

FALCON CABIN MANAGEMENT SYSTEM (FCMS)  
FALCON 7X AND 900 SERIES

The digital interface for the digital cabin.



**Rockwell  
Collins**  
Building trust every day

# Home and office experiences drive user expectations

## At home

- › Digital Entertainment and Multimedia Systems
- › Place/time Shifting Content Technologies – Digital Video Recorders (TiVo®), Slingbox™
- › TV over IP Services
- › Interactive Connectivity – Instant Messaging, Virtual Gaming
- › Appliance Controls and “Smart Homes”
- › Personalized Content – MP3, DVD, Streaming AV
- › Portable Audio/Video Players – iPod®
- › XM Radio Integration

## In the office

- › Broadband Internet Access
- › Email, Instant Messaging
- › LAN - Multiuser Access, Networking Printing
- › Wireless Connectivity
- › Internet Capabilities – Search and Research, Business Portals
- › Telephony and Video Conferencing
- › VoIP Telephony
- › Environment Controls

Transition to digital media and technology is driving innovation on the ground and in the aircraft cabin

## The high-end market shift to digital cabin systems

- › Superior A/V quality
- › Essential to efficiently deliver the broad range of digital services
- › Improved reliability, availability, maintainability
- › Unified, simplified user interface
- › Increased capability while minimizing weight, power, size
- › Entertainment and data functionality convergence
- › Installation flexibility and simplicity
- › Growth scalability and capacity

Analog systems cannot effectively support key capabilities being demanded by high-end business jet customers

## Value of digital over analog systems

### Functionality

- › Superior audio video functionality
- › Support of multiple A/V streams
- › Fault tolerance
- › Improved immunity to aircraft interconnect noise

### Flexibility

- › Scalability to easily accommodate number of seats
- › Simplified implementation of last minute changes
- › Introduction of post-delivery upgrades eased
- › Compatible with widest variety of entertainment technologies

### Maintainability

- › Built-in-test and centralized maintenance
- › Centralized software load
- › Common off-the-shelf spares

A digital backbone provides significant advantages for long-term value and compatibility

# FCMS - System overview



Large Area Monitor



Cafay Touchscreen



Airshow 4000



Satellite TV



Exchange™



Dual DVD/CD/WMP3



Plug-in Color LCD Monitor



Mechanical Switch



Color OLED Passenger Entertainment Control



Remote



Single



Dual

iPod Decks



Control panel



EDR



DCB



iPod jacks



## FCMS - System overview

### Cabin management

- › Fully integrated controls
- › Intuitive
- › Customized
- › Full cabin control
  - Lights
  - Shades
  - Temperature
  - Entertainment



# FCMS - System overview

## Entertainment

- › DVD
- › CD
- › iPod and MP3
- › Satellite TV
- › Satellite radio (XM)
- › Moving maps and flight info



## FCMS - System overview

### Options for connectivity and data

- › Real-time broadband
- › Email and Internet access
- › Blackberry® data integration
- › Wired and wireless cabin options





# FCMS core architecture

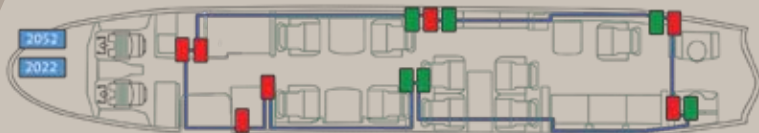
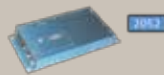
## Legacy communications

- › IEEE 1394b “FireWire®” high-speed backbone supports all cabin functionality
- › Encoding and Decoding Digital Interface Boxes (EDIB’s and DDIB’s) connect all components to the core FireWire backbone
- › Quality of service
  - 1394b specifically designed for simultaneous audio/video and office functionality
- › Open architecture
  - Third party interface-analog source equipment (CD, DVD, iPod), laptops, printers
- › Maintainability
  - Centralized system diagnostics
  - Common off-the-shelf spares
  - Replacement LRU’s self-program / rapid LRU replacement
  - Front mounted PCUs with removable bezel
- › Reliability
  - Fault tolerant
  - Self-healing capabilities
- › Ease of installation – flexibility for change
  - Single cable loop topology
  - Multiple access points for completion flexibility
- › Highly integrated – reduced size/weight/power
  - High-speed data networks for all functionality

# 1394b "Firewire" backbone services all system components



Controllers



# FCMS - Baseline features

## Integrated cabin control

- › 2 each color OLED galley controls (galley and galley annex)

## Entertainment

- › Sources
  - 1 Airshow 4000 Moving Map system
  - 1 dual DVD player
- › Displays and audio
  - 1 each 21.3" color LCD bulkhead monitor
  - 1 each 17" color LCD bulkhead monitor
  - 2 each audio amplifiers
  - 1 each amplifier per lavatory
  - 10 each speakers
  - 3 each woofers
  - 11 each Sony® lightweight stereo headsets (supplied as loose equipment)

- › Control
  - 9 each color OLED passenger entertainment controls
  - 2 each A-type mechanical seat entertainment controls
  - 1 each RF entertainment remote control

## Data / networking

- › 3 each cabin LAN Ethernet ports

## FCMS - Baseline features

### Integrated cabin control

The FCMS includes integrated cabin controls for all of the available entertainment, environmental and data functions within your cabin. All functions are conveniently and logically implemented within a user friendly Graphical User Interface.

Your Baseline system includes the following:

#### **Color OLED Galley Control (2 each)**

Utilizing the latest Organic Light Emitting Diode (OLED) display technology, with a sleek, sophisticated industrial design, this control provides essential cabin and entertainment management capability.

One each of the color OLED controls will be installed in the Galley and Galley Annex.



## FCMS - Baseline features

### Entertainment - sources

Your entertainment experience begins with the source devices that provide the content for your cabin entertainment and flight tracking. Each device is fully integrated within your system for seamless access and control.

Your Baseline system includes the following:

#### **Airshow 4000 Moving Map System**

The Airshow 4000 represents state-of-the-art for flight tracking and information. Utilizing advanced graphics processing capabilities, the 4000 provides real-time 3D and 2D maps, dynamic flight information display, flight status tickers and integrated digital video.



Dassault offers a standard configuration for the Airshow 4000 that can be enhanced with many options in order to meet your specific needs and preferences.

#### **Dual DVD Player (1 each)**

The Dual DVD Player allows the playback of two DVDs, output on independent video channels and individually controlled. Incorporating multiregion DVD compatibility (zone 1-6 compatible), the Dual DVD Player can also play industry standard audio CDs and MP3 music files from CD-ROM and DVD-ROM media.



## FCMS - Baseline features

### Entertainment - displays and audio

Ensuring the highest quality reproduction for your entertainment sources, the displays, amplifiers, speakers and headsets for your system include industry-leading standards for high fidelity and pristine viewing pleasure.

Your Baseline system includes the following:

#### **17" Color LCD Bulkhead Display (1 each)**

Step up to a superior viewing experience. The 17" LCD display can be mounted on the front or aft bulkhead and provides 25% more screen display than the 15" LCD.



- Key specifications
- > 1280 x 1024 display resolution
  - > 16 million colors
  - > 170 degree viewing angle

#### **21.3" Color LCD Bulkhead Display (1 each)**

One of the largest displays available in its class, the 21.3" LCD display is typically mounted on the front bulkhead and provides 25% more screen display than the 17" LCD.



- Key specifications
- > 1600 x 1200 display resolution
  - > 16 million colors
  - > 170 degree viewing angle

## FCMS - Baseline features

### Entertainment - displays and audio (continued)

#### **Audio Amplifiers (2 each plus 1 per lavatory)**

Ensuring a full and rich audio experience throughout the cabin, two 3-channel audio amplifiers, each capable of 180 watts, are provided to drive the installed speakers and woofers.

#### **Speakers (10 each) and Woofers (3 each)**

Discreetly installed throughout the cabin, 10 premium-quality audio speakers and 3 woofers are installed to accommodate both your entertainment needs and PA briefings from the aircraft crew.

#### **Lightweight Stereo Headsets (11 each)**

Offering a comfortable fit and impressive sound, these headphones feature padded, around-the-ear earcups and 40 mm drivers for full bass response. A single-sided cord design makes tangle-free operation easy.

## FCMS - Baseline features

### Entertainment - control

The full array of entertainment choices are at your fingertips with the controls and remote that come with your baseline FCMS configuration.

Your Baseline system includes the following:

#### **Color OLED Passenger Entertainment Controls (9 each)**

Including the same capabilities as the previously described galley controls, the nine color OLED passenger entertainment controls are installed at key locations within the cabin. The controls are configured specifically for all the entertainment capabilities of the FCMS. This device can also control all cabin environmental functions.





## FCMS - Baseline features

### Entertainment - control (continued)

#### **A-Type Mechanical Entertainment Cabin Controls (2 each)**

Hardware buttons and an LED text display screen provide essential entertainment control functions, located at the inboard seats and dining group.

#### **RF Entertainment Remote Control (1 each)**

Providing wireless remote control with the line-of-site requirements of infrared remotes, the RF Entertainment Remote Control is programmed to support all your entertainment sources and outputs, plus an intelligent “activities” function to simplify common, repeated tasks.



## FCMS - Baseline features

### Entertainment - data and networking

The FCMS does data too, and your cabin is provisioned with fundamental wiring to enable cabin LAN capabilities which can be utilized with optional connectivity and office features.

Your Baseline system includes the following:

#### **Cabin LAN Ethernet Ports (3 each)**

The installed Ethernet ports, utilizing industry standard RJ-45 connectors, as found on nearly any desktop or laptop computer, allows for networking capability between connected PCs, connecting to optional cabin printers, or access to email and the Internet with an optional installed connectivity solution.

## FCMS - Optional features

### Integrated cabin control

- Additional color OLED passenger entertainment control(s)
- 8.4" color LCD touch screen galley control

### Connectivity

- Rockwell Collins eXchange Broadband System

### Entertainment

- Sources
  - Tailwind® 500 multiregion TV system and regional decoders
  - Additional dual DVD player(s)
  - PC (VGA) bulkhead monitor video connection
  - Auxiliary cabin audio / video interface

- iPod cradle, single
- iPod cradle, dual
- iPod jack, single
- iPod jack, dual

### ➤ Displays and Audio

- Additional 21.3" color LCD bulkhead monitor(s) (forward R/H)
- Additional 17" color LCD bulkhead monitor(s) (aft L/H)
- Plug-in 8.4" color LCD monitor with 9G locking arm
- Plug-in 10.4" color LCD monitor with 9G locking arm
- Plug-in LCD monitor receptacle

### Data/networking

- Additional cabin LAN Ethernet port(s)

## FCMS - Optional features

### Integrated cabin control - options

#### **Color OLED Passenger Entertainment Control**

The FCMS includes integrated cabin controls for all of the available entertainment, environmental and data functions within your cabin. All functions are conveniently and logically implemented within a user friendly Graphical User Interface (GUI).



## FCMS - Optional features

### Integrated cabin control - options

#### 8.4-inch color LCD Touchscreen Galley Control

The spacious 8.4-inch Touchscreen Galley Control provides a comprehensive set of cabin management and entertainment controls within the convenient reach of your cabin attendant. From heating, lights and shades, to video and audio system control, the Touchscreen Galley Control brings together the wealth of features and capabilities of your FCMS, all presented in an easy-to-use and aesthetically modern GUI.



## FCMS - Optional features

### Connectivity - options

Stay connected in the air just as you do on the ground. Our connectivity options allow you to access email, browse the Internet, make VoIP calls and more...

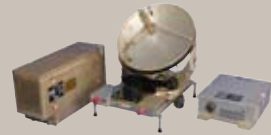
Available options:

#### **Rockwell Collins eXchange with service by ARINC SKYLink<sup>SM</sup>**

The eXchange system offers true two-way, broadband connectivity delivered by Ku-band Satellite. With data rates up to 3.5 Mbps, eXchange can accommodate a wide variety of connectivity applications to ensure you always stay in touch with the world below.

#### Key capabilities Include

- Full Internet connectivity
- Personal and corporate email
- VPN/VoIP/FoIP/video conferencing
- Data capability for select Wi-Fi enabled smartphones, e.g., Blackberry
- Data transfer rates to aircraft of up to 3.5 Mbps; guaranteed minimum of 512 Kbps data transfer rate to the aircraft
- Wired and wireless access via optional Airborne Mobile Access Router (AMAR)



## FCMS - Optional features

Connectivity - eXchange coverage map



## FCMS - Optional features

### Entertainment - optional sources

Configure your aircraft to enhance your flying pleasure. A range of entertainment options are available to allow for more choice and content. You need never be without a source of entertainment to help pass away your time in the air.

Available options:

#### **Tailwind 500 Multiregion TV**

Offering true multi region television reception capability for the U.S., Middle East and Europe, the Tailwind 500 represents state-of-the-art airborne satellite TV systems.



#### Key features and benefits

- ▶ Up to 475 channels in the U.S., Middle East and Europe
- ▶ Proven auto-switching between regions
- ▶ Highest gain than any other system, allowing for a larger TV reception footprint
- ▶ Viewable on the ground as well as in the air
- ▶ One-stop subscription for all regions through Rockwell Collins Member Services or online at [MyAirshow.net](http://MyAirshow.net)®





## FCMS - Optional features

### Entertainment - optional sources (continued)

#### **Additional Receiver / Decoder for Tailwind 500 Multi Region TV**

Adding additional regional coverage or video channels is easy with the modular design of the Tailwind 500 system. Simply choose additional receiver/decoders for the regions of choice, or to increase video outputs for any region.

#### Key features and benefits

- Up to 3 regions to choose from – U.S., Europe and Middle East
- 2 independent video channels per receiver / decoder
- Up to 16 receiver / decoders – offering 32 independent video output channels – can be added to your Tailwind 500 system



CONUS coverage through DIRECTV



European coverage with CanalSAT



Middle East coverage through Nilesat and Arabsat in the Middle East



## FCMS - Optional features

### Entertainment - optional sources (continued)

#### Additional Dual DVD Player (Multiregion 1-6)

Ensure that everyone gets a front-row seat to their favorite movie by choosing additional dual DVD players for your FCMS. Each additional dual DVD player offers the capability to play two DVDs simultaneously, with each DVD able to be remotely controlled.



#### Auxiliary Cabin Audio / Video Interface

Ideal for iPods and other portable devices, the auxiliary cabin audio/video interface allows you to plug them into the FCMS for listening on headphones or speakers, and viewing on the cabin monitors. Provides standard RCA jacks for composite video and stereo audio.

#### PC (VGA) Bulkhead Monitor Video Connection

Collaborate in the cabin. Share PowerPoint®, documents, Web pages and other PC applications by outputting your laptop's video to the bulkhead monitor.



## FCMS - Optional features

### Entertainment - iPod cradles

#### **iPod Single Dock**

The iPod single dock provides a complete docking solution for your iPod or iPhone. Using a single connector, the iPod single dock allows you to listen to your music and view videos stored on the iPod, all remotely controlled by your personal entertainment control. The dock provides an enclosure that allows it to be used during take-off and landing of the aircraft. The iPod single dock even charges your iPod, ensuring it is fully ready to go upon your arrival.

#### **iPod Dual Dock**

The iPod dual dock offers all the capabilities of the single dock, with the added benefit of integrating two iPods within a small, integrated enclosure. Each of the iPods in the dual dock can be remotely and independently controlled with your personal entertainment control.



## FCMS - Optional features

### Entertainment - iPod Jack Panels

The FCMS iPod Jack Panels offer a discrete yet full-featured approach to iPod integration. These panels, available in single and dual configurations, allow for connection to your iPod via its 30-pin bottom connector, providing the same benefits as the Single and Dual Docks, but without the additional iPod enclosure. These iPod Jack Panel solutions are ideal for location in areas of limited mounting space, while providing all the benefits of full FCMS iPod integration.



## FCMS - Optional features

### Entertainment - optional displays

Additional video displays ensure that no matter how many passengers are on board, everyone can experience the full capability of FCMS. Choose from options for both bulkhead and plug-in seat displays.

Available options:

#### 17" Color LCD Bulkhead Display

Providing exceptional cabin viewing capability, the 17" LCD display is mounted on the aft bulkhead and can be controlled to display any of the installed video sources on the aircraft, from DVD movies and the Airshow 4000, to optional live TV and auxiliary video sources (such as iPods).



#### Key features

- 1280 x 1024 display resolution
- 16 million colors
- 170 degree viewing angle

#### 21.3" Color LCD Bulkhead Display

One of the largest displays available in its class, the 21.3" LCD display is mounted on the front bulkhead and provides 25% more screen display than the 17" LCD.

#### Key features

- 1600 x 1200 display resolution
- 16 million colors
- 170 degree viewing angle



## FCMS - Optional features

### Entertainment - optional displays

Available options:

#### 8.4" Plug-in Color LCD Display with 9G Locking Arm

In-seat LCD displays allow enhanced and personalized viewing pleasure, providing individual viewing of any video sources when inserted into the plug-in receptacles (also optional).



Key features and benefits

- 1024 x 768 display resolution
- Front panel buttons for easy screen adjustments

#### 10.4" Plug-in Color LCD Display with 9G Locking Arm

In-seat LCD displays allow enhanced and personalized viewing pleasure, providing individual viewing of any video sources when inserted into the plug-in receptacles (also optional).



Key features and benefits

- 1024 x 768 display resolution
- Front panel buttons for easy screen adjustments

## FCMS - Optional features

### Entertainment - optional displays (continued)

#### **Plug-in LCD Monitor Receptacle**

By choosing additional LCD monitor receptacles, you can move displays from seat to seat as needed. Hot-swappable – allowing removal/replacement of monitors without the need to power-off or reboot the system.

## FCMS - Optional features

### Data / networking - options

Provision your cabin with PC data interfacing.

Available options:

#### **Cabin LAN Ethernet Ports**

The installed Ethernet ports, utilizing industry standard RJ-45 connectors, as found on nearly any desktop or laptop computer, allows for networking capability between connected PCs, connecting to optional cabin printers, or access to email and the Internet with an optional installed connectivity solution.





Building trust every day.

Rockwell Collins delivers smart communication and aviation electronic 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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