

AVBRIDGE XL USER MANUAL

Document # UMAVBXL002 Rev. AVBXL.002

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1 Introduction

Dear customer,

you decided to buy the AVBridge XL. This machine is not only a standards converter but gives you a variety of additional functionality. Here is a short overview :

- Video ProcAmp
- Standards Converter linear (standard) / Motion Vector (option)
- Enhancement, Noise Reduction with linear and median filters
- Aspect Ratio Converter
- HD UP/Down/Crossconversion (optional)
- DV / Firewire I/O (optional)
- Timecode Generation / Regeneration / Conversion
- Audio Embedding / Deembedding (optional)
- Audio Routing, Delay and Level Control

1.1 Extent of Delivery

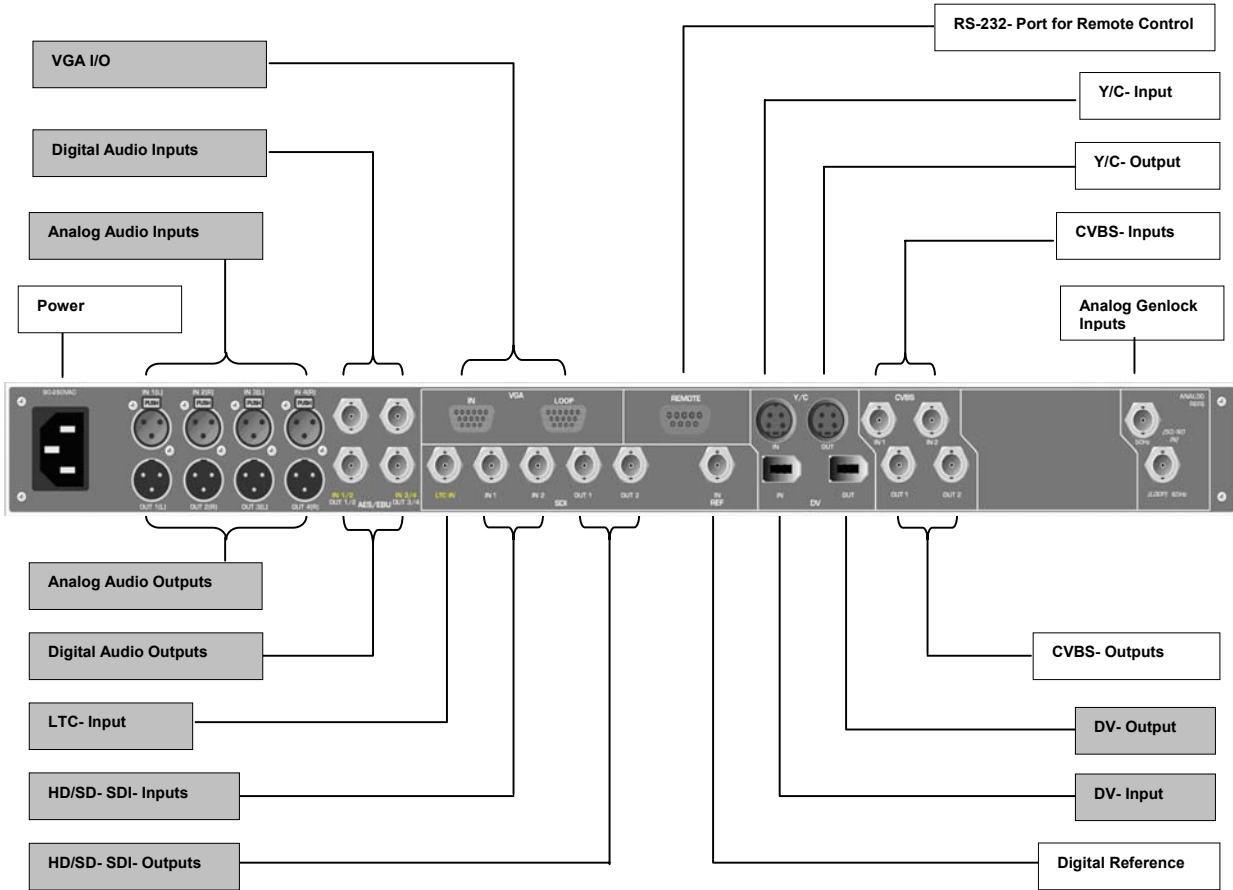
The system comes with

- CD including this documentation and the Remote Control Control Software (occasionally optional)
- Power Chord

Please check for completeness. If items are missing, please contact your dealer.

1.2 Connectors

This rear panel view shows the connectivity of the system. Optional connectors are shown with grey background.



Power	The power connector conforms to IEC 60320-1/C14. The unit accepts 100 – 260VAC with either 50Hz or 60Hz.
Analog Audio Inputs*	The unit supports 4 independant analog audio channels. The first channel is located leftside besides the power connector (rear view). The audio connectors use mini XLR plugs. Standard input levels are calibrated to 0dBu = -15dBfs. Connector assignment : Input 1 = Audio 1, left channel Input 2 = Audio 1, right channel Input 3 = Audio 2, left channel Input 4 = Audio 2, right channel
Digital Audio Inputs*	Two input connectors for AES/EBU or S/PDIF signals are provided The first input is located left (rear view) besides the analog audio The connectors are of BNC type.
LTC- Input *	This input is dedicated to connect LTC timecode sources as Beta-cam, or external timecodegenerators It supports levels conforming to SMPTE und EBU. The connector is of BNC type.
Y/C- Input	Dedicated to analog S-Video. A Mini- DIN or Hosiden - tyoe connector is used.
CVBS- Inputs	Dedicated to analog CVBS video. The connectors are of BNC type.
VGA I / O *	Input for analog VGA signals (loop through)
DV- Input *	Supports miniDV-, DV-, DVCAM- or DVCpro - sources. A 6-pin IEEE1394- or Firewire- connector is used
SDI- Inputs *	Two selectable SDI inputs conforming to SMPTE.259M / 272 M The connectors are of BNC type.
Analog Genlock Reference Inputs	Accepts Blackburst- or Composite- Video. Can be configured as loop-or dual inputs. The connectors are of BNC type.
Digital Genlock Input *	Accepts digital video conforming to SMPTE.259M / 272 M
RS-232 Port for Remote Control	used to connect the system with an external PC or Network Interface. Sub-D 9-pin female plug.

Analog Audio Outputs*

The unit supports 4 independent analog audio channels. The first channel is located leftside besides the power connector (rear view). The audio connectors use mini XLR plugs. Standard output levels are calibrated to 0dBu = -15dBfs.

Connector assignment :

Input 1 = Audio 1, left channel

Input 2 = Audio 1, right channel

Input 3 = Audio 2, left channel

Input 4 = Audio 2, right channel

Digital Audio Outputs*

Two output connectors for AES/EBU or S/PDIF signals are provided. The first output is located left (rear view) besides the analog audio. The connectors are of BNC type.

Y/C- Output

Provides an S-Video- Signal.

A Mini- DIN or Hosiden - type connector is used.

CVBS- Outputs

Provides CVBS Composite- Video Signals.

The outputs can be setup in various configurations.

CVBS2 alternatively supports LTC-Timecode

The connectors are of BNC type.

DV- Output *

Provides miniDV-, DV-, DVCAM- oder DVCpro- Signals.

A 6-pin IEEE1394- or Firewire- connector is used

SDI- Outputs *

Two SDI outputs conforming to SMPTE.259M / 272 M

The connectors are of BNC type.

* optional

1.3 Power



1. Connect the power cable to the unit
2. Press the Power switch to turn the unit ON. All control lights will illuminate until the system ends its boot procedure. During this, the following message appears in the display :

```
booting system  
please wait...
```

If no button lights up after the start period check the **LED Bright** setting in the **panel menu**. The adjustment must be greater than zero in order to illuminate the lights

1.4 Remote Control Software

The AVBridge XL package may contain a software to control the unit via PC. Using the software has some essential advantages versus operating the unit via the local control panel

1. the complete range of functions is supported
2. in many situations, the software does it far more clearly and self explaining.

If it is necessary to connect the systems to a network, special RS232- to Ethernet- Converters are provided as an option.

1.4.1 System Requirements

To use the software, the PC should support the following requirements

- Prozessor speed greater than 1GHz
- 512MB Ram
- Microsoft Windows 2000, XP, 2003
- At least 10MB disc capacity
- Screen resolution 1024 x 768 or better, 65.535 colours or better

1.4.2 Installation

To install the Remote Control Software please proceed as follows:

- Insert the CD into your CD-/DVD- drive. In most cases, an explorer window will appear which shows the content of the CD. If this should not be the case, please select and open the CD manually.
- Select the folder „Software“ and click on „setup.exe“.
- Please wait until the installation program has been started.
- Click on „proceed“.
- Select the folder for the installation or accept the proposed folder and click on „proceed“.
- Select the name for the start menu or accept the proposal and click on „proceed“..
- Now the installation software shows the current setup. Please confirm with „proceed“..
- The software will be installed. Please wait until the process is completed.
- Click on „proceed“ to finish and exit the installation program.
- The software now is installed and can be started.

1.5 Front Panel Control

1.5.1 Functions

Nearly every function of the system can be controlled via the local keyboard. There are some exceptions :

- Audio routing
- Separate Audiogain and -level
- Separate Audio
- VBI- Setup
- Special Timecode properties

For these functions, you can recall special setup configurations which can be defined using the remote control software.

1.5.2 Key Properties

There are three groups of keys with different properties.

- Toggle key (directly modifies the parameter of a function)
- Shortcut key (provides fast access of a dedicated function bypassing the menu structure)
- Submenu key (provides fast access of a submenu)

1.5.2.1 Toggle keys

- **CVBS**
- **Y/C**
- **DV**
- **SDI 1, SDI 2**
- **VGA**
- **Black**
- **Bars**
- **Freeze**
- **TBC**
- **AGC**
- **Black/White**
- **Median Shape/Mode/Frame**
- **Disable**
- **Audio Mute**

When pressed, these keys directly change the status of the related function.

The red LED of inside the key indicates whether the relation function is active or not.

The keys which cover the source selection have a special behaviour. Pressing one of these keys selects the desired input and activates the related context menu.

Flashing of the LED further signals loss of signal on the input . Reason could be either loss of signal or a wrong input standard etc. If this occurs, please also check the status of the automatic standard selection.

1.5.2.2 Shortcut keys

- **Standard**
- **Blacklevel**
- **Gain Y**
- **Gain C**
- **Aspect**
- **Pan**
- **Scan**

These keys point directly to a menu function and allow parameter modification via the rotary knob. The red LED of the key is used to signal two different events.

- Flashing indicates that the parameter can be modified via the rotary knob.
- Steady light indicates that the parameter is modified to nonstandard. In this case, normally the function modifies the related signal.

Pressing the key for about 2 seconds will set the parameter value back to default.

1.5.2.3 Submenu keys

- **Interpolation**
- **Crop**
- **Zoom**
- **Noise**
- **Horizontal / vertical Enhancement (HAC, VAC)**
- **Audio**
- **Timing**
- **Preset**

These keys point to the related submenu. It normally contains more than one function, which can be operated via the keys **Menu** and **Select** and the the rotary knob.

The red LED of these keys is used to indicate the following:

- Flashing indicates that the related menu is activated.
- Steady light indicates that one of the related functions has a nondefault parameter. In this case, normally the function modifies the related signal.

Pressing the key for about 2 seconds will set all parameter values of the related manue back to default.

1.5.3 Menu Properties

The main menu is operated via the keys **Menu** and **Select** and the rotary knob.

The key **Menu** activates / deactivates the selected menu. The system stores the last active position and recalls it when entering the menu again.

If you wish to go to the menu start, please deactivate the menu and activate it again.

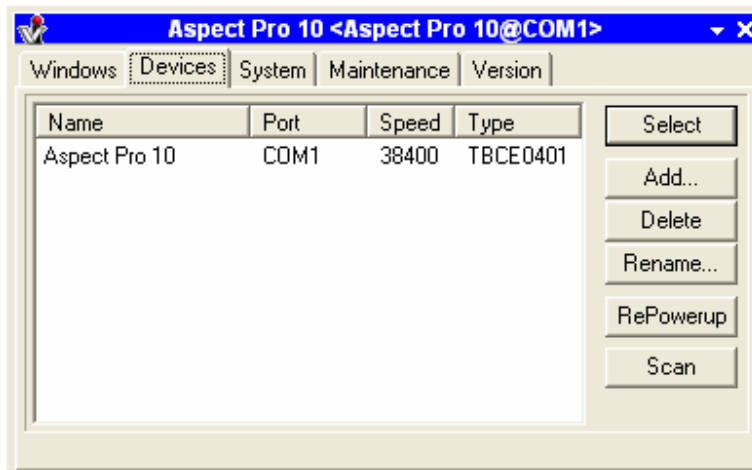
All menus are operated similar. The cursor is moved by the rotary knob while the key **Select** recalls the menu item.

If the cursor is on ↑, the key **Select** triggers a jump to the next level in the menu tree.

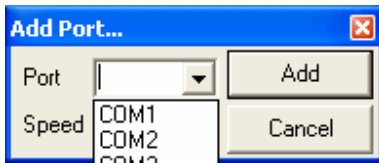
If the cursor points to a parameter, it can be modified via the rotary knob. To leave this status, please press **Select**.

1.6 Using the Remote Control Software

The Remote Control Software supports all the functions of the system. It allows a very intuitive and well arranged presentation of the functions in use.



1-1



1-2

1.6.1 Device Registration on the PC

To connect the PC to a system, there are two possibilities:

- Scanning all the serial interfaces available on the PC
In the main menu (1-1), please click „Devices“ and afterwards „scan“. Now the software checks all available serial interfaces on the presence of a system. The procedure can be observed looking at the device list.
If only one systems is detected, the software automatically connects.
- Adding an interface manually
In the main menu (1-1), please click „Devices“ and afterwards „Add“. The window „Add Port...“ (1-2) appears. Please select the desired serial interface, set it to 38.400baud and click „Add“. Now the software checks the selected port, reads out the type of system and its name and connects.

1.6.2 Device selection on the PC

The software is capable to administer more than one device. All windows and their positions are stored independently for the different instances.

To select a specific system, please use the main menu (1-1) and click on „Devices“. Out of the list, select the desired system and click on „Select“.

Alternatively, you can double click on the selected list entry. Then the software connects to the system and recalls all the windows and their positions as they were specified at the last session.

2 Housekeeping Functions

2.1 Introduction

This chapter describes some basic setup functions.

2.1.1 Keyboard button light

Controls the intensity of the button lights

2.1.1.1 Via Menu

1. Press **Menu**
2. Turn the rotary knob until the cursor points to **Panel**
3. Press **Select**
4. Turn the rotary knob until the cursor points to **LED BRIGHT**
5. Press **Select**
6. Turn the rotary knob to adjust the intensity

2.1.1.2 Via Shortcut

n/a

2.1.1.3 Via Remote Control Software

n/a

2.1.2 Keyboard display contrast

Controls the contrast of the alphanumeric readout.

2.1.2.1 Via Menu

1. Press **Menu**
2. Turn the rotary knob until the cursor points to **Panel**
3. Press **Select**
4. Turn the rotary knob until the cursor points to **Contrast**
5. Press **Select**
6. Turn the rotary knob to adjust the contrast

2.1.2.2 Via Shortcut

n/a

2.1.2.3 Via Remote Control Software

n/a

3 Video Input

3.1 Input Source and Standard Selection

3.1.1 Input Source

The AVBRIDGE XL supports the following input sources :

- a) Analog composite video (CVBS)
- b) Analog separate luminance / modulated chrominance (Y/C)
- c) Analog components. The input can be setup in different configurations :
 - color difference signals Y(S)CrCb with sync in Y
 - color difference signals YCrCb with separate sync (use the CVBS2 connector for separate Synch)
 - primary colors RG(S)B with sync in G
 - primary colors RG(S)B with separate sync (use the CVBS2 connector for separate Synch)
 - various level setup in YxCrCb mode
- d) Analog VGA – optional.
Supports all common formats from 640x400 up to 2048x1536 with refresh rates up to 120Hz
- e) DV / Firewire input (IEEE1394) – optional.
The DV interface supports DVCAM and DVCPro.
- f) Digital components conforming to SMPTE 259M / 272M - optional

3.1.1.1 Via Menu

1. Press **Menu**
2. Turn the rotary knob until the cursor points to **Input**
3. Press **Select**
4. Turn the rotary knob until the cursor points to **Source**
5. Press **Select**
6. select the desired input

3.1.1.2 Via Shortcut

1. Press the corresponding key in the input field.
2. The desired input will be selected immediately

3.1.1.3 Via Remote Control Software

1. Open the window **Input**
2. Select the desired input
3. The desired input will be selected immediately

3.1.2 Automatic Input Standard Selection

The system is able to detect the supported standards automatically. This feature can be switched off if desired.

3.1.2.1 Via Menu

1. Press **Menu**
2. Turn the rotary knob until the cursor points to **Input**
3. Press **Select**
4. Turn the rotary knob until the cursor points to **Autosel**
5. Press **Select**
6. Select ON / OFF

3.1.2.2 Via Shortcut

1. Press the corresponding key in the input field
2. the menu will show **Autosel**
3. Press **Select**
4. Select ON / OFF

3.1.2.3 Via Remote Control Software

1. Open the window **Input**
2. select the desired status via **Autoselect**

3.1.3 Manual Input Standard Selection

Normally, you would use the automatic standard selection (see 3.1.2). But under special circumstances (e.g. instable input signal), it can be usefull to define the input standard manually.

You can not select the standard manually as long as the automatic is ON

3.1.3.1 Via Menu

1. Press **Menu**
2. Turn the rotary knob until the cursor points to **Input**
3. Press **Select**
4. Turn the rotary knob until the cursor points to **Standard**
5. Press **Select**
6. Select the desired standard. If it is not possible to select a standard manually, please check whether automatic selection is enabled (see 3.1.2).
7. The system may need up to 1sec to detect the incoming standard.

3.1.3.2 Via Shortcut

1. Press the key **STD** in the input field twice.
2. Select the desired standard. If it is not possible to select a standard manually, please check whether automatic selection is enabled (see 3.1.2).
3. The system may need up to 1sec to detect the incoming standard.

3.1.3.3 Via Remote Control Software

1. Open the window **Input**
2. select the desired standard

3.2 Various Input Setup Features

Some inputs occasionally need additional setup.
This chapter contains the supported features.

3.2.1 Black/White

Disables colour information.

3.2.1.1 Via Menu

1. Press **Menu**
2. Turn the rotary knob until the cursor points to **Mode**
3. Press **Select**
4. Turn the rotary knob until the cursor points to **B/W**
5. Press **Select**
6. Select „color“ / „B/W“

3.2.1.2 Via Shortcut

1. Press the key **B/W** in the INPROC section.
2. The function will change its status with every operation (toggle key)

3.2.1.3 Via Remote Control Software

1. Open the window **Input**
2. click **B/W** or **Color** in the option field. The B/W status will be marked red as a warning

3.2.2 Pedestal

For 60Hz Input standards, the pedestal can be set to EIA (setup 7.5 IRE) or EIAJ (no setup)

3.2.2.1 Via Menu

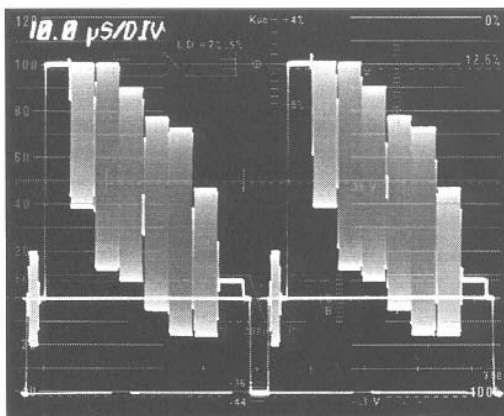
1. Press **Menu**
2. Turn the rotary knob until the cursor points to **Input**
3. Press **Select**
4. Turn the rotary knob until the cursor points to **Pedestal**
5. Press **Select**
6. Select **EIA** or **EIAJ**

3.2.2.2 Via Shortcut

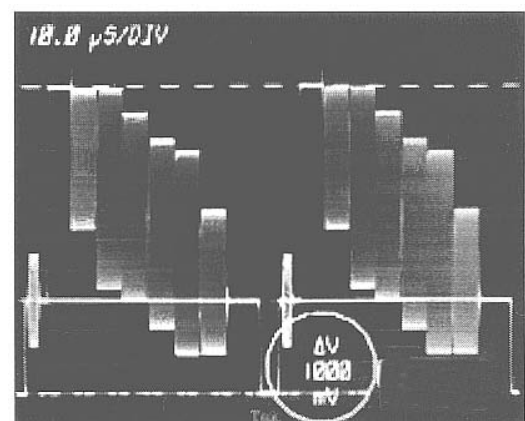
1. Press the key **STD** in the INPUT section.
2. Select **PEDESTAL** via the rotary knob
3. Press **Select**
4. Select **EIA** or **EIAJ**

3.2.2.3 Via Remote Control Software

1. Open the window **Input**
2. click **EIA** or **EIAJ** in the pedestal field



A 1Vp-p NTSC Composite Video Signal with 7.5 IRE Setup



A 1Vp-p PAL Composite Signal

3.2.3 Decode

The CBVS Decoder can be switched between Combfilter operation and Notch filter

The Notch option sets the input decoder into a notch mode. This does not provide wide bandwidth performance as all frequencies around the subcarrier frequency are removed from the luminance signal. This mode is recommended for unstable input sources (such as VHS and U-Matic tape sources). This is not generally a problem, as this type of source machine does not have a frequency response past the subcarrier frequency. In composite input mode, the full bandwidth comb would normally be selected. This function is available only for composite input signals.

3.2.3.1 Via Menu

1. Press **Menu**
2. Turn the rotary knob until the cursor points to **Input**
3. Press **Select**
4. Turn the rotary knob until the cursor points to **Decode**
5. Press **Select**
6. Select **comb** or **notch**

3.2.3.2 Via Shortcut

1. Press the key **STD** in the INPUT section.
2. Select **Decode** via the rotary knob
3. Press **Select**
4. Select **comb** or **notch**

3.2.3.3 Via Remote Control Software

1. Open the window **Input**
2. click **comb** or **notch** in the CVBS field

3.2.4 TBC

The systems uses different Decoders for unstable and studio type signal on the input.
TBC ON -> medium performance of the decoding process but support of unstable signals
TBC OFF -> high performance, but decoding of unstable or poor input signal may fail.

3.2.4.1 Via Menu

1. Press **Menu**
2. Turn the rotary knob until the cursor points to **Input**
3. Press **Select**
4. Turn the rotary knob until the cursor points to **TBC**
5. Press **Select**
6. Select **ON** or **OFF**

3.2.4.2 Via Shortcut

1. Press the key **STD** in the INPUT section.
2. Select **TBC** via the rotary knob
3. Press **Select**
4. Select **ON** or **OFF**

3.2.4.3 Via Remote Control Software

1. Open the window **Input**
2. click **TBC**. When yellow **TBC** is selected

3.2.5 AGC

The AGC automatically adjusts to the incoming video level

3.2.5.1 Via Menu

1. Press **Menu**
2. Turn the rotary knob until the cursor points to **Input**
3. Press **Select**
4. Turn the rotary knob until the cursor points to **AGC**
5. Press **Select**
6. Select **ON** or **OFF**

3.2.5.2 Via Shortcut

1. Press the key **STD** in the INPUT section.
2. Select **AGC** via the rotary knob
3. Press **Select**
4. Select **ON** or **OFF**

3.2.5.3 Via Remote Control Software

1. Open the window **Input**
2. click **AGC**. When yellow **AGC** is selected

3.2.6 Input CVBS Termination

Selects Input Termination

3.2.6.1 Via Menu

1. Press **Menu**
2. Turn the rotary knob until the cursor points to **Input**
3. Press **Select**
4. Turn the rotary knob until the cursor points to **TERM CVBS**
5. Press **Select**
6. Select **75Ω** or **Hi-Z**

3.2.6.2 Via Shortcut

1. Press the key **STD** in the INPUT section.
2. Select **TERM CVBS** via **the** rotary knob
3. Press **Select**
4. Select **75Ω** or **Hi-Z**

3.2.6.3 Via Remote Control Software

1. Open the window **Input**
2. click **TERM**. When yellow **75Ω** is selected

3.2.7 Input Component Termination

Selects Input Termination for the Component input.

3.2.7.1 Via Menu

1. Press **Menu**
2. Turn the rotary knob until the cursor points to **Input**
3. Press **Select**
4. Turn the rotary knob until the cursor points to **TERM Comp**
7. Press **Select**
8. Select **75Ω** or **Hi-Z**

3.2.7.2 Via Shortcut

1. Press the key **STD** in the INPUT section.
2. Select **TERM Comp** via the rotary knob
3. Press **Select**
4. Select **75Ω** or **Hi-Z**

3.2.7.3 Via Remote Control Software

1. Open the window **Input**
2. click **TERM** in the Component field. When yellow, **75Ω** is selected

3.2.8 Input Component format

Sets the component input to YUV or RGB

3.2.8.1 Via Menu

1. Press **Menu**
2. Turn the rotary knob until the cursor points to **Input**
3. Press **Select**
4. Turn the rotary knob until the cursor points to **Component**
5. Press **Select**
6. Select **RGB** or **YUV**

3.2.8.2 Via Shortcut

1. Press **YPbPr**
2. Turn the rotary knob until the cursor points to **Component**
3. Press **Select**
4. Select **RGB** or **YUV**

3.2.8.3 Via Remote Control Software

1. Open the window **Input**
2. Select **RGB** or **YUV** the component field

3.2.9 Input Component synch configuration

Various input formats are supported

- color difference signals Y(S)CrCb with sync in Y
- color difference signals YCrCb with separate sync (use the CVBS1 input connector for separate Synch)
- primary colors RG(S)B with sync in G
- primary colors RG(S)B with separate sync ((use the CVBS1 input connector for separate Synch)

The level for external synch should be 0,3Vss.

3.2.9.1 Via Menu

1. Press **Menu**
2. Turn the rotary knob until the cursor points to **Input**
3. Press **Select**
4. Turn the rotary knob until the cursor points to **Sync Comp**
5. Press **Select**
6. Select **ext** for separate Sync or **on Y (on G)** otherwise

3.2.9.2 Via Shortcut

1. Press **YPbPr**
2. Turn the rotary knob until the cursor points to **Sync Comp**
3. Press **Select**
4. Select **ext** for separate Sync or **on Y (on G)** otherwise

3.2.9.3 Via Remote Control Software

1. Open the window **Input**
2. select **S on Y/G** or **S extern** the component field

3.2.10 CVBS Input Configuration

The system provides two connectors for the CVBS input. They can be used in two configurations :

Dual : Connectors independent to accept two different CVBS signals.

Loop : Connectors internally linked together to form one loop-through-input.

3.2.10.1 Via Menu

1. Press **Menu**
2. Turn the rotary knob until the cursor points to **Options**
3. Press **Select**
4. Turn the rotary knob until the cursor points to **CVBS**
5. Press **Select**
6. Select **dual** or **loop**

3.2.10.2 Via Shortcut

n/a

3.2.10.3 Via Remote Control Software

1. Open the window **Input**
2. click **dual / loop**

3.2.11 Component input level

The level for the YUV input can be set conforming to

- SMPTE
 - Betacam
 - M II
- 50Hz : levels as SPMTE
 60Hz : levels see below

		SMPTE/EBU N10	BETACAM	MII
100% COLOR BARS	LUMINANCE			
	100%	700mV	714mV	700mV
	MAX	700mV	714mV	700mV
	MIN	0mV	54mV	53mV
	RANGE	700mV	660mV	648mV
	CHROMINANCE			
	MAX	350mV	467mV	324mV
	MIN	-350mV	-467mV	-324mV
	RANGE	700mV	934mV	648mV
	SYNC	-300mV	-286mV	-300mV
P-P	1V	1V	1V	
75% COLOR BARS	LUMINANCE			
	100%	700mV	714mV	700mV
	MAX	525mV	549mV	539mV*
	MIN	0mV	54mV	53mV
	RANGE	525mV	495mV	486mV
	CHROMINANCE			
	MAX	262.5mV	350mV	243mV
	MIN	-262.5mV	-350mV	-243mV
	RANGE	525mV	700mV	486mV
	SYNC	-300mV	-286mV	-300mV
P-P	1V	1V	1V	

3.2.11.1 Via Menu

1. Press **Menu**
2. Turn the rotary knob until the cursor points to **Input**
3. Press **Select**
4. Turn the rotary knob until the cursor points to **YUV Mode**
5. Press **Select**
6. Select **RGB** or **YUV**

3.2.11.2 Via Shortcut

1. Press **YPbPr**
2. Turn the rotary knob until the cursor points to **YUV Mode**
3. Press **Select**
4. Select **RGB** or **YUV**

3.2.11.3 Via Remote Control Software

1. Open the window **Input**
2. Select desired level in the YUVLEVEL field

3.2.12 DV Format (option)

The system supports two DV formats.
DVCAM -> Colourcoding 4:2:0 (DVCAM, miniDV, DV)
DVCPRO -> Colourcoding 4.1.1 (DVCPro)

3.2.12.1 Via Menu

1. Press **Menu**
2. Turn the rotary knob until the cursor points to **Options**
3. Press **Select**
4. Turn the rotary knob until the cursor points to **DV - In**
5. Press **Select**
6. Select **DVCAM** or **DV DVCPRO**

3.2.12.2 Via Shortcut

n/a

3.2.12.3 Via Remote Control Software

1. Open the window **Input**
2. click **DV Format** and select the desired format

4 Video Input PROC AMP

4.1 Input Proc Amp

Video signals undergo various types of distortion. The level of luminance and / or chrominance may change, decoders sometimes produce incorrect timing etc.
For this reason, the system provides a versatile input Proc Amp to correct various signal parameters.

4.1.1 Input Luminance Gain (Gain Y)

Adjustment of the luminance input gain.
Range 0% ... 200% in steps of 1%

4.1.1.1 Via Menu

1. Press **Menu**
2. Turn the rotary knob until the cursor points to **control**
3. Press **Select**
4. Turn the rotary knob until the cursor points to **Gain Y**
5. Press **Select**
6. Adjust by turning the rotary knob

4.1.1.2 Via Shortcut

1. Press **V Gain**
2. Adjust by turning the rotary knob

4.1.1.3 Via Remote Control Software

1. Open the window **Input Adjust**
2. adjust **Gain Y** to the desired level

4.1.2 Input Chroma Gain (Gain C)

Adjustment of the chrominance input gain. Controls both Cb- and Cr- components simultaneously
Range 0% ... 200% in steps of 1‰

4.1.2.1 Via Menu

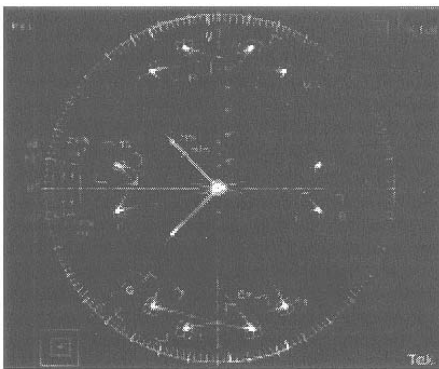
1. Press **Menu**
2. Turn the rotary knob until the cursor points to **control**
3. Press **Select**
4. Turn the rotary knob until the cursor points to **Gain C**
5. Press **Select**
6. Adjust by turning the rotary knob

4.1.2.2 Via Shortcut

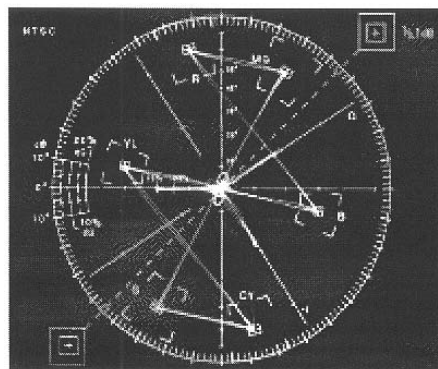
1. Press **C Gain**
2. Adjust by turning the rotary knob

4.1.2.3 Via Remote Control Software

1. Open the window **Input Adjust**
2. adjust **Gain C** to the desired level



PAL vector display of color bars



NTSC SMPTE color bar test picture. The dots are in the appropriate boxes and the color burst placed on the horizontal axis.

4.1.3 Input Chroma Balance C_b/C_r

Adjustment of the Cb/Cr balance. Controls both Cb- and Cr- components simultaneously
Range 0% ... 200% in steps of 1%

4.1.3.1 Via Menu

1. Press **Menu**
2. Turn the rotary knob until the cursor points to **control**
3. Press **Select**
4. Turn the rotary knob until the cursor points to **$C_b C_r$ Bal**
5. Press **Select**
6. Adjust by turning the rotary knob

4.1.3.2 Via Shortcut

n/a

4.1.3.3 Via Remote Control Software

1. Open the window **Input Adjust**
2. adjust **CBAL** to the desired ratio

4.1.4 Input Black Level (pedestal)

Video-black is defined in NTSC and Pal-M 7.5% above the blanking level. In PAL, PAL-N and SECAM it is 0%. This setup is only available for NTSC, NTSC 4.43 and PAL-M

Adjustment of the input black level.
Range - 9,8% .. +9,8% in steps of 1%

4.1.4.1 Via Menu

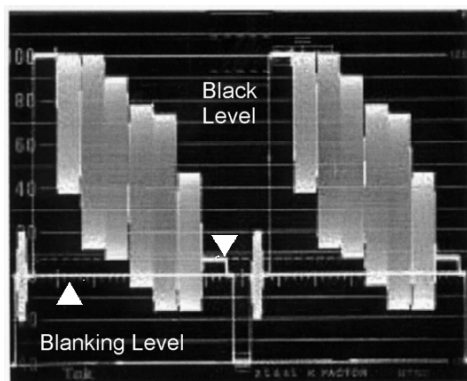
1. Press **Menu**
2. Turn the rotary knob until the cursor points to **control**
3. Press **Select**
4. Turn the rotary knob until the cursor points to **Bk Level**
5. Press **Select**
6. Adjust by turning the rotary knob

4.1.4.2 Via Shortcut

1. Press **Blk Level**
2. Adjust by turning the rotary knob

4.1.4.3 Via Remote Control Software

1. Open the window **Input Adjust**
2. adjust **Bk Level** to the desired value



4.1.5 Input Offset C_b

Adjustment of the input chrominance offset C_b
Range - 9,8% .. +9,8% in steps of 1‰

Available for all sources including RGB Input.

4.1.5.1 Via Menu

1. Press **Menu**
2. Turn the rotary knob until the cursor points to **control**
3. Press **Select**
4. Turn the rotary knob until the cursor points to **Offset C_b**
5. Press **Select**
6. Adjust by turning the rotary knob

4.1.5.2 Via Shortcut

n/a

4.1.5.3 Via Remote Control Software

1. Open the window **Input Adjust**
2. adjust **Offset C_b** to the desired value

4.1.6 Input Offset C_r

Adjustment of the input chrominance offset C_b
Range - 9,8% .. +9,8% in steps of 1%

Available for all sources including RGB Input.

4.1.6.1 Via Menu

1. Press **Menu**
2. Turn the rotary knob until the cursor points to **control**
3. Press **Select**
4. Turn the rotary knob until the cursor points to **Offset C_r**
5. Press **Select**
6. Adjust by turning the rotary knob

4.1.6.2 Via Shortcut

n/a

4.1.6.3 Via Remote Control Software

1. Open the window **Input Adjust**
2. adjust **Offset Cr** to the desired value

4.1.7 Input Gain R

Adjustment of the red component for RGB source.
Range 78% .. +150% in steps of 1%

Only available with RGB source.

4.1.7.1 Via Menu

1. Press **Menu**
2. Turn the rotary knob until the cursor points to **inadjust**
3. Press **Select**
4. Turn the rotary knob until the cursor points to **Gain R**
5. Press **Select**
6. Adjust by turning the rotary knob

4.1.7.2 Via Shortcut

n/a

4.1.7.3 Via Remote Control Software

1. Open the window **Input Adjust**
2. adjust **Gain R** to the desired value

4.1.8 Input Gain G

Adjustment of the green component for RGB source.
Range 78% .. +150% in steps of 1%

Only available with RGB source.

4.1.8.1 Via Menu

1. Press **Menu**
2. Turn the rotary knob until the cursor points to **inadjust**
3. Press **Select**
4. Turn the rotary knob until the cursor points to **Gain G**
5. Press **Select**
6. Adjust by turning the rotary knob

4.1.8.2 Via Shortcut

n/a

4.1.8.3 Via Remote Control Software

1. Open the window **Input Adjust**
2. adjust **Gain G** to the desired value

4.1.9 Input Gain B

Adjustment of the red component for RGB source.
Range 78% .. +150% in steps of 1%

Only available with RGB source.

4.1.9.1 Via Menu

1. Press **Menu**
2. Turn the rotary knob until the cursor points to **inadjust**
3. Press **Select**
4. Turn the rotary knob until the cursor points to **Gain B**
5. Press **Select**
6. Adjust by turning the rotary knob

4.1.9.2 Via Shortcut

n/a

4.1.9.3 Via Remote Control Software

1. Open the window **Input Adjust**
2. adjust **Gain B** to the desired value

4.1.10 Input NTSC Hue

NTSC chroma phase for CVBS and Y/C only.

Adjustment of the chroma phase for NTSC.
Range – 45° .. +43,6° in steps of 0,4°

4.1.10.1 Via Menu

1. Press **Menu**
2. Turn the rotary knob until the cursor points to **control**
3. Press **Select**
4. Turn the rotary knob until the cursor points to **NTSC Hue**
5. Press **Select**
6. Adjust by turning the rotary knob

4.1.10.2 Via Shortcut

1. Press **Hue**
2. Adjust by turning the rotary knob

4.1.10.3 Via Remote Control Software

1. Open the window **Input Adjust**
2. adjust **Hue** the desired value

4.1.11 Caption Gain Y

Adjustment of the luminance level for the vertical blanking interval (VBI) on the input.
Range 0% .. +100% in steps of 1%.
This function allows the separate adjustment for teletext signals, VITC timecode, etc
n/a for DV input.

4.1.11.1 Via Menu

1. Press **Menu**
2. Turn the rotary knob until the cursor points to **control**
3. Press **Select**
4. Turn the rotary knob until the cursor points to **CPGain Y**
5. Press **Select**
6. Adjust by turning the rotary knob

4.1.11.2 Via Shortcut

n/a

4.1.11.3 Via Remote Control Software

1. Open the window **Caption**
2. adjust **Y Gain** in the input gain field to the desired level

4.1.12 Caption Gain C_b

Adjustment of the chrominance C_b level for the vertical blanking interval (VBI) on the input.
Range 0% .. +100% in steps of 1%.
n/a for DV input.

4.1.12.1 Via Menu

1. Press **Menu**
2. Turn the rotary knob until the cursor points to **control**
3. Press **Select**
4. Turn the rotary knob until the cursor points to **CPGain C_b**
5. Press **Select**
6. Adjust by turning the rotary knob

4.1.12.2 Via Shortcut

n/a

4.1.12.3 Via Remote Control Software

1. Open the window **Caption**
2. adjust **U Gain** in the input gain field to the desired level

4.1.13 Caption Gain C_r

Adjustment of the chrominance C_r level for the vertical blanking interval (VBI) on the input.
Range 0% .. +100% in steps of 1%.
n/a for DV input.

4.1.13.1 Via Menu

1. Press **Menu**
2. Turn the rotary knob until the cursor points to **control**
3. Press **Select**
4. Turn the rotary knob until the cursor points to **CPGain C_r**
5. Press **Select**
6. Adjust by turning the rotary knob

4.1.13.2 Via Shortcut

n/a

4.1.13.3 Via Remote Control Software

1. Open the window **Caption**
2. adjust **V Gain** in the input gain field to the desired level

4.1.14 Input horizontal Position

Adjustment of the horizontal input timing, luminance / chrominance.
Range -2370ns .. +2296ns in steps of 74ns (1 luminance pixel)

4.1.14.1 Via Menu

1. Press **Menu**
2. Turn the rotary knob until the cursor points to **Timing**
3. Press **Select**
4. Turn the rotary knob until the cursor points to **Y+C**
5. Press **Select**
6. Turn the rotary knob until the cursor points to **Pos H**
7. Press **Select**
8. Adjust by turning the rotary knob

4.1.14.2 Via Shortcut

1. Press **Timing**
2. Turn the rotary knob until the cursor points to **Y+C**
3. Press **Select**
4. Turn the rotary knob until the cursor points to **Pos H**
5. Press **Select**
6. Adjust by turning the rotary knob

4.1.14.3 Via Remote Control Software

1. Open the window **Input Adjust**
2. adjust **Pos H** to the desired position

4.1.15 Input horizontal Chroma Position

Adjustment of the horizontal input chrominance timing.
Range -2370ns .. +2296ns in steps of 74ns (1 luminance pixel)

4.1.15.1 Via Menu

1. Press **Menu**
2. Turn the rotary knob until the cursor points to **Timing**
3. Press **Select**
4. Turn the rotary knob until the cursor points to **C to Y**
5. Press **Select**
6. Turn the rotary knob until the cursor points to **C Pos H**
7. Press **Select**
8. Adjust by turning the rotary knob

4.1.15.2 Via Shortcut

1. Press **Timing**
2. Turn the rotary knob until the cursor points to **C to Y**
3. Press **Select**
4. Turn the rotary knob until the cursor points to **C Pos H**
5. Press **Select**
6. Adjust by turning the rotary knob

4.1.15.3 Via Remote Control Software

1. Open the window **Input Adjust**
2. adjust **Ch Pos H** to the desired position

4.1.16 Input vertical Position

Adjustment of the vertical input timing, luminance / chrominance.
Range -8lines .. +7 lines in steps of 1line

4.1.16.1 Via Menu

1. Press **Menu**
2. Turn the rotary knob until the cursor points to **Timing**
3. Press **Select**
4. Turn the rotary knob until the cursor points to **Y+C**
5. Press **Select**
6. Turn the rotary knob until the cursor points to **Pos V**
7. Press **Select**
8. Adjust by turning the rotary knob

4.1.16.2 Via Shortcut

1. Press **Timing**
2. Turn the rotary knob until the cursor points to **Y+C**
3. Press **Select**
4. Turn the rotary knob until the cursor points to **Pos V**
5. Press **Select**
6. Adjust by turning the rotary knob

4.1.16.3 Via Remote Control Software

1. Open the window **Input Adjust**
2. adjust **Pos V** to the desired position

4.1.17 Input vertical Chroma Position

Adjustment of the vertical input chrominance timing.
Range -8lines .. +7 lines in steps of 1line

4.1.17.1 Via Menu

1. Press **Menu**
2. Turn the rotary knob until the cursor points to **Timing**
3. Press **Select**
4. Turn the rotary knob until the cursor points to **C to Y**
5. Press **Select**
6. Turn the rotary knob until the cursor points to **C Pos V**
7. Press **Select**
8. Adjust by turning the rotary knob

4.1.17.2 Via Shortcut

1. Press **Timing**
2. Turn the rotary knob until the cursor points to **C to Y**
3. Press **Select**
4. Turn the rotary knob until the cursor points to **C Pos V**
5. Press **Select**
6. Adjust by turning the rotary knob

4.1.17.3 Via Remote Control Software

1. Open the window **Input Adjust**
2. adjust **Ch Pos V** to the desired position

5 Video Output

5.1 System Video Output Settings

5.1.1 Standard Selection

Selection of the desired video standard on the output

5.1.1.1 Via Menu

1. Press **Menu**
2. Turn the rotary knob until the cursor points to **Output**
3. Press **Select**
4. Turn the rotary knob until the cursor points to **Standard**
5. Press **Select**
6. Turn the rotary knob until the desired video standard is selected
7. the systems may need up to one second to stabilize on the new standard

5.1.1.2 Via Shortcut

1. Press **STD** once
2. Turn the rotary knob until the desired video standard is selected
3. the systems may need up to one second to stabilize on the new standard

5.1.1.3 Via Remote Control Software

1. Open the window **Output**
2. select the desired output standard
3. the systems may need up to one second to stabilize on the new standard

5.1.2 Output Bypass

By selecting bypass to „ON“, the inputs of the system are directly bypassed to the corresponding outputs.

This function is not supported by the SDI I/O (optional) and the Firewire I/O (optional).

The inputconnector CVBS1 corresponds to the outputconnector CVBS1

5.1.2.1 Via Menu

1. Press **Menu**
2. Turn the rotary knob until the cursor points to Mode
3. Press **Select**
4. Turn the rotary knob until the cursor points to **Bypass**
5. Press **Select**
6. select Bypass **ON** or **OFF**

5.1.2.2 Via Shortcut

n/a

5.1.2.3 Via Remote Control Software

1. Open the window **Output**
2. select Bypass **ON** or **OFF**

5.1.3 Freeze

Stores one frame and reads it out repeatedly

To avoid interlace flickering on the output, only the information of the first field is used to generate the output signal.

The first field on the output shows directly the information of the first input field.

The data for the second output field is calculated using the information of the first input field.

5.1.3.1 Via Menu

1. Press **Menu**
2. Turn the rotary knob until the cursor points to **Mode**
3. Press **Select**
4. Turn the rotary knob until the cursor points to **Freeze**
5. Press **Select**
6. select **ON** or **OFF**

5.1.3.2 Via Shortcut

1. Press the key **Freeze** in the input field. The function will toggle between **ON** and **OFF**

5.1.3.3 Via Remote Control Software

1. Open the window **Mode**
2. select **Run** or **Freeze**

5.1.4 Pedestal

For 60Hz Output standards, the pedestal can be selected between EIA (setup 7.5 IRE) or EIAJ (no setup)

5.1.4.1 Via Menu

1. Press **Menu**
2. Turn the rotary knob until the cursor points to **Output**
3. Press **Select**
4. Turn the rotary knob until the cursor points to **Pedestal**
5. Press **Select**
6. Select **EIA** or **EIAJ**

5.1.4.2 Via Shortcut

1. Press the key **STD** in the INPUT section once
2. Select **PEDESTAL** via the rotary knob
3. Press **Select**
4. Select **EIA** or **EIAJ**

5.1.4.3 Via Remote Control Software

1. Open the window **Output**
2. click **EIA** or **EIAJ** in the pedestal field

5.1.5 Output Secam Sequence

The Secam Encoder can be set to generate two different chroma sequences

SEQ A : A – A – B – A – A – B,.... (first field), B – B – A – B – B – A, ... (second field)

SEQ B : A – A – A – B – B – B,.... (first field), B – B – B – A – A – A,.... (second field),

5.1.5.1 Via Menu

1. Press **Menu**
2. Turn the rotary knob until the cursor points to **Output**
3. Press **Select**
4. Turn the rotary knob until the cursor points to **SECAM**
5. Press **Select**
6. Select **SEQ A** or **SEQ B**

5.1.5.2 Via Shortcut

n/a

5.1.5.3 Via Remote Control Software

1. Open the window **Output**
2. click **SEQ A** or **SEQ B** in the Secam Sequence field

5.1.6 Output Component format

Sets the component output to YUV or RGB

5.1.6.1 Via Menu

1. Press **Menu**
2. Turn the rotary knob until the cursor points to **Output**
3. Press **Select**
4. Turn the rotary knob until the cursor points to **Component**
5. Press **Select**
6. Select **RGB** or **YUV**

5.1.6.2 Via Shortcut

n/a

5.1.6.3 Via Remote Control Software

1. Open the window **Output**
2. Select **RGB** or **YUV** the component mode field

5.1.7 Output Component level

The level for the YUV output can be set conforming to

- SMPTE
 - Betacam
 - M II
- 50Hz : levels as SPMTE
60Hz : levels see below

		SMPTE/EBU N10	BETACAM	MII
100% COLOR BARS	LUMINANCE			
	100%	700mV	714mV	700mV
	MAX	700mV	714mV	700mV
	MIN	0mV	54mV	53mV
	RANGE	700mV	660mV	648mV
	CHROMINANCE			
	MAX	350mV	467mV	324mV
	MIN	-350mV	-467mV	-324mV
	RANGE	700mV	934mV	648mV
	SYNC	-300mV	-286mV	-300mV
P-P	1V	1V	1V	
75% COLOR BARS	LUMINANCE			
	100%	700mV	714mV	700mV
	MAX	525mV	549mV	539mV*
	MIN	0mV	54mV	53mV
	RANGE	525mV	495mV	486mV
	CHROMINANCE			
	MAX	262.5mV	350mV	243mV
	MIN	-262.5mV	-350mV	-243mV
	RANGE	525mV	700mV	486mV
	SYNC	-300mV	-286mV	-300mV
P-P	1V	1V	1V	

5.1.7.1 Via Menu

1. Press **Menu**
2. Turn the rotary knob until the cursor points to **Output**
3. Press **Select**
4. Turn the rotary knob until the cursor points to **YUV Mode**
5. Press **Select**
6. Select **RGB** or **YUV**

5.1.7.2 Via Shortcut

1. Press **YPbPr**
2. Turn the rotary knob until the cursor points to **YUV Mode**
3. Press **Select**
4. Select **RGB** or **YUV**

5.1.7.3 Via Remote Control Software

1. Open the window **Input**
2. Select desired level in the YUVLEVEL field

5.1.8 Output DV Format

The system supports two DV formats.
DVCAM -> Colourcoding 4:2:0 (DVCAM, miniDV, DV)
DVCPRO -> Colourcoding 4.1.1 (DVCPro)

5.1.8.1 Via Menu

1. Press **Menu**
2. Turn the rotary knob until the cursor points to **Output**
3. Press **Select**
4. Turn the rotary knob until the cursor points to **DV FORMAT**
5. Press **Select**
6. Select **DVCAM** or **DVCPRO**

5.1.8.2 Via Shortcut

n/a

5.1.8.3 Via Remote Control Software

1. Open the window **Output**
2. Select **DVCAM** or **DVCPRO**

5.1.9 Configuration of Output CVBS 2

The Output CVBS 2 alternatively supplies the LTC output (optional).

5.1.9.1 Via Menu

1. Press **Menu**
2. Turn the rotary knob until the cursor points to **Options**
3. Press **Select**
4. Turn the rotary knob until the cursor points to **CVBS Out**
5. Press **Select**
6. Select **CVBS** or **LTC**

5.1.9.2 Via Shortcut

n/a

5.1.9.3 Via Remote Control Software

1. Open the window **Output**
2. click **CVBS** or **LTC** in the CVBS 2 config field

5.1.10 Output On Screen Display

The system supports the display of various information via an on screen display (OSD) on the outputs. This function provides a preselect to define the active output on which other functions will display their information

Analog : information will appear on CVBS / YC
Digital : information will appear on SDI 1, SDI2
Both : information will appear on all outputs

5.1.10.1 Via Menu

1. Press **Menu**
2. Turn the rotary knob until the cursor points to **Options**
3. Press **Select**
4. Turn the rotary knob until the cursor points to **OSD**
5. Press **Select**
6. Select **analog** or **digital** or **both**

5.1.10.2 Via Shortcut

n/a

5.1.10.3 Via Remote Control Software

1. Open the window **Output**
2. Select **analog** or **digital** or **both**

6 System Synchronisation

6.1 Introduction

When various video sources are combined, their signals should be timed together. A precision reference signal from a master sync-generator must be applied to each device and genlocked so that the output of the equipment is synchronized with the timing of the reference. By connecting the individual equipment to the timing reference source the processing delay of the equipment and the transmission delay of the cable connecting the equipment must be taken into account. Individual timing adjustment must be made to compensate for the different delays. For horizontal timing adjustment, use the H-POS option, for the subcarrier-to-horizontal phase (Fsc/H) the FSC/H option. In a production environment it is common practice to operate all systems from a common sync source.

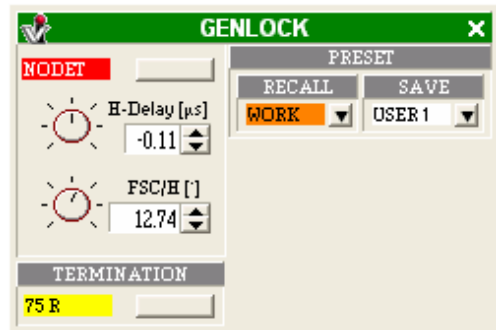
For this reason, the system is equipped with various inputs to feed in different sync signals.

The two analog inputs can be used in loop configuration and alternatively separately dedicated to 50Hz and 60Hz sources.

This is very useful when using the unit as standards converter in a varying environment.

Further, when equipped with the SDI-Option, additionally a digital input is provided.

6.2 Genlock Operation



6.2.1 Genlock Activate

Activates / deactivates the Genlock Function.

6.2.1.1 Via Menu

1. Press **Menu**
2. Turn the rotary knob until the cursor points to **Genlock**
3. Press **Select**
4. Turn the rotary knob until the cursor points to **Genlock**
5. Press **Select**
6. Turn the rotary knob to activate / deactivate Genlock

6.2.1.2 Via Shortcut

n/a

6.2.1.3 Via Remote Control Software

1. Open the window **Genlock**
2. click **On / Off (Nodet)**

off	The system is synchronized internally from the input signal.
lock	This message appears if the genlock mode is on and the external synchronization signal is recognized and the system is locked.
lock°	H-lock without FSC lock.
no lock	This message appears if the genlock mode is on, but is not locked to the external source.

6.2.2 Genlock H- Delay

Defines the horizontal delay between reference- and output signal
Range : -37,8usec .. +37,8usec in steps of 37ns

6.2.2.1 Via Menu

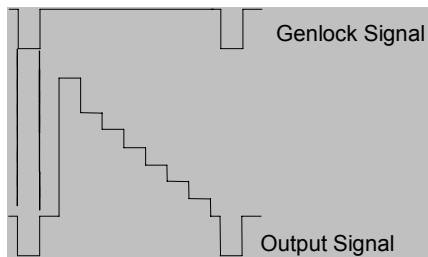
1. Press **Menu**
2. Turn the rotary knob until the cursor points to **Genlock**
3. Press **Select**
4. Turn the rotary knob until the cursor points to **H- Pos**
5. Press **Select**
6. select the desired value via the rotary knob

6.2.2.2 Shortcut

n/a

6.2.2.3 Via Remote Control Software

1. Open the window **Genlock**
2. change **H-Delay** as desired



6.2.3 Genlock FSC/H

Video tape recorder and composite digital signal processing require correct subcarrier-to-horizontal phase. Editing requires correct SC/H for color framing. A correct SC/H phase exists if the sync on every line is coincident with a zero crossing of subcarrier.

System in Genlock : Defines the phase difference between reference- and output signal

System nolock / Genlock off : defines FSC/ H

Range : -180° ... $+180^{\circ}$ in steps of approx. $0,35^{\circ}$

6.2.3.1 Via Menu

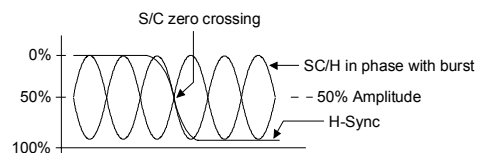
1. Press **Menu**
2. Turn the rotary knob until the cursor points to **Genlock**
3. Press **Select**
4. Turn the rotary knob until the cursor points to **Fsc/H**
5. Press **Select**
6. select the desired value via the rotary knob

6.2.3.2 Via Shortcut

n/a

6.2.3.3 Via Remote Control Software

1. Open the window **Genlock**
2. change **Fsc/H** as desired



6.2.4 Genlock Source

- Analog 1 : Genlock from 50Hz connector
- Analog 2 : Genlock from 60Hz connector
- Digital : Genlock from digital input (optional)
- Fixed : Output 50Hz -> Genlock from 50Hz connector,
Output 60Hz -> Genlock from 60Hz connector

6.2.4.1 Via Menu

1. Press **Menu**
2. Turn the rotary knob until the cursor points to **Genlock**
3. Press **Select**
4. Turn the rotary knob until the cursor points to **Source**
5. Press **Select**
6. select the desired setting via the rotary knob

6.2.4.2 Via Shortcut

n/a

6.2.4.3 Via Remote Control Software

1. Open the window **Genlock**
2. change setting as desired via source select

6.2.5 Genlock Termination

75 Ohm : Genlock Input terminated
Hi-Z : Genlock Input not terminated

6.2.5.1 Via Menu

1. Press **Menu**
2. Turn the rotary knob until the cursor points to **Genlock**
3. Press **Select**
4. Turn the rotary knob until the cursor points to **Term**
5. Press **Select**
6. select the desired setting via the rotary knob

6.2.5.2 Via Shortcut

n/a

6.2.5.3 Via Remote Control Software

1. Open the window **Genlock**
2. change setting as desired

6.2.6 Genlock Configuration

loop : both analog input connectors linked together for loop through
dual : both analog input connectors separated

6.2.6.1 Via Menu

1. Press **Menu**
2. Turn the rotary knob until the cursor points to **Options**
3. Press **Select**
4. Turn the rotary knob until the cursor points to **Genlock**
5. Press **Select**
6. select the desired setting via the rotary knob

6.2.6.2 Via Shortcut

n/a

6.2.6.3 Via Remote Control Software

2. Open the window **Genlock**
3. change setting as desired

7 Test Pattern

7.1 Test Pattern

The system is equipped to provide a wide selection of standard test patterns.

The following patterns are available:

- Black
- Color Bars for 50Hz and 60Hz (PAL / NTSC)
- IWQ Bar (nur 60Hz)
- Red Pattern
- ITU Multiburst
- ITU 2T20T
- ITU Line 330 (nur 50Hz)
- ITU Line 331 (nur 50Hz)
- ITU Line 17 Field 1 (nur 60Hz)
- ITU Line 17 Field 2 (nur 60Hz)
- C_b Ramp

Test Patterns are activated and selected in two steps.

7.1.1 Test Pattern activation

This function switches between the selected Test Pattern and the Video Signal. The two patterns **Colorbars** and **Black** are directly accessible via shortcuts.

7.1.1.1 Via Menu

1. Press **Menu**
2. Turn the rotary knob until the cursor points to **Mode**
3. Press **Select**
4. Turn the rotary knob until the cursor points to **Operate**
5. Press **Select**
6. Select **Video** or **Test**

7.1.1.2 Via Shortcut

1. Press **Black** or **Bars**.
2. The selected Pattern will appear on the output. To return to video, press the key again.
3. Selecting **Black** or **Bars** via the shortcut keys overwrites other selections.

7.1.1.3 Via Remote Control Software

1. Open the window **Mode**
2. click **Operate** to show the current video signal.
3. click **Pattern** to show the selected test pattern.
4. select the desired test pattern by clicking **Bars** or **Black** or **various**.

7.1.2 Test Pattern Selection

The two patterns **Colorbars** and **Black** are directly accessible via shortcuts.

7.1.2.1 Via Menu

1. Press **Menu**
2. Turn the rotary knob until the cursor points to **Pattern**
3. Press **Select**
4. select the desired test pattern by turning the rotary knob

7.1.2.2 Via Shortcut

1. Press **Black** oder **Bars**.
2. The selected Pattern will appear on the output. To return to video, press the key again
3. The menu shows the selected test pattern. Select other test patterns by turning the rotary knob

7.1.2.3 Via Remote Control Software

1. Open the window **Mode**
2. select the desired test pattern by clicking **Bars** or **Black** or **various**

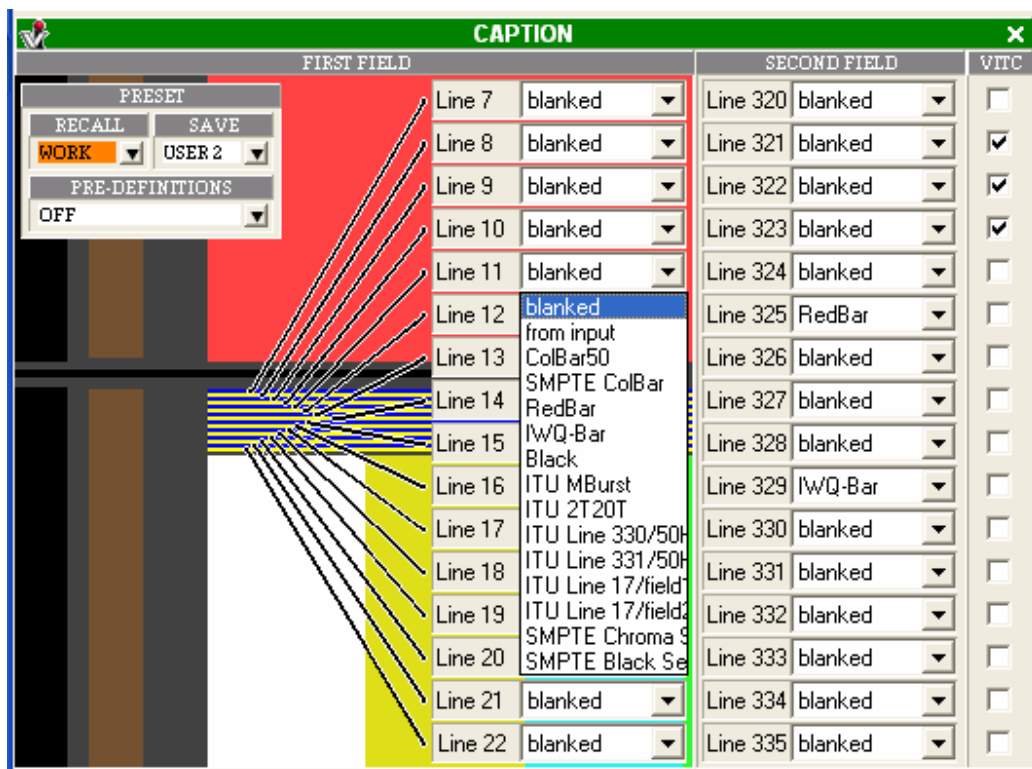
8 VBI- Processing

8.1 VBI- Processing (Caption)

8.2 VBI- Processing

The vertical blanking interval basically is transparent to the incoming video signal. This has some natural limitations when the input- and output sizes of the interval do not match (standard conversion)

The system is equipped to insert standard test signals into the vertical blanking interval. It further allows the inserting of VITC timecode information.



8.2.1 VBI Test Signal Insertion

The following test patterns are provided:

:

- Black
- Color Bars (different for 50 / 60Hz)
- IWQ Bar (60Hz)
- Red Pattern
- ITU Multiburst
- ITU 2T20T
- ITU Line 330 (50Hz)
- ITU Line 331 (50Hz)
- ITU Line 17 Field 1 (60Hz)
- ITU Line 17 Field 2 (60Hz)
- C_b Ramp

Two predefined Presets are provided

- Blanked
All VBI- Lines blanked
- Blanked + ITU
insertion of standard ITU lines, remaining area blanked
- Input + ITU
insertion of standard ITU lines, remaining area filled with information from the input
- Input
VBI area transparent
- 4 user Presets
To define user presets, please use the remote control software. This function is not supported by via the local keyboard.

8.2.1.1 Via Menu (Predefined settings)

1. Press **Menu**
2. Turn the rotary knob until the cursor points to **Output**
3. Press **Select**
4. Turn the rotary knob until the cursor points to **Caption**
5. Press **Select**
6. select the desired predefined setting

8.2.1.2 Via Shortcut

n/a

8.2.1.3 Via Remote Control Software (Predefined setting)

1. Open the window **Caption**
2. use **recall caption preset** to select the desired setting

8.2.1.4 Via Remote Control Software (detailed definition line by line)

1. Open the window **Caption**
2. define the desired pattern line by line

9 Aspect Ratio Conversion and Zoom

9.1 Introduction

To simplify the standard workflow the AVBridge2000 provides predefined format settings. For this reason, normally it is not necessary to calculate the parameters for the common formats.

If there are special requirements which demand the adjustment of parameters, their impact is additive.

For example, if a zoom factor of 1,0 is selected, the input format is 4:3 full format and the output format shall be 16:9 anamorph, the system automatically calculates and applies the appropriate parameters. But if the image should be shrunk to half of its size in horizontal and vertical direction, just apply a zoom factor of 0,5. No further settings will be influenced.

With the additional parameters like Pan, Scan, Crop it is the same situation.

For the Crop-function therefore under some special circumstances even negative values may occur.

9.1.1 Selection of the conversion setting

9.1.1.1 Via Menu

1. Press **Menu**
2. Turn the rotary knob until the cursor points to **Zoom**
3. Press **Select**
4. Turn the rotary knob until the cursor points to **Preset**
5. Press **Select**
6. Turn the rotary knob to the desired conversion
turning the knob counter clockwise accesses 16:9 -> 4:3 settings,
turning the knob clockwise accesses the settings for 4:3 -> 16:9

9.1.1.2 Via Shortcut

1. Press **Aspect**
2. Turn the rotary knob to the desired conversion
turning the knob counter clockwise accesses 16:9 -> 4:3 settings,
turning the knob clockwise accesses the settings for 4:3 -> 16:9

9.1.1.3 Via Remote Control Software

1. Open the window **Aspect ratio conversion and Zoom**
2. select the desired conversion in the **recall zoom preset** field

9.2 Zoom, Pan & Scan

9.2.1 Manual adjustment of the zoomfactor

9.2.1.1 Via Menu

1. Press **Menu**
2. Turn the rotary knob until the cursor points to **Zoom**
3. Press **Select**
4. Turn the rotary knob until the cursor points to **Zoom**
5. Press **Select**
6. Turn the rotary knob to **H (horizontal)** or **V (vertical)** or **H+V (both dimensions)**
7. Press **Select**
8. Select the desired value using the rotary knob

9.2.1.2 Via Shortcut

1. Press **Zoom**.
2. Turn the rotary knob to **H (horizontal)** or **V (vertical)** or **H+V (both dimensions)**
3. Press **Select**

9.2.1.3 Via Remote Control Software

1. Open the window **Aspect ratio conversion and Zoom**
2. Select the desired zoom value for H, V

9.2.2 Manual adjustment of the Aspect Ratio

9.2.2.1 Via Menu

1. Press **Menu**
2. Turn the rotary knob until the cursor points to **Zoom**
3. Press **Select**
4. Turn the rotary knob until the cursor points to **AspectAdj**
5. Press **Select**
6. Select the desired value using the rotary knob

9.2.2.2 Via Shortcut

n/a

9.2.2.3 Via Remote Control Software

1. Open the window **Aspect ratio conversion and Zoom**
2. Select the desired aspect value

9.2.3 Manual adjustment of Pan

9.2.3.1 Via Menu

1. Press **Menu**
2. Turn the rotary knob until the cursor points to **Zoom**
3. Press **Select**
4. Turn the rotary knob until the cursor points to **Pan**
5. Press **Select**
6. Select the desired value using the rotary knob

9.2.3.2 Via Shortcut

1. Press **Pan**
2. Select the desired value using the rotary knob

9.2.3.3 Via Remote Control Software

1. Open the window **Aspect ratio conversion and Zoom**
2. Select the desired Pan value

9.2.4 Manual adjustment of Scan

9.2.4.1 Via Menu

1. Press **Menu**
2. Turn the rotary knob until the cursor points to **Zoom**
3. Press **Select**
4. Turn the rotary knob until the cursor points to **Scan**
5. Press **Select**
6. Select the desired value using the rotary knob

9.2.4.2 Via Shortcut

1. Press **Scan**
2. Select the desired value using the rotary knob

9.2.4.3 Via Remote Control Software

1. Open the window **Aspect ratio conversion and Zoom**
2. Select the desired Scan value

9.3 Crop

9.3.1 Input Cropping Top

9.3.1.1 Via Menu

1. Press **Menu**
2. Turn the rotary knob until the cursor points to **Zoom**
3. Press **Select**
4. Turn the rotary knob until the cursor points to **Crop**
5. Press **Select**
6. Turn the rotary knob until the cursor points to **In Upper**
7. Press **Select**
8. Adjust the Cropping using the rotary knob

9.3.1.2 Via Shortcut

1. Press **Crop**
2. Turn the rotary knob until the cursor points to **In Upper**
3. Press **Select**
4. Adjust the Cropping using the rotary knob

9.3.1.3 Via Remote Control Software

1. Open the window **Aspect ratio conversion and Zoom**
2. Select the desired value in the **Crop vertical field**

9.3.2 Input Cropping bottom

9.3.2.1 Via Menu

1. Press **Menu**
2. Turn the rotary knob until the cursor points to **Zoom**
3. Press **Select**
4. Turn the rotary knob until the cursor points to **Crop**
5. Press **Select**
6. Turn the rotary knob until the cursor points to **In Lower**
7. Press **Select**
8. Adjust the Cropping using the rotary knob

9.3.2.2 Via Shortcut

1. Press **Crop**
2. Turn the rotary knob until the cursor points to **In Lower**
3. Press **Select**
4. Adjust the Cropping using the rotary knob

9.3.2.3 Via Remote Control Software

1. Open the window **Aspect ratio conversion and Zoom**
2. Select the desired value in the **Crop vertical field**

9.3.3 Input Cropping right

9.3.3.1 Via Menu

1. Press **Menu**
2. Turn the rotary knob until the cursor points to **Zoom**
3. Press **Select**
4. Turn the rotary knob until the cursor points to **Crop**
5. Press **Select**
6. Turn the rotary knob until the cursor points to **In Right**
7. Press **Select**
8. Adjust the Cropping using the rotary knob

9.3.3.2 Via Shortcut

1. Press **Crop**
2. Turn the rotary knob until the cursor points to **In Right**
3. Press **Select**
4. Adjust the Cropping using the rotary knob

9.3.3.3 Via Remote Control Software

1. Open the window **Aspect ratio conversion and Zoom**
2. Select the desired value in the **Crop horizontal field**

9.3.4 Input Cropping left

9.3.4.1 Via Menu

1. Press **Menu**
2. Turn the rotary knob until the cursor points to **Zoom**
3. Press **Select**
4. Turn the rotary knob until the cursor points to **Crop**
5. Press **Select**
6. Turn the rotary knob until the cursor points to **In Left**
7. Press **Select**
8. Adjust the Cropping using the rotary knob

9.3.4.2 Via Shortcut

1. Press **Crop**
2. Turn the rotary knob until the cursor points to **In Left**
3. Press **Select**
4. Adjust the Cropping using the rotary knob

9.3.4.3 Via Remote Control Software

1. Open the window **Aspect ratio conversion and Zoom**
2. Select the desired value in the **Crop horizontal field**

9.3.5 Output Cropping top

9.3.5.1 Via Menu

1. Press **Menu**
2. Turn the rotary knob until the cursor points to **Zoom**
3. Press **Select**
4. Turn the rotary knob until the cursor points to **Crop**
5. Press **Select**
6. Turn the rotary knob until the cursor points to **Out Upper**
7. Press **Select**
8. Adjust the Cropping using the rotary knob

9.3.5.2 Via Shortcut

1. Press **Crop**
2. Turn the rotary knob until the cursor points to **Out Upper**
3. Press **Select**
4. Adjust the Cropping using the rotary knob

9.3.5.3 Via Remote Control Software

1. Open the window **Aspect ratio conversion and Zoom**
2. Select the desired value in the **Crop horizontal vertical field**.

9.3.6 Output Cropping bottom

9.3.6.1 Via Menu

1. Press **Menu**
2. Turn the rotary knob until the cursor points to **Zoom**
3. Press **Select**
4. Turn the rotary knob until the cursor points to **Crop**
5. Press **Select**
6. Turn the rotary knob until the cursor points to **Out Lower**
7. Press **Select**
8. Adjust the Cropping using the rotary knob

9.3.6.2 Via Shortcut

1. Press **Crop**
2. Turn the rotary knob until the cursor points to **Out Lower**
3. Press **Select**
4. Adjust the Cropping using the rotary knob

9.3.6.3 Via Remote Control Software

1. Open the window **Aspect ratio conversion and Zoom**
2. Select the desired value in the **Crop horizontal vertical field**

9.3.7 Output Cropping right

9.3.7.1 Via Menu

1. Press **Menu**
2. Turn the rotary knob until the cursor points to **Zoom**
3. Press **Select**
4. Turn the rotary knob until the cursor points to **Crop**
5. Press **Select**
6. Turn the rotary knob until the cursor points to **Out Right**
7. Press **Select**
8. Adjust the Cropping using the rotary knob

9.3.7.2 Via Shortcut

1. Press **Crop**
2. Turn the rotary knob until the cursor points to **Out Right**
3. Press **Select**
4. Adjust the Cropping using the rotary knob

9.3.7.3 Via Remote Control Software

1. Open the window **Aspect ratio conversion and Zoom**
2. Select the desired value in the **Crop horizontal horizontal field**

9.3.8 Output Cropping left

9.3.8.1 Via Menu

1. Press **Menu**
2. Turn the rotary knob until the cursor points to **Zoom**
3. Press **Select**
4. Turn the rotary knob until the cursor points to **Crop**
5. Press **Select**
6. Turn the rotary knob until the cursor points to **Out Left**
7. Press **Select**
8. Adjust the Cropping using the rotary knob

9.3.8.2 Via Shortcut

1. Press **Crop**
2. Turn the rotary knob until the cursor points to **Out Left**
3. Press **Select**
4. Adjust the Cropping using the rotary knob

9.3.8.3 Via Remote Control Software

1. Open the window **Aspect ratio conversion and Zoom**
2. Select the desired value in the **Crop horizontal horizontal field**

10 Video Signal Processing

10.1 General functions

10.1.1 Filter enable

Using this function allows a direct A/B comparison of the impact a dedicated overall filter setting has on the videosignal.

BYPASS : all filters are switched off
ENABLE : filters active

10.1.1.1 Via Menu

1. Press **Menu**
2. Turn the rotary knob until the cursor points to **Filter**
3. Press **Select**
4. Set the cursor to **enable / bypass**
5. Pressing **Select** toggles between **enable / bypass**

10.1.1.2 Via Shortcut

1. Press **Disable** in the INPROC field
2. The cursor will be set **enable / bypass**
3. Pressing **Select** or **Disable** toggles between **enable / bypass**

10.1.1.3 Via Remote Control Software

1. Open the window **Processing**
2. Select **WORK (enable)** or **BYP (bypass)** or **LOCK**
LOCK disables parameter modification. In the keyboard, it is overwritten by pressing **Disable**

10.2 Enhancement (Aperture Correction)

The enhancement capability is provided to allow a perceived improvement on picture resolution. Independent control over the horizontal and vertical frequencies, as different amounts of enhancement may be appropriate. The use of positive values for enhancement boost certain high frequency components of the signal to provide a visual sharpening of edges and improvement of resolution. If the image is soft, great improvements can be made. If the input image is already good, then the use of too much enhancement will cause ringing on the edges of objects, which is not desirable. The other danger of using too much enhancement is the boosting of noise frequencies.

The use of negative values effectively reduce resolution. This feature is provided to allow the filtering of higher frequency picture correlated noise (i.e. unwanted information that does not move significantly between frames and so will not be reduced by the recursive filtering process as it is impossible to determine whether it is wanted picture information or not).

This type of problem would be present on the input signal and may be caused by a variety of problems in the signal's history, including cross luminance and cross color effects. Use of low pass spatial filtering is not desirable as the problems are reduced at the cost of resolution.

As with other features, to preserve the integrity of the input signal these facilities should only be used to correct for problems (picture correlated noise, soft input picture) and should only be used to a minimum level to generate the required improvement.

Over use of the positive values of enhancement can generate ringing (white lines around objects). Use of the negative values will reduce bandwidth (it is a variable low pass filter) and should only be used when stationary noise components are visible. In certain system situations (e.g. output to a system with a limited bandwidth) it may be useful to use this feature specifically to eliminate information that is likely to cause problems in the subsequent process (pre-processing for some compression systems for example).

In general it is normally acceptable to leave some horizontal and vertical enhancement active (level +2/3) which will give a good, sharp picture from most material without ringing problems. This is particularly useful for composite inputs where a boost in resolution is often beneficial.

The enhancement function can be used either for luminance and chrominance separately or for both Components in the same manner.

10.2.1 Horizontal / Vertical Enhancement

10.2.1.1 Via Menu

1. Press **Menu**
2. Turn the rotary knob until the cursor points to **Filter**
3. Press **Select**
4. Turn the rotary knob until the cursor points to **Enhance**
5. Press **Select**
6. Turn the rotary knob to **Y (luminance)** or **C (chrominance)** or **YC (both components)**
7. Press **Select**
8. adjust **Enhancement** to the desired level using the rotary knob

10.2.1.2 Via Shortcut

1. Press **HAC (horizontal Enhancement)** or **VAC (vertical Enhancement)**
2. The menu entry is **YC** If separate adjustment is desired, navigate back in the menu tree
3. adjust **Enhancement** to the desired level level using the rotary knob

10.2.1.3 Via Remote Control Software

1. Open the window **Processing**
2. Select **Y/C (separate adjustment of luminance / chrominance)** or **Y+C**
3. adjust **Enhancement** to the desired fort he horizontal and vertical direction
4. when switching between **Y/C** and **Y+C** the systems keeps the different settings

10.3 Noise Reduction, Linear Filters

The system provides two different noise reduction algorithms.

Recursive Noise reduction : Linear algorithms, dedicated to statistic noise characteristics (camera noise)

Median Filter : Nonlinear filter, dedicated to impulse noise (dropouts, digital noise, scratches)

Both algorithms can be setup separately for luminance and chrominance if necessary.

10.3.1 Recursive Noise Reduction

The application of recursive, frame based, noise reduction filters is very effective in the reduction, or elimination, of noise that is random in nature. This is achieved by feeding the signal back on itself to accumulate more than one frame of picture information. Pixels that are present in all frames can then be identified as useful information. Pixels that change, randomly, can then be treated as noise - and removed. Typical examples of sources that contain random noise that can be effectively treated in this way are camera noise generated when operating under low light (high gain) conditions, film grain, tape noise (analog VCR's) and general video noise from poor sources or multiple generations. As a general rule, only the minimum amount of recursive noise reduction should be applied to the signal to correct the problem. If the unit is left with a high setting made for one source it may be inappropriate for another source that contains less noise or noise with a different footprint. If the setting is too high some smearing of motion occurs. A high setting provides enormous amounts of noise elimination but will cause significant movement problems. These settings are only for use where material is totally unusable at lower settings. At these levels images can be retrieved from signals that are so impaired that they might not even appear to contain real pictures!

The higher levels are included to deal with material that may need to be broadcast but is of very poor quality (i.e. where the content is more important than the quality. This can be the case for news and documentary footage) and to allow very powerful noise reduction to be used in forensic or surveillance applications.

In most cases, a low setting may be constantly applied to give good reduction of minor video noise without impairing resolution of moving parts of the image. This low setting gives a general clean up of the signal, with minimum artifacts. More severe noise should be dealt with by increasing the setting until the noise is just reduced to the required level. If the noise is only in the chrominance or luminance domain then it is best to just remove it in that component.

10.3.1.1 Via Menu

1. Press **Menu**
2. Turn the rotary knob until the cursor points to **Filter**
3. Press **Select**
4. Turn the rotary knob until the cursor points to **Rec Nr**
5. Press **Select**
6. Turn the rotary knob to **Y (luminance)** or **C (chrominance)** or **YC (both components)**
7. Press **Select**
8. Turn the rotary knob to select the appropriate noise reduction factor

10.3.1.2 Via Shortcut

1. Press **Noise**.
2. The menu entry is **YC**. If separate adjustment is desired, navigate back in the menu tree
3. Turn the rotary knob to select the appropriate noise reduction factor

10.3.1.3 Via Remote Control Software

1. Open the window **Processing**
2. Select **Y/C (separate adjustment of luminance / chrominance)** or **Y+C**
3. adjust the noise reduction factor to the desired value
4. when switching between **Y/C** and **Y+C** the system keeps the different settings

10.4 Noise Reduction, Nonlinear Filter

The median Filter can be setup by three parameters.

- SHAPE : **ORTH** should be the standard setting. **DIAG** may be the appropriate setting for special material with lots of diagonal structures or for scratch removal
- MODE : the standard setting is **OFF**. The setting **ON** reduces the impact of filter algorithm which leads to less artifacts in critical regions
- FRAME : The filter Aperture can be switched to temporal **2D** or **3D**. Normal setting should be **3D** for better performance and less artifacts. Especially for dropouts **3D** is the best suited strategy.

10.4.1 Median Filter ON/OFF

Enables / Disables the median Filter.

10.4.1.1 Via Menu

1. Press **Menu**
2. Turn the rotary knob until the cursor points to **Filter**
3. Press **Select**
4. Turn the rotary knob until the cursor points to **Median**
5. Press **Select**
6. Turn the rotary knob to **Y (luminance)** or **C (chrominance)** or **YC (both components)**
7. Press **Select**
8. Turn the rotary knob to select **ON** or **OFF**

10.4.1.2 Via Shortcut

1. Press **Median**.
2. The menu entry is **YC**. If separate adjustment is desired, navigate back in the menu tree
3. Turn the rotary knob to select the appropriate noise reduction factor

10.4.1.3 Via Remote Control Software

1. Open the window **Processing**
2. Select **Y/C (separate adjustment of luminance / chrominance)** or **Y+C**
3. select **ON** or **OFF**
4. when switching between **Y/C** and **Y+C** the system keeps the different settings

10.4.2 Median Filter SHAPE

10.4.2.1 Via Menu

1. Press **Menu**
2. Turn the rotary knob until the cursor points to **Filter**
3. Press **Select**
4. Turn the rotary knob until the cursor points to **Median**
5. Press **Select**
6. Turn the rotary knob to **Y (luminance)** or **C (chrominance)** or **YC (both components)**
7. Press **Select**
8. Turn the rotary knob to select **ORTH** or **DIAG**

10.4.2.2 Via Shortcut

1. Press **Median**.
2. The menu entry is **YC** If separate adjustment is desired, navigate back in the menu tree
3. Turn the rotary knob to select the appropriate noise reduction factor

10.4.2.3 Via Remote Control Software

1. Open the window **Processing**
2. Select **Y/C (separate adjustment of luminance / chrominance)** or **Y+C**
3. select **ORTH** or **DIAG**
4. when switching between **Y/C** and **Y+C** the systems keeps the different settings

10.4.3 Median Filter Mode

10.4.3.1 Via Menu

1. Press **Menu**
2. Turn the rotary knob until the cursor points to **Filter**
3. Press **Select**
4. Turn the rotary knob until the cursor points to **Median**
5. Press **Select**
6. Turn the rotary knob to **Y (luminance)** or **C (chrominance)** or **YC (both components)**
7. Press **Select**
8. Turn the rotary knob to select **ON** or **OFF**

10.4.3.2 Via Shortcut

1. Press **Median**.
2. The menu entry is **YC**. If separate adjustment is desired, navigate back in the menu tree
3. Turn the rotary knob to select the appropriate noise reduction factor

10.4.3.3 Via Remote Control Software

1. Open the window **Processing**
2. Select **Y/C (separate adjustment of luminance / chrominance)** or **Y+C**
3. select **ON** or **OFF**
4. when switching between **Y/C** and **Y+C** the systems keeps the different settings

10.4.4 Median Filter Frame

10.4.4.1 Via Menu

1. Press **Menu**
2. Turn the rotary knob until the cursor points to **Filter**
3. Press **Select**
4. Turn the rotary knob until the cursor points to **Median**
5. Press **Select**
6. Turn the rotary knob to **Y (luminance)** or **C (chrominance)** or **YC (both components)**
7. Press **Select**
8. Turn the rotary knob to select **2D** or **3D**

10.4.4.2 Via Shortcut

1. Press **Median**.
2. The menu entry is **YC**. If separate adjustment is desired, navigate back in the menu tree
3. Turn the rotary knob to select the appropriate noise reduction factor

10.4.4.3 Via Remote Control Software

1. Open the window **Processing**
2. Select **Y/C (separate adjustment of luminance / chrominance)** or **Y+C**
3. select **2D** or **3D**
4. when switching between **Y/C** and **Y+C** the systems keeps the different settings

11 Standards Converter

11.1 Introduction

The system has an integrated state of the art linear 4-field 4-line standards converter, which optionally can be upgraded with motion vectors.

In many situations applications with various material of different quality and composition require an optimization of video conversion. In order to obtain optimal results, the AV Bridge offers several modes of operation with individual adjustment possibilities to the user.

Linear Conversion (Mode = 4field)

Linear conversion uses a filter with a 4-Field aperture, whose frequency response is adjustable in 3 stages:

- 4-FIELD 1
- 4-FIELD 2
- 4-FIELD 3

In the linear conversion mode no cut detection is active. The filter function is always identical independent of the material.

Motion compensated conversion (Mode = Vector)

While linear conversion produces frequently disturbing motion artifacts, the result of the motion compensated or vector conversion is usually not to be differentiated from the original one.

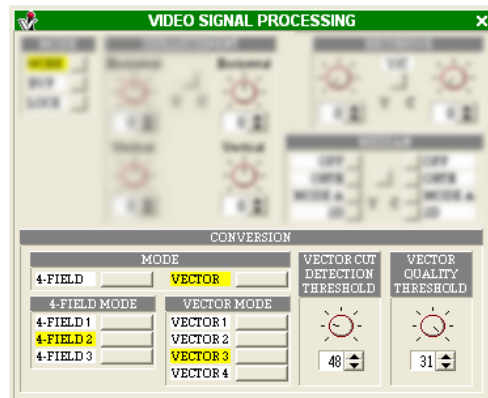
Apart from default settings for e.g. live conversion expert modes are available to convert critical material perfectly, especially in postproduction environment. These modes of operation allow the adjustment of the following parameters:

- **CUT DETECTION THRESHOLD**
In order to accomplish a correct scene cut, the AV Bridge contains a cut detector, which prevents non-matching pictures from being overlaid by interpolation. In most cases the unit's default preset is the one to work with. If a situation should occur, in which the AV Bridge does not recognize cuts correctly, the sensitivity of the cut detector can be adjusted with the help of this threshold value.
- **VECTOR QUALITY THRESHOLD**
The AV Bridge determines a value, which is reverse proportional to the quality of the vector field for each pair of pictures. If this value exceeds the adjustable threshold, the AV Bridge switches to a linear mode of operation for this pair of pictures and avoids artifacts in the resulting picture.

4 different vector modes of operation result from the adjustment possibilities with the following characteristics:

- VECTOR 1
Standard mode of operation with cut detection locked to a value of 48 and deactivated quality threshold, which means the AV Bridge always works in the vector mode.
- VECTOR 2
like VECTOR 1, but optimized for sports scenes (soccer, football, tennis etc.)
- VECTOR 3
Adjustable thresholds for cut detection and vector quality. When detecting bad vector quality the AV Bridge switches to the linear 4-Field mode.
- VECTOR 4
like VECTOR 3, but instead of switching to 4-Field mode, the AV Bridge converts the temporally nearest input picture to the output format.

Using the remote control to change the standard converter settings



11.1.1 Standards Converter Mode

This function is used to setup either the standard mode (4field) or, if the option is included, the vector mode..

11.1.1.1 Via Menu

1. Press **Menu**
2. Turn the rotary knob until the cursor points to **Mode**
3. Press **Select**
4. Set the cursor to **conversion**
5. Press **Select**
6. Set the cursor to **mode**
7. Press **Select**
8. Turn the rotary knob to select **4field** or **vector**

11.1.1.2 Via Shortcut

1. Press **Interp** in the rightmost key field
2. Select **mode**
3. Press **Select**
4. Turn the rotary knob to select **4field** or **vector**

11.1.1.3 Via Remote Control Software

1. Open the window **Processing**
2. Select **4field** or **vector** in the conversion field

11.1.2 Standards Converter 4 field apertures

11.1.2.1 Via Menu

1. Press **Menu**
2. Turn the rotary knob until the cursor points to **Mode**
3. Press **Select**
4. Set the cursor to **conversion**
5. Press **Select**
6. Set the cursor to **4 field mode**
7. Press **Select**
8. Turn the rotary knob to select the desired aperture

11.1.2.2 Via Shortcut

1. Press **Interp** in the rightmost key field
2. Select **4 field mode**
3. Press **Select**
4. Turn the rotary knob to select the desired aperture

11.1.2.3 Via Remote Control Software

1. Open the window **Processing**
2. Select the desired aperture in the conversion field

11.1.3 Standards Converter Vector Mode

11.1.3.1 Via Menu

1. Press **Menu**
2. Turn the rotary knob until the cursor points to **Mode**
3. Press **Select**
4. Set the cursor to **conversion**
5. Press **Select**
6. Set the cursor to **vector mode**
7. Press **Select**
8. Turn the rotary knob to select the desired vector mode

11.1.3.2 Via Shortcut

1. Press **Interp** in the rightmost key field
2. Select **vector mode**
3. Press **Select**
4. Turn the rotary knob to select the desired vector mode

11.1.3.3 Via Remote Control Software

1. Open the window **Processing**
2. Select the desired vector mode in the conversion field

11.1.4 Standards Converter Vector Quality Threshold

11.1.4.1 Via Menu

1. Press **Menu**
2. Turn the rotary knob until the cursor points to **Mode**
3. Press **Select**
4. Set the cursor to **conversion**
5. Press **Select**
6. Set the cursor to **vector qual**
7. Press **Select**
8. Turn the rotary knob to select the desired value

11.1.4.2 Via Shortcut

1. Press **Interp** in the rightmost key field
2. Select **vector qual**
3. Press **Select**
4. Turn the rotary knob to select the desired value

11.1.4.3 Via Remote Control Software

1. Open the window **Processing**
2. Select the desired threshold in the conversion field

11.1.5 Standards Converter cut detect Threshold

11.1.5.1 Via Menu

1. Press **Menu**
2. Turn the rotary knob until the cursor points to **Mode**
3. Press **Select**
4. Set the cursor to **conversion**
5. Press **Select**
6. Set the cursor to **cut detect**
7. Press **Select**
8. Turn the rotary knob to select the desired value

11.1.5.2 Via Shortcut

1. Press **Interp** in the rightmost key field
2. Select **cut detect**
3. Press **Select**
4. Turn the rotary knob to select the desired value

11.1.5.3 Via Remote Control Software

1. Open the window **Processing**
2. Select the desired threshold the conversion field

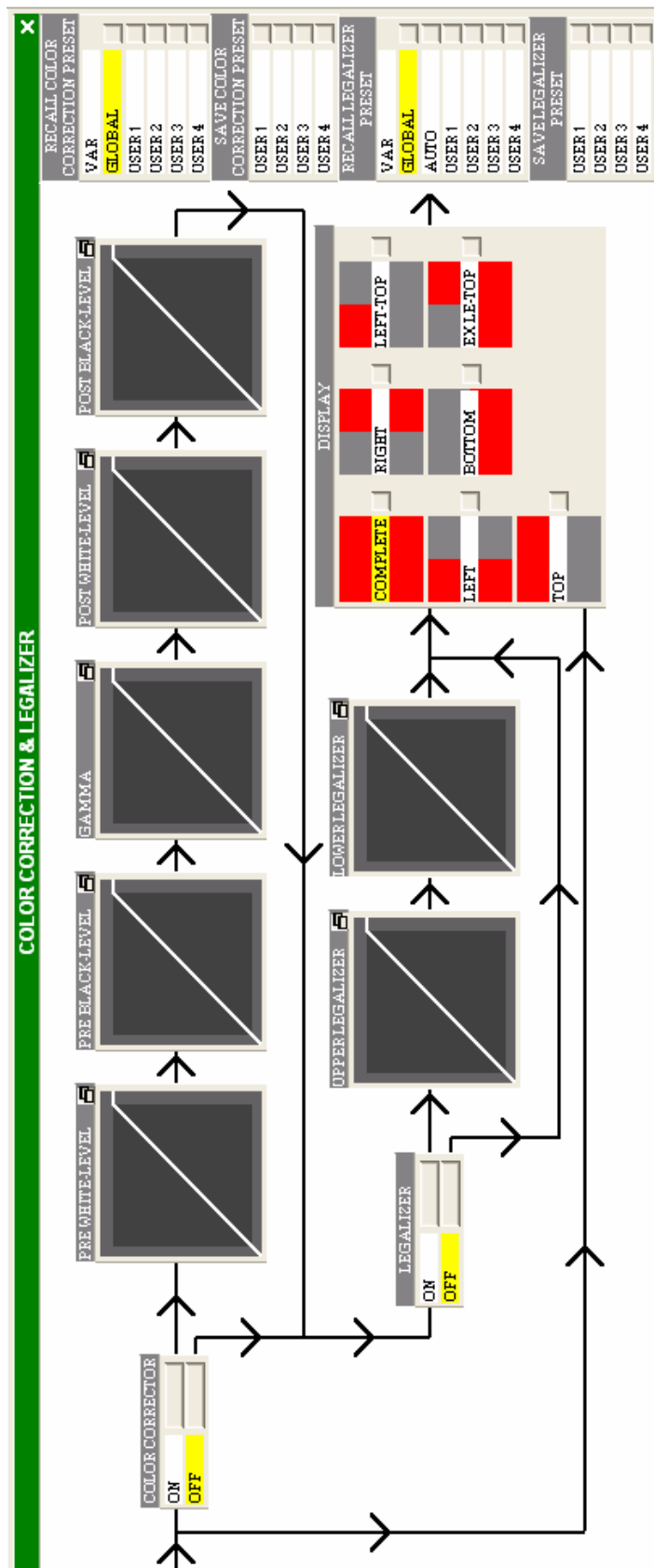
Color Correction (Option)

11.2 Introduction

The AVBridge XL can be optionally equipped with a versatile RGB- color correction. The structure of this functional block is shown on the next page.

In a first step, the black- and white level of the raw signal can be realigned. The result is fed into the gamma correction followed by the post black- and white level correction

Also included is a fully programmable RGB legalizer (see chapter 10).



11.3 Operation of the color correction

11.3.1 Color Correction Enable

This allows to bypass the color correction block without affecting its setting.

11.3.1.1 Via Menu

1. Press **Menu**
2. Turn the rotary knob until the cursor points to **Color**
3. Press **Select**
4. select **ON** or **OFF** by pressing **Select** again. It acts as a toggle key.

11.3.1.2 Via Shortcut

n/a

11.3.1.3 Via Remote Control Software

1. Open the window **Color Correction & Legalizer**
2. Select **ON** or **OFF** in the color corrector field

11.3.2 Color Correction color select

The settings can be made independantly for each color or, alternatively, for all three colors in the same manner.

When operating the color correction via the local keyboard, a preselection is needed. The Remote Control Software gives a better overview, so this first step is not necessary.

11.3.2.1 Via Menu

1. Press **Menu**
2. Turn the rotary knob until the cursor points to **Color**
3. Press **Select**
4. select the desired destination **R** or **G** or **B** or **ALL**.
5. Press **Select**
6. Now you are in the submenu tree to select the desired operation

11.3.2.2 Via Shortcut

n/a

11.3.2.3 Via Remote Control Software

n/a

11.3.3 Color Correction pre white level

The settings can be made independantly for each color or, alternatively, for all three colors in the same manner.

When operating the color correction via the local keyboard, a preselection is needed. The Remote Control Software gives a better overview, so this first step is not necessary.

11.3.3.1 Via Menu

1. select the desired color using the procedure described in chapter 9.2.2
2. Turn the rotary knob until the cursor points to **White**
3. Press **Select**
4. turn the rotary knob to adjust to the desired value

11.3.3.2 Via Shortcut

n/a

11.3.3.3 Via Remote Control Software

1. Open the window **Color Correction & Legalizer**
2. click on the upper right symbol in the window **Pwhitelevel**
3. adjust the desired parameter

11.3.4 Color Correction pre black level

The settings can be made independantly for each color or, alternatively, for all three colors in the same manner.

When operating the color correction via the local keyboard, a preselection is needed. The Remote Control Software gives a better overview, so this first step is not necessary.

11.3.4.1 Via Menu

1. select the desired color using the procedure described in chapter 9.2.2
2. Turn the rotary knob until the cursor points to **Black**
3. Press **Select**
4. turn the rotary knob to adjust to the desired value

11.3.4.2 Via Shortcut

n/a

11.3.4.3 Via Remote Control Software

1. Open the window **Color Correction & Legalizer**
2. click on the upper right symbol in the window **Preblacklevel**
3. adjust the desired parameter

11.3.5 Color Correction gamma

The settings can be made independantly for each color or, alternatively, for all three colors in the same manner.

When operating the color correction via the local keyboard, a preselection is needed. The Remote Control Software gives a better overview, so this first step is not necessary.

11.3.5.1 Via Menu

1. select the desired color using the procedure described in chapter 9.2.2
2. Turn the rotary knob until the cursor points to **Gamma**
3. Press **Select**
4. turn the rotary knob to adjust to the desired value

11.3.5.2 Via Shortcut

n/a

11.3.5.3 Via Remote Control Software

1. Open the window **Color Correction & Legalizer**
2. click on the upper right symbol in the window **Gamma**
3. adjust the desired parameter

11.3.6 Color Correction post white level

The settings can be made independantly for each color or, alternatively, for all three colors in the same manner.

When operating the color correction via the local keyboard, a preselection is needed. The Remote Control Software gives a better overview, so this first step is not necessary.

11.3.6.1 Via Menu

1. select the desired color using the procedure described in chapter 9.2.2
2. Turn the rotary knob until the cursor points to **white2**
3. Press **Select**
4. turn the rotary knob to adjust to the desired value

11.3.6.2 via Shortcut

n/a

11.3.6.3 via Remote Control Software

1. Open the window **Color Correction & Legalizer**
2. click on the upper right symbol in the window **post white level**
3. adjust the desired parameter

11.3.7 Color Correction post black level

The settings can be made independantly for each color or, alternatively, for all three colors in the same manner.

When operating the color correction via the local keyboard, a preselection is needed. The Remote Control Software gives a better overview, so this first step is not necessary.

11.3.7.1 via Menu

1. select the desired color using the procedure described in chapter 9.2.2
2. Turn the rotary knob until the cursor points to **black2**
3. Press **Select**
4. turn the rotary knob to adjust to the desired value

11.3.7.2 via Shortcut

n/a

11.3.7.3 via Remote Control Software

1. Open the window **Color Correction & Legalizer**
2. click on the upper right symbol in the window **post black level**
3. adjust the desired parameter

11.3.8 Color Correction display

To observe the impact of parameter change, the screen can be split in various configurations. The split screen also includes the result of the legalizer.

11.3.8.1 Via Menu

1. Press **Menu**
2. Turn the rotary knob until the cursor points to **Color**
3. Press **Select**
4. select **Display** by turning the rotary knob
5. Press **Select**
6. select the desired display setting

11.3.8.2 Via Shortcut

n/a

11.3.8.3 Via Remote Control Software

1. Open the window **Color Correction & Legalizer**
2. select the desired display setting in the **Display** window

12 Legalizer (Option)

12.1 Introduction

The AVBridge XL optionally includes a fully programmable RGB legalizer.

12.1.1 Legalizer Enable

This allows to bypass the legalizer block without affecting its setting.

12.1.1.1 via Menu

1. Press **Menu**
2. Turn the rotary knob until the cursor points to **Legalizer**
3. Press **Select**
4. Turn the rotary knob until the cursor points to **Operation**
5. Press **Select**
6. select **ON** or **OFF** by turning the rotary knob.

12.1.1.2 via Shortcut

n/a

12.1.1.3 via Remote Control Software

3. Open the window **Color Correction & Legalizer**
4. Select **ON** or **OFF** in the legalizer field

12.1.2 Legalizer upper limit, common setting for RGB

The standard maximum value is 940

12.1.2.1 via Menu

1. Press **Menu**
2. Turn the rotary knob until the cursor points to **Legalizer**
3. Press **Select**
4. Turn the rotary knob until the cursor points to **Upper all**
5. Press **Select**
6. adjust to the desired value.by turning the rotary knob

12.1.2.2 via Shortcut

n/a

12.1.2.3 via Remote Control Software

1. Open the window **Color Correction & Legalizer**
2. click on the upper right symbol in the window **upperlegalizer**
3. adjust the desired parameter

12.1.3 Legalizer upper limit, R

The standard maximum value is 940

12.1.3.1 via Menu

1. Press **Menu**
2. Turn the rotary knob until the cursor points to **Legalizer**
3. Press **Select**
4. Turn the rotary knob until the cursor points to **Upper R**
5. Press **Select**
6. adjust to the desired value.by turning the rotary knob

12.1.3.2 via Shortcut

n/a

12.1.3.3 via Remote Control Software

1. Open the window **Color Correction & Legalizer**
2. click on the upper right symbol in the window **upperlegalizer**
3. adjust the desired parameter

12.1.4 Legalizer upper limit, G

The standard maximum value is 940

12.1.4.1 via Menu

1. Press **Menu**
2. Turn the rotary knob until the cursor points to **Legalizer**
3. Press **Select**
4. Turn the rotary knob until the cursor points to **upper G**
5. Press **Select**
6. adjust to the desired value by turning the rotary knob

12.1.4.2 via Shortcut

n/a

12.1.4.3 via Remote Control Software

1. Open the window **Color Correction & Legalizer**
2. click on the upper right symbol in the window **upperlegalizer**
3. adjust the desired parameter

12.1.5 Legalizer upper limit, B

The standard maximum value is 940

12.1.5.1 via Menu

1. Press **Menu**
2. Turn the rotary knob until the cursor points to **Legalizer**
3. Press **Select**
4. Turn the rotary knob until the cursor points to **Upper B**
5. Press **Select**
6. adjust to the desired value.by turning the rotary knob

12.1.5.2 via Shortcut

n/a

12.1.5.3 via Remote Control Software

1. Open the window **Color Correction & Legalizer**
2. click on the upper right symbol in the window **upperlegalizer**
3. adjust the desired parameter

12.1.6 Legalizer lower limit, common setting for RGB

The standard minimum value is 64

12.1.6.1 via Menu

1. Press **Menu**
2. Turn the rotary knob until the cursor points to **Legalizer**
3. Press **Select**
4. Turn the rotary knob until the cursor points to **Lower All**
5. Press **Select**
6. adjust to the desired value by turning the rotary knob

12.1.6.2 via Shortcut

n/a

12.1.6.3 via Remote Control Software

1. Open the window **Color Correction & Legalizer**
2. click on the upper right symbol in the window **lowerlegalizer**
3. adjust the desired parameter

12.1.7 Legalizer lower limit, R

The standard minimum value is 64

12.1.7.1 via Menu

1. Press **Menu**
2. Turn the rotary knob until the cursor points to **Legalizer**
3. Press **Select**
4. Turn the rotary knob until the cursor points to **lower R**
5. Press **Select**
6. adjust to the desired value.by turning the rotary knob

12.1.7.2 via Shortcut

n/a

12.1.7.3 via Remote Control Software

1. Open the window **Color Correction & Legalizer**
2. click on the upper right symbol in the window **lowerlegalizer**
3. adjust the desired parameter

12.1.8 Legalizer lower limit, G

The standard minimum value is 64

12.1.8.1 via Menu

1. Press **Menu**
2. Turn the rotary knob until the cursor points to **Legalizer**
3. Press **Select**
4. Turn the rotary knob until the cursor points to **lower G**
5. Press **Select**
6. adjust to the desired value by turning the rotary knob

12.1.8.2 via Shortcut

n/a

12.1.8.3 via Remote Control Software

1. Open the window **Color Correction & Legalizer**
2. click on the upper right symbol in the window **lowerlegalizer**
3. adjust the desired parameter

12.1.9 Legalizer lower limit, B

The standard minimum value is 64

12.1.9.1 via Menu

1. Press **Menu**
2. Turn the rotary knob until the cursor points to **Legalizer**
3. Press **Select**
4. Turn the rotary knob until the cursor points to **lower B**
5. Press **Select**
6. adjust to the desired value.by turning the rotary knob

12.1.9.2 via Shortcut

n/a

12.1.9.3 via Remote Control Software

1. Open the window **Color Correction & Legalizer**
2. click on the upper right symbol in the window **lowerlegalizer**
3. adjust the desired parameter

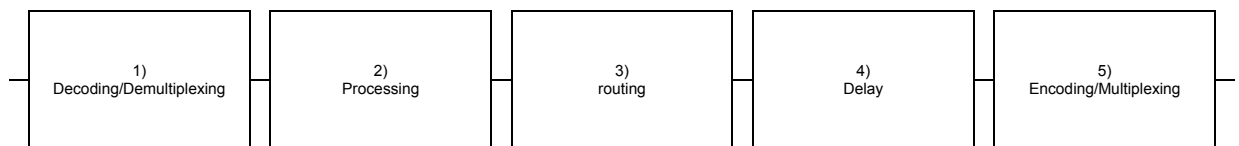
13 Audio Processing

13.1 Introduction

The processing of audio information within the AVBridge XL is completely independent of the handling of video signals.

The audio is separated from the video signal at the input of the system, passes the processing chain and is added to the video at the system output.

The processing is done according to 13-1.



13-1

The audio processing is mainly based on a powerful routing matrix, which connects the signal from different sources / destinations as SDI, Firewire and the embedding / deembedding of 4 analog / AES / SPDIF channels. It supports 16 input channels and 20 channels on the output.

The system has an integrated delay unit, which primarily is used to maintain the lip sync on the output. It further provides adjustable delay up to 1sec for all 20 output channels independently.

It can be adjusted to a shorter delay than the video processing, so even negative delay adjustment is possible.

13.2 Gain & Level

13.2.1 Mute

13.2.1.1 via Menu

1. Press **Menu**
2. Turn the rotary knob until the cursor points to **Audio**
3. Press **Select**
4. Turn the rotary knob until the cursor points to **mute**
5. Press **Select**
6. Select **ON** or **OFF**

13.2.1.2 via Shortcut

1. Press **Audio**
2. Turn the rotary knob until the cursor points to **mute**
3. Press **Select**
4. Select **ON** or **OFF**

13.2.1.3 via Remote Control Software

1. Open the window **Audio Processing**
2. Select **ON** or **OFF** for mute

13.2.2 Audio Master Level

The master level function applies to all input channels simultaneously

13.2.2.1 via Menu

1. Press **Menu**
2. Turn the rotary knob until the cursor points to **Audio**
3. Press **Select**
4. Turn the rotary knob until the cursor points to **Master**
5. Press **Select**
6. adjust the desired level by turning the rotary knob

13.2.2.2 via Shortcut

1. Press **Audio**
2. Turn the rotary knob until the cursor points to **Master**
3. adjust the desired level by turning the rotary knob

13.2.2.3 via Remote Control Software

1. Open the window **Audio Processing**
2. adjust the desired level using the **MAIN** slider

13.2.3 Audio Gain & Level

The Gain- and Level- functions allow the adjustment of single audio channels independantly. They are available only within Remote Control Software and act as a standard mixer. The settings can be stored and recalled via the local keyboard as user settings (see chapter 16)

13.2.3.1 via Menu

n/a

13.2.3.2 via Shortcut

n/a

13.2.3.3 via Remote Control Software

1. Open the window **Audio Processing**
2. The rotary knobs in the upper part of the mixer act as gain controllers. The level adjustment is done via the sliders as usual. The numbers refer to the input channel.

13.3 Audio Delay

There are various possibilities to influence the delay of an audio channel.

- Master delay : common delay adjustment for all channels
- Channel delay : allows delay adjustment channel by channel
- Automatic delay : automatically corrects the delay of the video path

13.3.1 Audio Auto Delay

It is recommended to enable the automatic delay correction as a default setting. This prevents the user from accidentally losing lip sync.

When operating the system in non auto mode, please keep in mind that the video delay may vary with the mode of operation.

13.3.1.1 via Menu

1. Press **Menu**
2. Turn the rotary knob until the cursor points to **Audio**
3. Press **Select**
4. Turn the rotary knob until the cursor points to **Autodelay**
5. Press **Select**
6. Select **ON** or **OFF**

13.3.1.2 via Shortcut

1. Press **Audio**
2. Turn the rotary knob until the cursor points to **Autodelay**
3. Press **Select**
4. Select **ON** or **OFF**

13.3.1.3 via Remote Control Software

1. Open the window **Audio Delay**
2. click **Auto** in the master delay field. This is a toggle function, when yellow, automatic delay is enabled

13.3.2 Audio Master Delay

The master delay allows the common adjustment of the delay of all output channels. If the automatic delay is selected, it shows the current system delay. Adjustment of the master delay is only possible when not in auto mode.

13.3.2.1 via Menu

1. Press **Menu**
2. Turn the rotary knob until the cursor points to **Audio**
3. Press **Select**
4. Turn the rotary knob until the cursor points to **Delay Adjust**
5. Press **Select**
6. Turn the rotary knob until the cursor points to **Delay**
7. Press **Select**
8. Adjust the delay using the rotary knob

13.3.2.2 via Shortcut

1. Press **Audio**
2. Turn the rotary knob until the cursor points to **Delay Adjust**
3. Press **Select**
4. Turn the rotary knob until the cursor points to **Delay**
5. Press **Select**
6. Adjust the delay using the rotary knob

13.3.2.3 via Remote Control Software

1. Open the window **Audio Delay**
2. Adjust the delay using the knob in the master delay field

13.3.3 Audio Separate channel Delay

Sometimes it is necessary to adjust the audio delay separately for dedicated channels
This function is available only within Remote Control Software.
The settings can be stored and recalled via the local keyboard as user settings (see chapter 16)

13.3.3.1 via Menu

n/a

13.3.3.2 via Shortcut

n/a

13.3.3.3 via Remote Control Software

1. Open the window **Audio Delay**
2. Adjust the delay using the knob in the master delay fields SDI delay and XLR delay resp.

13.4 Audio Routing

The system contains a audio routing matrix, which gives the capability to freely rearrange the audio channels on the output.

This function is only available via the Remote Control Software. It allows to store setup configurations as setups, which can be recalled via the local keyboard.

13.4.1 Operating the Audio Routing

13.4.1.1 Via Menu

n/a

13.4.1.2 Via Shortcut

n/a

13.4.1.3 Via Remote Control Software

1. Open the window **Audio Output**
2. The routing matrix is organized in three tabs (SDI, XLR, DV). The available input channels are located leftside, the output channels at the bottom. The colour coding of the groups conforms to the gain/level and delay windows. Underneath the matrix checkboxes for the muting are arranged.

13.5 Special functions for emdedded audio

13.5.1 Audio Embedder Sequence

In general, the arrangement of the audio channels in the ancilliary data space allows a high degree of flexibility. But in the meantime, very few configurations have been established as industrie standards. The AVBridge2000 provides two different embedding sequences.

Sequence A allows the support of different sampling rates for the two channel pairs within one audio group. This is a special arrangement which sometimes may lead to incompatibility with external devices.

Sequence B allows only one sample rate per audio group. It is a more common arrangement which should be selected as default.

13.5.1.1 Via Menu

1. Press **Menu**
2. Turn the rotary knob until the cursor points to **Options**
3. Press **Select**
4. Turn the rotary knob until the cursor points to **Audio**
5. Press **Select**
6. Select **SEQ A** or **SEQ B** as desired via the rotary knob

13.5.1.2 Via Shortcut

n/a

13.5.1.3 Via Remote Control Software

1. Open the window **Audio Processing**
2. select the audio sequence **Seq A** or **Seq B** in the option field

13.5.2 Audio Control Packet

As the name AUDIO CONTROL PACKET indicates, this data packet contains audio control information. The audio control packet is transmitted once per field, at a fixed position. The control packet is optional for the default-sampling rate of 48 kHz synchronous audio. It must be transmitted for all other modes. Each of the four audio groups has its own control packet. This mode can be disabled if not required or the receiving unit can not handle this mode.

13.5.2.1 Via Menu

1. Press **Menu**
2. Turn the rotary knob until the cursor points to **Options**
3. Press **Select**
4. Turn the rotary knob until the cursor points to **AudioCP**
5. Press **Select**
6. Select **ON** or **OFF** via the rotary knob

13.5.2.2 Via Shortcut

1. n/a

13.5.2.3 Via Remote Control Software

1. Open the window **Audio Processing**
2. select **CPACKS** in the option field. When yellow, controlpackets are enabled

13.6 Special functions for external audio (option)

The system supports analog and digital external audio, which can be embedded in the output SDI data stream.

At the input, it has to be decided between those two formats.

Further it is necessary to define the internal audio channels which should carry the external data.

When the system is switched to analog video input or DV input, it automatically uses the internal audio channel 1..4. In this case, no selection is necessary (and inhibited)

The local keyboard contains a global inhibit for the embedding of any external signal

13.6.1 Input Audio embedder enable

13.6.1.1 Via Menu

1. Press **Menu**
2. Turn the rotary knob until the cursor points to **Audio**
3. Press **Select**
4. Turn the rotary knob until the cursor points to **Embedder**
5. Press **Select**
6. Turn the rotary knob until the cursor points to **Operation**
7. Press **Select**
8. Turn the rotary knob to select between **On** and **OFF**

13.6.1.2 Via Shortcut

1. Press **Audio**
2. Turn the rotary knob until the cursor points to **Embedder**
3. Press **Select**
4. Turn the rotary knob until the cursor points to **Operation**
5. Press **Select**
6. Turn the rotary knob to select between **ON** and **OFF**

13.6.1.3 Via Remote Control Software

n/a

13.6.2 Audio Input XLR select analog / AES

13.6.2.1 Via Menu

1. Press **Menu**
2. Turn the rotary knob until the cursor points to **Audio**
3. Press **Select**
4. Turn the rotary knob until the cursor points to **Embedder**
5. Press **Select**
6. Turn the rotary knob until the cursor points to **Source**
7. Press **Select**
8. Turn the rotary knob to select between **analoge** and **AES**

13.6.2.2 Via Shortcut

1. Press **Audio**
2. Turn the rotary knob until the cursor points to **Embedder**
3. Press **Select**
4. Turn the rotary knob until the cursor points to **Source**
5. Press **Select**
6. Turn the rotary knob to select between **analoge** and **AES**

13.6.2.3 Via Remote Control Software

1. Open the window **Audio Processing**
2. click **analog** or **AES** in the XLR field

13.6.3 Audio Input XLR Embedder group select

(inhibited for analoge and Firewire video input)

internal Audio channel 1 .. 4	: Group 1
internal Audio channel 5 .. 8	: Group 2
internal Audio channel 9 .. 12	: Group 3
internal Audio channel 13 .. 16	: Group 4

13.6.3.1 Via Menu

1. Press **Menu**
2. Turn the rotary knob until the cursor points to **Audio**
3. Press **Select**
4. Turn the rotary knob until the cursor points to **Embedder**
5. Press **Select**
6. Turn the rotary knob until the cursor points to **Dest**
7. Press **Select**
8. Turn the rotary knob to select the desired internal audio group

13.6.3.2 Via Shortcut

1. Press **Audio**
2. Turn the rotary knob until the cursor points to **Embedder**
3. Press **Select**
4. Turn the rotary knob until the cursor points to **Dest**
5. Press **Select**
6. Turn the rotary knob to select the desired internal audio group

13.6.3.3 Via Remote Control Software

1. Open the window **Audio Processing**
2. click the checkbox **from XLR** located above the gain-knobs of the mixer

13.6.4 Audio Output XLR De-Embedder group select

Selects the audio group which appears on the XLR output.

(inhibited for analoge and Firewire video input)

internal Audio channel 1 .. 4	: Group 1
internal Audio channel 5 .. 8	: Group 2
internal Audio channel 9 .. 12	: Group 3
internal Audio channel 13 .. 16	: Group 4

13.6.4.1 Via Menu

1. Press **Menu**
2. Turn the rotary knob until the cursor points to **Audio**
3. Press **Select**
4. Turn the rotary knob until the cursor points to **De-Embedder**
5. Press **Select**
6. Turn the rotary knob until the cursor points to **XLR**
7. Press **Select**
8. Turn the rotary knob to select the desired internal audio group

13.6.4.2 Via Shortcut

1. Press **Audio**
2. Turn the rotary knob until the cursor points to **De-Embedder**
3. Press **Select**
4. Turn the rotary knob until the cursor points to **XLR**
5. Press **Select**
6. Turn the rotary knob to select the desired internal audio group

13.6.4.3 Via Remote Control Software

3. Open the window **Audio routing**
4. use the XLR field of the routing matrix to define the desired configuration

13.6.5 Audio Output XLR select analog / AES

13.6.5.1 Via Menu

1. Press **Menu**
2. Turn the rotary knob until the cursor points to **Audio**
3. Press **Select**
4. Turn the rotary knob until the cursor points to **De-Embedder**
5. Press **Select**
6. Turn the rotary knob until the cursor points to **XLR-MD**
7. Press **Select**
8. Turn the rotary knob to select between **analog** and **AES**

13.6.5.2 Via Shortcut

1. Press **Audio**
2. Turn the rotary knob until the cursor points to **De-Embedder**
3. Press **Select**
4. Turn the rotary knob until the cursor points to **XLR-MD**
5. Press **Select**
6. Turn the rotary knob to select between **analoge** and **AES**

13.6.5.3 Via Remote Control Software

1. Open the window **Audio Processing**
2. click **analog** or **AES** in the XLR field

13.7 DV Audio handling (option)

The Firewire input supports the audio sample rates 32kHz, 44.1kHz and 48kHz. To connect to the studio world, it is necessary to convert to 48kHz on the system output. For the most common sample rates 32kHz and 48kHz, the system contains a resample filter for the conversion.

13.7.1 DV Audio Resampling Input

13.7.1.1 via Menu

1. Press **Menu**
2. Turn the rotary knob until the cursor points to **Audio**
3. Press **Select**
4. Turn the rotary knob until the cursor points to **DV-Audio In**
5. Press **Select**
6. Turn the rotary knob until the cursor points to **Resample**
7. Press **Select**
8. select **ON** or **OFF** by turning the rotary knob

13.7.1.2 via Shortcut

1. Press **Audio**
2. Turn the rotary knob until the cursor points to **DV-Audio In**
3. Press **Select**
4. Turn the rotary knob until the cursor points to **Resample**
5. Press **Select**
6. select **ON** or **OFF** by turning the rotary knob

13.7.1.3 via Remote Control Software

1. Open the window **Audio Processing**
2. click **off** or **32kHz** or **48kHz** in the DV field

13.7.2 DV Audio Resampling Output

13.7.2.1 Via Menu

1. Press **Menu**
2. Turn the rotary knob until the cursor points to **Audio**
3. Press **Select**
4. Turn the rotary knob until the cursor points to **DV audio Out**
5. Press **Select**
6. Turn the rotary knob until the cursor points to **Resample**
7. Press **Select**
8. select **ON** or **OFF** by turning the rotary knob

13.7.2.2 Via Shortcut

1. Press **Audio**
2. Turn the rotary knob until the cursor points to **DV audio Out**
3. Press **Select**
4. Turn the rotary knob until the cursor points to **Resample**
5. Press **Select**
6. select **ON** or **OFF** by turning the rotary knob

13.7.2.3 Via Remote Control Software

1. Open the window **Audio Routing**
2. click **off** or **32kHz** or **48kHz** in the DV field

13.7.3 DV Audio Input channel select

The DV format allows the processing of two audio channel pairs for the sample rate 32kHz. The system supports one input channel pair, so occasionally it has to be selected, which channel pair shall be processed by the AVBridge2000.

13.7.3.1 Via Menu

1. Press **Menu**
2. Turn the rotary knob until the cursor points to **Audio**
3. Press **Select**
4. Turn the rotary knob until the cursor points to **DV-Audio**
5. Press **Select**
6. Turn the rotary knob until the cursor points to **DV Audio In**
7. Press **Select**
8. Turn the rotary knob until the cursor points to **Channel**
9. Press **Select**
10. turn the rotary knob to select channel **A/B** or **C/D**

13.7.3.2 Via Shortcut

1. Press **Audio**
2. Turn the rotary knob until the cursor points to **DV-Audio**
3. Press **Select**
4. Turn the rotary knob until the cursor points to **DV Audio In**
5. Press **Select**
6. Turn the rotary knob until the cursor points to **Channel**
7. Press **Select**
8. turn the rotary knob to select channel **A/B** or **C/D**

13.7.3.3 Via Remote Control Software

1. Open the window **Audio Processing**
2. select channel **A/B** or **C/D** in the DV field

13.7.4 DV Audio Output channel select

This function allows to define, which internal channels will be output to the Firewire device
The system supports one channel pair

13.7.4.1 Via Menu

1. Press **Menu**
2. Turn the rotary knob until the cursor points to **Audio**
3. Press **Select**
4. Turn the rotary knob until the cursor points to **DV-Audio**
5. Press **Select**
6. Turn the rotary knob until the cursor points to **DV Audio In**
7. Press **Select**
8. Turn the rotary knob until the cursor points to **Channel**
9. Press **Select**
10. turn the rotary knob to select the desired channel pair

13.7.4.2 Via Shortcut

1. Press **Audio**
2. Turn the rotary knob until the cursor points to **DV-Audio**
3. Press **Select**
4. Turn the rotary knob until the cursor points to **DV Audio In**
5. Press **Select**
6. Turn the rotary knob until the cursor points to **Channel**
7. Press **Select**
8. turn the rotary knob to select the desired channel pair

13.7.4.3 Via Remote Control Software

1. Open the window **Audio routing**
2. select the desired channel pair in the DV field

14 Cursors

14.1 Introduction

The AVBridge XL provides two cursors which can be inserted into the output signal.

14.1.1 Cursor enable

The two cursors can be set either to crosshair (H+V) or separate horizontal (H) or vertical (V).

14.1.1.1 Via Menu

1. Press **Menu**
2. Turn the rotary knob until the cursor points to **Cursor**
3. Press **Select**
4. Turn the rotary knob until the cursor points to **State**
5. Press **Select**
6. select configuration by turning the rotary knob

14.1.1.2 Via Shortcut

n/a

14.1.1.3 Via Remote Control Software

1. Open the window **Aspect Ratio Conversion & Zoom**
2. select configuration in the cursor settings field

14.1.2 Cursor position display

The position of the cursorlines can be shown via the readout. The persistence is selectable.

14.1.2.1 Via Menu

1. Press **Menu**
2. Turn the rotary knob until the cursor points to **Cursor**
3. Press **Select**
4. Turn the rotary knob until the cursor points to **Display**
5. Press **Select**
6. select the parameter by turning the rotary knob

14.1.2.2 Via Shortcut

n/a

14.1.2.3 Via Remote Control Software

1. Open the window **Aspect Ratio Conversion & Zoom**
2. select configuration in the cursor settings field

14.1.3 Cursor position horizontal, left

Numbers given as Y pixel.

14.1.3.1 Via Menu

1. Press **Menu**
2. Turn the rotary knob until the cursor points to **Cursor**
3. Press **Select**
4. Turn the rotary knob until the cursor points to **Pos Left**
5. Press **Select**
6. select the position by turning the rotary knob

14.1.3.2 Via Shortcut

n/a

14.1.3.3 Via Remote Control Software

1. Open the window **Aspect Ratio Conversion & Zoom**
2. select the desired position for **Cursor 1** or **Cursor 2**

14.1.4 Cursor position horizontal, right

Numbers given as Y pixel.

14.1.4.1 Via Menu

1. Press **Menu**
2. Turn the rotary knob until the cursor points to **Cursor**
3. Press **Select**
4. Turn the rotary knob until the cursor points to **Pos right**
5. Press **Select**
6. select the position by turning the rotary knob

14.1.4.2 Via Shortcut

n/a

14.1.4.3 Via Remote Control Software

1. Open the window **Aspect Ratio Conversion & Zoom**
2. select the desired position for **Cursor 1** or **Cursor 2**

14.1.5 Cursor position vertical, top

Numbers given as lines / field.

14.1.5.1 Via Menu

1. Press **Menu**
2. Turn the rotary knob until the cursor points to **Cursor**
3. Press **Select**
4. Turn the rotary knob until the cursor points to **Pos Upper**
5. Press **Select**
6. select the position by turning the rotary knob

14.1.5.2 Via Shortcut

n/a

14.1.5.3 Via Remote Control Software

1. Open the window **Aspect Ratio Conversion & Zoom**
2. select the desired position for **Cursor 1** or **Cursor 2**

14.1.6 Cursor position vertical, bottom

Numbers given as lines / field.

14.1.6.1 Via Menu

1. Press **Menu**
2. Turn the rotary knob until the cursor points to **Cursor**
3. Press **Select**
4. Turn the rotary knob until the cursor points to **Pos Lower**
5. Press **Select**
6. select the position by turning the rotary knob

14.1.6.2 Via Shortcut

n/a

14.1.6.3 Via Remote Control Software

1. Open the window **Aspect Ratio Conversion & Zoom**
2. select the desired position for **Cursor 1** or **Cursor 2**

14.1.7 Cursor Mode

14.1.7.1 Via Menu

1. Press **Menu**
2. Turn the rotary knob until the cursor points to **Cursor**
3. Press **Select**
4. Turn the rotary knob until the cursor points to **Mode**
5. Press **Select**
6. select the desired shape by turning the rotary knob

14.1.7.2 Via Shortcut

n/a

14.1.7.3 Via Remote Control Software

1. Open the window **Aspect Ratio Conversion & Zoom**
2. select the desired shape in the cursor settings field

15 Timecode

15.1 Introduction

The AVBRIDGE XL provides a powerful subsystem to read, generate, insert and display timecode information.

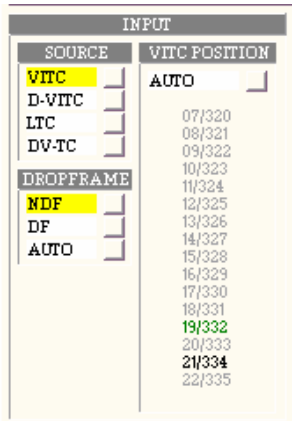
The following formats are supported on the input and output :

- VITC (SMPTE 12M)
- LTC (SMPTE 12M)
- D-VITC (SMPTE RP 196)
- ATC (SMPTE RP 188, ITU BT1366)
- DV / Firewire

The timecode reader, generator, inserter and display can be configured independently. To simplify the operation, the timecode subsystem offers various common settings. But by using the expert mode, it allows the setup of sophisticated procedures.

15.2 Timecode- Reader

The timecode reader gets its input signal either from the LTC input or via the selected video source.



VITC – The VITC is transmitted in the VBI of the incoming analog or digital video signal. It should conform to SMPTE-12M. The reader either automatically detects the presence of a VITC signal in the available area or can be set manually to decode a dedicated line.

If (in automatic mode) more than one line carry valid data, the first line will be processed.

The remote control software indicates the VBI lines which show valid VITC as black and the processed line in green.

ATC – The ATC (ancillary timecode) format is described by SMPTE RP 188 and ITU BT 1366. It is a digital format which is available only on the SDI input. The active line is always detected automatically.

HANCTC – The HANCTC format is another digital representation of timecode described by SMPTE RP 196. It is a digital format which is available only on the SDI input. The active line is always detected automatically.

LTC – The LTC is a common analog format which is not part of the video signal. It is described in SMPTE 12M.

DV-TC – DV-TC is a special format only available with the DV / Firewire input.

All mentioned formats support dropframe for 59,94 Hz input signals. Normally the input should be set to automatic dropframe detection, but under special conditions it can be useful to force the format manually.

The remote control software displays the decoded timecode in the reader timecode window.

Please note : The displayed timecode may appear discontinuous. This usually is the case, if the computer or the network slows down due to heavy load

TIMECODE

GENERATOR

Mode: Jam Sync, Input, Flywheel

DROFFFRAME OFF

Running...

Switch to normal mode

Input timecode: 00:00:00.00

Start value: 00:00:00.00

Output timecode: 00:00:00.00

PRESET: RECALL, WORK, SAVE, USER 1

STOP CONDITION

BEFORE START

- timecode insertion off
- start value
- last active timecode

START CONDITION

- manual
- when input becomes valid
- first time input matches
- every time input matches

00:00:00.00

AFTER STOP

- timecode insertion off
- user value
- last active timecode
- continue timecode

wait: 0 frames

Initialize
Start
Pause
Stop
Immediate Stop

INPUT

SOURCE: VTC, D-VTC, **LTC**, DV-TC, DROFFFRAME

VTC POSITION: AUTO, 07/320, 08/321, 09/322, 10/323, 11/324, 12/325, 13/326, 14/327, 15/328, 16/329, 17/330, 18/331, 19/332, 20/333, 21/334, 22/335

OUTPUT

VTC: ON, VTC INSET: OFF, LTC MODE: EBU, D-VTC INSET: OFF, Insert into Line: 07/320

ON SCREEN DISPLAY

DISPLAY: OFF, INPUT TC, OUTPUT TC, INPUT + OUTPUT TC

SMALL DISPLAY POSITION

INPUT H: 12, INPUT V: 2, OUTPUT H: 12, OUTPUT V: 3

15.2.1 Timecode Reader Source select

The source select works context sensitive, because dependant of the video input signal, some timecode sources are not available.

- LTC - always selectable
- VITC - not available for DV- and VGA- video input
- HANCTC - only available for SDI video input
- ATC - only available for SDI video input
- DV-TC - only available for DV (Firewire) video input

15.2.1.1 Via Menu

1. Press **Menu**
2. Turn the rotary knob until the cursor points to **timecode**
3. Press **Select**
4. Turn the rotary knob until the cursor points to **reader**
5. Press **Select**
6. Turn the rotary knob until the cursor points to **source**
7. Press **Select**
8. select the desired source via the rotary knob

15.2.1.2 Via Shortcut

1. Press **Timecode**
2. Turn the rotary knob until the cursor points to **reader**
3. Press **Select**
4. Turn the rotary knob until the cursor points to **source**
5. Press **Select**
6. select the desired source via the rotary knob

15.2.1.3 Via Remote Control Software

1. Open the window **Timecode**
2. activate the extended window
3. select the desired Source in the reader section

15.2.2 Timecode Reader VITC line select auto

15.2.2.1 Via Menu

1. Press **Menu**
2. Turn the rotary knob until the cursor points to **timecode**
3. Press **Select**
4. Turn the rotary knob until the cursor points to **reader**
5. Press **Select**
6. Turn the rotary knob until the cursor points to **VITC**
7. Press **Select**
8. Turn the rotary knob until the cursor points to **autosel**
9. Press **Select**
10. select **auto** or **manual** via the rotary knob

15.2.2.2 Via Shortcut

1. Press **Timecode**
2. Turn the rotary knob until the cursor points to **reader**
3. Press **Select**
4. Turn the rotary knob until the cursor points to **VITC**
5. Press **Select**
6. Turn the rotary knob until the cursor points to **autosel**
7. Press **Select**
8. select **auto** or **manual** via the rotary knob

15.2.2.3 Via Remote Control Software

1. Open the window **Timecode**
2. activate the extended window
3. select **auto** or **manual** in the VITC position field

15.2.3 Timecode Reader manual VITC line select

Allows the manual line select on the VITC input.

15.2.3.1 Via Menu

1. Press **Menu**
2. Turn the rotary knob until the cursor points to **timecode**
3. Press **Select**
4. Turn the rotary knob until the cursor points to **reader**
5. Press **Select**
6. Turn the rotary knob until the cursor points to **VITC**
7. Press **Select**
8. Turn the rotary knob until the cursor points to **INPOS**
9. Press **Select**
10. select the desired line viia the rotary knob

15.2.3.2 Via Shortcut

1. Press **Timecode**
2. Turn the rotary knob until the cursor points to **reader**
3. Press **Select**
4. Turn the rotary knob until the cursor points to **VITC**
5. Press **Select**
6. Turn the rotary knob until the cursor points to **INPOS**
7. Press **Select**
8. select the desired line viia the rotary knob

15.2.3.3 Via Remote Control Software

1. Open the window **Timecode**
2. activate the extended window
3. select the desired line number out of the list. Lines marked in black carry valid VITC

15.2.4 Keyboard setting of the reader dropframe mode

15.2.4.1 Via Menu

1. Press **Menu**
2. Turn the rotary knob until the cursor points to **timecode**
3. Press **Select**
4. Turn the rotary knob until the cursor points to **reader**
5. Press **Select**
6. Turn the rotary knob until the cursor points to **dropframe**
7. Press **Select**
8. set **ON** or **OFF** by turning the rotary knob

15.2.4.2 Via Shortcut

1. Press **timecode**
2. Turn the rotary knob until the cursor points to **reader**
3. Press **Select**
4. Turn the rotary knob until the cursor points to **dropframe**
5. Press **Select**
6. set **ON** or **OFF** by turning the rotary knob

15.3 Timecode- Inserter

The timecode inserter adds the information produced by the timecode generator into the output video stream.

The system supports the following formats :

- VITC - not available on the DV output
- HANCTC - only available on the SDI video output
- ATC - only available on the SDI video output
- DV-TC - only available on the DV (Firewire) video output

The LTC timcode is always available.

15.3.1 Timecode inserter MASTER activate

General enable of TC insertion into the outgoing video signals.

15.3.1.1 Via Menu

1. Press **Menu**
2. Turn the rotary knob until the cursor points to **timecode**
3. Press **Select**
4. Turn the rotary knob until the cursor points to **inserter**
5. Press **Select**
6. Turn the rotary knob until the cursor points to **MASTER EN**
7. Press **Select**
8. select **On** or **Off** via the rotary knob

15.3.1.2 Via Shortcut

1. Press **Timecode**
2. Turn the rotary knob until the cursor points to **inserter**
3. Press **Select**
4. Turn the rotary knob until the cursor points to **MASTER EN**
5. Press **Select**
6. select **On** or **Off** via the rotary knob

15.3.1.3 Via Remote Control Software

1. Open the window **Timecode**
2. activate the extended window
3. select **On** or **Off** in the inserter field

15.3.2 Timecode inserter VITC activate

Enable of the VITC insertion into the outgoing video signals.

15.3.2.1 Via Menu

1. Press **Menu**
2. Turn the rotary knob until the cursor points to **timecode**
3. Press **Select**
4. Turn the rotary knob until the cursor points to **inserter**
5. Press **Select**
6. Turn the rotary knob until the cursor points to **VITC**
7. Press **Select**
8. Turn the rotary knob until the cursor points to **activate**
9. Press **Select**
10. select **On** or **Off** via the rotary knob

15.3.2.2 Via Shortcut

1. Press **Timecode**
2. Turn the rotary knob until the cursor points to **inserter**
3. Press **Select**
4. Turn the rotary knob until the cursor points to **VITC**
5. Press **Select**
6. Turn the rotary knob until the cursor points to **activate**
7. Press **Select**
8. select **On** or **Off** via the rotary knob

15.3.2.3 Via Remote Control Software

1. Open the window **Timecode**
2. activate the extended window
3. select **On** or **Off** in the inserter field

15.3.3 Timecode inserter manual VITC line select

Select the lines for VITC insertion.

There is an identical menu in the **Caption** menu. The setting can be done via both menus in the same manner.

15.3.3.1 Via Menu

1. Press **Menu**
2. Turn the rotary knob until the cursor points to **timecode**
3. Press **Select**
4. Turn the rotary knob until the cursor points to **inserter**
5. Press **Select**
6. Turn the rotary knob until the cursor points to **VITC**
7. Press **Select**
8. Turn the rotary knob until the cursor points to **OUTPOS**
9. Press **Select**
10. select the desired lines

15.3.3.2 Via Shortcut

1. Press **Timecode**
2. Turn the rotary knob until the cursor points to **reader**
3. Press **Select**
4. Turn the rotary knob until the cursor points to **VITC**
5. Press **Select**
6. Turn the rotary knob until the cursor points to **OUTPOS**
7. Press **Select**
8. select the desired lines

15.3.3.3 Via Remote Control Software

1. Open the window **Timecode**
2. activate the extended window
3. select the desired lines in the inserter field

15.3.4 Timecode inserter HANCTC activate

Enable of the HANCTC insertion into the outgoing video signals.

15.3.4.1 Via Menu

1. Press **Menu**
2. Turn the rotary knob until the cursor points to **timecode**
3. Press **Select**
4. Turn the rotary knob until the cursor points to **inserter**
5. Press **Select**
6. Turn the rotary knob until the cursor points to **HANCTC**
7. Press **Select**
8. Turn the rotary knob until the cursor points to **activate**
9. Press **Select**
10. select **On** or **Off** via the rotary knob

15.3.4.2 Via Shortcut

1. Press **Timecode**
2. Turn the rotary knob until the cursor points to **reader**
3. Press **Select**
4. Turn the rotary knob until the cursor points to **HANCTC**
5. Press **Select**
6. Turn the rotary knob until the cursor points to **activate**
7. Press **Select**
8. select **On** or **Off** via the rotary knob

15.3.4.3 Via Remote Control Software

1. Open the window **Timecode**
2. activate the extended window
3. select **On** or **Off** in the inserter field

15.3.5 Timecode inserter manual HANCTC line select

Select the line for HANCTC insertion.

15.3.5.1 Via Menu

1. Press **Menu**
2. Turn the rotary knob until the cursor points to **timecode**
3. Press **Select**
4. Turn the rotary knob until the cursor points to **inserter**
5. Press **Select**
6. Turn the rotary knob until the cursor points to **HANCTC**
7. Press **Select**
8. Turn the rotary knob until the cursor points to **OUTPOS**
9. Press **Select**
10. select the desired line

15.3.5.2 Via Shortcut

1. Press **Timecode**
2. Turn the rotary knob until the cursor points to **reader**
3. Press **Select**
4. Turn the rotary knob until the cursor points to **HANCTC**
5. Press **Select**
6. Turn the rotary knob until the cursor points to **OUTPOS**
7. Press **Select**
8. select the desired line

15.3.5.3 Via Remote Control Software

1. Open the window **Timecode**
2. activate the extended window
3. select the desired line in the inserter field

15.3.6 Timecode inserter ATC activate

Enable of the ATC insertion into the outgoing video signals.

15.3.6.1 Via Menu

1. Press **Menu**
2. Turn the rotary knob until the cursor points to **timecode**
3. Press **Select**
4. Turn the rotary knob until the cursor points to **inserter**
5. Press **Select**
6. Turn the rotary knob until the cursor points to **ATC**
7. Press **Select**
8. Turn the rotary knob until the cursor points to **activate**
9. Press **Select**
10. select **On** or **Off** via the rotary knob

15.3.6.2 Via Shortcut

1. Press **Timecode**
2. Turn the rotary knob until the cursor points to **reader**
3. Press **Select**
4. Turn the rotary knob until the cursor points to **ATC**
5. Press **Select**
6. Turn the rotary knob until the cursor points to **activate**
7. Press **Select**
8. select **On** or **Off** via the rotary knob

15.3.6.3 Via Remote Control Software

1. Open the window **Timecode**
2. activate the extended window
3. select **On** or **Off** in the inserter field

15.3.7 Timecode inserter manual ATC line select

Select the line for ATC insertion.

15.3.7.1 Via Menu

1. Press **Menu**
2. Turn the rotary knob until the cursor points to **timecode**
3. Press **Select**
4. Turn the rotary knob until the cursor points to **inserter**
5. Press **Select**
6. Turn the rotary knob until the cursor points to **ATC**
7. Press **Select**
8. Turn the rotary knob until the cursor points to **OUTPOS**
9. Press **Select**
10. select the desired line

15.3.7.2 Via Shortcut

1. Press **Timecode**
2. Turn the rotary knob until the cursor points to **reader**
3. Press **Select**
4. Turn the rotary knob until the cursor points to **ATC**
5. Press **Select**
6. Turn the rotary knob until the cursor points to **OUTPOS**
7. Press **Select**
8. select the desired line

15.3.7.3 Via Remote Control Software

1. Open the window **Timecode**
2. activate the extended window
3. select the desired line in the inserter field

15.3.8 Timecode inserter DV-TC activate

Enable of the DV-TC insertion into the outgoing DV signal.
The distribution of time code data into the DV stream is defined by the IEEE standard.
So, no further line selection is necessary.

15.3.8.1 Via Menu

1. Press **Menu**
2. Turn the rotary knob until the cursor points to **timecode**
3. Press **Select**
4. Turn the rotary knob until the cursor points to **inserter**
5. Press **Select**
6. Turn the rotary knob until the cursor points to **DV-TC**
7. Press **Select**
8. Turn the rotary knob until the cursor points to **activate**
9. Press **Select**
10. select **On** or **Off** via the rotary knob

15.3.8.2 Via Shortcut

1. Press **Timecode**
2. Turn the rotary knob until the cursor points to **reader**
3. Press **Select**
4. Turn the rotary knob until the cursor points to **DV-TC**
5. Press **Select**
6. Turn the rotary knob until the cursor points to **activate**
7. Press **Select**
8. select **On** or **Off** via the rotary knob

15.3.8.3 Via Remote Control Software

1. Open the window **Timecode**
2. activate the extended window
3. select **On** or **Off** in the inserter field

15.3.9 Timecode inserter LTC format

The LTC output supports both EBU and SMPTE format

15.3.9.1 Via Menu

1. Press **Menu**
2. Turn the rotary knob until the cursor points to **timecode**
3. Press **Select**
4. Turn the rotary knob until the cursor points to **inserter**
5. Press **Select**
6. Turn the rotary knob until the cursor points to **LTC**
7. Press **Select**
8. Turn the rotary knob until the cursor points to **mode**
9. Press **Select**
10. select **EBU** or **SMPTE** via the rotary knob

15.3.9.2 Via Shortcut

1. Press **Timecode**
2. Turn the rotary knob until the cursor points to **reader**
3. Press **Select**
4. Turn the rotary knob until the cursor points to **LTC**
5. Press **Select**
6. Turn the rotary knob until the cursor points to **mode**
7. Press **Select**
8. select **EBU** or **SMPTE** via the rotary knob

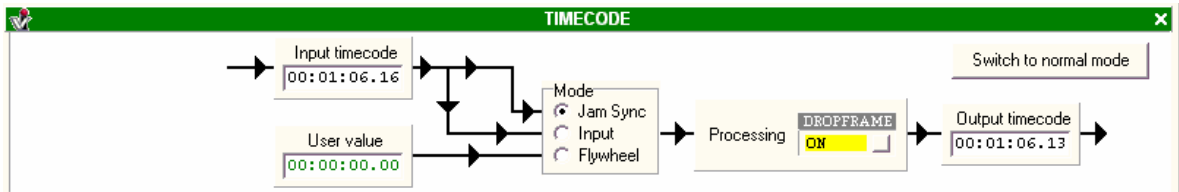
15.3.9.3 Via Remote Control Software

1. Open the window **Timecode**
2. activate the extended window
3. select **On** or **Off** in the inserter field

15.4 Timecode Generator

15.4.1 Introduction

The timecode generator is highly configurable for different applications. It provides some common and easy to use basic operation modes and additionally an expert mode which allows the definition of complex procedures and trigger events.



INPUT

The Input mode passes the incoming timecode directly to the output without any processing. This maintains the 1:1 relationship picture to timecode. But the user should be aware, that it may produce a non continuous flow when the system acts as a frame store synchronizer. Drop frame timecode may be disturbed too.

FLYWHEEL

The generator runs free and delivers an independant, nondisturbed timecode which conforms to the standards. It can be manually set to defined a start.

JAM-SYNC

The generator tries to deliver a nondisturbed time code, which follows the input with a minimum distance.

Small gaps / dropouts at the input will be masked, because the generator is able to run free for a limited number of frames.

If the input timecode fails and starts again or if it skips, the generator will be restarted with a new value which lies as near as possible to the input value.

This guarantees that the timecode on the output is always valid.

15.4.2 Normal- and Expertmode

Under normal circumstances it should be sufficient to select some basic parameters like input source, operation mode of the generator (flywheel etc) and some output configuration. This will cover the majority of the applications.

But in some cases, more sophisticated setup conditions are necessary.

For these applications, the timecode generator provides several additional tools.

They are summarized as expert tools and available via the remote control software but not via the local keyboard.

To use these tools efficiently, it is important to keep track about the overall status of the timecode sub-system and this is hard to maintain using the small display of the local keyboard.



The expert mode of the timecode generator will be automatically reset when any generator function is addressed via the local keyboard.

This avoids potential deadlocks, which may occur, because the features of the expert mode are not available here.

The following explanation refers to the **Timecode** window of the remote control software with **Expert Mode** enabled.

BEFORE START

Please refer to the blue subwindow.

The selected condition is transferred to the generator by pressing the initialize button.

Before getting started, the system must be set to a defined status.

The following conditions are available :

- **timecode insertion off**
timecode at the system output switched off. This can make shure, that any external machines do not act in an unexpected manner.
- **Start value**
the generator starts with a user defined value
- **Last valid timecode**
the generator proceeds with the last valid timecode. This allows the an interruption of the workflow but nevertheless a continuous timecode will be recorded.

START CONDITION

Please refer to the light green subwindow.

The selected condition is transferred to the generator by pressing the start button.

A trigger event is defined, which starts the generator with the parameter setup with **before start**.

The following conditions are available :

- **manual**
The generator manually starts with a click on the start button.
- **when input becomes valid**
The generator waits until the reader detects a valid timecode on the input. If the input is valid during the setup procedure, the generator starts immediately.
- **first time input matches**
The generator waits until the input timecode is equal or larger as the trigger value. Any further match will have no effect.
- **any time input matches**
like **first time input matches** but on every match.

STOP CONDITION

Please refer to the dark green and the orange subwindow.

The selected condition is transferred to the generator by pressing the stop button.

A trigger event is defined, which stops the generator. After the match occurs, the generator proceeds for a number of frames which is setup via the orange section in the after stop section.

The following conditions are available :

- **manual**
The generator manually stops with a click on the stop button.
- **when input becomes invalid**
The generator stops when the input timecode gets invalid
- **when input matches**
The generator stops when the input timecode matches the stop value

AFTER STOP CONDITION

Please refer to the red subwindow.

The selected condition is transferred to the generator by pressing the immediate stop button.

This field defines the status of the generator after the stop procedure is accomplished.

The following conditions are available :

- **timecode insertion off**
The insertion of timecode into the outgoing video signal is switched off.
- **user value**
The output timecode remains valid but shows the defined user value.
- **last valid timecode**
The output timecode remains valid but shows the last valid value.
- **continue timecode**
The output continues to produce a timecode without any interruption.

Clicking the pause button stops the generator while all conditions setup previously are maintained. Another click on the pause button unlocks the generator, so that it continues from the current state.

15.4.3 Keyboard setting of the generator mode

15.4.3.1 Via Menu

1. Press **Menu**
2. Turn the rotary knob until the cursor points to **timecode**
3. Press **Select**
4. Turn the rotary knob until the cursor points to **generator**
5. Press **Select**
6. Turn the rotary knob until the cursor points to **mode**
7. Press **Select**
8. select the desired mode **jam sync** or **input** or **flywheel** by turning the rotary knob

15.4.3.2 Via Shortcut

1. Press **timecode**
2. Turn the rotary knob until the cursor points to **generator**
3. Press **Select**
4. Turn the rotary knob until the cursor points to **mode**
5. Press **Select**
6. select the desired mode **jam sync** or **input** or **flywheel** by turning the rotary knob

15.4.4 Keyboard setting of the generator start value

15.4.4.1 Via Menu

1. Press **Menu**
2. Turn the rotary knob until the cursor points to **timecode**
3. Press **Select**
4. Turn the rotary knob until the cursor points to **generator**
5. Press **Select**
6. Turn the rotary knob until the cursor points to **TC start value**
7. Press **Select**
8. set **hours** by turning the rotary knob
9. Press **Select**
10. set **minutes** by turning the rotary knob
11. Press **Select**
12. set **seconds** by turning the rotary knob
13. Press **Select**
14. set **frames** by turning the rotary knob
15. Press **Select**
16. confirm the setting

15.4.4.2 Via Shortcut

1. Press **timecode**
2. Turn the rotary knob until the cursor points to **generator**
3. Press **Select**
4. Turn the rotary knob until the cursor points to **TC start value**
5. Press **Select**
6. set **hours** by turning the rotary knob
7. Press **Select**
8. set **minutes** by turning the rotary knob
9. Press **Select**
10. set **seconds** by turning the rotary knob
11. Press **Select**
12. set **frames** by turning the rotary knob
13. Press **Select**
14. confirm the setting

15.4.5 Keyboard setting of the generator dropframe mode

15.4.5.1 Via Menu

1. Press **Menu**
2. Turn the rotary knob until the cursor points to **timecode**
3. Press **Select**
4. Turn the rotary knob until the cursor points to **generator**
5. Press **Select**
6. Turn the rotary knob until the cursor points to **dropframe**
7. Press **Select**
8. set **ON** or **OFF** by turning the rotary knob

15.4.5.2 Via Shortcut

1. Press **timecode**
2. Turn the rotary knob until the cursor points to **generator**
3. Press **Select**
4. Turn the rotary knob until the cursor points to **dropframe**
5. Press **Select**
6. set **ON** or **OFF** by turning the rotary knob

15.5 Timecode Display

15.5.1 Introduction

The timecode decoded by the reader as well as the output of the generator can be displayed via the on screen display (OSD) on the selected video output (refer to the OSD setting).

15.5.2 Timecode Display Enable

15.5.2.1 Via Menu

1. Press **Menu**
2. Turn the rotary knob until the cursor points to **timecode**
3. Press **Select**
4. Turn the rotary knob until the cursor points to **display**
5. Press **Select**
6. Turn the rotary knob until the cursor points to **enable**
7. Press **Select**
8. set **Off** or **read** or **generate** or **both** by turning the rotary knob

15.5.2.2 Via Shortcut

1. Press **timecode**
2. Turn the rotary knob until the cursor points to **display**
3. Press **Select**
4. Turn the rotary knob until the cursor points to **enable**
5. Press **Select**
6. set **Off** or **read** or **generate** or **both** by turning the rotary knob

15.5.2.3 Via Remote Control Software

1. Open the window **timecode**
2. select the desired display configuration

15.5.3 Timecode reader horizontal display position

15.5.3.1 Via Menu

1. Press **Menu**
2. Turn the rotary knob until the cursor points to **timecode**
3. Press **Select**
4. Turn the rotary knob until the cursor points to **display**
5. Press **Select**
6. Turn the rotary knob until the cursor points to **rd pos H**
7. Press **Select**
8. set the desired horizontal position of the reader display by the rotary knob

15.5.3.2 Via Shortcut

1. Press **timecode**
2. Turn the rotary knob until the cursor points to **display**
3. Press **Select**
4. Turn the rotary knob until the cursor points to **rd pos H**
5. Press **Select**
6. set the desired horizontal position of the reader display by the rotary knob

15.5.3.3 Via Remote Control Software

1. Open the window **timecode**
2. select the desired display position

15.5.4 Timecode reader vertical display position

15.5.4.1 Via Menu

1. Press **Menu**
2. Turn the rotary knob until the cursor points to **timecode**
3. Press **Select**
4. Turn the rotary knob until the cursor points to **display**
5. Press **Select**
6. Turn the rotary knob until the cursor points to **rd pos V**
7. Press **Select**
8. set the desired vertical position of the reader display by the rotary knob

15.5.4.2 Via Shortcut

1. Press **timecode**
2. Turn the rotary knob until the cursor points to **display**
3. Press **Select**
4. Turn the rotary knob until the cursor points to **rd pos V**
5. Press **Select**
6. set the desired vertical position of the reader display by the rotary knob

15.5.4.3 Via Remote Control Software

1. Open the window **timecode**
2. select the desired display position

15.5.5 Timecode generator horizontal display position

15.5.5.1 Via Menu

1. Press **Menu**
2. Turn the rotary knob until the cursor points to **timecode**
3. Press **Select**
4. Turn the rotary knob until the cursor points to **display**
5. Press **Select**
6. Turn the rotary knob until the cursor points to **gen pos H**
7. Press **Select**
8. set the desired horizontal position of the generator display by the rotary knob

15.5.5.2 Via Shortcut

1. Press **timecode**
2. Turn the rotary knob until the cursor points to **display**
3. Press **Select**
4. Turn the rotary knob until the cursor points to **gen pos H**
5. Press **Select**
6. set the desired horizontal position of the generator display by the rotary knob

15.5.5.3 Via Remote Control Software

1. Open the window **timecode**
2. select the desired display position

15.5.6 Timecode generator vertical display position

15.5.6.1 Via Menu

1. Press **Menu**
2. Turn the rotary knob until the cursor points to **timecode**
3. Press **Select**
4. Turn the rotary knob until the cursor points to **display**
5. Press **Select**
6. Turn the rotary knob until the cursor points to **gen pos V**
7. Press **Select**
8. set the desired vertical position of the generator display by the rotary knob

15.5.6.2 Via Shortcut

1. Press **timecode**
2. Turn the rotary knob until the cursor points to **display**
3. Press **Select**
4. Turn the rotary knob until the cursor points to **gen pos V**
5. Press **Select**
6. set the desired vertical position of the generator display by the rotary knob

15.5.6.3 Via Remote Control Software

1. Open the window **timecode**
2. select the desired display position

16 Presets

16.1 Introduction

The AVBridge2000 contains a powerful hierarchical Preset Subsystem. Each function has a local instance (e.g. Input adjust, Aspect & Zoom etc). All of them are linked to a global Preset function, which allows the user to define complete system setups.

Each of the local / global preset functions provides 4 memory locations.

Via the Remote Control Software, the user can assign a name to each of the global presets, which appears also on the display of the local keyboard. So it is easy to recover a special system setup.

Of course, the current system setup as well as the content of all preset memories are saved when power is switched off.

Further, the Remote Control Software allows to backup the content of the complete set of preset memory into an MS Excel file. This enables the user to store an indefinite number of system settings which can be edited, restored to the system or archived with a finished job.

The functions Bypass, Freeze and Testpattern are not included into the preset system and will be reset when the system is switched off.

16.2 Preset Operation

16.2.1 Storing of a global Preset

16.2.1.1 Via Menu

1. Press **Menu**
2. Turn the rotary knob until the cursor points to **Preset**
3. Press **Select**
4. Turn the rotary knob until the cursor points to **Save Preset**
5. Press **Select**
6. Turn the rotary knob until the cursor points to the desired position
7. Press **Select**
8. the current global status of the system will be saved

16.2.1.2 Via Shortcut

1. Press **Preset**
2. Turn the rotary knob until the cursor points to **Save Preset**
3. Press **Select**
4. Turn the rotary knob until the cursor points to the desired position
5. Press **Select**
6. the current global status of the system will be saved

16.2.1.3 Via Remote Control Software

1. Open the window **Preset**
2. click on **Save** for the desired **global preset** in the global preset field
3. the current global status of the system will be saved

16.2.2 Recalling of a global Preset

16.2.2.1 via Menu

1. Press **Menu**
2. Turn the rotary knob until the cursor points to **Preset**
3. Press **Select**
4. Turn the rotary knob until the cursor points to **Pres**
5. Press **Select**
6. Turn the rotary knob until the cursor points to the desired position

16.2.2.2 via Shortcut

1. Press **Preset**
2. Turn the rotary knob until the cursor points to **Pres**
3. Press **Select**
4. Turn the rotary knob until the cursor points to the desired position

16.2.2.3 via Remote Control Software

1. Open the window **Preset**
2. click on **load** for the desired **global preset** in the global preset field

16.2.3 Storing of a local Preset

16.2.3.1 Via Menu

n/a

16.2.3.2 via Shortcut

n/a

16.2.3.3 via Remote Control Software

1. Open the preset window
2. click on **save** in the corresponding field

16.2.4 Recalling of a local Preset

16.2.4.1 via Menu

n/a

16.2.4.2 via Shortcut

n/a

16.2.4.3 via Remote Control Software

1. Open the preset window
2. click on **save** in the corresponding field

16.2.5 Assigning a name to a global Preset

This function is supported only by the Remote Control Software.
The assigned name will be also visible in the keyboard display

1. Open the window **Preset**
2. for the desired Preset click on **Rename**
3. assign the desired name
4. click **Rename**

16.3 Backup and Restore of Presets on the remote PC

Using the Remote Control Software it is possible to backup and recall the complete setup configuration of the system into an Excel File.

1. Open the window **Preset**
2. click on **Save Setting to file** or **Load Setting to file**

17 Maintenance

17.1 Introduction

The maintenance function provides the user with some essential basic information about the system configuration and the status.

17.1.1 Version Display

The function enables the display of the current software status of the system.

17.1.1.1 Via Menu

1. Press **Menu**
2. Turn the rotary knob until the cursor points to **Maint**
3. Press **Select**
4. Turn the rotary knob until the cursor points to **Version-OSD**
5. Press **Select**
6. The display shows the current software status of the system

17.1.1.2 Via Shortcut

n/a

17.1.1.3 Via Remote Control Software

n/a

17.1.2 Status Display

The function enables the display of several screens which contain technical information about the status of the internal processing blocks.
Please refer to these screens in case of system failure.

17.1.2.1 Via Menu

1. Press **Menu**
2. Turn the rotary knob until the cursor points to **Maint**
3. Press **Select**
4. Turn the rotary knob until the cursor points to **Status-OSD**
5. Press **Select**
6. Turn the rotary knob to select the desired maintenance screen

17.1.2.2 Via Shortcut

n/a

17.1.2.3 Via Remote Control Software

n/a



