

ROCKWELL COLLINS PRO LINE 21 AVIONICS SYSTEM

Smart avionics for the Cessna Citation Encore+.



Achieve a new level of situational awareness and operational efficiency. With Pro Line 21, superior information comes standard.

With Pro Line 21, your focus is where it needs to be – on flying the aircraft. Our fully integrated flight deck for the Encore+ has significantly enhanced crew situational awareness, providing superior operational efficiency and built-in growth capability to meet evolving airspace and regulatory requirements.

**Rockwell
Collins**

Building trust every day

Fully integrated performance for the new Citation Encore+

Citation Encore traces its roots to the first Cessna Citation business jets. This proud heritage is further enhanced with our Pro Line 21 flight deck upgrade, ensuring Cessna's "Sure Thing" tradition on the Citation Encore+ with a highly integrated flight deck.

Our standard Pro Line 21 system offers the latest advances in avionics technology with built-in capacity for future growth. It also integrates flight information into intuitive, easy-to-interpret menu formats with safety-enhancing reversion capability.

At the heart of the advancements found in the Pro Line 21 system is the Integrated Flight Information System (IFIS). IFIS offers advanced features that enhance flight crew situational awareness such as electronic charting, graphical weather and enhanced maps. IFIS also features a portal for software and database uploads, allowing new capabilities to be added as airspace requirements evolve. The result is a flexible and cost-effective architecture with inherent growth capability and true software mobility.

With our extensive experience in system integration, the Encore+'s flight crew has the ability to display the aircraft's ownship position on the electronic charts during approach or taxi operations. This enhanced situational awareness greatly simplifies flight deck operations during the high workload phases of flight.



Enhanced map overlays

Pro Line 21's enhanced graphical capabilities and fully integrated architecture enable pilots to overlay a number of safety-enhancing sensor and data base technologies on the standard flight display. Water features, geopolitical and flight plan mapping features, airspace boundaries and high- and low-altitude airway overlays can all be depicted – giving pilots a complete picture of the current navigation situation.



Graphical weather

Emerging data link technology, integrated with Pro Line 21's IFIS applications, enables Encore+ pilots to receive and overlay real-time graphical weather updates (in NEXRAD and additional formats) for a continuously updated picture of weather patterns across the entire route of flight. XM satellite broadcast weather is standard; data link based request/reply weather is available as an option.



Electronic charting

Approaches, Standard Instrument Departures (SIDs), Standard Terminal Arrival Routes (STARs) and airport diagrams can all be stored for pilot reference on the Pro Line 21 adaptive flight displays. Chartlink™, a patented Rockwell Collins feature, ensures seamless integration between the FMS and electronic charts to automatically sequence relevant charts for a flight plan. The aircraft's "ownship position" greatly enhances the flight crew's situational awareness.



Enhanced flight deck efficiency and reduced pilot workload

Rockwell Collins Pro Line 21 avionics suite for the Encore+ is a true breakthrough in flight deck efficiency and pilot workload reduction. The system combines the latest-technology sensors and displays in an integrated package that is smaller and lighter than traditional avionic systems.

All primary flight, navigation, engine and sensor data is graphically presented on the system's three large Liquid Crystal Displays (LCDs) for easy scanning and integration. Standard pilot and copilot Primary Flight Displays (PFDs) are teamed with an enhanced central Multifunction Display (MFD), FMS-3000 Flight Management System and dual Radio Tuning Units (RTUs), to streamline and automate input functions. This ensures more eyes-up time at the controls, giving pilots a better overall view of their real-time flight situation.

There's never been a system this capable – or futuristic – in this aircraft category. But then, adding value is what Rockwell Collins Pro Line 21 and Citation business jets have always been about.

Encore+ high-performance flight deck

- › Three 10 x 8-inch LCDs
- › Single FMS-3000 with coupled VNAV and V-speeds
- › Dual RTU-4220 radio tuning units
- › Pro Line 21 CNS radios
- › File Server Unit (FSU) with enhanced map overlays
- › Electronic Charts
- › XM satellite broadcast weather
- › Maintenance Diagnostic System (MDS)
- › Solid-state weather radar
- › TCAS-4000 (TCAS II)
- › Electronic checklist
- › Fail-passive autopilot

Advanced flight management made simple

Our FMS-3000, when fully integrated with the Pro Line 21 avionics system, combines workload-reducing automation on the flight deck with true multisensor navigation capability. As a result, Citation Encore+ pilots have seamless takeoff-to-touchdown flight guidance, direct-to-anywhere simplicity and significantly improved eyes-up display capability.

When used with the Rockwell Collins GPS-4000A/S Global Positioning System receiver, the FMS-3000 synchronizes operation of all lateral and vertical flight plans, supports time/fuel planning, and automatically flies en route, terminal and approach procedures (as well as providing missed-approach guidance), while offering graphical map support, automatic FMS-to-ILS (Instrument Landing System) transfers, and steering/pitch commands to the autopilot.

Full-profile, coupled or advisory VNAV capability, including the ability to add on future WAAS LPV approaches, offers complete lateral and vertical navigation programming and automation for all phases of flight. This VNAV tracking capability ensures that altitude and speed constraints are met at waypoints or step-down fixes, speed limits at altitudes are honored and the vertical flight profile, as specified by the pilot, is followed precisely.

The Encore+ performance database enables automatic calculation of V-speeds based on the aircraft's flight manual parameters. This feature helps to streamline and simplify flight deck performance while enhancing safety of flight. In addition, automated maintenance diagnostics and electronic checklist functions are included in the Citation Encore+'s standard package.



Radio management

Rockwell Collins RTUs provide centralized control of the Encore+'s CNS sensors. Selection and entry of all COM/NAV frequencies, transponder codes and TCAS functions are logical and intuitive. A common control scheme for all tuning functions makes pilot interface more efficient. The RTUs also serve as backup Horizontal Situation Indicators (HSIs).

FMS-3000



Advanced flight planning



Performance database

The Rockwell Collins FMS-3000 provides advanced flight planning, multisensor navigation and flight management capabilities specifically tailored to the Citation Encore+. The standard performance database, keyed to aircraft flight manual parameters, makes automatic V-speed calculations available.

Enhance your Encore+ even more

➤ Second FMS

Installation of a second FMS-3000 and a second GPS-4000S provides the redundancy and reliability required for enhanced dispatch capability. The additional FMS enhances crew resource management by allowing independent operation by each crew member. For convenience it may also be synchronized with the pilot-side FMS. The DME-4000 receiver/transmitter provides complete DME information from three ground stations simultaneously. A second DME provides redundancy and the ability to cross-check navigational information, including additional input for the FMS to calculate aircraft position.

➤ ADF

Our ADF receiver enables operations in remote areas and allows the flight crew to cross-check navigational information and has a frequency range of 190.0 to 1799.5 kHz, selectable in 500 Hz increments.

➤ Turbulence-detection weather radar

Our TWR-850 detects weather at ranges up to 300 n.m. and precipitation-related turbulence at ranges up to 50 n.m., giving flight crews the information they need to select the smoothest, most efficient routes.

➤ HF radio with SELCAL™

Our industry-leading HF-9000 High Frequency Communication System provides communication capability in oceanic and remote regions. The system provides 175 watts peak envelope power voice communications in the 2.000 to 30.000 MHz frequency range. Optional Selective Calling (SELCAL) alerts are provided to the crew when the aircraft is being contacted.

➤ Data link/interactive graphical weather and flight services

This feature adds functionality to our IFIS to provide menuing, uplink and downlink of specific graphical weather and flight service requests. Graphical weather allows your uplinked images to be stored on the FSU and may be recalled upon request. Full data link services are supported, including the ability to send and receive various message types (including paperless transfer of information), secure on and off reporting, maintenance downlink and many others.



Global service and support from a trusted source.

Total service solutions you can count on. From initial delivery and throughout your Encore+'s life cycle, we are here with comprehensive service and support solutions. Backed by our worldwide support network, we offer customized solutions from options that include performance-based maintenance and repairs, engineered solutions, provisioning, rental exchange, training and simulation solutions, all backed by the best turnaround times in the industry. Rockwell Collins delivers reliable solutions, anywhere, anytime – every time.

Building trust every day.

Rockwell Collins delivers smart communication and aviation electronics solutions to customers worldwide. Backed by a global network of service and support, we stand committed to putting technology and practical innovation to work for you whenever and wherever you need us. In this way, working together, we build trust. Every day.

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