JA52-001

Microphone Bias Circuit

Installation Manual

Rev. A

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IMPORTANT:

Information in this document is subject to change without notice.

To confirm the current revision status of this manual, visit the JAC website:

www.jupiteravionics.com

RECORD OF REVISIONS

Revision	Rev Date	Description	ECR
A	May 2025	Initial release, Serial number 1001 and higher.	10116

Prepared:	Checked:	Approved:
MPB	JAC 06-03-25 MB	JAC 06-03-25 KDV

Table of Contents

SECTION 1 - DESCRIPTION

1.1 System Overview

The JA52-001 Microphone Bias Circuit is designed to provide an aircraft powered microphone bias voltage to allow a high impedance headset to interface with a low impedance intercom system. The individual components can also be used for other applications including radio receive attenuation or adding another ICS microphone to an intercom system.

1.2 Features Overview

The JA52-001 is a compact bulkhead mount product in a metal enclosure.

The JA52-001 features all Mil-Spec electrical components.

The JA52-001 features a 9-pin standard D-Sub connector to allow easy field installations.

The JA52-001 provides an adjustable microphone level output and DC blocking capacitors where required.

1.3 Inputs and Outputs

Refer to the JA52-001 connector map for the mating connector designators and pin assignments for the input and output signals.

1.3.1 Inputs

Name	Qty	Type
MIC INPUT HI/LO	1	Audio signal
POWER INPUT	1	Power supply

1.3.2 Outputs

Name	Qty	Type
ADJUSTABLE MIC OUTPUT HI/LO	1	Audio signal

1.3.3 Other

Name	Qty	Type
BIAS VOLTAGE	1	Signal
TRIMPOT HI	1	Signal
TRIMPOT WIPER	1	Signal

1.3.4 Audio Performance

Rated Input Level

Microphone input level	250 mVrms ± 10%

Rated Output Level

Mic rated output	250 mVrms ± 10%

Audio Frequency Response

Adjustable Mic audio frequency response	≤ 3 dB from 300 to 6000 Hz

Input Impedance

Microphone input impedance	150 Ω ± 10%

Output Load Impedance

Microphone Output load impedance	150 Ω ± 10%

Volume Controls

Adjustable Mic Audio control variation	30 dB ± 3 dB
Adjustable Mic Audio control turns	12 min.

Listening Test

Communications signal	Adequate for Communications

1.3.5 Audio Performance, Other

Microphone input designed for MIC type	Amplified dynamic / Electret
MIC INPUT bias voltage	15 Vdc ± 10%
MIC INPUT circuitry type	Single Ended
MIC OUTPUT circuitry type	Single Ended

1.4 Specifications

1.4.1 Electrical Specifications

Power input nominal voltage	28.0 Vdc
Power input maximum voltage	30.3 Vdc
Power input minimum voltage	22.0 Vdc
Input current	0.05 A max

1.4.2 Mechanical Specifications

Height	1.12 in [28.4 mm] max
Depth (not including connectors)	2.52 in [64.0 mm] max
Width	1.52 in [38.6 mm] max
Weight	0.13 lb. [0.05 kg] max
Material	5052-H32 aluminum
Finish	brushed with clear conversion coating
Connectors:	J1 One 9 pin D-sub male
Mounting	2 x 6-32 fasteners
Bonding	≤ 2.5 mΩ
Installation Kit	INST-JA52

SECTION 2 – INSTALLATION

2.1 Introduction

This section contains unpacking and inspection procedures, installation information, and post-installation checks.

2.2 Continued Airworthiness

Maintenance of the JA52-001 is on condition only. Scheduled inspection and/or periodic maintenance of this unit is not required.

2.3 Unpacking and Inspecting Equipment

Unpack the equipment carefully. Check for shipping damage and report any problems to the relevant carrier. Confirm that the Certificate of Conformance is included. Complete the on-line warranty card from the Jupiter Avionics Corporation (JAC) website – www.jupiteravionics.com/warrantyregistration.

2.3.1 Warranty

All JA52 products manufactured by JAC are warranted to be free of defects in workmanship or performance for 2 years from the date of purchase from an approved JAC dealer or agency. This warranty covers the cost of all materials and labour to repair or replace the unit but does not include the cost of transporting the defective unit to and from JAC or its designated warranty repair centre, or of removing and replacing the defective unit in the aircraft. This warranty does not cover failures due to abuse, misuse, accident, or unauthorized alteration or repairs.

If the on-line warranty card is not completed, the product will be warranted from the date of manufacture.

Contact JAC for return authorization, and for any questions regarding this warranty and how it applies to your unit(s). JAC is the final arbiter concerning warranty issues.

2.4 Installation Procedures

WARNING: Loud noise can cause hearing damage. Set audio system headset volumes to minimum before conducting tests and slowly increase the volume to a comfortable listening level.

2.4.1 Installation Limitations

The JA52 may be installed only by following the applicable airworthiness requirements.

2.4.2 Cabling and Wiring

All wire shall be selected in accordance with the original aircraft manufacturer's maintenance instructions, or AC43.13-1B Change 1, Paragraphs 11-76 through 11-78. Unshielded wire types shall qualify to MIL-W-22759 as specified in AC43.13-1B Change 1, Paragraphs 11-85, 11-86 and listed in Table 11-11. For shielded wire applications, use Tefzel MIL-C-27500 shielded wire with tag ring or equivalent (for shield terminations) to make the most compact and easily terminated interconnect. Follow the Connector Map in Appendix A of this manual.

Allow 3" from the end of the shielded wiring to the shield termination to allow the connector hood to be easily installed. Refer to the Interconnect drawing in Appendix A of this manual for shield termination details. Note that this unit has a 'clamshell' hood that is installed after the wiring is complete.

Maintain wire segregation and route wiring in accordance with the original aircraft manufacturer's maintenance instructions.

Unless otherwise noted, all wiring shall be a minimum of 24 AWG, except power and ground lines, which shall be a minimum of 22 AWG. Refer to the Interconnect drawing for additional specifications. Check that the ground connection is clean and well secured, and that it shares no path with any electrically noisy aircraft accessories such as blowers, turn-and-bank instruments, or similar loads.

2.4.3 Mechanical Installation

The JA52-001 can be mounted in any attitude and location with sufficient clearance for the connector body. It requires no direct cooling.

2.4.4 Post Installation Checks

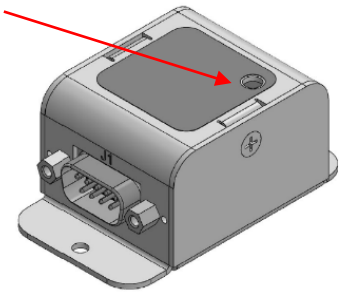
2.4.4.1 Voltage/Resistance checks.

Do not attach this unit until the following conditions are met:

a) Check all pins for shorts to ground or adjacent pins.

2.4.4.2 Configuration

The JA52 has one rotary Mic Level trimpot accessible through an aperture marked ADJ MIC on the upper face of the unit, to adjust the level of the ADJUSTABLE MIC OUTPUT signal.



This control is not normally adjusted during flight and should not be readily accessible to flight personnel.

Rotating the trimpot counterclockwise (ccw) will raise the ADJUSTABLE MIC OUTPUT signal and rotating it clockwise (cw) will lower it.

The level can be adjusted from 1 to 250 mVrms. (Default 250 mVrms)

2.4.4.3 Power on Checks.

Power up the aircraft's systems and confirm operation of all functions of the JA52.

a) Begin with a headset attached. Confirm correct operation for Mic output. Do not proceed until the headsets are functioning correctly.

b) Unusual buzzes, hums or other background audio are symptomatic of multiple grounds, or noisy external systems such as blowers or pumps sharing wiring with the audio system.

2.5 System Operation

2.5.1 Microphone Operation

The JA52-001 biases the MIC INPUT HI audio with 15 Volts though a 470 Ohm resistor. It is then level controlled and routed to the ADJUSTABLE MIC OUTPUT.

2.6 Installation Kit

The kit required to install this unit is not included with the unit. The installation kit (Part # INST-JA52) consists of the following:

Quantity	Description	JAC Part #
1	D-Sub 9-pin crimp socket housing	CON-3460-0009
1	D-Sub 9-pin Clamshell Plastic Hoods	CON-5300-0109
1	D-Sub 4-40 Jackscrews	CON-5150-0440

2.7 Installation Drawings

The drawings and documents required for Installation can be found in Appendix A of this manual.

Installation Manual

Appendix A - Installation Drawings

A1 Introduction

The drawings necessary for installation and troubleshooting of the JA52-001 Microphone Bias Circuit are in this Appendix, as listed below.

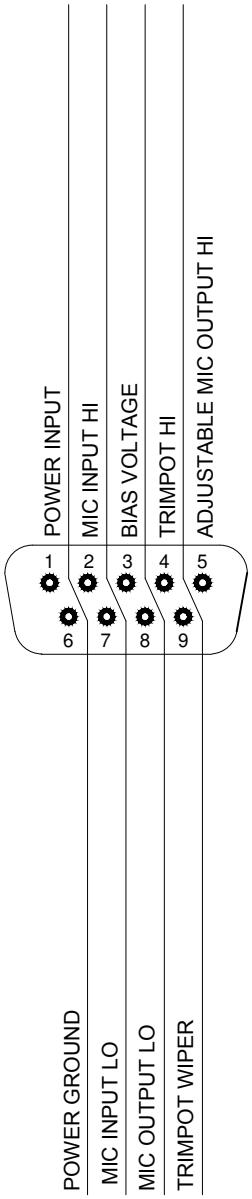
A2 Installation Drawings

DOCUMENT	Rev
JA52-001 Connector Map	A
JA52-001 Interconnect	A
JA52-001 Mechanical Installation	A
JA52-001 Schematic (Installation Version)	A

MAIN CONNECTOR

P1

9 PIN FEMALE DMIN
MATING CONNECTOR



VIEW IS FROM REAR OF MATING CONNECTOR

PREPARED	KV	JUPITER AVIONICS CORPORATION
CHECKED		TITLE: Microphone Bias Circuit P1 Connector Map
APPROVED		NCAGE CODE: L00N3 / PART NO.: JA52-001 / SHEET: 1/1
CONFIDENTIAL & PROPRIETARY TO JUPITER AVIONICS CORP.		DOC NO.: JA52-001 Connector Map Rev A

JA52-001 INTERCONNECT WIRING NOTES

NOTES

1. ALL WIRE SIZE SHOULD BE 22 AWG MIN UNLESS OTHERWISE SPECIFIED. UNSHIELDED WIRE SHOULD BE SELECTED PER FAA AC43.13-1B CHANGE 1 PARA 11-76 TO 11-78. WIRE TYPES SHOULD BE IN ACCORDANCE WITH MIL-W-22759 AS DESCRIBED IN FAA AC43.13-1B CHANGE 1 PARA 11-85 AND 11-86 AND LISTED IN TABLE 11-11 OR 11-12. ALL SHIELDED CABLE SHOULD BE IN ACCORDANCE WITH MIL-DTL-27500 (REVISION H OR LATER).

△2 CONNECTION TO AIRFRAME GROUND SHOULD BE MADE WITH 22 AWG WIRE. LENGTH NOT TO EXCEED 3 FT (1 M).

△3 CABLE SHIELDS AT JA52-001 CONNECTOR PINS SHOULD BE TERMINATED TO AIRFRAME GROUND USING A TAG RING P/N:MS27741-5 OR EQUIVALENT.

PREPARED	SK	JUPITER AVIONICS CORPORATION		
CHECKED	JAC 03-10-25 SK	TITLE: Microphone Bias Circuit		
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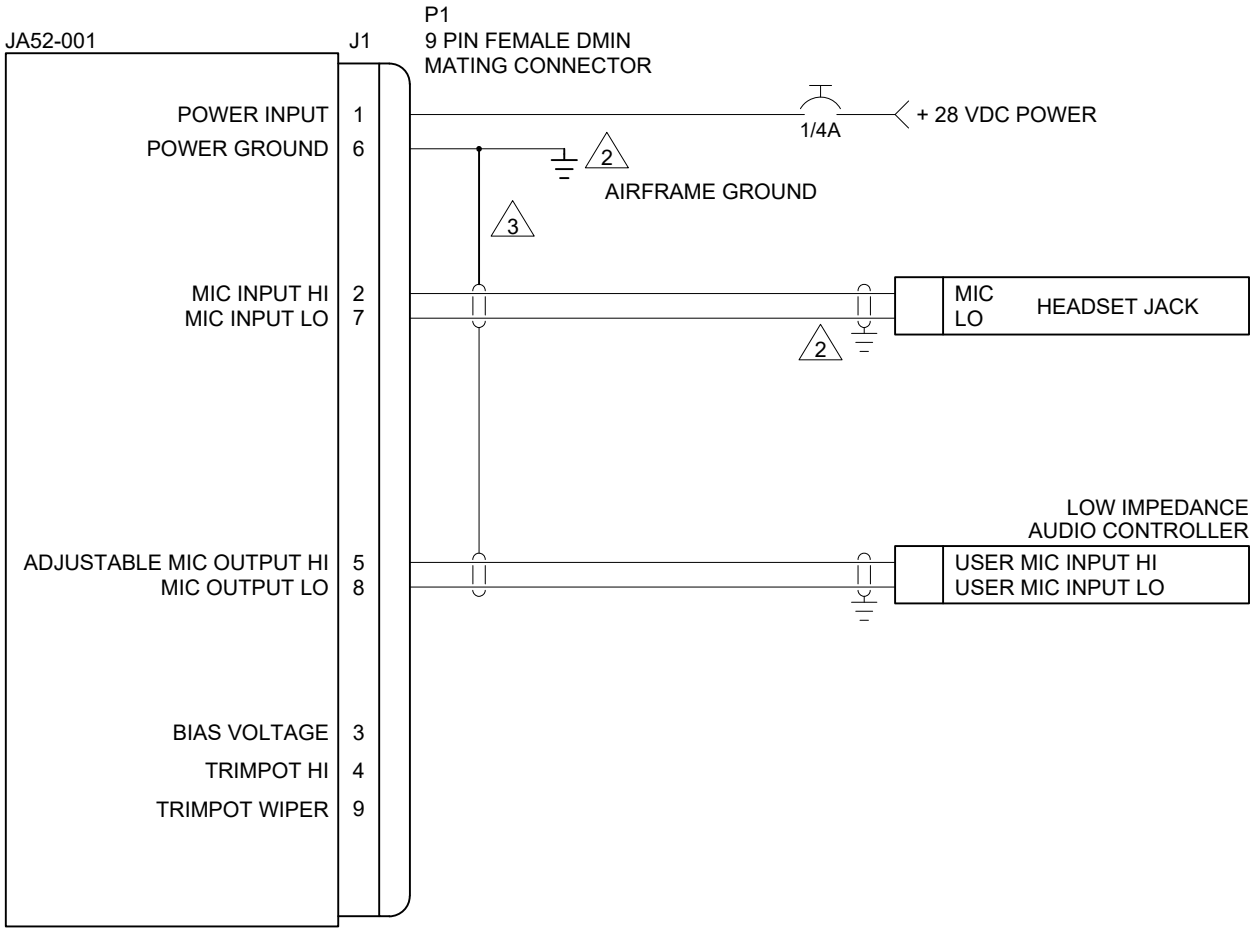
CONFIDENTIAL & PROPRIETARY TO JUPITER AVIONICS CORP.		DOC NO.: JA52-001 Interconnect Rev A.dwg		



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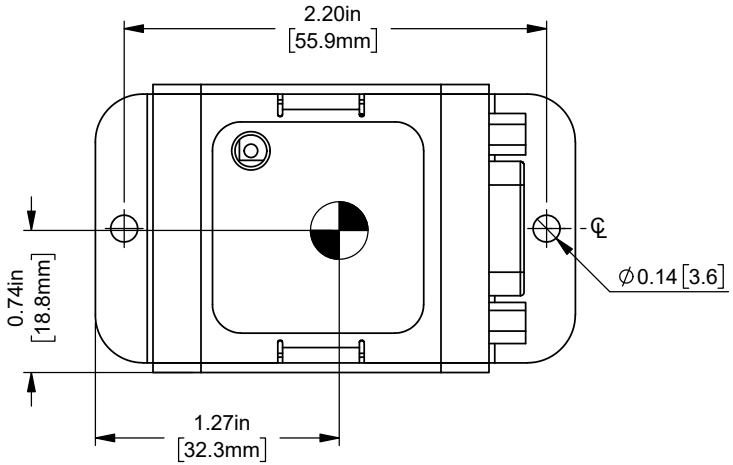
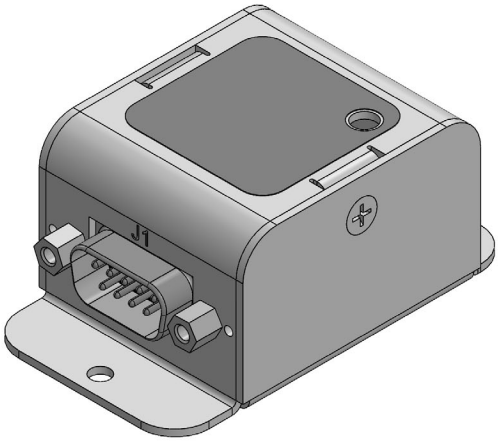
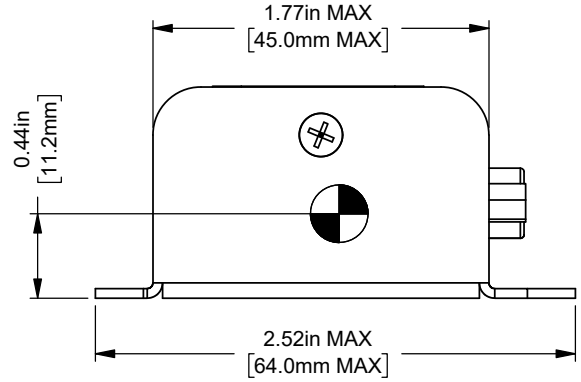
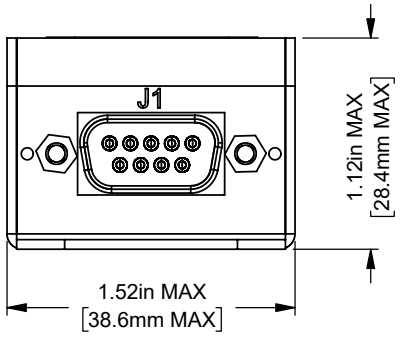
CONFIDENTIAL & PROPRIETARY TO JUPITER AVIONICS CORP.		DOC NO.: JA52-001 Interconnect Rev A.dwg		









CENTER OF GRAVITY
±0.03in [0.8mm]

WEIGHT: 0.13 lbs [0.05 kg] MAX..

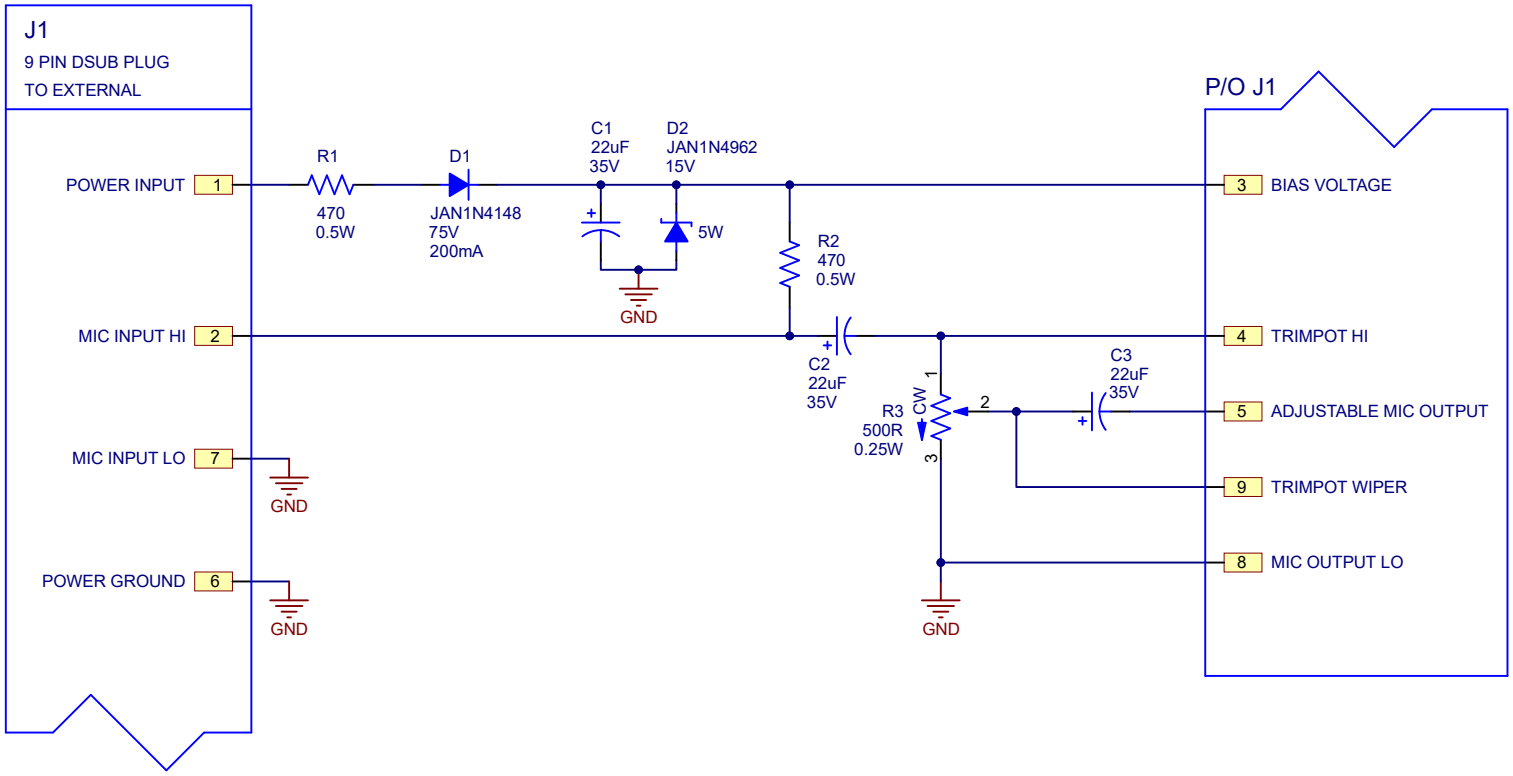
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES ANGLES ARE IN DEGREES TOLERANCES: 1 DEC PLACE: ± 0.1 2 DEC PLACE: ± 0.01 3 DEC PLACE: ± 0.005 ANGLES: ± 0.5 DEG	PREPARED	TAT
	CHECKED	JAC 03-13-25 TAT
	APPROVED	JAC 03-13-25 KDV
MATERIAL: N/A	CONFIDENTIAL & PROPRIETARY TO JUPITER AVIONICS CORP.	
FINISH: N/A	DRAWING NOT TO SCALE	

JUPITER AVIONICS CORPORATION

TITLE: Microphone Bias Circuit

NCAGE CODE	PART NO.	SHEET
L00N3	JA52-001	1/1

DOC. NO.
JA52-001 Mechanical Installation Rev A.SLDDRW



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CHECKED	JAC 04-01-25 SK
APPROVED	JAC 04-01-25 KDV

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JUPITER AVIONICS CORPORATION

TITLE: Microphone Bias Circuit

SIZE	NCAGE CODE	PART NO.	SHEET
A	L00N3	JA52-001	1 / 1

DOC NO. JA52-001 Schematic (Installation Version) Rev A