Audio Panel Systems
Buyer's Guide

BY PAUL NOVACEK

The audio panel is a pilot's interface link to all that is sound. It's a central point of communications control, both to the external world and fellow crew or passengers.

The old days had pilots flipping switches scattered around the panel and yelling to fellow crew who were only a foot away. Thankfully, we've progressed since then, and now have all the audio controls and amplifiers in one convenient location: the audio panel.

Available in multiple configurations and sizes, there's a solution to every communications dilemma. In its basic form, the audio panel performs the simple functions of audio source selection and distribution. A pilot selects what he wants to listen to and where those audio signals go. Beyond that, a multitude of functions are available to impress any audiophile.

Audio panels now offer features such as voice-activated intercoms, public address amplifiers, stereo music players, marker beacon receivers, phone or satellite radio interfaces, fail-safe modes, communications recorders and pilot-configurable flexibility — all squeezed into compact boxes taking up very little panel space.

Most intercoms include isolation mode functions. A panel switch selects how the crew and passengers are connected to the party line and music. The "all" or "normal" mode allows everybody to communicate on a common party line. The "crew" mode allows the pilot and copilot to communicate with each other, while passengers can communicate amongst themselves. The isolation (ISO) mode separates the pilot from all others when air traffic control (ATC) communications dictate full concentration.

The intercom VOX feature automatically senses when a person speaks into his or her microphone, then only allows one microphone to be heard in the headphones of others. This capability prevents the ingestion of engine or wind noise into the system, thus eliminating the constant hiss that would be present if all the microphones were open to the party line. However, in extremely high-noise environ-ments, such as with helicopters or warbirds, the VOX circuits are overwhelmed and it is still necessary to install push-to-talk switches for the intercom.

Com split modes allow the pilot to transmit and receive on Comm-1, while the copilot is isolated and able to transmit and receive on any of the remaining coms. This is a handy feature when things get busy. The copilot can check on the weather or call ahead to the FBO, while the pilot can stay in constant communication with ATC.

Offered with some units, a handy digital voice recorder continually records the radio audio in the pilot's headset. With the push of a button, the previous few minutes are available for playback in the headphones. The pilot instantly can play back missed radio messages or a received clearance. The length of time recorded varies between manufacturers and specific models.

The Becker AS 3100 offers redundant amplifiers, four-transceiver control and VOX or PTT intercom.

Many of the audio panels can interface with a standard cell phone by using a special adapter cable. Although this sounds convenient to many busy folks, cellular telephone use in-flight still is not permitted. Many studies have proven even the most innocent-looking handheld electronic device greatly interferes with airborne avionics systems.

Avionics designed for large and air transport aircraft generally combine the entire avionics suite into a completely integrated system. Although the audio controller in the pedestal is a separate unit, its integration into the entire system prevents any meaningful price comparisons. Therefore, this Buyer's Guide focuses on audio panels designed for retrofit or original equipment in general aviation, corporate aircraft and helicopters.

The accompanying chart offers a brief description and starting price for each unit.

Becker Avionics

The German manufacturer Becker Flugfunkwert GmbH produces a comprehensive, high-quality range of communications and navigation products.

Becker's audio panel for general aviation aircraft and helicopters is the AS 3100. The Dzus-mounted unit provides audio control of four transceivers, five receivers and a public address system. The standard two-place intercom can be expanded to multiple positions with the addition of an IC 3100 remote amplifier.

Accommodating its role in law-enforcement and medivac helicopters, the AS 3100 fea-

tures redundant capabilities for increased dispatchability. A panel pushbutton swaps between dual amplifiers, providing for a hot spare in case of an amplifier failure.

For more information, contact Becker Avionics at 877-562-3253 or visit www.beckerusa.com.

Garmin

Garmin offers two models of audio panels: the GMA 340 and the GMA 347.

The GMA 340 audio panel controls up to three transceivers and four additional nav receivers. The split mode allows the pilot to transmit/receive on Comm-1, while the copilot communicates over Comm-2. There are two unswitched inputs for telephone ringers, altitude alert warnings or other warning tones.

The GMA 340 includes a six-place, voice-activated intercom with three selectable modes of isolation, dual stereo music inputs and independent pilot/copilot/passenger volume controls. Also standard is the three-light marker beacon receiver/indicator with high/low sensitivity selection and audio muting.

For added capability, Garmin's GMA 347 audio panel provides automatic squelch control, a digital clearance recorder and a full-duplex telephone interface, in addition to three more unmuted audio inputs. The digital clearance recorder continuously captures the last 2½ minutes of audio. A missed frequency change or clearance can be replayed simply by pressing the "play" button. The GMA 347's full-duplex telephone feature allows private telephone calls by the pilot or copilot, or multi-party calls with crew and/or passengers.

For more information, contact Garmin at 913-397-8200 or visit www.garmin.com.

Honeywell

Honeywell offers the Bendix/King line of audio panels for general aviation, corporate and helicopter fleets. Many of its units have stood the test of time. As older communications and navigation equipment is replaced with newer models, many of the old King audio panels keep their proud perch atop the radio stack.

The reliable KA 134 is

Honeywell's KMA 28, offers a complete set of controls for all the latest radios and passenger entertainment systems.

The Garmin GMA 340 provides audio control, a six-place intercom and marker beacon receiver.

AUDIO PANEL SYSTEMS COMPARISONS

MANUFACTURER	MODEL	DESCRIPTION	PRICE
Becker	AS 3100	Dzus mount, 4-com/5-nav, 2-seat (expandable) VOX intercom	$4,495
Garmin	GMA 340	Panel mount, 3-com/4-nav, split comm, 6-seat stereo intercom, marker beacon	$1,840
	GMA 347	Panel mount, 3-com/4-nav, split comm, stereo intercom, marker beacon, clearance recorder, digital squelch, duplex phone interface	$2,395
Honeywell	KA 134	Low-profile panel mount, single channel, 3-com/5-nav	$2,230
	KMA 24	Panel mount, 3-com/5-nav, marker beacon receiver	$1,520
	KMA 24H	Panel mount, 5-com/5-nav -or- 4-com/6-nav, 5-seat intercom	$1,850
	KMA 28	Panel mount, 2-com/6-nav, split comm, remote comm swap, dual music, telephone, 6-station auto-VOX intercom and marker beacon receiver	$2,490
Northern Airborne Technology	3110	Dzus mount, single channel, 6-com/7-nav, intercom	See Dealer
	310	Dzus mount, single channel, 5-com/6-nav, 6-seat intercom	
	AMS43	Dzus mount, single channel, 5-com/6-nav, 6-seat intercom	
	AMS44	Dzus mount, dual channel, 5-com/5-nav, 7-seat intercom	
	AA12S	Dzus mount, single channel, 3-com/4-nav, stereo music, 4-seat intercom	
	AMS50	Panel mount, 3-com/5-nav, 6-seat stereo music intercom, marker beacon receiver	
	N301A	Dzus mount, single channel, 6-com/4-nav, split intercom	
	N335	Dzus mount, dual channel, 8-com/14-nav, split intercom	

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Honeywell's most basic audio panel designed for light general aviation aircraft and the kitbuilt fleet. The 1-inch high unit features a speaker amplifier and control of a basic avionics system.

Once the mainstay in the general aviation fleet, the KMA 24 provides control over VHF coms, HF or telephone systems. The straightforward operating unit also contains a built-in marker beacon receiver and multiple inputs for warning systems. Its bigger brother, the KMA 24H, is designed specifically for the more complex communications requirements of helicopters. It can control up to five transceivers, necessary for the utility roles of law-enforcement and medivac helicopters. The built-in voice activated intercom also can interface with a second KMA 24H, providing true dual-channel communications capability and allowing each pilot separate control over the radios.

Honeywell's most recent addition, the KMA 28, offers a complete set of controls for all the latest radios and passenger entertainment systems. The split transceiver mode allows the pilot and copilot to communicate on separate transceivers, while the six-station voice-activated intercom provides complete isolation control over the stereo music and chatter.

For more information, contact Honeywell at 800-601-3099 or visit www3.bendixking.com.

Northern Airborne Technology

Canadian avionics manufacturer Northern Airborne Technology (NAT) has been a leading designer and manufacturer of specialized aircraft communications equipment since 1979. A member of the Cobham Avionics & Surveillance Division, NAT specializes in aircraft com-

MANUFACTURER	MODEL	DESCRIPTION	PRICE
PS Engineering	PMA8000B	Panel mount, slide-in for GMA-340, 2-com/6-nav, split comm, 6-seat stereo intercom, iPod/cell phone jack, digital recorder, marker beacon receiver	$1,995
	PMA8000-SR	Panel mount, slide-in for GMA-340, 2-com/6-nav, split comm, 6-seat stereo intercom, SIRIUS satellite radio, cell phone jack, marker beacon receiver, optional recorder	$2,590
	PMA7000B	Panel mount, 3-com/6-nav, split comm, 6-seat stereo intercom, phone interface, marker beacon receiver, optional recorder/ aural warning	$1,895
	PMA7000CD	Panel mount, 3-com/6-nav, split comm, 6-seat stereo intercom, CD player, phone, marker beacon receiver, optional recorder	$2,399
	PMA6000C	Panel mount, slide-in for KMA-24, 3-com/6-nav, split comm, 6-seat intercom, optional recorder	$995
	PMA6000MC	Panel mount, slide-in for KMA-24, 3-com/6-nav, split comm, 6-seat intercom, marker beacon receiver, optional recorder	$1,295
	PAC24	Panel or vertical mount, slide-in for KMA-24H, 5-com/4-nav, split comm, 5-seat intercom, cell phone interface, optional recorder	$2,395
	PMA4000	2-inch round mount, 2-com/2-nav, 4-seat intercom, music input, optional recorder	$849
TEAM Avionics	SIB31	Dzus mount, 4-com/4-nav, 5-seat PTT intercom	See Dealer
	SIB45	Dzus mount, 6-com/8-nav, 5-seat PTT intercom	
Technisonic Industries	A710	Dzus mount, 6-com/4-nav, 10-station intercom, optional voice messaging	$3,455
	A711	Dzus mount, 6-com/4-nav, 10-station intercom, individual volume controls, optional voice messaging	$4,168
VAL Avionics	AP 100	Low-profile panel mount, single channel, 2-com/3-nav	$495

All starting prices are subject to change. Please contact an authorized dealer for current pricing.

munications equipment for air ambulance, law enforcement, search and rescue, electronic newsgathering, military, marine and many other applications requiring management of multiple communications radios.

NAT's audio controllers are highly configurable during installations, simplifying the interface between airborne, land mobile and marine transceivers. The switch-panel configurations are designed to reduce confusion in high workload environments.

In addition to its audio controllers, the NAT product line includes radio control heads, FM radios, stand-alone intercoms, loudhailers, satellite communications systems and airborne data-management systems.

All of NAT's audio controllers — except for its flat-pack AMS50 stereo audio panel — are Dzus-

NAT's panel-mount AMS50 features a six-place stereo music intercom, split com and marker beacon receiver.

rail mounted for installations in pedestals. Many of its controllers are "plug-and-play" replacements for older military or air-transport installations. Depending on the model and installation, most of the controllers provide features such as live/keyed/VOX intercoms, active noise filtering, split-mode transmit capability, cell-phone interfaces, speaker amplifiers, an emergency fail-safe mode, multiple warning system inputs, a CVR output and stereo music.

All NAT units provide the capability to expand using various combinations of NAT products, resulting in the system flexibility to support demanding GA and corporate audio system requirements.

For more information, contact Northern Airborne Technology at 888-763-2232 or visit www.northernairborne.com.

PS Engineering

Founded in 1985, PS Engineering offers a full line of audio control and in-flight entertainment products for general aviation and helicopter fleets. Since its inception, PS Engineering has focused its efforts solely on advanced audio control products for aviation. Its mastery of innovative technology has rewarded PS Engineering with many patents and awards.

Included within each audio panel is PS Engineering's patented IntelliVox automatic intercom squelch system, which eliminates traditional knobs or pushbuttons. The system determines if the microphone is picking up voice or aircraft noise. It then opens instantly when voice is detected. This makes conversations seam-

PS Engineering's most capable PMA8000B offers pilot-customizing, iPod/cell-phone jack and voice recorder.

less, even in a noisy aircraft. Although for truly noisy aircraft, PS Engineering provides the option of a push-to-talk switch installation.

All PS Engineering flat-pack audio panels come standard with the split com feature, allowing separate transceiver communication for the pilot and copilot. Some units feature multiple music input jacks, allowing the kids in the back control over their own iPod selections. PS Engineering also offers its patented Karaoke Mode, which doesn't completely mute the music when somebody speaks, but places it in the background.

An innovative feature offered for its PMA7000B, the digital recorder aural warning system (DRAWS) provides two functions. The continuous-loop digital recorder monitors the audio in the pilot's headset and can replay the previous 16 messages or up to a limit of one minute. The DRAWS also features an aural warning system that can play six different voice-warning messages, such as oil, fuel or battery alerts.

The PMA7000CD audio control panel includes the circuits and controls to operate a remote-mounted CD/MP3 player. The audio panel controls the single-disc player, eliminating the pushbuttons on the CD player itself. This reduces panel space requirements by 25 percent, not to mention costs. To make room for the CD controls, the

archaic DME and ADF buttons were dropped (although the audio inputs still are functional) and replaced with the CD controls.

PS Engineering's newest audio panel, the PMA8000B, employs Smart function keys, allowing pilots custom control over the way the front-panel jack interfaces with an iPod, cell phone or alert messages from a GPS396. The virtual tech support voice prompts each selection, assuring the pilot knows exactly what the new audio panel configuration is, in plain English. Six different configurations can be selected from the front panel, such as how the music inputs are distributed, the way the intercom functions, and how the front jack is distributed. Once a particular configuration is selected, a female voice will announce the selection.

The PMA8000B can be equipped optionally with a Sirius satellite radio receiver, complete with glareshield-mounted antenna and handheld remote control. Both the PMA8000B and PMA8000SR (Sirius) are slide-in replacements for the Garmin GMA 340.

The PAC24 is a slide-in replacement for the King KMA-24H-71, a popular audio panel installed in high-performance and rotary-wing aircraft. In addition to providing all the capabilities of the old KMA-24H, the PS Engineering PAC24 adds a full-functioned intercom with stereo music inputs and cell-phone interface. Many helicopters are

equipped with two KMA-24Hs to enable dual-channel communications. The PAC24 provides this capability in a single horizontal or vertically mounted unit.

PS Engineering's smallest audio panel, the PMA4000, can fit a 2 ¼-inch instrument hole and provide control over dual coms and dual navs. The full-functioned, four-place intercom was designed for the demands of a tandem cockpit, providing a remote volume control for the copilot. An optional digital recorder can provide up to one minute of stored radio reception.

For more information, contact PS Engineering at 800-427-2376 or visit www.psengineering.com.

TEAM Avionics

Satori Air Services of Montreal, Quebec, was founded in 1985 as TEAM Inc., a subsidiary of TEAM SA in France. It distributes the TEAM Avionics line, which is built in France. In addition to audio panels, TEAM manufactures in-flight entertainment accessories, radio display/control panels, cockpit voice recorders and SELCAL units.

Intended primarily for helicopter installations, the SIB31 and SIB45 audio management systems are composed of a central junction box and multiple-station control units. The SIB31 system allows for a maximum interface of four transceivers and four navigation

TEAM Avionics SIB45 audio management system is intended primarily for helicopter installations.

channels, while the more capable SIB45 system interfaces six transceivers and eight navigation channels.

Both models allow for highly configurable installations, simplifying the interface between airborne, land mobile and marine transceivers. The switch-panel labels can be changed in the field, easily adapting to changing requirements.

Accommodating its role in law-enforcement and medivac helicopters, the SIB31 and SIB45 systems feature redundant capabilities for increased dispatchability. A panel switch swaps between dual amplifiers, providing for a hot spare in case of an amplifier failure. Additionally, the entire system is supplied from two independent power sources.

For more information, contact Satori Air Services at 514-745-1600 or visit www.airsatori.com.

Technisonic Industries Ltd.

Technisonic Industries Ltd. is based out of Toronto, Canada. Since 1990, the company has focused its efforts on the development of aeronautical band VHF ground equipment and special mission airborne RF and audio communications systems.

Technisonic communications systems have been installed in virtually every kind of aircraft and are used daily in military Black Hawks, Chinooks, Hueys and the C-130 Hercules. Technisonic products also are installed in the Presidential and Forest Service helicopter fleets.

Two of its more popular audio controllers, the A710 and A711, offer multiple band-pass amplifiers, enabling independent audio contouring for transceiver audio, alerting audio and music.

Individual transceiver status annunciation provides quick confirmation of selected transceivers.

The shorter A710 requires audio input levels to be set at each individual transceiver, while the bigger A711 provides separate panel level controls for all transceiver inputs. Each has an optional voice message storage/replay function with priority handling.

The A710 and A711 controls are designed to be continuously expanded, re-labeled and

The Technisonic A711 provides individual volume controls for six transceivers, a 10-seat intercom and optional voice message storage/replay.

upgraded in the field, and can be easily re-configured as the aircraft systems are changed or improved. Up to 10 crew stations and up to six crewmembers per crew station can be supported within a single aircraft. Many special modes and functions, such as voice alerting, voice storage, night-vision compatibility and custom panel legends, can be implemented to provide a high level of customization. The modular construction permits easy "one-shot" solutions for unusual mission specific problems.

For more information, contact Technisonic Industries Ltd. at 905-890-2113 or visit www.til.ca.

Val Avionics

Easily the smallest panel-mounted audio panel on the market, the 1-inch-high Val Avionics

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AP 100 is intended to provide a simple communications solution for a variety of aircraft panels, from homebuilts to heavy twins.

The AP 100 audio management system features pushbutton com selection, nav audio switching, a speaker amplifier, marker audio mute with auto reset, and active mic key indicator lights.

In addition, four un-switched inputs are available for audio, such as DME, ADF, autopilot

The 1-inch-high Val Avionics AP100 controls two transceivers and three nav receivers.

alerts or any other audio source commonly routed to the aircraft headphone and cabin speaker systems. A fail-safe feature automatically connects the pilot's headphones and microphone to the Comm-1 radio if power is removed from the audio panel or the unit is powered down.

Val Avionics also manufactures a panel-mount VHF com, ground-based station, helicopter intercom and an "all-in-one" nav system with VOR, glideslope, localizer and three-light marker beacon receiver.

For more information, contact Val Avionics at 800-255-1511 or visit www.valavionics.com. ∎