Audio Digital-to-Analog Converter

KCS DAC-I32O32

REGULATORY NOTICES

European Union (EN55032)

The KCS DAC-I32O32 complies with the EMC requirement of EN55103-1 and EN55103-2 when operated in accordance with this manual.
WARNING: This is a class A product. In a domestic environment, this product may cause radio interference in which case the user may be required to take adequate measures.

IMPORTANT SAFETY INSTRUCTIONS

1) Read these instructions.
2) Keep these instructions.
3) Heed all warnings.
4) Follow all instructions.
5) Do not use this apparatus near water.
6) WARNING: To reduce the risk of fire or electric shock, do not expose this apparatus to rain or moisture.
7) Clean only with dry cloth.
8) Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
9) No naked flame sources, such as lighted candles, should be placed on the apparatus.
10) Protect the power cord from being walked on or pinched, particularly at plugs, convenience receptacles, and the point where it exits from the apparatus.
11) Only use attachments/accessories specified by the manufacturer.
12) Unplug this apparatus when unused for long periods of time.
13) Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as the power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.
14) Do not expose the apparatus to dripping or splashing, and no objects filled with liquids, such as vases, should be placed on the apparatus.
15) CAUTION: Troubleshooting must be performed by a trained technician. To reduce the risk of electric shock, do not attempt to service this equipment unless you are qualified to do so.
16) Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding-type plug has two blades and a third grounding prong. The wide blade or the third prong is provided for your safety. If the provided

plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.

17) This apparatus must be earthed (grounded) by connecting to a correctly wired and earthed power outlet.
18) Ensure that your mains supply is in the correct range for the input power requirement of the unit.
19) To reduce the risk of electrical shock, the power cord must be disconnected when the power supply assembly is removed.
20) This equipment is designed to mount in a suitably ventilated 19" rack; ensure that any ventilation slots in the unit are not blocked or covered.
21) The mains power disconnect device for this unit is the plug-in mains cord rather than a power switch. The mains cord must remain readily accessible for disconnecting mains power.
22) To avoid exposure to dangerous voltages and to avoid damage to the unit, do not connect the rear-panel Ethernet port to telephone circuits.
23) As the colours of the cores in the mains lead may not correspond with the coloured markings identifying the terminals in your plug, proceed as follows:
    - The green and yellow core must be connected to the terminal in the plug identified by the letter E, or by the earth symbol, or coloured green, or green and yellow.
    - The blue core must be connected to the terminal marked with the letter N or coloured black.
    - The brown core must be connected to the terminal marked with the letter L or coloured red.

PRODUCT END-OF-LIFE INFORMATION

This product was designed and built to provide many years of service and is backed by our commitment to provide high-quality support. When it eventually reaches the end of its serviceable life, it should be disposed of in accordance with local or national legislation.

This symbol that appears on the unit rear panel and in this manual is intended to alert the user to the presence of uninsulated "dangerous" voltage within the product's enclosure that maybe of sufficient magnitude to constitute a risk of electric shock to persons.

This symbol is intended to alert the user to the presence of important safety operating and maintenance instructions.

IMPORTANT SAFETY NOTICE

These units comply with safety standard EN62368-1:2020. These units shall not be exposed to dripping or splashing and no objects filled with liquids, such as coffee cups, shall be placed on the equipment. To ensure safe operation and to guard against potential shock hazard or risk of fire, the following must be observed:

- Ensure that your mains supply is in the correct range for the input power requirement of the unit.
- Ensure fuses fitted are the correct rating and type as marked on the unit.
- The unit must be earthed by connecting to a correctly wired and earthed power outlet.
- The power cord supplied with this unit must be wired as follows:
  Live—Brown Neutral—Blue Earth—Green/Yellow

Content

AOIP (Audio over IP) digital-to-analog converter for ATMOS DAC-I32O32 is an important part of the immersive audio system.

Figure 1. DAC-I32O32 Product Picture

DAC-I32O32 adopts RJ45 input interface, which can realize AES67 data reception and analog differential output. Each DAC-I32O32 can output up to 32 channels. Multiple DAC-I32O32s can be connected through a Star Chain or Daisy Chain to support a maximum of 256 channels of analog output.

1. DAC-I32O32 INTRODUCTION

1.1 The Front Panel of DAC-I32O32

Figure 2. The Front Panel of DAC-I32O32

① Power Indicator: after the device is powered on, the indicator will become red and always on. If this indicator is off, it means the power supply system is faulty.

1.2 The Rear Panel of DAC-I32O32

Figure 3. The Rear Panel of DAC-I32O32

① Equipment Power Supply Interface: AC 100-240V 50/60 Hz

② Analog Output DB25 Interface A: output 1-8 channels of audio data.

③ Analog Output DB25 Interface B: output 9-16 channels of audio data.

④ Analog Output DB25 Interface C: output 17-24 channels of audio data.

⑤ Analog Output DB25 Interface D: output 25-32 channels of audio data.

Note: For the definition of analog output channels, please refer to the annex "Analog Output Pin Definition".

⑥ Primary RJ45 data transmission master port.

⑦ Secondary RJ45 data transmission secondary port.

1.3 Parameters

- Input: AES67 digital signal
- Input Interface: RJ45 × 2
- Output: support up to 32 channels of analog output
- Output Interface: DB25 analog interface ×4
- Power Supply: AC 100-240V 50/60 Hz
- Chassis Size: standard 1U chassis (LWH: 482mm×200mm×44.5mm)

2. TYPICAL APPLICATION OF DAC-I32O32

2.1 Typical Application of DAC-I32O32

1) Typical Connection Mode of Single DAC-I32O32

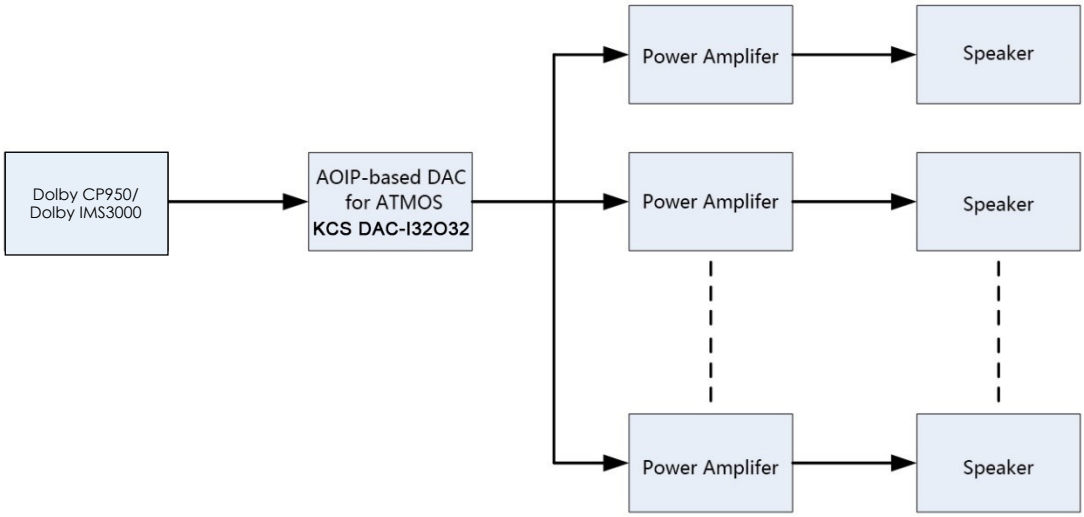


Figure 4. Typical Application of Single DAC-I32O32

2) Star Chain or Daisy Chain Multiple DAC-I32O32 connection

By connecting in this way, it can achieve more than 32 channels of analog output, even up to 256 channels of analog output.

The Star Chain diagram is as follows:

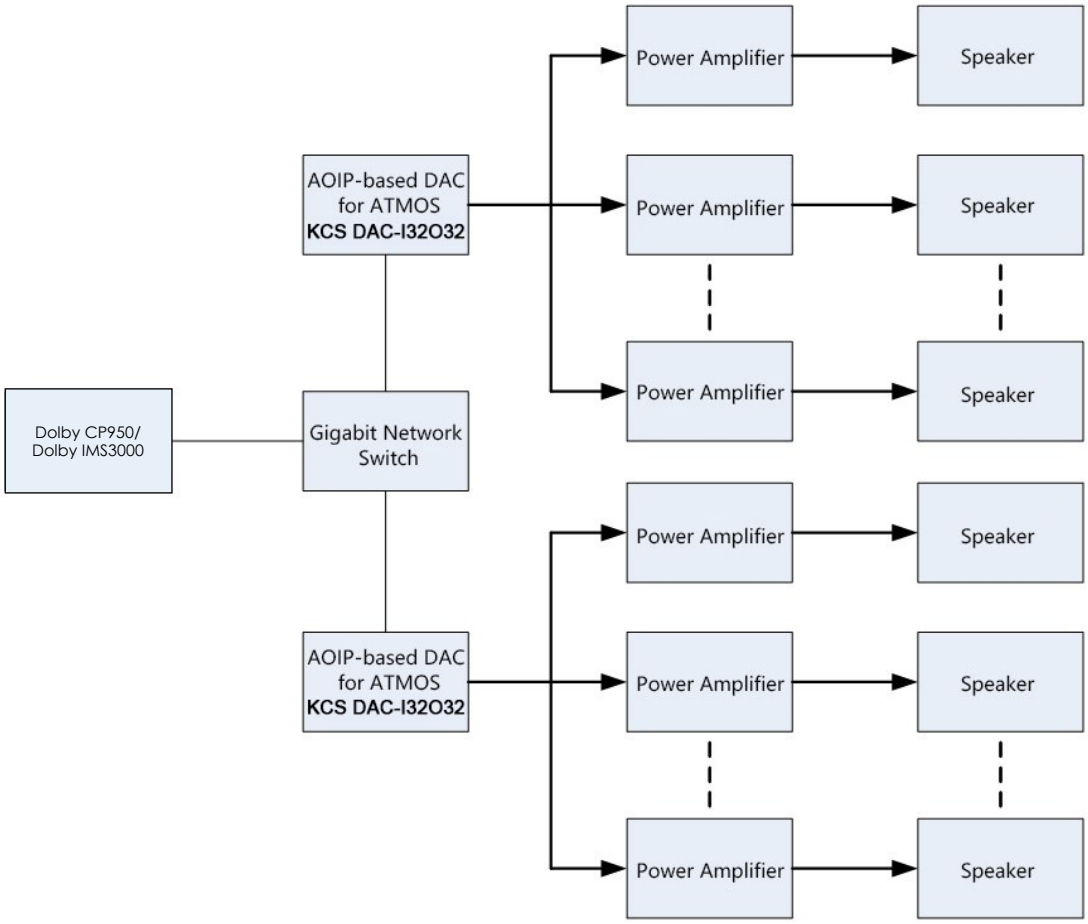


Figure 5. The Star Chain Diagram of DAC-I32O32

The Daisy Chain diagram is as follows:

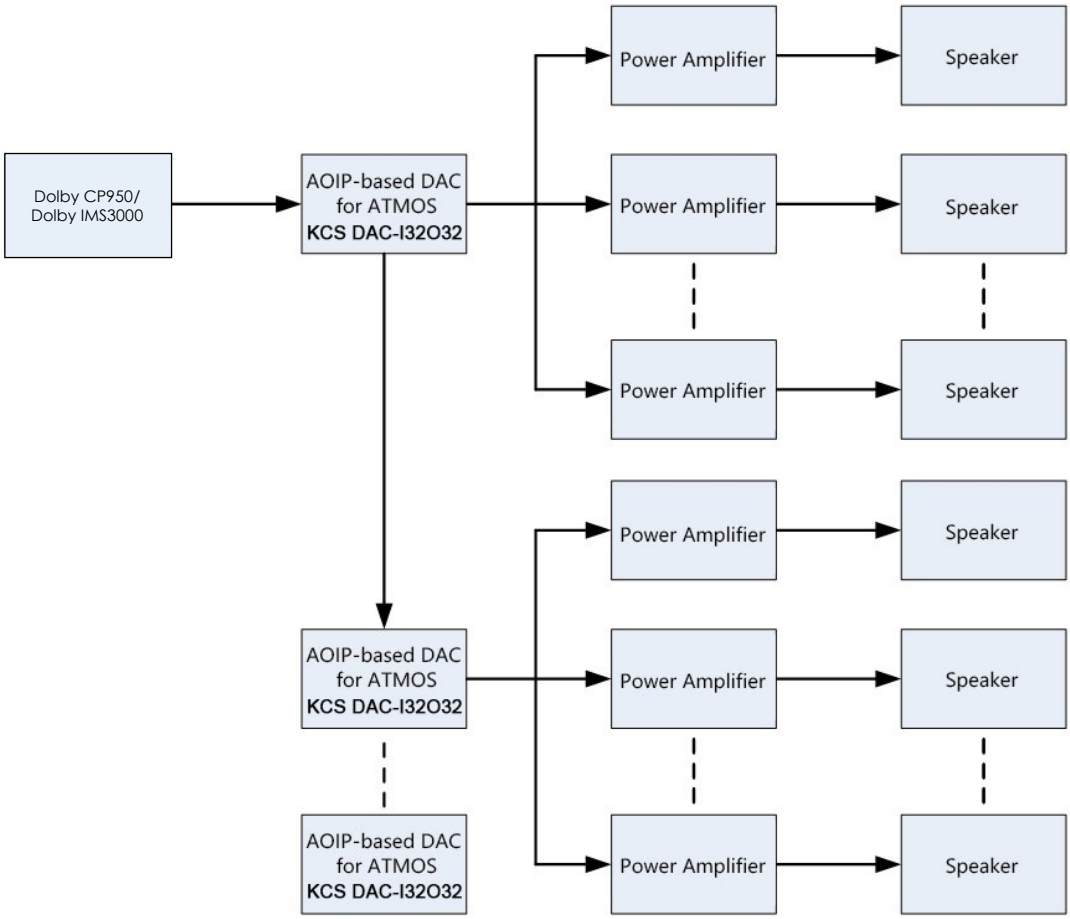


Figure 6. The Daisy Chain Diagram of DAC-I32O32

2.2 Typical Application of DAC-I32O32 and CP850 / CP950

1) CP850 / CP950 Connects Single DAC-I32O32

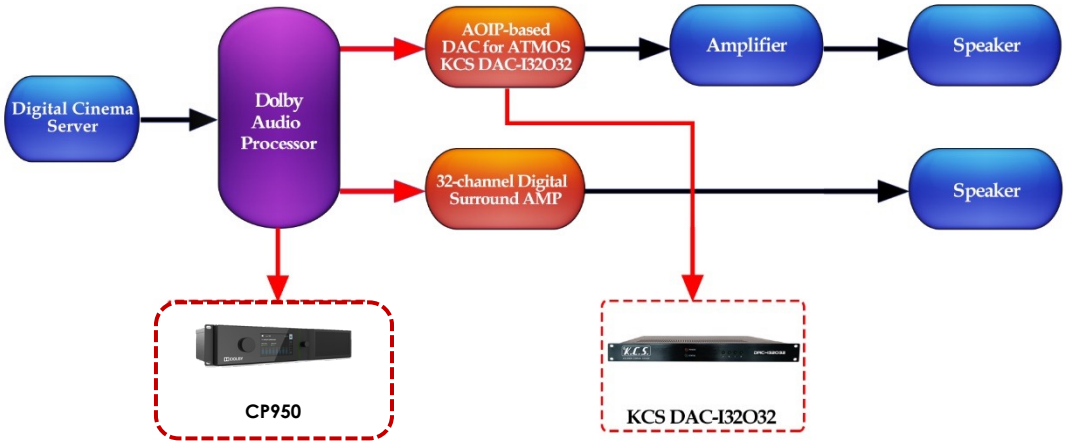


Figure 7. Typical Application of CP950 and Single DAC-I32O32

2) CP850 / CP950 Connects Two DAC-I32O32

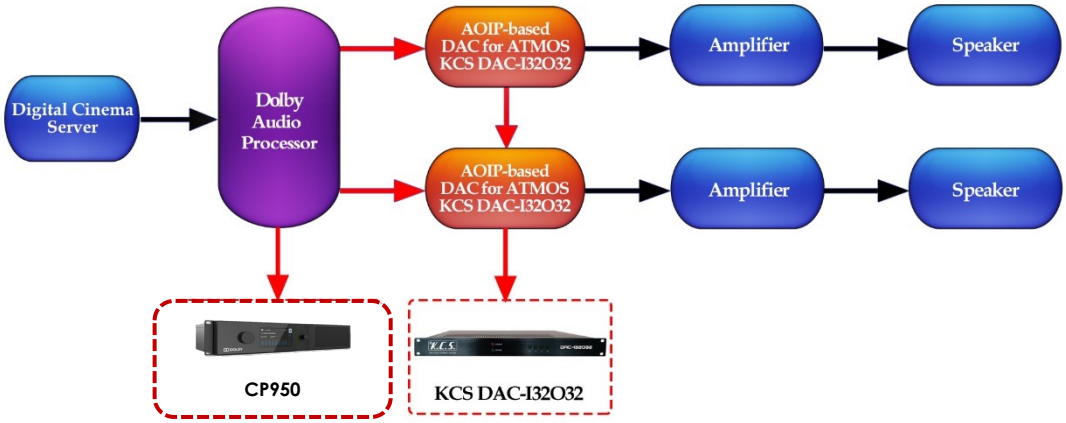


Figure 8. Typical Application of CP950 and Two DAC-I32O32

2.3 Typical Application of DAC-I32O32 and IMS3000

1) IMS3000 Connects Single DAC-I32O32

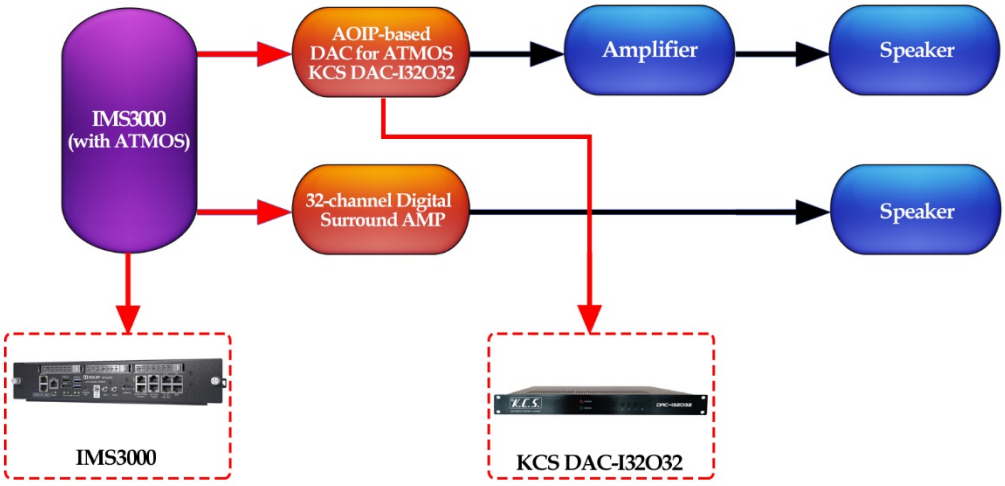


Figure 9. Typical Application of IMS3000 and Single DAC-I32O32

2) IMS3000 Connects Two DAC-I32O32

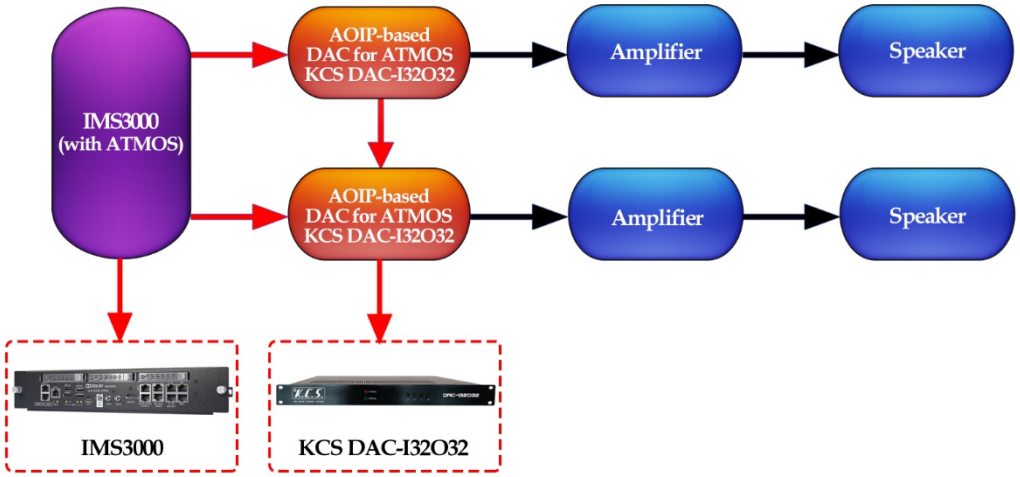


Figure 10. Typical Application of IMS3000 and Two DAC-I32O32

3. PRELIMINARY CONFIGURATION OF DAC-I32O32

To correctly be recognized by the CP850 / CP950 / IMS3000 the DAC-I32O32 needs to be configured addressing the Multicast address of the CP850 / CP950 / IMS3000 through a web-based interface.

3.1 Connection for setup configuration

COMPUTER / PC / MAC connected to Internet.

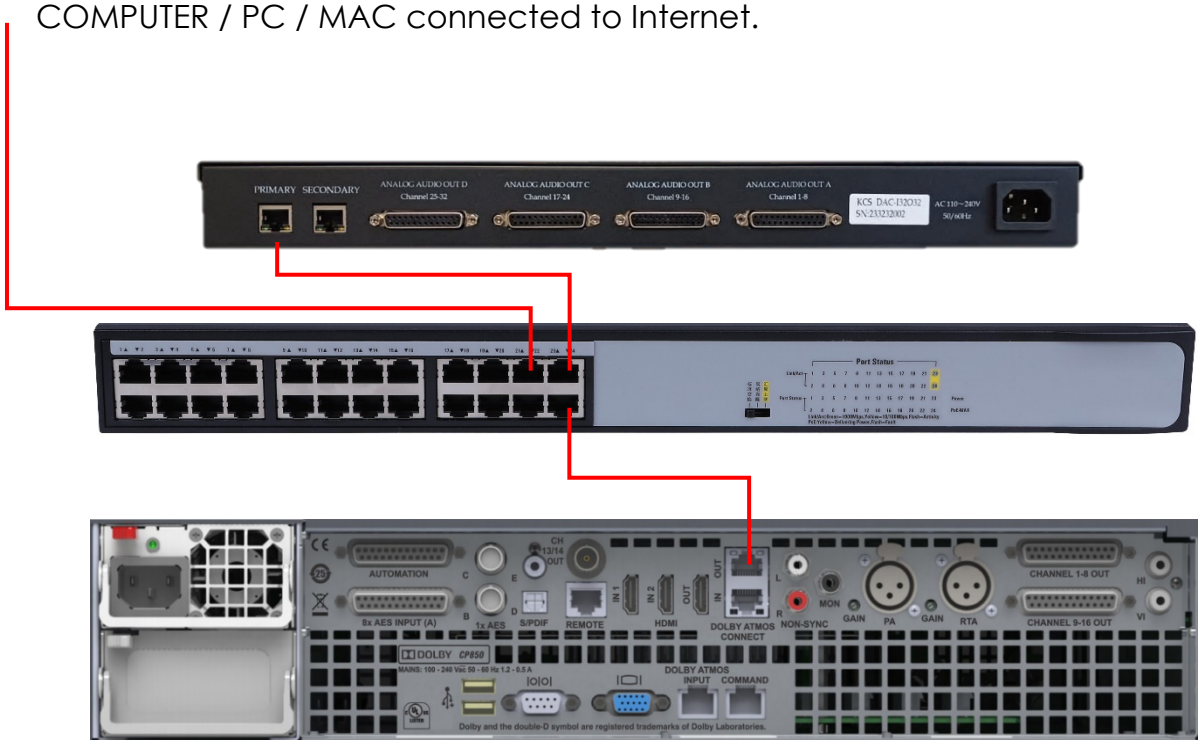


Figure 11. Schematic Diagram of Preliminary Configuration of the DAC-I32O32 with a CP850 / CP950 / IMS3000

3.2 Steps for Configuration

① The default IP address of the DAC-I32O32 is 192.168.1.100

② Open your web browser and write down in the address bar the following: 192.168.1.100/advanced/index.html

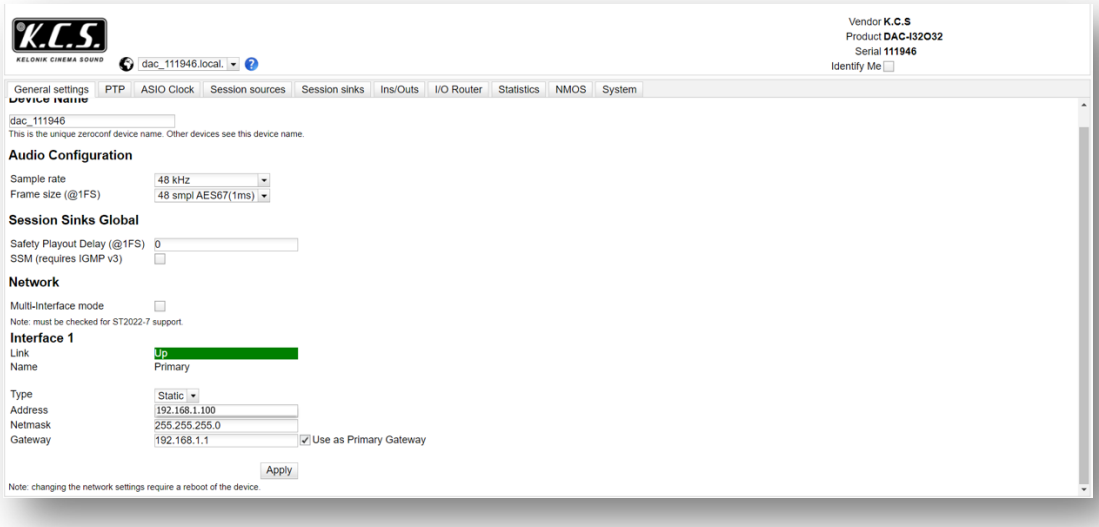
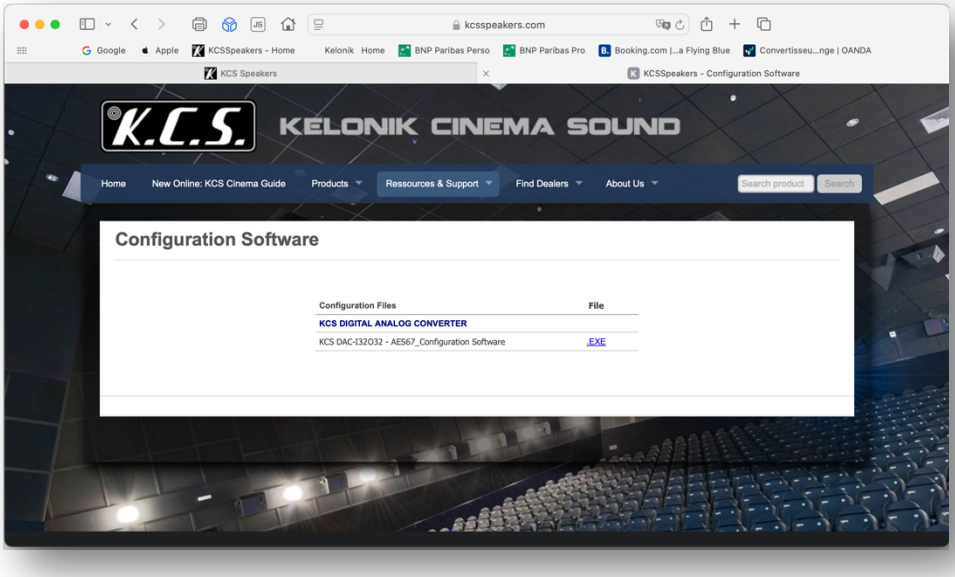
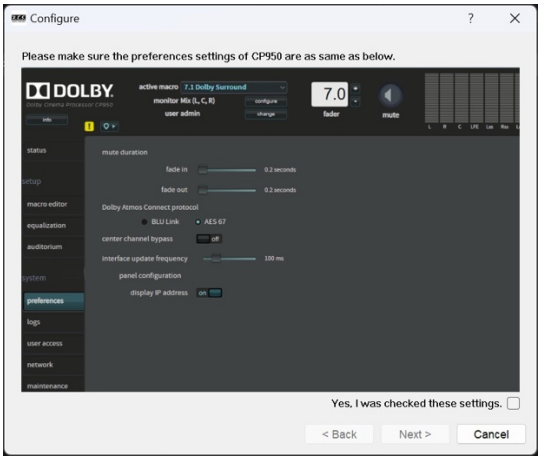


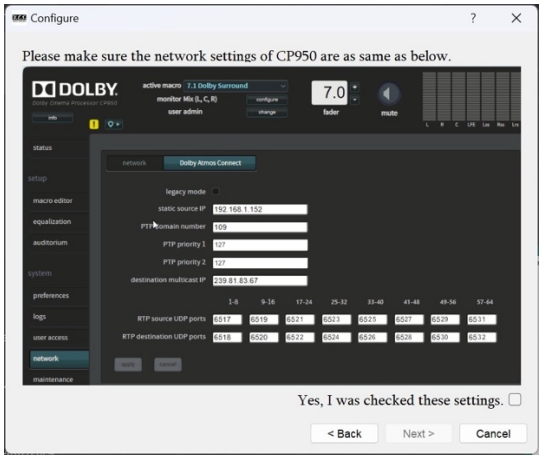
Figure 12. The Main Interface of web-based

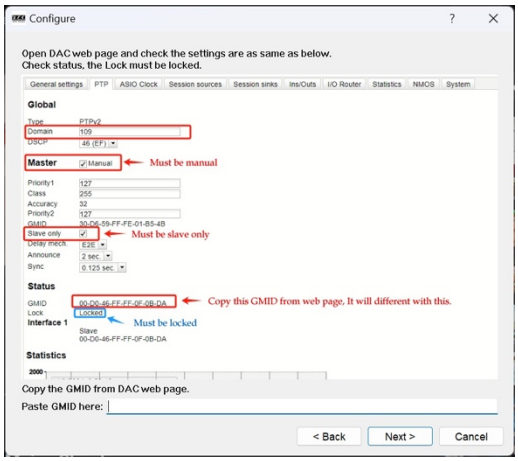
③ On a separate Web browser page download the KCS DAC-I32O32 Configuration software from kcsspeakers web site @ https://kcsspeakers.com/en/Configuration_Software.html and run the EXE file.

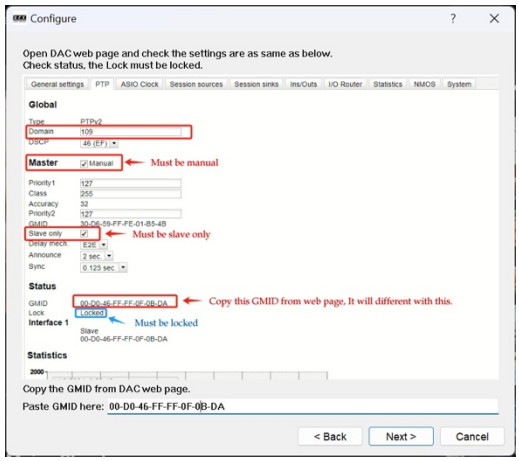


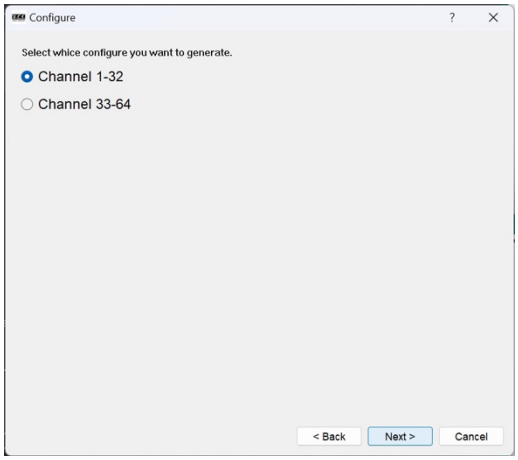
④ Follow the steps to configurating the bin file necessary to your DAC-I32O32 to be fully operational.

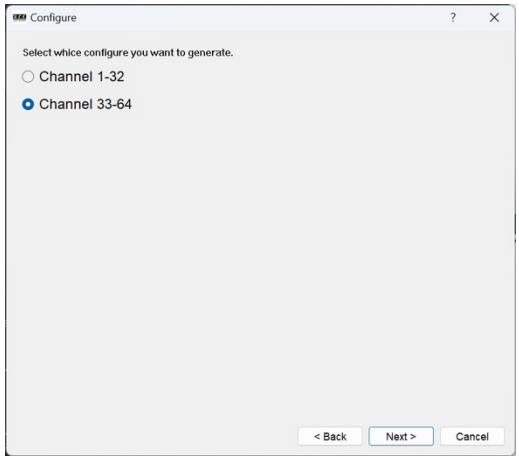








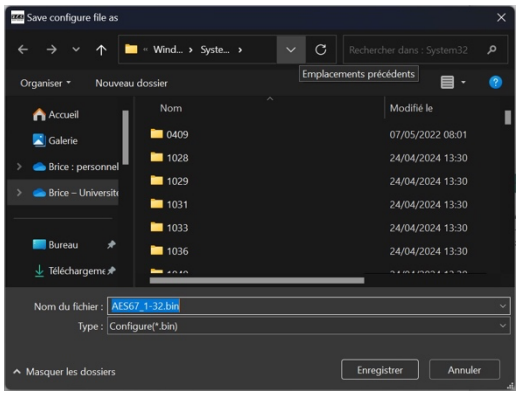


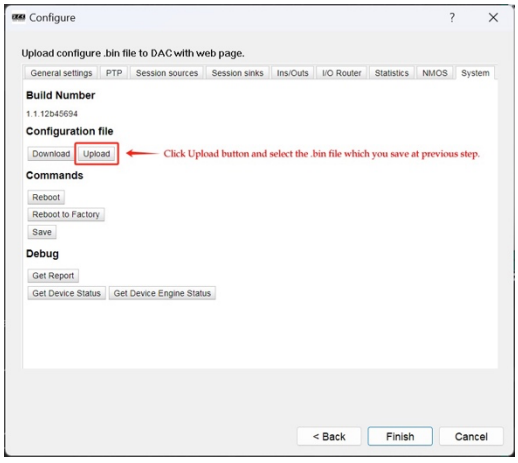


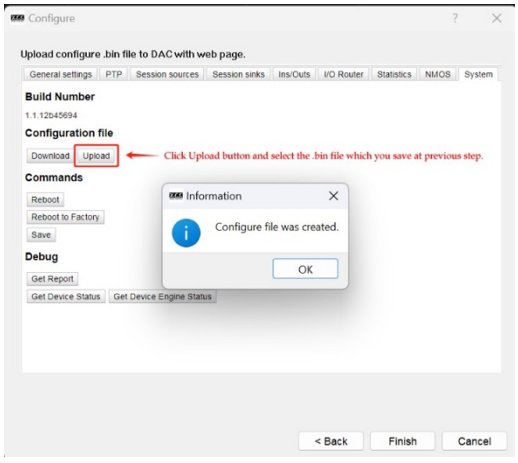
Note: CP-950A with CAT1710 media block supports up to 64 physical outputs, if the CAT1710 is removed or not functioning, the system can continue to play the audio on the first 16 physical outputs.

With automatic routing, a failover configuration is created using the stage speakers, LFE, and an equal number of surrounds as available in physical outputs 1-16.

In order to be able to route correctly and not have to configure different port addresses on the DAC, the analog outputs 1-16 are configured for the channels we want for 7.1 default, and the DAC outputs should be configured with 33-64 channels (AES67_33-64), for the rest of the routing, starting with channel 33, as the channel numbering cannot be repeated in analog.







⑤ Once the appropriate bin file is uploaded into the DAC-I32O32, then make a Reboot of the system.

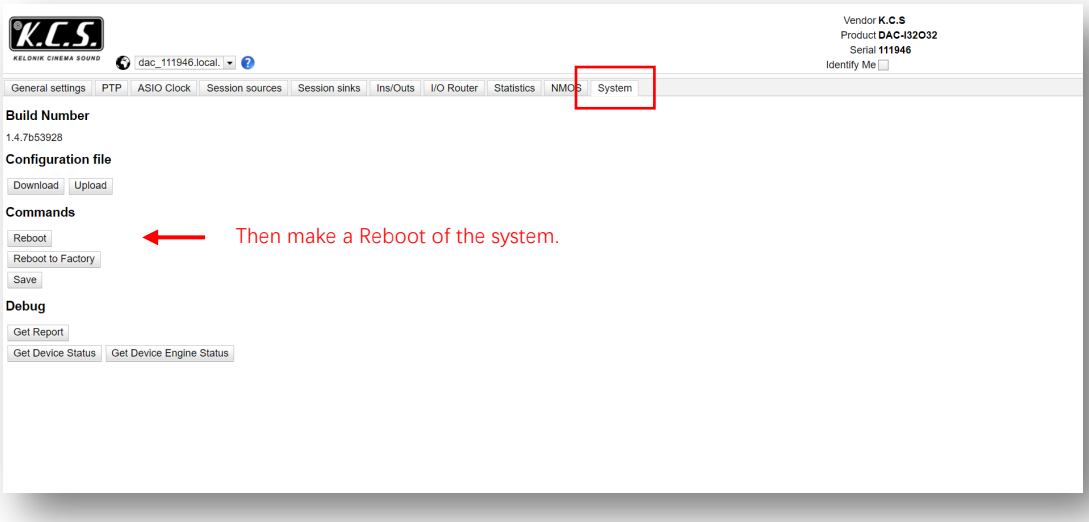


Figure 15. Once the Configuration file is created, Reboot the DAC to save all modifications.

⑥ Launch a Pink Noise from the Sound processor to check sound output.

⑦ Close the browser, the DAC-I32O32 new configuration is automatically saved, and the final installation can now be done.

⑧ In the event you need to use several DAC-I32O32, you should change the IP Address of your second DAC-I32O32 to avoid any conflict with the first equipment. Don't forget to push the "Apply" button.
Then Reboot from the "System" menu

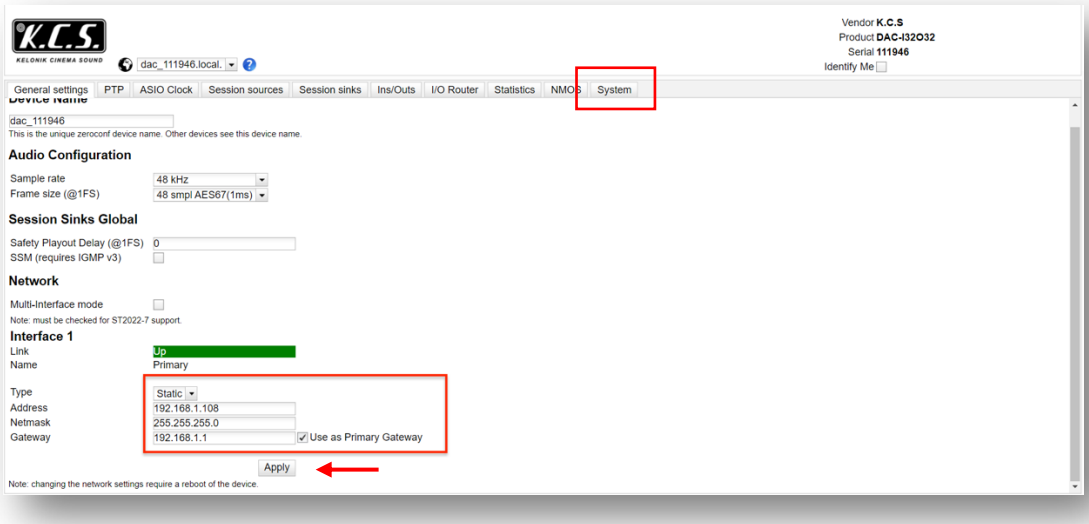
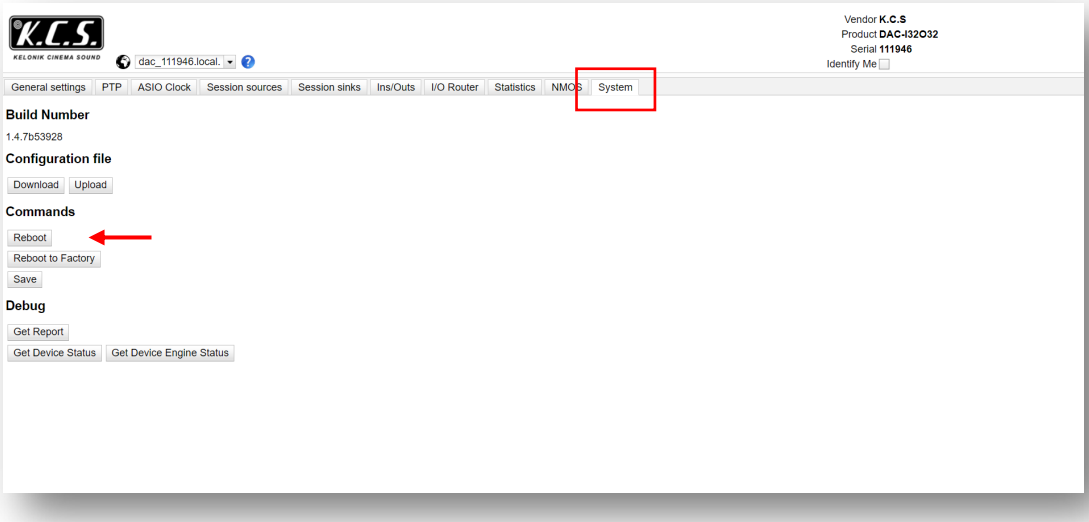


Figure 13. Change the IP Address and go to the "System" tab to make a Reboot of the DAC (Commands / Reboot).



⑨ Then continue the configuration procedure of the 2nd DAC-I32O32 going back to point ④.

4. Final Connection Between DAC-I32O32 & Dolby CP850 / CP950 / IMS3000

4.1 Connect with Single DAC-I32O32

① Connect the audio signal output port of the CP-850 / CP950 / IMS3000 to the RJ45 main port on the rear panel of the DAC-I32O32 by cable.

② Power on the equipment.

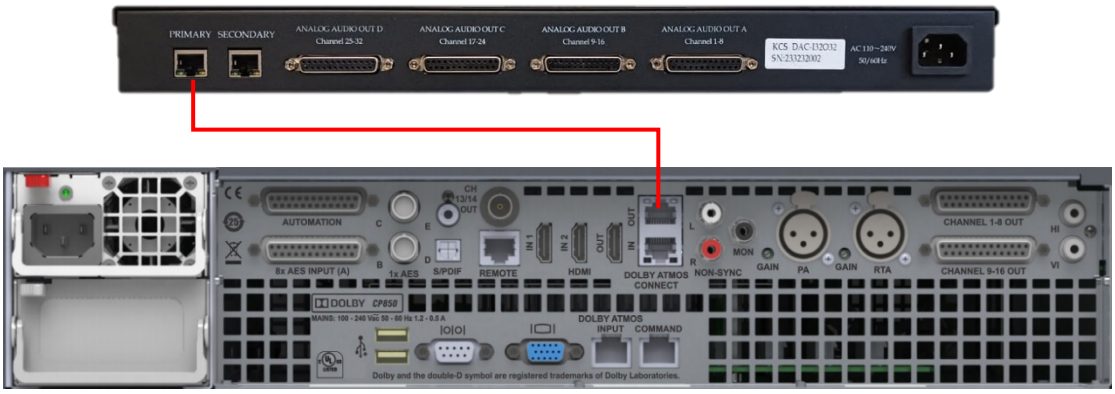


Figure 14. Schematic Diagram of Connection Between CP950 and Single DAC-I32O32

4.2 Connect with Multiple DAC-I32O32

Star chain mode:

① Connect the audio signal output port of CP850 / CP950 / IMS3000 to gigabit network switch ;

② Connect the gigabit network switch to multiple DAC-I32O32 through the RJ45 interface on the rear panel ;

③ Power on the equipment

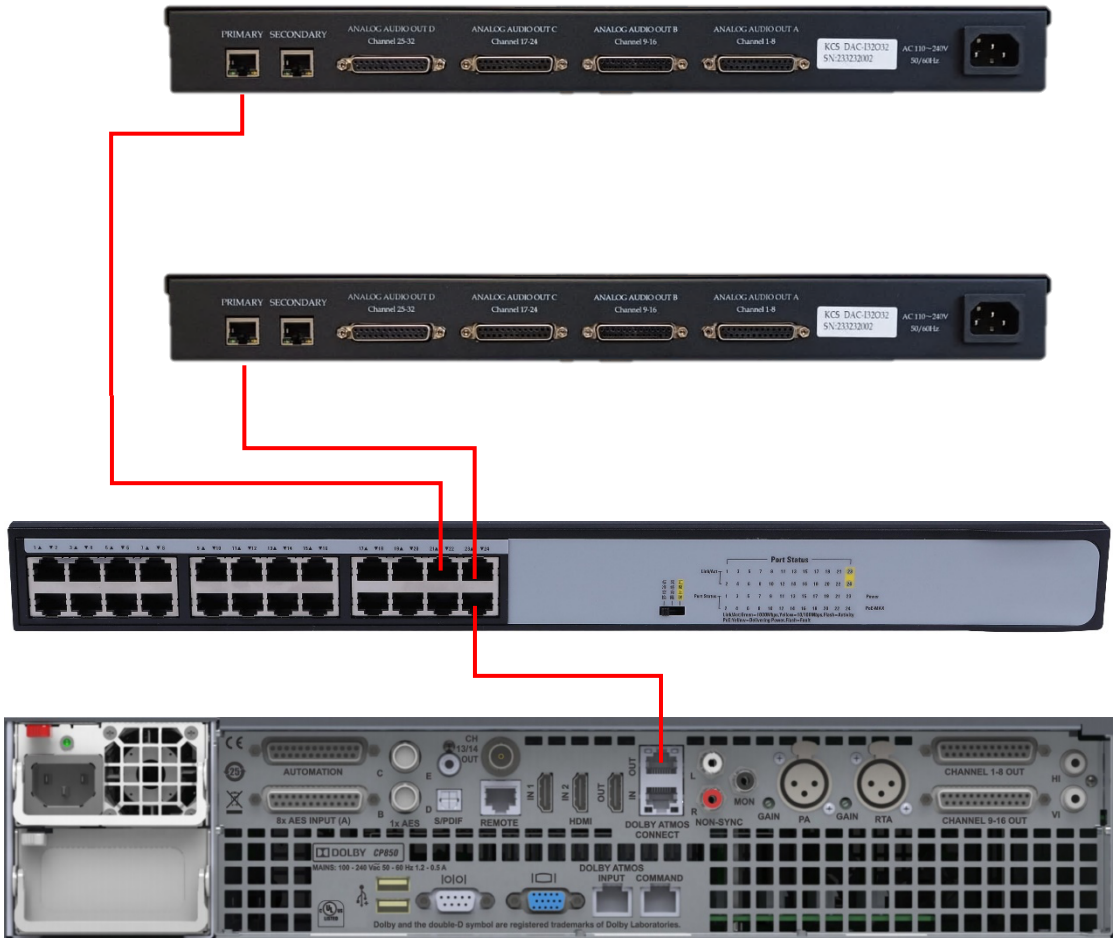


Figure 15. Schematic Diagram of Star Chain Between CP950 and Multiple DAC-I32O32

Daisy chain mode:

① Connect the audio signal output port of the CP850 / CP950 / IMS3000 to the Primary RJ45 interface on the rear panel of DAC-I32O32 (the main data transmission port) ;

② Connect the Secondary RJ45 interface (data transmission secondary port) of this DAC-I32O32 to the Primary RJ45 interface (data transmission main port) of the next DAC-I32O32, and connect to other DAC-I32O32 according to this method ;

③ Power on the equipment

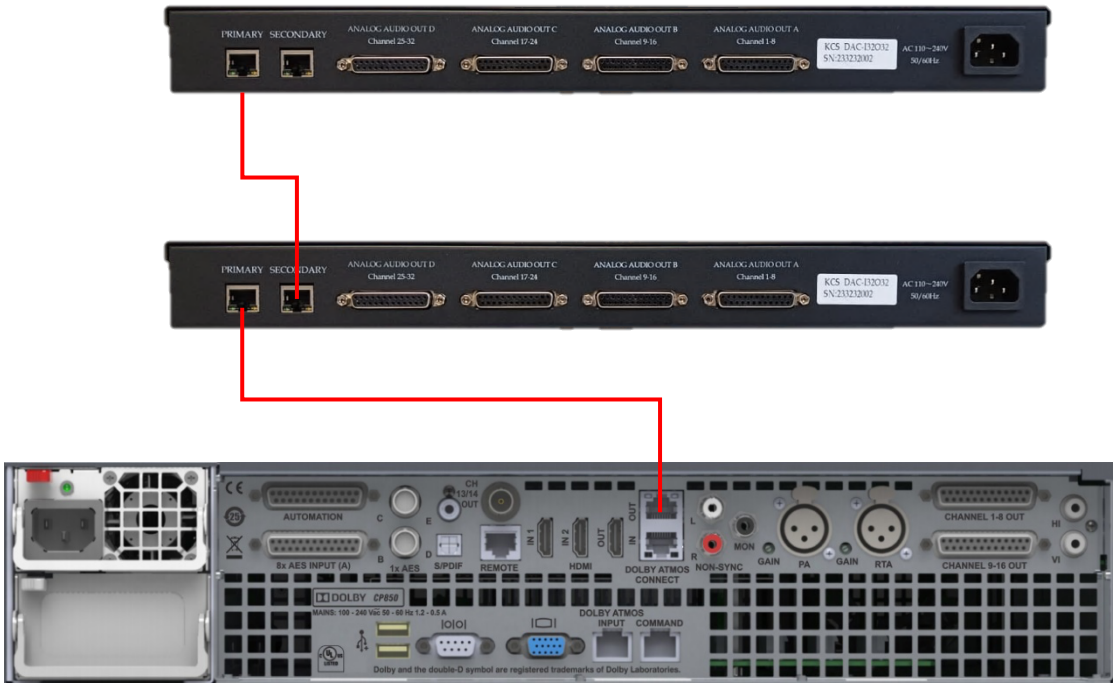


Figure 16. Schematic Diagram of Daisy Chain Between CP950 and Multiple DAC-I32O32

5. PACKAGE LIST

Item	Specification Model	Quantity
AOIP Digital-to-analog Converter for ATMOS	KCS DAC-I32O32	1
Power Adapter	INPUT: AC 100-240V 50/60 Hz	1
Product Certification	Product Certification	1
Product User Manual	Product User Manual	1

ANNEX: ANALOG OUTPUT PIN DEFINITION

DB25-1: Channel 1-8

No.	DB25 Pin Number	Definition
1	18	CH1+
2	6	CH1-
3	19	GND
4	4	CH2+
5	17	CH2-
6	5	GND
7	15	CH3+
8	3	CH3-
9	16	GND
10	1	CH4+
11	14	CH4-
12	2	GND
13	24	CH5+
14	12	CH5-
15	25	GND
16	10	CH6+
17	23	CH6-
18	11	GND
19	21	CH7+
20	9	CH7-
21	22	GND
22	7	CH8+
23	20	CH8-
24	8	GND
25	13	NC

DB25-2: Channel 9-16

No.	DB25 Pin Number	Definition
1	18	CH9+
2	6	CH9-
3	19	GND
4	4	CH10+
5	17	CH10-
6	5	GND

No.	DB25 Pin Number	Definition
7	15	CH11+
8	3	CH11-
9	16	GND
10	1	CH12+
11	14	CH12-
12	2	GND
13	24	CH13+
14	12	CH13-
15	25	GND
16	10	CH14+
17	23	CH14-
18	11	GND
19	21	CH15+
20	9	CH15-
21	22	GND
22	7	CH16+
23	20	CH16-
24	8	GND
25	13	NC

DB25-3: Channel 17-24

No.	DB25 Pin Number	Definition
1	18	CH17+
2	6	CH17-
3	19	GND
4	4	CH18+
5	17	CH18-
6	5	GND
7	15	CH19+
8	3	CH19-
9	16	GND
10	1	CH20+
11	14	CH20-
12	2	GND
13	24	CH21+
14	12	CH21-
15	25	GND
16	10	CH22+
17	23	CH22-

No.	DB25 Pin Number	Definition
18	11	GND
19	21	CH23+
20	9	CH23-
21	22	GND
22	7	CH24+
23	20	CH24-
24	8	GND
25	13	NC

DB25-4: Channel 25-32

No.	DB25 Pin Number	Definition
1	18	CH25+
2	6	CH25-
3	19	GND
4	4	CH26+
5	17	CH26-
6	5	GND
7	15	CH27+
8	3	CH27-
9	16	GND
10	1	CH28+
11	14	CH28-
12	2	GND
13	24	CH29+
14	12	CH29-
15	25	GND
16	10	CH30+
17	23	CH30-
18	11	GND
19	21	CH31+
20	9	CH31-
21	22	GND
22	7	CH32+
23	20	CH32-
24	8	GND
25	13	NC