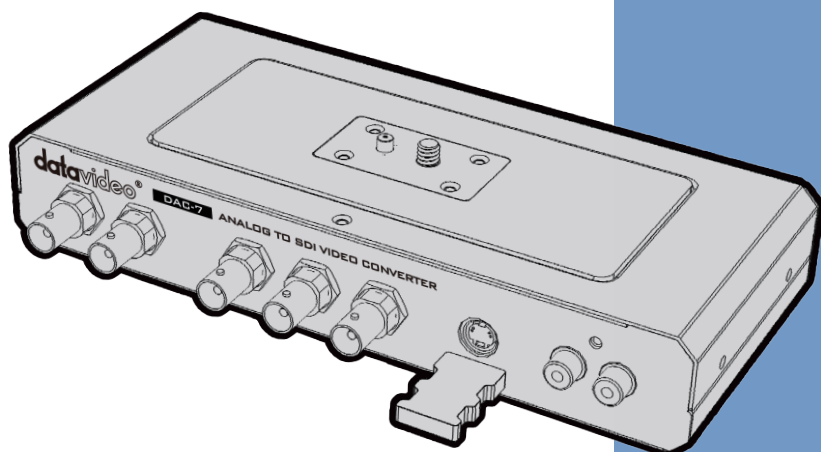


datavideo



ANALOGUE TO SDI CONVERTER DAC-7

Instruction Manual

www.datavideo.com

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Disclaimer of Product and Services

The information offered in this instruction manual is intended as a guide only. At all times, Datavideo Technologies will try to give correct, complete and suitable information. However, Datavideo Technologies cannot exclude that some information in this manual, from time to time, may not be correct or may be incomplete. This manual may contain typing errors, omissions or incorrect information. Datavideo Technologies always recommend that you double check the information in this document for accuracy before making any purchase decision or using the product. Datavideo Technologies is not responsible for any omissions or errors, or for any subsequent loss or damage caused by using the information contained within this manual. Further advice on the content of this manual or on the product can be obtained by contacting your local Datavideo Office or dealer.

FCC Compliance Statement

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.

Warnings and Precautions

1. Read all of these warnings and save them for later reference.
2. Follow all warnings and instructions marked on this unit.
3. Unplug this unit from the wall outlet before cleaning. Do not use liquid or aerosol cleaners. Use a slightly damp cloth for cleaning.
4. Do not use this unit in or near water.
5. Do not place this unit on an unstable surface, cart, stand, or table. The unit may fall, causing serious damage.
6. Any slots and openings on the case top, back, and bottom are provided for ventilation. To ensure safe and reliable operation of this unit, and to protect it from overheating, do not block or cover these openings. Do not place this unit on a bed, sofa, rug, or similar surface, as the ventilation openings may become blocked. This unit should never be placed near or over a heat source or radiator. This unit should not be placed in a built-in installation unless proper ventilation is provided.
7. This product should only be operated from the type of power source indicated on the marking label of the AC adapter. If you are not sure of the type of power available, consult your Datavideo dealer or your local power company.
8. Do not allow anything to rest on the power cord. Do not locate this unit where the power cord will be walked on, rolled over, damaged or otherwise stressed.
9. If an extension cord must be used with this unit, make sure that the total of the ampere ratings on the products plugged into the extension cord do not exceed the extension cord's rating.
10. Make sure that the total amperes of all the units that are plugged into a single wall outlet do not exceed 15 amperes.
11. Never push objects of any kind into this unit through the case ventilation slots, as they may touch dangerous voltage points or short out parts that could result in risk of fire or electric shock. Never spill liquid of any kind onto or into this unit.
12. Except as specifically explained elsewhere in this manual, do not attempt to service this product yourself. Opening or removing covers that are marked "Do Not Remove" may expose you to dangerous voltage points or other risks, and will void your warranty. Refer all service issues to qualified service personnel.
13. Unplug this product from the wall outlet and refer to qualified service personnel under the following conditions:
 - a. When the power cord is damaged or frayed;
 - b. When liquid has spilled into the unit;
 - c. When the product has been exposed to rain or water;



- d. When the product does not operate normally under normal operating conditions. Adjust only those controls that are covered by the operating instructions in this manual; improper adjustment of other controls may result in damage to the unit and may often require extensive work by a qualified technician to restore the unit to normal operation;
- e. When the product has been dropped or the case has been damaged;
- f. When the product exhibits a distinct change in performance, indicating a need for service.

NB: Ensure the dip switch settings match the video signal being fed into the DAC-07.

Connecting both XLR and RCA / Phone audio sources at the same time is not recommended.

A separate Time Base Corrector may be required if the unit is fed poor AV signals from tape.

Before operating this device please also refer to the section marked SD-SDI Cabling Advice.

Warranty

Standard Warranty

- Datavideo equipment are guaranteed against any manufacturing defects for one year from the date of purchase.
- The original purchase invoice or other documentary evidence should be supplied at the time of any request for repair under warranty.
- The product warranty period begins on the purchase date. If the purchase date is unknown, the product warranty period begins on the thirtieth day after shipment from a Datavideo office.
- All non-Datavideo manufactured products (product without Datavideo logo) have only one year warranty from the date of purchase.
- Damage caused by accident, misuse, unauthorized repairs, sand, grit or water is not covered under warranty.
- Viruses and malware infections on the computer systems are not covered under warranty.
- Any errors that are caused by unauthorized third-party software installations, which are not required by our computer systems, are not covered under warranty.
- All mail or transportation costs including insurance are at the expense of the owner.
- All other claims of any nature are not covered.
- All accessories including headphones, cables, and batteries are not covered under warranty.
- Warranty only valid in the country or region of purchase.
- Your statutory rights are not affected.

Three Year Warranty

- All Datavideo products purchased after July 1st, 2017 are qualified for a free two years extension to the standard warranty, providing the product is registered with Datavideo within 30 days of purchase.
- Certain parts with limited lifetime expectancy such as LCD panels, DVD drives, Hard Drive, Solid State Drive, SD Card, USB Thumb Drive, Lighting, Camera module, PCIe Card are covered for 1 year.
- The three-year warranty must be registered on Datavideo's official website or with your local Datavideo office or one of its authorized distributors within 30 days of purchase.



Disposal



For EU Customers only - WEEE Marking

This symbol on the product indicates that it will not be treated as household waste. It must be handed over to the applicable take back scheme for the recycling of electrical and electronic equipment. For more detailed information about the recycling of this product, please contact your local Datavideo office.

1. Introduction

Thank you for purchasing the **DAC-07** Analogue to SD-SDI converter.

The **DAC-07** is designed to be an affordable bridge between existing cameras with SD Analogue Video outputs and SD-SDI equipment or mixers such as the **Datavideo SE-900, SE-2800** and **SE-3000**.

Due to the nature of SD-SDI signals, single BNC SD-SDI cable runs of up to 100m should be possible with this unit before the signal would need to be re-clocked or repeated.

The **DAC-07** also has the ability to embed two channels of audio (or 1 stereo pair) into the SD-SDI signal from either unbalanced RCA / Phone connections or balanced 3pin XLR connections.

1.1 Features

Video connections include

- 1x Composite (CVBS), 1x S-Video (Y/C) and 1x Component Y.U.V. (Y,Pb,Pr)
- 2x SD-SDI (BNC) outputs both with embedded 2 channel audio
- SD-SDI output signal that complies with the SMPTE259M-C standard at 270 Mbps

Audio connections include

- Connections for CH1/L and CH2/R on unbalanced RCA / Phone cabling
- Connections for CH1/L and CH2/R on balanced XLR cabling
- 12 and 16 bit audio auto recognition

Others

- Dip switches for video source selection
- Space saving – mountable between camera and tripod plate
- Rugged case design with easy access to Audio and Video connections
- DC 12V / 0.5A input connector with screw locking thread

NB: Ensure the dip switch settings match the video signal being fed into the DAC-07.

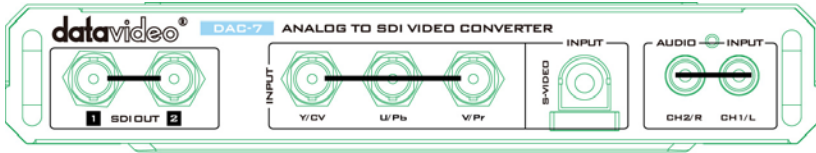
Connecting both XLR and RCA / Phone audio sources at the same time is not recommended.

A separate Time Base Corrector may be required if the unit is fed poor AV signals from tape.

Before operating this device please also refer to the section marked SD-SDI Cabling Advice.

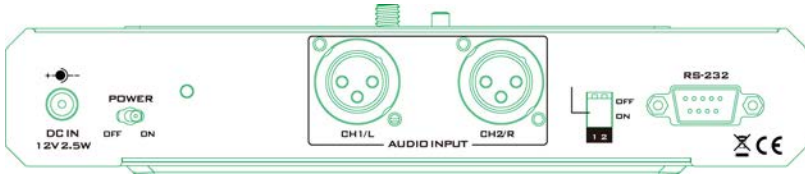
2. Functions





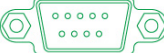
2.1 Front Panel



Output Connections	
	<p>SDI – Serial Digital Interface on BNC terminals.</p> <p>4:2:2 SDI Video data supports SMPTE 259 M-C standard at 270 Mbps.</p>
Input Connections	
	<p>Component Y.U.V. (Y.Pb.Pr.) video input on BNC terminals.</p> <p>S-Video (Y/C) on 4-Pin Mini Din Input.</p>
	<p>Unbalanced RCA / Phone audio connections for CH1/L and CH2/R.</p>

2.2 Rear Panel

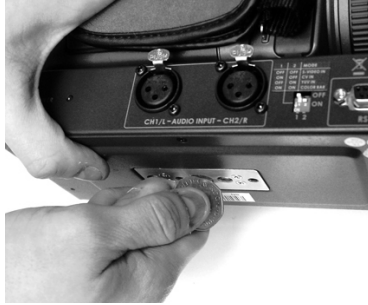


Power																
 DC IN 12V 2.5W	DC IN socket Connect the supplied 12V 0.5A PSU to this socket. The power connection can be secured by screwing the outer fastening ring of the DC In plug to the socket.															
 POWER OFF ON	Power On/Off switch An LED confirms that the unit is switched ON or OFF.															
DIP Switch Settings																
	Select a video input connection or colour bars by setting the dip switches. DIP Switch Modes <table border="1" style="margin-top: 10px;"> <thead> <tr> <th>Dip1</th> <th>Dip2</th> <th>Function</th> </tr> </thead> <tbody> <tr> <td>OFF</td> <td>OFF</td> <td>S-Video Input</td> </tr> <tr> <td>ON</td> <td>OFF</td> <td>CV Input</td> </tr> <tr> <td>OFF</td> <td>ON</td> <td>YUV Input</td> </tr> <tr> <td>ON</td> <td>ON</td> <td>Internal colour bars</td> </tr> </tbody> </table>	Dip1	Dip2	Function	OFF	OFF	S-Video Input	ON	OFF	CV Input	OFF	ON	YUV Input	ON	ON	Internal colour bars
Dip1	Dip2	Function														
OFF	OFF	S-Video Input														
ON	OFF	CV Input														
OFF	ON	YUV Input														
ON	ON	Internal colour bars														
Rear Connections																
	XLR Balanced Audio Input connections for CH1/L and CH2/R.															
	RS-232 Interface 9-pin serial port standard RS-232 interface. Used to update firmware. For details of firmware updates please check with your local Datavideo Office.															

3. Applications

3.1 Securing to a Video Camera

Use a coin or flat head screwdriver to secure the base of the video camera to the top of the DAC-07.



3.2 Securing to a Tripod

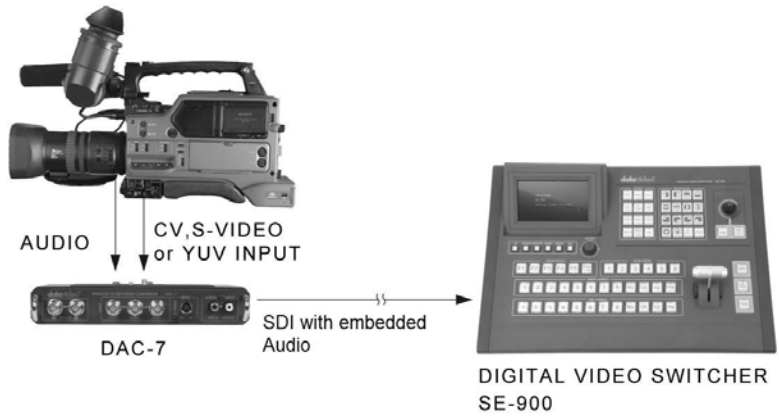
Secure the quick release plate from your tripod head to the base of the DAC-07.



Secure the quick release camera plate to the tripod head with DAC-07 and Camera attached.



3.3 Example Setup



NB: DAC-7 can provide SDI with or without embedded two channel audio

4. SD-SDI Cabling Advice

4.1 How to avoid problems with SD-SDI

Start with good cabling. BNC cables and connectors are not all made to the same standard. From the thickness and grade of the centre conductor to the type of dielectric, all these factors contribute to its impedance, attenuation and Return Loss (RL).

RL is the portion of the transmitted signal that is not admitted to the receiver and is then *reflected back* along the cable toward the transmitter (DAC-07). Reflections in the transmission path will cause attenuation as well as distortion of the signal received. The signal is attenuated because part of it is reflected back and does not make it to the receiver; it is also distorted because the reflected signal mixes with the original signal causing it to distort as well as adding to the noise floor.

A 75 Ohm (Ω) impedance must be maintained throughout the DAC-07 SD-SDI signal/cable path. Always use patch bays, hubs and repeaters that match the data rate and impedance you are working with.

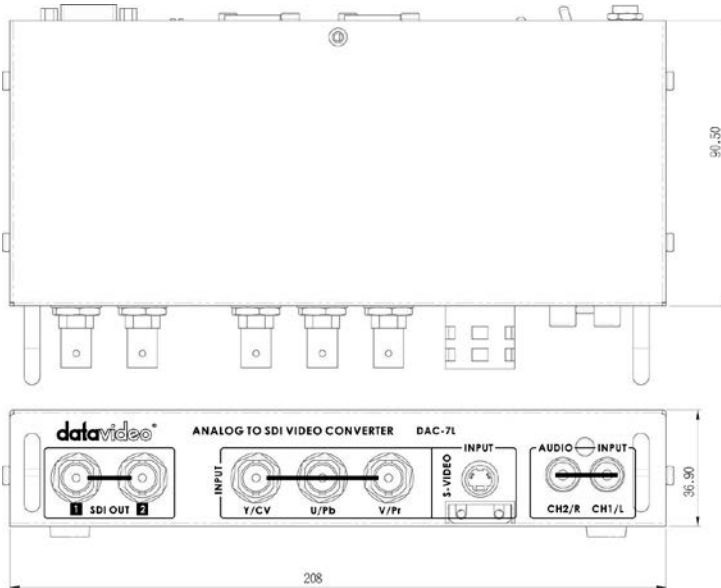
Care must also be taken with cable length, as it will affect the error rate in the SD-SDI signal. Cable lengths beyond acceptable limits will see error rates reach a tipping point and this will bring about a total loss of picture also known as the *Cliff Effect*.

Always check with your supplier for cabling advice on the maximum distance for a particular signal and data rate, in this case an SD-SDI signal that complies with the SMPTE259M-C standard at 270 Mbps. Datavideo have determined that single BNC SD-SDI cable runs of up to 100m should be possible with this unit before the signal would need to be re-clocked or repeated.

4.2 Here is a basic list of other things to avoid

- Do not step on or rest equipment on the cables.
- Do not roll dollies or trolleys over the cables.
- Do not put kinks or sharp bends in the cables.
- Do not exceed the minimum bend radius of the cable.
The general rule for an acceptable bend radius is 10 times the diameter of the cable.
- Cable pulls should be done carefully – do not jerk or stretch the cable(s).
 - Do not exceed the cable's maximum pulling tension. (Call the cable supplier / manufacturer for this information.)
- Do not pull cable ties too tight on cable looms.
 - If you cannot move any cable inside a loom tie, the tie is too tight.
 - Put an extra piece of cable in when tightening loom ties - then remove it afterwards for space.
- Do not put cable management fixings at standard distances apart.
 - This can lead to deformity at a given wavelength, which can increase RL.
 - Place your loom cable ties at random distances for the same reason.

5. Dimensions



6. Specification

Video inputs	1 x CVBS, BNC connector 75 Ohm (Ω) 1 x S-Video (Y/C) 4pin Mini Din connector 1 x YUV (3 x BNC connectors, 75 Ω)
Audio inputs	2 x balanced stereo audio, XLR connectors 2 x unbalanced stereo audio, RCA / Phone sockets
Signal Outputs	2 x BNC connectors, 75 Ω for SD-SDI signal 4:2:2 SDI Video data supports SMPTE 259 M-C standard at 270 Mbps
Video Spec	Composite Video (CVBS): 75 Ω 1.0 V p-p S-Video (Y/C): 4 Pin Mini Din 75 Ω Y: 1.0 V p-p, C: 0.627 mV p-p Bandwidth: > 5.0MHz S/N Ratio > 48 dB Differential of Gain (DG) < 3% Differential of Phase (DP) < 3°
Audio Spec	Bandwidth 20~20KHz < +/- 3dB S/N Ratio > 70 dB THD. < 0.1% (This spec must use precision to analyze data inside of signal)
Others	RS-232 protocol for PC firmware update
Dimension	215mm (W) x 115mm (H) x 44mm (D)
Weight	1.3 Kg
Power	DC 12V / 500mA (2.5W)

NOTE

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Service & Support

It is our goal to make owning and using Datavideo products a satisfying experience. Our support staff is available to assist you to set up and operate your system. Contact your local office for specific support requests. Plus, please visit www.datavideo.com to access our FAQ section.

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