

C-130 Engine Instrument Display System (EIDS)



A Proven Solution for C-130 Aircraft Worldwide

Engine Instrument Display System (EIDS)

The Innovative Aerosystems Engine Instrument Display System (EIDS) is designed specifically as a low-cost, reliable, FAA/TSO Certified, replacement for the C-130 engine instrument cluster. This easily retrofitted replacement system is compatible with the existing C-130 cockpit configuration. The EIDS displays the existing engine parameters, and propeller related parameters using two (2) Liquid Crystal Displays (LCD) and one control panel in lieu of twenty-eight (28) individual electromechanical instruments. The EIDS also provides modular incremental growth path to a full C-130 Flight Deck upgrade.

Benefits

- High Resolution Liquid Crystal Display
- Significant Weight and Power Savings
- NVIS Compliant
- Enhanced Readability
- EIDS Configuration with Optimal Video Input



The Innovative Aerosystems Advantage

The IA innovative and cost-effective EIDS solutions for the C-130 aircraft provides the following:

- High resolution multi-color XGA LCD
- Exceptional cross cockpit viewing angle

Minimal Retraining

- Familiar engine language format reduced pilot training
- Ergonomic Control Panel design is easy to operate

Weight and Power Savings

- Light weight design, under 20 lbs. (9 kg) per shipset
- Reduced power consumption, under 100 watts per shipset
- 28 Components reduced to four (4)

Enhancements

- High resolution multi-color XGA LCD
- Exceptional cross cockpit viewing angle
- Digital electronics for improved accuracy and dependability and responsiveness
- Dual-redundancy with reversionary display capability
- Triple redundant channels in the Engine Data Concentrator
- Reduced down time and operation costs
- Identical LRU Display Units
- Dual Redundant ARINC 429 recorder outputs
- Health Monitoring and exceedance recording for engine maintenance programs.

System Architecture

The EIDS consists of two flat panel display units, one engine data concentrator and one engine display control panel:

Display Unit

- High resolution XGA multi-color LCD flat panel display
- 6-inch x 8-inch (152mm x 203mm) active viewing area (10.4" diagonal)
- Readability in bright sunlight
- 80 degrees viewing angle in all axes
- NVIS compliant display lighting
- Non-glare, anti-reflective display surface
- Built-In-Test
- DO-160D Environmental Qualification
- DO-178B Software
- Maintenance Screen (for engine torque calibration and system information)
- Two displays per EIDS provide reversionary, composite display formats for added safety
- Optional Video Input configuration

Engine Data Concentrator Unit (EDCU)

The EDCU receives data from each of the four (4) engines; each engine has a separate analog to digital conversion processing thread. Three identical boards within the EDCU provide a triple redundant set of data to the DUs for display processing. The EDCU replicates and digitizes the existing instrument outputs, and interfaces with the following typical aircraft components/functions:



- Aircraft Lighting Power (5 VDC)
- Aircraft Power (28 VDC)
- Aileron Trim
- Auxiliary Hydraulic Pressure
- Auxiliary Pump On
- BETA Discrete
- Brake Pressure (Normal/Emergency)
- Cooler Flap Position Sensor
- Cooling Augmentation Discrete
- Engine Booster Hydraulic Pressure
- Engine Booster Pressure Warning Discrete
- Engine Hydraulic Utility Pressure
- Engine Oil Temperature
- Engine Oil Quantity Transmitter
- Engine Utility Pressure Warning Discrete
- Elevator Trim
- Flap Angle Position
- Flight Data Recorder (Output)
- Fuel Flow Transmitter
- Gearbox Pressure Transmitter
- GPS Input
- Hydraulic Press Reference
- Low prop oil Pressure
- Master Caution
- NTS Discrete
- Oil Pressure Transmitter
- Propeller Oil Quantity
- Rudder Booster Hydraulic Pressure
- Rudder Trim Position
- Rudder Utility Hydraulic Pressure
- Surface Position Indicators
- Tach Generator (Engine RPM)
- Torque Transducers
- Turbine Inlet Temperature
- Weight on Wheels

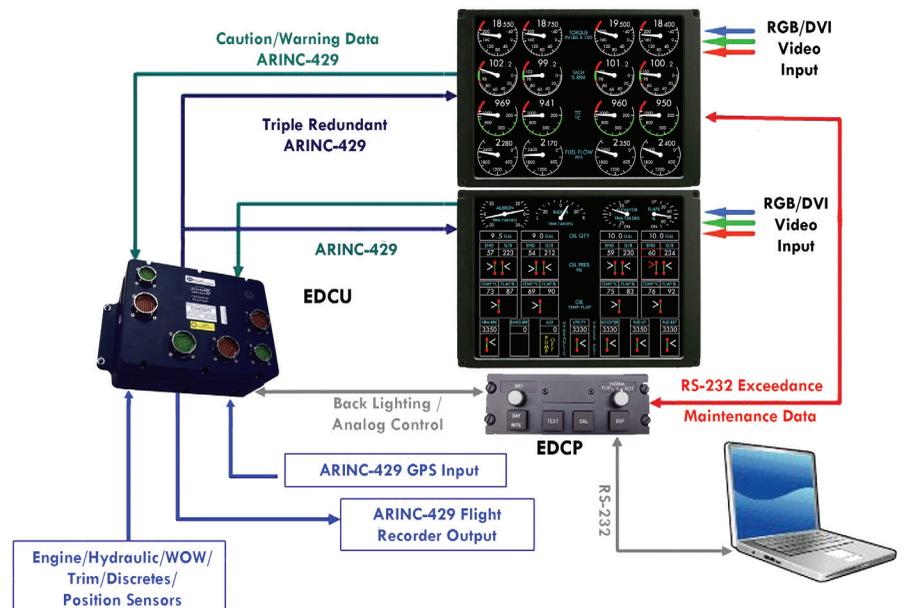
Engine Data Control Panel(EDCP)

The EDCP provides the Human-Machine interface to the EIDS. It includes the following features:



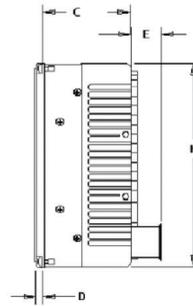
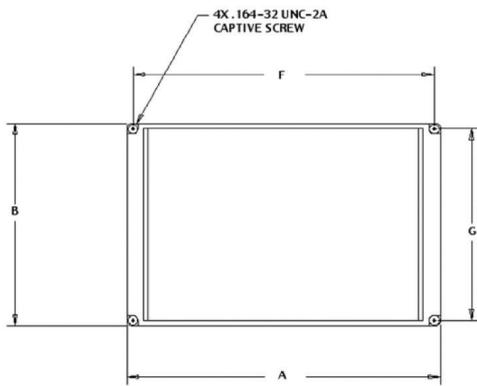
- Dzus rail width
- Provides control of DU brightness, reversionary mode control, and test for initiated bit and calibration.
- Three-position display configuration selector for LEFT, NORM, and RIGHT settings.
- DAY/NITE selects NVIS lighting.
- DSP toggle pushbutton selects reversionary display mode.
- CAL provides for recalibration of the torque converter after a maintenance action. such as an Engine Replacement.
- Simple & fast Exceedance data download vis RS-232.

System Diagram



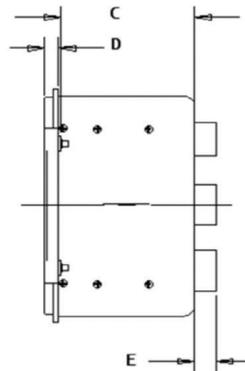
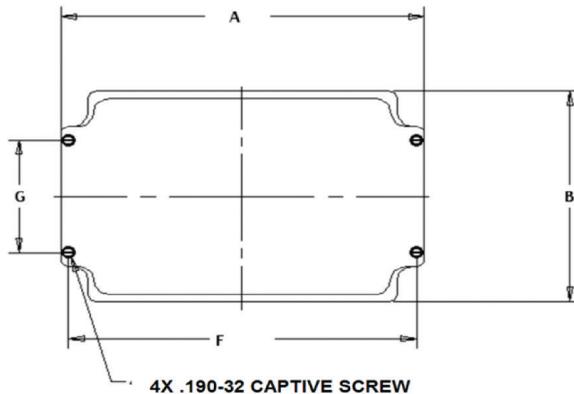
Innovative Aerosystems NextGen C-130 Flight Deck

Display Unit - P/N 9D-84051



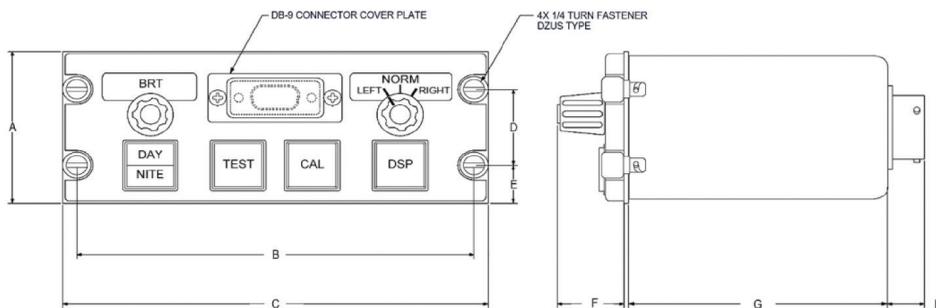
	Inches	Millimeters
A	9.80	248.9
B	6.98	177.8
C	2.88	73.2
D	0.225	5.7
E	.86	21.8
F	9.42	239.3
G	6.60	167.7
H	6.92	175.8
Weight: 6.0 lbs (2.7 kg)		
Power: 33 watts		
Voltage: +28 VDC		

Engine Data Concentrator Unit - P/N 9B-84052



	Inches	Millimeters
A	11.62	295
B	7.49	190.2
C	3.94	100
D	0.41	10.4
E	0.65	16.5
F	11.12	282.4
G	4.0	101.6
Weight: 7 lbs (3.2 kg)		
Power: 30 watts		
Voltage: +28 VDC		

Engine Data Control Panel- P/N 9B-05284



	Inches	Millimeters
A	2.250	57.15
B	5.365	136.27
C	5.75	146.05
D	1.125	28.58
E	0.562	14.28
F	1.00	25.40
G	3.50	88.90
H	0.500	12.70
Weight: 1.1 lbs (.499 kg)		
Power: 10 watts		
Voltage: +5 VDC		



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