



USER MANUAL
PASSIVE TO ACTIVE CONVERTER

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A Requirements

.1 Source Device

To run stereo using the PA-converter you need a source capable of outputting two genlocked video RGB signals..

 See www.stereographics.com for a list of stereo-capable graphics cards

.2 Display Device

 To get the most out of your PA-converter, your display device should support the maximum resolution of your PA-converter.

.3 Viewing Glasses

 You will need a pair of active shutter glasses and an emitter. There are other possibilities however, this is the most common method.

 The PA-converter supports resolutions up to 1280x1024.

 For the latest information and related url links please visit our **technical support** pages at www.christiedigital.com

Requirements A

Source Device .1

Display Device .2

Viewing Glasses .3

Setup procedure B

Eyestrain C

Remote controlling D



Requirements A

Setup procedure B

Connecting the Source .1

Connecting the Display Device .2

Eyestrain C

Remote controlling D

→ B Setup procedure

.1 Connecting the source

Connect your source using VGA cables, and connect them to the left and right input channel on the PA-converter. (See **figure B.1-1** on the right).

The PA-converter treats the left input signal as the master signal, and the right input signal as slave. Make sure that your left input signal contains the sync.

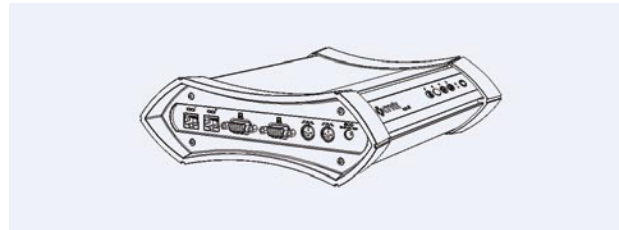
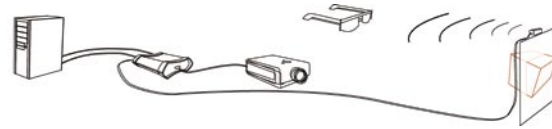


figure B.1-1 (VGA in)

→ .2 Connecting the Display Device

Use a VGA cable to connect your display device to the right channel VGA connector on the output side of the PA-converter. If your device needs a stereo sync, or works with an emitter, you may connect this to the stereo sync plug on the PA-converter. (See **figure B.1-2** on the right).

The PA-converter is delivered with with 2

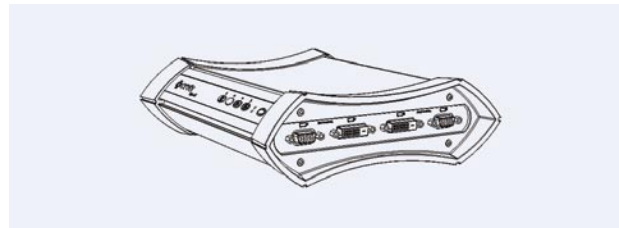
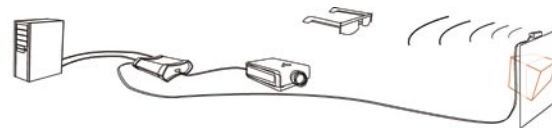


figure B.1-2 (DVI and VGA out)



You can find more technical information on the connectors in **Part III (Appendixes), chapter C (Connectors)**.



Requirements A

Setup procedure B

Connecting the Source .1

Connecting the Display Device .2

Eyestrain C

Remote controlling D

← B Setup procedure

← .2 Connecting the Display Device

standard 15 pin VGA cables. These are to used when there are 15 pin VGA connectors at both ends.”

 Not all computers have a 15pin VGA connector. Some other popular connectors are SUN type 13W3 and SGI type 13W3. These require an adapter or a special cable to connect to the PA-converter.

 Note that SGI and SUN have different pinout for 13W3 connectors.

Please note that when using shutter mechanisms, the vertical blanking period will be half of the incoming signal, as the pixelrate out is twice the incoming. When using a standard General Timing Formula (GTF) 1280x1024@60Hz, the blanking interval is roughly 0.55 milliseconds. When coming out of the PA, the blanking interval will be 0.27 milliseconds. If your shutter-mechanism is slower than this, it will show as a left/right leakage at the top of the screen on CRT technology.

Therefore you need to create a new monitor timing file, having the appropriate blanking interval. Check the datasheet for your shutter mechanism, double that number, and use this when creating a new monitor timing file.



Useful downloads are available from our **technical support** pages at www.christiedigital.com



Requirements A

Setup procedure B

Eyestrain C

Software parameters .1

Remote controlling D

C Eyestrain

.1 Software parameters

Bad software parameters such as eye distance, and focus point may cause eyestrain. Unfortunately also bad algorithms for displaying stereo have been discovered in some software. The best algorithms should have no vertical disparity/displacement at any point of the scene. You can easily detect this by removing the glasses and pick any random edge/point of an object. The point should only have a horizontal displacement, and nothing vertically.



Requirements A

Setup procedure B

Eye-strain C

Remote controlling D

D Remote controlling

The serial ports enable you to remote control the PA-converter from a distant location using a standard RS-232 serial port.

Also the master unit may link to a second PA-converter, the second to a third and so on, so that you may be able to control all units from a single serial port. To do this, see "Serial commands".



For instructions on how to link multiple PA-converters, see **Part II (Using the PA-converter), chapter C.6 (Serial Commands/Linking of units)**.





The PA-converter may be remote controlled through the serial port.



You may set up a chain of linked PA-converter units, all controllable from the master PA-converter.

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→ A Keyboard functions

.1 LED indicators

The PA-converter has two led indicators, one green and one red.

At power on, both the red and green led will light up. After a few seconds the red led will automatically switch off, leaving the green led on while the converter is in operation. When the unit is in standby mode, no light will show.



.2 Standby button

The 'standby button'  is used to turn the unit into low-power mode. The button will be disabled whilst in the OSD.



.3 Toggle button

The 'toggle button'  is used to swap the left and right image.



 Use the 'toggle button'  to swap the left and right image.

 For the latest functionality updates please visit our **technical support** pages at www.christiedigital.com

Keyboard functions A

LED indicators .1

Standby button .2

Toggle button .3

Right black button .4

User button .5

Menu button .6

Cursor buttons .7

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A Keyboard functions

.4 Right black button

The `right black button'  is used for turning the right channel black.

 It may be useful to turn the right channel black if you need to run 2d.



.5 User button

The function of the user button can be defined in the OSD menu. See **chapter B.2 (On screen display/Global settings)**.



.6 Menu button

The `menu button'  is used to activate the `On Screen Display' (OSD).



Keyboard functions A

LED indicators .1

Standby button .2

Toggle button .3

Right black button .4

User button .5

Menu button .6

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You may download the latest version of the user manual from our **technical support** pages at www.christiedigital.com



For the latest functionality updates please visit our **technical support** pages at www.christiedigital.com

A Keyboard functions

.7 Cursor buttons

When in OSD, the `cursor buttons` are used for navigation within the menus.



Keyboard functions A

LED indicators .1

Standby button .2

Toggle button .3

Right black button .4

User button .5

Menu button .6

Cursor buttons .7

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For the latest functionality updates please visit our **technical support** pages at www.christiedigital.com

Keyboard functions A

On Screen Display B

Source Setup .1

Stereo Setup .2

Preferences .3

Advanced .4

Info .5

Changes Done .6

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→ B On Screen Display

When not in a menu, pressing the 'menu button'  will activate the OSD menu and display the following:

Main Menu

Source Setup
Stereo Setup
Preferences
Advanced
Info

Use the up  and down  arrow buttons to move up and down in the menu, and the right arrow  to confirm your selection. If there is a submenu it will be opened. Wherever you are in the menu hierarchy, pressing the left arrow button  will return to the previous menu (one level up hierarchically), or quit the OSD if you are in the main menu.

→ .1 Source Setup

When selecting the *Source Setup* menu from the *Main Menu*, the OSD will show the following:

Source Setup

Manual Setup

 OSD is short for 'On Screen Display'.

 When in the OSD menu, the 'cursor buttons' are used for navigation within the menus.

 For the latest functionality updates please visit our **technical support** pages at www.christiedigital.com

Keyboard functions A

On Screen Display B

Source Setup .1

Stereo Setup .2

Preferences .3

Advanced .4

Info .5

Changes Done .6

Serial commands C

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 B On Screen Display

 .1 Source Setup

Auto Setup
Revert Source
Force Odd Res
Store

Source Setup
Manual Setup

Pixel Tracking
Pixel Phase
Brightness
Contrast
DVI Position
Picture Sync

Source Setup
Manual Setup
Pixel Tracking
Adjust Tracking
At entry=1756

Adjust using ^|v

↔ B On Screen Display

↔ .1 Source Setup

"At entry=1756" shows the value used before entering this submenu.



figure B.1-1 (bad pixel tracking)



figure B.1-2 (almost ok pixel tracking)



figure B.1-3 (ok pixel tracking)

Pixel tracking (often referred to as frequency or width) controls the width of the image. Generally, an incorrect setting can be observed as an image too wide or too narrow, combined with vertical, unstable bands and irregularities in the pattern displayed. Use the Nokia Monitors© Test Pattern software, or the 50% grey test pattern when performing adjustment procedures. Both can be downloaded from the Christie **technical support** pages at www.christiedigital.com.

The PA-converter automatically adjusts the pixel tracking to match the incoming source, but non-the-less it might be necessary to do final adjustments manually (unless the image signal has already been stored). The PA-converter needs the image to have minimum one bright pixel in both left and right border of the frame to do the adjustment. It also requires that the guessed resolution is correct. This is the result in most cases, but if the auto setup doesn't

Keyboard functions A

On Screen Display B

Source Setup .1

Stereo Setup .2

Preferences .3

Advanced .4

Info .5

Changes Done .6

Serial commands C

Technical information D



Keyboard functions A

On Screen Display B

Source Setup .1

Stereo Setup .2

Preferences .3

Advanced .4

Info .5

Changes Done .6

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B On Screen Display

.1 Source Setup

provide you with a stable image, a manual fine-tuning is needed.

Adjust the picture until you see no vertical bands. If you get rid of all the bands, but your picture is still unstable, you will have to adjust the pixel phase as well.

Performing these adjustments requires carefulness and accuracy, but only has to be done once per source. Make sure to store your settings after having achieved the desired result.

Source Setup

Manual Setup

Pixel Phase

Adjust Phase

At entry=14

Adjust using ^/v

An image with an incorrect pixel phase can be seen as sideways instability or jitter/swimming. Use this option to fine-tune the picture and get rid of any irregularities. Adjust the pixel phase until you are satisfied with the result, and remember to store your settings. The phase may need readjustment if you are using different cables to the PA-converter.

“At entry=14” shows the value used before entering this submenu.

Keyboard functions A

On Screen Display B

Source Setup .1

Stereo Setup .2

Preferences .3

Advanced .4

Info .5

Changes Done .6

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B On Screen Display

.1 Source Setup

Source Setup

Manual Setup

Brightness

Adjust Brightness

At entry=60

Adjust using ^/v

Brightness may be adjusted to your personal taste, the image and the viewing conditions. Value 60 corresponds to normal setting with no gain. Higher value means higher brightness.

“At entry=60” shows the value used before entering this submenu.

Source Setup

Manual Setup

Contrast

Adjust Contrast

At entry=190

Adjust using ^/v

Contrast may be adjusted according to your personal taste, the image and the viewing conditions. Value 190 corresponds to normal setting with no gain. The higher the number gets, the higher the contrast ratio becomes.

Keyboard functions A

On Screen Display B

Source Setup .1

Stereo Setup .2

Preferences .3

Advanced .4

Info .5

Changes Done .6

Serial commands C

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B On Screen Display

.1 Source Setup

"At entry=190" shows the value used before entering this submenu.

Source Setup

Manual Setup

DVI Position

Horizontal

Vertical

Adjustment of the actual DVI position is only affected when using DVI-cables/projectors. Due to minor variations in graphic cards/drivers, the horizontal and vertical position may need adjustment. Tune the vertical and horizontal position until you see the entire picture within the projection area. Download the grid-pattern from the **technical support** page at www.christiedigital.com, or use the Nokia Monitor Test program when adjusting DVI-position.

Source Setup

Manual Setup

DVI Position

Horizontal

Adjust Horizontal

At entry=364

Adjust using ^/v

Keyboard functions A

On Screen Display B

Source Setup .1

Stereo Setup .2

Preferences .3

Advanced .4

Info .5

Changes Done .6

Serial commands C

Technical information D



B On Screen Display

.1 Source Setup

"At entry=364" shows the value used before entering this submenu.

```
Source Setup
Manual Setup
DVI Position
Vertical
Adjust Vertical
At entry=45
-----
Adjust using ^/v
```

"At entry=45" shows the value used before entering this submenu.

```
Source Setup
Manual Setup
Picture Sync
-----
Auto
SEP (H+V)
COMP
SOG
```

Default is *Auto*, and shouldn't be changed unless you are experiencing trouble, or the PA-

Keyboard functions A

On Screen Display B

Source Setup .1

Stereo Setup .2

Preferences .3

Advanced .4

Info .5

Changes Done .6

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Technical information D



B On Screen Display

.1 Source Setup

converter doesn't recognize the picture sync correctly. Choose the desired picture sync, and press ➤ to activate.

Source Setup
Manual Setup
Picture Sync
Auto

Default is *Auto*, and shouldn't be changed unless you are experiencing trouble.

Source Setup
Manual Setup
Picture Sync
SEP (H+V)

Use this option to manually force the PA-converter to sync on a separate Horizontal and Vertical sync signal.

Source Setup
Manual Setup
Picture Sync
COMP

B On Screen Display

.1 Source Setup

Use this option to manually force the PA-converter to sync on a Composite sync signal.

Source Setup
Manual Setup
Picture Sync
SOG

Use this option to manually force the PA-converter to sync on a Sync-On-Green signal (SOG are mostly used on Silicon Graphics (SGI) machines).

Source Setup
Auto Setup

This option causes the PA-converter to analyse the incoming signal and perform an automatic adjustment.

Source Setup
Revert Source

 Press ► to revert to the settings stored for this source

Keyboard functions A

On Screen Display B

Source Setup .1

Stereo Setup .2

Preferences .3

Advanced .4

Info .5

Changes Done .6

Serial commands C

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Keyboard functions A

On Screen Display B

Source Setup .1

Stereo Setup .2

Preferences .3

Advanced .4

Info .5

Changes Done .6

Serial commands C

Technical information D



 B On Screen Display

 .1 Source Setup

Source Setup

Force Odd Res

Set X Resolution

Set Y Resolution

Run Force

Source Setup

Force Odd Res

Set X Resolution

1360

1280

1200

1152

1024

856

832

800

768

640

Other



WARNING: Forcing the PA-C to sync on SOG without an incoming SOG signal will render your picture unstable. Selecting a sync that is not present, will cause the PA to go back to search-mode.

Keyboard functions A

On Screen Display B

Source Setup .1

Stereo Setup .2

Preferences .3

Advanced .4

Info .5

Changes Done .6

Serial commands C

Technical information D



 B On Screen Display

 .1 Source Setup

Source Setup
Force Odd Res
Set X Resolution
Other
At entry=800

Adjust using ^|v

“At entry=800” shows the value used before entering this submenu.

Source Setup
Force Odd Res
Set Y Resolution

1024
960
900
864
856
800
768
720
642
600

↔ B On Screen Display

↔ .1 Source Setup

576
480
Other

Source Setup

Force Odd Res

Set Y Resolution

Other

At entry=600

Adjust using ^|v

"At entry=600" shows the value used before entering this submenu.

Source Setup

Force Odd Res

Run Force

Choose this option if you want to run setup with the odd resolution selected. If you accidentally force a resolution that is not handled by the monitor or the projector, press > again to restore default settings for this source.

Keyboard functions A

On Screen Display B

Source Setup .1

Stereo Setup .2

Preferences .3

Advanced .4

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Changes Done .6

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 B On Screen Display

 .1 Source Setup

Source Setup
Store

Pressing **➤** will store the settings in a new (or same, if already stored) position, and the position number will be displayed. If the PA-converter displays “*No changes done*” the source is already stored with the exact same settings. Press **◀** to return to navigation mode.

 .2 Stereo Setup

When selecting the *Stereo Setup* menu from the *Main Menu*, the OSD will show the following:

Stereo Setup

Input
Output
Output Mode

Keyboard functions A
On Screen Display B

- Source Setup .1
- Stereo Setup .2
- Preferences .3
- Advanced .4
- Info .5
- Changes Done .6

Serial commands C

Technical information D



B On Screen Display

.2 Stereo Setup

Stereo Setup
Input

Skew
Stereo Format
Channel Swap

Stereo Setup
Input
Skew
Adjust Skew
At entry 15

Adjust using ^/v

Use the Skew function to compensate for the two synchronized incoming sources not being properly genlocked. Maximum skew is +/- 15 pixels horizontally.

Stereo Setup
Input
Stereo Format

Separate Channels

B On Screen Display

.2 Stereo Setup

Frame Sequential
Top/Bottom Halves
Line Interleaved

Stereo Setup
Input

Stereo Format
Separate Channels

Choose this option to treat the incoming signal as two separate channels. This is the default selection.

Stereo Setup
Input

Stereo Format
Frame Sequential

Use this option if your incoming stereosignal is frame sequential format. This is the default setting.

Keyboard functions A

On Screen Display B

Source Setup .1

Stereo Setup .2

Preferences .3

Advanced .4

Info .5

Changes Done .6

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Keyboard functions A

On Screen Display B

Source Setup .1

Stereo Setup .2

Preferences .3

Advanced .4

Info .5

Changes Done .6

Serial commands C

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B On Screen Display

.2 Stereo Setup

Stereo Setup
Input

Stereo Format

Top/Bottom Halves

Use this option if you are using an incoming stereosignal with top/bottom halves, also known as above-below stereo.

Stereo Setup
Input

Stereo Format

Line Interleaved

Use this option if you are using an incoming stereosignal in line interleaved format.

Stereo Setup
Input

Channel Swap

Normal

Swapped

Use this option to swap or normalize the routing of the input channels.

Keyboard functions A

On Screen Display B

Source Setup .1

Stereo Setup .2

Preferences .3

Advanced .4

Info .5

Changes Done .6

Serial commands C

Technical information D



B On Screen Display



.2 Stereo Setup

Stereo Setup
Output

Stereo Sync Pol
Stereo Sync Type

Stereo Setup
Output

Stereo Sync Pol

Normal
Inverted

Use this option to normalize or invert the Stereo Sync Polarity of the output signal.

Stereo Setup
Output

Stereo Sync Type

DIN Connector
Cyvizync
None

Keyboard functions A

On Screen Display B

Source Setup .1

Stereo Setup .2

Preferences .3

Advanced .4

Info .5

Changes Done .6

Serial commands C

Technical information D



B On Screen Display

.2 Stereo Setup

Stereo Setup
Output

Stereo Sync Type

DIN Connector

Use this mode if you want to output the stereo sync in the most common format (VESA-standard) used for shutter glasses or stereo emitters.

Stereo Setup
Output

Stereo Sync Type

Cyvizync

Use this mode if you have a stereo sync source that uses the length of the vertical sync for stereo sync purposes.

Stereo Setup
Output

Stereo Sync Type

None

Use this mode if you do not want to use a Stereo sync.

Keyboard functions A

On Screen Display B

Source Setup .1

Stereo Setup .2

Preferences .3

Advanced .4

Info .5

Changes Done .6

Serial commands C

Technical information D



 B On Screen Display

 .2 Stereo Setup

Stereo Setup

Output Mode

Vrate Sync Low

Vrate Sync High

Asynchronous

Stereo Setup

Output Mode

Vrate Sync Low

Use this option if you need to force the output vertical refresh rate to low. The output refresh rate will be either half (range 43-85 hz) or equal the incoming.

Stereo Setup

Output Mode

Vrate Sync High

Use this option if you need to force the output vertical refresh rate to high. The output refresh rate will either be equal (range 90-140 hz) or double the incoming.

Keyboard functions A

On Screen Display B

Source Setup .1

Stereo Setup .2

Preferences .3

Advanced .4

Info .5

Changes Done .6

Serial commands C

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B On Screen Display

.2 Stereo Setup

Stereo Setup
Output Mode
Asynchronous

Use this option if you need to force the output vertical refresh rate to stay within 60 to 75 Hz. This mode is not recommended for stereo viewing. Use this if the display device can not handle the synchronous modes (the synchronous mode will either give output vertical refresh rate half, equal or double the input vertical refresh rate)

.3 Preferences

When selecting the *Preferences* menu from the *Main Menu*, the OSD will show the following:

Preferences

User Button

SOG Treshold

Serial Baudrate

Unit ID

Store Preferences

Keyboard functions A

On Screen Display B

Source Setup .1

Stereo Setup .2

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 B On Screen Display

 .3 Preferences

Preferences

User Button

No Action

TBH Stereo

LSS Stereo

Left Black

Stereo Sync Pol

Preferences

User Button

No Action

Selecting this option will disable the button.

Preferences

User Button

TBH Stereo

Choose this option if you want the user button to toggle between separate channel (SEP) and top/bottom halves stereo (TBH) on the input.

B On Screen Display

.3 Preferences

Preferences
User Button
LSS Stereo

Choose this option if you want the user button to toggle between separate channel (SEP) and line-sequential (LSS) input stereomode.

Preferences
User Button
Left Black

Select this option if you want the user button to toggle between normal and a black signal on the left eye channel.

Preferences
User Button
Stereo Sync Pol

Choose this option if you want the user button to toggle the stereo sync polarity.

Keyboard functions A

On Screen Display B

Source Setup .1

Stereo Setup .2

Preferences .3

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B On Screen Display

.3 Preferences

Preferences

SOG Treshold

At entry=15

Adjust using ^/v

If you experience a missing or unstable picture when sync is set to SOG, you might have to adjust the SOG Threshold. SOG Threshold will only be affected if picture sync is set to SOG. Default level is 15. (160 mV).

Technical: Threshold voltage = $(x+1) * 10 \text{ mV}$, where x is the number displayed on the PA-converter.

“At entry=15” shows the value used before entering this submenu.

Preferences

Serial Baudrate

300

1200

2400

4800

9600

19200

Keyboard functions A

On Screen Display B

Source Setup .1

Stereo Setup .2

Preferences .3

Advanced .4

Info .5

Changes Done .6

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B On Screen Display

.3 Preferences

38400
57600
115200

Pressing **>** will make the PA-converter change the serial baudrate accordingly.

Preferences
Unit ID

Adjust Unit ID
At entry=1

Adjust using ^/v

The Unit ID gives the ID of this unit when linked to other units. All linked units should have different Unit ID's for correct linking.

"At entry=1" shows the value used before entering this submenu.

Preferences
Store Preferences

Confirm using **>** to save all data (User Button, SOG Treshold, Serial Baudrate, Unit ID).

Keyboard functions A

On Screen Display B

Source Setup .1

Stereo Setup .2

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Keyboard functions A

On Screen Display B

Source Setup .1

Stereo Setup .2

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 B On Screen Display

 .4 Advanced

When selecting the *Advanced* menu from the *Main Menu*, the OSD will show the following:

Advanced

Test Patterns

Reset

Factory Settings

Advanced

Test Patterns

Alignment Grid

Hor Moving Bars

Resolve

White

Black

Red

Green

Blue

Left/Right Ident

Use these test modes when you are aligning the projectors and adjusting the picture on the projectors and the PA-converter.

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 .4 Advanced

Advanced
Test Patterns
Alignment Grid

Pressing ► brings up a white alignment grid on black background. Press ◀ to return to the previous menu.

Advanced
Test Patterns
Hor Moving Bars

Pressing ► brings up a set of horizontal moving white bars. Press ◀ to return to the previous menu.

Advanced
Test Patterns
Resolve

Pressing ► brings up a set of black and white thin lines across the screen. Press ◀ to return to the previous menu.

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 .4 Advanced

Advanced
Test Patterns
White

Pressing ► brings up a white screen. Press ◀ to return to the previous menu.

Advanced
Test Patterns
Black

Pressing ► brings up a black screen. Press ◀ to return to the previous menu.

Advanced
Test Patterns
Red

Pressing ► brings up a red screen. Press ◀ to return to the previous menu.

Advanced
Test Patterns
Green

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.4 Advanced

Pressing **➤** brings up a green screen. Press **◀** to return to the previous menu.

Advanced
Test Patterns
Blue

Pressing **➤** brings up a blue screen. Press **◀** to return to the previous menu.

Advanced
Test Patterns
Left/Right Ident

Press **➤** to display the left and right ident pattern. Use this test pattern to verify your projection system stereo separation. You should see the word “Left” and “Right” on the corresponding eye. The left text will always show where the left input signal appears (when present). The same applies to the right text and eye.

Advanced
Reset

This option will warm-reboot the PA-converter. All data not stored will be lost.

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 B On Screen Display

 .4 Advanced

Advanced

Factory Settings

Cancel

Restore

Advanced

Factory Settings

Cancel

Pressing ➤ will cancel the operation and return to the previous menu.

Advanced

Factory Settings

Restore

Pressing ➤ will delete all user data and restore the PA-converter to factory settings.

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B On Screen Display

.5 Info

When selecting the *Info* menu from the *Main Menu*, the OSD will show the following:

Info

Firmware

System Status

Source

Info

Firmware

Brings up a menu displaying:

Firmware version: 020625-160917

Serialnumber: PA0001

www.christiedigital.com

Info

System Status

Pressing ► brings up a screen displaying:

Signal status = *Showing*

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.5 Info

Active location = 103
Search mode = Auto
Resolution = 1280x1024p
Pixelrate = 87 MHz
Stereo mode in = SEP

Press ◀ to return to previous menu.

The resolution shows what the converter found the resolution to be. In case the converter interprets the resolution wrong, you may force the converter to interpret it as a different resolution by using the Force Odd Res menu under Source Setup.

The pixelrate shows the rate at which the PA-converter samples the incoming signal.

Info

Source

Pressing ▶ brings up a screen displaying:

Hsync is active high
Period = 18.68 us
Frequency = 53.53 KHz
Width = 17.8 %
Vsync is active high

B On Screen Display

.5 Info

Period = 19.95 ms
Frequency = 50.13Hz
Lines = 1068
Width = 3
Synctype = SEP

Press  to return to previous menu.

.6 Changes Done

When exiting from the main menu after having done changes, the following menu appears:

The menu will not be displayed if you haven't modified any settings.

Changes Done

Store
Leave As Is
Restore

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.6 Changes Done

Changes Done **Store**

Pressing ➤ stores the new settings in the current or next free location.

Note that pressing ◀ will leave the settings as is. If you accidentally press ◀, you may re-enter the menu, and exit once more. The store request will then re-appear.

Changes Done **Leave As Is**

Pressing ➤ exits the menu without saving.

Changes Done **Restore**

Pressing ➤ restore will recall the settings from the stored position. If the source is not stored the "restore" option will be disabled.



When leaving the OSD you might get the following warning if you are not using a stereo sync cable:

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← B On Screen Display

← .6 Changes Done

----- Warning -----
Outsignal is asynchronous!

You should use an input signal which can run synchronously. Go to **Stereo Setup / Output Mode** to select a synchronous mode.

 If the PA-Converter is having problems setting up the source, you might the following message:

----- Warning -----
Autosetup failed

In this case you should manually set up the source to get the best image.

→ C Serial commands

.1 Summary

The commands have been grouped by the following types with corresponding initial letters;

<i>Initial letter</i>	<i>Type of command</i>
I	Commands directly controlling the input
O	Commands controlling the outputs
SS	Commands controlling the stereo sync
Q	All query commands

Furthermore, the commands follow these general guidelines;

- All commands need to be ended with the ASCII code CR, (which is what happens when you type **enter** on the keyboard). The LF (Hex 0A) will be ignored.
- All accepted incoming characters will be echoed.
- Line feed from the PA-converter will be of type CR only.
- There is no need for a **space** between a command and it's arguments.
- Multiple commands may be entered with the character "|" in between. For example the command "PA>sst|ssp" typically will output "Stereo sync type (SST) = Auto" and "Stereo sync polarity (SSP) = Normal".
- All text after the characters ";" or "#" until CR will be ignored.

 The commands are grouped by type with corresponding initial letter(s).

 The commands follow a set of general guidelines.

 You get the ASCII code CR when you press **enter** on the keyboard.

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.2 The help command

The help command is useful for getting more help on each command. You may use "help" or "?" to get help.

To list all commands, use "? allcmds".

To see all commands without explanation, use "? %allcmds".

 Also see **Command: ?/Help** in **chapter C.4 (Serial commands/Commands)** for further information on using the help command.

.3 Topics

The PA-converter help commands also have a short explanation of some used topics.

Use the command "? alltopics" to list.

 You may use "help" or "?" to get help.

 For an explanation of frequently used topics, use "? alltopics"



C Serial commands

.4 Commands

Command: `?/HELP [%][command/topic/wildcard/allcmds/alltopics]`

Function: Shows help on all or specific command.

% shows short format

[] are optional arguments

() are required arguments

{ } is the default argument

No argument will show the current setting.

Command: `.[new arguments]`

Function: Repeats last command with new arguments.

This is very useful for manual search of correct values for commands like ISPL and IPHA.

 A typical output will show:

```
PA>ispl
Horizontal rate      (ISPL) = 1408 pixel/hsync
```

```
PA>.+
Horizontal rate      (ISPL) = 1410 pixel/hsync
```

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.4 Commands

Command: ,

Function: Repeats last command with the same arguments.

Command: QI [location]

Function: Shows settings for parameters controlling the picture, ISPL, IPHA, IST, SMI, IBR, ICO, DVIHPOS, DVIVPOS, NAMESRC for selected stored location.

If location is empty, the current settings will be shown.

 A typical output will show:

PA>qj

Current settings (location 103)

Horizontal rate (ISPL) = 1640 pixel/hsync

Hsync phase (IPHA) = 18

Image synctype (IST) = AUTO

Stereo mode in (SMI) = SEP (Separate)

Brightness (IBR) = 60

Contrast (ICO) = 190

DVI horizontal pos (DVIHPOS) = 278

DVI vertical pos (DVIVPOS) = 41

Name (NAMESRC) = '1280 50HZ'



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C Serial commands

.4 Commands

Command: **QINFO [SO/SY]**

Function: Show system- and basic source-information.

SO - source information

SY - system information

 *Typical outputs will show:*

*PA>qinfo so
Hsync is active high
Period = 18.42us
Frequency = 54.29KHz
Width = 8.3 %
Vsync is active high
Period = 19.99ms
Frequency = 50.04Hz
Lines = 1085
Width = 3
Synctype = SEP*

*PA>qinfo sy
Signal status = Showing
Active location = 103
Search mode = Auto*

↔ C Serial commands

↔ .4 Commands

Resolution = 1280x1024p

Pixelrate = 95 MHz

Stereo mode in = SEP

Command: ISPL (+/-/pixels pr line)

Function: This command adjusts the pixeltracking value. It tells the unit how many signal-samples per line (or per horizontal sync) it must take.

+/- will increase or decrease by 1 or 2 (depending on sample-mode). Entering a number will set the number entered.



A typical output will show:

PA>ispl

Horizontal rate (ISPL) = 1408 pixel/hsync

Command: IPHA (+/-/sampling phase)

Function: Reads/sets the phase of the sampled pixel clock in relation to the hsync edge.



A typical output will show:

PA>ipha

Hsync phase (IPHA) = 0

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.4 Commands

Command: IST (0-3/{AUTO}/SEP/COMP/SOG)

Function: Reads/sets the synctype of the source signal.

0 = AUTO

1 = SEP (Separate)

2 = COMP (Composite)

3 = SOG (Sync on green)



A typical output will show:

PA>ist

Image synctype (IST) = AUTO

Command: ISOGT (0-31)

Function: Reads/sets the threshold level of SOG slicer. Default value is 15.



A typical output will show:

PA>isogt

SOG threshold (ISOGT) = 15

Command: IBR (0-127)

Function: Reads/sets the offset/brightness. The default value is 60.

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.4 Commands

Higher values give higher brightness.

The PA-converter clamps at the hsync period, and samples the black area of the incoming signal. The displaying device connected to the outputs of the PA-converter may clamp elsewhere, and therefore the brightness level may not have the desired effect.

 A typical output will show:
PA>ibr
Brightness (IBR) = 60

Command: ICO (0-255)

Function: Reads/sets the gain/contrast. The default value is 190.

 A typical output will show:
PA>ico
Contrast (ICO) = 190

Command: DVIHPOS (0-..)

Function: Reads/sets horizontal placement of DVI area.

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↔ C Serial commands

↔ .4 Commands

↗ A typical output will show:
PA>dvihpos
DVI horizontal pos (DVIHPOS) = 276

Command: DVIVPOS (0-..)

Function: Reads/sets vertical placement of DVI area.

↗ A typical output will show:
PA>dvivpos
DVI vertical pos (DVIVPOS) = 52

Command: SKEW (0-30)

Function: Skews left and right input channel

Use this function in case the two incoming signals are not properly genlocked.

Command: IAUTO [!][hres[,vres]]

Function: Tries to find settings automatically.

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↔ .4 Commands

It does NOT save these settings into memory. If argument ! is given, the list of stored sources will be checked first, and if found, it will recall the settings from there.

Command: **OBL [L/R/B/{N}]**

Function: Show black on Left/Right/Both/None of the outputs. Defaults to none.

Command: **OSP [(+/-,+/-)/I]**

Function: Set polarity of H and V output sync.

Default is the same as the input syncs. Parameter I copies input sync polarity.

Command: **OSM (O-2/SYNCL0/SYNCHI/ASYNCL)**

Function: Sets the output scan mode.

At full rate the out signal will have the same vertical refresh rate as the output, with every frame input twice.

O=Synclo:

The output rate will be within 43-85Hz. The unit will try to half the framerate to get the output within this range.

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C Serial commands

.4 Commands

1=Synchi:

The output rate will be within 90-140Hz. The unit will try to double the framerate to get the output within this range.

2=Async:

The output rate will be within 60-75Hz regardless of input rate. Frame tearing will occur in this mode. This mode should only be used when no other mode will make reasonable output.

Command: OTST [testnumber]

Function: Shows specified testsignal.

If the parameter is omitted, the testsignal is switched off.



A typical output will show:

->TESTNUMBER<-

0/no number/default=off

1=Grid for alignment. When aligned, it will become white.

2=Horizontally moving vertical bar. For v-sync test.

3=Black/White vertical lines

4=White

5=Black

6=Red

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7=Green

8=Blue

9=Left/Right text

Command: ISW (0/1/ON/OFF/TOG)

Function: Swaps left and right input channels.

Command: UNDO

Function: Reloads all parameters from stored settings (if exists).

Command: RS

Function: Soft-resets the PA-converter.

Command: SEARCH [{ON}/OFF]

Function: Enables or disables automatic search for new sources.

When no parameter is given, the search is enabled. When on, the unit will, as soon as it sees a different source, look for it in the table of known sources. If it is found, the settings will be loaded from the list. If not found the I AUTO command will be run. When off, no changes will be made to any parameters when a new source is found. This is for debugging only.

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 A typical output will show:

PA>search off

Manual mode.

Forced location 103.

Command: SMI[0-3/SEP/FSS/TBH/LSS]

Function: Set the input stereomode.

0/SEP = Separate channel

1/FSS = Frame sequential

2/TBH = Top/bottom halves

3/LSS = Line interleaved/Line sequential

Command: SST (0-2/DIN/CYV/NONE)

Function: Selects outgoing stereo sync type.

0=External DIN connector (SSEXTD).

1=Cyvizync (SSCYVIZ). Length of Vsync (short=right, long=left).

2=No stereo sync.

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A typical output will show:

PA>sst

Stereo sync type (SST) = Auto

Command: SSP [0-1/NORM/INV/TOG]

Function: Toggles or sets the polarity of outgoing stereo sync signal.

0/NORM is Left frame on high(DIN)/long(SSCYVIZ)

1/INV is Right frame on high(DIN)/long(SSCYVIZ)

A typical output will show:

PA>ssp

Stereo sync polarity (SSP) = Normal

Command: CLEANUPSRC

Function: Clean up the storage area.

Because of the way things are stored, a cleanup is needed if you have done a lot of changes and storing of sources.

If you use the STORE function and a cleanup is needed, the PA-converter will tell you. Use the parameter F only if you want to manually force the converter to perform a cleanup.

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.4 Commands

Command: NAMESRC (name)

Function: Sets the name of the current source.

This name will be stored when the store command is used.



A typical output will show:

PA>namesrc

Name (NAMESRC) = 'VESA 1024x768@60Hz GTF TIMING'

Command: STORE [SYSTEM/(location)]

Function: Stores the source settings.

Stores the settings at the active location (if already stored), at the first free location, or at the location specified (if not stored). You will get an error message if you try to store a source wich already exists into a different location. Two identical sources can not be stored twice.



See **Part III (Appendixes), chapter D.6 (Technical Information/Handling of sources)**, for more information on this subject.

If parameter is omitted, the active location (if any) will be overwritten.

If no location is active, the next free location is selected and activated.

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If the parameter is 'SYSTEM' then the current system settings will be stored and used at next power up.

Command: SYSSTORE

Function: Stores global settings like serial baudrate, unit id and user button mapping.

Command: DELSRC (location)

Function: Deletes the source settings at the specified location.

Command: LISTSRC @[loc[,toloc]]

Function: Lists the stored sources.

If no argument is given, the active location is listed. If only loc is given, only this is listed. If also the toloc is given, all locations between loc and toloc are listed. Use @ to list as detailed mode.

The list shows all the parameters used to recognize the source, together with its settings stored at the position.

↔ C Serial commands

↔ .4 Commands

 A typical output will show:

PA>listsrc

Listing active location (103):

*103 > 1068 3 1868 331 1 1 1 0: 'TEST',
1640,24,15,0,0,0,0,0,1,1,190,60,278,41,1280,1024;*

This is the function of the numbers;

<i>103</i>	<i>= The location for this source</i>
<i>></i>	<i>= Separator</i>
<i>1068</i>	<i>= Number of lines between each vertical sync</i>
<i>3</i>	<i>= Duration of vertical sync (number of lines)</i>
<i>1868</i>	<i>= Duration (in 100Mhz cycles) between the horizontal syncs</i>
<i>331</i>	<i>= Duration (in 100Mhz cycles) of the horizontal sync width</i>
<i>1</i>	<i>= Positive (active high) vertical sync polarity (0=neg, 1=pos, 3=don't care)</i>
<i>1</i>	<i>= Positive (active high) horizontal sync polarity (0=neg, 1=pos, 3=don't care)</i>
<i>1</i>	<i>= SEP sync type (0=any, 1=separate, 2=composite, 3=SOG)</i>
<i>0</i>	<i>= Progressive scan type (0=progressive, 1=interlaced)</i>
<i>:</i>	<i>= Separator between the identity parameters and the settings</i>
<i>'TEST'</i>	<i>= Name of the stored source (NAMESRC)</i>
<i>1640</i>	<i>= Pixel tracking value (ISPL)</i>
<i>24</i>	<i>= Pixel phase (IPHA)</i>
<i>15</i>	<i>= SOG threshold (160mV) (ISOGT)</i>

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.4 Commands

- 0* = Image synctype to be used (IST) (0=auto, 1=separate, 2=composite, 3=SOG)
- 0* = Input stereomode (SMI) (0=SEP (Separate), 1=FSS (Frame Sequential), 2=TBH (Top Below Halves), 3=LSS (Line Interleaved/Line sequential)
- 0* = Stereo sync type used (SST) (0=External DIN connector (SSEXTD), 1=Cyvizync (SSCYVIZ), 2=No stereo sync)
- 0* = Stereo sync polarity (SSP) (0=normal, 1=inverted)
- 0* = Input swap (ISW) (0=off/normal, 1=on/swapped)
- 0* = Output sync mode (OSM) (0=vrate synchronous low, 1=vrate synchronous high, 2=asynchronous tear)
- 1* = Output horizontal sync polarity (0=active low, or negative, 1=active high or positive)
- 1* = Output vertical sync polarity (0=active low, or negative, 1=active high or positive)
- 190* = Contrast (ICO)
- 60* = Brightness (IBR)
- 278* = DVI horizontal position (DVIHPOS)
- 41* = DVI vertical position (DVIVPOS)
- 1280* = Horizontal resolution (1280 pixels)
- 1024* = Vertical resolution (1024 pixels)

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.4 Commands

Command: **KEY (MENU/MODE/RBLACK/TGL/ENTER/BACK/UP/DOWN/LEFT/RIGHT/POWERON/POWEROFF)**

Function: Simulates a keypress.

The KEY command brings up the OSD display, and simulates pressing the buttons on the the keypad.

Command: **RESTOREFACTORYSETTINGS**

Function: Restores the factory settings. Will NOT ask for confirmation.



A typical output will show:

```
PA>restorefactorysettings
Restoring factorysettings.
Erasing old data..ok.
Programming sources.. Ok - Resetting.
```

```
Christie Digital Systems, Inc
Firmware version:020626-130349
Serial number:PA0001
www.christiedigital.com
```

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.4 Commands

Command: **COMSET (@baudrate/preset)**

Function: This command sets the serialport baudrate.

Use @ to set a non-standard baudrate. The device will report the real baudrate it sets before switching to the new rate.

Presets:

- 0 = 300 baud
- 1 = 1200 baud
- 2 = 2400 baud
- 3 = 4800 baud
- 4 = 9600 baud
- 5 = 19200 baud
- 6 = 38400 baud
- 7 = 57600 baud
- 8 = 115200 baud



A typical output will show:

PA>comset @57600

Actual rate set to 57600 bps.

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.4 Commands

Command: FRZ 0/1/ON/OFF/TOG

Function: Sets/resets freeze of a picture pair.

The freeze is synchronized at the end of a picture pair, so you will always see 2 complete pictures as they appear from the source.



A typical output will show:

PA>frz tog

Freeze is now on.

Command: USERB (0-4/NONE/TBH/LSS/RBL/SSP)

Function: Set the function of the userbutton on the keyboard.

0/NONE = no function

1/TBH = Toggle between SEP and TBH stereomode

2/LSS = Toggle between SEP and LSS stereomode

3/LBL = Toggle left output black

4/SSP = Toggle stereo sync polarity

Command: SV

Function: Shows software version and serial number.

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C Serial commands

.4 Commands

 A typical output will show:

Firmware version:020604-165555

Serialnumber:PA0001

www.christiedigital.com

Command: UNITID id[,SNR]

Function: Set the identity-number of the unit having the specified serialnumber.

SNR may only be omitted if hooked to the unit via the RS232. The format of snr is the same format as found at the label of the box, or from the SV command. If you enter the wrong serial number and get no response from the PA-converter, type atnO and press enter to bring back the prompt (characters might not be displayed whilst typing).

Command ATN id

Function: Sets the attention of the unit having the selected id.

When linking, it sets the attention of the device having UNITID = id. All commands after this will go to this unit. This command is silent.

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.4 Commands

Command: QATN

Function: Query the attention status, shows id and master/slave of selected unit.

Used for debugging to view the device' attention status.

Command: MASTER

Function: Set unit to master

When linking 2 units or more, one device needs to be the master. Using this command enables the master. This command only works on the RS232 port, not on the linkport. The master status will be stored when using the SYSSTORE command. This command is silent

.5 Linking of units

Several PA-converter units may be linked together and controlled from a single RS232 port. This is particularly useful when you have large setups.

Use the RS232 serial cable that comes with the PA-converter to connect to serial port 1 on the first unit. Then use a regular UTP network cable (RJ45) from port 2 on the first unit and connect this to port 1 on the next unit, and repeat this for every unit you want to connect.

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C Serial commands

.5 Linking of units

To enable linking, there must be a master unit, and all units must have their own unique unitid code. This must be set on the osd menu (global settings) or if you know the serialnumber of the unit, you may set it using the serial terminal and the unitid command.

First, after powerup, make sure the unit hooked to the RS232 is master by typing "master". Note that this command is silent, and will not prompt or answer. Press enter again to get a prompt.

You may set the unitid's by using the "unitid id,snr" where the snr is the serialnumber of the unit. Press enter to get prompt. If no prompt is shown, there is a problem communicating with the unit.

If you loose the prompt completely, type "atnO" to get back to the master.

The master mode may be stored for next powerup by using the command "sysstore".

To talk to a specific unit, use "atn id" where id is the unit with unitid=id. If everything is working, pressing enter should give you a prompt with the unitid of the answering unit (for example, "atn 5" should say "5:PA>") All commands sent will now go to this unit only.



D Technical information

.1 Different types of picture signal

There are 3 main sync types used in computer video signals, (separate sync, composite sync, and sync on green) which are all supported by the PA-converter.

.2 Different types of stereo sync



The PA-converter needs to know which part of the signal belongs to the left and right image.

There are two main formats in which the stereo sync can be output from the PA-converter:

VESA 3pin mini DSUB connector (DIN)

Separate stereo sync through a standard VESA 3pin mini DSUB connector. This stereo sync type is often used to connect to stereo sync emitters, or directly to shutter glasses.



See **3pin mini din, chapter D.3 (Different types of stereo sync connectors)**.

Cyvizync (SSCYVIZ)

This sync uses the length of the vertical sync for the stereo sync. It is defined by Cyviz at <http://www.cyviz.com>. The Cyvizync can be used to i.e. connect the stereo sync to an active to passive converter, or other equipment using the length of vertical sync.

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Different types of picture signal .1

Different types of stereo sync .2

Output stereo sequence .3

Handling of sources .4

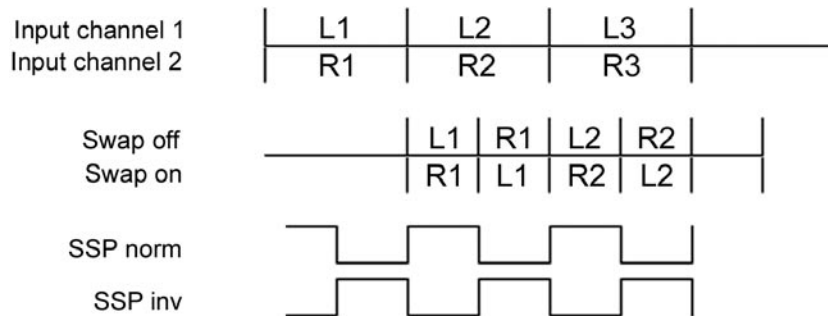




D Technical information

.3 Output stereo sequence

This drawing shows the output stereo sequence with different variables applied.



.4 Handling of sources

The PA-converter continuously looks for a signal on the input. When a stable input is found, it measures these parameters:

- horizontal and vertical sync lengths
- horizontal and vertical scan-frequencies

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← D Technical information

← .4 Handling of sources

- horizontal and vertical sync polarity (for separate sync only)
- the type of sync (separate sync, composite sync or sync on green)

These values are compared with a list of pre-programmed sources. If the parameters match, all settings (also stored in the table) for this match will be loaded and activated.

If the source is not found in the table of pre-programmed sources, the PA-converter will guess the resolution based on the picture contents and the number of vertical lines in the picture. It will then try to auto-setup all necessary settings on its own. Sometimes the PA-converter will not be able to set the best settings (especially if the desktop background is dark, or if it's an odd resolution), and may need manual help from the user. See **Manual Setup** in **Part II (Using the PA-converter), chapter B. 1 (On Screen Display/Source setup)**.

The PA-converter will NOT store new source settings automatically. When you are pleased with the settings, you should store the source in the list of pre-programmed sources (the OSD menu will ask if you want to store when leaving the menu). This makes it easy for the PA-converter to load the correct settings the next time it detects this source.

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Part III

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→ A Serial interface

The PA-converter is prepared for serial (RS-232) controlling and firmware upgrading. To use this serial interface you need a terminal-software like the **HyperTerminal** found in most Windows installations and a serial cable connection.

i In Windows OS, the **HyperTerminal** can normally be found in the **start menu/programs/accessories/communications**.

.1 Connection

Connect the PA-converter serial cable between one of the RS-232 ports (COM1, 2...) on the computer and the serial port #1 (IOIO¹) on the PA-converter.

i If your computer have a 25pin serial port you need an adapter from 25pin male to 9pin female.

↗ See chapter C.8 (Serial RS-232 cable) for pin configuration on PA-converter serial cable.

→ .2 Setting up HyperTerminal

To set-up serial control with HyperTerminal, do the following:

- Start the HyperTerminal program.
- A window will appear asking for a name on your new connection.

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↔ A Serial interface

↔ .2 Setting up HyperTerminal



On NT, the computer may ask for modem/dial properties first. If so, just enter some random numbers until you get to this window.

- Type "PA-converter" and click **OK**.



- Select **Direct to ComX** where X is the COM port you have plugged the PA-converter into. (Normally this is COM1 or COM2).

- **OK**

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Serial interface A

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A Serial interface

.2 Setting up HyperTerminal



- Set the parameters as follows:

Bits per second to 9600/19200/38400/57600

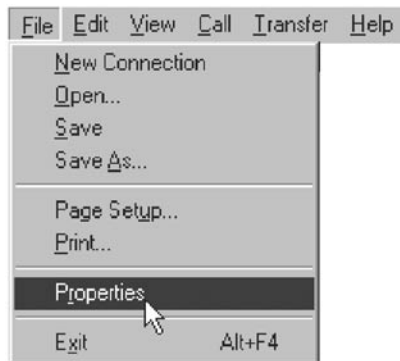
Data bits to "8"

Parity to "None"

Stop bits to "1"

Flow control to "None"

OK



- Select **Properties** in the **File** menu.
- In the menu window that appears, select **ASCII Setup...** under **Settings**.



Serial interface A

Connection .1

Setting up HyperTerminal .2

Setting up other systems .3

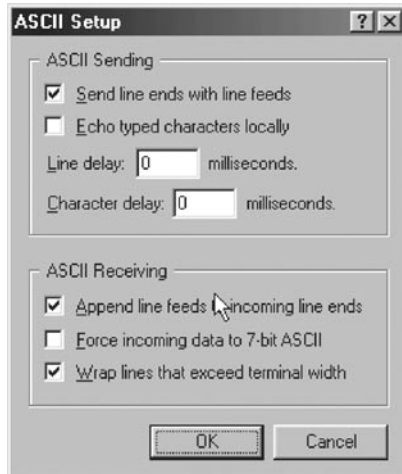
Firmware upgrade B

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A Serial interface

.2 Setting up HyperTerminal



- Check all boxes, except the ***Echo typed characters locally*** and ***Force incoming data to 7-bit ASCII***.



Do not check ***Echo typed characters locally*** and ***Force incoming data to 7-bit ASCII***.

- Set the ***Line delay*** to "0" and the ***Character delay*** to "0".
- 

- Ensure that both serial and power cable is properly connected to the PA-converter.
- Press enter in the terminal window.

 The PA-converter should respond with "PA>".

- Use the command "? ALLCMDS" and press enter to get a complete list of all the available commands.



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Connection .1

Setting up HyperTerminal .2

Setting up other systems .3

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← A Serial interface

.3 Setting up other systems

The PA-converter communicates through a normal RS-232 using the following parameters:

- baudrate (selectable)
- parity: none
- 8 bits
- 1 startbit
- no handshake
- no echo
- Tx linefeed: CR only
- Rx linefeed: CR only

 Your serial port must be set up according to the above listed parameters.



Serial interface A

Firmware upgrade B

Using Windows .1

Using non-Windows terminal .2

Connectors C

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→ B Firmware upgrade

→ .1 Using windows

The internal control software (firmware) in the PA-converter can be upgraded through the serial communication.

i New firmware files (*.bin) can be downloaded from the **technical support** pages at www.christiedigital.com

When you have downloaded and are ready to upgrade, please do the following:

- Start the "PA-converter" session in HyperTerminal
- Press enter in the terminal window to confirm the connection. The PA-converter should respond with "PA>".
 - Unplug power to PA-converter.
 - Press and hold the button that corresponds to your transfer speed. This setting has to match the setting in your terminal program. (See **figure B.1-1** on the right). (For older units without the monitor redraw, only 19200 is possible. Press and hold the power button to enable this mode).
- Reconnect the power plug whilst still pressing the button down.
- Release the button when **HyperTerminal** prompt with **BOOT>**. If your output is garbled, the transfer rate of the PA-converter and the terminal program doesn't match.
- Write the command "ERASEFIRM" and press **enter**, confirm with "ERASEFIRM YES" and press **enter** again.



i In Windows OS, the **HyperTerminal** can normally be found in the **start menu/programs/accessories/communications**.

↑ To find the latest available firmware upgrades please visit our **technical support** pages at www.christiedigital.com



Serial interface A

Firmware upgrade B

Using Windows .1

Using non-Windows terminal .2

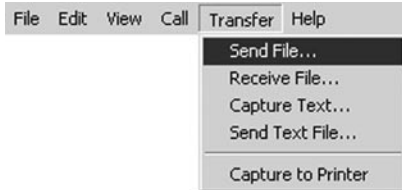
Connectors C

Technical specification D

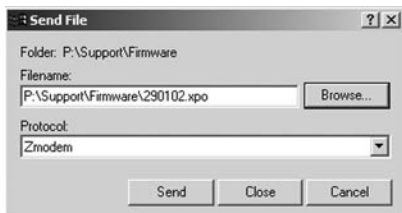
B Firmware upgrade

.1 Using windows

- Wait until the firmware is erased and then write the command "LOADFIRM" and press **enter**. You now have to start sending the file within 40 seconds, or the PA-converter will timeout.
- A similar text will be displayed at the prompt repeatedly: <*B0000000023be50



- Select **Sendfile...** in the "**Transfer**" menu in **HyperTerminal**.



- Use the **Browse...** button to locate the **PA-converter firmware file**.
- Select **ZModem** as protocol and click **Send** to start the transfer.

! If you use more than 40 seconds, the PA-converter will timeout and you may have to go back and retry "loadfirm"

i If you experience timeout, locate the firmware file and press **Close**. This will remember the current directory path, and you don't have to spend time locating the file again.



Serial interface A

Firmware upgrade B

Using Windows .1

Using non-Windows terminal .2

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B Firmware upgrade

.1 Using windows

 If the unit times out, the following will be displayed:

`<*B0000000023be50`

`<BB0BB0BB0BB0BB0`

Init failed: timeout

- If the transfer completes without error, write the command "HR" and press **enter** to restart the PA-converter with the new firmware.
- If the transfer fails, erase the firmware and try to load again.

.2 Using non-windows terminal

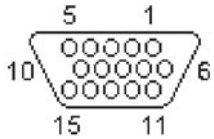
 You need a serial communication terminal program for your operating system to do this.

 Transfer time is typically 1 min per 100k in 19200 mode, and 1 minute per 300k in 57600 mode.



→ C Connectors

.1 VGA input left



15 pin high density D-SUB female

Pin	Name	Function
1	RED	Red Video in
2	GREEN	Green Video in
3	BLUE	Blue Video in
4	RESERVED	Not connected
5	GND	Ground
6	RGND	Red Ground
7	GGND	Green Ground
8	BGND	Blue Ground
9	+5V DC	Not connected
10	SGND	Sync Ground
11	IDO	Grounded
12	SDA	DDC Serial Data Line
13	HSYNC/CSYNC	Horizontal Sync or Composite Sync
14	VSYNC	Vertical Sync
15	SCL	DDC Data Clock Line

Serial interface A
Firmware upgrade B

Connectors C

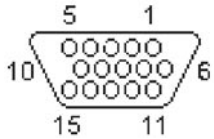
VGA input left .1
VGA input right .2
Power input .3
Stereo sync input .4
Stereo sync output .5
Serial plug 1 .6
Serial plug 2 .7
DVI-D right output .8
VGA right output .9
Serial RS-232 cable .10

Technical specification D



C Connectors

.2 VGA input right



15 pin high density D-SUB female

Pin	Name	Function
1	RED	Red Video in
2	GREEN	Green Video in
3	BLUE	Blue Video in
4	RESERVED	Not connected
5	GND	Ground
6	RGND	Red Ground
7	GGND	Green Ground
8	BGND	Blue Ground
9	+5V DC	Not connected
10	SGND	Sync Ground
11	IDO	Grounded
12	SDA	Not in use
13	HSYNC/CSYNC	Not in use
14	VSYNC	Not in use
15	SCL	Not in use

Serial interface A
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VGA input left .1
VGA input right .2
Power input .3
Stereo sync input .4
Stereo sync output .5
Serial plug 1 .6
Serial plug 2 .7
DVI-D right output .8
VGA right output .9
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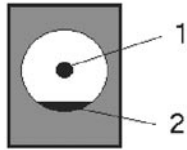
Technical specification D





C Connectors

.3 Power input



5.5/2.5mm diameter power jack

Pin Name

- 1 +V
- 2 GND

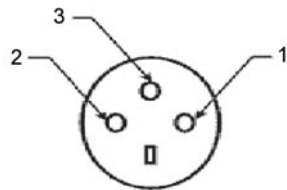
Function

- 12-24V DC 20W (max) input
- Ground

.4 Stereo sync input



Not in use



3pin MINI-DIN female

Pin Name

- 1 +5V
- 2 GND
- 3 Sync

Function

- Not in use
- Not in use
- Not in use

- Serial interface A
- Firmware upgrade B

Connectors C

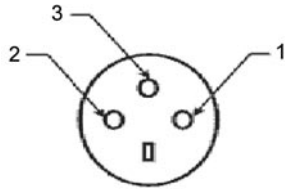
- VGA input left .1
- VGA input right .2
- Power input .3
- Stereo sync input .4
- Stereo sync output .5
- Serial plug 1 .6
- Serial plug 2 .7
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C Connectors

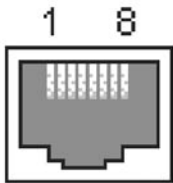
.5 Stereo sync output



3pin MINI-DIN female

Pin	Name	Function
1	+5V	300mA auto resettable fuse
2	GND	Ground
3	Sync	Stereo sync out

.6 Serial plug 1



RJ45 female socket

Pin	Name	Function
1	TxA+	Transmit ch A +
2	TxA-	Transmit ch A -
3	RxB/TxB+	Transmit or Receive ch B +
4	GND	Ground
5	GND	Ground
6	RxB/TxB-	Transmit or Receive ch B -
7	Tx	RS-232 Transmit
8	Rx	RS-232 Receive

Serial interface A
Firmware upgrade B

Connectors C

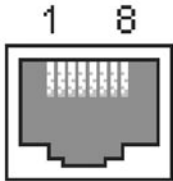
VGA input left	.1
VGA input right	.2
Power input	.3
Stereo sync input	.4
Stereo sync output	.5
Serial plug 1	.6
Serial plug 2	.7
DVI-D right output	.8
VGA right output	.9
Serial RS-232 cable	.10

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C Connectors

.7 Serial plug 2

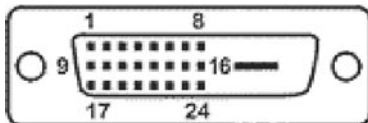


RJ45 female socket

Pin	Name	Function
1	TxA+	Transmit ch A +
2	TxA-	Transmit ch A -
3	RxB/TxB+	Transmit or Receive ch B +
4	GND	Ground
5	GND	Ground
6	RxB/TxB-	Transmit or Receive ch B -
7	NC	Not connected
8	NC	Not connected

.8 DVI-D right output

(Left output is not in use)



DVI-D female

Pin	Name
1	TMDS Data2-
2	TMDS Data2+
3	TMDS Data2 Shield
4	No Connection
5	No Connection

Serial interface A
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VGA input left	.1
VGA input right	.2
Power input	.3
Stereo sync input	.4
Stereo sync output	.5
Serial plug 1	.6
Serial plug 2	.7
DVI-D right output	.8
VGA right output	.9
Serial RS-232 cable	.10

Technical specification D



↔ C Connectors

← .8 DVI-D right output

- 6 DDC Clock
- 7 DDC Data
- 8 No Connection
- 9 TMDS Data1-
- 10 TMDS Data2+
- 11 TMDS Data1 Shield
- 12 No Connection
- 13 No Connection
- 14 +5 V Power has a 300mA auto resetable fuse
- 15 Ground (for +5 V)
- 16 Hot Plug Detect
- 17 TMDS DataO-
- 18 TMDSDataO+
- 19 TMDS DataOShield
- 20 No Connection
- 21 No Connection
- 22 TMDS Clock Shield
- 23 TMDS Clock +
- 24 TMDS Clock <

- Serial interface A
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- VGA input left .1
- VGA input right .2
- Power input .3
- Stereo sync input .4
- Stereo sync output .5
- Serial plug 1 .6
- Serial plug 2 .7
- DVI-D right output .8
- VGA right output .9
- Serial RS-232 cable .10

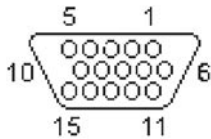
Technical specification D



C Connectors

.9 VGA right output

(Left output is not in use)



15 pin high density D-SUB female

Pin	Name	Function
1	RED	Red Video out (75 ohm, 0.7 V p-p)
2	GREEN	Green Video out (75 ohm, 0.7 V p-p)
3	BLUE	Blue Video out (75 ohm, 0.7 V p-p)
4	RESERVED	Not connected
5	GND	Ground
6	RGND	Red Ground
7	GGND	Green Ground
8	BGND	Blue Ground
9	+5V DC	Not connected
10	SGND	Sync Ground
11	IDO	Grounded
12	SDA	DDC Serial Data Line
13	HSYNC	Horizontal Sync out
14	VSYNC	Vertical Sync out
15	SCL	DDC Data Clock Line

Serial interface	A
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Connectors C

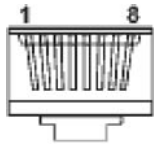
VGA input left	.1
VGA input right	.2
Power input	.3
Stereo sync input	.4
Stereo sync output	.5
Serial plug 1	.6
Serial plug 2	.7
DVI-D right output	.8
VGA right output	.9
Serial RS-232 cable	.10

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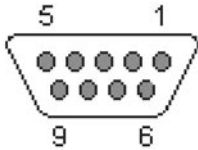


← C Connectors

.9 Serial RS-232 cable



RJ45 male plug



9pin DSUB female

PA-C RJ45 male	Computer DB9 female
1	N/C
2	N/C
3	N/C
4	Shield
5	5
6	N/C
7	2
8	3

Serial interface	A
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VGA input left	.1
VGA input right	.2
Power input	.3
Stereo sync input	.4
Stereo sync output	.5
Serial plug 1	.6
Serial plug 2	.7
DVI-D right output	.8
VGA right output	.9

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→ D Technical specification

.1 Functions

- Multisync input, any format with pixelrate between 20 and 120 Mhz
- DVI (digital only) and VGA channel output
- On Screen Display (OSD) menu
- RS-232 control using readable commands and answers (even with a help command)
- Link output for connecting many units to the same RS232 port
- Programmable custom modes
- Standby mode
- Keyboard for meny control and easy setup
- `Toggle button` for Left/Right channel swap
- Skewing of incoming signal

.2 Dimensions

- Size: 7 x 19 x 25 cm (HxWxD)
- Weight: approx. 1,5 kg



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Functions .1

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↔ D Technical specification

.3 Compatibility

- Resolution: 640 x 480 to 1280 x 1024
- HV (separate sync), CS (composite sync), SOG (sync on green)
- Devices with two genlocked sources
- Separate channel/above below/line interleaved (outputs to Frame Sequential)

.4 Inputs

- 15 - 25 VDC, 20W
- VGA 15-pin DSUB female
- RJ45 port with RS-232

→ .5 Outputs

- 2 x VGA 15-pin DSUB female, left and right channel
- 2 x digital DVI, left and right channel



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Supplied material .6

D Technical specification

.5 Outputs

- 1 x mini-DIN Stereo sync

.6 Supplied materials

- 1 Power adapter 100/240 VAC – 18VDC 2.2 A (or 19VDC@ 2.36 A)
- 1 Power cable (110V - US style)
- 1 Power cable (220V - European style)
- 2 RGB computer cables (15 pin DSUB male/male)
- 1 Serial RS-232 cable, RJ45 to 9-pin DSUB female
- 1 User's manual
- 1 Warranty card



FCC STATEMENT

This equipment complies with the limits for a Class A computing device, pursuant to Subpart J of Part 15 of FCC rules. It generates and uses radio-frequency energy and, if not installed and used in accordance with the instruction manual, may cause interference to radio and television reception. Only peripherals (computer input/output devices, terminals, printers, power adapters etc.) certified to comply with the Class A limits may be attached to a computer that complies with Class A limits. Operation with noncertified peripherals or non-shielded cables is likely to result in interference to radio and TV reception.

CE Declaration of conformity

This equipment complies with the requirements relating to electromagnetic compatibility, EN 55022 class A for IE.

Safety

CSA C22.2 No. 950, UL 1950, EN609050 European Norm "Safety of Information Technology Equipment"

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