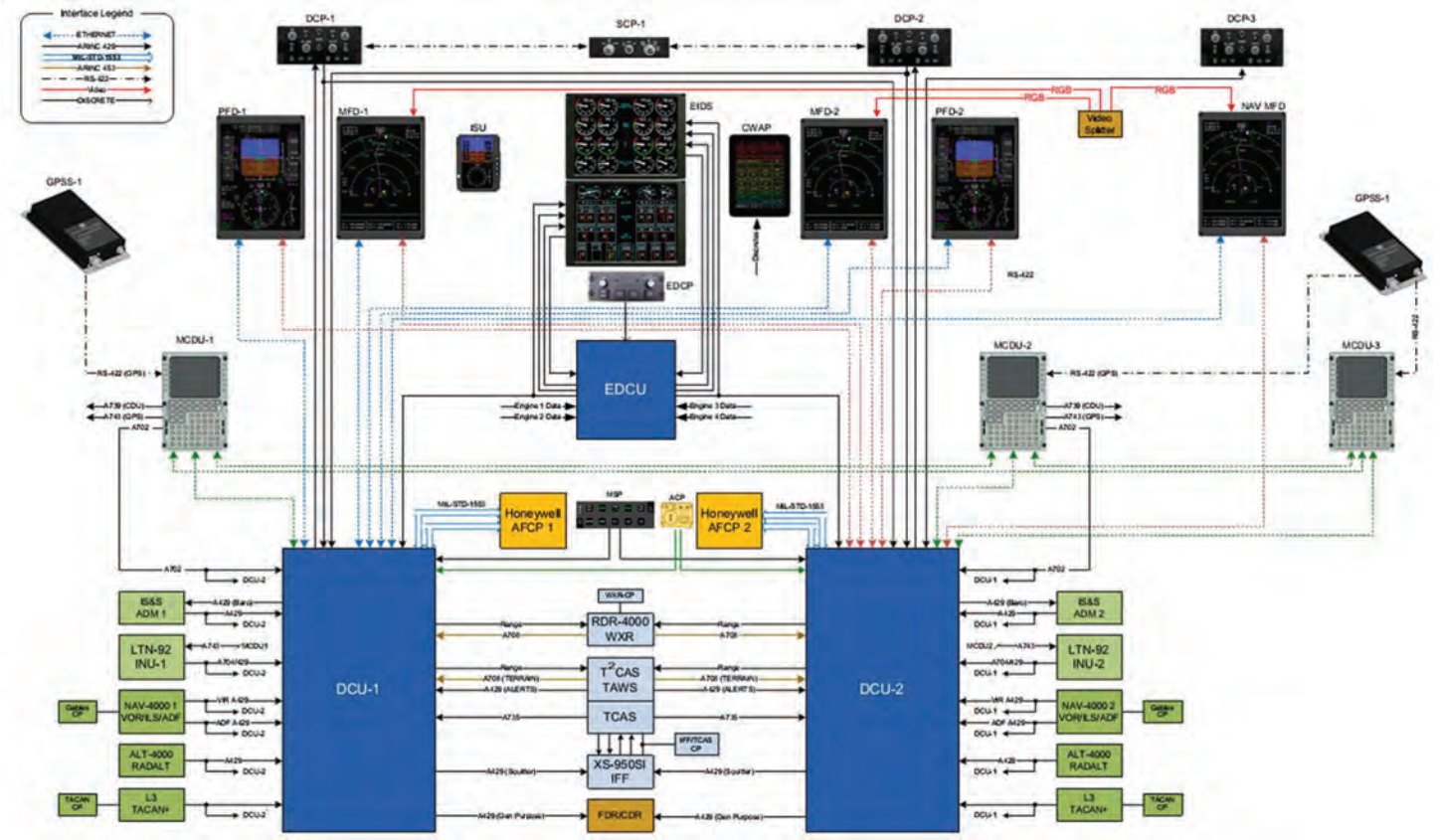
Integrated Avionics Suite

Innovative Solutions & Support has designed its CNS/ATM and NVIS-compliant Integrated Avionics Suite (IAS) to enhance the reliability, maintainability, and capability of the C-130. The IAS includes Primary Flight and Navigation Displays, Engine Instrument Displays, a Flight Management System, an Integrated Standby Unit (ISU) and a Caution, Warning and Advisory Panel (CWAP).

The IS&S Flat Panel Display System (FPDS) is an easily installed, modular, and customizable cockpit upgrade. The Primary Flight and Navigation Displays replace the existing ADI and HSI, altimeter, airspeed, and vertical speed indicators, while the Engine Instrument Display System (EIDS) is specifically designed as a low-cost upgrade of the C-130 engine instrument cluster.

Compatible with existing cockpit configurations, this system upgrade presents all primary flight, navigation, engine, hydraulic indication, flap, and trim position information on six (6) LED-backlit, AMLCD smart displays (Retrofitting the Navigator's Station will add a seventh display). LRUs are reduced from 43 to 6 and the number of components is reduced from 73 to 13.

Integrated Cockpit Display System Architecture



Current Integrated Features:

- Digital Moving Maps
- Electronic Charts (Enroute) with own-ship overlay
- Electronic Checklist
- Electronic Terminal Display
- Link 16
- Tactical Maps
- XM Weather

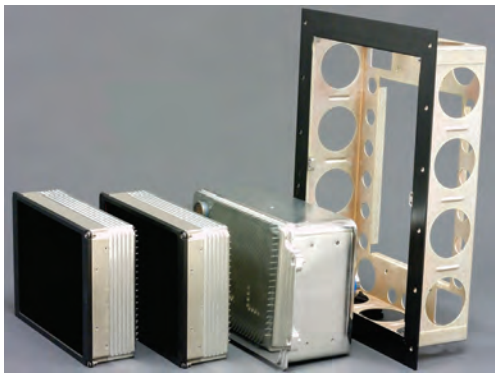
Benefits:

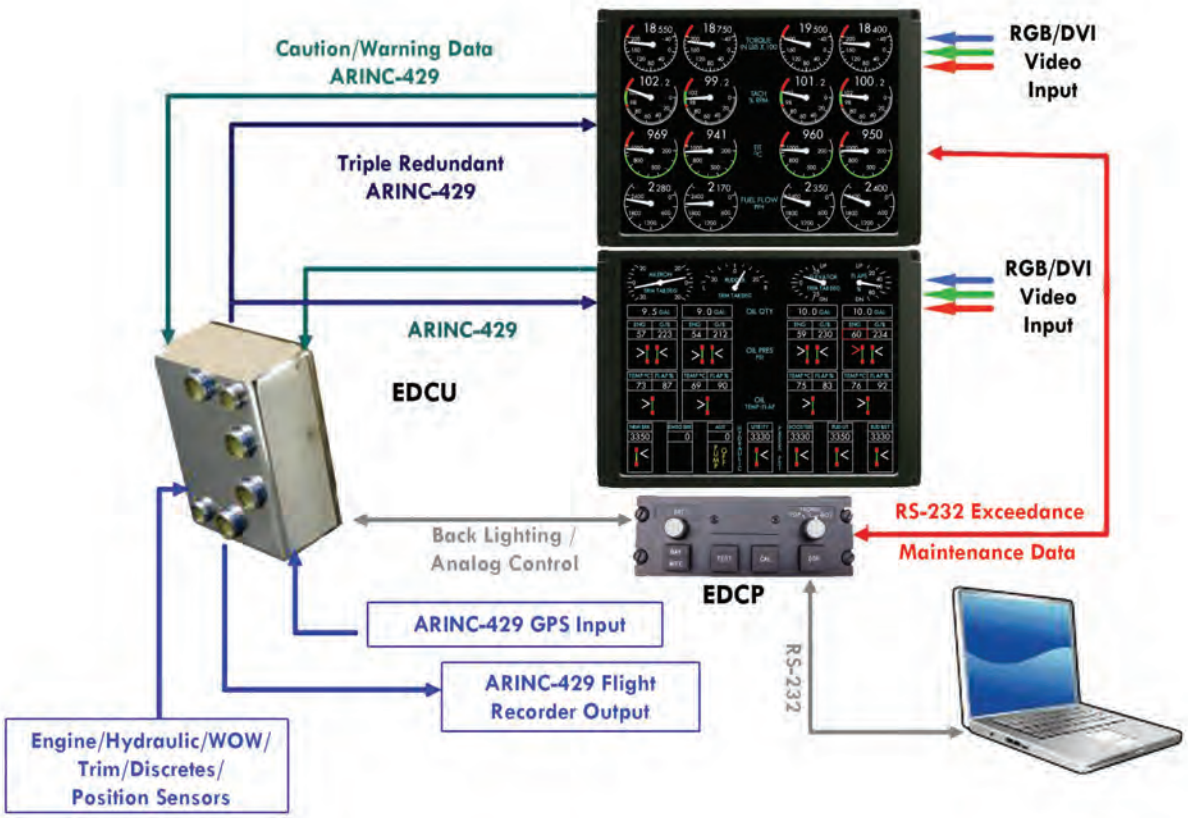
- FAA Part 25 TSO Approved
- High Resolution XGA display with integral high performance symbol (graphics) generator
- Improved dispatch reliability
- Component count reduced by 75%
- Significant cost, weight and heat savings
- Adaptable to future requirements
- Meets MIL-L-85762A requirements
- Minimal changes to existing aircraft wiring
- Convection cooled - No forced air cooling required
- Low power LED backlighting
- Built in navigator station capability

Affordable C-130 Cockpit Upgrade Solutions

Engine Instrument Display Systems (EIDS)

In continuous service since 2004, the IS&S Engine Instrument Display System (EIDS) is a low-cost, reliable, and FAA TSO'ed/Certified replacement for the C-130 engine instrument cluster. Seamlessly installed into any existing C-130 cockpit configuration, the EIDS replaces the forty-three (43) individual electromechanical gauges in the C-130 engine cluster and digitally depicts all engine/propeller-related parameters and surface position indicators on two (2) high-resolution XGA AMLCDs. The EIDS readily provides an assured growth path to a complete C-130 Flight Deck upgrade.





Benefits:

- Component count reduced by 39 (90%)
- Significant cost, weight, power and heat savings
- Enhanced readability
- RGB/DVI video inputs
- ARINC 429 output for digital recording of engine parameters

IS&S C-130 products have been selected for the following C-130 upgrade programs:

- Japan Navy (JMDF)
- Pakistan Air Force
- Royal Canadian Air Force
- Royal New Zealand Air Force
- Royal Netherlands Air Force
- UAE
- United States Coast Guard
- United States Marine Corps
- United States Navy

The IS&S Advantage

In addition to affordability, the IS&S solution for the C-130 aircraft provides the following advantages:

Enhanced Readability

- High resolution multi-color LCD flat panel display
- Exceptional cross cockpit viewing angle
- Greatly enhanced sunlight viewability
- Broad brightness control range
- LED backlighting

LRU Reduction

- LRUs reduced from 43 to 6
- 73 components reduced to 13

Improved Dispatch Reliability

- Digital electronics for improved accuracy and dependability
- Dual-redundancy with reversionary display capability
- Enhanced combat survivability through triple redundant data processing channels
- Reduced down time and operation costs

Adaptable to Future Requirements

- User-customizable, flexible graphic symbology
- On-aircraft software updates
- Supports CNS/ATM and GATM requirements

Weight and Heat Savings

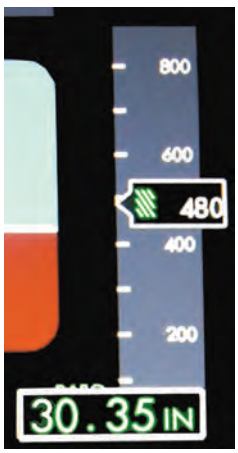
- Light weight design
- Reduced power consumption
- Forced air cooling not required

Minimal Retraining

- Familiar format reduces conversion training

Options

- Fuel quantity gauging
- Troubleshooting analysis
- Health monitoring and exceedance recording for engine maintenance programs
- Support for live-motion video and FLIR feeds
- Mission software integration
- Tactical display formats



Integrated Zoom feature enhances situational awareness

Integrated Avionics System Components

Display Unit (DU):

The self-contained Display Unit features a built-in symbol generator, multiple software-configurable processing units, and robust connectivity options. The low-profile 6” x 8” High Resolution XGA AMLCDs offer exceptional cross-cockpit viewing angles and readability.

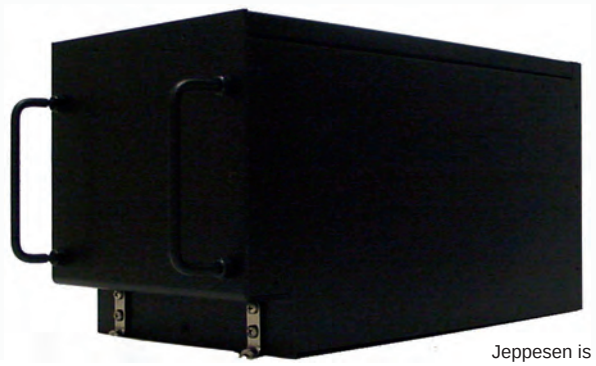
Control Panels

The Control Panels allow the pilot/copilot to interface with and manipulate the display environment. Control panels are Dzus rail width and vary in height according to assigned functionality. The complete system may include one or more of the following:

- Display Control Panels
- Supplementary Control Panels
- Engine Display Control Panel

Data Concentrator Unit (DCU):

The DCUs gather aircraft data via the following inputs: ARINC 429, ARINC 708, Synchro, Analog, RS422, Discrete and Ethernet 100 Base T. Outputs include analog and ARINC 429, RS422, Discrete, and Ethernet 100 Base-T. Each DCU is identical and provides independent channels which support a redundant set of data to each DU for display processing. The DCU replicates the existing instrument outputs, and interfaces with typical aircraft components.



Engine Data Concentrator Unit (EDCU):

The EDCU receives the necessary data from existing aircraft components and digitally replicates the look and feel of the analog gauges.

Caution/Warning/Advisory Panel (CWAP):

The CWAP is a stand alone dual redundant LED based caution/warning/advisory panel which provides improved situational awareness to the pilot, copilot and the flight engineer. The CWAP includes the capability to display a total of 60 caution/warning/advisory lights in one location. The CWAP is NVIS compliant and can be configured for each program requirement.

Electronic Chart/Map Server Unit (ECMSU):

The ECMSU houses dual servers in a 4 MCU chassis. The first server is dedicated to hosting Jeppesen electronic charts, while the second is allocated to host Harris Digital Moving Map. Electronic chart/map functions are controlled via ruggedized hand controllers or display control panels. Chart/map information is displayed with own-ship overlay on either the Navigation or EIDS display units. Optional user-maintained electronic checklists are also managed through the ECMSU.

Integrated Avionics System Components

Flight Management System (FMS):

Designed to deliver enhanced capabilities the FMS provides a reliable platform for advanced navigation with mission specific profiles, performance calculations, communications, and situational awareness essential for mission success. The FMS provides for full lateral and vertical navigation capabilities that include coupled LPV and APV approaches and includes up to eight channels of ARINC 739 ports for control of communications, navigation and defensive aids that are essential to meet CNS/ATM requirements.

Integrated Standby Unit (ISU):

The ISU calculates, processes and displays altitude, attitude, airspeed, slip/skid, and navigation display information in a logical and concise single instrument display. The unit is designed to support additional enhancements for Radio Management and Alternate Navigation (ILS, VOR, DME, ADF, FMS, GPS) functionality.

An Innovative History With the C-130

IS&S has a proud history of providing Lockheed Martin with affordable and reliable C-130 Air Data Systems and Multi-functional Engine/Oil/Fuel gauges. For example, C-130H's delivered to the USAF in the mid-1990's featured the following IS&S systems:

Airspeed Indicator

Altimeter

Altitude Alerter

Digital Air Data Computer

Engine Gauges

Fuel Gauges

Air Data Module

Innovative Solutions & Support products have been installed on over 90 C-130 aircraft worldwide. Military aircrews in more than 20 nations routinely rely on our avionics to safely execute missions in all conditions. IS&S has leveraged over 25 years of aerospace ingenuity and created a flexible, innovative Flat Panel Display System that exceeds today's standards and ensures your preparedness for tomorrow's missions.

IS&S is the world's leading supplier of RVSM systems and integrator of Cockpit Information Systems (Cockpit/IP®) for the Commercial Air Transport, Military, and Business Aviation Markets. IS&S incorporates leading edge technologies into sophisticated, cost-effective solutions for the aerospace industry.

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