



A WORLD OF A/V SOLUTIONS



INTERFACES

CIA101 COMPUTER INTERFACE WITH INTERNAL POWER SUPPLY



CIA101 OPERATION MANUAL



Installation and Safety Instructions

For Models without a Power Switch:

The socket outlet shall be installed near the equipment and shall be accessible.

For all Models:

No serviceable parts inside the unit. Refer service to a qualified technician.

For Models with Internal or External Fuses:

For continued protection against fire hazard, replace only with same type and rating of fuse.



Instructions d'installation et de sécurité

Pour les modèles sans interrupteur de courant:

La prise de courant d'alimentation sera installé près de l'équipement et sera accessible.

Pour tout les modèles:

Pas de composants à entretenir à l'intérieur. Confiez toute réparation à un technicien qualifié.

Pour les modèles équipés de fusibles internes ou externes:

Afin d'éviter tout danger d'incendie, ne remplacer qu'avec le même type et la même valeur de fusible.



Installations- und Sicherheitshinweise

Für Geräte ohne Netzschalter:

Die Netzsteckdose soll in der Nähe des Gerätes installiert und frei zugänglich sein.

Für alle Geräte:

Keine Wartung innerhalb des Gerätes notwendig. Reparaturen nur durch einen Fachmann!

Für Geräte mit interner oder externer Sicherung:

Für dauernden Schutz gegen Feuergefahr darf die Sicherung nur gegen eine andere gleichen Typs und gleicher Nennleistung ausgetauscht werden.



Instalacion E Instrucciones de Seguridad

Modelos Sin Interruptor:

La conexión debe ser instalada cerca del equipo y debe ser accesible.

Para Todos Los Modelos:

Dentro de la unidad , no hay partes para reparar. Llame un tecnico calificado.

Modelos con Fusibles Internos o Externos:

Para prevenir un incendio, reemplace solo con el mismo tipo de fusible.

CE COMPLIANCE

All products exported to Europe by Inline, Inc. after January 1, 1997 have been tested and found to comply with EU Council Directive 89/336/EEC. These devices conform to the following standards:

EN50081-1 (1991), EN55022 (1987)
EN50082-1 (1992 and 1994), EN60950-92

Shielded interconnect cables must be employed with this equipment to ensure compliance with the pertinent Electromagnetic Interference (EMI) and Electromagnetic Compatibility (EMC) standards governing this device.



FCC COMPLIANCE

This device 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 against harmful interference when 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 equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at their own expense.

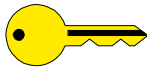
Product Overview

DESCRIPTION

The **CIA101** is a high-performance computer interface for analog video and stereo audio signals. The unit is compatible with a variety of analog signals including VGA, SVGA, XGA, SXGA, UXGA, MAC, SUN, SGI and other high-resolution workstations. The **CIA101**'s compact design allows users to place it in a variety of locations or permanently mount it to virtually any flat surface (using the optional L mounting brackets). The internal power supply makes it ideal for rental and staging applications that require a compact, economical, high-performance unit. Like other **INLINE** interfaces, the **CIA101** performs the following functions:

- **Signal Splitting** - allows the simultaneous connection and viewing of both the computer's local monitor and a second output device such as an LCD data projector or a presentation monitor.
- **Physical Interfacing** - Because computers employ many different types of video output connectors, it is sometimes difficult to directly connect them to data projection devices. The **CIA101** simplifies interfacing tasks by acting as a universal adapter. Through the use of removable input cables, the **CIA101** can be attached to different computers and will provide a video output signal on five BNC connectors. The output signal may be set to RGBHV (default), RGBS or RGsB formats.

KEY CONCEPT



*The **CIA101** is not a scan converter. The data projector, monitor or other output device must be compatible with the horizontal scan rate, vertical scan rate and resolution output by the computer video card.*

PRODUCT FEATURES

- **15-Pin HD Female Connectors** - The **CIA101** connects directly to PC, MAC and SGI graphics ports and local monitors via high-resolution coaxial VGA extension / adapter cables.
- **Ultra High-Resolution Amplification** - The **CIA101** provides superb performance with analog video signals at any resolution.
- **Audio Buffering** - The **CIA101** accepts unbalanced stereo audio from a computer sound card and can easily be set to output a balanced or unbalanced signal.
- **Selectable Output Sync Format** - The unit can be set for RGBHV (default), RGBS or RGsB output sync as required by the data display device and signal distribution system.
- **Buffered Local Monitor Output** - ensures the highest quality display on a local monitor.
- **One-Button Monitor Emulation** - makes it easy to use the interface without a local monitor.
- **New Soft-Touch Rocker Button for Horizontal Position Control** - allows precise centering of the image within the data display area.

- **Sharpness Control** - provides effective image enhancement for high-resolution video signals by increasing clarity and image detail, and may be used to compensate for signal loss due to long cable runs.
- **Hum Suppression Capability** - removes visible effects caused by video ground loops that exist between the signal source and the interface.
- **400 MHz Bandwidth**
- **Rack Mountable**

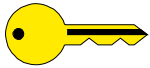
Compatibility

INPUT

The **CIA101** will accept high-resolution video signals from virtually any computer that outputs an analog video signal. The unit will work with signals at virtually any resolution and refresh rate. Compatible computer video signals include VGA, SVGA, XGA, SXGA, UXGA, MAC, SUN, SGI and other high-resolution computers outputting an analog video signal. Input signal compatibility parameters are listed below.

Video Signal:	Analog RGB Video
Signal format:	RGBHV, RGSB, RGsB*
Horizontal Frequency Range:	30 KHz to 130 KHz
Vertical Refresh Rates:	30 Hz to 120 Hz

KEY CONCEPT

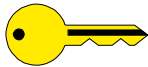


** The **CIA101** will operate with RGsB input signals. However, the unit will not strip sync off of the green. RGsB input signals are always output as RGSB (they cannot be output as RGSB or RGBHV). Also, the horizontal position control will not operate when used with RGsB input signals.*

OUTPUT

The output signal of the **CIA101** is analog RGB video with TTL sync on 3, 4 or 5 female BNC connectors. The output format can be set to RGBHV, RGSB or RGsB using dipswitches. This output signal is compatible with high-resolution data grade monitors and data / graphics projectors.

KEY CONCEPT



VGA, MAC, SUN, SGI and other high-resolution workstations operate in several video modes encompassing a wide range of resolutions and scan rates. Many of the video signals from the newest models can run as high as 70 KHz or more, with the newest VGA cards offering an output resolution of 1600 x 1200 (some can even go as high as 1920 x 1080). The data projector or monitor connected to the interface output must be compatible with the horizontal scan rate and vertical refresh rate of the computer's video signal. Please check the documentation for both the computer graphics card and the data display device to ensure compatibility.

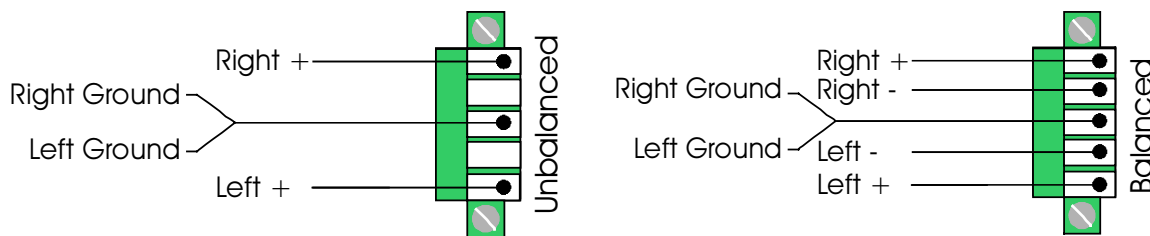
Installation

This section offers step-by-step instructions for installing the **CIA101**. An Application Diagram is provided on page 5, and Front and Rear Panel Connector and Control Diagrams are on page 6. Read the instructions carefully before initiating the installation procedure. Before you begin, make sure that there is no power connected to any components in the display system, and that **all** the power buttons are off.

- 1.) Place / install the **CIA101** at the desired location. The unit may be secured to a flat surface using the **IN9250 L Mounting Brackets** (optional), or installed in a standard 19" equipment rack. Two interfaces can be mounted side-by-side in a 1U rack space (using the optional **IN9080** rack shelf). A single unit can be rack-mounted using the shelf and an optional **IN9088** half-rack blank plate. Run the video coax and the stereo audio cables (if necessary) to the interface.. *Note: The optional **IN9251 Flush Mount Brackets** are available for mounting the **CIA100** through a hole in the tabletop.*
- 2.) Set the dipswitches as appropriate for your installation (see page 8 for more details). The **CIA101** factory default output format is RGBHV. If your display device, routing system, or cabling require a different format, use the dipswitches to change the output signal to RGBS or RGSB as necessary. For best results with high-resolution data projectors / presentation monitors, refer to the Optimal Settings for LCD / DMD / D-ILA / Plasma Displays Section on page 8.
- 3.) Turn the computer and computer monitor off. Disconnect the computer monitor (if present) from the video output port on the computer.
- 4.) Connect the **CIA101** video output (5 BNC connectors) to the data display device's RGB input, using three, four, or five high-resolution BNC cables or a multi-conductor RGBHV, RGBS, or RGB "snake". The **IN7000 Series**, **IN7200 Series**, **IN7300 Series** and **IN7400P Series** high-resolution cables are well suited for this purpose. Take care while making connections to ensure that the red output is connected to the red input, green output to the green input, etc.
- 5.) Connect the audio output cable to the appropriate pins on the **CIA101** 5-pin Phoenix connector. Make sure that the stereo audio output is connected appropriately for unbalanced or balanced as required by the installation (see diagram below).

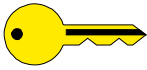
Unbalanced Output - connect to the Left, Right and Ground connectors.

Balanced Output - connect to Left +, Left-, Right+, Right- and Ground connectors.



- 6.) Connect the computer graphics card to the **CIA101** 15-pin video input port.
 - **PC / MAC / SGI Computers with 15-pin HD Video Ports** - can be connected via **IN8000M-1 / IN8200M-1 Series** high-resolution coaxial VGA cables.
 - **Older Macintosh (15-pin D) / SUN (13W3) / Workstations (4 or 5 BNC)** - can be connected using the appropriate input / output cables listed in the chart on the next page.

- 7.) Connect the computer sound card output (if applicable) to the **CIA101** 3.5mm female stereo audio input connector using an **IN8200M-1 Series** cable [15-pin HD with 3.5mm (M-M) mini DIN], or an **IN9106** audio patch cable (3.5mm stereo mini male to 3.5mm stereo mini male). For computers with RCA connectors, use the **IN9107** audio adapter cable [(1) 3.5mm stereo mini male to (2) RCA male].
- 8.) Connect the local computer monitor (if applicable) to the local monitor output port of the **CIA101**. Monitors with 15-pin VGA connectors will attach directly to the interface. For other types of monitors, refer to the table below.

KEY CONCEPT

If a local monitor is required, disengage the monitor emulation feature by pressing the Monitor Emulation Button. See page 8 for more details.

- 9.) Apply power to the **CIA101** using the **IN9230** IEC power cord (included).
- 10.) Complete the installation by turning on the computer, the computer monitor and the **CIA101** (the power LED on the front of the unit will illuminate). If required, adjust the sharpness and horizontal position controls (see page 7 for more details).

ADAPTER / EXTENSION CABLES FOR INPUT AND LOCAL MONITOR OUTPUT

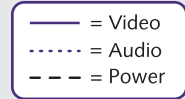
The **CIA101** has 15-pin HD VGA-type input and local monitor output connector ports. The following cables / adapters are available:

Computer	3'	6'	12'	25'	35' +
VGA: 15-Pin HD					
Input Cable (M-M)	IN8003M-1	IN8006M-1	IN8012M-1	IN8025M-1	IN80xxM-1
Output Cable (M-F)		IN8006-1	IN8012-1	IN8025-1	IN80xx-1
VGA with Stereo Audio: 15-Pin HD with 3.5mm (M-M) mini DIN					
Input Cable (M-M)	IN8203M-1	IN8206M-1	IN8212M-1	IN8225M-1	IN82xxM-1
Output Cable (M-F)	IN8203-1	IN8206-1	IN8212-1	IN8225-1	IN82xx-1
MAC with 15-Pin D:					
Input Cable (M-M)		IN9140M		IN9144M	
Output Cable (M-F)	IN9141			IN9145	
MAC G3, G4 and PowerBook with 15-Pin HD*:					
Input Cable (M-M)		IN8006M-1	IN8012M-1	IN8025M-1	IN80xxM-1
Output Cable (M-F)		IN8006-1	IN8012-1	IN8025-1	IN80xx-1
SUN: 13W3 (may also be used with SGI with RGB output)					
Input Cable (M-M)		IN9142M		IN9146M	
Output Cable (M-F)	IN9143			IN9147	
Workstation: 5 BNC / RGBHV					
Input Cable (M-M)		IN9045-L6	IN9045-L12	IN9045-L25	IN9045-Lxx
Output Cable (M-M)		IN9045-L6	IN9045-L12	IN9045-L25	IN9045-Lxx
Workstation: 4 BNC / RGBS					
Input Cable (M-F)		IN9100			

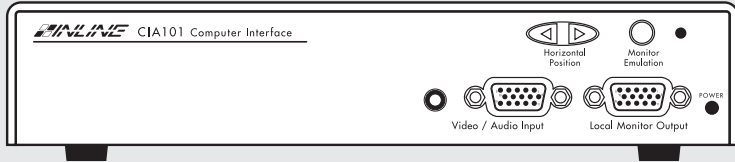
*Newer Mac G3 models (with translucent cases) have 15-Pin HD connectors (pins arranged in 3 rows). Older G3 models (with solid white enclosures) incorporate 15-Pin D connectors (pins arranged in 2 rows).

CIA101 COMPUTER INTERFACE

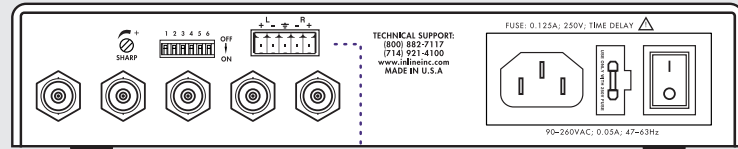
APPLICATION DIAGRAM



CIA101 Interface — Front



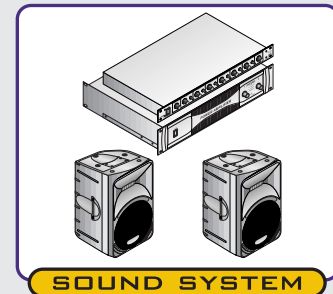
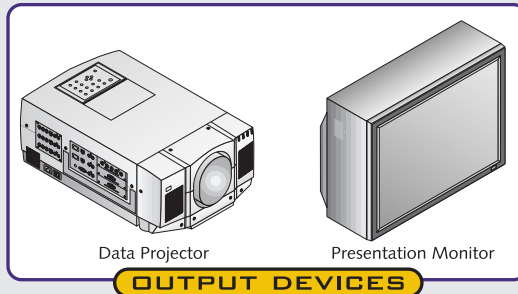
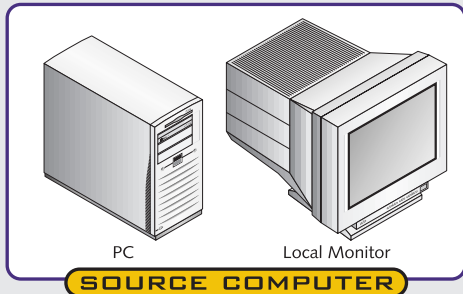
CIA101 Interface — Back



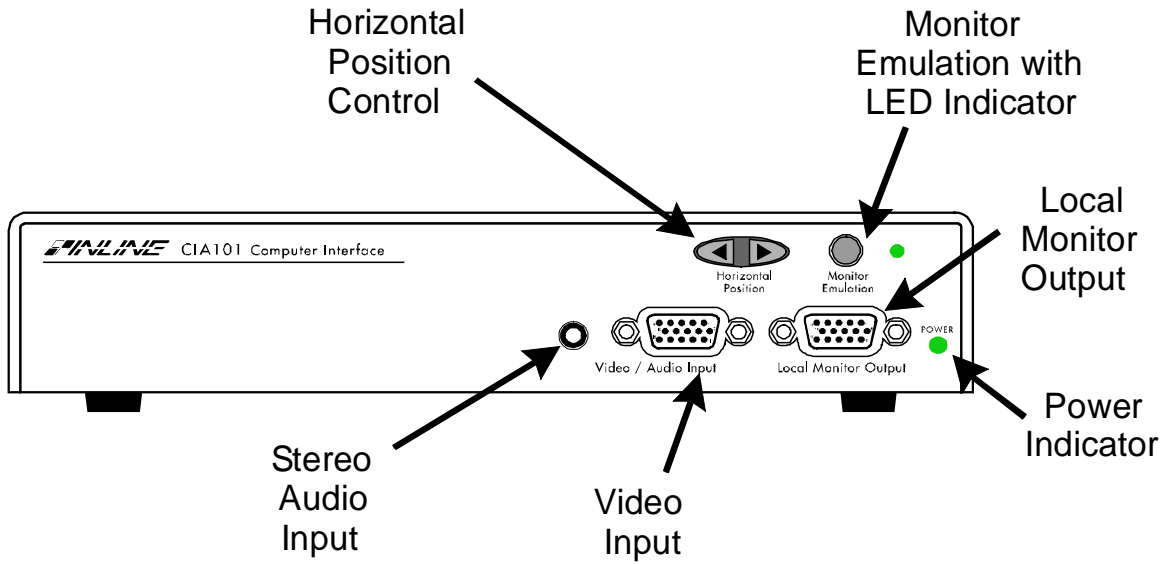
IN8000 VGA Cable /
IN8200 VGA & Stereo Audio Cable

IN7000-5 /
IN7200-5 /
IN7300-5
Coaxial Cable

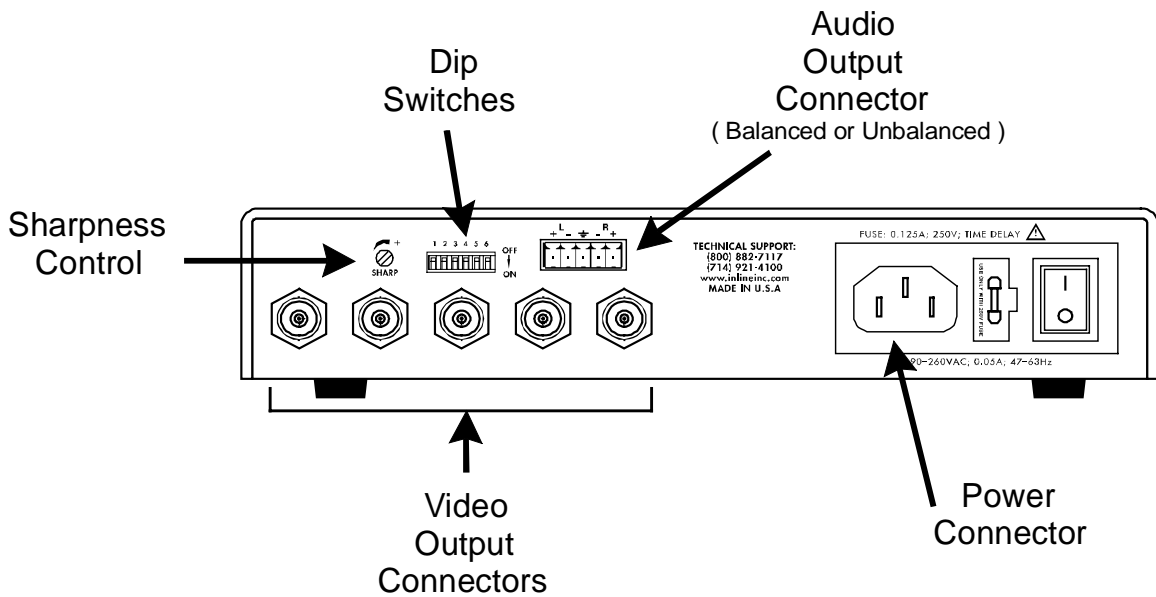
A/C
Power
Supply



CIA101 FRONT PANEL CONNECTORS AND CONTROLS



CIA101 REAR PANEL CONNECTORS AND CONTROLS



HORIZONTAL POSITION CONTROL

The location of the horizontal position control is shown in the **Front Panel Connectors and Controls** diagram on the previous page. Press and release the rocker button to shift the image by one step to the left or right. Press and hold the button to shift the image continuously.

Note: The horizontal position control has no effect on the local computer monitor.

If the horizontal position adjustment is set to an extreme position on either the display device or the **CIA101**, the output image may appear dark and / or the colors may be displayed improperly. To position the video image and achieve optimum picture quality:

1. Set the display device's horizontal position control to the center of its adjustment range.
2. Adjust the horizontal position control on the **CIA101** until the picture is centered properly on the display device.

Note: The horizontal position control does not work with RGB input signals.

SHARPNESS CONTROL

The **CIA101** sharpness / peaking circuitry provides variable high frequency equalization that can compensate for signal losses due to long output cable runs. Careful optimization of the sharpness control at the time of installation will result in a greatly enhanced image with increased clarity and edge detail. The amount of high frequency boost required for each display system will vary depending on the length and bandwidth performance of the video output cables, and, to a lesser extent, the resolution and frequency of the input signal. When using short output cables, the sharpness control should usually be placed at the minimum setting to avoid over-peaking.

The sharpness control is located on the back of the interface (see **Rear Panel Connectors and Controls** on page 6). Using the **IN9339** Adjustment Tool (provided), turn the sharpness control clockwise to increase the sharpness setting, and counterclockwise to decrease the sharpness setting. The factory default setting is minimum (no sharpness / peaking enhancement). The following guidelines are useful in selecting the optimal sharpness / peaking setting:

If the image is soft and / or fine details in the picture lack clarity:

The sharpness is probably set too low. Increase the sharpness control setting.

If a white, ghosted image appears to the right side of the lines / characters:

The sharpness is probably set too high (over-peaked). Decrease the sharpness control setting.

DIPSWITCH SETTINGS

Most installations will not require any changes to the dipswitch settings. The factory default and specialized dipswitch settings are indicated below.

Factory Default Settings:

Dipswitches ON:	1, 3 & 4
Horizontal Position Control:	Enabled
Signal Format:	RGBHV
Monitor Emulation at Power Up:	Enabled

The table below lists the functions of the 6 dipswitches:

DIPSWITCH	FUNCTION	SETTING
1	Horizontal Position Control	On = Enabled* Off = Disabled
2	Output Sync Format (sync on green)	On = RGsB Off = RGSB / RGBHV*
3	Output Sync Format (RGSB or RGBHV)	On = RGBHV* Off = RGSB
4	Monitor Emulation at power up	On = Enabled* Off = Disabled
5	Reserved	
6	Reserved	

* Factory Default Setting

MONITOR EMULATION

The factory default setting for the **CIA101** is Monitor Emulation Enabled. **If the application requires a local monitor**, make sure that the front panel Monitor Emulation LED is OFF (press the MONITOR EMULATION Button to toggle between enabled / disabled). **If no local monitor is necessary**, make sure the Monitor Emulation LED is ON.

OPTIMAL SETTINGS FOR LCD / DMD / D-ILA / PLASMA DISPLAYS

Output Sync Format

CIA100 Series Interfaces feature advanced sync processing circuitry that offers superb compatibility with a wide range of display devices. The **CIA101** has been designed (and extensively tested) to provide excellent operation when set for RGBHV, RGSB and RGsB output signal formats. However, some display devices most readily identify and display VGA-type signals when they are in the RGBHV signal format. For this reason, users may achieve optimal compatibility and more consistent results when the interface is set to the factory default output sync format of RGBHV (see **Dipswitch Settings** above).

Horizontal Position Control

The **CIA101** horizontal position control utilizes a new circuit design that provides excellent image quality and greatly enhanced compatibility with a variety of data display technologies. However, in rare cases, instability in parts of the displayed image may still occur (depending on the design of the display device's sync circuitry). Adjusting the data display's fine phase or auto phase adjustment will usually alleviate the problem. If problems persist, users may wish to disable the **CIA101** horizontal position control (see **Dipswitch Settings** above).

Specifications

CIA101 Computer Interface	
Input	
Connector Type	(1) 15-pin HD female - standard VGA pin-outs
RGB Video Signals	Analog, 1.5 Vp-p max.
Input Impedance	75 ohm
Sync Signals	TTL compatible
Horizontal Scan Rate	30 KHz - 130 KHz
Vertical Sync Range	30 Hz - 120 Hz
Stereo Audio Connector	(1) 3.5mm stereo mini female for unbalanced stereo audio
Stereo Audio Compatibility	Unbalanced stereo audio; Impedance: 10 kohm
Output	
Local Monitor (Buffered)	15-pin HD female - standard VGA pin-outs
Main Output	(5) female BNC connectors (on 6" pigtailed)
Output Signal Formats	RGBHV, RGSB or RGSB
RGB Signals	Analog Video, 75 ohm impedance
Bandwidth	400 MHz @ -3 dB with 0.7 Vp-p input signal
Audio Output Connector	5-pin Phoenix connector
Main Audio Output	Balanced or unbalanced stereo audio; Impedance: 50 ohm
Dimensions	
Size (including faceplate)	1.65" H x 8.5" W x 4.4" D / 4.2 cm x 21.6 cm x 11.1 cm
Product Weight	0.7 lbs. / 0.32 kg.
Shipping Weight	2.4 lbs. / 1.1 kg.
Power	
Power Supply	Internal universal: 90-260VAC; 47-63 Hz
Regulatory Compliance	
Safety	UL 1950, CAN/CSA-22.2 No. 950 3 rd Ed.
EMI	FCC class A; CE: EN50022 (1987), EN50081-1 (1991), EN50082-1 (1992 & 1994), EN60950-92

Parts Included

- (1) CIA101 Installation Interface
- (1) IN9230 Power Cable, Edison Male to IEC Female, 6' (US only)
- (1) IN9339 Adjustment Tool with Technician's Blade
- (1) Operation Manual

Required Accessories (Ordered Separately)

Input and Local Monitor Adapter and Extension Cables:

VGA: IN8000 Series 15-pin HD male to 15-pin HD female, various lengths from 3' to 100'

For Other Computers: See table on page 4

Optional Accessories
Audio Input Cables: IN9106: 3.5mm stereo mini male to 3.5mm stereo mini male, 6' long IN9107: (1) 3.5mm stereo mini male to (2) RCA male, 6' long
Installation Hardware: IN9080: Rack Shelf - Holds Two Units Side by Side in 1U Rack Space IN9088B: Half-Rack Blank Plate - Fills Space When Rack Mounting One CIA101 IN9250: L Mounting Brackets - Mounts Unit to a Flat Surface IN9251: Flush Mount Brackets - Flush Mounts Unit Through Hole in Table Top

RGB Installation Cables			
Coaxial Cables	3-Conductor	4-Conductor	5-Conductor
Standard Resolution		IN7000-4	IN7000-5
Standard Resolution, Plenum		IN7000P-4	IN7000P-5
Super High Resolution	IN7300-3	IN7300-4	IN7300-5
Super High Resolution, Plenum			IN7400P-5
Ultra High Resolution	IN7200-3	IN7200-5	IN7200-6

All cable grades are available in lengths from 3' to 250' pre-terminated with high quality BNC connectors or as bulk cable.

Troubleshooting

Problem: The display device connected to the CIA101 output has a bad / scrambled image.

- **Solution 1:** Verify that the correct input cable is being used (see table on page 4).
- **Solution 2:** The display device connected to the output of the interface may not be compatible with the computer output. PC, MAC, SUN and other high-resolution workstations have new and ultra high-resolution modes such as 1600 x 1200 and 1800 x 1440, and can output a video signal with a horizontal scan rate of over 100 KHz! Many data monitors and data projectors are not compatible with these resolutions and frequencies.
- **Solution 3:** Check the dipswitch settings to make sure the unit is putting out a sync format that the display device can use. For most applications, the default dipswitch settings will work best (see page 8). For LCD / DMD / D-ILA / Plasma Display devices, you may have to disable the horizontal position control.
- **Solution 4:** The RGBS or RGBHV cable may have a bad sync line. Try running the sync through another cable.

Problem: The power LED is on but there is no image on the display device.

- **Solution:** Check the RGBHV cable connections at the interface output and at the display device input to make sure that the vertical and horizontal sync wires are not reversed.

Problem: The power switch is turned on, but the front panel power LED is dark.

- **Solution 1:** Make sure the **IN9230** IEC power cable is securely plugged into the unit and the A/C source.
- **Solution 2:** Make sure the A/C source is live.
- **Solution 3:** The **CIA101** contains a 0.125A / 250V time delay fuse. To change the fuse, remove the power cable, then slide out the fuse holder (located on the rear panel between the power switch and the IEC cable receptacle) using the **IN9339** adjustment tool.

Problem: The output image is very dark.

- **Solution:** The **CIA101** horizontal position control may be set off to an extreme setting or may be interacting poorly with the horizontal position control on the display device. Follow the horizontal position adjustment procedure on page 7.

Problem: The local monitor looks fine but the image on the Data Projector / Data Display is wavy or has vertical bars in the picture.

- **Solution 1:** Set the interface to RGBHV output.
- **Solution 2:** Disable the horizontal position control.
- **Solution 3:** LCD / DMD displays often have an adjustment called Phase Adjust or Fine Phase Control. This control should be adjusted to provide the best image.

Problem: The output image is missing a color.

- **Solution:** Possibly the RGSB or RGBHV cable is bad. Try switching connections on the output to verify that the bad color's cable is OK (*Example:* If there is no red, try running the green output through the red cable and see if the green is displayed or not).

Problem: The output image is too green.

- **Solution:** The dipswitch settings may be set for sync on green output and the display device doesn't work well with that format. Try changing the dipswitches to output an RGSB or RGBHV signal.

Problem: The horizontal position control is not working.

- **Solution 1:** Check the dipswitch settings to see if the horizontal position control has been disabled.
- **Solution 2:** The input signal may be RGSB (sync on green). The horizontal position control does not work with RGSB input signals.

If problems persist, call INLINE Technical Services at (714) 921-4100 for further assistance.

Warranty

- ◆ INLINE warrants the equipment it manufactures to be free from defects in materials and workmanship.
- ◆ If equipment fails because of such defects and INLINE is notified within two (2) years from the date of shipment, INLINE will, at its option, repair or replace the equipment at its plant, provided that the equipment has not been subjected to mechanical, electrical or other abuse or modifications.
- ◆ Equipment that fails under conditions other than those covered will be repaired at the current price of parts and labor in effect at the time of repair. Such repairs are warranted for ninety (90) days from the day of re-shipment to the Buyer.
- ◆ **This warranty is in lieu of all other warranties expressed or implied, including without limitation, any implied warranty or merchantability or fitness for any particular purpose, all of which are expressly disclaimed.**

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