

HD5DA Mini-Converter

1x4 Distribution Amplifier

Installation & Operation Guide

Version 2.0

Published: September 24, 2014



Because it matters.®

AJA
VIDEO SYSTEMS

Table of Contents

Notices	3
Trademarks	3
Copyright	3
Contacting Support	3
Chapter 1: Introduction	4
Overview	4
Features	4
Simplified Block Diagram	4
I/O Connections	5
Installation	5
Appendix A: Specifications	6
Video	6
Input	6
Output	6
Return Loss	6
Physical	6
Appendix B: Safety and Compliance	7
Federal Communications Commission (FCC) Compliance Notices	7
Class B Interference Statement	7
FCC Caution	7
Canadian ICES Statement	7
European Union and European Free Trade Association (EFTA) Regulatory Compliance	8
Declaration of Conformity	8
Korean KCC Compliance Statement	9
Taiwan Compliance Statement	9
Recycling Notice	9
Translated Warning and Caution Messages	9
Before Operation Please Read These Instructions	10
Warranty Information	13
Limited Warranty	13

Notices

Trademarks

AJA®, Io®, Ki Pro®, KONA®, KUMO®, T-TAP®, Because it matters.® and ROI® are registered trademarks of AJA Video Systems, Inc. in the United States. AJA and Ki Pro are trademarks of AJA Video Systems, Inc. registered in other countries. AJA Control Room™, CION™, Corvid Ultra™, FiDO™, Science of the Beautiful™, TruScale™, TruZoom™, V2Analog™ and V2Digital™ are trademarks of AJA Video Systems, Inc.

AirPort, Apple, Apple logo, AppleShare, AppleTalk, FireWire, iPod, iPod touch, Mac and Macintosh are registered trademarks of Apple Inc. Final Cut Pro, QuickTime and QuickTime logo are trademarks of Apple Inc.

Avid, Avid DNxHD and Media Composer are registered trademarks of Avid Technology, Inc.

HDMI, the HDMI logo and High-Definition Multimedia Interface are trademarks or registered trademarks of HDMI Licensing, LLC.

DVI is a registered trademark of DDWG.

TASCAM is a registered trademark of TEAC Corporation.

Dolby® and the double-D Dolby logo are registered trademarks of Dolby Laboratories Licensing Corporation.

All other trademarks are the property of their respective holders.

Copyright

Copyright © 2014 AJA Video Systems, Inc. All rights reserved. All information in this manual is subject to change without notice. No part of the document may be reproduced or transmitted in any form, or by any means, electronic or mechanical, including photocopying or recording, without the express written permission of AJA Video Systems, Inc.

Contacting Support

When calling for support, have all information at hand prior to calling.

To contact AJA for sales or support, use any of the following methods:

Telephone: +1.530.271.3190

FAX: +1.530.271.3140

Web: <http://www.aja.com>

Support Email: support@aja.com

Sales Email: sales@aja.com

Chapter 1: Introduction

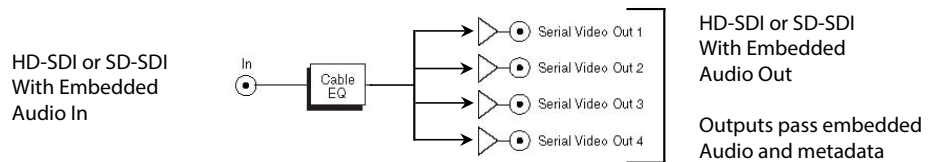
Overview

The HD5DA is a miniature, low-cost 1x4 HD/SD-SDI distribution amplifier/repeater. Featuring four separately buffered HD/SD-SDI outputs, the HD5DA provides automatic HD cable equalization to 125 meters and automatically adapts to 143, 177, 270, 360 Mb, and 1.5Gb SDI.

Features

- Compact HD-SDI/SDI Distribution
- Four Separately Buffered HD-SDI/SDI Outputs
- HD 125m, SD 300m (Belden 1694 cable)
- Acts As Low-Cost Repeater
- Automatic Multi-Standard 143/177/ 270 Mb, 1.5Gb
- Operating Voltage 5-18VDC (Universal 5V AC adapter model DWP-U-R1 is included)
 - Power rating above for serial number 6277 and higher. Lower numbered units require +5VDC only.
- No dip switches or configuration required

Simplified Block Diagram



I/O Connections



Installation

Typically, HD5DA installation consists of the following:

1. Disconnect power from the converter.
2. Connect video equipment to the BNCs.
3. Apply DC power to the converter.

Appendix A: Specifications

Video

Input

SDI Video Input HD-SDI, SD-SDI (SMPTE 292/296), 1x BNC

Output

SDI Video Output 4 HD-SDI, SD-SDI, 4x BNC, Equalizing

Return Loss

Input and Output >15dB-270Mhz

Physical

Size 8" x 2.4" x 1" (131 x 61 x 25mm)

Power Uses AJA Power Supply model DWP-U-R1 (included)

- 100-240V, 50/60Hz Universal Input
- +5VDC to 18VDC regulated, 7.5 watt capacity
 - Power rating above for serial number 6277 and higher. Lower numbered units require +5VDC only.

Appendix B: Safety and Compliance

Federal Communications Commission (FCC) Compliance Notices

Class B Interference Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15, Subpart B of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

FCC Caution

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Canadian ICES Statement

Canadian Department of Communications Radio Interference Regulations

This digital apparatus does not exceed the Class B limits for radio-noise emissions from a digital apparatus as set out in the Radio Interference Regulations of the Canadian Department of Communications. This Class B digital apparatus complies with Canadian ICES-003.

Règlement sur le brouillage radioélectrique du ministère des Communications

Cet appareil numérique respecte les limites de bruits radioélectriques visant les appareils numériques de classe B prescrites dans le Règlement sur le brouillage radioélectrique du ministère des Communications du Canada. Cet appareil numérique de la Classe B est conforme à la norme NMB-003 du Canada.

European Union and European Free Trade Association (EFTA) Regulatory Compliance

This equipment may be operated in the countries that comprise the member countries of the European Union and the European Free Trade Association. These countries, listed in the following paragraph, are referred to as The European Community throughout this document:

AUSTRIA, BELGIUM, BULGARIA, CYPRUS, CZECH REPUBLIC, DENMARK, ESTONIA, FINLAND, FRANCE, GERMANY, GREECE, HUNGARY, IRELAND, ITALY, LATVIA, LITHUANIA, LUXEMBOURG, MALTA, NETHERLANDS, POLAND, PORTUGAL, ROMANIA, SLOVAKIA, SLOVENIA, SPAIN, SWEDEN, UNITED KINGDOM, ICELAND, LICHTENSTEIN, NORWAY, SWITZERLAND

Declaration of Conformity

Marking by this symbol indicates compliance with the Essential Requirements of the EMC Directive of the European Union 2004/108/EC.



This equipment meets the following conformance standards:

Safety: CB- IEC 60065:2001 + A1:2005
NRTL - UL 60065:2003 R11.06, CSA C22.2 NO. 60065:2003 + A1:06
GS - EN 60065:2002 + A1
Additional licenses issued for specific countries available on request.

Emissions: EN 55103-1: 2009
EN 61000-3-2: 2006+A1:2009 +A2:2009, EN 61000-3-3: 2008

Immunity: EN 55103-2: 2009
EN 61000-4-2: 2009, EN 61000-4-3: 2006+A1:2008, EN 61000-4-4: 2004,
EN 61000-4-5: 2005, EN 61000-4-6: 2007, EN 61000-4-11: 2004

The product is also licensed for additional country specific standards as required for the International Marketplace.



Warning!

This is a Class B product. In a domestic environment, this product may cause radio interference, in which case, the user may be required to take appropriate measures.

Achtung! Dieses ist ein Gerät der Funkstörgrenzwertklasse B. In Wohnbereichen können bei Betrieb dieses Gerätes Rundfunkstörungen auftreten, in welchen Fällen der Benutzer für entsprechende Gegenmaßnahmen verantwortlich ist.

Attention! Ceci est un produit de Classe B. Dans un environnement domestique, ce produit risque de créer des interférences radioélectriques, il appartiendra alors à l'utilisateur de prendre les mesures spécifiques appropriées.

Korean KCC Compliance Statement


<p>A급 기기 (업무용 방송통신기자재)</p>	<p>이 기기는 업무용(A급) 전자파적합기기로서 판매자 또는 사용자는 이 점을 주의하시기 바라며, 가정외의 지역에서 사용하는 것을 목적으로 합니다.</p>
<p>Class A (Broadcasting Communication Equipment for Office Use)</p>	<p>As an electromagnetic wave equipment for office use (Class A), this equipment is intended to use in other than home area. Sellers or users need to take note of this.</p>

Taiwan Compliance Statement

警告使用者：
這是甲類的資訊產品，在居住的環境中使用時，可能會造成射頻干擾，在這種情況下，使用者會被要求採取某些適當的對策。

This is a Class A product based on the standard of the Bureau of Standards, Metrology and Inspection (BSMI) CNS 13438, Class A.

Recycling Notice

	<p>This symbol on the product or its packaging indicates that this product must not be disposed of with your other household waste. Instead, it is your responsibility to dispose of your waste equipment by handing it over to a designated collection point for the recycling of waste electrical and electronic equipment. The separate collection and recycling of your waste equipment at the time of disposal will help conserve natural resources and ensure that it is recycled in a manner that protects human health and the environment. For more information about where you can drop off your waste for recycling, please contact your local authority, or where you purchased your product.</p>
---	---

Translated Warning and Caution Messages

The following caution statements, warning conventions, and warning messages apply to this product and manual.





Warning Symbol



Caution Symbol

Before Operation Please Read These Instructions

	<p>Warning! Read and follow all warning notices and instructions marked on the product or included in the documentation.</p> <p>Avertissement ! Lisez et conformez-vous à tous les avis et instructions d'avertissement indiqués sur le produit ou dans la documentation.</p> <p>Warnung! Lesen und befolgen Sie die Warnhinweise und Anweisungen, die auf dem Produkt angebracht oder in der Dokumentation enthalten sind.</p> <p>¡Advertencia! Lea y siga todas las instrucciones y advertencias marcadas en el producto o incluidas en la documentación.</p> <p>Aviso! Leia e siga todos os avisos e instruções assinalados no produto ou incluídos na documentação.</p> <p>Avviso! Leggere e seguire tutti gli avvisi e le istruzioni presenti sul prodotto o inclusi nella documentazione.</p>
---	---

	<p>Warning! Do not use this device near water and clean only with a dry cloth.</p> <p>Avertissement! N'utilisez pas cet appareil près de l'eau et nettoyez-le seulement avec un tissu sec..</p> <p>Warnung! Das Gerät nicht in der Nähe von Wasser verwenden und nur mit einem trockenen Tuch säubern.</p> <p>¡Advertencia! No utilice este dispositivo cerca del agua y límpielo solamente con un paño seco.</p> <p>Aviso! Não utilize este dispositivo perto da água e limpe-o somente com um pano seco.</p> <p>Avviso! Non utilizzare questo dispositivo vicino all'acqua e pulirlo soltanto con un panno asciutto.</p>
---	--

**Warning!**

Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.

Avertissement ! Ne bloquez aucune ouverture de ventilation. Suivez les instructions du fabricant lors de l'installation.

Warnung! Die Lüftungsöffnungen dürfen nicht blockiert werden. Nur gemäß den Anweisungen des Herstellers installieren.

¡Advertencia! No bloquee ninguna de las aberturas de la ventilación. Instale de acuerdo con las instrucciones del fabricante.

Aviso! Não obstrua nenhuma das aberturas de ventilação. Instale de acordo com as instruções do fabricante.

Avviso! Non ostruire le aperture di ventilazione. Installare in conformità con le istruzioni del fornitore.

**Warning!**

Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.

Avertissement ! N'installez pas l'appareil près d'une source de chaleur telle que des radiateurs, des bouches d'air de chauffage, des fourneaux ou d'autres appareils (amplificateurs compris) qui produisent de la chaleur.

Warnung! Nicht in der Nähe von Wärmequellen wie Heizkörpern, Heizregistern, Öfen oder anderen Wärme erzeugenden Geräten (einschließlich Verstärkern) aufstellen.

¡Advertencia! No instale cerca de fuentes de calor tales como radiadores, registros de calor, estufas u otros aparatos (incluidos amplificadores) que generan calor.

Aviso! Não instale perto de nenhuma fonte de calor tal como radiadores, saídas de calor, fogões ou outros aparelhos (incluindo amplificadores) que produzam calor.

Avviso! Non installare vicino a fonti di calore come termosifoni, diffusori di aria calda, stufe o altri apparecchi (amplificatori compresi) che emettono calore.

**Warning!**

Refer all servicing to qualified service personnel. Servicing is required when the device has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the device, the device has been exposed to rain or moisture, does not operate normally, or has been dropped.

Avertissement ! Référez-vous au personnel de service qualifié pour tout entretien. L'entretien est exigé quand l'appareil a été endommagé de quelque manière que ce soit, par exemple lorsque le cordon d'alimentation ou la prise sont endommagés, que du liquide a été versé ou des objets sont tombés dans l'appareil, que l'appareil a été exposé à la pluie ou à l'humidité, ne fonctionne pas normalement ou est tombé.

Warnung! Das Gerät sollte nur von qualifizierten Fachkräften gewartet werden. Eine Wartung ist fällig, wenn das Gerät in irgendeiner Weise beschädigt wurde, wie bei beschädigtem Netzkabel oder Netzstecker, falls Flüssigkeiten oder Objekte in das Gerät gelangen, das Gerät Regen oder Feuchtigkeit ausgesetzt wurde, nicht ordnungsgemäß funktioniert oder fallen gelassen wurde.

¡Advertencia! Consulte al personal calificado por cuestiones de reparación. El servicio de reparación se requiere cuando el dispositivo ha recibido cualquier tipo de daño, por ejemplo cable o espigas dañadas, se ha derramado líquido o se han caído objetos dentro del dispositivo, el dispositivo ha sido expuesto a la lluvia o humedad, o no funciona de modo normal, o se ha caído.

Aviso! Remeta todos os serviços de manutenção para o pessoal de assistência qualificado. A prestação de serviços de manutenção é exigida quando o dispositivo foi danificado mediante qualquer forma, como um cabo de alimentação ou ficha que se encontra danificado/a, quando foi derramado líquido ou caíram objectos sobre o dispositivo, quando o dispositivo foi exposto à chuva ou à humidade, quando não funciona normalmente ou quando foi deixado cair.

Avviso! Fare riferimento al personale qualificato per tutti gli interventi di assistenza. L'assistenza è necessaria quando il dispositivo è stato danneggiato in qualche modo, ad esempio se il cavo di alimentazione o la spina sono danneggiati, è stato rovesciato del liquido è stato rovesciato o qualche oggetto è caduto nel dispositivo, il dispositivo è stato esposto a pioggia o umidità, non funziona correttamente o è caduto.

Warranty Information

Limited Warranty

AJA Video Systems, Inc. (AJA Video) warrants that this product will be free from defects in materials and workmanship for a period of five years from the date of purchase. If a product proves to be defective during this warranty period, AJA Video, at its option, will either repair the defective product without charge for parts and labor, or will provide a replacement in exchange for the defective product.

In order to obtain service under this warranty, you the Customer, must notify AJA Video of the defect before the expiration of the warranty period and make suitable arrangements for the performance of service. The Customer shall be responsible for packaging and shipping the defective product to a designated service center nominated by AJA Video, with shipping charges prepaid. AJA Video shall pay for the return of the product to the Customer if the shipment is to a location within the country in which the AJA Video service center is located. Customer shall be responsible for paying all shipping charges, insurance, duties, taxes, and any other charges for products returned to any other locations.

This warranty shall not apply to any defect, failure or damage caused by improper use or improper or inadequate maintenance and care. AJA Video shall not be obligated to furnish service under this warranty a) to repair damage resulting from attempts by personnel other than AJA Video representatives to install, repair or service the product, b) to repair damage resulting from improper use or connection to incompatible equipment, c) to repair any damage or malfunction caused by the use of non-AJA Video parts or supplies, or d) to service a product that has been modified or integrated with other products when the effect of such a modification or integration increases the time or difficulty of servicing the product.

THIS WARRANTY IS GIVEN BY AJA VIDEO IN LIEU OF ANY OTHER WARRANTIES, EXPRESS OR IMPLIED. AJA VIDEO AND ITS VENDORS DISCLAIM ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. AJA VIDEO'S RESPONSIBILITY TO REPAIR OR REPLACE DEFECTIVE PRODUCTS IS THE WHOLE AND EXCLUSIVE REMEDY PROVIDED TO THE CUSTOMER FOR ANY INDIRECT, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES IRRESPECTIVE OF WHETHER AJA VIDEO OR THE VENDOR HAS ADVANCE NOTICE OF THE POSSIBILITY OF SUCH DAMAGES.