User Manual
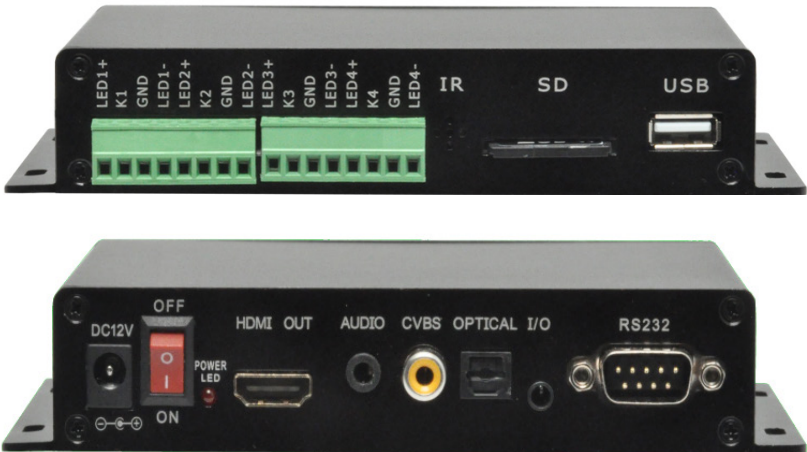
Model 1704
Demonstration Media Player

Audio AA Authority®

Introduction

The 1704 plays a wide array of audio and video files for interactive HD media demonstrations. It has a variety of interface methods including four push-buttons, serial communication, and IR. Load video and/or audio files on an SD card using a Microsoft Windows® PC. Output can be digital and/or analog video and audio. It is ideal for use with one or more Audio Authority® audio distribution amplifiers such as Model 1726 headphone demonstrators.

Model 1704

Features

- HDMI audio-video output (1080p)
- Composite video output (480i)
- Digital and analog audio output (2-channel)
- Multiple video and audio file formats
- Autoplay at power-up (files in root directory)
- Small footprint, 4" x 6" x 1.5" including flanges
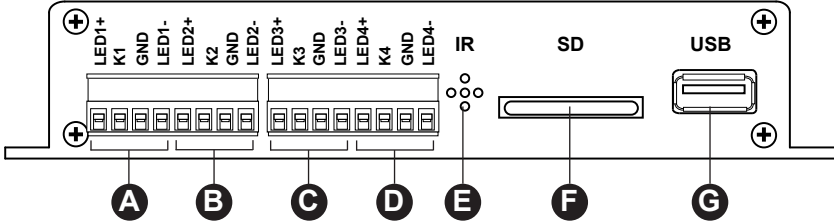
Package Contents

Before installing this product, please check the packaging and make certain the following items are contained in the shipping carton:

- 1704 Media Player
- DC power adapter
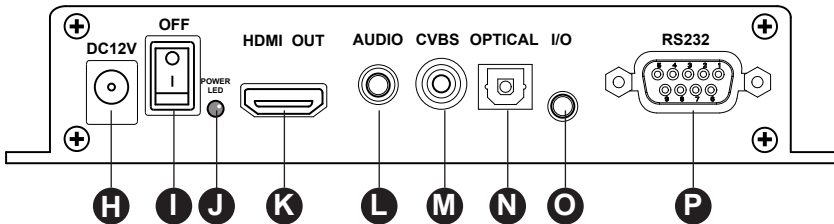- Remote control (CR2025 battery not included)
- User manual

Panel Descriptions

Model 1704 (front panel)

A # 1 push-button   **B** # 2 push-button   **C** # 3 push-button

D # 4 push-button   **E** IR receiver   **F** SD card slot   **G** USB (firmware updates)

Model 1704 (rear panel)

H 12V power input   **I** Power switch   **J** Power light   **K** HDMI output

L Analog audio output 3.5 mm   **M** Composite Video   **N** Digital output (Toslink®)

O I/O port for motion sensor (3.5mm)   **P** Serial port (DB9 connector)

SD Card Slot

The video and audio files are stored on an SD card as well as programming instructions for custom functionality. Acceptable formats include SD up to 4GB, SDHC up to 32 GB, *but does not include* SDXC. Do not use a computer running Mac OS to put files on the SD card. Video, still images, and audio files placed on the root of the SD card will autoplay on power up. If the SD card is updated to add new video files, check to make sure the custom programming remains on the card.

Video Output

The 1704 HD output connects via an HDMI cable to HDMI display screens. Composite Video may be connected (if needed) at the CVBS connector. Both video outputs play at the same time.

Video File Information

Supported file types are listed below, with maximum video resolution and audio format. Test all files before deployment.

File Type	720p/2-ch audio	1080p/2-ch audio
MP4	✔	✔
MKV	✔	✔
TS	✔	✔
MOV	✔	

Audio Output

The 1704 connects to any device that can accept 2-channel PCM digital audio via an optical cable, or low-level analog audio through 3.5mm stereo connector.

Audio File Information

- Audio file types include MP3, WAV, ADPCM, AAC, OGG, RA-lossless, and SRS.
- MP3 files: variable or constant bit rate (up to 320 kbps).
- WAV files: ADPCM, any sample rate up to 48kHz.
- FLAC files: 2 channel, variable bit rate 24bit/192K.

RS-232

The 1704 can respond to external commands via RS-232, or it can issue commands to other devices. Basic commands are listed on page 8, custom programming is available from Audio Authority.

Control Interface Connections

The 1704 can be controlled using four push-buttons, RS-232, remote control, and/or via IR.

Figure 1. Model 999S push-button

Push-Buttons

To control media using push-buttons, connect 4-wire momentary switches to each position at the green terminal sockets (*Figure 3*). Compatible push-buttons are available from Audio Authority (*Figure 2*). Push-buttons are available in several styles and colors; *Figure 1* shows a stainless steel button illuminated with blue LED ring.
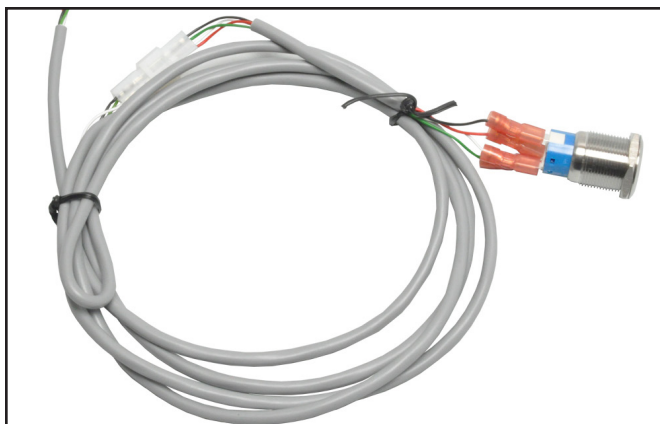

Figure 2. Push-button with optional disconnect harness

Button 1
- Red = LED+
- Blue = Switch
- White = GND
- Black = LED-

Button 2
- Red = LED+
- Blue = Switch
- White = GND
- Black = LED-

Button 3
- Red = LED+
- Blue = Switch
- White = GND
- Black = LED-

Button 4
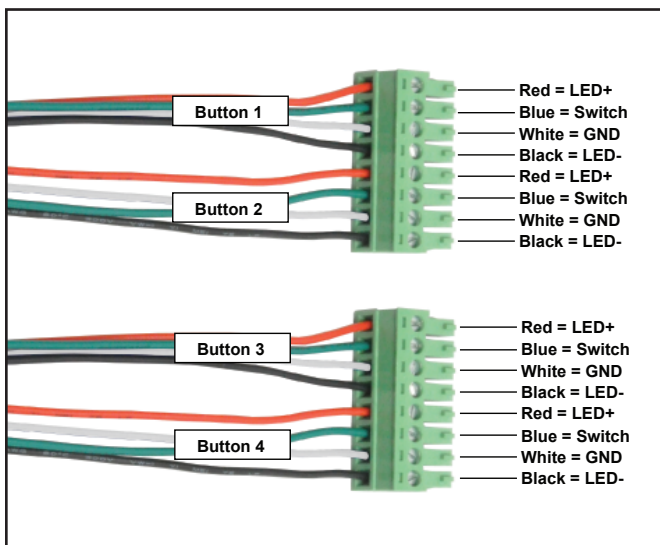- Red = LED+
- Blue = Switch
- White = GND
- Black = LED-

Figure 3. Push-button harness connections

Remote Control

The remote control is useful for setup and testing (*Figure 5*). Insert a CR2025 battery (not included).

Power	Press to power on/off
Title	Press to view title
Info	Press to view channel info
Mute	Press to mute audio output
Numeric	Press to enter numeric input
Repeat	Press to set repeat option
Time Seek	Press to jump to specific point
TV Mode	Press to switch between NTSC/PAL
Home	Press to return to main menu
Menu	Press to enter main menu
Slow	Press to play in slow-motion
Setup	Press to access Setup menu
Zoom	Press to zoom in/out when playing back
Navigate	Press the arrow buttons to navigate menu
OK	Press to confirm selection
Volume -	Press to reduce volume
Volume +	Press to increase volume
Audio	Press to select audio format
Subtitle	Press to activate subtitles
Resume	Press to resume play
Angle	Press to view angle
Pause	Press to pause playback
Return	Press to return to previous screen
Stop	Press to stop playback
FR	Press to fast rewind
FF	Press to fast forward
Previous	1. Press to go to the previous file when playing music 2. Press to page up the file list in browser
Next	1. Press to go to the next file when playing music 2. Press to page down the file list in browser

Figure 5. Remote Control

Using Control Interfaces

The player can be controlled by four push-buttons, IR commands (including remote control), and RS-232 commands. All player interaction depends on how files are named and arranged on the SD card (*PC setup only, not Macintosh compatible*). Video, still images, or audio files placed on the root of the SD card will autoplay on power up. To use playlists, put media files in separate playlist folders. The folders can be any name but must be linked by name to a playlist number within the autoplay.txt file, as shown in Example 2.

Note: If you need more than four "buttons" you can use the number keys on the IR remote, or RS232 commands such as @00:05$, to trigger the corresponding playlist. For example, the 1726 demonstrator allows eight buttons via RS-232; see page 11.

Using Push-buttons

Push-buttons can be used for transport controls like Play and Next Track, or they can be used to start a media file or a playlist of files. Sample SD card folders are available to demonstrate the capabilities of the 1704 media player:

www.audioauthority.com/downloads/videos/1704transport.zip

www.audioauthority.com/downloads/videos/1704playlists.zip

To test the functionality of each mode, copy the contents of a demo folder into the root folder of an empty SD card and then insert it in the 1704 SD card slot. Program the buttons using the example text file contents below.

Buttons

NEXT
PREV
STOP
RETURN
PLAY
UP
DOWN
LEFT
RIGHT
SETUP
MENU
VOL_PLUS
VOL_MINUS
MUTE

Example 1: Push-buttons for Transport Control
This example shows how to use push-buttons to trigger basic media player functionality. The player refers to the commands in a text file on the SD card.

Inside the autoplay.txt file:

```
PLAY=1      assigns "Play" to push button 1
STOP=2      assigns "Stop" to push button 2
NEXT=3      assigns "Next" to push button 3
PREV=4      assigns "Previous" to push button 4
```

Example 2: Push-buttons Trigger Video Playlists
This example shows how to use push-buttons to trigger specific video playlists.

Inside the autoplay.txt file:

```
01=Playlist1/*.*     play files in the "Playlist1" folder when push-button 1 is pressed
02=Playlist2/*.*     play files in the "Playlist2" folder when push-button 2 is pressed
03=Playlist3/*.*     play files in the "Playlist3" folder when push-button 3 is pressed
04=Playlist4/*.*     play files in the "Playlist4" folder when push-button 4 is pressed
```

Creating a Slideshow with Audio

The push-buttons can be used for transport control of each slideshow. Place still images in folders of the root directory and label the folder *photo1/.* Create a corresponding audio folder named *photo1_audio* and place the background audio files that folder. Place the autoplay.txt file in the root folder. Inside the text files slideshow parameters can be adjusted such as playing time (parameter range 1-13 seconds), transition time (parameter range 1-13 seconds) and volume (parameter range 1-31).

Inside the autoplay.txt file:

```
Transition=9           assigns transition from image to image in folder.
Slide time=13          assigns length of screen time per image.
Volume=30              assigns custom volume level for audio playback.
01=photo1/*.*          play files in the "photo1/" folder when push-button 1 is pressed

Transition=9           assigns transition from image to image in folder.
Slide time=13          assigns length of screen time per image.
Volume=30              assigns custom volume level for audio playback.
02=photo2/*.*          play files in the "photo1/" folder when push-button 2 is pressed

Transition=9           assigns transition from image to image in folder.
Slide time=13          assigns length of screen time per image.
Volume=30              assigns custom volume level for audio playback.
03=photo3/*.*          play files in the "photo1/" folder when push-button 3 is pressed

Transition=9           assigns transition from image to image in folder.
Slide time=13          assigns length of screen time per image.
Volume=30              assigns custom volume level for audio playback.
04=photo4/*.*          play files in the "photo1/" folder when push-button 4 is pressed
```

Using RS-232 Commands

Use the command format shown in the command list, and make sure the files and folders are arranged and named correctly as shown previously.

Basic Serial Command List

@00:OK$	OK
@00:UP$	Direction Key, Up
@00:REV$	Playback
@00:FWD$	Fast Forward
@00:REP$	Repeat Play
@00:MUTE$	Mute/Unmute Toggle
@00:VOL+$	Volume Up
@00:VOL-$	Volume Down
@00:STOP$	Stop
@00:PREV$	Previous File
@00:NEXT$	Next File
@00:ENTER$	Enter
@00:LEFT$	Direction Key, Left
@00:DOWN$	Direction Key, Down
@00:SYNC$	Start Over (return to the beginning of the file)
@00:POWER$	Power Toggle (On or Off)
@00:AUDIO$	Open Audio Format Window
@00:PAUSE$	Pause
@00:RIGHT$	Direction Key, Right
@00:01$	Play files in folder linked to Playlist 1 in autoplay.txt
@00:02$	Play files in folder linked to Playlist 2 in autoplay.txt
@00:99$	Play files in folder linked to Playlist 99 in autoplay.txt

Serial Protocol

Transfer Rate	9600 bps	**GND RX TX**	Pinout
Data Bits	8		Pin 2, Tx
Parity	None	**5 4 3 2 1**	Pin 3, Rx
Stop Bits	1	**9 8 7 6**	Pin 5, Ground
Flow Control	None or Off	**GND**	Shell, Ground

Installation

- Attach the player to a flat surface with the screws provided.
- Connect push-buttons, if desired, for media selection. Push buttons should be four-wire momentary switches, and can be illuminated (2-5 volt LED).
- Connect A-V output(s) to a monitor, amplifier, or a headphone amplifier if desired.
- Connect power supply to AC power, then to the 1704 power port.
- For initial testing, connect A-V output(s) to a test player to check for desired functionality.
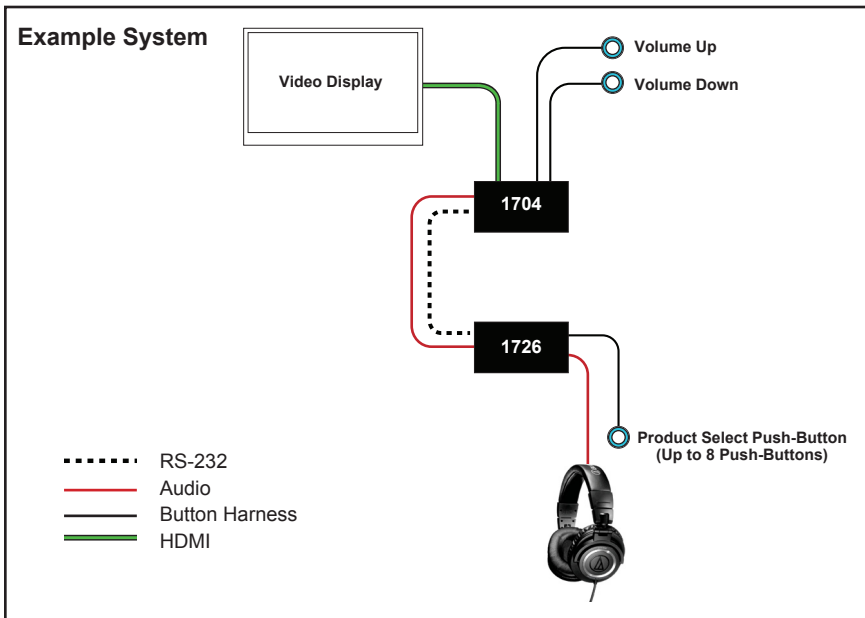- Call Audio Authority with questions that are not addressed in this manual.

Figure 6. Example System with Model 1726. With custom programming, the 1726 can trigger the 1704 to play a specific media file for each product.

Operation

On power up, the POWER LED comes on to show normal operation. If media files have been placed in the root of the SD card, the 1704 begins playing the first media file in the root. Operate push-buttons (if installed) to select media tracks. Demonstration may also be triggered by selecting a product with push-buttons attached to an accompanying Model 1726 headphone demonstrator (*Figure 6*).

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