

**datavideo**<sup>®</sup>

# DAC-7L



## INSTRUCTION MANUAL

[www.datavideo-tek.com](http://www.datavideo-tek.com)

Rev 261109

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## 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.
14. *Ensure the dip switch settings match the video signal being fed into the DAC-7L.*
15. *Connecting both XLR and RCA/Phono audio sources at the same time is not recommended.*
16. *A separate Time Base Corrector may be required if the unit is fed poor AV signals from tape.*
17. *Before operating this device please also refer to the section marked SD-SDI Cabling Advice.*

## Warranty

Datavideo warrants that the equipment it manufactures shall be free from defects in material and workmanship for a period of 12 months from the date of product purchase. If this equipment fails due to such defects, Datavideo will, at its option, repair or provide a replacement for the defective part or product. Equipment that fails after the warranty period, has been operated or installed in a manner other than that specified by Datavideo, or has been subjected to abuse or modification, will be repaired for time and material charges at the Buyer's expense.

This warranty does not affect your statutory rights within the Country of purchase.

## Disposal



### **For EU Customers only - WEEE Marking.**

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

## Packing List

Items	Description	Q'ty
1	DAC-7L	1
2	Switching Adaptor DC 12V 1.5A	1
3	Instruction Manual	1

# Features

Video input 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

Connections for CH1/L and CH2/R on unbalanced RCA/Phono cabling

Connections for CH1/L and CH2/R on balanced XLR cabling

12 and 16 bit audio auto recognition

Space saving - camera and tripod mountable

Rugged case design with easy access to Audio and Video connections

12 Volt DC 1.5A input connector

# Product Overview

Thank you for purchasing the **DAC-7L** Analogue to SD-SDI converter.

The **DAC-7L** is designed to be an affordable bridge between existing AV equipment with SD Analogue Video outputs and SD-SDI equipment or mixers such as the **Datavideo SE-900** and **SE-1000**.

Due to the nature of SD-SDI signals, single BNC SD-SDI cable runs of up to 120m should be possible with this unit before the signal would need to be re-clocked or repeated.

The **DAC-7L** also has the ability to embed two channels of audio (or 1 stereo pair) into the SD-SDI signal from either unbalanced RCA/Phono connections or balanced 3pin XLR connections.

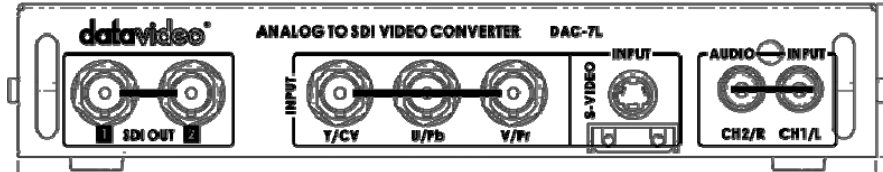
**NB:** *Ensure the dip switch settings match the video signal being fed into the DAC-7L.*

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

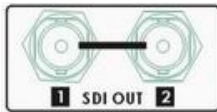
*A separate Time Base Corrector may be required if the unit is fed poor AV signals from tape.*

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

## Front Panel



## Output Connections

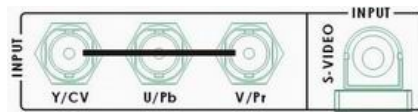


**SDI – Serial Digital Interface** on BNC terminals.

4:2:2 SDI Video data supports SMPTE

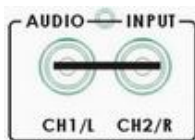
259 M-C standard at 270 Mbps.

## Front Input Connections



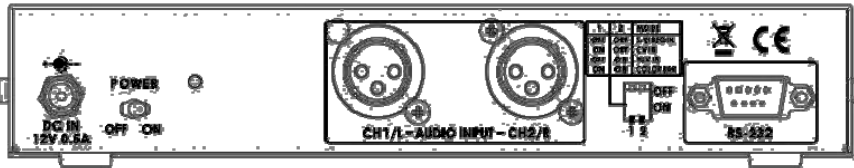
**Component Y.U.V.** (Y.Pb.Pr.) video input on BNC terminals.

**S-Video (Y/C)** on 4-Pin Mini Din Input.



**Unbalanced RCA/Phono** audio connections for CH1/L and CH2/R.

## Rear Panel



### Power



#### DC IN socket

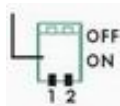
Connect the supplied 12V 1.5A PSU to this socket. The power connection can be secured by screwing the outer fastening ring of the DC In plug to the socket.



#### Power On/Off switch

An LED confirms that the unit is switched ON or OFF.

### Dip Switch Settings

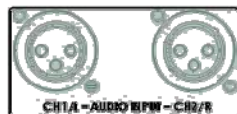


Select a video input connection or colour bars by setting the dip switches.

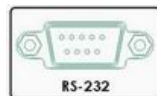
#### DIP Switch Modes:

Dip1	Dip2	Function
ON	ON	Internal colour bars
ON	OFF	CV Input
OFF	ON	YUV Input
OFF	OFF	S-Video Input

### Rear Connections



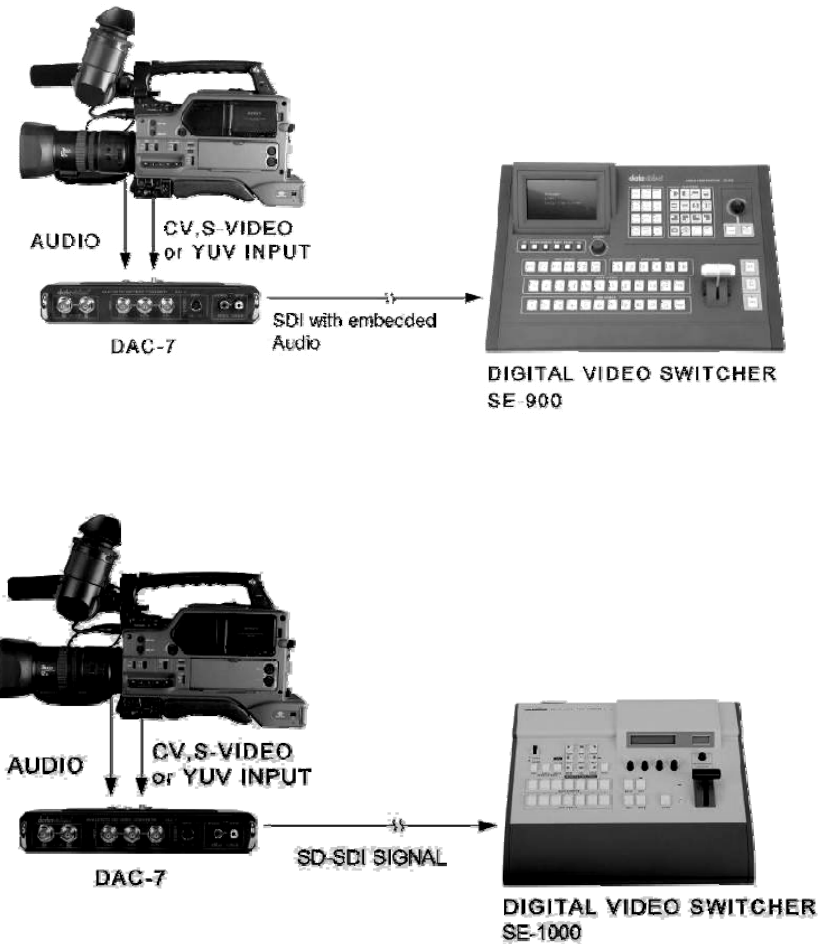
**XLR Balanced Audio** Input connections for CH1/L and CH2/R.



**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

## Example Set Ups



*NB: SE-1000 mixer cannot handle SDI embedded audio*

## SD-SDI Cabling Advice

Start with good cabling. BNC coax 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 impedance, attenuation and Return Loss (RL). Serial Digital Video coax like Belden 1694A or Canare L5CFB are good examples of broadcast quality SDI cable.

75 Ohm ( $\Omega$ ) impedance must be maintained throughout the DAC-9 SDI signal or cable path, including BNC connectors etc.

Return Loss is the portion of the transmitted SDI signal that is not admitted to the receiver (mixer) and is then reflected back along the cable toward the transmitter (DAC-7L). Reflections in the transmission path will cause attenuation as well as distortion of the SDI signal received. The signal is attenuated because part of it is reflected back and does not make it to the receiver (SE-900 for example); 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.

Care must also be taken with cable length, as it will affect the error rate in the 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 SDI signal that complies with the SMPTE 292M standard at 1.5 Gbps. Datavideo Taiwan have determined that single BNC SDI cable (5CFB) runs of up to 100m should be possible with this unit before the signal would need to be re-clocked or repeated.

### ***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 to create the 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.

## Optional Datavideo Related Products

Datavideo have determined that single BNC SD-SDI cable runs of up to 120m should be possible with the DAC-7L unit before the signal would need to be re-clocked or repeated.

The Datavideo VP-445 is one way of re-clocking the DAC-7L SD-SDI signal so that it can be fed over longer distances.

The VP-445 has 1 input and 4 identical outputs. This provides a way of distributing a single SDI signal to 4 pieces of SDI equipment such as a mixer, a recording device and or monitor (TLM-170D).



## Specifications

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

*Specifications are subject to change without notice.*

## Service and Support

It is our goal to make your products ownership a satisfying experience. Our supporting staff is available to assist you in setting up and operating your system. Please refer to our web site [www.datavideo-tek.com](http://www.datavideo-tek.com) for answers to common questions, support requests or contact your local office below.

**Datavideo Global Website:** [www.datavideo-tek.com](http://www.datavideo-tek.com)

### Datavideo Corporation

Tel: +1 562 696 2324	Fax: +1 562-698-6930	E-Mail: <a href="mailto:contactus@datavideo.us">contactus@datavideo.us</a>
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### Datavideo Technologies Europe BV

Tel: +31-30-261-96-56	Fax: +31-30 261-96-57	E-Mail: <a href="mailto:service@datavideo.nl">service@datavideo.nl</a>
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### Datavideo UK Limited

Tel: +44 1457 851 000	Fax: +44 1457 850 964	E-Mail: <a href="mailto:sales@datavideo.co.uk">sales@datavideo.co.uk</a>
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### Datavideo Technologies Co., Ltd

Tel: +886 2 8227 2888	Fax: +886-2-8227-2777	E-mail: <a href="mailto:service@datavideo.com.tw">service@datavideo.com.tw</a>
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### Datavideo Technologies China Co., Ltd

Tel: +86 21-5603 6599	Fax: +86 21-5603 6770	E-mail: <a href="mailto:service@datavideo.cn">service@datavideo.cn</a>
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### Datavideo Technologies (S) PTE Ltd

Tel: +65-6749 6866	Fax: +65-6749 3266	E-mail: <a href="mailto:sales@datavideo.sg">sales@datavideo.sg</a>
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### Datavideo HK Ltd

Tel: +852 2833 1981	Fax: +852-2833-9916	E-mail: <a href="mailto:info@datavideo.com.hk">info@datavideo.com.hk</a>
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