



Avocent.

**Emerge[®] VSS1000P
PC/VGA Video Scaler**

Installer/User Guide

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EMERGE VSS1000P VIDEO SCALER USER GUIDE

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1 DISCLAIMER

This product is intended for professional and/or home use. This product is not intended for use in a medical environment and does not have the required certifications for such use. Similarly, use aboard any aircraft or spacecraft while in flight or as an adjunct to any surface, airborne or marine navigation system or any offshore marine activity, including control of any watercraft, or any use similar to those specifically herein mentioned is prohibited. Use in the aforementioned circumstances would require additional testing and certification.

1.1 Regulatory Agency Acceptance

Emissions: EN 55103-1: 1997 (Electromagnetic compatibility. Product family standard for audio, video, audio-visual and entertainment lighting control apparatus for professional use. Emission)

EN 61000-3-2:2000+A1:2001+A2:2005 (Limits for Harmonic Currents Emissions)

EN 61000-3-3:2000+A1:2001+A2:2005 (Limitation of voltage fluctuations and flicker in low-voltage supply systems)

Immunity: EN55103-2: 1997 (Electromagnetic compatibility. Product family standard for audio, video, audio-visual and entertainment lighting control apparatus for professional use. Immunity)

1.2 FCC Statement

Class A Device: This equipment has been tested and found to comply with the limits for a Class A digital device pursuant to Part 15 of the FCC Rules. These limits are designed to provide a reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the Instruction Manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Caution: This equipment is intended for use in the manner prescribed in the Instruction Manual. Any user changes or modifications not expressly approved by Avocent Corporation could void the user's authority to operate the equipment. Connecting this equipment to external devices requires no specially shielded cabling for FCC compliance. The Instruction Manual shows or describes the proper connection of this equipment for operation that insures FCC compliance.

Direct all inquiries regarding FCC compliance to:

Avocent Corporation

EMERGE VSS1000P VIDEO SCALER USER GUIDE

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Huntsville, AL 35805

1.3 Manual Copyright Notice

This Operation Manual is the intellectual property of Avocent Corp. No portion of this manual may be copied or reproduced in any manner or by any means, including, but not limited to electronic and electro-mechanical, without the express written permission of Avocent Corp.

2 IMPORTANT SAFETY INSTRUCTION

To insure the best from this product, please read this manual carefully. Keep it in a safe place for future reference.

To reduce the risk of electric shock, do not remove the cover from the unit. No user serviceable parts inside. Refer servicing to qualified personnel.

2.1 Power and connections

This unit must be connected to a mains socket outlet with a protective earth connection.

This unit is not disconnected from the AC power source as long as it is connected to the wall outlet. The off state for this unit is called standby mode. In standby mode the unit is designed to consume a reduced quantity of power compared to normal operating modes.

When not using the unit for a long period of time, insure that the AC power cord is disconnected from the wall outlet.

The AC wall outlet should be installed near to the unit and be easily accessible.

Do not plug in or attempt to operate an obviously damaged unit.

2.2 Water and moisture

To reduce the risk of fire and personal injury, operation of this device outdoors and/or exposure to rain, water or excessive moisture is expressly prohibited.

The apparatus shall not be exposed to dripping or splashing and no objects filled with liquids, such as vases, shall be placed on the apparatus.

2.3 General care

Do not force switches or external connections.

When moving the unit, disconnect the serial port connections first then the power cable and finally the interconnecting cables to other devices.

Do not attempt to clean the unit with chemical solvents or aerosol cleaners, as this may damage the unit. Use a clean dry cloth.

2.4 Location

Installation of this unit should be in a cool dry place, away from sources of excessive heat, vibration, dust, moisture and cold.

2.5 Ventilation

Slots and openings in the sides of the unit are provided for ventilation. To ensure reliable operation, avoid obstruction of these openings and ensure the unit is installed in a well-ventilated area.

2.6 Intellectual property

Some IC chips in this product include confidential and/or trade secret property. Therefore you may not copy, modify, adapt, translate, distribute, reverse engineer, reverse assemble or decompile the contents thereof.

2 IMPORTANT: CONSIGNES DE SECURITE

Afin de tirer le meilleur de ce produit, merci de lire attentivement ce manuel. Gardez-le dans un endroit sûr pour pouvoir le consulter à nouveau.

Afin de réduire le risque de choc électrique, ne retirez pas l'unité de sa protection.

Aucune pièce réparable par l'utilisateur à l'intérieur. Référez-vous à des personnes qualifiées.

2.1 Alimentation électrique et connexions

Il faut brancher l'appareil sur une prise du secteur disposant d'une mise à la terre.

Cette unité n'est pas déconnectée de la source de courant électrique tant qu'elle est connectée à la prise murale. Le mode éteint de cette unité est appelé mode de veille. En mode de veille, cette unité est conçue pour consommer une quantité réduite de courant par rapport aux modes normaux d'utilisation.

Lorsque vous n'utilisez pas l'unité pendant une longue période, assurez-vous que le câble d'alimentation électrique est déconnecté de la prise murale.

La prise murale de courant doit être installée près de l'unité et aisément accessible.

Ne branchez pas et n'essayez pas d'utiliser une unité visiblement endommagée.

2.2 Eau et humidité

Pour réduire les risques d'incendie et de dommages corporels, l'utilisation de cet appareil à l'extérieur et/ou son exposition à la pluie, l'eau ou une humidité excessive est expressément interdite.

L'appareil ne doit pas être exposé aux gouttes ou aux éclaboussures et aucun objet contenant de l'eau, comme par exemple un vase, ne doit être posé sur l'appareil.

2.3 Entretien général

Ne forcez pas les boutons ou connexions externes.

Lorsque vous déplacez l'unité, déconnectez d'abord les connexions de ports en série puis le câble d'alimentation et enfin les câbles de connexion avec d'autres appareils.

N'essayez pas de nettoyer l'unité avec des dissolvants chimiques ou des produits nettoyants en aérosol, car cela peut endommager l'unité. Utilisez un chiffon propre et sec.

2.4 Emplacement

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L'installation de cette unité doit se faire dans un endroit frais et sec, éloigné de sources excessives de chaleur, de vibrations, de poussière, d'humidité et de froid.

2.5 Aération

Les rainures et les ouvertures sur les cotés de l'unité servent à l'aérer. Pour permettre une utilisation sûre, évitez d'obstruer ces ouvertures et assurez-vous que l'unité est installée dans un endroit bien aéré.

2.6 Propriété intellectuelle

Certaines puces IC dans ce produit contiennent des éléments propriétaires confidentiels et/ou des secrets commerciaux. Vous ne devez donc pas copier, modifier, adapter, traduire, distribuer, démonter, désassembler, ou décomposer leur contenu.

2 INSTRUCCIONES IMPORTANTES DE SEGURIDAD

Para sacar el mejor provecho de este producto, léase este manual con detenimiento. Guárdelo en un lugar seguro para poder hacerle referencia en el futuro.

Para reducir el riesgo de calambre, no quite la cubierta del aparato.

No hay piezas utilizables dentro. Remítase todo mantenimiento a personal cualificado.

2.1 Corriente y conexiones

Esta unidad debe estar conectada a una toma de corriente eléctrica con una conexión a tierra de protección.

Mientras esté conectada a una toma de electricidad, el aparato seguirá conectado a la fuente de corriente CA. A la posición de «off» de este aparato se le denomina posición de espera. En la posición de espera, el aparato está diseñado a consumir una cantidad reducida de electricidad en comparación con los modos de operación normales.

Asegúrese de desconectar el cable de corriente CA de la toma de la pared cuando no va a utilizar el aparato por un periodo largo de tiempo.

La toma CA de la pared ha de estar instalada cerca del aparato y debe ser fácilmente accesible.

No enchufe ni intente operar un aparato que esté evidentemente dañado.

2.2 Agua y humedad

Para reducir el riesgo de fuego o de daños personales, se prohíbe la utilización de este aparato en el exterior y/o su exposición a la lluvia, al agua o a atmósferas de excesiva humedad.

El aparato no debe situarse cerca de zonas en las que haya riesgo de goteo o salpicaduras. Tampoco deben colocarse objetos que contengan agua (jarrones, por ejemplo) en el mismo.

2.3 Cuidado general

No forzar interruptores o conexiones externas.

Al mover el aparato, desconecte las conexiones del puerto en serie primero, luego el cable de electricidad y finalmente los cables interconectados a otros aparatos. No intente limpiar el aparato con disolventes químicos o productos de limpieza aerosol, ya que podrían dañar el aparato. Utiliza un paño limpio y seco.

2.4 Ubicación

Este aparato se debe instalar en un lugar seco y fresco, lejos de fuentes de calor excesivas, la vibración, el polvo, la humedad y el frío.

2.5 Ventilación

El aparato viene provisto de ranuras y agujeros en los lados para la ventilación.

Para asegurar una operación eficaz, se debe evitar la obstrucción de estos agujeros y también asegurar que el aparato se instale en una zona con adecuada ventilación.

2.6 Propiedad intelectual

Algunos chips con circuito integrado de este producto incluyen propiedad confidencial y/o propiedad de secreto comercial. Por lo tanto queda prohibido copiar, modificar, adaptar, traducir, distribuir, usar técnicas retroactivas, desmontar, o recopilar los contenidos del mismo.

2 WICHTIGE SICHERHEITSVORSCHRIFTEN

Lesen Sie diese Bedienungsanleitung bitte sorgfältig, um Ihr Produkt optimal nutzen zu können, und bewahren Sie sie zum späteren Nachschlagen an einem sicheren Ort auf.

Entfernen Sie bitte keinesfalls die Abdeckung, um der Gefahr eines Stromschlags vorzubeugen.

Im Inneren des Geräts befinden sich keine Teile, die vom Benutzer gewartet werden können. Lassen Sie Wartungsarbeiten nur von Fachpersonal durchführen.

2.1 Stromversorgung und anschlüsse

Das Gerät muss an eine geerdete Netzsteckdose angeschlossen werden.

Solange das Gerät mit einer Steckdose verbunden ist, bleibt die Stromversorgung aufrecht. Der Ausschaltzustand des Geräts wird als Standbymodus bezeichnet. Im Standbymodus verbraucht das Gerät weniger Strom als in den üblichen Betriebsarten.

Wird das Gerät über einen längeren Zeitraum hinweg nicht verwendet, ziehen Sie bitte das Stromkabel aus der Steckdose.

Die Steckdose sollte sich in der Nähe des Geräts befinden und leicht zugänglich sein.

Verbinden Sie ein offensichtlich beschädigtes Gerät keinesfalls mit einer Steckdose und versuchen Sie auch nicht, es zu bedienen.

2.2 Wasser und feuchtigkeit

Um die Gefahr eines Brandes oder einer Körperverletzung zu verringern, ist es ausdrücklich verboten, dieses Gerät im Freien in Betrieb zu nehmen und/oder es Regen, Wasser oder hoher Feuchtigkeit auszusetzen.

Das Gerät darf keinen Tropfen oder Spritzern ausgesetzt werden und es dürfen keine mit Flüssigkeiten gefüllte Behälter, wie Vasen, auf das Gerät gestellt werden.

2.3 Allgemeine pflege

Wenden Sie bei der Handhabung von Schaltern und Anschlüssen keine Gewalt an.

Beim Umstellen des Geräts entfernen Sie zuerst die seriellen Anschlüsse, dann das Stromkabel und zum Schluss die Verbindungskabel zu anderen Geräten.

Versuchen Sie keinesfalls, das Gerät mit chemischen Lösungsmitteln oder Sprayreinigern zu reinigen, da dies das Gerät beschädigen könnte. Verwenden Sie ein sauberes, trockenes Tuch.

2.3 Aufstellung

Das Gerät sollte an einem kühlen, trockenen Ort aufgestellt werden, fern von übermäßiger Wärme, Vibrationen, Staub, Feuchtigkeit und Kälte.

2.5 Belüftung

Seitliche Schlitze und Öffnungen sorgen für die Belüftung des Geräts. Um die ordnungsgemäße Belüftung zu gewährleisten, dürfen diese Öffnungen nicht verdeckt werden. Sorgen Sie außerdem dafür, dass das Gerät an einem gut belüfteten Ort aufgestellt wird.

2.6 Gewerbliches eigentum

Einige integrierte Schaltkreise in diesem Produkt enthalten vertrauliche

Informationen und/oder Betriebsgeheimnisse. Sie dürfen daher diese Inhalte nicht kopieren, modifizieren, adaptieren, übersetzen, verteilen, rückentwickeln, rückassemblieren oder dekompileieren.

2 BELANGRIJKE VEILIGHEIDSINSTRUCTIES

Lees deze handleiding zorgvuldig door om het beste uit uw product te halen. Bewaar het op een veilige plek voor raadpleging in de toekomst.

Haal nooit het omhulsel van de eenheid af, dit om de kans op een elektrische schok te verminderen. Maak het apparaat nooit open: er bevinden zich geen door de gebruiker in te stellen onderdelen in het apparaat. Laat service en onderhoud over aan een gekwalificeerde technicus.

2.1 Elektriciteit en aansluiting

Dit toestel moet worden aangesloten op een netcontactdoos met een aardsluitingsbeveiliging.

Deze eenheid is niet van de wisselstroom voedingsbron gescheiden wanneer de stekker nog in het stopcontact zit. Wanneer de eenheid uitstaat, staat deze nog in de stand-by modus. In de stand-by modus vergt de eenheid minder stroom dan in de normale "aan" modus.

Wanneer u de eenheid voor langere tijd niet gebruikt, zorg er dan voor dat de stekker van het wisselstreamsnoer uit het stopcontact is getrokken.

Het wisselstroom stopcontact moet dichtbij de eenheid geïnstalleerd worden en makkelijk toegankelijk zijn.

Als de eenheid duidelijk beschadigd is moet u deze nooit op het lichtnet aansluiten of bedienen.

2.2 Water en vocht

Om het risico op brand en persoonlijk letsel te beperken is het gebruik van dit apparaat buiten en/of blootstelling aan regen, water of overdadige hoeveelheden vocht uitdrukkelijk verboden.

Het apparaat mag niet worden blootgesteld aan druppels of bespatting en er mogen geen objecten die gevuld zijn met vloeistoffen, zoals vazen, op het apparaat geplaatst worden.

2.3 Algemeen onderhoud

Forceer schakelaars of externe aansluitingen nooit.

Bij verplaatsing van de eenheid, de seriële poortaansluitingen eerst loskoppelen, dan de voedingskabel en als laatste de snoeren naar andere apparaten. Probeer de eenheid nooit met chemische oplosmiddelen of schoonmaakmiddelen in een spuitbus schoon te maken, omdat dit de eenheid kan beschadigen. Gebruik een schone droge doek.

2.4 Plaatsing

Deze eenheid moet geïnstalleerd worden op een koele droge plaats, uit de buurt van bronnen van extreme hitte, vibraties, stof, vocht en kou.

2.5 Ventilatie

De sleuven en openingen aan de zijkant van de eenheid zijn voor ventilatie. Zorg er voor dat de eenheid op een goed geventileerde plek geïnstalleerd wordt zodat deze betrouwbaar werkt.

2.6 Intellectueel eigendom

Sommige IC chips in dit product bevatten vertrouwelijke informatie en/of fabrieksgeheimen. U mag daarom de inhoud hiervan niet kopiëren, wijzigen, aanpassen, vertalen, verspreiden, nabouwen, of decompileren

3 DEVICE SUMMARY

3.1 Device Capabilities

The Emerge VSS1000P scaler is intended for any application requiring high quality video signal conversion or image manipulation. The unit features a single video processing and scaling engine.

Video Scaler

This unit allows for a standard television video signal, such as Composite Video, to be input into the unit and then converted for use on a computer display.

PC/HD Scaler

This unit allows computer / high-definition video scaling from one resolution to another – for example, 720p to 1080i, or VGA to XGA, etc. This unit does not have any overlay abilities.

3.2 Device Features

General Topography

4:4:4 RGB / YUV sampling provides full bandwidth color for a wide range of applications.

Ultimate flexibility

The scalars' output signal format flexibility assures that the Native Resolution of virtually any display can be matched. Because of the resolution calculator (included in the Windows® Control Panel), even new resolutions can be added to the unit. Signal parameter adjustments can be made for each video input and are stored in individual non-volatile memories for retrieval once the unit's power has been removed. The Video Scaler units employ pixel adaptive motion compensation to de-interlace fast moving images, and automatic 3:2 Pull-down detection efficiently de-interlaces video from 24 fps NTSC film.

Simple Control

The unit can be controlled in various ways. One option is to control it from the front panel using the transparent (soft) keys on the front of the unit. Another option would be to control the unit from an infra-red remote control. It can also be controlled via RS-232 using the Windows Control Panel.

The Windows Control Panel is available for download from our Internet site and affords complete control of the unit and adds Scripting to facilitate long, complex sequence of commands.

Finally, serial and LAN-based control interfaces allow users to control the unit via external controllers.

Upgradeability

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The unit benefits from firmware upgradeability, thus reducing product obsolescence by allowing the installation of the latest version of firmware. This not only applies to the software used to control the unit, but also to the range of resolutions stored inside the unit, the addition of new features.

4 PRODUCT IMAGES

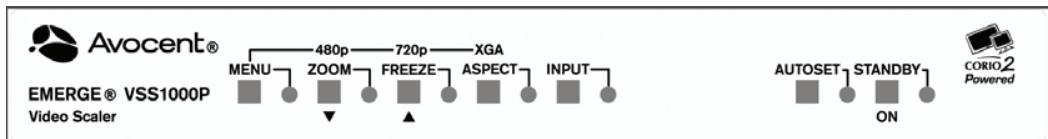
The following image illustrates your Emerge scaler:



5 FRONT PANEL CONTROLS

The range of buttons on the front of the unit provides the user with quick access for selecting a variety of inputs and features.

The MENU button, ↓ button, and ↑ button set on the front panel provide the user with a way of navigating the on-screen-display (OSD) menu system. The RS232 interface and infra-red remote control provide further ways of controlling the unit, which are detailed in a later section.



5.1 Button controls

The following buttons are available on the front of the unit:

Button	Button Function
MENU	Press once to show the on-screen display (OSD). Hold in to cancel the OSD. Hold in for longer to store the current settings.
ZOOM ↓	Jumps to the 'Zoom' menu item (also steps Zoom between 100%, 150%, 200% and 300% if the OSD is not active)
FREEZE ↑	Freezes the current image (does not affect any background image)
ASPECT	Cycles through 2 aspect ratio settings (letterbox and side-bars) before returning to 'normal'.
INPUT	Cycles through the inputs on the rear of the unit to use for image conversion – RGB, followed by CV, followed by YC, and back to RGB again.
AUTOSET	Activates Autoset for the current analog RGB input
STANDBY	Hold in to put the unit into Standby (power-save) mode. Hold in briefly to come out of Standby mode.

5.2 MENU ↓ and ↑ buttons

The on-screen display (OSD) is controlled from the front panel by using these buttons. MENU will activate the OSD, whereas the ↓ and ↑ arrowed keys will allow different menu items to be selected and adjusted – this is detailed in a later section.

5.3 Special button combinations and functions

Various button combinations are available to perform certain functions:



These buttons combinations only work when the unit is switched on and active i.e. with the STANDBY/ON LED off.

5.3.1 Locking front panel buttons & IR remote control

This can be performed by pressing STANDBY/ON and FREEZE at the same time. All front panel buttons and IR remote commands will be disabled, with the exception of repeating the above combination to un-lock the unit and for storing the current locked buttons setting (thus letting you make sure the unit always starts up with the buttons locked). The IR remote's LOCK and STORE buttons will always be active, giving another way to turn button/IR remote locking off.

The STANDBY/ON button will flash when the unit's buttons are locked.

5.3.2 Restore power-on settings

Should your current settings not allow you to see the on-screen display (OSD), restoring the last-saved settings might be useful. This can be done by pressing STANDBY/ON and MENU at the same time until a single beep is heard.

5.3.3 Factory Reset

If you wish to restore all operational parameters to their original condition (for example, if saved settings prevent the unit from working with your display monitor), hold the STANDBY/ON and MENU buttons in together until at least two beeps are heard.



All stored settings except resolutions are lost when the unit is reset. A Firmware update is the only way to perform a complete factory reset (including resolution data).

5.3.4 Switching units between different resolutions using the front panel

After a Factory Reset, your Emerge scaler will default to outputting XGA (1024x768 @ 60Hz).

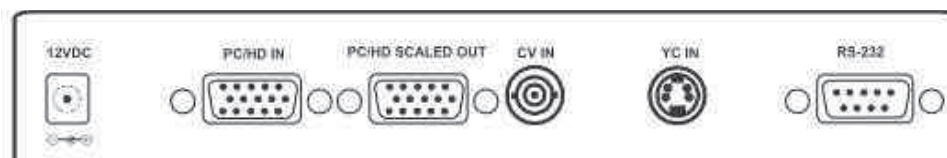
Should your display or output device not support the default resolution, or if you wish to have quick access to an alternate resolution, the following button combinations below can be used.

For example, press MENU & FREEZE together on the Emerge scaler to select PAL. When you are happy with the output resolution selected, press and hold the MENU button in to store the current settings.

Button:	Function
MENU-ZOOM	480p
MENU-FREEZE	720p
MENU-ASPECT	XGA (Default)

6 VIDEO INPUTS AND OUTPUTS

Your Emerge VSS1000P scaler features the following outputs:



6.1 Computer & Video inputs

The PC/HD input can accept:

- Analog RGBHV
- RGsB (sync on green)
- RGBS (composite sync at TTL levels)
- YUV/YPbPr (including tri-level)

In most cases, the particular input being used will be auto-detected. See 'Adjust sources' for more information on manually selecting an input type. On some units such as Video Scalers, the PC/HD input is there just to pass a PC signal through to the monitor in 'bypass' mode.

CV and YC inputs can accept either standard NTSC or PAL inputs – for example, from a video camera, VCR, DVD player, gaming device, etc. PAL and NTSC detection is automatic.

6.2 Computer & Video outputs

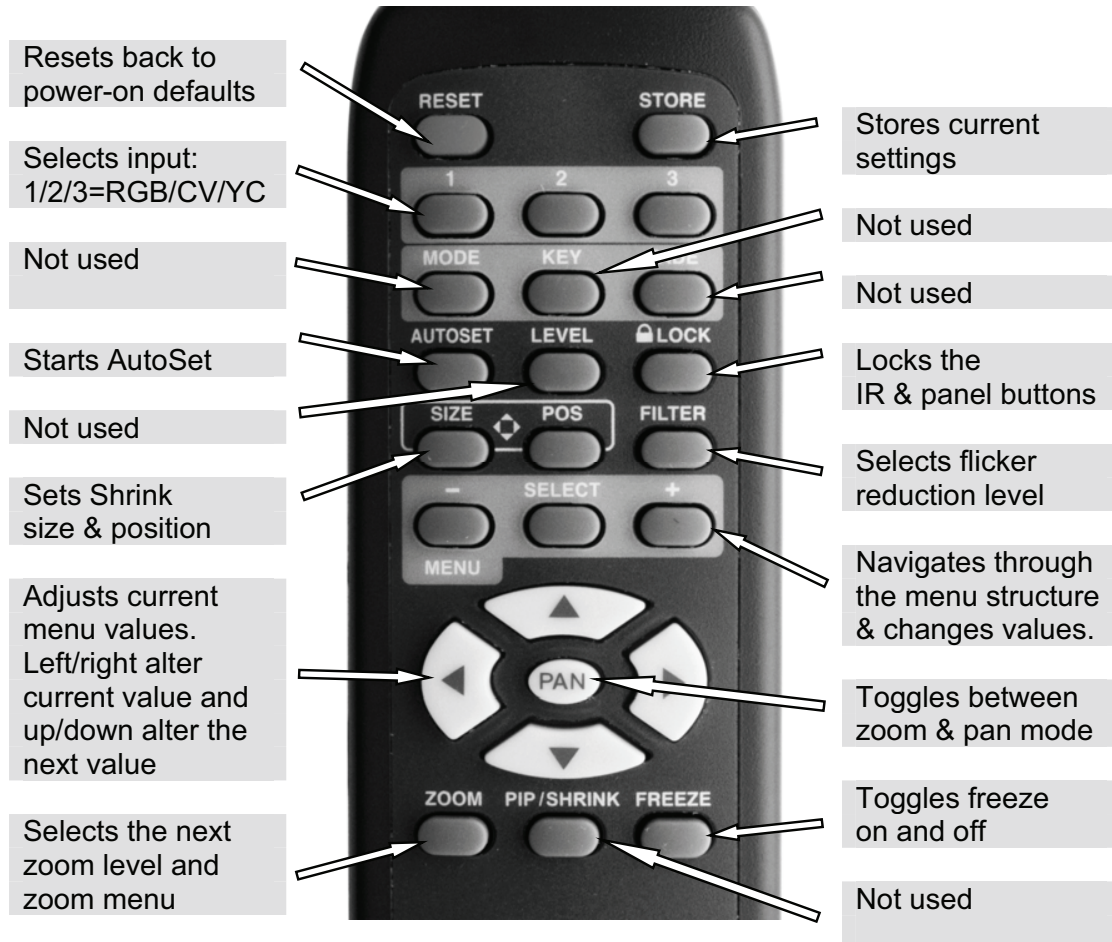
The units have a number of different outputs depending on the function of the unit – see earlier front and rear panel diagrams to see what is available on your unit.

The PC/HD output can use:

- Analog RGBHV
- RGsB (sync on green)
- RGBS (separate sync at TTL levels)
- YUV/YPbPr (including tri-level).

7 INFRA-RED REMOTE CONTROL

Your unit is compatible with infra-red remote controls as shown below:



The transmit range of the remote control depends on many factors, but is designed to be fairly directional. Therefore you should always aim it directly towards your unit.

The IR remote control can be disabled in the System menu. This can be used in situations where multiple units respond to the same remote control or are located close to one another.

8 MENU LAYOUT AND SETTINGS ADJUSTMENT

The following sections describe the menu structure of the scaler and, more importantly, the individual menu items that allow you to take advantage of the power of the unit.

You'll be using the MENU ↓ and ↑ buttons and the on-screen display (OSD) to view the options and settings available to you. The OSD can be activated by pressing the MENU button once. Holding the MENU button in for a short while will then close the OSD.

While the OSD is active, use the ↓ and ↑ buttons to change where you are in the menu. Go into a sub menu by pressing the MENU button once. To exit a sub menu, scroll using the ↓ or ↑ button to the end of the sub-menu to reveal Exit. Push in the MENU button to exit the sub menu.

You can edit a value in brackets '[']' by pressing the MENU button once (you'll note that the brackets surrounding a particular parameter's value will begin to flash). Change the value by using the ↓ and ↑ buttons to decrease and increase the value respectively. Then finalize your adjustment by pressing the MENU button once more.

A few menu items have multiple parameters within an individual menu selection. In those cases, you can adjust one item, and then move to the next, etc.



Holding the MENU button in for a few seconds stores all changes in memory. Unless you intentionally change it again later, the adjustment will remain even after power is removed from the unit.

8.1 The High Level Menu Structure

Menus are arranged so that a particular general function has a menu name on the top line and beneath that either a sub-menu or one or more related individual settings are displayed.

In some cases the functionality is global – meaning it has an effect on the unit as a whole (such as changing the output resolution). In the majority of cases, the function is related to a specific operational area of the unit, detailed by the text in the top line.

There are two screens that appear before the Group Menus (sub-menus) are accessed.

The first is the 'welcome' display, which indicates the model of the unit.

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The next menu item displays the firmware information screen. The SW number refers to the version of firmware loaded into the unit; this can be upgraded from the support website.

The PT and BT numbers refer to Hardware version information and are of interest to the Technical Support Group should you ever need assistance.

At the end of all Group Menus will be an 'Exit' item. Simply select this to exit the existing menu structure and return to the previous one in the hierarchy.

8.2 Group Names and Descriptions

Menu Group Name	Group Description
Adjust outputs	Controls output parameters
Adjust windows	Controls characteristics of the scaled window
Adjust sources	Controls signal source input parameters
Adjust resolutions	Controls unit's input/output resolution table (hidden by default - only visible when advanced menus are switched on)
System	Controls global system parameters for the unit

8.3 Items Associated with the Adjust outputs group

This menu group allows adjustments to be made that specifically affect the output of the unit.

1024 x 768 60Hz Output res. [28]

Your unit can handle a very wide array of inputs and convert them all to a single output signal with defined characteristics. This output resolution will remain in place until changed.

The top line of the display will show the current output resolution selected.

Adjust outputs Output type [RGBHV]

This menu item allows you to select the type of signal output your unit will provide. Types of output vary depending on the resolution selected and include various types of component signals YUV or tYUV (tri-level YUV) and the full range of RGB type signals RGBHV, RGBS and RGsB (Sync on green).

Note that this value is remembered for each resolution – so you can set 1024x768 60Hz to RGBHV and 1280x720 60Hz to tYUV and both will be remembered

separately. This value is not affected by a Factory reset – but is reset by a firmware update.

8.4 Items Associated with the Adjust windows group

This menu group allows adjustment to be made to window specific parameters such as the window source, its position, size and zoom level.

NTSC / 60Hz Source	[YC1]
-----------------------	--------

The source display screen allows the input source for the currently selected window to be changed. The top line of the display shows the detected characteristics of the signal. Valid Input sources match those available on the front of the unit

Adjust windows Zoom level %	[100]
--------------------------------	--------

Changing this option, sets the amount of picture magnification you wish to use for the window Source. You are provided with the options to zoom the image from 100% to 1000% (10x zoom).

Adjust windows H/V zoom %	[100] [100]1.333
------------------------------	------------------

When parameter 'Aspect Adjust' later in this sub-menu is set to 'Advanced', this display is made accessible. It allows the independent setting of the horizontal and vertical zoom values. The third number (1.333 in the example) is the Aspect Ratio resulting from the adjustments, which is automatically calculated for you based on the incoming resolution and the H & V Zoom values.

Most resolutions are 4:3 ratio, thus the third number will be 1.333 (4 divided by 3). Another common aspect ratio is 16:9 (16 divided by 9 = 1.777). PAL and NTSC inputs are physically 4:3 on your video monitor, but their actual pixel/line ratios are different and so will not display as 1.333.

Adjust windows H/V zoom pan %	[50] [50]
----------------------------------	-------------

Once an image has been 'zoomed', this control allows the image to be positioned within the window so that any portion can be seen, not just the middle.

Adjust windows Image freeze	[Off]
--------------------------------	-------

This menu item allows the image to be frozen or unfrozen – thus keeping a single image on screen indefinitely. Note that images are not stored when power is removed from the unit.

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Adjust windows H/V out shift	[0] [0]
---------------------------------	-----------

This positions the selected Window horizontally and vertically on the monitor. This should only be used for 'fine tuning' and should not normally require adjustment – use the Shrink H/V adjustment when your image is less than 100% Shrink value.

Adjust windows Shrink level%	[50]
---------------------------------	-------

Shrink Level determines the percentage of the monitor's total available screen space that the selected Window image occupies. Adjustment is provided for a reduction down to 10% of the overall output size.

Adjust windows Shrink H/V %	[100] [100] 1.333
--------------------------------	-------------------

When parameter 'Aspect Adjust' in the System Menu structure is set to 'Advanced', this display is made accessible. It allows the setting of different Horizontal and Vertical 'shrink' sizes. The third number (1.333 in the example) is the Aspect Ratio resulting from the adjustments, which is calculated automatically based on the output resolution (the actual pixels & lines, not your physical screen size) and the H & V Shrink values.

Most resolutions are 4:3 ratio, thus the third number will be 1.333 (4 divided by 3). Another common aspect ratio is 16:9 (16 divided by 9 = 1.777). Therefore, to convert your 4:3 output into a 16:9 output, reduce the vertical (V) Shrink value to 75% and this will simulate a 16:9 output. PAL and NTSC inputs are physically 4:3 on your video monitor, but their actual pixel/line ratios are different and so will not display as 1.333.

Adjust windows H/V position %	[100] [50]
----------------------------------	-------------

This menu option determines the position of the shrunken image on the monitor screen. This will move an image that is less than the full screen size left/right or up/down within the monitor's available screen space. It will not let you move the image off the screen, so certain values will appear to have no effect (unless you use a very low Shrink value like 10%).

Adjust windows Aspect adjust	[Simple]
---------------------------------	----------

This parameter is used in conjunction with the Zoom and Shrink functions. When set to "Advanced", it allows the horizontal (H) and vertical (V) components of the Zoom and Shrink functions to be adjusted independently, thus allowing custom aspect ratios to be created, or to convert from one aspect ratio to another. When left as "Simple", the H/V components of Zoom and Shrink are adjusted equally i.e. H is equal to V.

Adjust windows Image smoothing	[Auto]
-----------------------------------	--------

Image smoothing reduces the jagged-edges sometimes seen within an output image by softening it. It typically improves the quality of a scaled image greatly. There are four possible settings for this adjustment: “Off”, “Med.”, “High”, and “Auto”. The “Auto” setting is generally thought to be most desirable and will vary the smoothing process according to the amount of zoom taking place.

Adjust windows Image flip	[Off]
------------------------------	-------

Occasionally, it’s necessary to cause the output image to be flipped Vertically, Horizontally or both – most commonly when a video projector is ceiling-mounted, or for special effects.

Adjust windows On source loss	[Blue]
----------------------------------	--------

This option is used to tell the unit what to do if the video source is lost or becomes unstable. Options are:

Option	Description
Show	Shows all picture break-up and instabilities.
Freeze	Freezes the latest frame – un-freezes as soon as the source becomes stable again.
Blue (default)	Turns the window blue, to represent source loss.
Black	Turns the window black.
Remove	Removes the window, thus showing a background

If you have a very unstable input, such as a video tape player with a poor (jumping) output signal, you may wish to turn the setting to ‘Show’.

8.5 Items Associated with the Adjust sources group

The ‘Adjust Sources’ menu group accesses the parameters associated with the processing amplifiers used for each input (RGB, CV, YC, etc.). They allow you to fine-tune an incoming signal to optimize its color, brightness or even sharpness.

Not all settings are available for all input types.

It is recommended that you Store settings for readiness of future use.

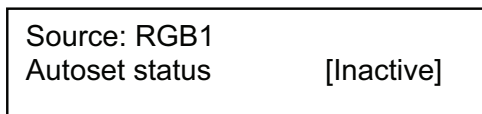
Source: RGB1 Source to adjust	[RGB1]
----------------------------------	--------

This menu item selects the input source for adjustments. As in the image above, changes will only be made to the source connected to RGB1. Once the selection has been made, all changes made using the following operating parameters will only apply to the selected input.

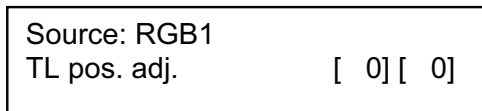


Selection of a CV/YC source will reveal menu items that allow adjustments beyond those used for RGB sources. The menu discussions that follow relate first to RGB sources, then to CV / YC type sources.

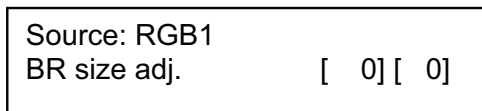
8.5.1 RGB Source Menu Items



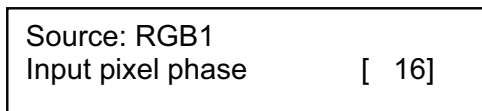
Once the Autoset sense setting has been made, this menu item is accessed and activated. The Autoset sense utility will then correct the pixel phase and then position the Top Left portion of the image and the Bottom Right portion of the image. Once complete it then resume inactive status.



This menu item allows manual positioning of the Top and Left portion of the image. It is used to ensure that the input signal is captured correctly, eliminating any black borders. These settings are often used to correct the position of a PC signal on an input, or to eliminate any undesired noise at the top or bottom of a PAL or NTSC video source.



This menu item allows manual positioning of the Bottom and Right portion of the image. These settings are often used to correct the position of a PC signal on an input, or to eliminate any undesired noise at the top or bottom of a PAL or NTSC video source.



Since an image pixel is a very small element of the total image, it's possible for your unit's Analog to Digital converters to wrongly sample the picture on the edge of each pixel thereby losing image resolution and creating image noise. The Input pixel phase adjustment allows you to change the position (from 0 to 31) where the pixels are sampled, relative to the horizontal sync signal.

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To make this adjustment, select an RGB source and then provide an image from that source with fine detail, preferably with very sharp vertical lines. Adjust this value until you see the sharpest image. Alternately, adjust this value to give the worst (noisiest/softest) image, and then add or subtract 16 to get the optimum value.

Note that the AUTOSET function (for RGB inputs only) will attempt to automatically work out the best value for this setting.

Source: RGB1
 RGB input type [RGBHV]

There are several types of signals that are called RGB signals as a generic term. Each has slightly different characteristics that set it apart from similar RGB signals – such as how the synchronization signal is sent. This menu item lets you set the input type to use.

Available options let you select whether the input is standard RGB or YUV (including YPbPr signals with a tri-level sync).

Source: RGB1
 RGB contr. [100] [100] [100]

This menu item lets you adjust the individual RGB or YUV/YPbPr signals, in case one component is at a different contrast to other, or if they all need to be boosted or lowered.

Source : RGB1
 De-int [M.comp med]

An interlaced input consists of two fields separated in time. Both fields are required in order to make up the full resolution input image, but since they are sent one after the other, a moving image will have “motion artifacts” if the two fields are simply combined together. The most common artifact is a blurring at the point of maximum movement within an image. Your unit provides some tools to minimize the effects of de-interlacing of an image.

The following options are available for this menu item:

Mode	Function
Normal	The two interlaced fields are simply combined together. This will often show artifacts on moving images, but can be used when the input is known to be still.
Auto	Automatically selects Film 3:2 or Medium Range Motion Compensation (M. Comp Med.) depending on whether Film Mode is detected or not. For 1080i sources, a special de-interlacing mode is selected to eliminate combing effects.

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Film 3:2	Enables 3:2 pull down conversion of the incoming NTSC video. (This option should not be used if the source is not NTSC video).
M. Comp Low M. Comp Med. M. Comp High	Enables Pixel Adaptive Motion Compensation. Three levels are available with 'Low' providing the least compensation for Motion and 'High' providing the most compensation.

8.5.2 CV & YC Source Menu Items

Of the above Source Menu items, the Autoset sense and Autoset status functions, RGB type and Pixel phase are specific to RGB signals only. The rest of the Source menu items function with RGB, CV or YC type signals. In addition, there are four additional Menu items that are only used with CV or YC type signals and these are explained below:

Source: YC1 Bright [100]	Contrast [100]
-----------------------------	----------------

Adjust the Brightness and Contrast of the image to your requirement.

Source: YC1 Satur [100]	Hue [0]
----------------------------	---------

Saturation is the amount of color present in the image. Hue is the color "tint" parameter and the adjustment range is +90 degrees through to -90 degrees with 0 being the default.

Source: YC1 Sharpness	[0]
--------------------------	-----

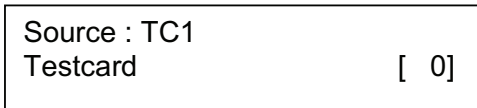
Within limits, you can enhance or soften the appearance of detail within an image. The Sharpness values go both negative and positive, with 0 being the default. Note that over-enhancing an image has the side effect of making it appear to be noisy and under-enhancing an image gives the appearance of poor video quality.

Source: YC1 Luma delay	[0]
---------------------------	------

On occasion, a video source will have the color portion of the signal offset from the luminance portion. If you've ever seen a poor quality comic book that has the outline of the cartoon character's head in one place on the page but the flesh tones for the head offset slightly, you are seeing the print equivalent of Luminance to Chrominance Phase Delay.

Fortunately, your unit provides a way for you to make the two signals occur at the same time on the selected image. The adjustment range provides both positive and negative levels of delay with 0 being the default.

8.5.3 Testcard Source Menu Items



This item is only available for units supporting Testcards (TC) sources. Used to select the Testcard from memory to use as a source for the Testcard currently selected. The Windows Control Panel can be used to upload user-defined Testcards.

8.6 Items associated with the Adjust resolutions group



The Adjust Resolutions Menu Group only appears when the Advanced Menus function is turned on within the System Menu Group. To turn it on, go to the System Menu Group and then proceed to the item that says “Advanced Menus”. Turn the function ‘On’, exit the Systems menu and return to this menu structure.

The Resolution Database is used by your unit to identify any incoming video signal and is also used to create an output resolution. It is therefore a very important part of the unit’s infrastructure.

Important Cautionary Information

DO NOT ADJUST THESE ITEMS UNLESS YOU’RE CERTAIN YOU KNOW WHAT YOU’RE DOING! THE ONLY METHOD TO UNDO CERTAIN CHANGES IS TO UPDATE THE FIRMWARE.

TRY USING THE AUTOSET, SHRINK, SHRINK POS, TL & BR ADJUSTMENTS FIRST.

Making adjustments here risks creating a non-standard resolution that is not displayable on a monitor. The resolutions and values within the database are industry standards and should not normally be altered by the user. That said, there might be times when it is necessary to create a custom resolution with specific parameters. If circumstances require you to make such a change, please read the following specific notes:

1. *Any changes made to this database take effect instantly and are also stored immediately in non-volatile memory.*
2. *Since this database is used for both input and output image processing, altering a resolution that is used for both (e.g. 1024x768 input and 1024x768 output) may give undesired effects.*

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800 x 600 60 Hz Image to adjust [17]
--

Change the value to select resolution you want to alter.



Typically, the image number currently being used for input or output would be already be selected otherwise immediate feedback to your changes will not be available via your monitor.

800 x 600 60 Hz Interlaced [Off]

This adjustment specifies whether the image is interlaced or progressive scan. It toggles simply On or Off, so there are no flashing brackets.

800 x 600 60 Hz H.freq.crse [37.879] kHz

Course Frequency Adjust

The H freq.crse (Horizontal Sync Frequency - Course) adjustment provides the option for changing the Horizontal Sync timing Frequency in 100 Hz steps.

800 x 600 60 Hz H.freq.fine [37.879] kHz

Fine Frequency Adjust

The H.freq.fine (Horizontal Sync Frequency) adjustment provides the option for changing the Horizontal Sync timing Frequency in 1 Hz steps. Use this option to fine tune after using the course adjust.

Please note that the internal sync generator may be unable to generate the exact frequency you want.

800 x 600 60 Hz Clks/l [1056] = 40.000MHz
--

This option changes the total number of image pixels on one line of monitor video including the Horizontal sync pulse and blanking time. This is normally in a multiple of 8. It is very important to get this value correct, or many digital display devices, such as TFT monitors, will display an image with an odd moiré effect – such as soft vertical bands spread evenly across the image.

800 x 600 60 Hz Lines/f [628] = 60.317 Hz

This menu controls the total number of lines of video present in the image which includes the vertical Sync pulse, the blanking period and the active video. Changing this option affects the final vertical sync frequency.

800 x 600 60 Hz H/V active [800] x 600
--

A video frame includes both the active area, the portion of the image normally containing useful visual information, and a resolution value for a given display standard which only expresses the number of pixels visible in an image. The well-known 800 x 600 computer resolution standard simply means that there are 800 pixels/line visible horizontally and there are 600 lines visible vertically.

This item provides a way to change the number of active pixels and lines.

800 x 600 60 Hz H/V Start [88] x 23

There is a period of time between the end of the Horizontal Sync pulse and the start of Active Video. This portion of the waveform signal is called the “Back Porch”, a term originating with the television broadcasting industry and its RS-170A specification. In practice, this will control where the video image starts on the left side of the monitor without changing the width of the sync pulse itself (another way to control where the image area starts). The two parameters control where the back porch is positioned and they interact to a degree.

Info: *By adjusting these parameters, you control the start of the back porch (with respect to the trailing edge of Horizontal Sync) and also its width. The place where the Back Porch begins with respect to the Horizontal Sync pulse and the width of the Back Porch have a direct bearing on where the active (visible) portion of the image begins. Do not attempt this adjustment without monitoring the results with an oscilloscope.*

800 x 600 60 Hz H/V Sync [128] x 4
--

There are standards for all current computer and broadcast resolutions that specify the correct width of both Vertical and Horizontal synchronizing pulses. If you are creating a special, non-standard resolution, you may wish to adjust the pulse width to fit your new requirements. The H/V Sync screen is where that is accomplished.

Info: *Like the H/V Start adjustment, you must use an oscilloscope when making these adjustments so that you know exactly how many milliseconds or microseconds of pulse width you have created. The numbers shown are relative numbers and not an actual time measurement.*

800 x 600 60 Hz Sync polarity	[+H+V]
----------------------------------	--------

Sync can be either negative polarity or positive polarity. To further complicate things, it is possible that you may want to make the Horizontal Sync polarity different from the Vertical Polarity. This control allows you to make that change. You have four possible selections:

- +H+V
- H+V
- +H-V
- H-V

8.7 Items Associated with the System group

The final Sub Menu is for adjustments of System parameters. The “System” in this case means the unit’s functions that are generally unrelated to individual inputs, outputs or any of the various production features.

System SW: 16, PT: 12, BT: 13

This screen is an informational screen. Should you require technical assistance with your unit, the technical support personnel may request that you read the contents of this screen to them during the support call.

The first section, “SW”, is the version of the software that is installed on your unit. You can update software via the User Support web site (procedure to be described later in this manual). “PT” refers to Product Type and “BT” means Board Type. Both of these are hardware designators and cannot be changed by the user however both designators are important to support personnel.

System SW date: 2007-7-11

This is an information page showing when the currently installed software was released. The information is useful to the user as he or she compares the date to the website information describing the current software release.



Normally, the user will examine the added features of each new software release and determine if an update is worth doing in their particular operation. The greater period of time between the current date, and the date shown for the currently installed software, the greater the likelihood that there are useful changes and improvements present in the new release.

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System TAC#	27-56-12-93-28-33
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The TAC number is a unique identifier for the unit and is for future use.

System Push to store	
-------------------------	--

This screen provides a quick and easy way to store all current operating parameters. The unit will remember the set up you are currently using at the time of data storage and also when you next apply power. To store the current settings, press and release the control button.

System Autoset sense	[Medium]
-------------------------	----------

In order for Autoset to work properly, it needs a sufficiently bright full-screen image to examine. The sense level lets you change the brightness threshold for detection of the screen edge between Low, Medium, High and V.high. Medium is the default level, which is recommended for normal use (Windows-type images, etc.)

System OSD on power up	[On]
---------------------------	------

This parameter controls whether the 'welcome' screen is displayed or not on power up for units with an on-screen display – it can be disabled as required. This is useful when a unit is installed as part of an overall system.

System Advanced Menus	[Off]
--------------------------	-------

When turned on, the previously explained Adjust resolutions menu structure is exposed. The default condition is 'Off', to prevent accidental changes.

System LED brightness %	[90]
----------------------------	-------

This parameter is available on certain units and controls how bright the LEDs on the front panel appear.

System RS232 baud rate	[57600]
---------------------------	---------

This menu item allows the adjustment of the serial baud rate used for RS-232 communications. The rate can be adjusted to 9600, 19200, 28800, 33600, 38800, 57600 and 115200. (This adjustment is provided for those instances where you

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wish to use the RS-232 control system for your own purposes.) The default baud rate is 57600.

System Buzzer	[On]
------------------	-------

The screen labeled 'Buzzer' is actually the control for turning the "Beep" "On" or "Off". Normally this is left in the "On" position to provide positive feedback that your data entries and parameter changes have been accepted.

System Resolutions	88
-----------------------	----

This screen is an informational screen showing the total number of the defined resolutions in the resolution database. Future firmware releases may increase the total number of resolutions defined in the database.

System Logos / T-cards	1 / 4
---------------------------	-------

If your units supports Logos or Testcards then this screen will display how many are present in the memory of the units.

System Power cycles	41
------------------------	----

Power Cycles refers to how many times the unit has been powered since it left the factory. This is an informational screen. No action is taken regardless of the value shown here, however some users have an equipment cleaning or specification audit procedure and this information may be useful to those users.

System Firmware updates	11
----------------------------	----

Indicates the total number of times the firmware has been changed over the life of the unit. It is quite possible for this to be more than 1, as a unit undergoes numerous tests during production.

System Hours in Use	877
------------------------	-----

This is another informational display for usage audit purposes.

System Temp.C	30 33 43 45
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Certain units have built-in temperature sensors, and if yours has such a feature then the above menu item will appear. If the ambient temperature of the internal components becomes excessively high or low, the unit will shut down to prevent harm. This display shows the current value of the ambient temperature at four locations within the case and can be an early predictor of a shutdown before the shutdown actually occurs. In a comfortable room, at sea level, the temperatures should be approximately as shown in the image above (however, the temperatures will rise when using higher resolutions).

System	
Fan speed (rpm)	6000

Certain units have built-in fans to keep the unit cool. The fan speed is monitored and if it deviates from normal parameters too much, this will be taken as an indication of insufficient airflow over critical components and shutdown action will be taken.

9 RS232 PORT

9.1 Connection

Your unit is fitted with a standard 'D9' socket allowing it to be controlled from a computer or other type of terminal or console with a similar interface. Most computers fitted with an RS232 port, known as a 'COM' port, will have a 'D9' plug on them. To enable connection between the two devices you may require a D9 male to female cable to link from the computer to your unit. This cable is not the same as a 'null-modem' cable as this has a female socket connector on both ends. See the Specifications section for a detailed pin connection list.

Should your PC not have an RS232/COM port, it is possible to add an interface card into the PC to add this facility. Another option you could use is a USB to RS232 converter. Both methods will add a COM port to your PC, although you should be aware that these generally do not default to being 'COM1' which is the default most RS232 applications will use.

The default baud rate is 57600 with 8 data bits, 1 stop bit and no parity. This baud rate can be changed in the System menu to suit other programs if need be.

9.2 Communications protocol

The standard communications protocol for your unit is text-based and is detailed on our website. Also on our website, you can find the Windows Control Panel for your unit.

The protocol is also bi-directional (unit and computer both send messages to each other), so that you can send changes to the unit, and it will also respond with any changes made via alternate methods (front panel buttons, menu changes and infra-red control). This enables any attached computer to be aware of any changes made to the unit from an alternative source rather than itself.

What this means is that you can easily find out the exact command to send to the unit to tell it to perform a certain function. This can be seen by the data that is sent back to the computer when changing values on the unit. For instance, just by turning FREEZE on, by pressing the FREEZE button, will cause RS232 data to be sent to the computer that represents the command required to set FREEZE on. A second press, to turn FREEZE off, then sends the computer the command required to turn the FREEZE off.

Note: Any command you send to the unit will be replied to either with an error code or with the actual changed value. This may be different to the one you sent; for example, if trying to set a value too high or too low.

10 RS232 CONTROL SPECIFICATION

This section outlines how to control a unit via an RS232 using ASCII-based commands. It details how to send and receive serial data to perform many of the functions that a user has access to on the unit.

10.1 Communication protocol basics

Packets of ASCII data containing hexadecimal numbers are exchanged between the unit and controller via an RS232 connection.

The RS232 standard is 57600 baud, 8 bits, no parity and 1 stop bit, although this can be changed by the user (see 'System' menu).

No flow control is used - however all control packets start with an ASCII 'F', end with carriage-return (13 decimal, 0x0D hexadecimal) and all such packets sent to the unit will be acknowledged (thereby provided software handshaking). Note that a line-feed (LF) should not be sent.

It may take around 30ms (0.03 seconds) for an RS232 command to be actioned and acknowledged – this will vary between different models.

ASCII-hex data is used where a number is encoded into its hexadecimal equivalent with leading zeros – e.g. Where '00' is decimal value 0, '80' is decimal 128 and 'FF' is decimal 255. In other words, two characters are sent for each byte encoded.

Any gap of more than 1 second between the characters of a control command sent will cause a time-out - and previous characters sent will be lost.

Write packets (sending command functions to the unit) are always 20 characters long (including a carriage return at the end). The unit will respond with a full 20 character message indicating what has changed. This returned payload will reflect the actual value of the parameter changed. If the user requests a value out of bounds then the limit value is used, and the payload will then reflect the limited value used.

Read packets (sent to request information from the unit) are always 14 characters long (including a carriage return at the end), the response from the unit will be a 20 byte message with the Write flag (since it is 'writing' the value back to the host) and the ACK flag set.

The ACK flag will be returned as 0 if the command is invalid for some reason – for example a bad FUNCTION, WINDOW, OUTPUT or PAYLOAD value. An ACK=0 message will be otherwise identical to the one you sent, so you know exactly which message has the error.

Any changes made to the unit using the front panel controls will also cause the full 20 byte message to be sent indicating the change that has occurred, thus enabling

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a program to stay 'in-sync' with the unit. In some cases (such as the execution of a macro) multiple 20 bytes messages will be sent indicating all the parameters that have been changed.

Only one message should be sent to the unit, another message can't be sent until a specific response is received from the unit (the user should look for a message with the same WINDOW, OUTPUT and FUNCTION values as they sent). If no message is received back within 1 second, there is likely to be a hardware communication problem (or wrong baud rate, etc.).

If absolutely required, to simplify programming the user may send packets one after the other with around 100ms (100 milliseconds) between each one. However, this will not work for all packets (such as Zooming into Testcards or changing Logos) since this will cause the unit's micro-controller to be busy, so the user must experiment and satisfy themselves that this is possible.

10.2 Packet format

Below is a representation of data bytes in a single packet for a 'Write' to the unit to set a value:

SOP	CMD	CHA	WINDOW	OUTPUT / FUNCTION	FUNCTION	PAYLOAD x 3	CS	EOP
-----	-----	-----	--------	----------------------	----------	-------------	----	-----

Below is a representation of data bytes in a single packet for a 'Read' to the unit to get a value:

SOP	CMD	CHA	WINDOW / FUNCTION	OUTPUT	FUNCTION	CS	EOP
-----	-----	-----	----------------------	--------	----------	----	-----

The table below details the function of each part of the packet:

Packet part	Function
SOP (Start of packet)	This is always the ASCII letter 'F' to indicate the packet start.
CMD (Command)	ASCII-hex byte to indicate the type of command being sent. Each bit in the byte has a different function. Currently only the following bits are defined: Bit 7 = Write (0) or Read (1) request. Messages from the unit are always Writes. Bit 6 = ACK bit. Should be set to 0 for messages to the unit. ACK=1 returned means message was okay. ACK=0 returned means an error was present in the message. Bit 5 = 0 Reserved for future use. Bit 4 = 0 Reserved for future use. Bit 3 = 0 Reserved for future use. Bit 2 = 1 This bit *must* be set. Bit 1 = 0 Reserved for future use.

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	Bit 0 = 0 Reserved for future use.
CHA (Channel)	This byte has multiple uses, and defaults to 0 unless used for:.
SOURCE	<u>CHA</u> When a channel number is used in the Adjust Sources section (see later).
or	
MACRO NUMBER	<u>SOURCE</u> Byte to indicate the source channel to be altered (if appropriate). 0x10 = RGB1, 0x11 = RGB2, 0x12 = RGB3, etc. 0x30 = CV1, 0x31 = CV2, 0x32 = CV3, etc. 0x40 = YC1, 0x41 = YC2, 0x42 = YC3, etc. 0x50 = SDI1, 0x51 = SDI2, etc. 0xD0 = OUT1, 0xD1 = OUT2, etc. 0xF0 = TC1, 0xF1 = TC2, etc. <u>MACRO</u> Or – for Macro related commands: Bit 7..4 = 0 Reserved Bit 3..0 = Macro number
WINDOW / LOGO / BORDER	Bit 7 = 0 (Reserved). Bit 6..0 = Represents the window to be adjusted (for multi-channel units only). E.g. Window 'A' (the default for single-channel units) is sent as '41' since 0x41 is ASCII for 'A'. 0x61 is ASCII for 'a' (a Logo) and is sent as '61'.
OUTPUT & FUNCTION HIGH	Bit 7..4 = Number representing the output to adjust 0 = Output 1, 1 = Output 2 (for multi-channel units). Bit 3..2 = Reserved (set to 0). Bit 1..0 = Bits 9 & 8 of the function code. (Remainder of bits [7..0] are in FUNC LOW.) E.g. If the function code is 0x234, and we want to adjust Output 2, then this byte is 0x12
FUNCTION LOW	ASCII-hex byte to indicate the lowest 8 bits of the actual function to set or receive (e.g. change Zoom value). A later table details all the functions available.
PAYLOAD x 3 bytes	A series of ASCII-hex bytes carrying the data to send. Read requests have no payload - the payload is in the data sent back. Write packets require a payload, and this is always in 'triple-bytes' - i.e. 3 bytes are required, MSB first. e.g. '000001' is 1 in decimal, '010000' is 65536 in decimal, and 'FFFFFF0' is -16 in decimal.
CS	ASCII-hex byte that is the (check) sum of all previous bytes (excluding the SOP 'F' character). E.g. The command F0400410082000001C8 has the checksum of 04+00+41+00+82+00+00+01=C8, so the complete command to send is F0400410082000001C8. A short-cut for debugging allows the checksum to be replaced by 2

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	question marks, so in the previous example you could send F040041008200001?? Instead. This is purely for test and debugging - you should normally use a checksum to ensure data validity.
EOP	This is a carriage return (no line-feed) - ASCII code 13 (decimal).

10.3 Function list

These are grouped together into their associated on-screen menus.

Your unit and this manual should be used to determine the actual function of each of the following, as only the menu text is listed here. Where an equivalent menu item does not exist on your unit, then that feature is not supported on.

Function codes are given in hexadecimal and adjustment range is in decimal (but always sent as hexadecimal).

For dual-channel units the mode of operation also restricts what Window and Output can be used the following table shows the allowed combinations:

Mode	Allowed Window and Output combinations
Switcher	Output 1 (0x00) and Window A (0x41) / Z (0x5A) / Logo a (0x61)
Independent	Output 1 (0x00) and Window A (0x41) / Z (0x5A) / Logo a (0x61) OR Output 2 (0x01) and Window B (0x42) / Z (0x5A) / Logo b (0x62)
Dual PIP	Any combination of Output and Window

The following table is a list of all menu functions, their related function number and valid range of adjustment.

Please note that not all operations are not supported by the VSS1000P.

Menu text	CHA	FUNC (Hex)	Range of adjustment (decimal)
Adjust outputs			
Lock source (connector)		149	0x10 = RGB1, 0x11 = RGB2, 0x12 = RGB3 0x30 = CV1, 0x31 = CV2, 0x32 = CV3 0x40 = YC1, 0x41 = YC2, 0x42 = YC3 0x50 = SDI1, 0x51 = SDI2 0xD0 = OUT1, 0xD1 = OUT2 0xF0 = TC1, 0xF1 = TC2
Lock H Shift		14A	-4096..4096
Lock V Shift		14B	-4096..4096
Output resolution		083	1..1000
Output Enable		170	0..1 = Off, On
Output image type analogue		0E2	0 = RGBHV 2 = RGsB 3 = YUV

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			4 = tiYUV 7 = tiRGB
Output image type digital		16C	0 = RGBHV 3 = YUV 9 = Not available
Background Y		13B	16..235
Background U		13C	16..240
Background V		13D	16..240
CCIR Output Standard		101	0 = NTSC/PAL, 1 = PAL-M/PAL-N, 2 = SECAM
Output CV/YC IRE		133	-7.5..12.5
Output CV/YC Hue (degrees)		139	-22..22
Output SC/H Phase		085	-180..180
Output Luma Bandwidth		134	0,1,2 = Low, Medium, High
Output Chroma Bandwidth		135	0,1,2 = Low, Medium, High
Output Chroma delay		137	-4..3
PAL WSS		130	0 = Off 1 = 4:3 Full format 2 = 14:9 Letterbox centre 3 = 14:9 Letterbox top 4 = 16:9 Letterbox centre 5 = 16:9 Letterbox top 6 = >16:9 Letterbox centre 7 = 14:9 Full format 8 = 16:9 Full format
Take		11E	0->1 = Perform a Preview -> Program transition
Adjust Windows			
Program source / Window source (connector)		082	0x10 = RGB1, 0x11 = RGB2, 0x12 = RGB3 0x30 = CV1, 0x31 = CV2, 0x32 = CV3 0x40 = YC1, 0x41 = YC2, 0x42 = YC3 0x50 = SDI1, 0x51 = SDI2 0xD0 = OUT1, 0xD1 = OUT2 0xF0 = TC1, 0xF1 = TC2
Window Enable		12B	0..1 = Off, On
Zoom level %		086	100..1000
Zoom level H %		103	100..1000 (only used in Advanced A/R mode)
Zoom level V %		105	100..1000 (only used in Advanced A/R mode)
Aspect ratio in		107	0.1:1..9.99:1
H/V zoom pan % (H)		09F	0..100
H/V zoom pan % (V)		0A0	0..100
Freeze		09C	0..1 = Off, On
H/V out shift (H)		0AD	-4096..4096

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H/V out shift (V)		0AE	-4096..4096
Lock pixel offset		14A	-2047..2047
Lock line offset		14B	-2047..2047
Shrink level %		087	10..100
Shrink level H %		104	10..100 (only used in Advanced A/R mode)
Shrink level V %		106	10..100 (only used in Advanced A/R mode)
Shrink enable		18E	0..1 = Off, On
H/V shr. pos.% (H)		0DA	0..100
H/V shr. pos.% (V)		0DB	0..100
Aspect Adjust		102	0..1 = Simple, Advanced
Aspect ratio		190	0..2 = Normal, Letter-box, Narrow
Flicker reduction		092	0..3 = Off, Low, Med, High
Image smoothing		0A1	0..2 = Off, Med, High
Image flip		095	0..3 = Off, Horiz., Vertical, H & V
De-glitch		0A3	0..1 = Off, On
Max fade level		10F	0..100 = Fade level %
Fade out / in		193	-1, 1 = Fade out, Fade in
Layer priority		144	0..5 = Layer priority
Headphone volume		0FD	-16..15 (-16=Mute)
Adjust sources			
Source to adjust		116	0x10 = RGB1, 0x11 = RGB2, 0x12 = RGB3 0x30 = CV1, 0x31 = CV2, 0x32 = CV3 0x40 = YC1, 0x41 = YC2, 0x42 = YC3 0x50 = SDI1, 0x51 = SDI2 0xD0 = OUT1, 0xD1 = OUT2 0xF0 = TC1, 0xF1 = TC2
Autoset	10..1F	FE	1= Start Autoset procedure
Autoset Sense	10..FF	FF	0..3 = Low, medium, high, v.high
Field swap	10..FF	C9	0..1 = Off, On (swaps odd/even fields)
Field Offset	10..FF	196	0..7 = -4..+3 (defaults to 4 = 0)
Testcard	F0..F1	0DC	0..10
TL pos. adj. (left)	10..FF	0B6	-100..100
TL pos. adj. (top)	10..FF	0B7	-100..100
BR size adj. (right)	10..5F	0DE	-100..100
BR size adj. (bottom)	10..5F	0DF	-100..100
Audio input	10..FF	0D0	0..9 = Channels 1 .. 10 on A2-2000
Audio vol	10..FF	0CF	-16..15 (-16=Mute)
Bal	10..FF	0D1	-15..15
Input pixel phase	10..5F	091	0..31
RGB input type	10..1F	0C1	0 = Auto 1 = D-RGB 2 = D-YUV 3 = A-RGB 4 = A-YUV
RGB contr. (red)	10..1F	0C5	75..150
RGB contr. (green)	10..1F	0C6	75..150

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RGB contr. (blue)	10..1F	0C7	75..150
De-int.	10..FF	0B8	0..5 = Normal, Auto, Film 3:2, M.comp.low, M.comp.med., M.comp.high
(Film mode detected)	10..FF	0E3	0..1 = Not detected, Detected
Bright	30..5F	0BB	0..180
Contrast	30..5F	0BC	0..180
Saturation	30..5F	0B9	0..180
Hue	30..5F	0BA	-180..180
Sharpness	30..5F	080	-7..+7
Luma delay	30..5F	0BD	-4..3
Adjust resolutions			
Note: You MUST set the 'Image to adjust' value to the correct value first, and only then change the other values - otherwise you may be adjusting the wrong entry. The user should not adjust the 'Image to adjust' entry using the front panel while also accessing it via RS232			
Image to adjust		081	1..1000
Interlaced		0CA	0..1 = Off, On
H.freq.crse		0BE	10000..200000
H.freq.fine		0BF	10000..200000
H/V active (H)		096	64..2047
H/V active (V)		097	64..2047
H/V start (H)		08B	0..1023
H/V start (V)		08C	0..1023
Clks/l		08D	64..4095
Lines/f		08E	64..2047
H/V sync (H)		08F	8..1023
H/V sync (V)		090	1..1023
Sync polarity		094	0..3 = ++, +-, -+, --
System			
SW (Software version)		0D2	Read only
PT (Product type)		0C4	Read only
BT (Board type)		0C2	Read only
Advanced menus		11D	0..1, Off, On
OSD on Power up		189	0..1, Off, On
Store		0C8	Set to 1 to store
Buzzer		0CB	0..1 = Off, On
Power cycles		0D6	Read only
Firmware updates		0DD	Read only
Hours in use		0D7	Read only
Resolutions		0D8	Read only
Number of Testcards		0D9	Read only
Number of logos		14F	Read only
Board temp. (deg.C)		0CD	Read only
Air temp. (deg.C)		148	Read only
Regulators temp.(deg.C)		147	Read only

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PLD temp. (deg.C)		111	Read only
Fan speed (rpm)		0CE	Read only
Led brightness		12C	0..100
RS232 Baud rate		0AB	0..6 = 9600, 19200, 28800, 33600, 38400, 57600, 115200
TAC number 0		15D	Read only
TAC number 1		15E	Read only
TAC number 2		15F	Read only
TAC number 3		160	Read only
TAC number 4		161	Read only
TAC number 5		162	Read only
Not part of menu system			
Front panel lock		0FC	0 = unlocked, 1 = locked

10.4 Examples

Each example shows the packet sent to the unit and its response. When a byte is not required to be sent it is indicated by a '-' in the table below (since a Read is 6 bytes shorter than a Write). Each character shown below is sent as a ASCII character so F0400 is sent as 'F' '0' '4' '0' '0'.

Packet sent

Packet returned

SOP	CMD	CHA	WIN	OUT	FUN	PAY	CS	EOP	SOP	CMD	CHA	WIN	OUT	FUN	PAY	CS	EOP
-----	-----	-----	-----	-----	-----	-----	----	-----	-----	-----	-----	-----	-----	-----	-----	----	-----

Set output 1 window B Source to RGB2

F	04	00	42	00	82	000011	D9	CR	F	44	00	42	00	82	000011	19	CR
---	----	----	----	----	----	--------	----	----	---	----	----	----	----	----	--------	----	----

Set output 1 window A to Enable advanced aspect control

Note checksum is ?? for debugging

F	04	00	41	01	02	000001	??	CR	F	44	00	42	01	02	000001	8A	CR
---	----	----	----	----	----	--------	----	----	---	----	----	----	----	----	--------	----	----

Set 1A Shrink to 110 – invalid max for shrink is 100

F	04	00	41	00	87	00006E	??	CR	F	44	00	41	00	87	000064	70	CR
---	----	----	----	----	----	--------	----	----	---	----	----	----	----	----	--------	----	----

Read 1C Zoom level – invalid as window C does not exist

F	84	00	43	00	86	-	??	CR	F	04	00	43	00	86	000000	CD	CR
---	----	----	----	----	----	---	----	----	---	----	----	----	----	----	--------	----	----

Read 1B Zoom level

Zoom = 100

F	84	00	42	00	86	-	??	CR	F	44	00	42	00	86	000064	70	CR
---	----	----	----	----	----	---	----	----	---	----	----	----	----	----	--------	----	----

Set baud to 9600

Reply is at 9600 baud

F	04	00	42	00	AB	000000	F0	CR	F	44	00	42	00	AB	000000	30	CR
---	----	----	----	----	----	--------	----	----	---	----	----	----	----	----	--------	----	----

Set 1A Zoom = 300

F	04	00	42	00	86	00012C	F7	CR	F	44	00	42	00	86	00012C	37	CR
---	----	----	----	----	----	--------	----	----	---	----	----	----	----	----	--------	----	----

Set 1A Shrink to 50

F	04	00	42	00	87	000032	FE	CR	F	44	00	42	00	87	000032	3E	CR
---	----	----	----	----	----	--------	----	----	---	----	----	----	----	----	--------	----	----

Set 1A Shrink H Posn to 0

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F 04 00 42 00 DA 000000 1F CR F 44 00 42 00 DA 000000 5F CR

Set 1A Shrink V Posn to 100

F 04 00 42 00 DB 000064 84 CR F 44 00 42 00 DB 000064 C4 CR

10.5 Reading and writing macros

There can be up to 7 macros stored in the unit. These macros can be programmed to perform a specific task, for example selection of input ports and zoom/pan settings.

The WIN and OUT bytes are not used for macro reading or writing and should be set to WIN=1A and OUT = 0

The CHA byte indicates the macro we are programming / reading / running. Macro 1 to 5 are CHA 0..4, CHA=5 is restore, CHA 6..7 are Macros 6..7.

Macro Restore (CHA=5) is read only, the units restore state is set by sending the Store command (0C8).

Menu text	CHA	FUNC (Hex)	Range of adjustment (decimal)
Macro			
Run macro	0..7	F1	0..1 = Run, Erase macro
Number of items within macro	0..7	F4	Read Only
Function to adjust	0..7	F2	0..4095
Value	0..7	F3	Value for Function

10.5.1 Reading a previously stored Macro

In order to read a macro the following commands must be sent in this specific order – no other commands should be sent between these messages. The CHA in these cases relate not to the source but to the macro we are reading.

Packet sent

Packet returned

SOP	CMD	CHA	WIN	OUT	FUN	PAY	CS	EOP	SOP	CMD	CHA	WIN	OUT	FUN	PAY	CS	EOP
-----	-----	-----	-----	-----	-----	-----	----	-----	-----	-----	-----	-----	-----	-----	-----	----	-----

Read number of items currently stored in Preset 2
read

Returned packet indicates 4 items available to read

F	84	01	42	00	F4	-	BB	CR	F	44	01	42	00	F4	00002	FC	CR
---	----	----	----	----	----	---	----	----	---	----	----	----	----	----	-------	----	----

Read the Function for the first item in the preset / macro

Payload is the Function stored – 86 = Zoom

F	84	01	42	00	F3	-	BA	CR	F	44	01	42	00	F3	000086	?80	CR
---	----	----	----	----	----	---	----	----	---	----	----	----	----	----	--------	-----	----

Read the Data for the first item in the preset / macro

Payload is the data for the function – 100%

F	84	01	42	00	F2	-	B9	CR	F	44	01	42	00	F2	000064	5D	CR
---	----	----	----	----	----	---	----	----	---	----	----	----	----	----	--------	----	----

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Read the Function for the second item in the preset / Payload is the Function stored – 87 = Shrink
macro

F	84	01	42	00	F3	-	BA	CR	F	44	01	42	00	F3	000087	81	CR
---	----	----	----	----	----	---	----	----	---	----	----	----	----	----	--------	----	----

Read the Data for the second item in the preset / Payload is the data for the function – 100%
macro

F	84	01	42	00	F2	-	B9	CR	F	44	01	42	00	F2	000064	5D	CR
---	----	----	----	----	----	---	----	----	---	----	----	----	----	----	--------	----	----

The above example shows the read for all the items within macro 0. The first command reads the number of items available in the macro and resets the read address. Then the following items read the function and then the data for each of the items in the preset/macro. Following a read of the data for a macro internally the next item in the macro is selected for reading so it is not possible to read the same item twice without first re-reading the number of items in the macro.

10.5.2 Writing to a macro

In order to read a preset / macro the following commands must be sent in this specific order – no other commands should be sent between these messages.

Packet sent

SOP	CMD	CHA	WIN	OUT	FUN	PAY	CS	EOP
-----	-----	-----	-----	-----	-----	-----	----	-----

Packet returned

SOP	CMD	CHA	WIN	OUT	FUN	PAY	CS	EOP
-----	-----	-----	-----	-----	-----	-----	----	-----

Clear macro

F	04	02	42	00	F1	000001	3A	CR	F	44	02	42	00	F1	000001	7A	CR
---	----	----	----	----	----	--------	----	----	---	----	----	----	----	----	--------	----	----

Write the function for first item in macro 3 = Zoom

F	04	02	42	00	F3	000086	C1	CR	F	44	02	42	00	F3	000011	01	CR
---	----	----	----	----	----	--------	----	----	---	----	----	----	----	----	--------	----	----

Write data for the first item = 100

F	04	02	42	00	F2	000064	9E	CR	F	44	02	42	00	F2	000011	DE	CR
---	----	----	----	----	----	--------	----	----	---	----	----	----	----	----	--------	----	----

Write the function for the second = shrink

F	04	02	42	00	F3	000087	C2	CR	F	44	02	42	00	F2	000011	02	CR
---	----	----	----	----	----	--------	----	----	---	----	----	----	----	----	--------	----	----

Write the data for the second item = 100

F	04	02	42	00	F2	000064	9E	CR	F	44	02	42	00	F3	000011	DE	CR
---	----	----	----	----	----	--------	----	----	---	----	----	----	----	----	--------	----	----

10.5.3 Run and Restore macros

Macros once programmed can be run by sending one of the following commands. By running macro 5 the unit can be restored to its previously saved state, when used in conjunction with the other macros this allows a default setup or baseline for the unit to be created.

Packet sent

SOP	CMD	CHA	WIN	OUT	FUN	PAY	CS	EOP
-----	-----	-----	-----	-----	-----	-----	----	-----

Packet returned

SOP	CMD	CHA	WIN	OUT	FUN	PAY	CS	EOP
-----	-----	-----	-----	-----	-----	-----	----	-----

Restore

F	04	05	42	00	F1	000000	3C	CR	F	44	05	42	00	F1	000000	7C	CR
---	----	----	----	----	----	--------	----	----	---	----	----	----	----	----	--------	----	----

Run macro 1

F	04	00	42	00	F1	000000	37	CR	F	44	00	42	00	F1	000000	77	CR
---	----	----	----	----	----	--------	----	----	---	----	----	----	----	----	--------	----	----

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Run macro 2

F	04	01	42	00	F1	000000	38	CR	F	44	01	42	00	F1	000000	78	CR
---	----	----	----	----	----	--------	----	----	---	----	----	----	----	----	--------	----	----

Run macro 3

F	04	02	42	00	F1	000000	39	CR	F	44	02	42	00	F1	000000	79	CR
---	----	----	----	----	----	--------	----	----	---	----	----	----	----	----	--------	----	----

Run macro 7

F	04	07	42	00	F1	000000	39	3E	F	44	02	42	00	F1	000000	7E	CR
---	----	----	----	----	----	--------	----	----	---	----	----	----	----	----	--------	----	----

11 TROUBLESHOOTING AND TECHNICAL SUPPORT

If problems are experienced, please read through the symptom topics below in order to resolve the problem. After doing so, if you still need to, contact Technical Support at <http://www.avocent.com/support>. Please have the following details of the problem handy:

Whether the problem happens only at specific times or has only just started occurring (and what other things have changed at the same time).

Firmware revision numbers - found in the first item of the System menu:

If the problem relates to a specific source or resolution:

11.1 There is no picture on the Output.

If no LEDs are on, then ensure that the AC power adaptor is connected properly and the power switch is on at the AC outlet.

If the Standby/ON LED on the unit is off but another blue LED is active then check that the monitor output from the computer is connected at both the computer and the unit. Check that the output connector you are using from the unit is also connected at the unit and the display equipment.

Check that the display video equipment is set to the correct line input and format/standard as appropriate.

Check that the device connected to the output is on and can support the resolution set in the Adjust output menu, ensuring that the Sync type e.g. RGBHV, is also set correctly.

11.2 The image is shifted and not fully viewable

There are several ways to correct this, depending on the actual problem, although it's generally best to perform a Factory reset.

Try an AUTASET if the input is RGB or YUV/YCbCr. Next adjust the TL pos. adj. values in the Setup Program source menu until the incoming video signal is displayed correctly. You may also need to adjust the BR size adj. setting to ensure the incoming video signal is properly displayed.

11.3 The output resolutions no longer appear as expected.

Because any changes made in the Adjust resolutions menu are automatically stored, it may be that the resolution data has become altered or corrupted beyond the ability of a display to show it.

Either manually correct the resolution data, or restore the data to full factory conditions by doing a firmware update. The user should avoid altering the resolution parameter data unless absolutely necessary.

11.4 There is excessive flicker on the Output.

Try using a different Flicker reduction mode. Turning the contrast down and the brightness up on the output device can have a large effect on flicker. Or try adjusting the brightness and contrast of the source input by selecting the Input adjust menu.

11.5 The Output image is distorted.

This may occur where some of the areas of the image are very dark and others are very bright. The solution is to adjust the contrast and brightness settings on your Output device to rectify the problem.

Alternatively, if the Adjust resolutions menu has been used to the output resolution in question, a firmware update is recommended to perform a FULL factory reset.

11.6 Some colors appear to be incorrect on the CV/YC output

First try altering the color, contrast and brightness settings on your TV or video display. These are usually set up for a very different reason than viewing computer graphics and may need changing to suit. If you cannot achieve exactly what you desire then alter the inputs levels in Adjust sources until the correct colors are restored.

11.7 How can I reduce color smearing on CV connections?

Smearing usually occurs on Composite Video connections and is generally unavoidable - unless you can switch to using S-Video or RGB / YUV connections. It occurs because the brightness and color information is transmitted as one combined (composite) signal and the two parts have to be 'bandwidth-limited' to avoid them interfering with each other – which then reduces the quality.

11.8 The picture on the video display is black and white.

Ensure that all the cables are correctly connected. If you are using a PAL TV to display the output then the unit may be providing resolution set to NTSC mode, or vice versa.

11.9 The picture on the video display is green.

The Output type is probably incorrectly set to YUV mode, whereas you are connecting to an RGB monitor – see Adjust outputs menu.

11.10 The RGB input is selected but the image is rolling or pink.

Check the Adjust sources menu and confirm that the input type and sync method is set correctly. (Having YUV input selected, instead of RGBHV often causes this problem).

11.11 The video signal from my DVD player does not appear to work.

Some DVD players have a switch at the back that selects between 'Component' and 'S-Video' output, because most will not let you output both at the same time. Make sure it is in the right position for the output you want.

12 RETURN PROCEDURE

Before returning your unit for repair, there are several checks you can make yourself to make sure the problem is actually caused by a failure.

12.1 Are you sure there's a fault?

Many 'faults' are due to incorrect set-up or use so a simple checklist is provided below to help you identify potential problems.

Set the unit up with your equipment as described in this manual and run through the checklist. This will hopefully determine whether or not the unit is actually faulty and prevent units from being returned unnecessarily.

Check the Troubleshooting tips of this manual and check out the various FAQ (Frequently Asked Questions) listings on the support website, <http://www.avocent.com/support>, which shows the latest Hints, Tips and Solutions.

Don't presume it is the unit that is causing the problem. Check that the equipment being used with it is fully working and setup correctly – bypass the unit if possible by connecting the video source directly to the video display.

Check the AC power. Is it present and is the unit turned on? Check that all cables are properly plugged in and are not damaged and then make certain that all equipment connected to the unit is working properly.

Perhaps you have a "frozen" unit and you cannot change an input nor exit from the current task. In that case, a simple 'Factory Reset' of the product may sort the problem out. See earlier section on Front panel buttons to do this. Note that all user-settings will be lost following an engineering reset.

It is also worth ensuring that the latest firmware is installed in the unit – although, again, user settings are lost during a firmware update.

12.2 To return a unit for repair

First contact Avocent using the <http://www.avocent.com/support> website. Support personnel will determine whether a return to the factory is the appropriate solution. If that's the case, a Return Authorization Number will be issued. You should provide the following information for each unit:

Product type

Serial number of the faulty unit (this is on the underside of the unit)

Full details of fault

Invoice number (if available)

Units should be returned via insured carrier or registered mail (thus allowing a trace to be made if the Processor is lost in transit), with shipping costs and insurance

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arranged at your own risk and expense. Goods in transit are the responsibility of the sender and the supplier will not be responsible for transit losses.

Please clearly state the return number on the outside packaging and on any accompanying documentation. This will greatly speed up processing.

IMPORTANT: DO NOT return a unit for warranty repair without first obtaining a Return Authorization Number. No action will be taken on a unit returned in warranty for repair without a Return Authorization Number.

13 WARRANTY POLICY

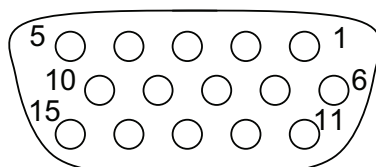
LIMITED WARRANTY – With the exceptions noted in the next paragraph, Avocent Corp. warrants the original purchaser that the equipment it manufactures or sells will be free from defects in materials and workmanship for a period of two years from the date of purchase. Full warranty details are available on the Avocent web site.

LIMITATIONS - All products sold are "as is" and the above Limited Warranty is in lieu of all other warranties for this product, expressed or implied, and is strictly limited to two years from the date of purchase. Avocent Corp. assumes no liability to distributors, resellers or end-users or any third parties for any loss of use, revenue or profit.

Avocent Corp. makes no other representation of warranty as to fitness for the purpose or merchantability or otherwise in respect of any of the products sold. The liability of Avocent Corp. with respect to any defective products will be limited to the repair or replacement of such products. In no event shall Avocent Corp. be responsible or liable for any damage arising from the use of such defective products whether such damages be direct, indirect, consequential or otherwise, and whether such damages are incurred by the reseller, end-user or any third party.

14 CONNECTOR PINOUTS

14.1 HD15 connector



1. Red / Pr / R-Y
2. Green / Y
3. Blue / Pb / B-Y
4. ID2 (input & output linked)
5. GND
6. GND
7. GND
8. GND
9. No connection
10. GND
11. GND on input, pulled high on output (used for auto-termination)
12. SDA (input & output linked)
13. H sync (or composite sync for RGBS)
14. V sync
15. SCL (input & output linked)

14.2 RS232 / D9 socket

16. N/C
17. TX (Transmit data)
18. RX (Receive data)
19. N/C
20. GND (Signal return)
21. N/C
22. CTS (Clear to send)
23. RTS (Request to send)
24. N/C

14.3 4 Pin mini-DIN S-video connector (YC) input

1. Y (Luminance)
2. GND
3. GND
4. C (Chrominance)

15 SPECIFICATIONS

See product front and rear diagrams for details of product I/O.

15.1 Video Inputs

Input impedance: 75 Ohm
Television standards supported: NTSC and PAL
Composite video via BNC
S-Video (YC) via 4-Pin mini-DIN Connector
CV/YC video decoder: 8-bit Digital
De-Interlacing (NTSC / PAL up-conversion only): pixel-level motion adaptive
Comb filter decoding: adaptive
Film mode (NTSC) 3:2 pull down for up-conversion
CV/YC Video adjustments: contrast, brightness, saturation, hue (NTSC)
CV/YC sub-carrier lock range: +/- 200Hz for NTSC Operation, +/- 250Hz for PAL Operation

15.2 Computer Input

Analog RGB/YPbPr via HD15 into 75 Ohm, supporting RGBHV, RGBS, RGSB, YPbPr, auto-terminating into 75 Ohm
Digital sync (in RGBHV or RGBS mode): TTL Level, 10K termination, pos or negative
Analog sync (in RGSB, YPbPr, YUV modes): 0.3v negative.
RGB Level Range: 0.5-2.0 Vp-p approx.
Scan Rate Detection: automatic
PC Resolutions: any up to 2048x2048
HDTV Resolutions: any up to 1080p
Max horizontal scan rate: 150kHz

15.3 Computer Outputs

Analog output impedance 75 Ohm
Analog RGBHV, RGBS, RGSB, YPbPr (0.7v RGB / 1.0v sync-tip to white, approx. 0.4v DC offset)
Connectors: HD-15 and/or 5 x BNC
PC Resolutions: any up to 2048x2048 (user adjustable)
HDTV Resolutions: any up to 1080p
Vertical Refresh Rate: any to 250Hz

15.4 Scaling / sampling / memory

Size and position: automatic via AutoSet or Manual
Image size: user-definable presets
Image freeze: one video frame

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Settings memory: non-Volatile
Zoom range: variable to 10x Zoom (1000%)
Shrink range: variable to 10%
Image mirroring: Horizontal and/or Vertical
Horizontal filtering: full digital
Conversion technology: proprietary
Color resolution: 24-bit (16.8 Million Colors)
Sampling rate: 108MHz maximum
Digital sampling: 24-bit, 4:4:4 format
Firmware memory: flash, upgradeable via RS-232

15.5 Regulatory Compliance

Main unit conforms to FCC, CE, RoHS

15.6 Environmental

Operating temperature: +4 to +45 deg. C (+40 to +113 deg. F)
Operating humidity: 10% to 85%, non-condensing
Storage temperature: 0 to +60deg.C (+32 to +140deg. F)
Storage humidity: 10% to 85%, non-condensing

15.7 Power Requirement

External power supply: 12V DC @1A maximum.
Actual current consumption varies between units.
Internal over-voltage & over-current protection.
Full PSU specification: 12v DC regulated 1Amp PSU with a 2.5mm locking center-pin positive DC power connector. A non-locking 2.5mm DC power connector will also fit.

15.8 Control Methods

The unit can be controlled locally via the front panel buttons and on-screen display (OSD), remotely via the RS-232 interface (as applicable) using a D9 female connector or again remotely via the Infrared remote using the infra-red remote unit.

15.9 Mechanical

Size (H x W x D): 1.2"x7.9"x3.5" (30x200x89mm)
Weight (Net): 1.3 lbs (580g)



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