TM

Video CHAMELEON

Interactive MPEG Player

Model 201

User Manual

www.videochameleon.com

Table of Contents

Introduction

The Video Chameleon is a powerful and flexible microcomputer, specialized for the playback of MPEG video and audio files, as well as still images. The digital media files are held on a CompactFlash card or Microdrive. The player outputs NTSC or PAL video and stereo audio. Since the Video Chameleon is a television based player, it is designed to work with television displays (LCD or CRT) not computer displays.

Specific Features Include:
* MPEG 1 or 2 Video and Audio, DVD Quality Levels
* NTSC or PAL Video Output
* Composite (RCA) or S-Video Video Connection
* Stereo Audio Connection
* Serial (RS232) and Ethernet Connections
* Flexible User Interface Port for Touchscreen, Switches, etc.
* Compact and Low Power Consumption for Easy Integration
* Software Upgradeable for Flexibility and Future Expansion

Usage

The Video Chameleon is intended for professional, commercial applications. POR (point-of-reach), POP (point-of-purchase), POI (point-of-information), training, exhibitions, information kiosks and museums are but a few of the many possible uses for the player. Please visit our website at www.videochameleon.com for feature articles on successful applications. It can be integrated within the housing of an LCD or CRT television, or can be housed separately. The MPEG content can be updated via replacement of the CompactFlash or Microdrive, or can be updated via Ethernet. The player is not sold for or intended for use by individual consumers.

PAL or NTSC

Each Video Chameleon player is configured at the time of manufacture for either NTSC or PAL video compatibility. An NTSC player must be used with an NTSC television monitor, and must use NTSC MPEG files. Likewise, PAL players are compatible with PAL televisions and MPEG. The player type can be identified by the first character of the serial number – N for NTSC and P for PAL.

Safety

As a commercial product, the Video Chameleon is intended for use by professionals. However, everyone who works with electrical and electronic devices must always ensure that necessary safety precautions are taken. This includes checking all connected components for correct voltages and ground connections.
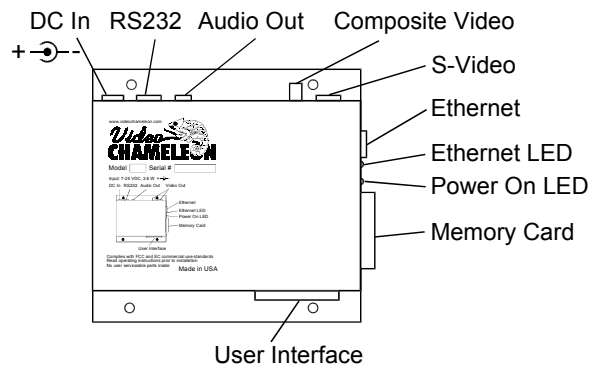
Setup & Connections:

The Video Chameleon player is connected much as a VCR or DVD player, except that it requires DC power. Mandatory connections include DC power, CompactFlash card with playable files, video cable and (if required) audio cable. Optional connections include Serial (RS232), Ethernet (10BaseT) and User Interface.

Connection Sequence:

The CompactFlash card must be in place when power is applied to the player. Although no harm will occur to the player, the player cannot boot without the card in place. There is no on-off switch, so boot starts when power is applied. Bootup takes about 30 seconds while the player accesses the files. There will be no image on the screen during bootup. The CompactFlash card cannot be changed with the power applied. Again, no harm will come to the player, but the new card may not boot and play until power is removed and reapplied.

Sequence Summary:

1. Connect all cables except power
2. Install CompactFlash card
3. Connect power

Connector Layout Diagram
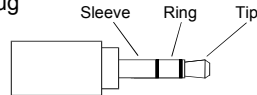
Connector Details Diagram:

DC Power Input: 2.1mm Center +

Ethernet Port: Standard 10BaseT RJ-45

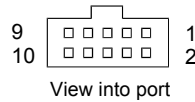**Video Outputs:** Standard Composite RCA, S-Video Mini-DIN 4

Stereo Audio Output: 3.5mm Stereo Plug

Sleeve   Ring   Tip

Tip: Left
Ring: Right
Sleeve: Ground

Serial Port: 0.25" Square Header, 0.100" Centers

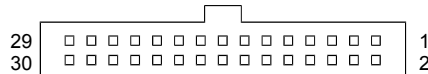| Pin #	Function
1,2,7	Common
3	RS232 Data In (Rx)
5	RS232 Data Out (Tx)
6	Optional 5V Supply 1.1A Fused
9	Ground
4,8,10	No Contact

9   1
10   2

View into port

Note: Connector is arranged for ribbon cable connection to DB9 to touch
 screen controller.

User Interface Port: 0.25" Square Header, 0.100" Centers

Pin	Function	Pin	Function
1	Button 1	2	Gnd, Button 1 Common
3	Button 2	4	Gnd, Button 2 Common
5	Button 3	6	Gnd, Button 3 Common
7	Button 4	8	Gnd, Button 4 Common
9	Button 5	10	Gnd, Button 5 Common
11	Button 6	12	Gnd, Button 6 Common
13	Button 7	14	Gnd, Button 7 Common
15	Button 8	16	Gnd, Button 8 Common
17	Gnd	18	VCCF (+5V Fused 1.1A)
19	Ext Horn Out (-)	20	VCCF
21	Button 9- or S (5 wire TS)	22	VCCF, Button 9+ or H (5 wire TS)
23	X2 (4 wire TS) or X (5 wire TS)	24	L (5 wire TS)
25	X1 (4 wire TS) or Y (5 wire TS)	26	No Contact
27	Y2 (4 wire TS) or Y (5 wire TS)	28	No Contact
29	Y1 (4 wire TS) or X (5 wire TS)	30	No Contact

Notes:
1. X1,X2,Y1,Y2 are connections for 4-wire resistive touchscreen.
2. Tie 23 to 29 and 25 to 27 as noted above for 5 wire resistive touch screen.
3. External Horn is open drain to gnd, 50mA max.
4. All Button x pins are paired so that a simple switch closure across
   the pins, ie (Pin 1 to Pin 2 for Button 1) will activate that input.

29   1
30   2

View into port

Carton Contents:

The standard Video Chameleon package includes:
- Video Chameleon Player
- Composite (RCA) Video Cable
- Stereo Audio Cable
- Documentation (This manual)

Options:

 Available options include:
- 120VAC Wall Mount Transformer
- 240 VAC Wall Mount Transformer
- S-Video Cable

Other options are under development – check your reseller or www. videochameleon.com

Developer's Kit:

For individuals or organizations wishing to create and test content for the Video Chameleon platform, a Developer's Kit is now available. See your reseller for pricing and more details.

Integration/OEM:

The standard Video Chameleon is offered as a standalone unit in a plastic housing. It is also available to hardware integrators or OEMs as an unhoused PCB assembly. This will allow for even smaller integrated player/display units. If carefully designed, slightly higher operational ambient temperatures are possible with unhoused systems. Contact your reseller for further details.

Ethernet Update and Serial Control:

Two powerful features of the Video Chameleon are the ability to control the player via Serial / RS232 command, and especially the ability to update the presentation content via LAN / Ethernet. As the Ethernet update uses browser based IP communications, a Video Chameleon can be updated from anywhere in the world using the Internet. For more details see documentation on the MPEG Author distribution CD or contact your reseller.

Hardware Compatibility:

The Video Chameleon system is designed to be used with many input, output, and storage devices. For information regarding compatible hardware devices, please check your reseller or our website at www. videochameleon.com.

Important Note:

Our hardware compatibility list is a guidance that we provide for our customers. It is not a warranty that all items will be compatible under all circumstances. We cannot control changes and revisions made by the manufacturers of other hardware. So it is vitally important that you test any specific combination of hardware under consideration. This is especially true if large purchases or critical system rollouts are planned. For maximum security, you may wish to purchase complete integrated systems from your reseller.

CompactFlash Cards:

The Video Chameleon player depends upon a CompactFlash storage card for MPEG storage and playback. At the time of writing, the player is compatible with virtually all brands and sizes of cards tested, 32 MB and above. Some smaller cards use an incompatible file type and are therefore not recommended. Both solid state (ie flash memory) and Microdrive cards are compatible. Some cards do have better data transfer rates than others, so users planning high data rate applications should be especially careful to test with the intended cards. But just as noted above, there are literally hundreds of different CompactFlash cards on the market, all subject to change by their manufacturers. So please perform thorough testing prior to any volume purchases of CompactFlash cards. Your reseller can offer additional guidance, and may be a good source for tested, compatible cards.

Software Upgrades:

An important feature of the Video Chameleon is the ability to upgrade or update the operating system and player application using the MPEG Author software and the normal removable CompactFlash card. For more information see our website www.videochameleon.com or contact your reseller.

Specifications:

Feature	
MPEG Type	MPEG 1 or 2
Max Video Resolution	720 x 480 NTSC, 720 x 576 PAL
User Input Response Time	.25 sec
CompactFlash Slot Size	Type 1 or 2
MPEG Data Rate	8 Mbps max
Serial Port Data Rate	115 Kbps max
Ethernet Port Data Rate	10 Mbps max burst
Weight (in housing)	310g (11 oz)
External Dimensions (in housing)	147 x 147 x 32 mm (5.75 x 5.75 x 1.25")
External Dimensions (unhoused)	127 x 147 x 19 mm (5" x 5.75" x 0.75")
Video Output	Composite & S-Video, simultaneous
Audio Output	1V into 4.7 KOhm
Audio SNR	96 dB
Input Voltage	7 to 25
Power Consumption	3.6 W
Auxiliary Power Output	5V 1.1A Fused
Serial Port Optional Power Output	5V 1.1A Fused
Operating Temperature Range	0-50 C (32-120 F)
Storage Temperature Range	-20-70 C (0-160 F)
Operating Humidity	0% - 90% Non-condensing
User Input Contacts	9
Other Inputs	Touch Screen
Wireless Compatible	Yes via Ethernet port
GUI Touchscreen Compatible	Yes (Full x,y soft hotspots)
Time Triggered Events	Yes*
Data Storage & Retrieval	Yes*

* Future software release

Troubleshooting:

Problem	Cause	Solution
Quick beep on power application, no picture	Memory card not seated	Seat card
	No data on memory card	See MPEG Author Instructions for data/card preparation
	No *.bin file on memory card	See MPEG Author Instructions for data preparation, also check correct MPEG Author installation
	Incompatible memory card	Check dealer or website for compatible memory card information
Incorrect video display	Video type (PAL/NTSC) incompatibility	All components must be of a single standard – NTSC or PAL. This includes MPEG video and still image files, MPEG Author project setup parameters, Video Chameleon, and TV monitor.
No beep, no sound or picture – red LED on	Insufficient boot time	Allow ~30 seconds for boot.
	Missing data on memory card	See MPEG Author Instructions for data/card preparation
No beep, no sound or picture – red LED not on	No or incorrect power	Check wall mount transformer, or power leads in integrated systems. Check specs for power requirements.
Picture OK – no sound	Incorrect installation/cabling	Check installation diagram
	Missing data on memory card	See MPEG Author Instructions for data/card preparation
	TV volume low or sound off	See TV instructions
Sound OK – no picture	Incorrect installation/cabling	Check installation diagram
	Missing data on memory card	See MPEG Author Instructions for data/card preparation
	TV input set incorrectly	See TV instructions

MPEG Content Creation

The Video Chameleon Interactive MPEG Player requires the use of an authoring tool to prepare and program the MPEG data. We offer an easy and powerful tool called MPEG Author for this purpose. It is available individually or as part of the Developer's Kit. We also offer a video tutorial on the features and operation of the MPEG Author software to help you get started. See our website www.videochameleon.com for more information, or contact your reseller. Customers wishing to contract for MPEG programming – or more complete services such as video content creation or MPEG encoding – should check our website or with your reseller for authorized Video Chameleon developers.

MPEG Details:

Specifically, the Video Chameleon player will accept MPEG 1 or MPEG 2 motion video, MPEG still images, and MPEG audio.

MPEG 1 Mode: 1.15-3 Mbit/sec data rate MPEG 1 video (decoded to 352x240 NTSC or 352x288 PAL non-interlaced, ie 30 fps NTSC or 25 fps PAL) Simultaneous 192-220 kbit/sec MPEG 1 Layer 2 stereo audio.

MPEG 2 Mode: 2-8 Mbit/sec data rate MPEG 2 video (decoded to 720/704x480 NTSC or 720/704x576 PAL interlaced, for total frame rate of 30fps NTSC (60 fields, 30 frames/sec) and 25 fps PAL. Simultaneous 192-220 kbit/sec MPEG 1 Layer 2 stereo audio. For a conservative approach when using audio, limit MPEG video rate to ~4 Mbit/sec. However, with the use of high speed CompactFlash cards, video rates of up to 8 Mbit/sec can be maintained, even with audio. A good quality lower bitrate alternate MPEG 2 format is Super Video CD (SVCD), 480x480 NTSC or 480x576 PAL at ~2.5 Mbit/sec.

Still Images: 704x480 (NTSC) or 704x576 (PAL) MPEG 1 stills.

Data Format:

Motion MPEG: MPEG encoding must occur prior to bringing the data into the MPEG Author program.

Multiplexing: The Video Chameleon requires MPEG video and audio data to be in the form of separate elementary streams, i.e. not multiplexed. The MPEG Author CD contains a de-multiplexing utility which is useful if MPEG1 data is already multiplexed. For a powerful utility including MPEG 2 functionality, see tmpgenc.com. We are not affiliated with and cannot support TMPGEnc, but we find it a useful product.

Still Images: The MPEG Author program can accept still image files in .BMP, .JPG, .PCT, .TGA, and .PCD file formats. It will automatically produce the required MPEG still files.

Manufacturer:

Action Digital Inc.
2317 Westwood Ave. Ste 101
Richmond, VA 23230 USA
Web: www.videochameleon.com

European Distributor:

Digit Touchsystems BV   Digit Professional
Nijverheidsweg 1d-e   Nijverheidsweg 1d-e
6651 KS Druten   6651 KS Druten
The Netherlands   The Netherlands
Web: www.digit.nl   Web: www.digitprofessional.com

Please note: All warranty claims and support will be handled through your reseller.

European Notice

Equipment complies with the following EC Directives:
- General Product Safety Directive 92/59/EC
- Council Directive 70/23/EEC
- Low Voltage Directive 72/23/EEC
- EMC Directive 89/336/EEC

Compliance with these Directives includes conformity to the following Standards:
- EN 60950
- EN 50081-1
- EN 55024

FCC (USA) Notice

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.

Warranty:

1. Reseller (Company) warrants to purchaser that all Video Chameleon MPEG Players (players) sold are free from defects in material and workmanship; and that if they are installed per specification they will perform as designed. The Company's limited warranty shall be for one year from date of shipment. The Company will replace or repair, at its option, any component the Company finds to be defective. Physical, water or electrical damage, abuse, failure to observe proper handling and installation procedures, or unauthorized opening of the enclosure, shall void the warranty. The warranty does not cover damage caused by misuse, negligence, application of current or voltage falling outside of design parameters, or if installations with environmental factors outside the specified range.

2. Units claimed to be defective shall be returned, shipping prepaid, to the Company for inspection and repair or replacement. Returns must be adequately packed to prevent further damage during shipment. If the returned player is not found to be inoperable due to defects in the manufacturer's materials and workmanship a repair or replacement charge will be made by the Company. The Company will return repaired or replaced players to purchaser, freight prepaid.

3. All requests for goods to be returned must be approved in advance by the Company. An RMA (Returned Materials Authorization) number must be obtained from the Company prior to return and must be prominently posted on the packaging of the shipment. The RMA requests must include both the player Serial Number and the Part Number, and specific information as to the nature of the defect.

4. In the event the Company chooses to send a new replacement component to correct a failure before receiving a defective component the customer agrees to return the defective part to the Company within two weeks or the customer will be charged for a replacement component according to the Spare Parts Price List in effect at the time. The Company reserves the right to make product improvements and changes from time to time so that replacements may include these changes and improvements.

FCC Notice

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 undesirable operation.