AVCOMM Aviation Products

Description: AVCOMM AC6PA is designed to provide the highest level of audio performance in a voice activated (VOX) panel mount intercom. The rugged construction is built to withstand the extreme conditions common in open or closed cockpit aircraft. The solid extruded aluminum framework dramatically reduces radio frequency interference (RFI) and will fit virtually anywhere on the panel. Thermoplastic Elastomer gaskets seal out moisture and dust for trouble free performance. Inside, a streamlined circuit board features ceramic hybrid IC chips for high reliability. The AC6PA is compatible with either 12 or 24-volt electrical systems and is designed for use with up to six headsets so you can start with the pilot and co-pilot positions and add passenger positions as needed.

Quick-install kit: This kit makes it a snap for almost anyone to install the AC6PA without the tedious time-consuming task of soldering individual connectors. Preparation of the instrument panel is simplified with the transparent template included in the kit. The pilot and co-pilot jacks are pre-wired with reinforced tensile copper wiring with spiral shielding and a polyurethane cover. The harness and intercom feature a simple DB25 pin connection. Color coded wiring, molex connectors and simple, straightforward instructions make it possible to be flying in two hours or less.

DXAC6PA Intercom with Quick-install Kit	
1	PN#AC6PA - Aviation panel mount intercom
1	- Clear adhesive template
1	Standard hardware sets: 4 ea. (screws, washers, nuts)
3	Self-tapping hardware sets: 4 self-tapping screws
4	Molex connectors
20	Crimp pins
1	PN# I0404 – Quick-install harness
2	PN# I0420 – Quick-install headset jack kit (5 ft.)
1	PN# I0412 – Quick-install radio wire
2	PN# I0411 – Quick-install PTT wire
1	PN# I0430 – Quick-iinstall audio panel

Optional Accessories	
	PN# I0410 – Quick-install solder less radio adapter
	PN# I0421 – Quick-install headset jack kit (12 ft.)

DB25 Connector
(rear view of intercom)
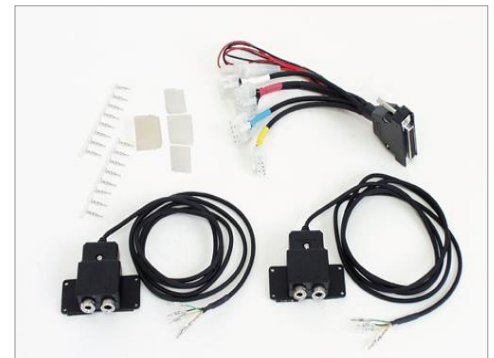
DXAC6PA Quick-install kit

DXAC6PA General Specifications:

Electrical	Control / Features	Mechanical
Voltage range: Aircraft: 12 ~ 28V DC Current consumption: 33 mA typical w/2 headsets Max current consumption: < 90 mA Audio output power: 250 mW Mic source impedance: 680 ohms Mic source voltage: 8 ~ 9.6 V typical Headphone impedance: 150-1000 Ω typical Audio distortion: <10% @ 85 mW into 150 Ω load 3 dB Mic frequency response: 300 Hz-3000 Hz	Voice activated (VOX) Fail-safe pilot isolate Volume control Squelch control 2-stage LED with 'stuck mic' indicator Pilot priority PTT Stereo-IN with auto music mute Record-OUT	Number of positions: 2 – 6 places Extruded aluminum construction Thermoplastic Elastomer gaskets Pre-wired for optional passenger jacks Pre-wired for audio in–out panel Dimensions: 4.96" L x 2.69" W x 1.19" H Weight AC6PA intercom: 7.9 oz. Weight DXAC6PA intercom & kit: 23.7 oz.

Communication features:

❶ Two stage LED displays green when power is on and amber during radio transmission making a 'stuck mic' easy to spot.

❷ Voice-activated squelch circuit (VOX) adjusts to a broad range of noise environments or can be set for a continuous open-mic condition.

❸ Pilot isolate (ISO) provides exclusive pilot communications with the ATC, pilot priority PTT allows the pilot to override co-pilot transmissions.

❹ 'Fail-safe' feature (ISO position) supplies a direct connection to the aircraft radio in case the power supply to the intercom is disrupted.

❺ Music plugs in easily for in-flight entertainment with music automatically muting during intercom or radio activity.

❺ Audio-out jack allows you to document ATC transmissions or cockpit conversations, or use for video narrating.

Operating instructions:

❶ Plug all headsets into the appropriate jacks and turn on the radio and intercom. The green PWR/TX light should illuminate.

❷ Turn the volume control on the headsets to the highest point. Position the mic boom at the corner of your mouth 1/8" from your lips. Speak into the mic and adjust the volume control on the intercom to a comfortable listening level.

❸ Additional operating instructions – see chart below.

Intercom front panel

ON-OFF/Volume	Radio	Squelch	Power/TX
VOL: The volume control turns the intercom on and off and adjusts the volume of the intercom. ❶ **Power switch:** To turn the intercom on, rotate the volume control clockwise until the green PWR/TX light illuminates. ❷ **Volume:** • Increase intercom volume by turning the volume control clockwise. • Decrease intercom volume by turning volume knob counter-clockwise. • The volume control adjusts only the volume of the intercom. Use the volume control on the radio or other music source to adjust the audio level.	**Radio switch:** two positions ❶ **ISO:** Pilot's headphone and mic are connected directly to the radio. Co-pilot and passenger will not hear pilot's transmissions. This position bypasses the intercom and connects directly to the radio, 'fail-safe' feature. ❷ **ALL:** All positions can communicate through the intercom.	**Squelch control:** Voice activated circuit with manual adjustment. ❶ **Initial setting:** Start at the full clockwise position, turn the knob counter-clockwise until background noise is just silenced. ❷ **Adjustments during flight:** Re-adjust as needed for changes in noise levels. • If setting is too high, counter-clockwise, your voice will be cut out unless you speak very loudly. • If setting is too low, clockwise, background noise will be heard occasionally. ❸ **"Continuous open-mic":** rotate knob clockwise until it stops.	**PWR/TX:** 2-stage LED indicates system power and radio transmission: *Green***:** Intercom power is ON. *Amber***:** Indicates the push-to-talk is depressed and you are transmitting on the radio. If the amber light is illuminated and the push-to-talk is not activated, a 'stuck mic' condition may have occurred. Diagnosis problem or see a radio shop for repair.

IMPORTANT NOTE
Please be sure to read the complete instructions before beginning the installation.

1. **Panel space required:** minimum 89 mm (3.5") x 41 mm (1.6")
   Depth required behind panel for DB25 connector: minimum 178 mm (7")

2. **Select front panel location:** Test site by moving the aircraft flight controls through the entire range of motion to make sure there is no interference.

3. **Panel preparation:** Use the clear adhesive template provided as a pattern and position it over the selected area of the instrument panel. Cut the square opening following the template. Mark the position for the mounting screw holes, center punch the cross lines, and drill the four 4.2 mm diameter holes (Fig. 1). Slide the intercom in place. Check fit and position of the drilled mounting holes, modifying aircraft panel if needed. Remove intercom.

4. **Mount the pilot/co-pilot headset jacks:** Select a location that has good support and is easily accessible to the user. Test all flight instruments or controls adjacent to the proposed site by moving each through the entire range of motion to make sure there is no interference. Before mounting the jacks, check wire length to make sure it is sufficient to connect to the intercom. If needed, adjust jack location or re-route the wire. Mount the jacks using the 4 self-tapping screws or the 4 screws, washers and nuts provided. Drill 2.3 mm diameter holes for self-tapping screws or 3.10 mm diameter holes for screws and nuts.

Fig. 1: Panel preparation/intercom mounting

5. **Wiring general instructions:** Wrap a small piece of electrical tape around the connector pins at the end of the cables to keep them straight and prevent damage to the pins during installation. Route the wires through the aircraft frame carefully so that the connectors and wire insulation are not damaged by sharp or rough surfaces. After routing all wires, carefully remove the tape from the pins.

6. **Molex connector instructions:** Before proceeding, check the Quick-install harness diagram Fig. 2 for the location of each wired pin. Following the instructions below, work carefully and make sure the wired pins are accurately inserted into the correct location. When complete, the molex connectors are plugged into the mating connector on the wiring harness. *In case an extraction tool is needed, one can be purchased from Radio Shack (PN# 274-223).*

6.1 **Molex connector A (red)**
Quick-install pilot/co-pilot headset jacks: Follow general instruction steps 5 and 6, install the crimp pins into the molex connector A (Fig. 3).

Permanent PTT connection: To wire the yoke PTT, use the PTT wire supplied in the *Quick-install kit*. Solder the end of the wire without the crimp pins to the wire of the yoke PTT. Following the pin assignment in Fig. 4-1, install the crimp pins into the molex connector A. Molex connector A is now complete and may be plugged into the harness (Fig. 2)

Portable PTT connection (option): An easy option to the permanent PTT connection is to simply purchase an AVCOMM Deluxe Push-to-talk switch (PN# P2-001) and connect as shown in Fig. 4-2.

6.2 **Molex connector B (yellow)**   Note: the intercom is pre-wired for pilot, co-pilot and 4 passenger positions
Optional Quick-install headset jacks – passenger 1 & 2: For each passenger position, purchase a pre-wired *Quick-install headset jack kit – 12 ft.* (PN# ACI0421). Installation procedure is the same as the pilot/co-pilot headset jacks installation Follow the instructions in step 4 – 6, install crimp pins into molex connector B (Fig. 5-1). Plug into the harness (Fig. 2).

6.3 **Molex connector C (blue)**
Optional Quick-install headset jacks - passenger 3 & 4: Preparation is the same as passenger 1 & 2. Install crimp pins into the molex connector C (Fig. 5-2).

Quick-install audio panel – audio OUT: The pre-wired audio panel comes with 36" of wire with crimp pins installed. Simply mount the unit in the desired location, follow the pin assignment in Fig 6 (C5, C10) and install the crimp pins into the molex connector. Molex connector C is now complete and may be plugged into the harness (Fig. 2).

6.4 **Molex connector D (white)**
Optional Quick-install audio panel – Audio IN: Follow the pin assignment in Fig. 6 (D1, D2, D6) and install crimp pins into the molex connector.

7. **Radio connection - Intercom wired directly to radio:** Contact an avionics shop for your radio connection. The existing pilot headset jacks can be used as a convenient tie-in point for the radio connections or as a standby radio
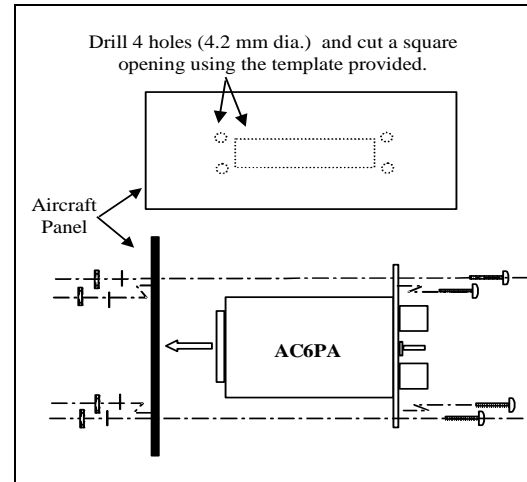
connection if the intercom is removed for servicing. See Fig. 7, #1 before beginning the radio installation. Use the radio wire supplied in the *Quick-install kit* and solder the ends of the wires without the crimp pins to the existing mic, PTT, phone and shield terminals. CAUTION: DO NOT solder the phone wire to the radio external speaker output; solder only to the radio headphone output. Following the pin assignment, install the crimp pins into molex connector. Molex connector D is now complete and may be plugged into the harness (Fig. 2).

Radio connection - Optional Quick-install solder less radio adapter: An easy option for the radio connection is to purchase a *Quick-install solder less radio adapter* (PN# ACI0410). Follow the pin assignment in Fig. 7, #2. Install the crimp pins into the molex connector D. Connect the Quick-install radio adapter mic and phone plugs into the existing aircraft radio headset jacks. The microphone jack must be wired for PTT to key the radio (most aircraft jacks are wired in this configuration).

8.   **Intercom power connection:** The intercom is designed for 12 or 24-volt D.C. systems. Connect the red and black power wires to the aircraft power source: the black wire to the negative, the red wire to the positive (Fig. 2). Voltage range for the intercom is 12 to 28 volts D.C.

Final Checkout and Adjustment

INSTALLATION CHECKLIST
✓ Prepare installation site
✓ Complete harness and wiring connections
✓ Install optional accessories
✓ Test intercom functions before permanent mounting
✓ Make adjustments if needed
✓ Finish permanent installation
✓ Re-test all intercom functions
✓ Have installation signed off by licensed A&P mechanic

Final-checkout: Checkout should be made before intercom is permanently mounted in the instrument panel. First secure the DB25 connector to the rear panel of the intercom with the two thumbscrews on the connector. Make sure the wires are not kinked, caught, or squeezed by any equipment on the instrument panel.

1. **Preset controls as follows:** Set squelch to full clockwise position; ISO/ALL switch to ALL; volume to the OFF, full counter-clockwise position. Make sure a 2-amp fuse is in the inline fuse holder and the power to the instrument panel is on. Turn the radio on first and then turn on the power to the intercom by rotating the volume knob to ¾ rotation clockwise, the PWR/TX indicator should show a green light.

2. **Test headset function:** Plug the headset mic and phone plugs into the respective intercom jacks. Put on the pilot's headset. The intercom should be operating with the squelch in the open mic mode, at fully clockwise position. As you speak you should be able to hear your voice in the headset as side tone. Repeat procedure for co-pilot, and passenger jacks if they have been installed.

3. **Test squelch:** Use the pilot jack, adjust the squelch knob counter-clockwise until the sound just disappears, then speak into the microphone. This should break the squelch and your voice then can be heard through the headset.

4. **Test radio connection:** Aircraft radio reception should be heard in all headsets regardless of the squelch setting. The volume of radio reception should be adjusted at the radio. Starting with the pilot headset, test the radio transmission by pressing the yoke PTT and performing a radio check. Repeat this test for the co-pilot headset. Please note the pilot always has priority when transmitting.

5. **Test intercom fail-safe (ISO) operation:** Turn the intercom OFF, set the intercom toggle switch to ISO position, plug a headset into the pilot jacks, turn the radio ON and test the unit (*you should be able hear the radio and transmit using the headset and push-to-talk switch even though the intercom power is off*). There should be no communication between the pilot and all other headsets in ISO mode.

6. **Test Audio Panel function:** (1) Audio In – Use a mono-stereo 3.5 mm phone plug adapter cord (not supplied) and plug into the stereo source (CD, MP3, or tape player). With headset on, turn on the intercom and the music source. Adjust the volume on the music source (volume is controlled by the music source not the intercom). When you speak through the headset, the music will automatically mute. Repeat steps 3 and 4. Make sure the music mutes when the squelch is broken by your voice or when you receive a transmission from the ATC through the intercom. (2) Audio Out – Using a mono-stereo 3.5 mm phone plug adaptor cord, plug into the microphone input jack on the recording devise (tape recorder, video camera etc). Turn recorder on and repeat step 2. Rewind the recorder and play back. Both sides of the conversation with the pilot, co-pilot, passengers and ATC will be recorded.

7. **Final connections:** Remove the DB25 connector from the intercom. Route the completed wire harness into the instrument panel to the location of the back of the intercom. Make sure the wires are not kinked, caught, or squeezed by any other equipment behind the instrument panel. To prevent wire movement and vibration, secure the wire bundles with nylon wire ties (not supplied in kit). Slide the intercom in place and install the intercom mounting screws (Fig. 1). Connect the DB25 connector to the back of the intercom.

8. **Post-installation check:**
   - Check intercom jacks and wiring harness to make sure they are clear of all aircraft operating controls.
   - Repeat *Final Checkout* steps 1–5 to make sure all intercom functions are working.
   - Consult a licensed A&P mechanic to have your installation checked and signed off [FAR part 43 requirement].