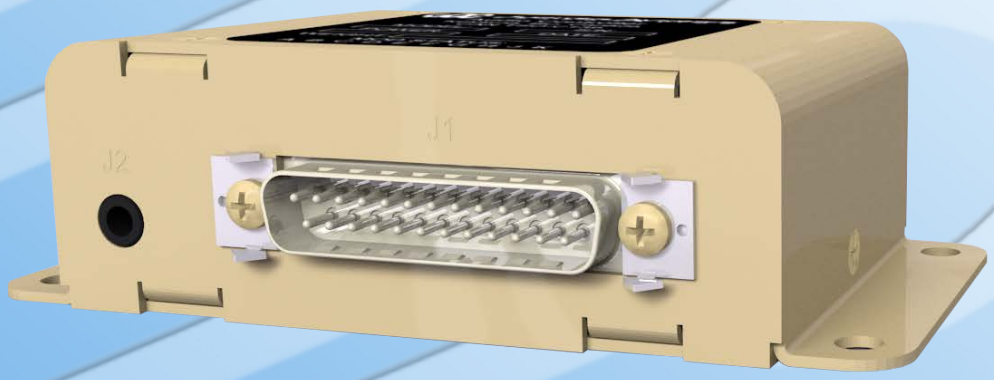
JA34-BT1

Universal Radio Adapter

With Bluetooth



Installation and Operating Manual

Rev. A

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RECORD OF REVISIONS			
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SECTION 1 - DESCRIPTION

1.1 System Overview

The JA34-BT1 Universal Radio Adapter with Bluetooth® allows the aircraft audio management system access to a non-aviation radio and Bluetooth® enabled devices. The JA34-BT1 provides fully isolated audio signal paths to and from the radio to allow a noise free installation. Microphone biasing and artificial sidetone generation are selectable for radios without them.

The JA34-BT1 is setup on a per installation basis using a Configuration Cable and downloading the system configuration settings from a PC into non-volatile control devices.

1.2 Features Overview

The JA34-BT1 unit features an industry standard D-Sub connector pin-out to allow easy field upgrades.

All internal settings are quickly adjusted using the proprietary ProCS (Product Configuration Software).

Two configuration ports are provided for configuration loading, one beside the main connector and one on the rear.

All audio outputs are floating and balanced.

The JA34-BT1 provides relay contact keying, artificial sidetone generation and microphone voltage biasing.

The JA34-BT1 contains a Bluetooth® Audio Module and is a Bluetooth® class 3 device with a <10 meters operating range.

The JA34-BT1 is a Bluetooth® 2.1 + EDR compliant device with the following supported profiles:
- HFP (Hands Free Profile) for cell phone interface.
- A2DP (Advanced Audio Distribution Profile) for music interface.

1.3 Inputs and Outputs

Refer to the JA34-BT1 connector map for the mating connector designators and contact assignments for the input and output signals.

1.3.1 Inputs

Name	Qty	Type
CONFIG DATA TO JA34-BT1	1	Data signal
MODE SELECT TO JA34-BT1	1	Mode select signal
RECEIVE INPUT	1	Audio signal
MIC INPUT	1	Audio signal
+28 VDC POWER	1	Power Supply
RELAY KEY INPUT	1	Control input

1.3.2 Outputs

Name	Qty	Type
CONFIG DATA FROM JA34-BT1	1	Data signal
RECEIVE OUT	1	Audio signal
MIC OUTPUT	1	Audio signal
RELAY CONTACTS	6	Audio signal

1.4 Specifications

1.4.1 Electrical Specifications

Power Input

Nominal voltage	28 Vdc
Maximum voltage	30.3 Vdc
Minimum voltage	22.0 Vdc
Emergency voltage	18.0 Vdc
Input current	0.5 A max

1.4.1.1 Audio Performance

Rated Input Level

Receive input level	7.75 Vrms ±10%
Microphone input level	250 mVrms ±10%

Rated Output Level

Receive output	2.50 Vrms±10%
Microphone output (150 Ohm mode)	250 mVrms±10%
Microphone output (8 Ohm mode)	50 mVrms±10%

Audio Frequency Response

Receive output audio frequency response	≤3dB from 300 to 6000 Hz
Microphone output audio frequency response	≤3dB from 300 to 6000 Hz

Distortion Characteristics

Audio output distortion at rated power	≤10%

Input Impedance

Microphone input impedance	150 Ω ±10%
Receive input impedance	600 Ω ±10%

Output Load

Receive load	600 Ω ±10%
Microphone load (150 Ohm mode)	150 Ω ±10%
Microphone load (8 Ohm mode)	8 Ω ±10%

Input to Input Crosstalk Level

Input to Input crosstalk	≤60 dB

Audio Noise Level without Signal

Noise level below the rated output	≥60 dB

1.4.1.2 Audio Performance, Other

MIC input designed for MIC type	amplified dynamic/electret
MIC input bias voltage	12 Vdc ±10%
MIC input circuitry type	differential or single ended
RECEIVE input circuitry type	Transformer Coupled
RECEIVE output circuitry type	Transformer Coupled
MIC output circuitry type	Transformer Coupled

1.4.1.3 Discrete Signals

RELAY KEY INPUT, active signal level	≤ +3 Vdc
RELAY KEY INPUT, inactive signal level	≥ +10 Vdc
Relay contacts shall pass	≤ 1A DC @ ≤ 30V, Resistive Load

1.4.2 Mechanical Specifications

Height		1.27 in [32.3 mm] maximum
Depth		2.42 in [61.5 mm] maximum
Width		4.52 in [114.8 mm] maximum
Weight		0.43 lbs [0.20 kg] maximum
Material		brushed aluminum with conversion coating
Connectors (3):	J2, J3 J1	Two 4 pole 3.5mm jack One 25-pin D-Sub male V5 locking
Mounting		4 x 10-32 fasteners
Bonding		≤ 2.5 mΩ
Installation kit part number		INST-JA34

1.4.3 Environmental Specifications

The JA34-BT1-001 Universal Radio Adapter with Bluetooth® has been tested to the environmental conditions listed below. Environmental categories for which TSO compliance has been demonstrated are listed in the Environmental Qualification Form in Appendix B of this manual.

Temperature:	
Operating	-45 °C to +70 °C
Ground Survival	-55 °C to +85 °C
Altitude	50,000 ft
Humidity	Cat A (48 hours)
Shock, Crash Safety	6 g, 20 g for 11 ms
Vibration	
Fixed Wing - Random and Sinusoidal	Cat. [SBM]
Helicopter - Random, unknown helicopter frequencies	Cat. [U2FF1]

1.4.4 Flammability of Materials

The JA34-BT1-001 complies with the requirements of RTCA/DO-160G Sec 26.3.3 "Flammability", through equivalent flammability testing of materials and the Small Parts Exemption.

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 JA34-BT1 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 Authorized Release Certificate or Certificate of Conformance is included. Complete the on-line warranty card from the Jupiter Avionics Corporation (JAC) website – www.jupiteravionics.com.

2.3.1 Warranty

All products manufactured by JAC are warranted to be free of defects in workmanship or performance for 2 years from the date of installation by 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.

THIS WARRANTY IS VOID IF THE PRODUCT IS NOT INSTALLED BY AN AUTHORIZED JAC DEALER. 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 the headset volume to minimum before conducting tests, and slowly increase the volume to a comfortable listening level.**

CAUTION: **The power input circuitry of the unit may be damaged if the installation does not conform to the wiring instructions in this manual.**

2.4.1 Installation Limitations

The JA34-BT1 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 JA34-BT1 can be mounted in any attitude and location with adequate space and sufficient clearance for the connector and wiring harness. 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 P1 pin **1** for +28 Vdc power.

b) Check P1 pin **14** (Power Ground) for continuity to ground (less than 0.5 Ω).

c) Check P1 pin **15** (Chassis Ground) for continuity to ground (less than 0.5 Ω).

d) Check P1 pins **8**, **20, 21** and **23** (Output Ground) for continuity to ground (less than 0.5 Ω).

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

2.4.4.2 Configuration

Ensure that the JA34-BT1 contains the correct configuration settings. This may be done at the factory, on the maintenance bench or in the aircraft before the power on checks are performed. Refer to section 2.5.

2.4.4.3 Power on Checks.

Power up the aircraft's systems and confirm normal operation of all functions of the JA34-BT1 (see section 2.6).

a) Confirm radio operation for both receive and transmit. Do not proceed until the radio is 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. If a transmitter fails to key or correctly modulate it is often the result of not connecting all required grounds to the radio or external audio system.

c) Check that all configurations settings are correct.

When all performance checks are satisfied, complete the necessary regulatory documentation before releasing the aircraft for service. Refer to Appendix B.

2.5 System Operation

The JA34-BT1 is a remote mount unit and has no user accessible controls.

2.5.1 Configuration Operation

The JA34-BT1 accepts commands on the Configuration connector via the configuration cable (JA99-001) and the configuration tool (ProCs™). (See section 2.6 Adjustments and Configuration.)

2.5.2 Receive Operation

The RECEIVE INPUT is level controlled and summed with the MIC INPUT (Sidetone) and routed to the RECEIVE OUTPUT.

When Bluetooth® operation is enabled, the Bluetooth® received audio is level controlled and routed to the RECEIVE OUTPUT.

2.5.3 Sidetone Operation

The MIC INPUT audio is level controlled (sidetone level) and routed to the RECEIVE OUTPUT.

2.5.4 Relay Operation

When the RELAY KEY INPUT is inactive, the RELAY COMMON contacts are connected to the RELAY N.C. contacts.

When the RELAY KEY INPUT is active (connected to POWER GROUND), the RELAY COMMON contacts are connected to the RELAY N.O. contacts.

2.5.5 Microphone Operation

The MIC INPUT audio is level controlled and routed to the MIC OUTPUT.

When Bluetooth® operation is enabled and the Hands Free Profile (HFP) is selected, the MIC INPUT audio is level controlled and routed to the Bluetooth® transmit audio.

2.6 Adjustments and Configuration

The JA34-BT1 internal switches and level adjustments are controlled from a PC running the configuration program ProCS™. Configuration data is sent to the JA34-BT1 configuration ports (either J2 or J3) from the product configuration software, via the configuration cables (JA99-001 and CAB-USB-0002, or CAB-USB-0006).

For full information on the configuration process, and for installation of ProCS™ on your computer, refer to the ProCS™ manual on the Jupiter Avionics website.

2.6.1 ProCS™ Setup

The JA34-BT1 menu items 'ProCS Setup' provide drawings showing the cabling arrangement (using JA99 or CAB-USB-0006) for connecting the JA34-BT1 to a computer to allow configuration using ProCS™.

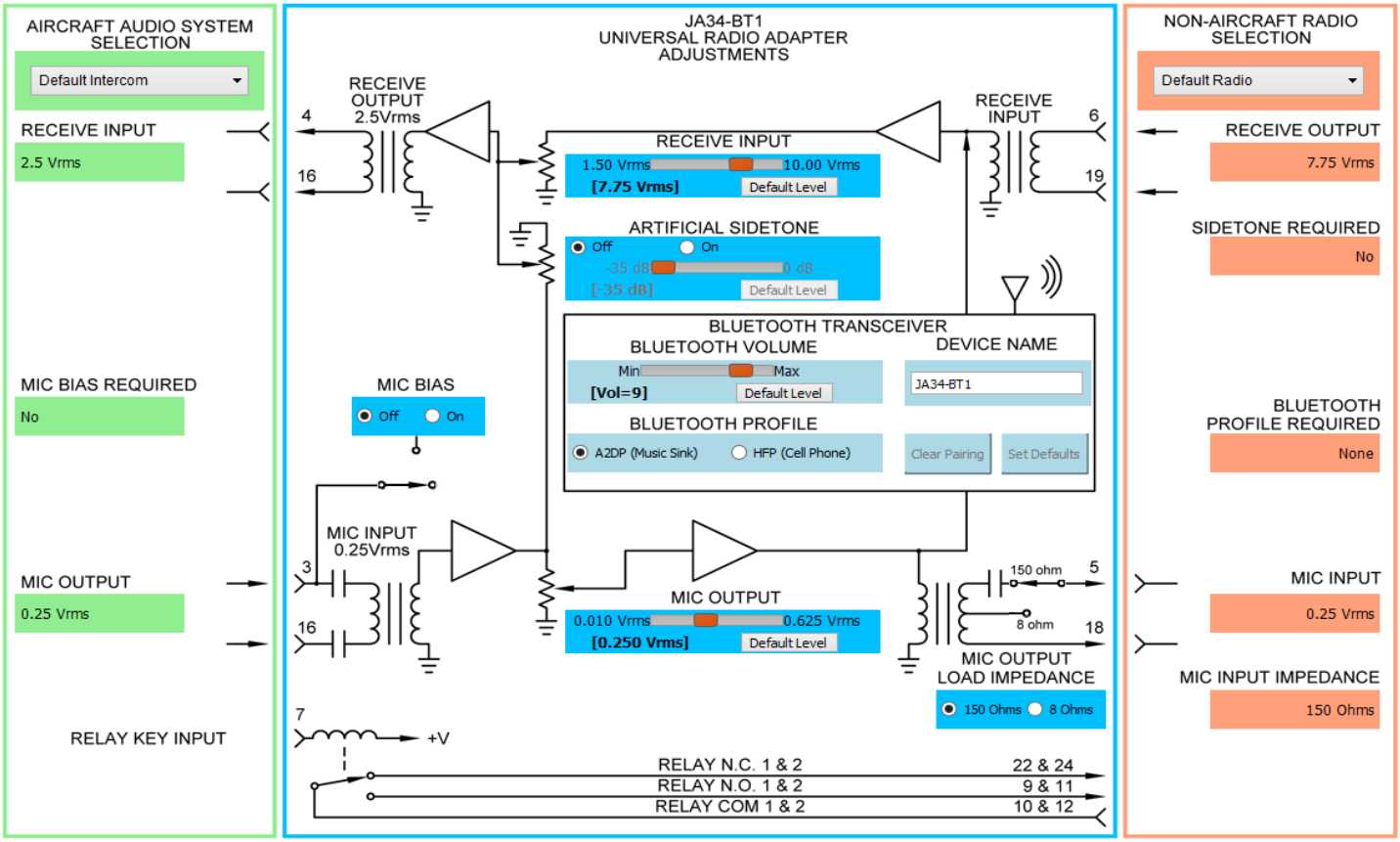
2.6.2 Configurable Settings

A standard unit is shipped from the factory with all internal adjustments configured to the default levels. At installation, it may be desirable to change some of these settings to suit the local operating environment.

Within ProCS™, the configurable settings are grouped together into the following sections:

2.6.3 JA34-BT1 Settings

The **Settings** window is divided into three sections: the Aircraft Audio System; the Universal Radio Adapter; and the Non-Aircraft Radio. Each section is colour-coded to keep the relevant information together.



2.6.3.1 Aircraft Audio System Selection (Green block)

The appropriate aircraft audio system is selected from a drop-down list at the top of the block, and all relevant configuration information is added automatically. Other aircraft Audio systems can be added to the list (see section 2.6.4).

2.6.3.2 JA34-BT1 Universal Radio Adapter Adjustments (Blue block)

The blue block refers to the adjustments and settings for the JA34-BT1 Universal Radio Adapter.

Receive Input

The level of the RECEIVE INPUT may be adjusted from 1.50 to 10.00 Vrms. (Default **7.75 Vrms**)

Artificial Sidetone

The Artificial Sidetone may be selected as ON or OFF. When selected ON, the level of the MIC INPUT sidetone may be adjusted from -12 to 0 dB. (Default **-10 dB**) (When OFF, the level is -35 dB)

Mic Bias

The MIC Bias may be ON or OFF. (Default **ON**)

Mic Output

The level of the MIC OUTPUT signal may be adjusted from 0.010 to 0.625 Vrms. (Default **0.250mVrms**)

Mic Output Load Impedance

The MIC OUTPUT impedance may be set to 8 Ohms or 150 Ohms. (Default **150 Ohms**)

Bluetooth® **Transceiver**

A custom Bluetooth® device name identifies the JA34-BT1 in the user's cell phone. The volume can be set to suit the user's preference, and the Bluetooth® Profile is selected as A2DP (Advanced Audio Distribution Profile) for playing audio from a smartphone or other music source, or HFP (Hands Free Profile) for connecting to a cell phone.

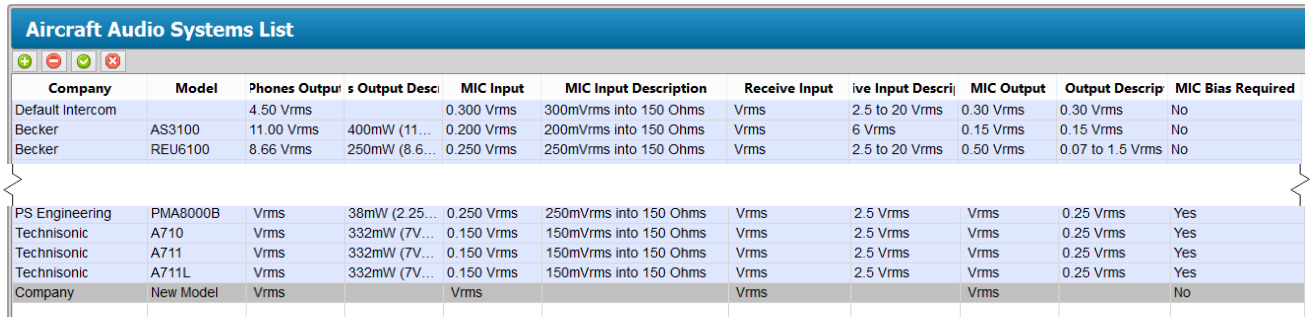
If a device is attached, the 'Clear Pairing' and 'Set Defaults' buttons will be available for use.

2.6.3.3 Non-Aircraft Radio Selection (Orange block)

The appropriate Non-Aircraft Radio is selected from a drop-down list at the top of the block, and all relevant configuration information is added automatically. Other Non-Aircraft Radios can be added to the list (see section 2.6.5).

2.6.4 Aircraft Audio Systems List

This is a list of Aircraft Audio Systems, and shows the configuration information that will be added to the **JA34-BT1 Settings** page.



Company	Model	Phones Output	s Output Desc	MIC Input	MIC Input Description	Receive Input	ive Input Descri	MIC Output	Output Descrip	MIC Bias Required
Default Intercom		4.50 Vrms		0.300 Vrms	300mVrms into 150 Ohms	Vrms	2.5 to 20 Vrms	0.30 Vrms	0.30 Vrms	No
Becker	AS3100	11.00 Vrms	400mW (11...	0.200 Vrms	200mVrms into 150 Ohms	Vrms	6 Vrms	0.15 Vrms	0.15 Vrms	No
Becker	REU6100	8.66 Vrms	250mW (8.6...	0.250 Vrms	250mVrms into 150 Ohms	Vrms	2.5 to 20 Vrms	0.50 Vrms	0.07 to 1.5 Vrms	No
PS Engineering	PMA8000B	Vrms	38mW (2.25...	0.250 Vrms	250mVrms into 150 Ohms	Vrms	2.5 Vrms	Vrms	0.25 Vrms	Yes
Technisonic	A710	Vrms	332mW (7V...	0.150 Vrms	150mVrms into 150 Ohms	Vrms	2.5 Vrms	Vrms	0.25 Vrms	Yes
Technisonic	A711	Vrms	332mW (7V...	0.150 Vrms	150mVrms into 150 Ohms	Vrms	2.5 Vrms	Vrms	0.25 Vrms	Yes
Technisonic	A711L	Vrms	332mW (7V...	0.150 Vrms	150mVrms into 150 Ohms	Vrms	2.5 Vrms	Vrms	0.25 Vrms	Yes
Company	New Model	Vrms		Vrms		Vrms		Vrms		No

If it is desirable to add other Audio systems, click on the **Aircraft Audio Systems List**. A new audio system and its parameters can be added by clicking on (the '**New Aircraft Audio System**' button). A new line will be added to the bottom of the list, and double clicking on each part of the line will highlight it to allow changes. When the relevant details have been added, use the ('**Save Changes**') or ('**Cancel All Changes**') button as required. The added system will then appear on the appropriate drop-down menu list.

2.6.5 Non-Aircraft Radios List

This is a list of Non-Aircraft Radios and the configuration information that will be added to the **JA34-BT1 Settings** page. The list is similar to the Aircraft Audio Systems list, and new radios can be added in the same way.

2.6.6 JA34-BT1 Connector Maps

JA34-BT1 Connector Maps and Interconnects are included here for information only.

2.6.7 Other Configuration Features

In the JA34-BT1 Product Information Window, the model number, serial number and check sum of the JA34-BT1 Universal Radio Adapter with Bluetooth® can be viewed.

2.7 Installation Kit

The kit required to install this unit is not included with the unit.

The installation kit (Part # INST-JA34) consists of the following:

Quantity	Description	JAC Part #
1	TAG ring	CON-5500-0625
1	D-Sub 25-pin connector, hood and 25 crimp pins	CON-3420-0025
1	Heat Shrink Tubing	WIR-HTSK-1000

2.7.1 Recommended Crimp tools

Connector Type	Hand crimp tool	Positioner	Insertion/extraction tool
Positronic	9507	9502-3	M81969/1-04
Positronic	AFM8 (Daniels)	M22520/2.08 KB-1	

2.8 Installation Drawings

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

SECTION 3 – OPERATION

3.1 Introduction

The JA34-BT1 Universal Radio Adapter with Bluetooth® allows the aircraft audio management system access to a non-aviation radio and Bluetooth® enabled devices.

3.2 Bluetooth® Operation

The JA34-BT1 is a remote mount unit and has no user accessible controls. However, when a Bluetooth® enabled device such as a cell phone is introduced into the aircraft, it can be paired with the JA34-BT1.

The Bluetooth® transceiver can be configured at installation or in the field by a dealer or installer, using the Jupiter Avionics Corporation ProCS™ configuration software. At that time, the Bluetooth® volume, Bluetooth® profile (selected for either music input or cellphone use) and the device name can be chosen.

The default Bluetooth® device name is ***JA34-BT1***.

3.3 Bluetooth Pairing

Pairing is initiated using your cellphone or other Bluetooth® enabled device. Refer to your cellphone operating manual for full pairing information.

The cellphone will pair with the JA34-BT1 in the mode selected via ProCS™

Note: If the Bluetooth® mode of the JA34 is changed at a later date, it may be necessary to un-pair the cellphone and repeat the pairing process to reset to the updated mode of operation.

Installation and Operating Manual
Appendix A - Installation Drawings

A1 Introduction

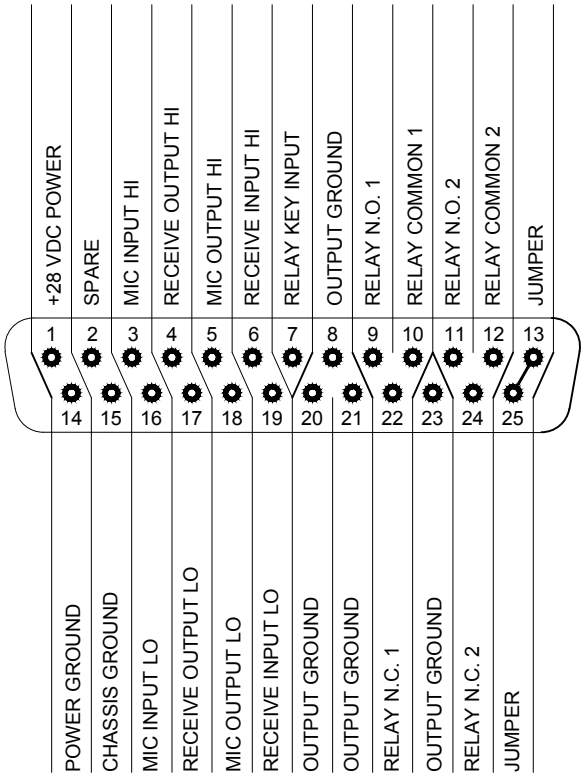
The drawings necessary for installation and troubleshooting of the JA34-BT1 Universal Radio Adapter with Bluetooth are in this Appendix, as listed below.

A2 Installation Drawings

DOCUMENT	Rev
JA34-BT1 Connector Map	A
JA34-BT1 Interconnect	A
JA34-BT1 Mechanical Installation	B

P1

25 PIN FEMALE DMIN
MATING CONNECTOR

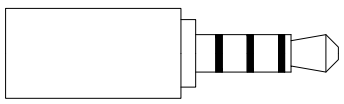


VIEW IS FROM REAR OF MATING CONNECTOR

CONFIGURATION CONNECTOR

P2-P3

JA99 CONFIGURATION CABLE
4 POLE MALE 3.5MM STEREO



MATING PLUG NAMES	JA34 SIGNAL NAMES
TIP: TX DATA	CONFIG DATA TO JA34
1ST RING: RX DATA	CONFIG DATA FROM JA34
2ND RING: GROUND	GROUND
3RD RING: MODE SELECT	MODE SELECT

PREPARED	TAT	JUPITER AVIONICS CORPORATION
CHECKED	JAC 04-23-14 DS	TITLE: Universal Radio Adapter With Bluetooth
APPROVED	JAC 04-23-14 KDV	NCAGE CODE: L00N3 / PART NO.: JA34-BT1 / SHEET: 1/1
CONFIDENTIAL & PROPRIETARY TO JUPITER AVIONICS CORP.		DOC NO.: JA34-BT1 Connector Map Rev A.dwg

JUPITER AVIONICS TEMPLATE AUTOCAD PORTRAIT SIZEA REV B.DWT

JA34-BT1 INTERCONNECT WIRING NOTES

NOTES

1. All wire size should be 24 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 Jumper for a ground to key radio.

△3 Jumper for a floating contact closure.

△4 Input/Outputs are transformer coupled (Balanced), 'LO' wires require one termination to ground (usually at the source).

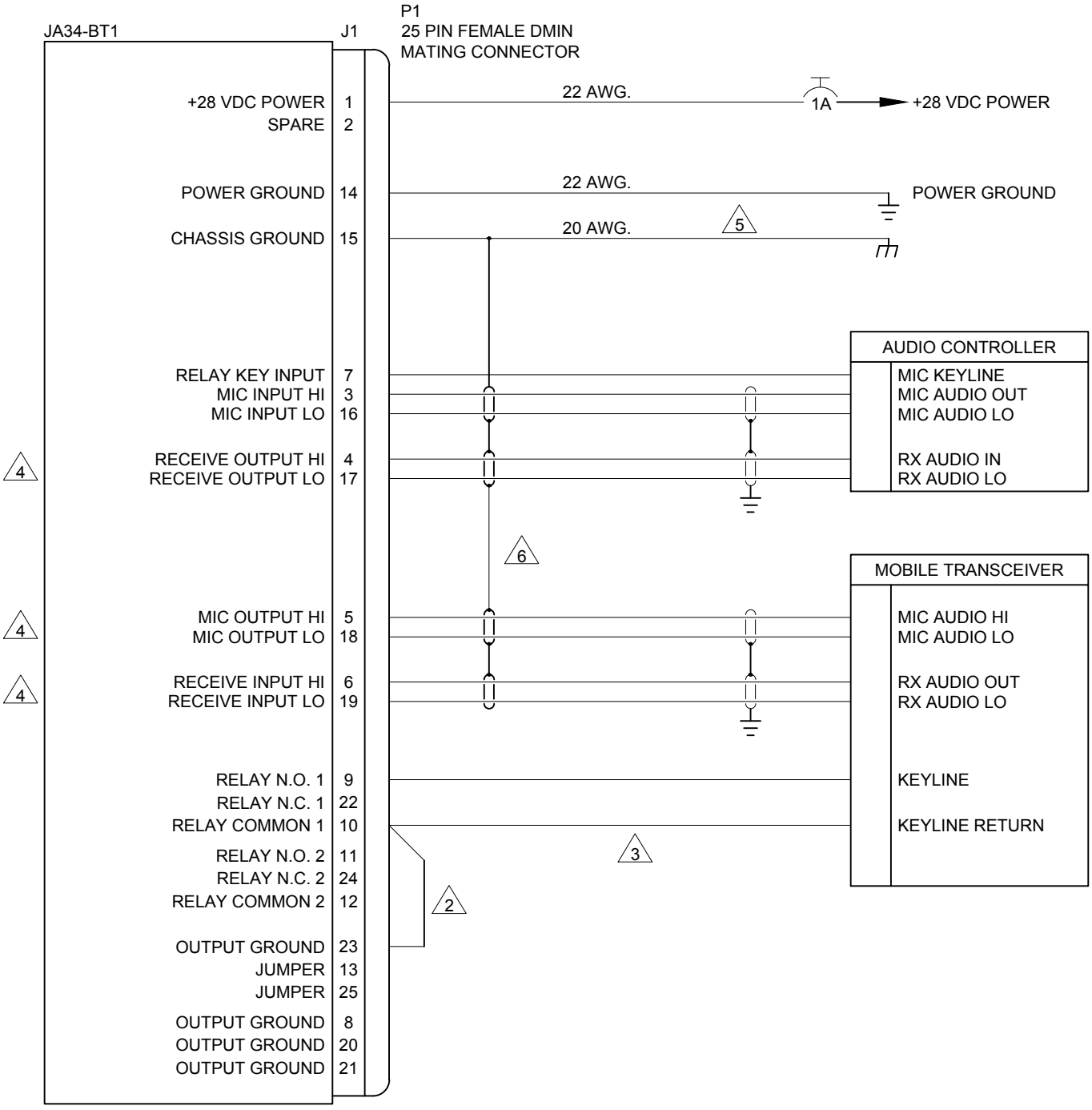
△5 Connection to airframe ground should be made with 20 AWG wire. Length not to exceed 3 FT (0.9 M).

△6 Cable shields at the JA34-BT1 connector pins should be terminated to airframe ground using a tag ring P/N: MS27741-3 or equivalent.

△7 The JA34-BT1 must be set to A2DP (Music Sink) profile in ProCS for music reception.

△8 The JA34-BT1 must be set to HFP (Cellphone) profile in ProCS for cell phone operation.

PREPARED	TAT	JUPITER AVIONICS CORPORATION
CHECKED	JAC 04-23-14 DS	TITLE: Universal Radio Adapter With Bluetooth
APPROVED	JAC 04-23-14 KDV	NCAGE CODE: L00N3 / PART NO.: JA34-BT1 / SHEET: 1/5
CONFIDENTIAL & PROPRIETARY TO JUPITER AVIONICS CORP.		DOC NO.: JA34-BT1 Interconnect Rev A.dwg



PREPARED	TAT	JUPITER AVIONICS CORPORATION		
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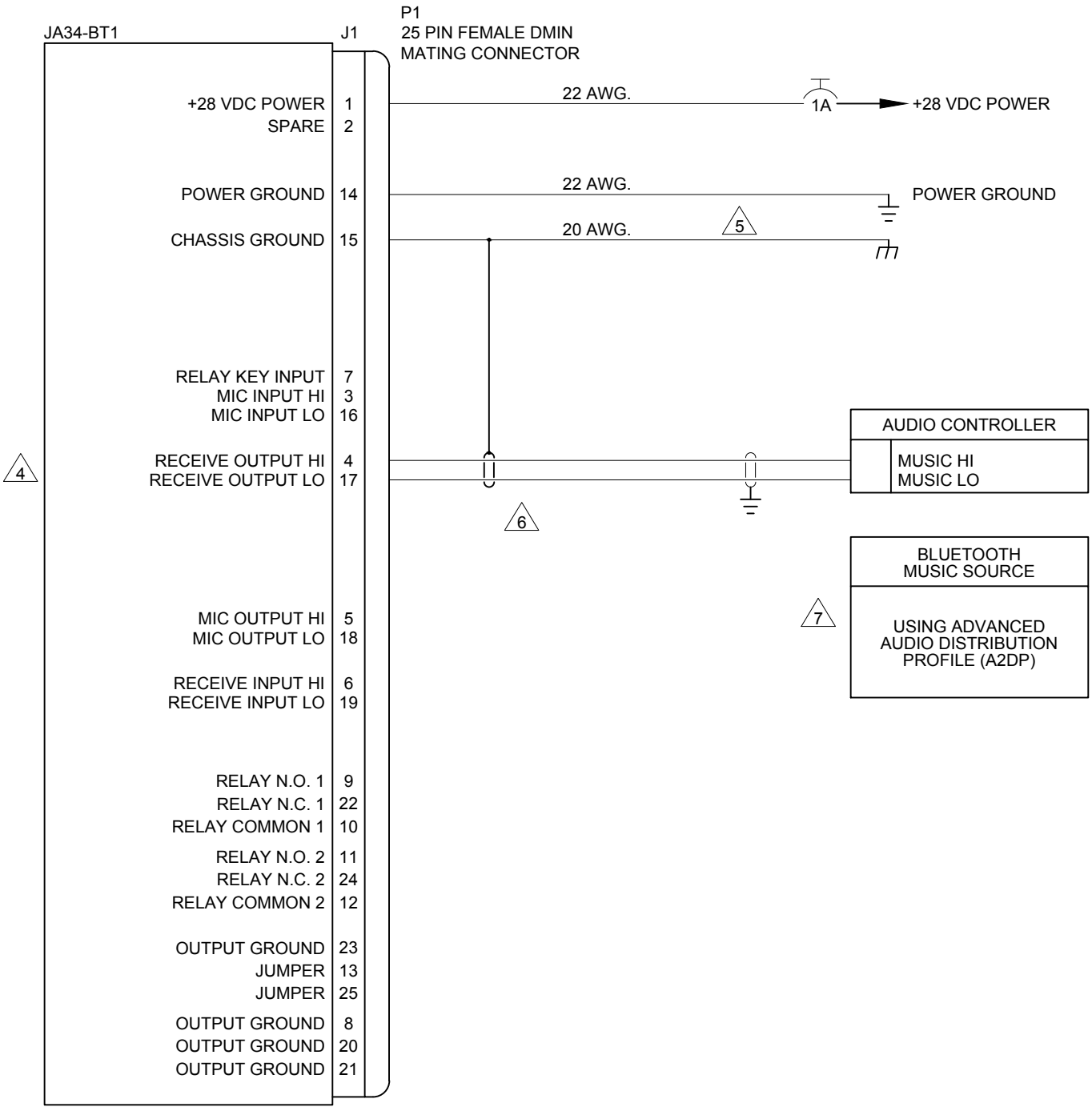
APPROVED	JAC 04-23-14 KDV	NCAGE CODE: L00N3	PART NO.: JA34-BT1	SHEET: 2/5
CONFIDENTIAL & PROPRIETARY TO JUPITER AVIONICS CORP.		DOC NO.: JA34-BT1 Interconnect Rev A.dwg		

OPTIONAL: BLUETOOTH MUSIC INPUT



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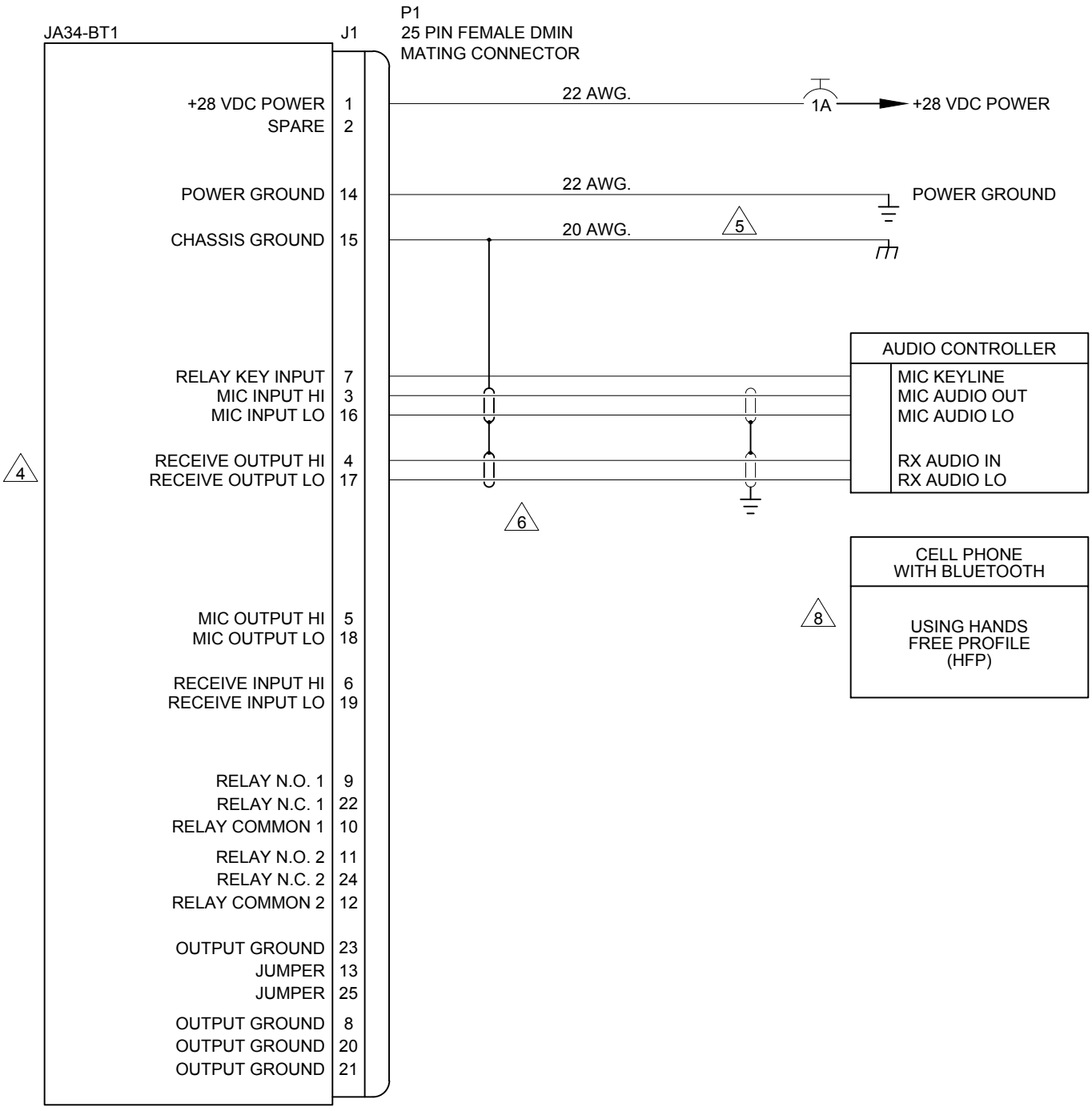
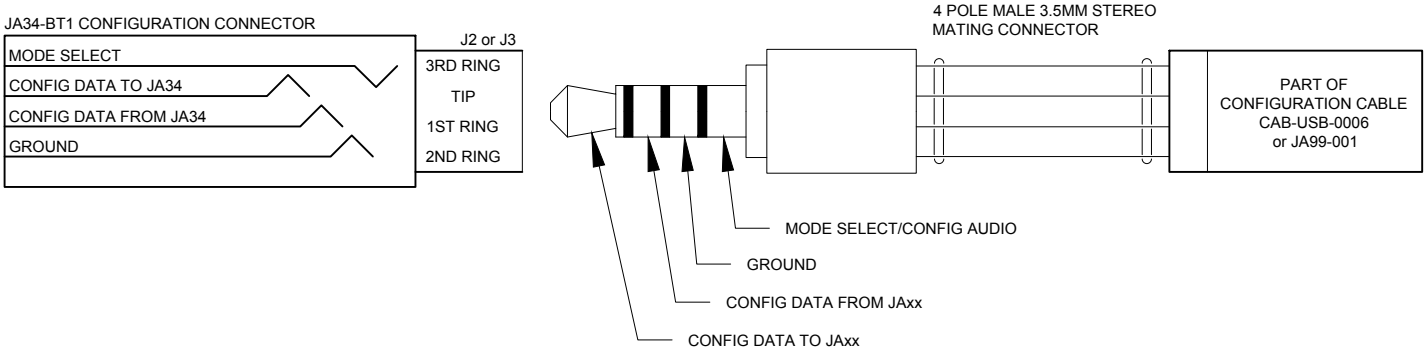
CHECKED	JAC 04-23-14 DS	TITLE: Universal Radio Adapter With Bluetooth		
APPROVED	JAC 04-23-14 KDV	NCAGE CODE: L00N3	PART NO.: JA34-BT1	SHEET: 3/5
CONFIDENTIAL & PROPRIETARY TO JUPITER AVIONICS CORP.		DOC NO.: JA34-BT1 Interconnect Rev A.dwg		

OPTIONAL: BLUETOOTH CELL PHONE

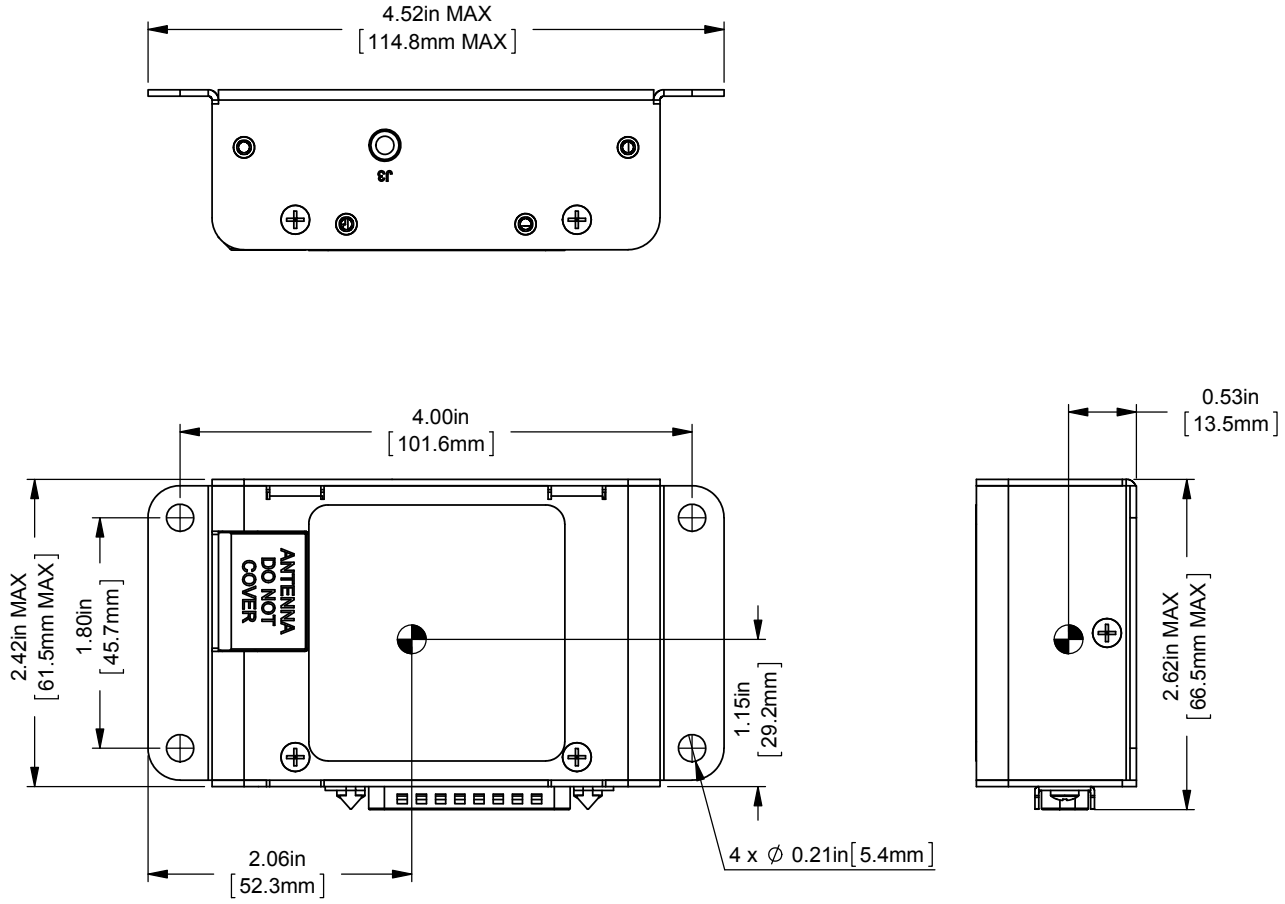


PREPARED	TAT	JUPITER AVIONICS CORPORATION		
CHECKED	JAC 04-23-14 DS	TITLE: Universal Radio Adapter With Bluetooth		
APPROVED	JAC 04-23-14 KDV	NCAGE CODE: L00N3	PART NO.: JA34-BT1	SHEET: 4/5
CONFIDENTIAL & PROPRIETARY TO JUPITER AVIONICS CORP.		DOC NO.: JA34-BT1 Interconnect Rev A.dwg		

CONFIGURATION CONNECTOR



PREPARED	TAT	JUPITER AVIONICS CORPORATION		
CHECKED	JAC 04-23-14 DS	TITLE: Universal Radio Adapter With Bluetooth J2 and J3 Interconnect		
APPROVED	JAC 04-23-14 KDV	NCAGE CODE: L00N3	PART NO.: JA34-BT1	SHEET: 5/5
CONFIDENTIAL & PROPRIETARY TO JUPITER AVIONICS CORP.		DOC NO.: JA34-BT1 Interconnect Rev A.dwg		



CENTER OF GRAVITY
±0.03in [0.8mm]

WEIGHT: 0.43 lbs [0.20 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	JUPITER AVIONICS CORPORATION
	CHECKED	JAC 04-23-14 DS	TITLE: Universal Radio Adapter with Bluetooth
	APPROVED	JAC 04-23-14 KDV	NCAGE CODE: L00N3 / PART NO.: JA34-BT1 / SHEET: 1/1
MATERIAL: N/A	CONFIDENTIAL & PROPRIETARY TO JUPITER AVIONICS CORP.		DOC. NO. JA34-BT1 Mechanical Installation Rev B.SLDDRW
FINISH: N/A	DRAWING NOT TO SCALE		

Installation and Operating Manual

Appendix B - Certification Documents

B1 Airworthiness Approval

Airworthiness approval of the JA34-BT1 may require completion of a TCCA Major Modification Report per CAR STD (AWM) 571 Appendix L, or a FAA Form 337. The sample wording for a description of the work is provided to assist the Installing Agency in preparing Instructions for Continued Airworthiness (ICA) when replacing an existing radio adapter with a Jupiter Avionics JA34-BT1 Universal Radio Adapter with Bluetooth. This sample may be modified appropriately for new installations. It is the installer's responsibility to determine the applicability of the method used. Installations performed outside the USA and Canada must follow the applicable aviation authority's regulations.

Sample Wording:

Removed the existing [model] radio adapter and replaced with a Jupiter Avionics JA34-BT1 Universal Radio Adapter with Bluetooth in [aircraft location].

Installed in accordance with the JA34-BT1 Installation & Operating Manual, Revision [ ], and AC 43.13-2, Chapters 2, and 3.

The JA34-BT1 interfaces with existing aircraft radios per the Installation & Operating Manual instructions.

The JA34-BT1 Installation & Operating Manual provides detailed installation instructions and wiring diagrams (Section 2, and Appendices A and B).

Power is supplied to the JA34-BT1 through a 1.0-Amp circuit breaker.

Aircraft equipment list, weights and balance amended. Compass compensation checked and found to conform to applicable regulations.

B2 Instructions for Continued Airworthiness

Maintenance of the JA34-BT1 Universal Radio Adapter with Bluetooth is "on condition" only. Refer to the JA34-BT1 Maintenance Manual. Periodic maintenance of the JA34-BT1 is not required.

The following sample Instructions for Continued Airworthiness (ICA) provides assistance in preparing ICA for the Jupiter Avionics JA34-BT1 unit installation as part of a Type Certificate (TC) or Supplemental Type Certificate (STC) project to comply with CAR STD (AWM) 523/527/525/529.1529 or FAR 23/25/27/29.1529 "Instructions for Continued Airworthiness".

Items that may vary by aircraft make and model are shown in brackets ("[ ]") and should be filled in as appropriate. Some of the checklist items do not apply, in which case they should be marked "N/A" (Not Applicable).

Instructions for Continued Airworthiness, Jupiter Avionics JA34-BT1 Universal Radio Adapter in an [Aircraft Make and Model]

1. Introduction

[Aircraft that has been altered: Registration number, Make, Model and Serial Number]

Content, Scope, Purpose and Arrangement: This document identifies the Instructions for Continued Airworthiness for a Jupiter Avionics JA34-BT1 installed in an [aircraft make and model].

Applicability: Applies to a Jupiter Avionics JA34-BT1 installed in an [aircraft make and model].

Definitions/Abbreviations: None, N/A.

Precautions: None, N/A.

Units of Measurement: None, N/A.

Referenced Publications: JA34-BT1 Installation & Operating Manual
JA34-BT1 Maintenance Manual
STC/TC # [applicable STC/TC number for the specific aircraft installation]

Distribution: This document should be a permanent aircraft record.

2. Description of the System/Alteration
Jupiter Avionics JA34-BT1 Universal Radio Adapter with Bluetooth interfaces to external transceivers and [include other equipment/systems as appropriate]. Refer to Appendix A of this manual for interconnect information. Refer to aircraft manufacturer approved interconnect for actual installation.

3. Control, Operation Information
Refer to section 3 of this manual.

4. Servicing Information
N/A

5. Maintenance Instructions
Maintenance of the JA34-BT1 is 'on condition' only. Periodic maintenance is not required. Refer to the JA34-BT1 Maintenance Manual.

6. Troubleshooting Information
Refer to the JA34-BT1 Maintenance Manual.

7. Removal and Replacement Information
Refer to Section 2 of this manual - the JA34-BT1 Installation & Operating Manual. If the unit is removed and reinstalled, a functional check of the equipment should be conducted.

8. Diagrams
Refer to Appendix A of this manual - the JA34-BT1 Installation & Operating Manual - for installation drawings and interconnect examples.

9. Special Inspection Requirements
N/A

10. Application of Protective Treatments
N/A

11. Data: Relative to Structural Fasteners
JA34-BT1 and appropriate mounting hardware installation, removal and replacement should be in accordance with applicable provisions of AC 43.13-1B and AC 43.13-2A.

12. Special Tools
N/A

13. This Section is for Commuter Category Aircraft Only
A. **Electrical loads**: Refer to Section 1 of the JA34-BT1 Installation and Operating Manual.

B. **Methods of balancing flight controls**: N/A.

C. **Identification of primary and secondary structures**: N/A.

D. **Special repair methods applicable to the airplane**: N/A.

14. Overhaul Period
No additional overhaul time limitations.

15. Airworthiness Limitation Section
N/A

B3 Environmental Qualification Form

See next pages.

Prepared:	Checked:	Approved:
KDV	JAC 04-23-14 SRM	JAC 04-24-14 KDV

Nomenclature	Universal Radio Adapter with Bluetooth
Type / Model / Part No.:	JA34-BT1
TSO No.:	To Be Applied for: CAN-TSO-C139; FAA TSO-C139
Manufacturer's Build Configuration:	*JA34-BT1 Build Configuration Rev B*
Manufacturer's Test Report:	*JA34-BT1 Test Report (Qualification - Final) Rev A*
Manufacturer's Specification and/or Other Applicable Specification:	*JA34-BT1 Declaration of Design and Performance Rev A*
Manufacturer:	Jupiter Avionics Corporation
Address:	1959 Kirschner Road, Kelowna, BC, Canada, V1Y 4N7
Revision & Change No of DO-160:	Rev. G dated December 8, 2010
Dates Tested:	To be tested

CONDITIONS	SECTION	DESCRIPTION OF TESTS CONDUCTED
Temperature	4.5	Equipment to be tested to Category C4
Ground Survival Low Temperature	4.5.1	Equipment to be tested to Category C4 (-55 °C)
Short-Time Operating Low Temperature	4.5.1	Equipment to be tested to Category C4 (-45 °C)
Operating Low Temperature	4.5.2	Equipment to be tested to Category C4 (-45 °C)
Ground Survival High Temperature	4.5.3	Equipment to be tested to Category C4 (+85 °C)
Short-Time Operating High Temperature	4.5.3	Equipment to be tested to Category C4 (+70 °C)
Operating High Temperature	4.5.4	Equipment to be tested to Category C4 (+70 °C)
In-Flight Loss of Cooling	4.5.5	Equipment identified as Category X, no test performed
Altitude	4.6	Equipment to be tested to Category (A1)(D1)
Altitude	4.6.1	Equipment to be tested to Category D1 (50,000 ft)
Decompression	4.6.2	Equipment to be tested to Category A1 (8,000 to 50,000 ft)
Overpressure	4.6.3	Equipment to be tested to Category A1 (-15,000 ft)
Temperature Variation	5.0	Equipment to be tested to Category B (5 °C/min)
Humidity	6.0	Equipment to be tested to Category A (48 hours)
Operational Shock and Crash Safety	7.0	
Operational Shock	7.2.1	Equipment to be identified as Category B (6 g for 11 ms)
Crash Safety (impulse)	7.3.1	Equipment to be tested to Category B (20 g for 11 ms)
Crash Safety (sustained)	7.3.3	Equipment to be tested to Category B (20 g for 3 sec)
Vibration	8.0	Equipment to be tested to Categories:
Fixed Wing - Sine	8.5.1	SM
Fixed Wing - Random	8.5.2	SB
Helicopter - Random, unknown	8.8.3	U2FF1

CONDITIONS	SECTION	DESCRIPTION OF TESTS CONDUCTED
Explosive Atmosphere	9.0	Equipment identified as Category X, no test performed
Waterproofness	10.0	Equipment identified as Category X, no test performed
Fluids Susceptibility	11.0	Equipment identified as Category X, no test performed
Sand and Dust	12.0	Equipment identified as Category X, no test performed
Fungus	13.0	Equipment identified as Category X, no test performed
Salt Fog Test	14.0	Equipment identified as Category X, no test performed
Magnetic Effect	15.0	Equipment to be tested to Category Z (≤ 0.3 m)
Power Input	16.0	Equipment to be tested to Category:
DC Equipment		Z (+28 Vdc equipment),
DC Current Ripple		X, no test performed
DC Inrush		X, no test performed
Voltage Spike	17.0	Equipment to be tested to Category A (600 Vp, 10 us)
Audio Frequency Susceptibility	18.0	Z (+28 Vdc equipment),
Induced Signal Susceptibility	19.0	Equipment to be tested to Category [ZCX]
Magnetic Fields into Equipment	19.3.1	20 A at 400 Hz
Magnetic Fields into Interconnect	19.3.2	30 A·m at 400 Hz
Electric Fields into Interconnect	19.3.3	1800 V·m at 400 Hz
Voltage Spikes into Interconnect	19.3.4	3.0 m
Radio Frequency Susceptibility	20.0	Equipment to be tested to Category RR
Radiated		R (20 V/m CW&SW) and (150 V/m PM)
Conducted		R (30 mA)
Radio Frequency Emission	21.0	Equipment to be tested to Category H
Lightning Induced Transient Susceptibility	22.0	Equipment to be tested to Category [A3J33]
Pin Injection		Waveform Set A, Test Level 3
Cable Bundle		Waveform Set J, Test Levels 33
Lightning Direct Effects	23.0	Equipment identified as Category X, no test performed
Icing	24.0	Equipment identified as Category X, no test performed
Electrostatic Discharge	25.0	Equipment identified as Category X, no test performed
Fire, Flammability	26.0	Equipment to be identified as Category C.
Other Tests	N/A	N/A