



OPERATING INSTRUCTIONS MANUAL

model DTC 1600 QUATTRO

8 bit bi - directional multi - standard converter

Revision No. 1600Q.011AU

Document # OM1119-OI

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1. Introduction

1.1 Introducing the DTC 1600 Quattro

Please take a moment to read this operation manual. The documentation contains all necessary information to operate the standards converter. The moment you receive the package

- ① Remove the standards converter and check for any damage.
- ② Make sure that the content complies with your order.
- ③ That the power cable is present.

Any additional cable besides the power cable must be purchased separately from your dealer. Contact Video International Development Corporation if an item is missing or the unit is not in satisfactory condition.

The DTC 1600 QUATTRO is a highly sophisticated standards converter, which is based on the very successful DTC 1600P6. To enhance the performance and ease of operation we added some interesting features.

- A LCD display shows you the system status.
- Direct access to all relevant functions without switching operating levels.
- System setup AUTO SAVE feature.
- LCD readout for signal adjustments.
- Built-in color bar generator.
- Comb filter
- CVBS, Y/C, Y-U-V and D1 system interface (D1 is optional).
- Digital or analog audio delay interface (optional).
- Four different interpolation filters.
- Automatic Gain Control
- Automatic Input Standard Identification
- NTSC EIA / EIAJ Setup
- SECAM H and H+V Chroma Sync Output
- User Setup Memory
- BETACAM setup.

1.2 Precautions & Safety Instructions

Cleaning

Unplug the unit before doing any kind of cleaning. Clean the cabinet, buttons and controls with a soft cloth, lightly moistened with a mild detergent solution. Do not use any type of solvent that might damage the finish.

Alteration

Do not alter or add to the electronic design. Design alteration and additions might alter the safety characteristics and performance of this unit and void the manufacturer's warranty.

Power Source

The standards converter must be operated only from the type of power source described in section 1.3.

Service

Remove the power cable from your ac-outlet and contact a qualified service technician in case of a malfunction, the standards converter does not operate normally when the operating instructions are followed, or, if you notice a change in performance.

Installation

The standards converter is prepared for rack-mounting installation and does not require any additional hardware. Allow adequate air circulation to prevent unnecessary heat buildup. Slots and openings in the cabinet are provided for ventilation. Do not block the ventilation slots. Do not install the unit near a heat source such as a radiator, etc.; nor place the unit on surfaces that may block the ventilation. Damages caused by over-heating will void the manufacturer's warranty.

Make sure that the air slots (Figure 1.2-1) are open and accessible. The four ventilators circulate the air through these slots.

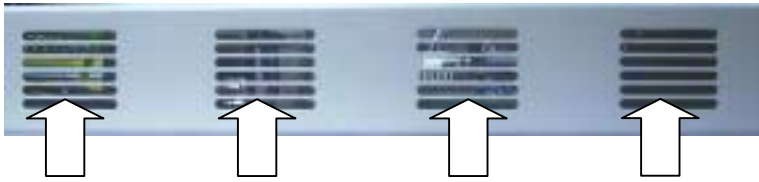


Figure 1.2-1

direction of outside air

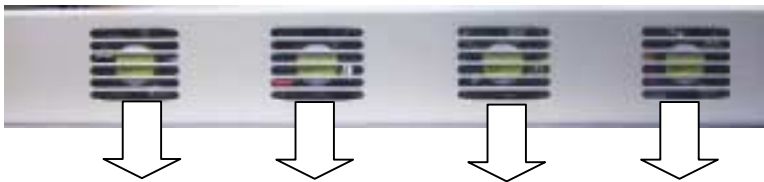


Figure 1.2-2

Hot air from inside the unit

1.3 Power Supply

The standards converter is equipped with a compact and lightweight power supply. The input voltage can range from 100VAC to 240VAC, -10%/+6%. The power supply adapts automatically to the input voltage. Use only the type of power cable supplied with the standards converter.

- ✓ Do not open the cabinet to prevent electrical shock,
- ✓ Any service should be carried out by qualified service personnel only.
- ✓ There are no user serviceable parts inside the standards converter.

2. Front Panel System Controls

2.1 System Support Functions

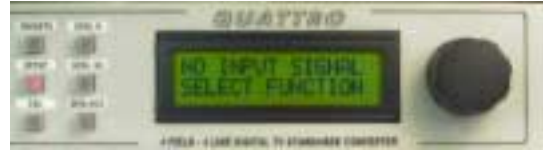


Figure 2.1-1

Enter Setup Mode

Press the **SETUP** button until the button illuminates (approx. 3 seconds).

This is the time you need to open a time lock to prevent accidental changes in SETUP mode. The message SYSTEM SETUP ! SELECT FUNCTION appears. Turn the knob and select a function. If you don't select a function within approx. 35 seconds, the unit exits the setup mode.

Exit Setup Mode

To exit the SETUP mode turn the control knob until you see EXIT SETUP and press the **SETUP** button. This is the recommended way to cancel the SETUP mode. You can also terminate the SETUP mode if you press a button in the CONTROL group (e.g. Y GAIN). There are some functions, which disable the SETUP mode automatically, once the command is executed.

System Reset

In case of a system break down press the **SETUP** button for approx. 3 seconds until the button illuminates. Turn the knob until you see the message SYSTEM SETUP ! FACTORY RESET !!. Press the **SETUP** button to execute the command. The microprocessor performs a system reset.

All custom setups are lost.

Lock/Unlock Keyboard



SETUP

Lock Keyboard

Press the **SETUP** button until the button illuminates (approx. 3 seconds).

Turn the rotary switch until you see SYSTEM SETUP ! LOCK KEYBOARD. Press the **SETUP** button to execute the command. The message KEYBOARD LOCKED appears and the SETUP mode is switched OFF. All controls on the keyboard are disabled except the SETUP button .

Unlock Keyboard

Press the **SETUP** button until the button illuminates (approx. 3 seconds).

Once you are in SETUP mode, turn the knob until you see SYSTEM SETUP ! UNLOCK KEYBOARD. Press the **SETUP** button to unlock the keyboard. The status will be saved. The SETUP mode is switched OFF.

Auto Save Option



SETUP

The objective is to save the CONTROL settings automatically after they have been changed.

Example : If the Y GAIN adjustment has been changed, only this setting will be stored.

Press the **SETUP** button for approx. 3 seconds. The moment the button illuminates, you are in SETUP mode.

Turn the rotary switch until you see

SAVE CONTROL VALUES : OFF or SAVE CONTROL VALUES : AUTO.

1. If you see the message SAVE CONTROL VALUES : OFF and you press the **SETUP** button, the AUTO mode will be ENABLED and the SETUP mode switched OFF.
2. If you see the message SAVE CONTROL VALUES : AUTO and you press the **SETUP** button, the AUTO mode will be DISABLED and the SETUP mode switched OFF.

Save Startup Setup



SETUP

If you want the current setup to be repeated every time you switch the unit ON press **SETUP** until the button illuminates. Turn the knob until you see the message STORE POWER-ON CONFIGURATION.

Press the **SETUP** button to save the current setup as POWER-ON CONFIGURATION. The message STORE POWER-ON SETUP STORED appears and the SETUP mode is switched OFF.

System Reset



PRESETS

Press the **PRESETS** button for approx. 3 seconds (until the button illuminates).

Turn the control knob until you see the message LOADING DEFAULT CONTROL SETTINGS appears for a short moment. The PRESETS mode replaces all CONTROL SETTINGS with default values. In case the unit is completely out of adjustment, you can use this function to bring the control setting quickly back to normal. However, the system may need some final adjustments to satisfy your working environment. This does not affect the stored USER setup. You can reset the individual setting to norm value, if you press and hold down the signal adjustment button in the CONTROL group for a moment.

System Software Version



SETUP

Press **SETUP** until the button illuminates. Turn until you see SOFTWARE VERSION. Press the **SETUP** button again. The software version and the date in the format day-month-year appears for a short moment before the SETUP MODE is disabled.

2.2 System Operating Modes



Figure 2.2-1

OPERATE

Press **OPERATE** once to select the OPERATE mode. The indicator light comes ON. The display shows in the **first line** the current input and output standard setup. Example : PAL - - NTSC
PAL is the current input standard and NTSC the current output standard.

BYPASS

To bypass the converter, press the **BYPASS** button once. The indicator light comes ON and the message BYPASS DTC 1600 appears in the display. The CVBS signal is available on CVBS OUT 1.

Please observe the following :

- You can only bypass the CVBS (composite video) channel.
- The CVBS signal is only available on CVBS OUT 1.
- The AUTO mode (automatic input standard identification) will be disabled. If the AUTO mode was previously enabled, you must activate this mode again the moment you return to OPERATE mode.

BARS

Press **BARS** to select the color bars mode. The button illuminates and the message COLOR BARS appear in the first line. Select the required output standard and setup the unit for color or black & white mode. The video signal is available on all outputs.

BL-BURST

Press **BL-BURST** to select the black burst mode. The button illuminates and the message BLACKBURST appears in the first line. The video signal is available on all outputs.

FREEZE

The FREEZE mode allows you to hold the picture in memory until you switch this mode OFF. Press the **FREEZE** button once. The message INPUT FREEZE appears in the display.

B/W

If you press **B/W** in the output group, the button illuminates and the message COLOR OFF appears for a short moment in the display. This mode stays active until you switch the black & white mode OFF.

In SECAM output mode, you may notice the presence of a subcarrier. The subcarrier, called burst, is used in the SECAM system besides the color sequence identification as white reference. It is an undeviated frequency of one of the subcarriers (D'R or D'B), that is, the position assumed when no chrominance is present.

2.3 Video Input Setup

Video Format Selection

The standards converter can work with CVBS (composite video), Y/C, Y-U-V and D1 signals. Each format has its own interface. Select the interface in the INPUT GROUP. The indicator light comes ON for the selected interface.

- Select first the video format before final setup. It makes life a little bit easier if you can see what happened on the screen while you are working on the final setup.
- Standard Interface is CVBS, Y/C and Y-U-V. The D1 interface is optional.
- Check the CVBS input termination !



Figure 2.3-1

CVBS

Press the **CVBS** button for the composite video format. The CVBS input has an internal 75 ohm termination feature (see Video Input Setup section). The message INPUT CVBS appears in the display.

Y/C

Press the **Y/C** button for the luminance/chroma video format. The input is terminated internally and can not be changed. The message INPUT Y/C appears in the display.

Y/U/V

Press the **Y/U/V** button for the component video format. The inputs are terminated internally and can not be changed. The message INPUT Y/U/V appears in the display.

SDI

Press the **SDI** button to select the serial digital input. The message INPUT EBU D1 appears in the display.

Note : The serial digital interface (SDI) is optional.



- If you switch the converter OFF, the unit always remembers the current setup. If you switch the unit ON again you can start where you left off.
- You can only bypass the CVBS channel. The AUTO must be reactivated if previously active.
- If the AUTO button is illuminated (AUTO mode ON) and no input signal is available, the display changes to 'B/W 50' or 'B/W 60' and no video standard button illuminates. This applies only for CVBS, Y/C and Y-U-V.

2.4 Video Input Standard Selection

The standards converter can work with the following video standards :

<u>Video Standard</u>	<u>Options</u>		
❖ PAL		NOTCHFILTER	COMBFILTER
❖ SECAM		HIGH BANDWIDTH	CROSSTALK FILTER
❖ NTSC	EIA and EIAJ	NOTCHFILTER	COMBFILTER
❖ PAL-M		NOTCHFILTER	COMBFILTER
❖ PAL-N		NOTCHFILTER	COMBFILTER
❖ NTSC 4.43	EIA and EIAJ	NOTCHFILTER	

Press one of the video standard buttons to select the video input standard manually.
The AUTO mode will be disabled.

Available Video Standards

	PAL	PAL-N	SECAM	NTSC	NTSC 4.43	PAL-M
Lines	625	625	625	525	525	525
Fields/Seconds	50	50	50	59.95	59.95	60
Frames/Seconds	25	25	25	29.975	29.975	30
Black Level	0%	0%	0%	EIA = 7.5% EIAJ = 0%	EIA = 7.5% EIAJ = 0%	7.5%
Color Frequency (MHz)	4,43361875	3,582 056.25	FOR 4,406 250.00 FOB 4,250 000.00	3,579 545.4545	4,43361875	3,575 611.49

Table 2.4-1

Manual/Automatic

Press **AUTO** to activate the automatic input standard selection mode. The button illuminates and the message INPUT AUTODETECT appears in the display.

In AUTO mode, the video processor tries to identify the video-input standard and sets up the system accordingly. We recommend for PAL-N manual selection. Should you run into any problems select the video standard manually. If the input signal is not available, the message NO INPUT SIGNAL appears in the display. To switch the AUTO mode OFF press the AUTO button or any of the video standard buttons in the INPUT group. The message AUTODETECT OFF appears.

2.5 Video Input Signal Setup



Figure 2.5-1

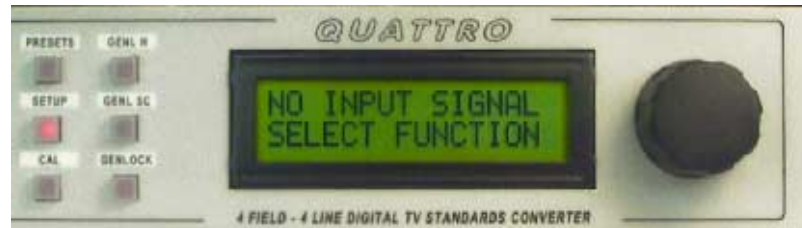


Figure 2.5-2

CVBS Input Filter

COMB

To select the composite video input filter press the **COMB** button. The button illuminates and the message **COMBFILTER ON** and **COMBFILTER OFF** shows the current filter status. The comb-filter mode stays active until you press the button again.

Comb-filter (CVBS Input Filter)

The composite video signal must be decoded into two separate components, luminance and chrominance, before it can be processed individually. Separating luminance and chrominance with a digital adaptive comb filter is the most beneficial way to maintain the bandwidth and at the same time avoid luminance/ chrominance cross talk.

In order to work, it is essential that the correlation between the subcarrier and horizontal frequency is maintained before the video signal enters the standards converter. If this is not the case, select the notch filter. The comb filter beneficially removes luminance components from the chrominance channel but with slight limitation.

Comb filters, by virtue of their line-averaging properties, reduce the chrominance resolution in the vertical direction of the picture. This constitutes a problem if the comb filter remains in the signal path under all conditions. If the video signal contains rapid vertical transitions from one color to another, the transitions will become blurred over one or more scan lines by the comb filter. This effect can be very noticeable on high-saturation color transitions. To prevent this, the processor contains an adaptive circuit that switches the comb filter in and out of the chrominance path on a pixel-by-pixel basis dependent on the picture contents.

CVBS Input Termination

Press **SETUP** until the button illuminates. Turn the control knob until you see **CVBS INPUT TERMINATION ON** or **CVBS INPUT TERMINATION OFF**. Press the **SETUP** button to switch the composite video input termination ON or OFF. This is a toggle function.

NTSC EIA/EIAJ Setup

The NTSC standard allows two black reference level setups. Press **SETUP** until the button illuminates. Turn the control knob until you see INPUT 525 EIA 7.5% or INPUT 525 EIA 0%. Press the **SETUP** button repeatedly to select the EIA or EIAJ setup. To exit the **SETUP** menu turn the knob to the left until you see EXIT **SETUP** and press the **SETUP** button.

YUV Setup

Press **SETUP** until the button illuminates. Turn the control knob until you see INPUT COMPONENT SMPTE / EBU N10 or INPUT COMPONENT BETACAM. Press the **SETUP** button to toggle between both modes. If the appropriate mode appears turn the control knob until you see SYSTEM SETUP ! EXIT **SETUP** and press the **SETUP** button or wait a moment until the **SETUP** mode is switched OFF automatically.

Aperture Filter

Press **SETUP** until the button illuminates. Turn the control knob until you see INTERPOLATION APERTURE #. Press the **SETUP** button repeatedly to select the appropriate filter, numbered 0 to 3. The APERTURE filter is only available in conversion mode.

Chroma V-Filter

Press **SETUP** until the button illuminates. Turn the knob until you see CHROMINANCE V FILTER ON or CHROMINANCE V FILTER OFF. Press the **SETUP** button repeatedly to switch the filter ON or OFF.

Horizontal Zoom Filter

Reduction of unwanted information in the active picture. This function is only available in conversion mode. To remove unwanted information you can reduce the active data window. Press the **SETUP** button for approx. 3 seconds. Turn the rotary knob until you see H ZOOMFILTER ENABLED or H ZOOMFILTER DISABLED. Press the **SETUP** button repeatedly until you see the function you want.

Automatic Color (Luminance) Gain Control

ACC = Automatic Color Control, AGC = Automatic Gain Control

Press the **AGC/ACC** button once. The indicator light stays ON as long the AGC (ACC) mode is active. The display shows the mode of operation ACC ON or ACC OFF.

In AGC/ACC mode, the chroma amplitude will be adjusted automatically to norm-level. The microprocessor looks at the input amplitude and compares the values with an internally stored value. If the amplitude is not corrected, the microprocessor will correct the amplitude automatically. If you hold the button for a moment the message AGC ON appears. The automatic luminance gain control is enabled. The AGC will be disabled if you press the **Y-GAIN** button. The AGC mode also becomes inactive if you switch between ACC ON (OFF). You may have to reactivate the AGC mode.

Noise Reduction

Press **NOISE** in the control group. The button illuminates. The message **NOISE RED.** appears in the display. The following number is the level of noise reduction between 0 and 3, where 0 is no noise reduction. Turn the control knob and select the appropriate level.

Reducing Low-Amplitude Noise

The COR function is a welcome addition for enhancing a picture. If you enhance a picture, you also enhance any noise contained in the picture. Most tape noise exists as low-amplitude high frequencies. The signal-to-noise-ratio (SNR) in the low-amplitude region is, therefore, much worse than in the high-amplitude region of the signal. Coring is now a form of noise reduction, which targets the core of the signal, where the low-amplitude high frequencies spectrum resides. The low level 'noisy core' can be removed, leaving only the much stronger signal to be enhanced. With the CORING adjustment, you can decide at what point the enhancement takes place.

press the **NOISE** button twice to enable this mode. If you see the message **CHR.CORING.** The following number can be in the range from 0 to 7. Turn the control knob and select the noise reduction level you want.

2.6 Video Output Setup

Video Standards

Select one of the video standards below. The two groups (50Hz/625 lines and 60Hz/525 lines) are lined up vertically in the output group.



Figure 2.6-1

Available Video Standards

	PAL	SECAM	PAL-N	NTSC	NTSC 4.43	PAL-M
Lines	625	625	625	525	525	525
Fields/Seconds	50	50	50	59.95	59.95	60
Frames/Seconds	25	25	25	29.975	29.975	30
Black Level	0%	0%	0%	EIA = 7.5% EIAJ = 0%	EIA = 7.5% EIAJ = 0%	7.5%
Color Frequency (MHz)	4,43361875	FOR 4,406 250.00 FOB 4,250 000.00	3,582 056.25	3,579 545.4545	4,43361875	3,575 611.49

Table 2.6-1

NTSC EIA/EIAJ Setup

You can setup the NTSC signal with 7.5% (EIA Standard) or 0% (EIAJ Standard). Press **SETUP** until the button illuminates. Turn the control knob until you see **OUTPUT 525 EIA 7.5% SETUP** or **OUTPUT 525 EIAJ 0%**. Press the **SETUP** button repeatedly until you see the required standard.

YUV Setup

Press **SETUP** until the button illuminates. Turn the knob until you see **INPUT COMPONENT SMPTE / EBU N10** or **INPUT COMPONENT BETACAM**. Press the **SETUP** button repeatedly to select the appropriate mode.

3. Front Panel Signal Controls

3.1 Signal Adjustment Procedure

The display may look like this

P A L - - N T S C	
Y G A I N 1 0 0 . 0 %	Signal Adjustment Status Line

Of interest here is the second line. The line shows the selected signal parameter and the value. The procedure is as follows :

1. Select the function in the CONTROL group. For example : Y GAIN.
2. Turn the knob left or right to adjust the signal to the required value. We recommend testing equipment for the adjustments. If you use the dB values as reference for your adjustments, make sure that the unit is calibrated. This should be done periodically and every time you change the video source.

The adjustments in the CONTROL group will not be saved permanently unless

- you store them with the STORE STARTUP command in the SETUP menu.
- the SAVE CONTROL VALUES AUTO is selected in the SETUP menu.

3. Turn the knob to the left until you see 'EXIT SETUP' and press the SETUP button.

3.2 Luminance (Y) Signal Adjustments

Luminance Amplitude

Access	Press the Y GAIN button in the CONTROL group. The second line in the display shows Y-GAIN. The following number depends on the adjustment.
CONTROL Label.....	Y GAIN
Test Instrument(s)	Waveform monitor, Oscilloscope.
Preparation(s)	
Reference	
Procedure	Turn the knob left (right) and adjust to nominal value.
Adjustment Range	50% to 199.1%.
Nominal Value.....	100%.
Note	

Black Reference Level

Access	Press the BLACK button in the CONTROL group. The second line in the display shows BLACKLEVEL. The following number depends on the adjustment.
CONTROL Label.....	BLACKLEVEL
Test Instrument(s)	Waveform monitor, Oscilloscope.

Preparation(s) Check the signal on the Y or CVBS output.
 Reference
 Procedure Turn the knob left or right and adjust to 0.
 Adjustment Range -32 to 32.
 Nominal Value 0.
 Note

	PAL	SECAM	PAL-N	NTSC	NTSC 4.43	PAL-M
Lines	625	625	625	525	525	525
Fields/Seconds	50	50	50	59.95	59.95	60
Frames/Seconds	25	25	25	29.975	29.975	30
Black Level	0%	0%	0%	EIA = 7.5% EIAJ = 0%	EIA = 7.5% EIAJ = 0%	7.5%
Color Frequency (MHz)	4,43361875	FOR 4,406 250.00 FOB 4,250 000.00	3,582 056.25	3,579 545.4545	4,43361875	3,575 611.49

Table 3.2-1

3.3 Chroma Signal Adjustments

Chroma Amplitude

Access Press the **C GAIN** button in the CONTROL group. The second line in the display shows C GAIN. The following number depends on the adjustment.
 CONTROL Label C GAIN
 Test Instrument(s)..... Vectorscope (Waveform Monitor).
 Preparation(s) Check the signal on the CVBS output.
 Reference
 Procedure Turn the knob left (right) and adjust to 100%.
 Adjustment Range 0.0% to 200.0%.
 Nominal Value 100%.
 Note

U – Offset

Access Press the **OFFSET U** button in the CONTROL group. The second line reads U OFFSET. The following number depends on the adjustment.
 CONTROL Label U OFFSET
 Test Instrument(s)..... Vectorscope.
 Preparation(s) Check the signal on the CVBS output.
 Reference
 Procedure Turn the knob left (right) and adjust to 0.
 Adjustment Range -15 to 15.
 Nominal Value 0.
 Note

V – Offset

Access	Press the OFFSET V button in the CONTROL group. The second line reads V OFFSET. The following number depends on the adjustment.
CONTROL Label.....	V OFFSET
Test Instrument(s).....	Vectorscope.
Preparation(s)	Check the signal on the CVBS output.
Reference	
Procedure	Turn the knob left (right) and adjust to 0.
Adjustment Range	-15 to 15.
Nominal Value.....	0.
Note	

Horizontal Chroma Delay

Access	Press the C DELAY H button in the CONTROL group. The second line reads CH DEL H. The following number depends on the adjustment.
CONTROL Label.....	CH DEL H
Test Instrument(s).....	Waveform Monitor, Oscilloscope, Monitor.
Preparation(s)	Check the signal on the CVBS output.
Reference	
Procedure	Turn the knob left (right) and adjust to 0.00 μ s.
Adjustment Range	-0.52 μ s to 0.44 μ s.
Nominal Value.....	0.00 μ s.
Note	

Vertical Chroma Delay

Access	Press the C DEL V button in the CONTROL group. The second line reads CH DEL V. The following number depends on the adjustment.
CONTROL Label.....	CH DEL V
Test Instrument(s).....	Monitor.
Preparation(s)	Check the signal on the CVBS output.
Reference	
Procedure	Turn the knob left (right) and adjust to 0.
Adjustment Range	-3 to 3 lines.
Nominal Value.....	0.
Note	

NTSC Hue

Access	Press the NTSC HUE button in the CONTROL group. The second line reads NTSC HUE 0°. The following number depends on the adjustment.
CONTROL Label.....	NTSC HUE
Test Instrument(s).....	Vectorscope (Monitor).
Preparation(s)	Check the signal on the CVBS output.
Reference	

Procedure	Turn the knob left (right) and adjust to 0°.
Adjustment Range	0° ... 358° ... 0°.
Nominal Value	0°.
Note	

3.4 Picture Enhancements

Horizontal Enhancement

Access	Press the ENH H button in the CONTROL group. Display line 2 reads ENHANCE H 0. The number represents the enhancement level and may vary.
CONTROL Label	ENHANCE H
Test Instrument(s).....	Monitor.
Preparation(s)	Check the signal on the CVBS output.
Reference	
Procedure	Turn the knob left (right) and enhance the picture as needed.
Adjustment Range	0 to 7.
Nominal Value	
Note	0 = no enhancement, 7 = maximum enhancement.

Vertical Chroma Enhancement

Access	Press the ENH V button in the CONTROL group. The second line in the display reads ENHANCE V 0. The number represents the enhancement level and may vary.
CONTROL Label	ENHANCE V
Test Instrument(s).....	Monitor.
Preparation(s)	Check the signal on the CVBS output.
Reference	
Procedure	Turn the knob left (right) and enhance the picture as needed.
Adjustment Range	0 to 7.
Nominal Value	
Note	0 = no enhancement, 7 = maximum enhancement.

3.5 Noise Reduction

Access	Press the NOISE button in the CONTROL group. The second line in the display reads NOISE RED. 0. The number represents the NOISE REDUCTION level and may vary.
CONTROL Label	NOISE
Test Instrument(s).....	Monitor.
Preparation(s)	Check the signal on the CVBS output.
Reference	
Procedure	Turn the knob left (right) to remove the noise.
Adjustment Range	0 to 3.
Nominal Value	
Note	0 = no noise reduction, 3 = maximum noise reduction.

3.6 Picture Adjustment

Horizontal Phase (H-Position)

Access	Press the H-PHASE button in the CONTROL group. The second line in the display reads H PHASE 0.00us. The number may vary depending on the adjustment.
CONTROL Label.....	H PHASE
Test Instrument(s).....	Monitor, Oscilloscope, Waveform Monitor.
Preparation(s)	Check the signal on the CVBS output.
Reference	
Procedure	Turn the knob left (right) and adjust to 0.00μs.
Adjustment Range	-1.19μs TO 1.18μs.
Nominal Value.....	0.00μs.
Note	-

Horizontal Zoom

Access	Press the H-ZOOM button in the CONTROL group. Line 2 in the display reads ZOOM 0 (the zoom factor may vary).
CONTROL Label.....	ZOOM
Test Instrument(s).....	Monitor.
Preparation(s)	Check the signal on the CVBS output.
Reference	
Procedure	Turn the knob left (right) and adjust to 0.
Adjustment Range	-8 to 7.
Nominal Value.....	0.
Note	

3.7 Audio Delay Line

Audio Delay

- Access Press the **AUDIO** button in the CONTROL group (if you don't see the AUDIO DEL 042ms press again). The delay time depends on the video standard and the adjustment.
- CONTROL Label AUDIO DEL.
- Test Instrument(s).....
- Preparation(s).....
- Reference.....
- Procedure Turn the knob left (right) and adjust to the required delay time.
- Adjustment Range 2 to 999 ms (milliseconds).

Nominal

INPUT	OUTPUT	DELAY
PAL	PAL	022
PAL	PAL-N	022
PAL	SECAM	022
PAL	NTSC	042
PAL	N 443	042
PAL	PAL-M	042
PAL-N	PAL	022
PAL-N	PAL-N	022
PAL-N	SECAM	022
PAL-N	NTSC	042
PAL-N	N 443	042
PAL-N	PAL-M	042
SECAM	PAL	022
SECAM	PAL-N	022
SECAM	SECAM	022
SECAM	NTSC	042
SECAM	N 443	042
SECAM	PAL-M	042

Table 3.7-1

INPUT	OUTPUT	DELAY
NTSC	PAL	035
NTSC	PAL-N	035
NTSC	SECAM	035
NTSC	NTSC	018
NTSC	N 443	018
NTSC	PAL-M	018
N 443	PAL	035
N 443	PAL-N	035
N 443	SECAM	035
N 443	NTSC	018
N 443	N 443	018
N 443	PAL-M	035
PAL-M	PAL	035
PAL-M	PAL-N	035
PAL-M	SECAM	035
PAL-M	NTSC	018
PAL-M	N 443	018
PAL-M	PAL-M	018

Table 3.7-2

Note..... The nominal value will be set automatically every time you select the input (output) standard.

Audio Gain

- Access Press the **AUDIO** button in the CONTROL group repeatedly until you see the AUDIO GAIN 0.00dB. The number you see depends on the adjustment
- CONTROL Label..... AUDIO GAIN
- Test Instrument(s).....
- Preparation(s)
- Reference
- Procedure Turn the knob left (right) and adjust to the required gain.
- Adjustment Range

-6.0	-4.5	-3.0	-1.5			
0.00	1.5	3.0	4.5	6.0	7.5	9.0
10.5	12.0	13.5	15.5	16.5		

- Nominal 0.0db (no additional gain)
- Note The audio delay interface is optional and may not be present.

3.8 System Synchronization

Before you perform the adjustments described make sure that

- ✓ A black-burst or composite video signal is supplied to the genlock input on the rear panel.
- ✓ The genlock signal is the same standard as the selected output standard on the converter.
- ✓ The genlock mode is enabled.

Genlock H

Access	Press the GENLOCK H button in the CONTROL group. Line 2 in the display reads GENLOCK H 0.00 μ s. The number may vary.
CONTROL Label	GENL H
Test Instrument(s).....	Oscilloscope.
Preparation(s)	Check the signal on the CVBS output.
Reference	
Procedure	Turn the knob left (right) and adjust to 0.00 μ s.
Adjustment Range	-1.89 to 1.44 μ s.
Nominal Value	0.00 μ s.
Note	

Genlock SC/H Phase

Access	Press the GENLOCK H button in the CONTROL group. Line 2 in the display reads SC/H PHASE 0°. the number depends on the adjustment and may vary.
CONTROL Label	GENL SC
Test Instrument(s).....	Vectorscope.
Preparation(s)	Check the signal on the CVBS output.
Reference	
Procedure	Turn the knob left (right) and adjust to 0°.
Adjustment Range	0° to 358°.
Nominal Value	0°.
Note	

4. Rear Panel

4.1 Rear Panel View

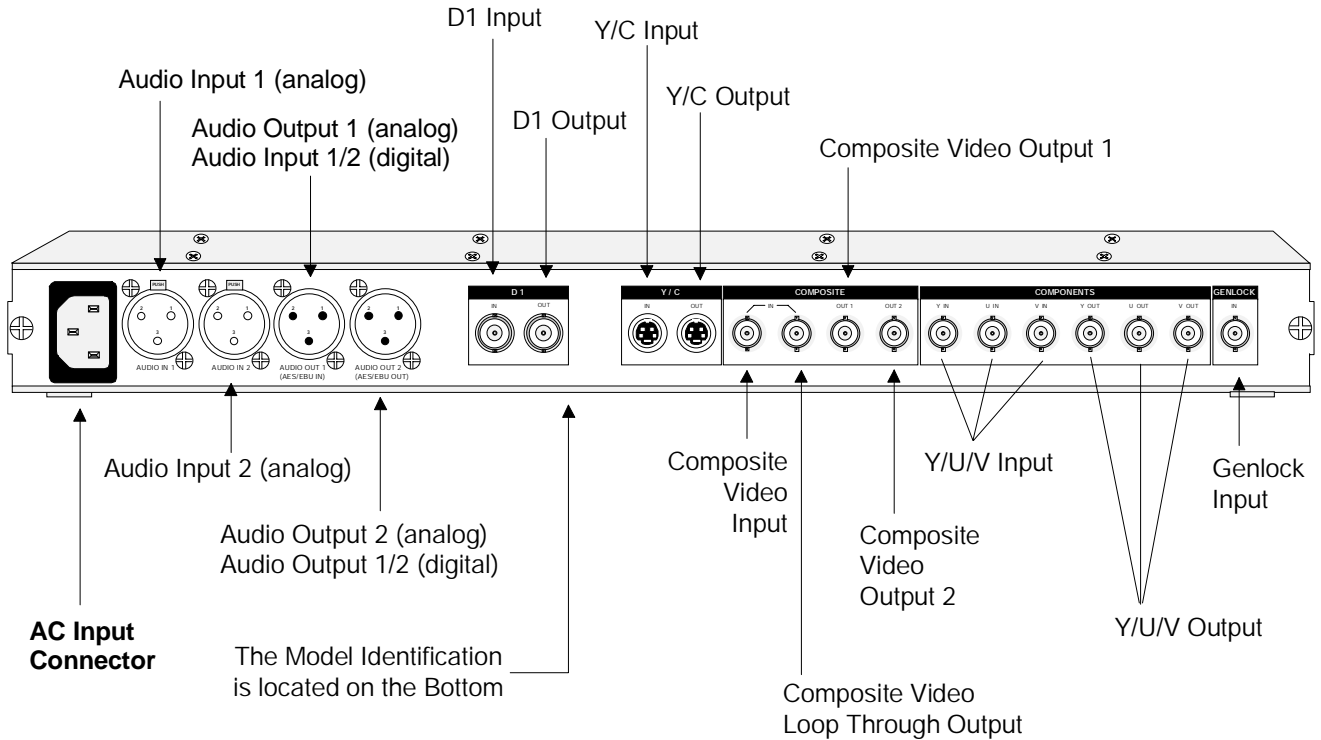
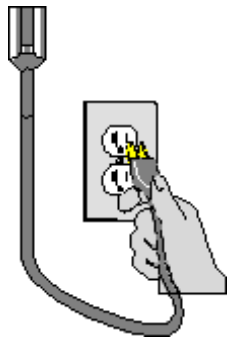


Figure 4.1-1



~110 (220) Volt AC Outlet

Figure 4.1-2

Connect the supplied 3-wire grounding type power cable to the AC IN connector. This plug will fit only into a grounding type outlet. For safety, do not use any other type of cable. Contact your local electrician if your wall outlet does not meet the requirements. Do not defeat the safety purpose of the grounding type cable. If you use an extension cord, make sure it is from the same type. The standards converter works within an AC-power range from 100 VAC to 240 VAC.

The wall outlet shown in Figure 4.1-2 varies from country to country. Should the standards converter be used outside the United States you may need a different power cable. Ask your dealer for the appropriate power cable.

4.2 CVBS Video Input & Output

CVBS Input



Figure 4.2-1

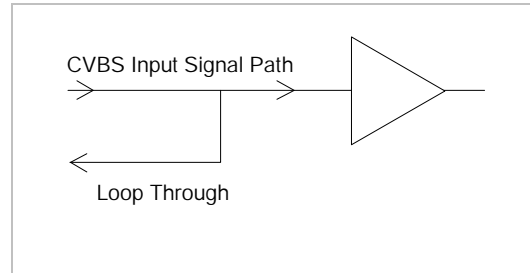


Figure 4.2-2

Connect the CVBS source to the Input.

- If the input is terminated leave the loop through output open.
- If the termination is OFF connect other video equipment to the loop through output and terminate the last machine with 75 ohm.

Terminate CVBS Video Input

- Press the **SETUP** button.
- Turn the knob until you see in line two the word 'TERMINATION'. If it says 'TERMINATION ON' the input is terminated and you can leave the setup procedure. If you see 'TERMINATION OFF' press the **SETUP** button once. The display shows 'TERMINATION ON'.
- Terminate Setup Procedure
- Turn the knob left until you see 'EXIT SETUP'.
- Press the **SETUP** button to terminate the **SETUP** procedure.

Loop Through Setup

- Connect the CVBS source to the Input.
- Connect the equipment to the loop through output.
- Switch the internal 75 ohm termination on the front panel OFF.
- Press the **SETUP** button.
- Turn the knob until you see in line two the word 'TERMINATION'. If it says 'TERMINATION OFF' the input is not terminated and you can leave the setup procedure. If you see 'TERMINATION ON' press the **SETUP** button once. The display shows 'TERMINATION OFF'.
- Terminate Setup Procedure
- Turn the knob left until you see 'EXIT SETUP'.
- Press the **SETUP** button to terminate the **SETUP** procedure.



Why 75 ohm termination ?

All inputs must be terminated with 75 ohm to match the characteristic impedance of the coaxial cable and to minimize reflections and return loss. A missing termination usually causes an increase of 6db or 1Vp-p.

A termination with other than 75 ohm may lead to distortion. The 75 ohm termination must be seen as an integral part of the system as well as the video cable. Use only 75 ohm coaxial cable and keep all cable connections to their minimum length.

CVBS Video Output

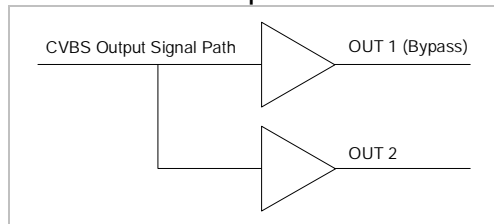


Figure 4.2-3



Figure 4.2-4

The system provides two independent outputs for the composite (CVBS) signal (Figure 4.2-4). The output level is 1Vp-p at 75 ohm. In BYPASS mode, the CVBS input signal is routed directly through output 1. Only output 1 supplies the video signal in BYPASS mode.

4.3 Y/C Video Input & Output



Figure 4.3-1

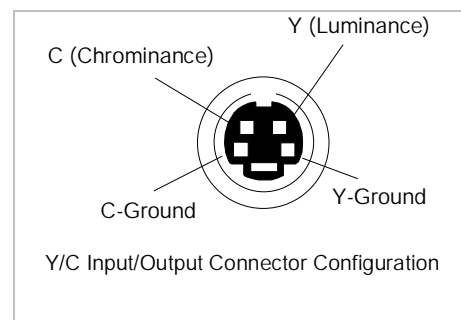


Figure 4.3-2

The Y/C INPUT is located in the Y/C group labeled Y/C. Connect the Y/C source output to the Y/C input from the standards converter. Please observe that you need a special cable in order to do that. The separation of luminance and chrominance leads to a clearer color picture, avoiding the cross-luminance and cross-chrominance interference that results when Y and C are combined to form a single composite signal.

The Y/C (S-Video) output is located in the same group. The Y/C signal is available simultaneously with the composite video (CVBS), Y/U/V and the D1 signal. Connect the Y/C equipment to the Y/C output connector.

4.4 YUV Video Input & Output

Figure 4.4-1 shows the components input and output connectors. Connect the Y-signal (Y+S) to the “Y IN” input in the COMPONENTS group. The U-signal (B-Y) to the “U IN” input and the V-signal (R-Y) to the “V IN” input. All inputs are terminated internally with 75 ohm. Make sure that all three cables have the same length to avoid different delay times. If you have different delay times, you can not adjust them on the standards converter.

The Y/U/V output provides the Y+S (luminance + synchronization pulse), U (B-Y) and the V-signal (R-Y).

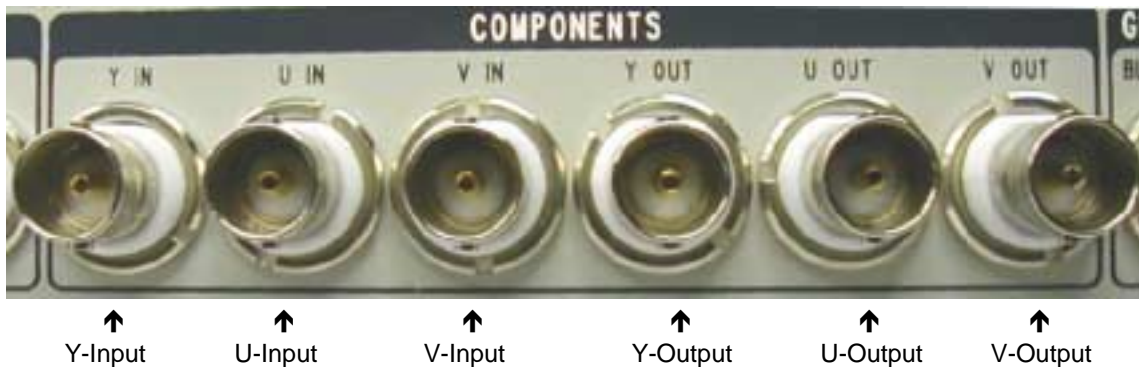


Figure 4.4-1

4.5 D1 Video Input & Output

Figure 1.5-1 shows the D1 input and output connector. The D1 BNC connectors are only present if the SDI (Serial Digital Interface) interface is installed. Supply the input signal to the **IN** connector. The output signal is available simultaneously with all other output signals on the **OUT** connector.

Note : The D1 Interface is optional.



Figure 4.5-1

4.6 External Synchronization (Genlock)

The standards converter can be synchronized externally. Supply a black-burst signal to the GENLOCK INPUT and enable the GENLOCK mode on the front panel. Once the unit operates in genlock mode, you can adjust the H-Phase as well as the subcarrier-to-horizontal phase on the front panel.

A note of caution !

The output signal becomes unstable if you work in genlock mode without synchronizing the unit from a stable source..



Figure 4.6-1



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