

Cessna Citation Sovereign Avionics

Honeywell



**Primus Epic®
Integrated Avionics System**

Primus Epic® Integrated Avionics System for the Citation Sovereign

The next generation Primus Epic integrated avionics system is the heart of the new advanced cockpit for the Citation Sovereign. Our goal was to custom-tailor a system for the Sovereign that provides the sufficient processing speed, data link and data storage capability to bring large amounts of information into the cockpit.

System benefits:

- Enhanced safety through improved pilot situational awareness and reduced workload
- Improved reliability and maintainability

System features:

- Four, large active matrix liquid crystal displays (AMLCD) provide a technology path for presentation of new types of display information and enhanced viewing

- Digital communication and navigation radios designed to support growth in the changing CNS/ATM environment
- Enhanced safety awareness with terrain video available on the primary flight display (PFD) and the multifunction display (MFD)
- Optional integrated communication management function (CMF) for centralized data communication and ease of growth

Standard avionics functions:

The Primus Epic system will include the following standard installed avionics functions on the new Cessna Citation Sovereign:

- Four, large 8x10-inch (DU-1080) liquid crystal displays

- Dual fail-operational automatic flight control system
- Primus® 880 turbulence weather radar
- Enhanced ground proximity warning system (EGPWS)
- Radio altimeter
- Dual air data sensors
- Dual 24-channel GPS sensors
- Primus II Epic: Integrated digital radio system
- AV-850 digital audio system
- Traffic collision avoidance system (TCAS)



Experts in integration

Honeywell's Primus Epic system is based on an innovative modular design offering high reliability and dispatchability to ensure cost-effective operation. The all-new Primus Epic integrated avionics system for the Citation Sovereign features unprecedented levels of integration and a highly flexible and cost-efficient framework. Operators will appreciate the functionality and the clarity of four 10x8-inch flat panel displays, dual flight director/auto pilot, dual flight management system and updated cockpit controls, including pedestal mounted cursor control devices for increased management of the system's many features. And our next generation Primus® II Epic digital radio system has been developed into a more highly integrated package.

Cursor control device (CCD)

The pedestal mounted cursor control devices for the Citation Sovereign allows the pilots to control the many aspects of the display system. The use of CCD-controlled pull-down menus, windows-style display pages and "soft keys" in lieu of hardware buttons reduces pilot workload while saving costs, weight and wiring associated with individual controllers. With personal computers as a part of our daily lives, pilots will find the operating environment of the flight deck immediately intuitive and comfortable.

Central maintenance computer

Digital architecture, built-in test and easy fault diagnosis all add up to a comprehensive avionics maintenance capability. That's what the central maintenance computer (CMC) provides Sovereign operators. What's more, information from the CMC can be displayed on the multifunction flight display for easy access by pilots and ground personnel.

Liquid crystal flat panel displays

Four large 8 x 10-inch, large liquid crystal displays are the centerpiece of the avionics suite for the new Citation Sovereign. The displays function in a point-and-click, windowed environment enabled by a cursor control device.

The displays in the Citation Sovereign cockpit include dual primary flight displays (PFD), a multifunction display (MFD), and EICAS display. The PFDs incorporate all of the information necessary to safely operate the aircraft, including traditional PFD information plus combined attitude director indicator (ADI) and horizontal situation indicator (HSI) with airspeed, altitude, vertical speed and other essential information. Added flexibility within the system allows pilots to also view weather radar and terrain information on the PFD when the ARC mode is selected.

The MFD displays the flight management system (FMS) navigational information, weather and terrain data, traffic information, and radio tuning through the use of the cursor control device. The EICAS displays engine information, aircraft systems, crew messaging, and radio tuning.



PFD - Primary Flight Display



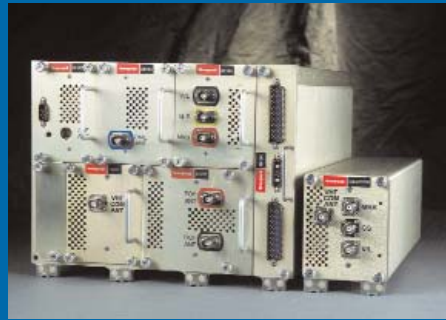
MFD - Multifunction Display



EICAS - Engine Information, Aircraft Systems, Crew Messaging and Radio Tuning

Primus® II Epic: Integrated digital radio system

Standard equipment on the Cessna Sovereign includes the dual Honeywell Primus II Epic integrated radio system with digital nav/comm/ID. The Primus II Epic is a digital remote integrated system that encompasses the standard navigation and communications functions, including VOR, ADF, DME, ILS, VHF communication and Mode S diversity transponder modules. Primus II Epic uses a cabinet-based modular radio cabinet (MRC) resulting in fewer line replaceable units (LRU) resulting in reduced weight and power and increased reliability. The VHF data radio (VDR) and VOR/ILS/datalink (VIDL) are the first of new generation of radios that provide over one hundred times more computing power than current radios.



The advantages of the expanded integration of Primus II Epic are:

- Fewer units
- Reduced wire count
- Extensive built-in test (BIT) and integrated maintenance features

The Primus II Epic radio system for the Citation Sovereign is fully ICAO compliant, offering FM immunity, the 8.33 kHz communication bandwidth required for European flight and Change 7.

Air data system

The turbulence-detecting Primus 880 offers added dimensions in severe weather avoidance as well as dual-operator capability.

With its unique high-power output and short pulse-width transmissions as well as Honeywell's patented REACT mode, the full-color Primus 880 radar combines traditional precipitation displays with the advantage of Doppler detection of even small areas of turbulence.

This powerful precipitation and turbulence display gives the Citation Sovereign the most advanced severe weather avoidance tool available.



Enhanced ground proximity warning system (EGPWS)

Honeywell is the technology leader in flight safety avionics, providing state-of-the-art products and complete solutions. As the pioneer in reducing controlled flight into terrain (CFIT), Honeywell's EGPWS has set the standard for TAWS systems and is part of the avionics package on the Citation Sovereign.

Backed by extensive resources and more than 30 years of experience studying CFIT, Honeywell continues to refine and improve the performance of its EGPWS.

Fail-operational automatic flight control system

Primus Epic's fully digital, integrated autopilot/flight guidance system gives the Citation Sovereign fail-operational/fail passive control throughout the entire flight.

Primus Epic's dual flight guidance computers transition automatically should one fail. An integrated mode selector and flight guidance controller provide simple, confident control of all flight functions. Additionally, altitude preselect, flight level change mode and vertical navigation (VNAV) capability are combined with control servo authority to match all pilot selected flight conditions and aircraft configuration for ultimate passenger comfort with the smoothest ride available.

Flight management/performance management

The Citation Sovereign is equipped with Honeywell's revolutionary integrated flight management system (FMS) with full three-dimensional mission performance. The integrated FMS' precision long-range navigation blends inputs from all on-board long and short-range sensors and can navigate entirely by GPS and still maintain input from all available sensors.

With the exclusive Honeywell software, "SmartPerf", FMS performance functions can be customized specifically for your Citation Sovereign. SmartPerf means smart or learned performance. It allows the FMS to learn the characteristics of an airframe and engine set then fine-tune calculations based on observed performance.

Collision avoidance

Honeywell's CAS 67A TCAS II is the perfect predictive tool wherever you fly. It helps extend crew awareness further in front of the aircraft, provides traffic alerts and resolution advisories, and directs the pilots' visual scan, revealing targets they might otherwise miss.

Honeywell's CAS 67A TCAS II Enhanced/ACAS II meets international ACAS II standards for collision avoidance. The CAS 67A TCAS II offers two levels of protection in today's increasingly complex flight environment. First, it serves as a moving line of defense against midair collisions. And second, it dramatically increases situational awareness on the flight deck. Simply, CAS 67A TCAS II is designed to provide protection today and well into the future.

Performance features

- Complies with all worldwide ACAS II/TCAS II requirements
- Advanced technology offers high reliability, built-in testing and software diagnostics
- Manages closing rates of 1200 kts. and 10,000 ft/min. vertical speed
- Escape maneuver coordination



The Primus Epic air data system provides precise airspeed, altitude and vertical rate information to the flight control, flight management, and display systems. Air data modules act as sensors to provide pressure information to the MAU for the air data processing of airspeed, altitude and vertical rate information.

Primus® 880 weather avoidance system

Optional equipment

The following Honeywell products are options for the Citation Sovereign. Please contact Cessna for installed availability.

- Communications management function (CMF)
- LSZ-860 lightning sensor system
- HF-1050 radio
- Second automatic direction finder (ADF)

24-channel global positioning system (GPS)

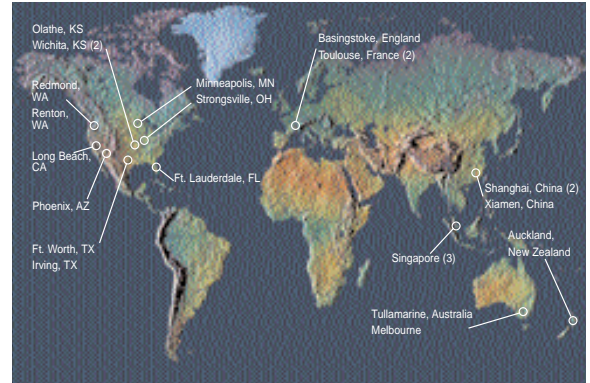
To meet the highest navigation standards, the Citation Sovereign carries the newest global positioning system (GPS) technology. With 24-channel receiver capability built to ARINC 743 standards, the dual GPS functionality is designed for growth into GPS, LAAS and WAAS. Like other Honeywell GPS products, this system incorporates receiver autonomous integrity monitoring functions essential for certification of GPS-based approaches.

Worldwide customer support

In addition to providing avionics designed for rigorous business travel environments, Honeywell also gives you extensive support that includes maintenance training, pilot courses, support documentation, and on-site support at your facility. This level of service ensures a smooth transition from aircraft delivery to line operation and continues for the service life of the aircraft.

While Honeywell's avionics are based on proven technology to provide you with exceptionally high reliability and simplified maintenance, when service is needed, our customer support engineers and service centers are strategically located around the world to provide efficient, responsive support. As always, our SPEX exchange service is available 24-hours a day.

Honeywell's customer and product support organization is committed to keep your Primus Epic system flying day and night, around the world.



Find out more

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