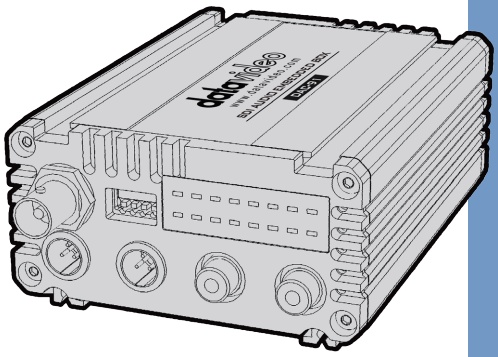
datavideo



SDI AUDIO EMBEDDER

DAC-91

Instruction Manual

www.datavideo.com

Table of Contents

FCC COMPLIANCE STATEMENT **2**

WARNINGS AND PRECAUTIONS **2**

WARRANTY **4**

STANDARD WARRANTY 4
THREE YEAR WARRANTY 4

DISPOSAL **5**

INTRODUCTION **6**

FEATURES **6**

CONNECTIONS & CONTROLS **7**

FRONT PANEL 7
REAR PANEL 8

FIRMWARE UPDATE **9**

FIRMWARE 1 UPDATE PROCEDURE (CLIENT) 9
FIRMWARE 2 UPDATE PROCEDURE (CLIENT) 11

FREQUENTLY-ASKED QUESTIONS **13**

SPECIFICATIONS **14**

DIMENSIONS **15**

SERVICE & SUPPORT **16**

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 damp cloth for cleaning.
4. Do not use this unit in or near water.
5. Do not place this unit on an unstable cart, stand, or table. The unit may fall, causing serious damage.
6. Slots and openings on the cabinet 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 on the bottom of the cabinet will be blocked. This unit should never be placed near or over a heat register 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, 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 cabinet 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 cabinet has been damaged;
    f. When the product exhibits a distinct change in performance, indicating a need for service.

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 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.

CE Marking is the symbol as shown on the left of this page. The letters "CE" are the abbreviation of French phrase "Conformité Européene" which literally means "European Conformity". The term initially used was "EC Mark" and it was officially replaced by "CE Marking" in the Directive 93/68/EEC in 1993. "CE Marking" is now used in all EU official documents.

Introduction

DAC-91 is an SDI Audio Embedder that allows the user to embed 2 channels of mixed analog audio signals into the SDI video signal.

It features 3G/HD/SD-SDI to support up to 1080p/60 video format, and automatically detects and switches between different formats. In addition, mini XLR and RCA audio connectors are provided as inputs for analog audio with left mini XLR and RCA mixed to CH1 and right mini XLR and RCA mixed to CH2.

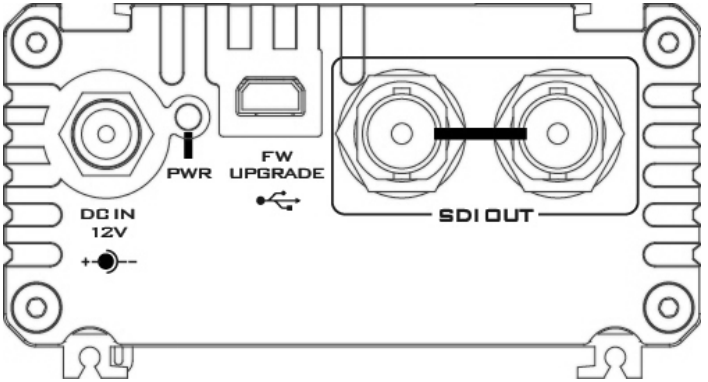
The Audio Box also allows the user to adjust audio gain using the built-in DIP switches.

Features

- Audio embedding into SDI Signal
- Single or dual audio channel mixing
- Automatic detection of 3G, HD, and SD signals
- 4 analog audio inputs (Mini XLR x 2 / RCA x 2)
- Audio level indicator display
- SMPTE/EBU audio levels
- 5 audio gain settings
- Control via DIP Switches
- Can be rack mounted using RMK-2

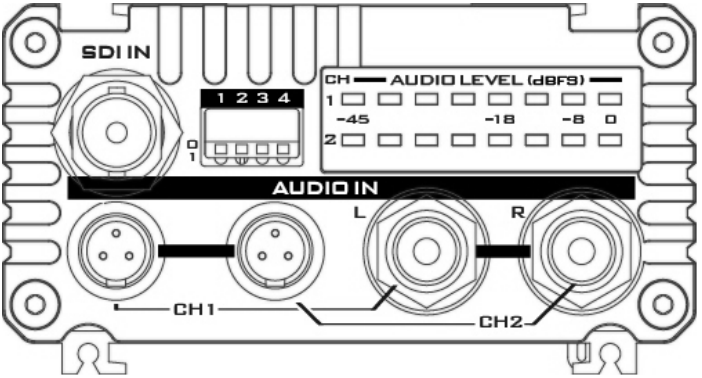
Connections & Controls

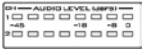
Front Panel



	DC In Socket Connects the supplied 12V PSU to this socket. The connection can be secured by screwing the outer fastening ring of the DC In plug to the socket.
	Power Indicator Indicates the power status
	SDI OUT Video and Audio output from SDI
	USB Firmware Upgrade

Rear Panel



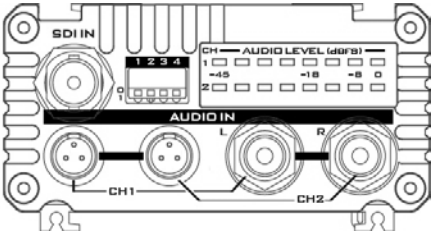
	SDI IN SDI input for video and audio
	Mini-XLR Balanced XLR audio input channel x 2
	RCA Unbalanced RCA audio input channel x 2
	**Audio Level Indicator** LED color and the corresponding audio level Green / Yellow / Red: -45~-40 / -39~-35 / -34~-29 / -28~-24 / -23~-18 / -17~-13 / -12~-8 / -7~0 (Unit : dBFS)
	4 PIN DIP Switch Audio level adjustment

4 PIN DIP SWITCH CONFIGURATION							
DIP SW 1		DIP SW 2-4					
Audio Level		Audio Gain Setting & Firmware Upgrade					
0 1	SMPTE EBU	000	0dB	011	+12dB	110	Firmware Upgrade 1
		001	+6dB	100	-12dB	111	Firmware Upgrade 2
		010	-6dB				

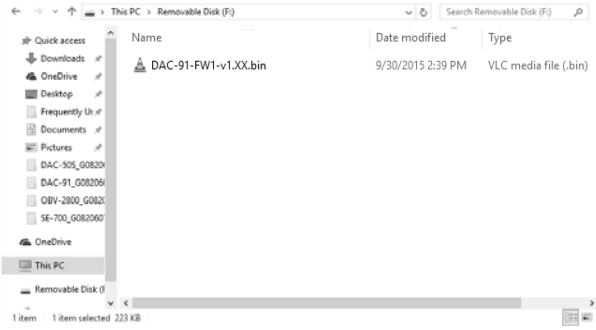
Firmware Update

Firmware 1 Update Procedure (Client)

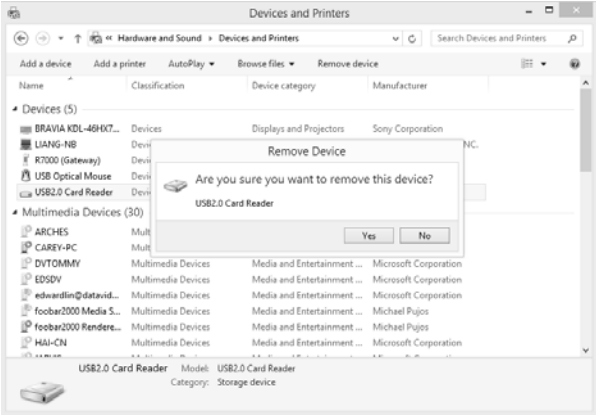
1. Disconnect DC 12V Power Supply from DAC-91
2. Set DIP SW2-4 to 110 (1: down; 0: up)



3. Connect the DAC-91 mini-USB port to the PC via a USB cable
4. Reconnect DC 12V Power Supply to DAC-91
5. The PC will detect the USB device once the DC 12V Power is connected.
6. Copy and paste the Firmware-1 file (DAC-91-FW1-v1.XX.bin) to the device



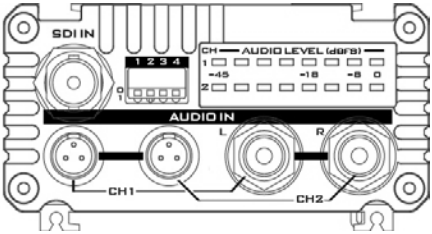
7. Make sure the device is safely removed



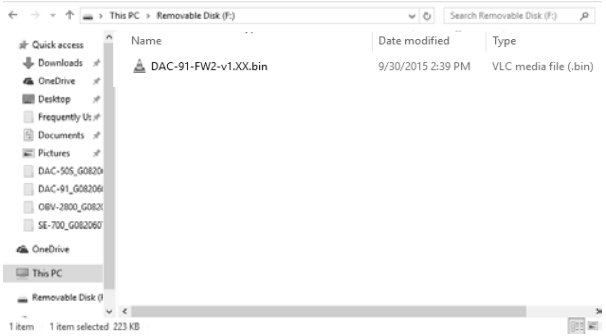
8. Set DIP SW 2-4 to a combination other than 110 or 111, for example 000 (1: down; 0: up)
9. To complete the update, remove the USB cable connection and disconnect the DC 12V Power Supply

Firmware 2 Update Procedure (Client)

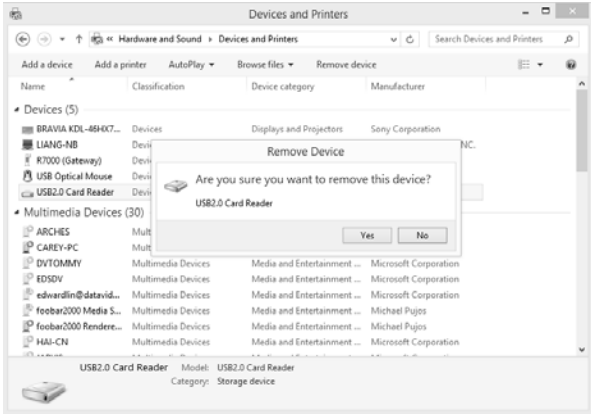
1. Disconnect DC 12V Power Supply from DAC-91
2. Set DIP SW2-4 to 111 (1: down; 0: up)



3. Connect the DAC-91 mini-USB port to the PC via a USB cable
4. Reconnect DC 12V Power Supply to DAC-91
5. The PC will detect the USB device once the DC 12V Power is connected.
6. Copy and paste the Firmware-2 file (DAC-91-FW2-v1.XX.bin) to the device



7. Start updating the FPGA and this process takes approximately 2 minutes
8. Safely remove the device after the file is copied successfully



9. Set DIP SW 2-4 to a combination other than 110 or 111, for example 000 (1: down; 0: up)
10. To complete the update, remove the USB cable connection and disconnect the DC 12V Power Supply

Frequently-Asked Questions

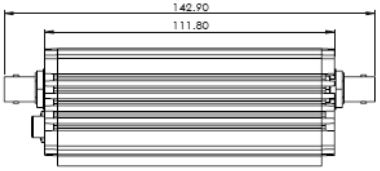
This section describes problems that you may encounter while using DAC-91. If you have questions, please refer to related sections and follow all the suggested solutions. If problem still exists, please contact your distributor or the service center.

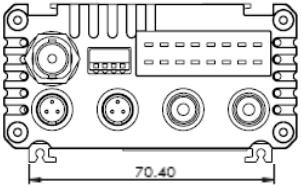
No.	Problems	Solutions
1.	**No audio is heard and audio level indicator is off when SDI-IN signal is absent.**	The DAC-91 requires a compatible SDI video input in order to embed the audio into that signal. Please provide a video input.
2.	**How long does it take for the DAC-91 to finish booting?**	The DAC-91 needs xx seconds to finish its boot up process before it can be used. The device should be ready after the audio level LEDs have faded out.

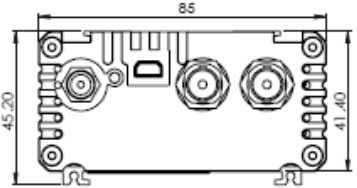
Specifications

Interface	
SDI Video Input	3G/HD/SD SDI x 1
SDI Video Output	3G/HD/SD SDI x 2
Analog Audio Input	Mini XLR (balanced) x 2, RCA (unbalanced) x 2 * Mini XLR1 & RCA1 mixed to CH1 * Mini XLR2 & RCA2 mixed to CH2
Indicator	Power LED x 1 Audio LED : 2 rows
Updates and Configuration	Mini USB x 1
Standards	
SDI Format Support	SD: NTSC 525/29.97 and PAL 625/25 HD: 1080p 50/59.94/25/29.97 1080i 50/59.94 720p 50/59.94
SDI Compliance	SMPTE 259M, SMPTE 292M, SMPTE 296M, SMPTE 424M, SMPTE 425M-AB ITU-R BT.656
SDI Video Rates	SDI video connections are switchable between standard definition and high definition.
SDI Video Sampling	4:2:2
SDI Audio Sampling	24-bit (SD 20-bit), 48Khz
SDI Color Precision	4:2:2 (10-bit)
SDI Color Space	YUV
SDI Auto Switching	Automatically detects SD, HD, 3G
Audio Level	SMPTE/EBU
Audio Gain	0dB, +/-6dB, +/-12dB
General	
Settings Control	Dip Switch
Power Supply	DC 12V
Operating Temperature	0°C to 50°C (32°F to 122°F)
Operating Humidity	10% to 90% (non condensing)
Certification	CE, FCC
Accessory	Power Adapter, QSG

Dimensions







All measurements in mm

Unboxed Unit Weight: Kg
Boxed Unit Weight: Kg

Service & 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.com for answers to common questions, support requests or contact your local office below.

China Shanghai

Datavideo Technologies China Co
601,Building 10,No.1228,
Rd.Jiangchang,
Jingan District,Shanghai
Tel: +86 21-5603 6599
Fax:+86 21-5603 6770
E-mail:service@datavideo.cn

Hong Kong

Datavideo Hong Kong Ltd
G/F.,26 Cross Lane
Wanchai, Hong Kong

Tel: +852-2833-1981
Fax:+852-2833-9916
E-mail:info@datavideo.com.hk

Singapore

Datavideo Technologies (S) PTE Ltd
No. 178 Paya Lebar Road #06-03
Singapore 409030

Tel: +65-6749 6866
Fax:+65-6749 3266
E-mail:sales@datavideo.sg

China Beijing

Datavideo Technologies China Co
No. 812, Building B, Wankai Center,
No.316, Wan Feng Road, Fengtai District,
Beijing, China
Tel: +86 10-8586 9034
Fax:+86 10-8586 9074
E-mail:service@datavideo.cn

India Noida

Datavideo India Noida
A-132, Sec-63,Noida-201307,
India

Tel: +91-0120-2427337
Fax:+91-0120-2427338
E-mail: sales@datavideo.in

Taiwan

Datavideo Technologies Co. Ltd
10F, No. 176, Jian 1st Rd., Chung Ho
District, New Taipei City 235, Taiwan

Tel: +886-2-8227-2888
Fax:+886-2-8227-2777
E-mail:service@datavideo.com.tw

China Chengdu

Datavideo Technologies China Co
B-823,Meinian square,No.1388,
Middle of Tianfu Avenue,Gaoxin District,
Chengdu,Sichuan
Tel: +86 28-8613 7786
Fax:+86 28-8513 6486
E-mail:service@datavideo.cn

India Kochi

Datavideo India Kochi
2nd Floor- North Wing, Govardhan Building,
Opp. NCC Group Headquaters, Chittoor Road,
Cochin- 682035
Tel: +91 4844-025336
Fax:+91 4844-047696
E-mail: sales@datavideo.in

United States

Datavideo Corporation
7048 Elmer Avenue,
Whittier, CA 90602,
U.S.A.
Tel: +1-562-696 2324
Fax:+1-562-698 6930
E-mail:sales@datavideo.com

China Fuzhou

Datavideo Technologies China Co
A1-2318-19 Room,No.8, Aojiang Road,
Taijiang District,Fuzhou,Fujian,China

Tel: 0591-83211756 · 0591-83210187
Fax:0591-83211262
E-mail:service@datavideo.cn

Netherlands

Datavideo Technologies Europe BV
Floridadreef 106
3565 AM Utrecht,
The Netherlands
Tel: +31-30-261-96-56
Fax:+31-30-261-96-57
E-mail:info@datavideo.nl

United Kingdom

Datavideo UK Limited
Brookfield House, Brookfield Industrial
Estate, Peakdale Road, Glossop,
Derbyshire, SK13 6LQ
Tel: +44-1457 851 000
Fax:+44-1457 850 964
E-mail:sales@datavideo.co.uk

China Jinan

Datavideo Technologies China Co
902, No. 1 business building,
Xiangtai Square, No. 129,
Yingxiongshan Road, Shizhong District,
Jinan City, Shandong Province, China
Tel: +86 531-8607 8813
E-mail:service@datavideo.cn

Shanghai

Datavideo Visual Technology(S) Pte Ltd
No. 178 Paya Lebar Road #06-07
Singapore 409030

Tel: +65-6749 6866
Fax:+65-6749 3266
E-mail:info@datavideovirtualset.com

France

Datavideo France s.a.r.l.
Cité Descartes 1, rue Albert Einstein
Champs sur Marne 774477 –
Marne la Vallée cedex 2
Tel: +33-1-60370246
Fax:+33-1-60376732
E-mail:info@datavideo.fr

Please visit our website for latest manual update.
www.datavideo.com/product/DAC-91

datavideo
www.datavideo.com

All the trademarks are the properties of their respective owners.
Datavideo Technologies Co., Ltd. All rights reserved 2018

Jan-16.2018
Version : E2