# datavideo



SDI AUDIO EMBEDDER

# DAC-91
# Quick Start Guide

www.datavideo.com

# Table of Contents

# ⚠ **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.

## 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.

# Warranty

## Standard Warranty

- Datavideo equipment is 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.
- Damage caused by accident, misuse, unauthorized repairs, sand, grit or water is not covered by this warranty.
- All mail or transportation costs including insurance are at the expense of the owner.
- All other claims of any nature are not covered.
- Cables & batteries are not covered under warranty.
- Warranty only valid within the country or region of purchase.
- Your statutory rights are not affected.

## Two Year Warranty

All Datavideo products purchased after 01-Oct.-2008 qualify for a free one year extension to the standard Warranty, providing the product is registered with Datavideo within 30 days of purchase. For information on how to register please visit www.datavideo.com or contact your local Datavideo office or authorized Distributors

Certain parts with limited lifetime expectancy such as LCD Panels, DVD Drives and Hard Drives are only covered for the first 10,000 hours, or 1 year (whichever comes first).

Any second year warranty claims must be made to your local Datavideo office or one of its authorized Distributors before the extended warranty expires.

## Packing List

| Items | Description | Q'ty |
|-------|-------------|------|
| 1 | DAC-91 Unit | 1 |
| 2 | Accessory List | 1 |

## 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 gains 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 gains
- Control via DIP Switches

## Connections & Controls

## Front Panel
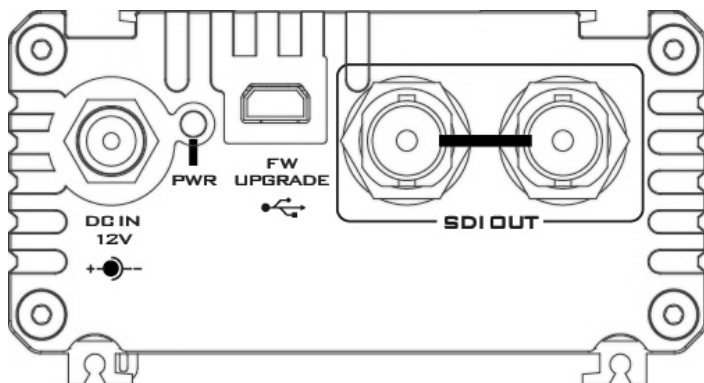


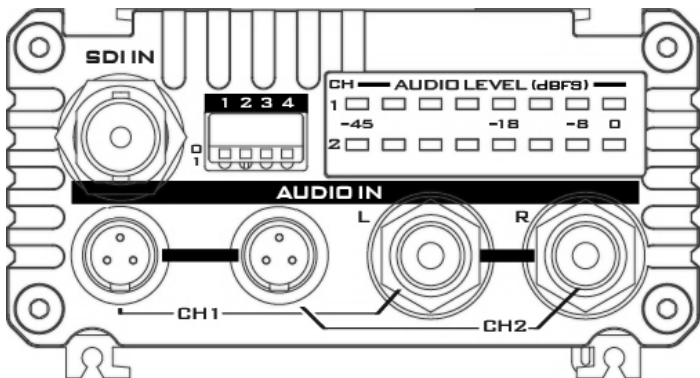| | |
|---|---|
|  | **DC In Socket**<br>Connects the supplied 12V PSU to this socket. The connection can be secured by screwing the outer fastening ring of the DC In plug to the socket. |
|  | **Power Indicator**<br>Indicates the power status |
|  | **SDI OUT**<br>Video and Audio output from SDI |
|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

## Rear Panel



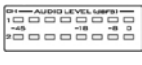| | |
|---|---|
|  | **SDI IN**<br>SDI input for video and audio |
|  | **Mini-XLR**<br>Balanced XLR audio input channel x 2 |
|  | **RCA**<br>Unbalanced RCA audio input channel x 2 |
|  | **Audio Level Indicator**<br>LED color and the corresponding audio level |
|  | **4 PIN DIP Switch**<br>Audio level adjustment |

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

## Firmware Update

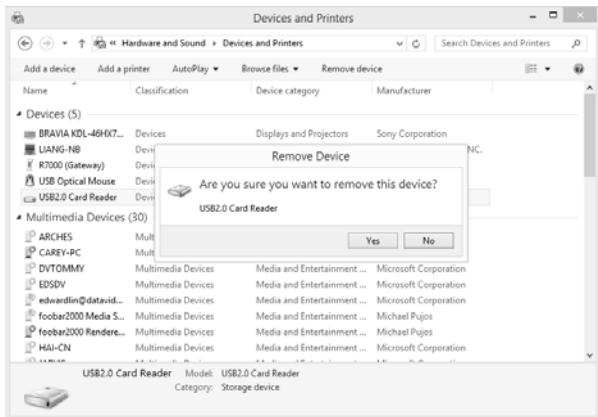## Firmware 1 Update Procedure (Client)

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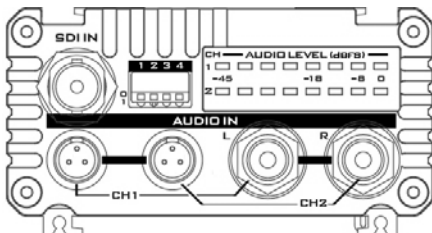


3. Connect the DAC-91 mini-USB port to the PC via a USB cable
4. Reconnect DC 12V Power Supply to DAC-91
5. The PC will detect the USB device once the DC 12V Power is connected.
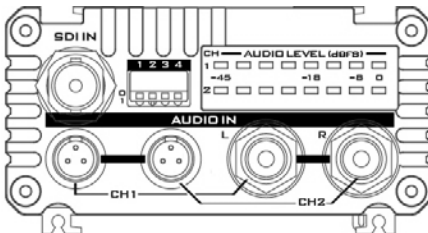6. Copy and paste the Firmware-1 file (DAC-91-FW1-v1.XX.bin) to the device

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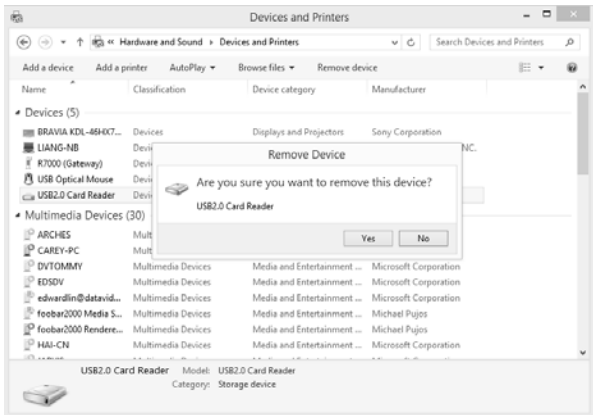
9.  Set DIP SW 2-4 to a combination other than 110 or 111, for example 000 (1: down; 0: up)
10. To complete the update, remove the USB cable connection and disconnect the DC 12V Power Supply

# 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.** | SDI Input must be connected to yield Embedded Audio Out at Mini-XLR and RCA ports. This is because SDI audio embedding can only be done in the presence of SDI-IN signal. |
| 2. | **How long does it take for the DAC-91 to finish booting?** | After the DAC-91 power is turned on, the power LED will also be turned on. The user is allowed to operate DAC-91 after the device boot-up process is completed. The device boot-up process completion is indicated by turning on all audio indicator LEDs at the same time and then gradually fading 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<br>* Mini XLR1 & RCA1 mixed to CH1<br>* Mini XLR2 & RCA2 mixed to CH2 |
| **Indicator** | Power LED x 1<br>Audio LED : 2 rows |
| **Updates and Configuration** | Mini USB x 1 |
| **Standards** | |
| **SDI Format Support** | SD:<br> NTSC 525/29.97 and PAL 625/25<br>HD:<br> 1080p 50/59.94/25/29.97<br> 1080i 50/59.94<br> 720p 50/59.94 |
| **SDI Compliance** | SMPTE 259M, SMPTE 292M, SMPTE 296M, SMPTE 424M, SMPTE 425M-AB<br>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
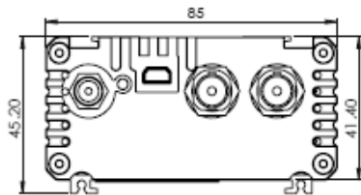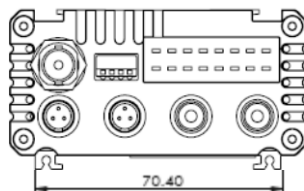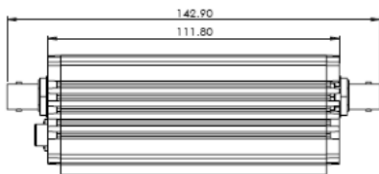
# Service & Support

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.

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