

# In-Flight Entertainment Systems

## Buyer's Guide

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See **COMPARISON CHART** on pages 32, 33 & 34

**T**he takeoff and landing is always exciting, but with the global-reaching range of the latest corporate jets, there's plenty of time between those takeoffs and landings. So, step into the world of in-flight entertainment systems, or IFE. A growth out of music players of long past, the current offerings rival any home theater.

An in-flight entertainment system contains three basic functions: audio, video and flight data. Some would argue an airborne office constitutes entertainment, but for the purposes of this comparison, let's stick to the big three forms of traditional "entertainment."

Many systems, especially from the big avionics houses, offer complete cabin packages that include satellite communication and airborne office Internet systems. These packages usually are customized for each installation; therefore, they don't lend themselves to quick price comparisons. For those companies offering a-la-carte pricing, the accompanying chart offers a brief description and price for each unit.

### Alto Technologies

Primarily a producer of cabin speakers and amplifiers, Alto Technologies Corp. takes the design of these components to the next level. Its line of sound-delivery systems is customized for each cabin installation. Borne from senior audio engineers at Bose Corp., Alto Technologies entered the business by designing a premium audio system for the Gulfstream GIV.

The Alto Aviation Entertainment Systems (AES) are customized to the aircraft interior, thus ensuring the best possible sound. The systems are available in various performance-level packages depending on the aircraft type and customer preferences. All AES packages offer premium performance and are covered by Alto's "60-day Audition" sound-quality guaranty.

Alto Technologies currently offers three versions of its AES line, all dependent on the level of audio performance. The AES Executive is a complete audio system with custom equalization specific to a certain aircraft model. This system is recommended for most customers.

The AES Global is a complete audio system with equalization totally customized for the specific aircraft by Alto engineers at the customer's site. This system is designed for customers who are looking for the ultimate in audio performance.

The AES Custom Complete is a design-specific audio system with equalization based on the specifications for the aircraft, completion center or OEM. Alto engineers can accommodate the most diverse cabin configurations or complex spaces, if required.

Other products also are available, including page/chime speakers, which are optimized for performance in speech communication, and warning systems applications for the cockpit and cabins.



Alto Technologies produces high-quality cabin speakers and amplifiers for corporate and airline aircraft.

## Avionics Innovations

Avionics Innovations designs and manufactures a complete line of video and audio entertainment systems for aviation. Its products are designed with additional shielding, and are subjected to rigorous testing to ensure they meet FAA requirements and will not interfere with onboard navigation, communication or radar systems.

Avionics Innovations has multiple products that play CDs and DVDs from all the world's formats. Its new line of radio units receive satellite audio signals from the Sirius Network, as well as ground-based AM/FM broadcast signals.

Multiple mounting methods are available, including instrument panel or pedestal mounting. For bigger cabin installations, Avionics Innovations' AI-DVD/CD unit is part of its new integrated cabin entertainment system. The base-mounted unit combines an AM/FM receiver and CD/DVD player, all controlled with the single passenger control unit.

Rounding out its in-flight entertainment line is a wide selection of LCD video displays, which are mountable either near the individual seats or on a bulkhead in the front of the cabin. For the larger cabins with multiple stations, audio and video amplifiers assure clean signals for each passenger.



Avionics Innovations' AI-PCU is the master cabin controller of its new line of integrated cabin entertainment systems.



Flight Display Systems offers a full range of entertainment options, from widescreen TVs and DVD players to personal monitors and camera systems.

## Flight Display Systems

Flight Display Systems provides all of the components for an in-flight entertainment system. Its primary product lines are LCD displays, moving maps, display mounts, audio/video accessories and signal amplifiers. Its LCD screens range from 7 inches to 42 inches, and feature multiple input sources.

Flight Display's Moving Map is a 2GHz mini-computer with a stored database containing thousands of cities across the globe. The international maps recently have been improved to show advanced geographic features. Better hilltop shading and six international languages are slated for improvement within the year. Upgrades traditionally are offered free of charge to existing users. A unique feature of the 232 and 429 Moving Maps is that customers can easily add their corporate logos and unique way-points, such as factory locations or vacation homes.

Flight Display Systems also offers a large selection of audio/video accessories. The company recently introduced its low-profile DVD player, which is less than 1-inch thick and approximately half the size of a standard DVD player. And customers enjoy the Flight Display glareshield cameras, which are available in standard and high-resolution formats.

## Honeywell

Honeywell's cabin electronics include a broad range of products, including moving maps, audio/video systems and high-speed data communications, as well as fully integrated cabin systems providing the latest in business connectivity, information, entertainment and cabin management units. The company currently offers two systems dependent on the installation requirements.

The Ovation E Series cabin management system is Honeywell's latest all-digital cabin system. The E Series offers passengers and crew maximum productivity and functionality, while offering aircraft OEMs and dealers reduced space, weight and power, along with more efficient

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The Ovation E Series System from Honeywell is a complete IFE system with options for DVD players, CD players, VCRs, satellite TV and moving maps.

# IN-FLIGHT ENTERTAINMENT SYSTEMS COMPARISONS

MANUFACTURER	MODEL	DESCRIPTION	PRICE
<b>Alto Technologies</b>	ASW-514	5.25" subwoofer cabin speaker	\$640
	ASP-512	Aircraft cabin loudspeaker	\$460
	P-02	2.5" page/chime cabin loudspeaker	\$115
	P-09	2" page/chime cabin loudspeaker	\$205
	AA-626DC	Cabin audio amplifier with custom equalization	\$3,975
	AES Executive	Small & medium size cabin customization service – including components	\$6,995 +
	AES Global	Medium & large size cabin customization service – including components	\$16,400 +
	AES Custom Complete	Large cabin (BBJ) customization service – including components	\$60,000 +
<b>Avionics Innovations</b>	AI-SSR	Panel-mounted Sirius Satellite radio receiver	\$2,095
	DMP-100	Dezus mount MP3 player using compact flash cards	\$3,145
	AI-DVD/CD	Base-mount AM/FM stereo, CD and multi-regional DVD player	\$3,995
	AI-PCU	Passenger control unit and remote Sirius radio	\$1,595
	AI-A/V	Audio/video switch system. 4-8 channels.	\$3,795 – 6,295
	AI-FPD	Flat-panel LCD displays (6, 7, 10, 12 & 15")	\$1,995 – 6,090
	AI-CD III	Panel-mount AM/FM CD player	\$1,675
	AI Amplifier	Remote 20-watt per channel speaker amplifier	\$520
	AI-Video Amp	Video amplifier	\$1,295
	AI-7 FPDWS	Widescreen 7" LCD display	\$1,995
	SSR30-00	Remote satellite radio module (Sirius)	\$2,995
<b>Rockwell Collins</b>	eXchange, Airshow 4000, Tailwind 100/500	Full complement of cabin entertainment and communications systems for corporate aircraft.	Call Collins

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system installation and upgrades. Some of its key features include a digital distribution of command and control data, a gigabit Ethernet backbone and cabinet-based architecture, as well as significant weight, power and volume savings for the aircraft.

The Ovation E Series System has options available for DVD players, CD players and VCRs.

The video drivers can support multiple displays from 6.5 inches up to 30 inches. The system also enables live satellite television throughout the United States, Europe and the Middle East, and XM Satellite Radio is available throughout the continental United States.

The JetMap moving map system tracks the aircraft progress across the globe with high-resolution maps and continuous

flight mapping and information while also offering live text news, weather and sports.

In addition, Honeywell offers the Ovation C Series cabin management system. The C Series system utilizes the same backbone as the E Series with additional enhancements that increase reliability and quality while decreasing maintenance and installation requirements.

MANUFACTURER	MODEL	DESCRIPTION	PRICE
<b>Flight Display Systems</b>	FD70CV-V	7" LCD display with infrared remote. Bulkhead or seat mount.	\$1,250
	FD70ARM	7" LCD display widescreen (various arm mounts)	\$2,689 – 3,167
	FD104CV	10" LCD display with infrared remote. Bulkhead mount.	\$2,985
	FD104CV-LP	10" LCD display with infrared remote. Bulkhead mount. Low profile.	\$3,917
	FD102ARM	10.2" LCD display widescreen (various arm mounts)	\$4,186 – 4,766
	FD151CV-LP	15" LCD display with infrared remote. Bulkhead mount. Low profile.	\$5,350
	FD171CV	17" LCD display with infrared remote. Bulkhead mount.	\$6,094
	FD201CV-LP	20" LCD display with infrared remote. Bulkhead mount. Low profile.	\$8,200
	FD300CV	30" LCD display with infrared remote. Bulkhead mount.	\$13,673
	FD420CV	42" LCD display with infrared remote. Bulkhead mount.	\$17,232
	FD200CPU-3	Moving-map remote unit. Worldwide database. RS-232	\$6,562
	FD200CPU-4	Moving-map remote unit. Worldwide database. ARINC 429	\$7,813
		Various LCD mounting schemes (arm, bulkhead and ceiling)	\$2,166 – 9,419
	FD932DVD-2	DVD/CD/MP3 player	\$655
	FD932DVD-LP	Low-profile DVD/CD/MP3 player	\$855
	FD900X3	900MHz 3-channel transmitter for cabin wireless headsets	\$782
	FD600CAM	Flight View cockpit camera	\$1,250
	FD600CAM-2	High-resolution cockpit camera	\$1,750
	Various amplifiers and splitters	\$938-1,875	

All prices are subject to change. Please contact the individual manufacturer or authorized dealer for current pricing.

## Mid Continent Controls

Mid Continent Controls Inc. is a well-established provider of cabin management and in-flight entertainment systems for the business aircraft industry. Its line encompasses audio, video, source players, flight information and cabin AC power. Providing all the distribution amplifiers, cabin control units and cabin displays completes the company's line.

The centerpiece of Mid Continent Controls' new auto-config system features a cabin management module (CMM)



Mid Continent Controls offers a full line of cabin entertainment and power distribution systems.

equipped with "auto-detect" ports, enabling this unique "black box" to know exactly what and where IFE components are located within the aircraft, making installation much simpler.

Flight information system data is available as an option for switch-panel displays or a monitor overlay, and select switch panels for the system feature a display  
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# IN-FLIGHT ENTERTAINMENT SYSTEMS COMPARISONS

MANUFACTURER	MODEL	DESCRIPTION	PRICE
<b>Honeywell</b>	C-Series & E-Series	Full complement of cabin entertainment and communications systems for corporate aircraft.	Call Honeywell
<b>Mid Continent Controls</b>		Full complement of cabin entertainment and communications systems for corporate aircraft.	Call Mid Continent
<b>PS Engineering</b>	PAV80	AM/FM radio, CD/MP3/MP3Pro for music, plus DVD video. Panel mounted and integrated to intercom.	\$2,995
	PVT801	5" LCD display unit. One included with PAV80	\$395
	PMA7000CD	CD/MP3 player. Remote mounted and paired with PMA7000 audio panel for control.	\$2,399
	PCD7100-I	Intercom, CD/MP3	\$1,279
	PCD7100-P	Stand alone CD/MP3/MP3Pro player. Panel mount.	\$999
	PXE7300	CD/MP3 and AM/FM radio. Panel mount.	\$1,495
	PMA8000-SR	Audio panel with internal IFE and Sirius satellite radio.	\$2,590
<b>Rosen Aviation</b>	0600-001	RosenView passenger information system	Call Rosen
	6500	6.5" Display, arm mount – NTSC, PAL, SECAM & RS170 (b&w)	
	7000	7" Widescreen, arm mount – NTSC	
	7001	7" Widescreen, sidewall mount – NTSC	
	8403	8.4" Display, arm mount – NTSC, PAL, SECAM	
	1042	10.4 Display, arm mount – NTSC, PAL, SECAM and RGB	
	1500	15" Display, arm mount – NTSC, PAL, SECAM, RGB & RS170	
	8403	8.4" Display, bulkhead mount – NTSC, PAL, SECAM	
	1042	10.4" Display, bulkhead mount – NTSC, PAL, SECAM, RGB	
	1500	15" Display, bulkhead mount – NTSC, PAL, SECAM, RGB & RS170	
	1700	17" Display, bulkhead mount – NTSC, PAL, SECAM, RGB & RS170	
	1701	17" Widescreen, bulkhead mount – NTSC, PAL, SECAM, RGB & RS170	
	2002	20" Display, bulkhead mount – NTSC, PAL, SECAM, RGB, RS170, S-Video & DVI	
	1710	17" Display, fold-down mount – NTSC, PAL, SECAM, RGB & RS170	

**Note: Many of the list prices vary dependent on installation kits and optional features.**

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with unique capabilities for ease of visibility over a wide range of lighting conditions and viewing angles. All auto-config components have been designed for minimum current consumption, cabling and weight.

## PS Engineering

Until PS Engineering ventured into the in-flight entertainment market, very few systems were designed either specifically for single/twin/turboprop aircraft, or they were just too expensive. PS Engineering makes a family of IFE systems fitting within the

budget of just about every aircraft owner.

The PAV80 is an all-in-one system that includes an AM/FM radio, CD/MP3/MP3Pro and DVD players. When coupled with an audio-control system, such as the PMA7000B, the pilot and copilot can listen to the radio while the





PS Engineering's PCD7100-P is a stand-alone CD/MP3/MP3Pro player.

DVD movie audio is provided to the passengers or visa versa. This feature gives aircraft occupants unprecedented control over their audio entertainment. As a companion, PS Engineering offers the PVT801, a 5-inch LCD display that can be installed near the seat or on a bulkhead.

The PMA7000CD audio control panel includes the circuits and controls to operate a remote-mounted CD/MP3 player. The audio panel controls the single-disk player, eliminating the push-buttons on the CD player itself. This reduces panel space requirements by 25 percent, as well as lowers the cost. To make room for the CD controls, the archaic DME and ADF buttons were dropped (although the audio inputs are still functional) and replaced with the CD controls.

The PCD7100-P is the least expensive, but still certified, CD/MP3/MP3Pro player. The PCD7100-P is a stand-alone CD/MP3/MP3Pro player, providing a low-cost alternative to memory sticks. The MP3Pro can burn nearly 20 hours of music on one CD.



Rockwell Collins offers a complete line of In-Flight Entertainment and communication systems. Shown here is the personal display mounted on an armrest.

PS Engineering's newest entry, the PXE7300, combines an AM/FM radio with an optional Sirius satellite radio system. Combining three entertainment systems — MP3, CD, AM/FM radio — the PXE7300 brings to the aircraft owner a system that not only is reasonably priced, but also has the functionality that makes sense in the cockpit.

### Rockwell Collins

Rockwell Collins' cabin electronics encompass a broad range of stand-alone products, including moving maps, audio/video systems and high-speed data communications, as well as fully integrated cabin systems that provide the latest in business connectivity, information, entertainment and cabin management units.

Its complete line of display units, players, switch panels, controllers and distribution units provides control and display of the integrated source equipment — Airshow 4000, Tailwind TV and AirPlay DVD, CD and VCR players.

Rockwell Collins eXchange is an integrated airborne connectivity system that provides multi-region direct broadcast satellite (DBS) TV and broadband data. The system uses a single tail-mounted antenna for maximum service availability (with minimal antenna blockage) and minimum weight at the top of the tail. The system seamlessly switches between DBS TV and broadband data modes with a simple command built into the cabin

distribution system (CDS). The eXchange data service is provided by Connexion by Boeing, utilizing the same service infrastructure used by Boeing's commercial aircraft customers.

Airshow 4000 moving maps provide real-time locations, flight time, points of interest, altitude and safety briefings to enhance the traveler's flying experience. Up-to-the-minute information includes content from CNN, Bloomberg, *The Wall Street Journal*, ESPN and Weather Services International (WSI), which can be constantly updated so business travelers are never out of touch. The Airshow 4000 system features the latest in-flight information technology. It is designed to replace previous Airshow units (the Airshow 400 and Airshow Network) and minimize installation issues. It is the same size and shape as the systems it replaces. No additional cabin wiring is required unless a customer wants to take advantage of the system's new Ethernet connect or its dual-channel audio.

Rockwell Collins continues development of the next generation airborne TV systems with Tailwind 500 and Tailwind 550. The new high-tech, high-performance direct broadcast satellite antenna system takes advantage of the latest scientific and engineering expertise in satellite technology. This technological breakthrough provides unparalleled worldwide satellite television performance, even in the Middle East where reception is difficult.

### Rosen Aviation

Rosen Aviation has been supplying LCD cabin displays for more than 15 years, combining

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the latest flat-panel display technology with innovative mounting products. The company's displays range in size from the seat arm-mounted 6.5-inch VGA display to the bulkhead-mounted 42-inch hi-definition gas plasma display. Rosen developed the patented "plug-in" arm assembly nearly 20 years ago. Today, Rosen's SlimLine arm assemblies continue the tradition of innovative personal entertainment flat-panel display applications.

Rosen Aviation's displays are offered as original equipment on all Gulfstream, Cessna and Falcon jets. The company continues to innovate with enhancements such as the Pogo Pin connector and a video-source select switch option for the 5.6-inch, 7-



Rosen offers many cabin displays to suit any installation. Shown here is the 17 inch bulkhead display with the RosenView moving map.

inch and 8.4-inch display models. All of its products accept a wide variety of input signals, including composite and RGB (computer graphics) capability.

Rosen's newest product, RosenView, is a moving map system designed to be an affordable yet feature-rich moving map and passenger briefing system. It is designed to fill the void between expensive, top-end systems and

simple, inexpensive ones. There are user-selectable choices for map details, dozens of zoom-level choices, custom aircraft icon choices, custom points of interest icon choices and custom cabin briefings. Customers can even create their own backgrounds or startup screens. ■

**Alto Technologies**  
[www.altoaviation.com](http://www.altoaviation.com)

**Avionics Innovations**  
[www.avionicsinnovations.com](http://www.avionicsinnovations.com)

**Flight Display Systems**  
[www.flightdisplay.com](http://www.flightdisplay.com)

**Honeywell**  
[www3.bendixking.com](http://www3.bendixking.com)

**Mid Continent Controls**  
[www.midcontinentcontrols.com](http://www.midcontinentcontrols.com)

**PS Engineering**  
[www.ps-engineering.com](http://www.ps-engineering.com)

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[www.rockwellcollins.com](http://www.rockwellcollins.com)

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[www.rosenaviation.com](http://www.rosenaviation.com)