

VideoSystem



Digital & Analog Video Converter

English Manual (Hardware)

Version: 17.06.04

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CE Declaration

We:

TerraTec Electronic GmbH, Herrenpfad 38, D-41334 Nettetal, Germany

hereby declare that the product:

Cameo Convert

to which this declaration refers is in compliance with the following standards or standardizing documents:

1. EN 55022 Class B
2. EN 55024
3. EN 61558

The following are the stipulated operating and environmental conditions for said compliance: residential, business and commercial environments and small-company environments.

This declaration is based on:

Test report(s) of the EMC testing laboratory



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## *Preface*

Thank you for choosing a TerraTec product. We would like to congratulate you on your decision to buy this sophisticated piece of state-of-the-art technology. The Cameo Convert is a professional product that forms a bridge between the worlds of analog and digital video. We're convinced that the Cameo Convert will be both very useful and a lot of fun for you for a long time to come.

The following is a brief overview of the features of your new Cameo Convert.

## *Scope of delivery*

- CAMEO CONVERT
- S video cable
- Composite cable
- Stereo audio cable
- Power supply unit
- DV (IEEE-1394) cable (4-pin to 6-pin)
- DV (IEEE-1394) cable (6-pin to 6-pin)
- Scart/Composite adapter
- Ulead VideoStudio 8
- Hardware and software manual
- Registration card with the serial number

Please fill out and return the registration card to us at your earliest convenience or register online at <http://www.terratec.net/register.htm>. This is important for support and hotline services.

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## ***Product description***

### ***CAMEO CONVERT is a bridge between worlds...***

... analog or digital: the external converter transfers recordings from one medium to another in the best possible quality. Connect your VCR, TV, analog camcorder or DVD player to your desktop or notebook PC, Mac or DV camcorder in a few simple steps.

### ***From analog to digital (and back), please...***

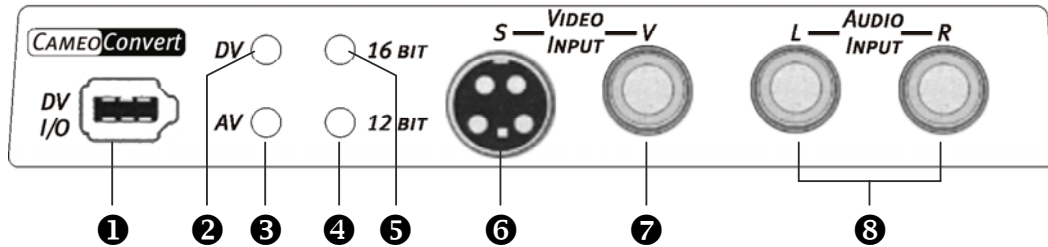
Would you like to digitize your analog videos, edit them on your PC or Mac and store them on DVD or (S)VCD with the click of a mouse? Transfer digital videos to your VCR or TV? Or simply set up a connection between your DVD player, VCR, camcorder, TV or computer to view, copy and convert video material? It's all no problem with CAMEO CONVERT. It features suitable connections for any purpose—from the lightning-fast FireWire™ port to analog video-in and video-out (S video, composite) to audio inputs and outputs. It's everything you need to go from analog to digital—and back, if necessary. Just what you need, whenever you need it.

### ***It's all there: a full range of accessories***

CAMEO CONVERT comes with a complete accessory package to cover all of your video transfer needs. It includes suitable connector cables (two DV cables, S video cable, A/V cable, Scart-composite adapter) and a powerful PC software package, including Ulead VideoStudio 8 for professional video editing and archival on (S)VCD or DVD.

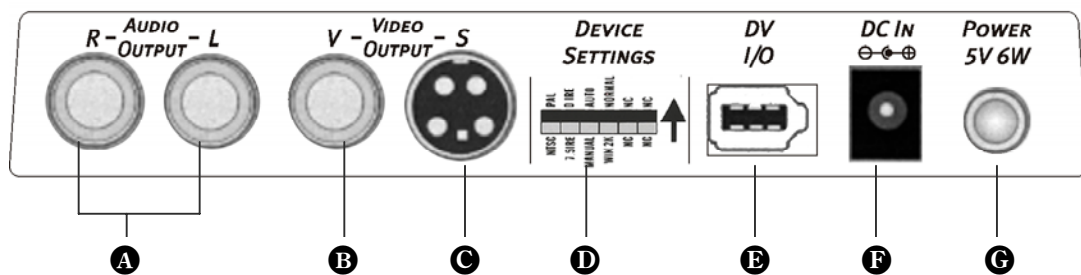
## Connections

### The front panel



- ❶ 6-pin DV (FireWire™, IEEE1394) interface for DV In/Out
- ❷ This LED is lit when the selected video source is DV \*
- ❸ This LED is lit when the selected video source is AV \*
- ❹ This LED is lit when 12-bit encoding is used for the sound \*
- ❺ This LED is lit when 16-bit encoding is used for the sound \*
- ❻ S video (Y/C) input
- ❼ Composite video input (cinch)
- ❽ Stereo audio inputs (cinch)

### The rear panel



- ❶ Stereo audio outputs (cinch)
- ❷ Composite video output (cinch)
- ❸ S video (Y/C) output
- ❹ Device settings (DIP switch) \*
- ❺ 6-pin DV (FireWire™, IEEE1394) interface for DV In/Out
- ❻ DC input (+5 VDC / 6 Watt)
- ❼ Power switch (on/off)

\* These settings must be configured manually. This topic will be covered later under Settings.

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## Getting started

Please use the included power supply ❹. Simply switch the Cameo Convert on ❺. It's now ready to use.

## Options

Two buttons are located on the top of the unit.



### Input signal

Press the "SOURCE" button to choose whether you would like to convert AV to DV (LED ❸ must be lit) or DV to AV (LED ❷ must be lit).

**Caution:** Please wait five seconds after pressing the SOURCE button before changing the operating mode again.

### Audio settings

Press "AUDIO" and choose whether the converter will use 12-bit or 16-bit encoding for the sound. The LED ❹ must be lit for 12-bit encoding, LED ❺ for 16-bit.

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## Advanced settings

It's not necessary to change these settings in the everyday use of the Cameo Convert. Nevertheless, we would like to give you an overview of the functions of the individual DIP switches. To access the DIP switches, carefully remove the cover **1**.

### *The DIP switches in detail*

• S1	ON	->	PAL	
	OFF	->	NTSC system	
• S2	ON	->	7.5 IRE (NTSC standard, except Japan)	
	OFF	->	0 IRE (NTSC standard, Japan)	
• S3	ON	->	automatic recognition of the video source	
	OFF	->	manual recognition of the video source	
• S4 & S5	These two switches let you adapt the Cameo Convert perfectly to suit your purposes. They are not important in most cases, however, as the device's performance is very good with the default settings.			
S5	ON	S4	ON ->	Default setting
			OFF ->	Windows 2000
	OFF	S4	ON ->	Windows ME / XP
			OFF ->	Windows 2000, if many DV devices are connected

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### **Caution:**

***you must restart the Cameo Convert after every change.***

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## ***Application examples***

Cameo Convert is compatible with DV (iLink, FireWire™ or IEEE-1394), Digital 8, Video 8, Hi8, VHS, S-VHS, VHS-C and S-VHS-C formats. This results in a broad range of potential uses.

### **Bridge between analog video device / TV and PC**

An especially interesting application is as a bridge between analog video devices and PCs, permitting existing analog video material to be digitized, edited and stored on (S)VCD, DVD or videotape.

Simply connect your analog video device to the video input **6** or **7** and the audio inputs **8**. Please use the appropriate cables (included) for this connection. Next, connect the DV input/output **1** to the FireWire™ port of your PC: Please also use the included DV cable (IEEE1394 6-pin to 6-pin) for this connection. Switch the Cameo Convert on. Your PC will automatically recognize the Cameo Convert as a DV camcorder. The Cameo Convert will be listed in your PC's Device Manager under "Imaging devices" as "MS DV camera and video recorder". To launch the Device Manager, press and hold the Windows key (with the Windows logo) and press the Pause key. This will open the System Properties window. Under Windows 2000 or XP, click the "Hardware" tab and then the "Device Manager" button. Press the SOURCE button of the Cameo Convert once to select AV as the video source. The LED **3** must light up.

Now launch your software. For more information on ULEAD VideoStudio 8, please see the other manual. To copy the edited video material from the software back to analog video tape or preview the material on your TV, simply use the SOURCE button to set the source to DV. The **2** LED will light and the effects you have applied will be shown on your TV in real time.

### **Bridge between AV and DV camcorders**

Naturally, a computer is not necessary when using the Cameo Convert. It can also be used as a bridge between digital and analog video equipment.

Your DV camcorder will have a socket labeled as "DV IN", "DV IN / OUT" or "iLink™". Connect the smaller plug of the DV cable (IEEE1394 6-pin to 4-pin) to the socket on your DV camcorder and the larger one to the Cameo Convert, **1** or **1B**. The connection of the analog video device will naturally depend on its purpose. If you would like to copy from DV to AV, connect the analog video device to the rear panel, or for the opposite direction to the front panel. Set the direction by simply pressing the SOURCE button. The LED **2** or **3** will indicate the selected direction. Finally, press Record or Play on the connected devices.

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## ***Appendix***

### ***Service at TerraTec.***

“Rien ne va plus—Nothing's working” can happen to the best systems. If this happens to you, the TerraTec team is happy to offer its service and support.

Your first move should be to check our website <http://www.terratec.com/> for current answers to frequently asked questions and the latest drivers.

If these options do not provide the necessary help, please contact our phone helpline or contact us online at <http://supporten.terratec.net/>. In either case, please have the following information handy:

- your registration number,
- this documentation,
- the manual of your motherboard, and
- a screen shot of your BIOS configuration (if possible).

In addition, it would be helpful to our technicians if you are at your computer during the phone call so that you can carry out our tips and tricks directly. Please do not forget to write down the name of the respective support technician if you contact our Support Team. You will need this name if a defect is present and your card needs to be mailed to us.

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## ***Broken?!***

Before you send the device back, be sure to contact us! Make a note of the name of your support contact and follow these simple instructions:

- Please fill out the service request form provided with your CameoConvert clearly and completely. The more clearly and detailed you describe the problem, the faster we will be able to help. Cards sent in without a description of the problem cannot be processed and will be returned to you at your expense.
- Be sure to include a copy of your purchase receipt (not the original) with the package. If we do not receive a copy of a receipt, we will assume that the warranty for the product has expired and will bill you for the repair.
- Please use a sufficiently strong and padded mailing package. Remember that the card is a sensitive electronic component.
- Be sure to include enough postage—we will cover for the postage for the return to you.

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## General terms and conditions of service

### 1. General

By purchasing and receiving the goods, you accept our general terms and conditions of service.

### 2. Proof of guarantee

You will require a copy of the purchase receipt or delivery slip as proof of warranty. If you do not supply proof of warranty, we will charge for repairing the goods.

### 3. Description of problem

Shipments that do not include a description of the fault or an insufficient description ('defective' or 'for repair' is insufficient) will be returned for a processing fee, because this makes repair more difficult and could have been avoided.

### 4. Invalid returns

In the event of an unfounded complaint (no fault could be detected, probable operating error), we will return the goods and a processing fee will be charged.

### 5. Packaging

If possible, please use the original packaging for return shipment. Any warranty claim will be jeopardized by improper packaging. The warranty will not apply to damage caused by improper packaging.

### 6. Foreign manufactured products

Devices that are not manufactured or distributed by TerraTec Electronic GmbH will be returned and a processing fee will be charged.

### 7. Repairs liable to your expense

Repairs out of the warranty period are liable to your expense.

### 8. Transportation costs

The dispatcher pays all costs associated with shipping and insurance for the goods for repair to TerraTec Electronic GmbH. If the goods are covered by warranty, TerraTec Electronic GmbH will pay the shipping costs for returning repaired goods. COD shipments will not be accepted for organizational reasons.

### 9. Final regulation

TerraTec Electronic GmbH reserves the right to change or supplement the general terms and conditions of service at any time.

Otherwise the General Terms and Conditions of Business of TerraTec Electronic GmbH are considered to be accepted.

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## **Glossary**

**AVI**—A **Windows** video format.

**Bit rate**—The bit rate indicates the volume of the data stream per second. A higher bit rate results in higher quality. A distinction is made between constant bit rates (e.g. for → VCD) and variable bit rates, e.g. for → SVCD and → DVD. Unlike constant bit rates, variable bit rates adjust the size of the data stream according to the video material.

**Blue screen**—A variation of → Chroma keying

**Capture**—Recording.

**Chroma keying**—Chroma keying uses a surface with a single color in front of which an actor, for example, is filmed. This color area is then made transparent during subsequent editing and can be replaced by a different background.

**Chrominance**—Chrominance refers to the color signal in → YUV, which is comprised of two color components: U, the balance between red and cyan, and V, the balance between yellow and blue.

**Clip**—A short piece of video material.

**Composite video**—Composite video is a transmission method common in the consumer sector that is generally realized using cinch connectors and which is frequently used, for example, on TVs. In this process, all signals (chrominance and luminance) share a single cable. The quality of composite video is lower than that of → S video, in which chrominance and luminance are transferred separately.

**CPU**—Central processing unit. The part of your computer (processor, e.g. Pentium or Athlon), that does the actual computing.

**D8**—Digital 8 is the successor to the Hi8 and VHS-C camcorder formats. Hi8 or D8 cassettes are still used, but the video data is recorded digitally in DV format.

**Data throughput**—see Data transfer rate

**Data transfer rate**—The data transfer rate describes the speed at which a hard drive can read or write data over a sustained period. The data transfer rate is usually measured in seconds, e.g. 7 Mbps.

**Device control**—In DV terms, this refers to the ability to control your camcorder from your PC.

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**DirectDraw**—DirectDraw is a graphics standard initiated by Microsoft. Its features include the capability to write graphics data directly to the memory of the graphics board for the fluid display of video material.

**Dropped frames**—These are individual images missing from the video data stream, usually due to a slow hard drive.

**DV**—DV stands for Digital Video. The DV standard uses a compression rate of 5:1. This corresponds to a data rate of 3.125 Mbps, which can be handled by virtually any modern hard drive. The quality of the DV standard is very high; it is therefore frequently used in professional productions. A number of different cassette types exist in the DV sector, which vary in size and maximum playing time, but which are compatible with one another in terms of video data. MiniDV is designed for the consumer sector and supports playing times of up to one hour. The DV format used in the professional sector supports playing times of up to three hours.

**DV-In**—Usually, the DV jack of a camcorder can transport video data in both directions— to and from the camcorder. Many camcorders in Europe do not feature DV-In, however. Also see -> Enabling.

**Enabling**—Due to European import duties, imported digital video recorders are more expensive than imported digital video playback devices. For this reason, manufacturers of camcorders have begun to modify their products for the European market and to disable the digital input -> DV-In. Needless to say, clever developers found a way around this restriction very quickly. This is known as “enabling”. Enabling the DV camcorder is a precondition for sending video material back to the camcorder. Enablers are available for almost all camcorders and can be purchased freely.

**Fading**—Fades are soft transitions, often involving special effects, from one clip to the next.

**Fields**—Rather than displaying 25 frames per second (as per the PAL standard), 50 fields are displayed per second to reduce TV display flicker. These fields consist of either the odd-numbered rows (these are sent first) or the even rows of the image being displayed.

**FireWire™**—Apple's name for -> IEEE 1394

**Frame rate**—The number of frames within a given period of time. The frame rate is frequently stated in frames per second (FPS).

**Hi8**—Analog video recording system that separates color and brightness information, thus offering quality better than that of VHS-C, for example.

**Hosiden connector**—a small connector with four conductors used for -> S video signals.

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**IEEE 1394**—This is a universal bus system originally developed by Apple for digital data communications. The devices are connected by cables with a maximum length of 4.5 m. The system supports transfer rates of up to 400 Mbps. However, a standard has not been established for video data due to the lack of specifications for the format of video data using this bus. Sony got down to brass tacks and closed this gap by installing FireWire™ sockets in its digital camcorders and developing its own protocol. Thanks to FireWire™ and the Sony protocol, the dream of loss-free video editing has finally come true.

**iLink**—Sony's name for → IEEE 1394

**Interlacing**—see Fields

**Linear editing**—The origins of linear video editing date back to analog video. The original video data is generally present in the same sequence as the edited video clips. A simple form of linear video editing would be to copy material from an analog video camera to a VCR and discard a number of clips in the process. However, if you would like to insert a new clip in the middle, it would be necessary to copy all of the following clips again.

**Luma keying**—Unlike chroma keying, the transparency of the video is determined on the basis of brightness in luma keying.

**Luminance**—Luminance refers to brightness in → YUV. (Y)

**Main memory**—see RAM

**MiniDVD**—This is a process in which → DVD data, including the DVD directory structure and navigation menu, is burned onto a blank conventional CD. Many of the currently-available DVD players can play MiniDVDs. Due to their lower capacity, MiniDVDs can only store around 18 minutes of video data. If you do not own a DVD burner, we recommend recording video material on → SVCD.

**MiniDV**—The consumer version of the DV format. Also see → DV.

**MJPEG**—Motion JPEG is a compression process in which every single frame in the video data stream is compressed individually.

**MPEG**—The Motion Picture Experts Group is a consortium of leading manufacturers and developers of video technology that determines new standards such as MPEG-1 or MPEG-2.

**Nonlinear editing**—Unlike → linear editing, individual clips can be edited without affecting subsequent clips. For example, with nonlinear editing, you can shorten or remove a clip at the beginning of a video project without having to edit the following clips as a result.

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**NTSC**—NTSC is a video standard used in the USA and Japan. NTSC has a higher frame rate than PAL (30 frames or 60 → fields per second), but a lower resolution (525 rows, with 480 visible). Color depiction in NTSC is realized in → YIQ.

**PAL**—This is the most common video standard in Europe. PAL displays 25 frames (or 50 → fields) per second and has a resolution of 625 rows, of which 576 are visible. Color depiction in PAL is realized in → YUV.

**Preview**—The preview offers you a quick overview of your work. The final quality is normally considerably higher than that of the preview.

**RAM**—Random Access Memory is the main memory of your PC. Since video editing with effects is very memory-intensive, the old rule applies: you can never have enough RAM!

**Rendering**—this refers to the processing of video or audio clips after an editing operation has been completed, for example after the application of an effect or filter.

**RGB color space**—In the RGB color space, each visible pixel is made up of the three components R(ed), G(reen) and B(lue). To achieve the natural display of colors on a computer, each of these components must have at least 256 values. This corresponds to exactly one byte for each color component. A single complete video image would thus require 768 pixels x 576 pixels x 3 bytes = 1,327,104 bytes. This corresponds to around 1.2 MB per frame! One second of video in the RGB color space would therefore require around 31.6 MB of storage space. Using this process, a 2 GB hard drive would have a video capacity of around one minute. No current hard drive can deliver this volume of data in real time, but a number of options are available to reduce the data volume of the video signal substantially through transformation to a different color space (usually YUV) and compression (usually MJPEG).

**S video**—Unlike → composite video, chrominance and luminance are transmitted separately in S video, resulting in higher quality.

**Saturation**—Describes the ratio of color in the picture.

**SECAM**—SECAM is the third video standard like PAL and NTSC. Today it is used only in France and a number of Eastern countries. East Germany, for example, also once used the SECAM standard.

**Storyboard**—Unlike the → timeline, the storyboard offers a thematic overview of your video project. Individual scenes can be identified easily, but it does not deliver a sense of the actual length of the project.

**SVCD**—Abbreviation for Super Video CD. SVCDs are similar to → VCDs, but they have a great advantage in that their data is in MPEG-2 format with a → variable bit rate. In addition, the resolution of 480 x 576 pixels is higher than that of the VCD. An SVCD generally can contain



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45-50 minutes of video material. The bit rate (audio and video) of an SVCD may not exceed 2.6 Mbps. SVCDs can be viewed using many standalone DVD players.

**Timeline**—The timeline is the time axis upon which you position and edit your video clips.

**Transition**—see Fading

**Trimming**—This refers to adjusting the length of a video clip at the beginning and/or end.

**VCD**—Abbreviation for Video CD. The Video CD has a PAL resolution of 352 X 288 pixels and stores audio and video data in MPEG-1 format. VCDs use a constant bit rate of 1.15 Mbps for video and 224 kbps for audio data. VCDs can be viewed in virtually any DVD player.

**Video filter**—Video filters let you influence your video material in a wide range of ways. For example, you can manipulate the colors of your video film or use complex filters to degrade your new, top-quality film to look like an old, silent movie.

**Video for Windows**—This is an old, but still commonly used, video concept for Windows.

**YIQ**—YIQ is a color space related to YUV. It is also characterized by a brightness component (Y), but also by different color components, I (cyan-orange balance) and Q (magenta-green balance). YIQ is used for NTSC, for example.

**YUV**—YUV is the designation for a color space characterized by a brightness component (Y) and two color components (U, V).