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3xVision User guide

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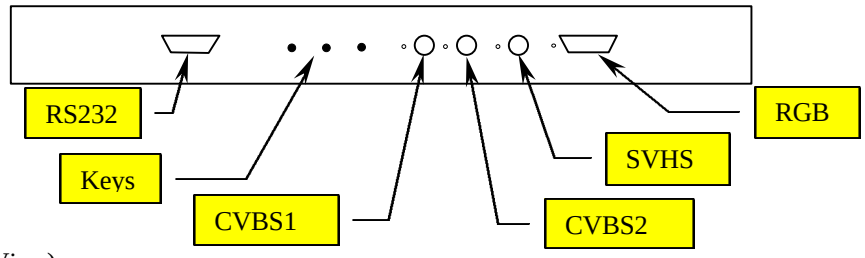
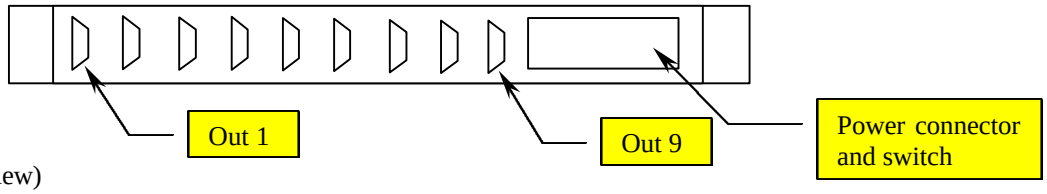
1. System Description

The 3xVision kit consists of the splitter unit (1U 19" rackmount unit), 9 cables and a power cord.
On the front panel you can find, looking from the left to the right, the RS232 connector, three keys, two BNC (CVBS input 1 and 2), a minidin connector (S-Video) and a 15 D – Sub connector, for RGB inputs.
On the back panel you will find the VDE connector with the power switch and two fuses (one per AC Phase), and the 9 output DB9 connectors.
Note that with **RGB input** no OSD functions are enabled and it's not possible to choose it as default input on power up.



(Front View)



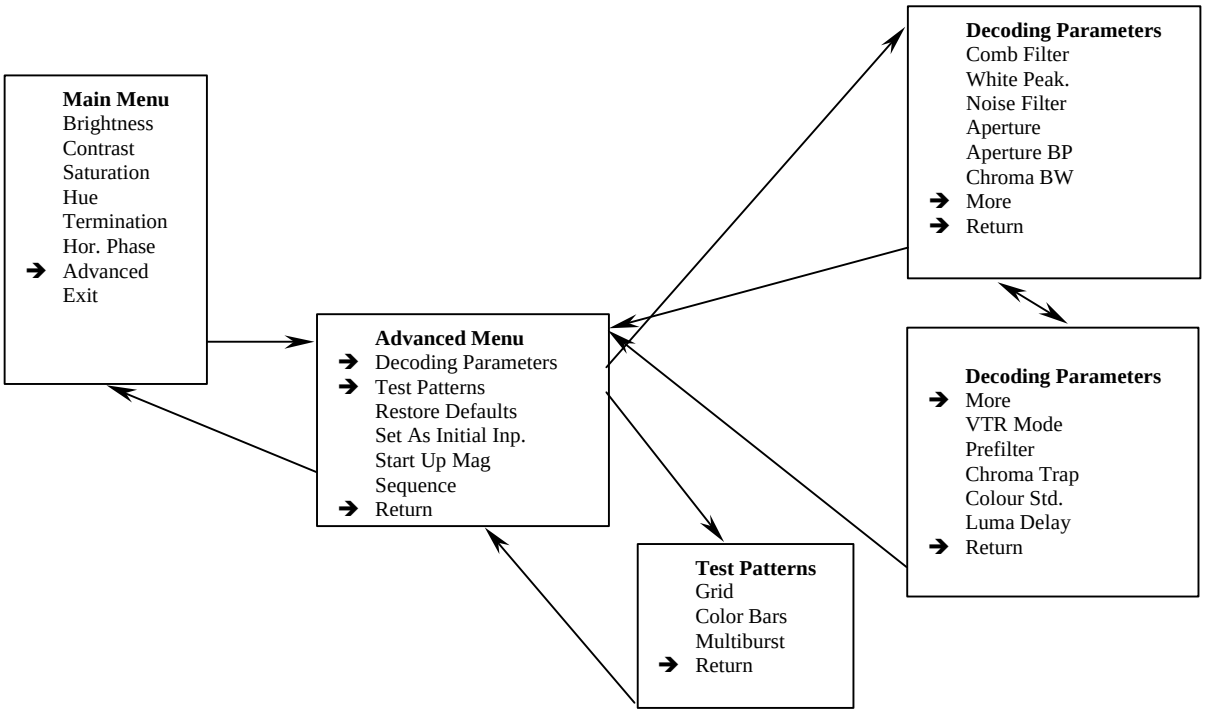
(Rear View)

2. Keys functions

The three multifunction keys on the front panel can be used to control all of the device's parameters as well as to select the video source. The three keys are used as ***Up***, ***Enter*** and ***Down***, so in every situation, the two peripheral button serve to increase/decrease a parameter, while the center button is used to confirm the changes/select a parameter.
In normal mode, when there is no On Screen Display, the ***Up*** and ***Down*** keys, have two functions: if pressed briefly they select the video source, which is indicated by the associated LED, while if pressed for about one second, the magnification is changed between 1x1, 2x2 and 3x3.
Note that if the LED blinks regularly, it means that no video signal is detected, while if the LED is lit or blinks with a very short off time, the video signal is properly detected; in the latter case, the blink simply notifies that the 75 ohm termination has been switched off.
Pressing the ***Enter*** key recalls the On Screen Display, showing a menu with the most important image settings such as color, contrast, brightness, hue etc.
In the On Screen Display mode, the ***Up*** and ***Down*** keys serve to choose the parameter to change then, pressing the ***Enter*** key, the parameter is selected (the parameter changes color) and the ***Up*** and ***Down*** keys can be used to increment/decrement the value.
Once the parameter is correctly set, you can confirm the change by simply pressing the ***Enter*** key again.
The only exception to this description is for the Y/N choices, for which the ***Enter*** key directly toggles between Yes and No, without the need to use the ***Up*** and ***Down*** keys to change the parameter value and also without the need to deselect the parameter by pressing the ***Enter*** key.

3. OSD Functions

Here follows a description of the menu tree as well as of the menu functions.



3.1 Main Menu

Item	*Description*	*Value Range*	*Notes*
Brightness	Adjusts the brightness of the image	0÷127	
Contrast	Adjust image contrast	-128÷127	negative values generate an image with inverted luminance (negative)
Saturation	Adjusts the color saturation of the image	0÷127	0 means b/w image
Hue	Adjusts color phase, rotating the colors	0÷255	this function is active also for PAL signals
Termination	Enables/Disables 75 Ohm termination for active input	Y/N	Disabling the termination will be signalled by non regular blink of the input's LED
Hor. Phase	Shifts the image horizontally	-10÷10	Exceeding small values may cause video to become dark or oddly tinted; **this doesn't cause any damage to the device.**
➔ **Advanced Menu**	Enters the Advanced Menu	N/A	See section 3.2

3.2 Advanced Menu

Item	*Description*	*Value Range*	*Notes*
➔ **Decoding Parameters**	Enters the Decoding Parameters Menu	N/A	See Section 3.3/3.4
➔ **Test Patterns**	Enters the Test Patterns Menu	N/A	See Section 3.5
Restore Defaults	Restores factory presets for active input	N/A	
Set as Initial Inp.	Sets the current input as the one selected at power up.	N/A	
Start Up Mag	Changes the splitter Magnification	x1, x2, x3	
Sequence	Enables the automatic sequencing of the effects	Y/N	
➔ **Return**	Returns to the Main Menu	N/A	

3.3 Decoding Parameters /1

Item	*Description*	*Value Range*	*Notes*
Comb Filter	Enables/Disables the NTSC Comb Filter/Pal Line Delay	Y/N	
White Peak.	Enables/Disables the White Peaking Filter	Y/N	
Noise Filter	Adjusts the Vertical Noise Filter	0÷3	0 – Normal Mode 1 – Searching mode 2 – Free running mode 3 – Filter Bypassed
Aperture	Sets Luminance Aperture Factor	0÷3	0 – aperture = 0 1 – aperture = 0.25 2 – aperture = 0.5 3 – aperture =1 See diagrams for more information
Aperture BP	Sets Luminance Aperture Band Pass center frequency	0÷3	0 – 4.1 MHz 1 – 3.8 MHz 2 – 2.6 MHz 3 – 2.9 MHz
Chroma BW	Sets the chroma Bandwidth	0÷3	0 – small (620 KHz) 1 – nominal (800 KHz) 2 – Medium (920 KHz) 3 – Wide (1000 KHz)
➔ **More**	Shows additional decoding parameters	N/A	See Section 3.4
➔ **Return**	Returns to the Advanced Menu	N/A	See section 3.2

3.4 Decoding Parameters /2

Item	*Description*	*Value Range*	*Notes*
➔ **More**	Shows additional decoding parameters	N/A	See Section 3.3
VTR Mode	Enables/Disables VTR Mode	Y/N	Used for noisy signals
Prefilter	Enables/Disables Prefilter	Y/N	Enhances transitions
Chroma Trap	Enables/Disables chroma trap	Y/N	Normally enabled, disabled only for S-VHS signals
Color Std.	Sets the color standard selections	0÷3	0 – PAL BGHI/NTSC M 1 – NTSC 4.43 (50Hz)/PAL 4.43 (60Hz) 2 – PAL N/NTSC 4.43 (60Hz) 3 – NTSC N/PAL M
Luma Delay	Adjusts the delay between Luminance and chrominance	-4÷3	
➔ **Return**	Returns to the Advanced Menu	N/A	See section 3.2

3.5 Test Patterns

Item	*Description*	*Value Range*	*Notes*
Grid	Shows a grid pattern	N/A	Pressing ***Enter*** clears the test pattern and returns to the menu; Pressing ***Up*** or ***Down*** scrolls through the test patterns.
Color Bars	Shows a color bars pattern (100%)	N/A	Same as above
MultiBurst	Shows multiburst pattern	N/A	Same as above
➔ **Return**	Returns to the Advanced Menu	N/A	See section 3.2

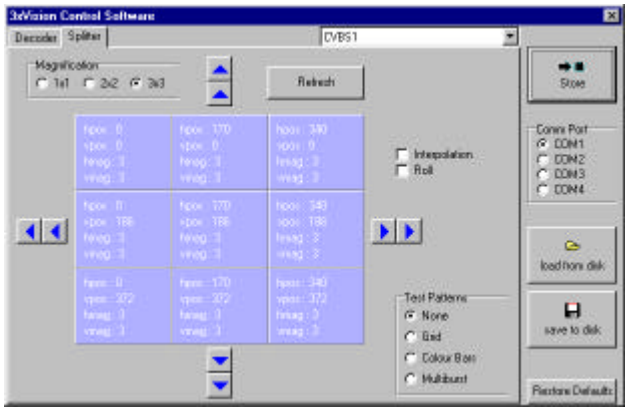
4. Setting up the system

To set up the system you first need to connect the RGBcables to the displays, following the numbering shown in figure (output 1 connected to the top right cube of the wall viewed from the back) and, of course, the power cord.
The RGBcables are marked with **"S"** and **"M"** ; the "S" side can be connected to the Splitter ("M" side to the monitor).
Once the system is connected to the wall and an input signal is provided, you can turn on the system and proceed, if necessary, to select the input, by simply pressing the ***Up*** and ***Down***; the active input is recognized by looking at the LEDs near the input connectors, which signal the active input.
When a signal is displayed on the screen, you have to proceed in adjusting the geometries, using the cube's remote controller.
Note that it's possible to adjust the horizontal phase of the video signal by means of the Hor. Phase in the main menu of the OSD; this setting is very useful to center the image **before** the setup of the geometries. This value usually has to be **set to 0,** which makes the phase equal to the one present on common RGB inputs; note also that RGB inputs are not adjustable in any way, so care should be taken when switching between RGB and other sources (composite, SVHS) is expected, to match the geometries.
Once the geometries are set, you can adjust the parameters of the decoder; to get the best results we usually suggest to have high contrast and low brightness values. Note that the input signal is conditioned by an AGC circuit, which limits the settings of brightness and contrast: once the maximum contrast is reached, the white level is clamped and the black level is lowered, overriding the brightness control.

5. Control Software

The control software, supplied with the splitter, can be run from the diskette or from the hard disk; no installation is needed since the program consists of only one file, so it's possible to simply copy the file to the hard disk.
The functions are splitted in two pages, which can be selected by means of the tabs located in the top of the window; one of the pages contains the parameters of the video input, while the second holds the splitter geometry parameters along with the switches for some special functions.

To get started, the first thing to do is to set the serial port which controls the splitter, using the radio button group located at the right of the window.
Once the connection is established, it's possible to set all of the parameters by means of the sliders and check buttons; note that the functions are the same described in the OSD guide, so for further information on the specific items please refer to chapter 3; note that all of this parameters are not meaningful in the case of the RGB input.
The *Set as default input* button, is used to set the current input as the one selected at every subsequent splitter power on.
Note that, since the data of the software and the one in the splitter is not synchronized at the start of the program, it's necessary to choose an input using the drop down list located in the top right of the window; this will cause the software to update all of the data relative to the selected input, thus synchronizing the parameters.
The splitter page shows a 3x3 cube system, on which is possible to select one or more cubes by simply clicking on it with the mouse (to deselect a cube click the right one); selecting a (group of) cube(s) allows the arrow keys to shift the image; thus compensating the settings of the cubes.



The arrow keys, repeated twice, allow to shift the image by small (arrow near the cubes) or a large (arrow far from the cubes) amount.
The magnification box allows the user to select the magnification shown on the screen and thus to modify the geometries of that magnification.
Checking one of the checkboxes in the colours group allows to output a plain colour on a specific output; the colour is selected by clicking on the colour sample, just on the left of the colours checkboxes (Note that the feature is available only on 1x1 magnification).
It's however possible to automatically cycle the colours using the colour wash function, but note that this function is not stored in the splitter memory, so to enable it you will require this software in any case (available on 1x1 and 2x2 magnifications).
The roll function allows to let the unit automatically shift the image from a side to the opposite, allowing the creation of particular circular videowalls.
The interpolation function sets the 2 field optical interpolation, which is particularly needed when fast moving video is fed to the device.
The freeze function makes the image still; it's not possible to use this function along with roll.
The test patterns allow the system to generate test patterns without the need of an external generator and can be used even if no video signal is fed to the splitter, except for the RGB input, which needs a reference synch.
Once the settings are finished, it's possible to store the settings in the spliter, clicking on the store button; please note that the storing is referred only to the selected input, so it's necessary to repeat the storage operation for each input separately.
Note also that Store sets the current magnification as the default one on power up; this means that the next time you switch on the splitter you will have the last magnification set before the pressing of the store button.
Finally the *load from disk* and *save to disk* buttons allow to save the settings to disk, in order to save a copy of all the setting for future uses.
To reset the settings to the default values it is possible to press the *Restore Defaults* button on the bottom right of the window; this brings the software in it's initial conditions.

6. Technical chararcteristics

- Resolution : 1024x576 (PAL)/1024x488 (NTSC)
- Analog Bandwidth: ~10 MHz
- Sampling Frequency: ~20 MHz
- Internal Sampled data format: linear 24 bit RGB (8:8:8)
- Pixel clock jitter (line to line): <4 ns
- Pixel clock jitter (cycle): <500 ps
- Power Consumption: ~30W
- Weight: 5,6 Kg.
- Working temperature: 0-50 degrees Celsius

6.1 Input Signals

- 2 Composite inputs (with programmable 75 ohm termination)
- 1 S-VHS (Y/C) input (with programmable 75 ohm termination)]
- 1 RGBs input

6.2 Output Signals

- 9 x RGBs video to displays (DB9 female connectors)

6.3 Controls

- On Screen Display allows full control over all of the parameters of the device.
- 3 keys on the front panel to select video input/control OSD (this keys are remotable through an external mini keyboard)
- RS232 port to remotely control the main parameters

6.4 Functions

- On Screen Display to control all of the parameters
- PAL/NTSC auto detection
- Digital decoding of composite/S-VHS video
- Programmable input selection at start up
- Independent settings for each input
- Regulations for decoded videos include Brightness,Contrast,Saturation,Hue, termination, Chroma Filter shape and width, comb filter for NTSC/PAL Delay line, luma/chroma alignment for Composite video, noise filter
- Internal test pattern generator
- Analog persistence interpolation (to remove motion artifacts)
- Interlaced/not interlaced input video auto detection
- Inversion (negative) of the video input (only on composite/S-VHS inputs)

6.5 Shipping checklist

- 3xVision Main unit
- AC Power cord
- 9x Output video cables (5 mt.)
- Serial Cable (20 mt.)
- Software diskette
- User Manual