



JUPITER AVIONICS
CORPORATION

JA74-510 Dual USB-C Charger



Installation and Operating Manual

Rev. A

Jupiter Avionics Corporation
1959 Kirschner Road
Kelowna BC
Canada V1Y 4N7
Tel: +1 778 478 2232
Toll-Free: 1 855 478 2232
www.jupiteravionics.com



Table of Contents

SECTION 1 - DESCRIPTION	1
1.1 System Overview	1
1.2 Features Overview.....	1
1.3 Inputs and Outputs	1
1.3.1 Inputs	1
1.3.2 Output	1
1.3.3 Bi-Directional	1
1.3.4 Grounds/Spares.....	1
1.4 Specifications.....	2
1.4.1 Electrical Specifications	2
1.4.2 Mechanical Specifications	2
SECTION 2 – INSTALLATION	3
2.1 Introduction	3
2.2 Continued Airworthiness.....	3
2.3 Unpacking and Inspecting Equipment.....	3
2.3.1 Warranty	3
2.4 Installation Procedures	3
2.4.1 Installation Limitations	3
2.4.2 Cabling and Wiring	3
2.4.3 Mechanical Installation	4
2.4.6 Post Installation Checks	4
2.5 Installation Kit	4
2.5.1 Recommended Crimp tools	4
2.6 Installation Drawings.....	4
SECTION 3 – OPERATION	5
3.1 Introduction	5
3.2 Front Panel Connectors.....	5
3.3 Compatibility	5
Appendix A - Installation Drawings	A1
A1 Introduction	A1
A2 Installation Drawings.....	A1
Appendix B - Installation Documents	B1
B1 Airworthiness	B2
B2 Instructions for Continued Airworthiness	B2



JA74-510 Dual USB-C Charger

SECTION 1 - DESCRIPTION

1.1 System Overview

The JA74-510 Dual USB-C Charger allows the aircraft owner/operator to use an unused portion of the instrument panel (3 Dzus high) for charging two devices simultaneously.

1.2 Features Overview

The JA74-510 faceplate is painted in a baked-on flat black urethane finish to resist scratches and nicks during use.

Two USB 2.0 Type C receptacles are provided to supply up to 45 Watts.

1.3 Inputs and Outputs

Refer to the JA74-510 connector map for the mating connector designators and contact assignments for the input and bi-directional signals.

1.3.1 Inputs

Name	Qty	Type
POWER INPUT	1	Power
CC1	1	CC1 input
CC2	1	CC2 input

1.3.2 Output

Name	Qty	Type
V BUS	8	USB power output

1.3.3 Bi-Directional

Name	Qty	Type
D+	1	Charge sense
D-	1	Charge sense
D+	3	Data
D-	3	Data

1.3.4 Grounds/Spares

Name	Qty	Type
POWER GROUND	1	Power ground
GROUND RETURN	4	Ground return
CHASSIS GROUND	1	Chassis ground
SPARE	3	Spares (Main connector)
SPARE	10	Spares (USB-C connector)



1.4 Specifications

1.4.1 Electrical Specifications

Power Input

Primary nominal voltage	28.0 Vdc
Maximum voltage	32.2 Vdc
Minimum voltage	22.0 Vdc
Emergency voltage	18.0 Vdc
Power Input - Off	≤ 15 Vdc
Input current at 28 Vdc	≤ 6.0 A
Oversvoltage	≥ 42 Vdc for ≥ 5 min

1.4.1.1 USB-C Output Performance

Output rated current	@ +5 Vdc	3.00 A max
	@ +9 Vdc	3.00 A max
	@ +12 Vdc	3.00 A max
	@ +15 Vdc	3.00 A max
	@ +20 Vdc	2.25 A max
Output rated Power	@ +5 Vdc	15 W max
	@ +9 Vdc	27 W max
	@ +12 Vdc	36 W max
	@ +15 Vdc	45 W max
	@ +20 Vdc	45 W max
VBUS Output at all Voltages		≥ 110% of rated power for ≥ 2 h
VBUS Output Regulation at all Voltages		≤ 12 %
Ripple	@ +5 Vdc	≤5 mVpp
	@ +9 Vdc	≤9 mVpp
	@ +12 Vdc	≤12 mVpp
	@ +15 Vdc	≤15 mVpp
	@ +20 Vdc	≤20 mVpp
Short circuit Duration		≥ 1 min for all voltages

1.4.2 Mechanical Specifications

Height	1.25 in [28.6 mm] maximum	
Behind panel depth (not including connectors)	5.71 in [145.0 mm] maximum	
Width	5.75 in [146.1 mm] maximum	
Weight	0.89 lb [0.40 kg] maximum	
Enclosure:	5052-H32 aluminum; brushed texture and black anodized	
Faceplate	6061-T651 Aluminum with flat black urethane paint; white legends	
Connector (3):	J1 Main J2 & J3 USB C	One 9-pin D-Sub male, V5 locking Two USB Type C Female
Mounting		2 Dzus fasteners
Bonding		≤ 2.5 mΩ
Installation kit part number		INST-JA74



JA74-510 Dual USB-C Charger

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 JA74-510 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/warranty.

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



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

Those installing the JA74, on or in a specific type or class of aircraft, must determine that the aircraft installation conditions meet standards. The JA74 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. Follow the Connector Map in Appendix A of this manual.

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 20 AWG. Refer to the Interconnect drawing for additional specifications.



2.4.3 Mechanical Installation

The JA74-510 can be mounted in any attitude and location with adequate space for the front panel and sufficient clearance for the connector and wiring harness. It requires no direct cooling.

2.4.6 Post Installation Checks

2.4.6.1 Voltage/Resistance checks

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

- a) Check P1 pin **1** for +28 Vdc relative to ground.
- b) Check P1 pin **6** (power ground) for continuity to ground (less than 0.5 Ω).
- c) Check P1 pin **7** (chassis ground) for continuity to ground (less than 0.5 Ω).
- d) Check all pins for shorts to ground or adjacent pins.

2.4.6.2 Power on Checks

Power up the aircraft's systems and confirm normal operation of all functions of the JA74. Refer to Section 3 (Operation) for specific operational details.

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

2.5 Installation Kit

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

The installation kit (Part # INST-JA74) consists of the following:

Quantity	Description	JAC Part #
1	D-Sub 9-pin connector, hood and 9 crimp pins	CON-3420-0009
1	JA74 Assembly Notes, Installation Kit	DOC-INST-JA74

2.5.1 Recommended Crimp tools

Standard D-Sub Crimp Tool Chart			
Tool Type	Hand crimping tool	Positioner	Insertion/extractor tool
POSITRONIC	9507-0-0-0	9502-5-0-0	4711-2-0-0
DANIELS	AFM 8	K13-1	91067-2
MIL-SPEC	M22520/2-01	M22520/2-08	M81969/1-02

2.6 Installation Drawings

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



JA74-510 Dual USB-C Charger

SECTION 3 – OPERATION

3.1 Introduction

This section contains the operating instructions for the JA74-510.

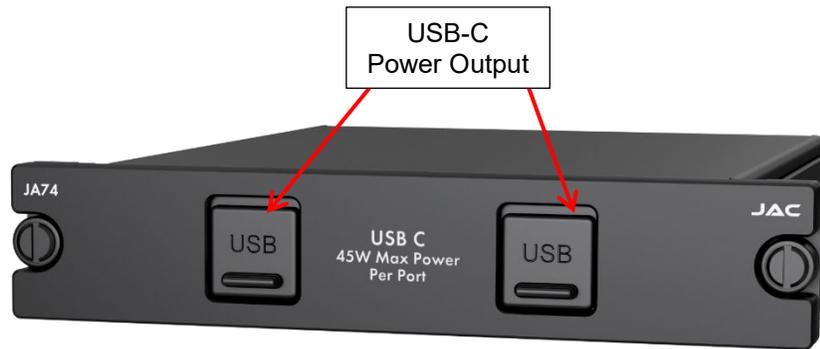
The JA74-510 provides charging for two phones or other devices.

3.2 Front Panel Connectors

The JA74-510 has two front panel USB-C Power output connectors marked **USB C 45 W Max Power Per Port**.

These connectors each have a USB PD Type C receptacle with an auto-adjustable supply for charging cell phones and similar devices, and can deliver:

+5 Vdc @ 3 A, +9 Vdc @ 3 A, +12 Vdc @ 3 A, +15 Vdc @ 3 A, +20 Vdc @ 2.25 A.



3.3 Compatibility



CAUTION: Attempting to connect an incompatible plug or device could damage the JA74, the attached device, or both.

If in doubt regarding compatibility of a specific item, contact Jupiter Avionics (www.jupiteravionics.com).



Installation and Operating Manual

Appendix A - Installation Drawings

A1 Introduction

The drawings necessary for installation and troubleshooting of the JA74-510 Dual USB-C Charger are in this Appendix, as listed below.

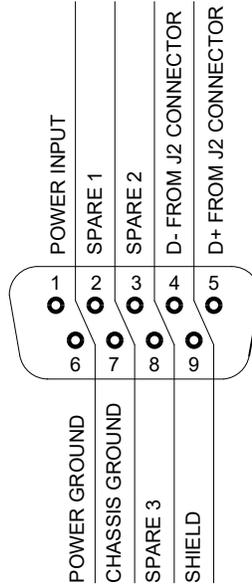
A2 Installation Drawings

DOCUMENT	Rev
JA74-510 Connector Map	A
JA74-510 Interconnect	A
JA74-510 Mechanical Installation	A

Main Connector

P1

9 PIN FEMALE DMIN
MATING CONNECTOR

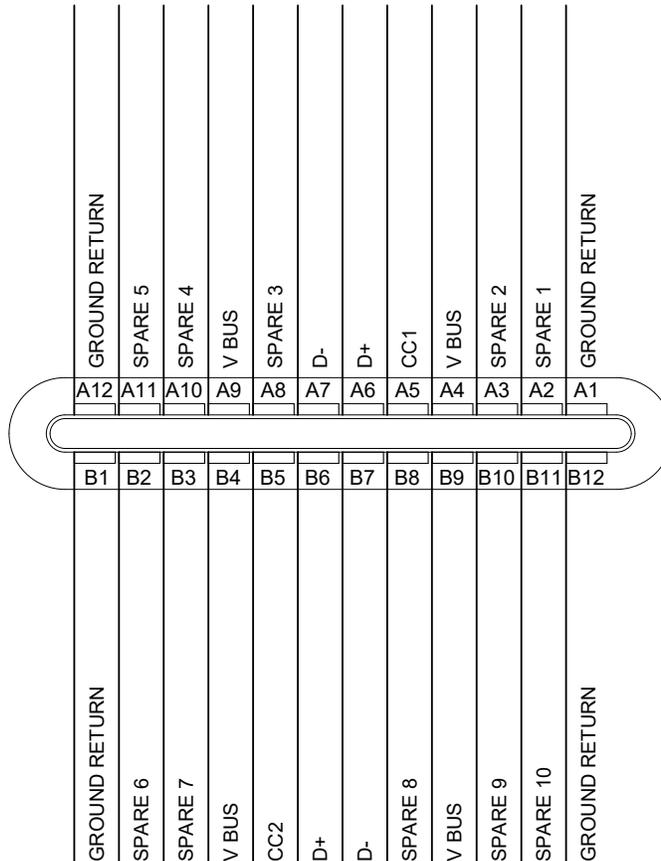


VIEW IS FROM REAR OF MATING CONNECTOR

USB C Connector

P2 & P3

USB TYPE C MALE
MATING CONNECTOR



VIEW IS FROM REAR OF MATING CONNECTOR

PREPARED	TAT	 JUPITER AVIONICS CORPORATION		
CHECKED				
APPROVED		Dual USB-C Charger Connector Map		
CONFIDENTIAL & PROPRIETARY TO JUPITER AVIONICS CORP.		NCAGE CODE L00N3	PART NO. JA74-510	SHEET 1/1
		DOC NO. JA74-510 Connector Map Rev A.dwg		

JA74-510 INTERCONNECT WIRING NOTES

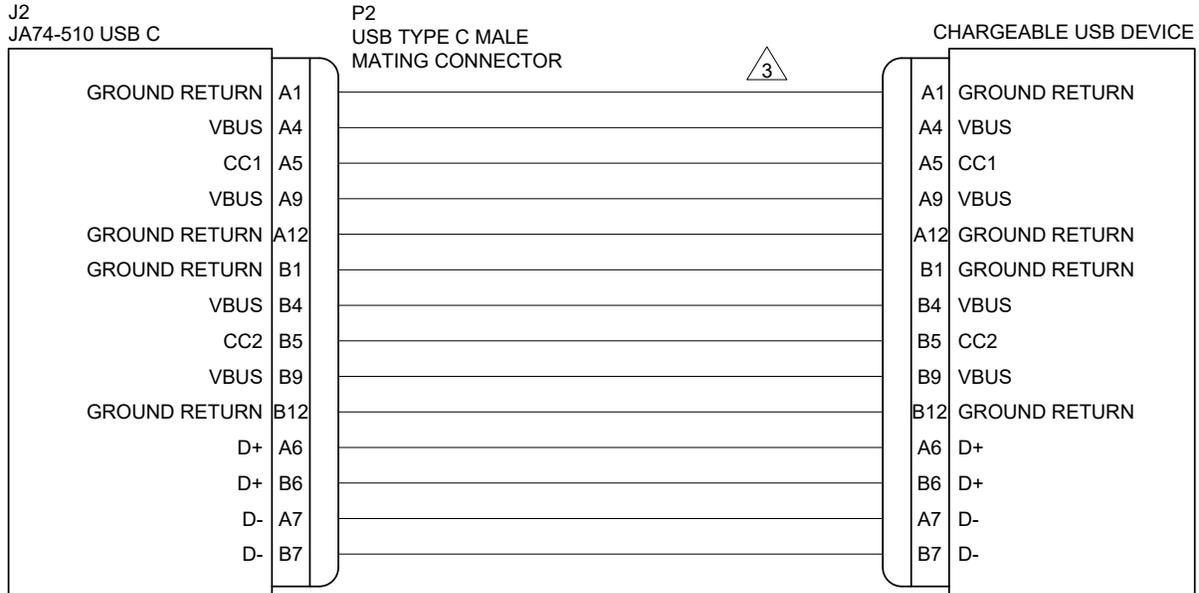
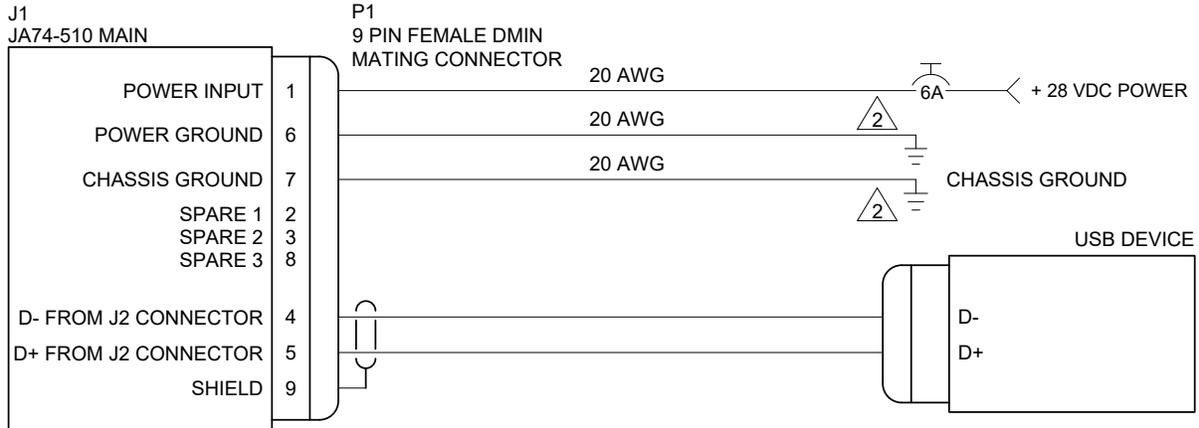
NOTES

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).

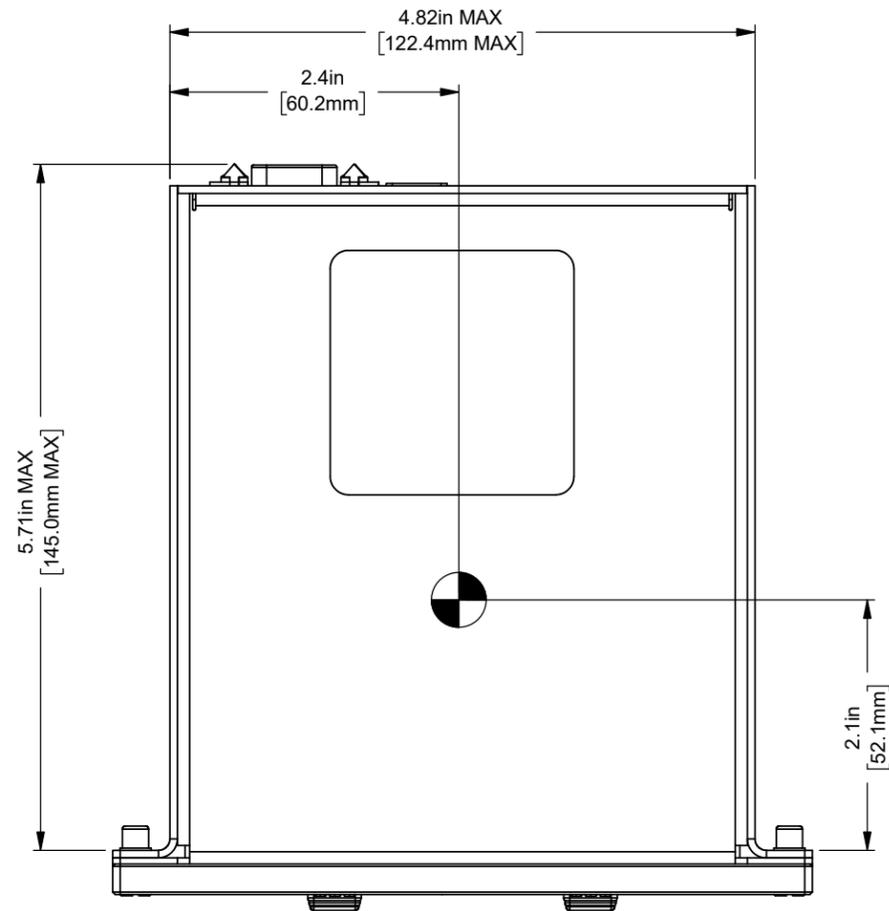
△₂ CONNECTION TO AIRFRAME GROUND SHOULD BE MADE WITH 20 AWG WIRE. LENGTH NOT TO EXCEED 3 FT (0.91 M).

△₃ CABLE LENGTH NOT TO EXCEED 6 FT (1.82 M).

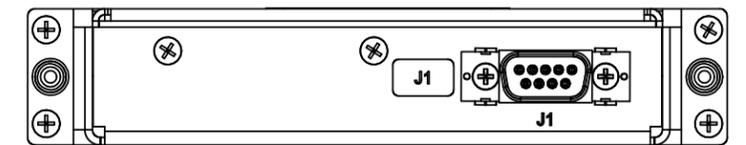
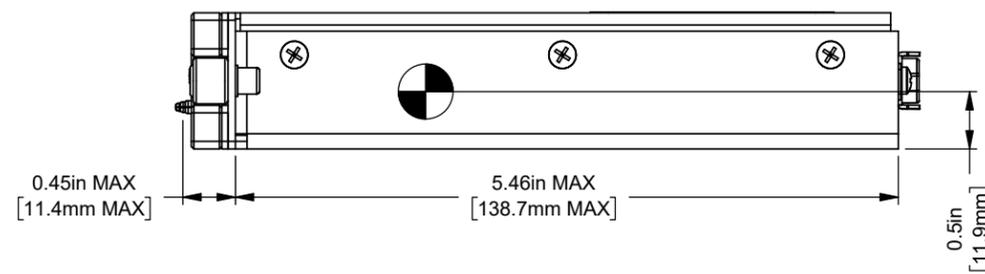
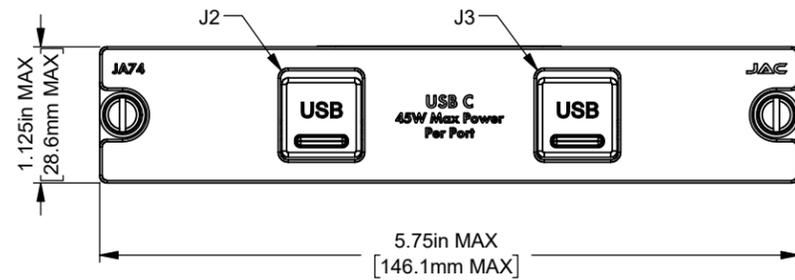
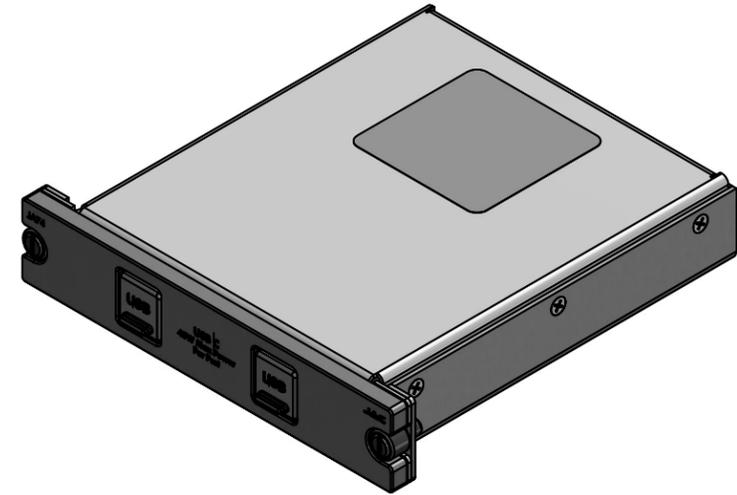
PREPARED	TAT			
CHECKED				
APPROVED		NCAGE CODE	PART NO.	SHEET
CONFIDENTIAL & PROPRIETARY TO JUPITER AVIONICS CORP.		L00N3	JA74-510	1/2
		DOC NO. JA74-510 Interconnect Rev A.dwg		



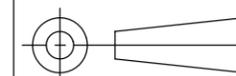
PREPARED	TAT	 JUPITER AVIONICS CORPORATION			
CHECKED					TITLE
APPROVED		NCAGE CODE	PART NO.	SHEET	
CONFIDENTIAL & PROPRIETARY TO JUPITER AVIONICS CORP.		L00N3	JA74-510	2/2	
		DOC NO. JA74-510 Interconnect Rev A.dwg			



 CENTER OF GRAVITY
 $\pm 0.05\text{in}$ [0.8mm]
 WEIGHT: 0.89 lbs [0.40 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



MATERIAL: N/A
 FINISH: N/A

PREPARED	TAT
CHECKED	
APPROVED	
CONFIDENTIAL & PROPRIETARY TO JUPITER AVIONICS CORP. DRAWING NOT TO SCALE	



TITLE: Dual USB-C Charger

NCAGE CODE: L00N3
 PART NO.: JA74-510
 SHEET: 1/1

DOC. NO.: JA74-510 Mechanical Installation Rev A.SLDDRW



Installation and Operating Manual

Appendix B - Installation Documents



B1 **Airworthiness**

Airworthiness approval of the JA74-510 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 installing a Jupiter Avionics JA74-510 Dual USB-C Charger. 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 Canada must follow the applicable aviation authority's regulations.

Sample Wording:

Installed the Jupiter Avionics JA74-510 Dual USB-C Charger [aircraft location].

Installed in accordance with the JA74-510 Installation Manual, Revision [], and AC 43.13-2, Chapters 2, and 3.

The JA74-510 Installation Manual provides detailed installation instructions and wiring diagrams (Section 2, and Appendices A and B).

Power is supplied to the JA74-510 through a 4-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 JA74-510 Dual USB-C Charger is "on condition" only. Periodic maintenance of the JA74-510 is not required.

The following sample Instructions for Continued Airworthiness (ICA) provides assistance in preparing ICA for the Jupiter Avionics JA74-510 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 JA74-510 Dual USB-C Charger 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 JA74-510 installed in an [aircraft make and model].

Applicability: Applies to a Jupiter Avionics JA74-510 installed in an [aircraft make and model].

Definitions/Abbreviations: None, N/A.

Precautions: None, N/A.

Units of Measurement: None, N/A.

Referenced Publications: JA74-510 Installation and Operating Manual

JA74-510 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 JA74-510 Dual USB-C Charger. 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 JA74-510 is 'on condition' only. Periodic maintenance is not required. Refer to the JA74-510 Maintenance Manual.

6. Troubleshooting Information

Refer to the JA74-510 Maintenance Manual.

7. Removal and Replacement Information

Refer to Section 2 of this manual - the JA74-510 Installation and 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 JA74-510 Installation and 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

JA74-510 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 JA74-510 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