



Component I/O Cards Installation Guide



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Before You Install Any Cards

It is important to make a point about electrostatic discharge, or ESD. Even if you are an experienced technician, you should be aware of the danger of ESD.

Almost everyone is aware of static electricity and its effect when you rub your feet on the carpet and zap someone on the earlobe. But did you know how damaging static electricity can be to computer components?

For a human being to feel a static shock, the voltage must be around 1,500 volts. Really nasty shocks can be over 30,000 volts! Electronic components can be damaged by much lower voltages, about 20-30 volts. Therefore the static electricity your body accumulates is enough to damage circuit boards by merely touching them.

Sometimes ESD damage is not readily apparent, and can cause a board to fail months after it was improperly handled. To avoid this type of failure, please take the following steps when working inside your GlobeCaster:

- Remove any articles of clothing that gather static electricity. Wool sweaters are especially prone to this.
- Work on the GlobeCaster in a reasonably ESD-free area. Don't work on the unit if it's sitting on a shag carpet.
- When working on the GlobeCaster, keep it turned off and unplugged.
- Before touching any boards inside GlobeCaster, touch the edges of the chassis *lightly* to discharge any static buildup you may have.
- Handle only the boards you need to handle. Don't go poking around in the unit without a reason.

An ESD wrist strap costs \$5 - \$20 at any electronic supply house, and ensures that your body does not have any static charge. Having an ESD wrist strap is recommended, but not required. Attach the alligator clip of the wrist strap cord to the Trinity chassis or another common ground point.



Proper Card Placement Within the GlobeCaster

Each card in the GlobeCaster has a specific area in the motherboard where the card belongs. It is important to understand where each card belongs in order to configure your customer's system properly.

34-209 Component Input Card

Normal placement of this input module is in one of the slots labeled 1-7 on the back of the GlobeCaster. If this card is going to be the 8th input, then the card may be placed in slots 10-12, and this card will be listed as Input 8 on the Switcher.

Input formats supported are Analog YUV and RGB at adjustable levels. Factory presents are included for RGB and SMPTE levels, and YUV at Beta and MII levels. The loop-thru connectors can provide a straight loop out; a re-encoded loop-thru (after color correction), and a re-encoded loop-thru in a different format. The loop-thru can be set for RGB, YUV, Composite or Monochrome independent of the signal being fed into it.

In a typical GlobeCaster configuration, the master output encoder belongs in slot

34-208 Master Multi-Format Broadcast Reference

This card belongs in the slot next to the Switcher card inside the GlobeCaster, which is slot 9 on the back of the GlobeCaster.

The GlobeCaster can only have one Master output card in the system, so do not install more than one of these cards in a GlobeCaster system. Also, a 34-075 Composite/YC master encoder card cannot be used in conjunction with a 34-08 card. If additional outputs are desired, suggest the 34-233 Slave Multi-format output card to your customer.

The card provides timing to the entire system in addition to video output. Output formats supported are YUV, RGB, YC (2 BNCs) and Composite. This card also has BNC connectors for Genlock In, Genlock Thru, and a configurable connector that provides either Black Burst out or Composite out.

34-233 Slave Multi-format Output

These cards work in conjunction with a Master output encoder to provide additional simultaneous outputs to a single GlobeCaster. These outputs can be configured individually to provide multiple output formats. Formats supported by this card are Composite, Y/C, RGB, and YUV.

The timing on each slave output card be adjusted relative to the Master encoder, allowing signals with different phasing to be outputted simultaneously. Also, the Fade to Black function in the Switcher can be individually selected on each output, so only selected outputs will fade to black.

Slave output encoders are typically installed in external slots 10-12.

Card Installation

1. Turn off the power to the GlobeCaster.
2. Unscrew the three thumbscrews along the edge of the top cover.
3. Slide the top cover toward the back of the GlobeCaster about halfway, and lift off.



Figure 1.1: Removing the Retaining Bar

4. Unscrew the thumbscrew on the retaining bars running across the GlobeCaster, figure 1.1.
5. Remove the retaining bar.

6. Locate the lockdown panel that holds the backs of the cards in place. It is on the inside of the back of the unit. It is hinged in place, and held down with three thumbscrews, see figure 1.2.

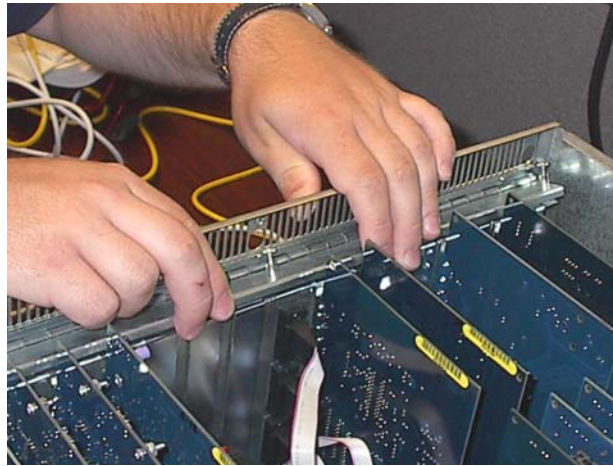


Figure 1.2: Rear Lockdown Panel

7. Unscrew the three thumbscrews on the rear lockdown panel.
8. Lift and rotate the lockdown panel out of the way.
9. Remove the backplate from the hole in the back of the slot.
10. Line up the new card in the socket.
11. Push lightly down on the card, **BUT DO NOT PUSH THE CARD IN YET!** Double-check a second time to make sure that the card is properly aligned and not binding within the socket. **PLEASE NOTE: THESE HIGH SPEED SOCKETS ARE MUCH MORE FRAGILE THAN STANDARD PC SOCKETS AND EXTREME CARE MUST BE TAKEN TO MAKE SURE THAT THE MOTHERBOARD IS NOT DAMAGED DURING INSTALLATION.**
12. Using equal pressure, push the card into the socket. Make sure the card is in the socket evenly.
13. Rotate the rear lockdown panel back into place, and tighten up the thumbscrews.



14. Replace the retaining bar and tighten the thumbscrew on it.
15. Replace the top cover. Make sure the bottom edges of the top cover fit into the slots on the bottom cover.
16. Tighten the three thumbscrews on the top cover.
17. Hook the Videonet cables back up to the GlobeCaster. Remember to hook RX to TX and TX to RX.
18. Now that the card(s) have been installed, we'll fire up the GlobeCaster and test the configuration of the cards.
19. Turn the GlobeCaster and the PC on.
20. Run the Switcher application from the host PC.



Troubleshooting Tips

One quick note to remember while troubleshooting: If for any reason you need to remove or reseat a card, **ALWAYS** turn off the power to your GlobeCaster before removing or reseating any card. Failure to do so will damage your GlobeCaster system and void the warranty.

I get an error stating "I couldn't find attached GlobeCaster system."

First, check the Videonet cables between the PC and the GlobeCaster. The cables run from the **TX connector** on the PC to the **RX connector** on the GlobeCaster. The **RX connector** on the PC runs to the **TX connector** on the GlobeCaster. If the coordinator card in the GlobeCaster was removed for any reason, it might not be properly seated in the sockets. Pull the card and reseat it.

I get an error saying "Failure during creation of VEMain Bus..."

The card may not be seated properly in the slot. Pull the card and reseat it, making sure that the card is fully inserted in the slot.

Check to make sure that no other cards have been popped loose from their sockets.

Make sure you have one master encoder card. More than one master encoder card will generate conflicting timing signals, confusing your GlobeCaster.

When I turn on the power for my GlobeCaster, it doesn't do anything. The fans don't start and the light doesn't even turn on.

A card is improperly seated in the sockets on the motherboard. Immediately turn the power off and re-seat the card. Make sure that the card is inserted into all appropriate sockets and is pushed down evenly in the unit.

If the unit still won't start, pull the installed card and inspect the sockets on the motherboard for damage. There is a slim possibility that the motherboard sockets have been damaged. Look for any pins in the socket that look bent or out of shape. If so, contact tech support immediately.

Component Configure Panels

This section covers the configuration and use of the component cards within the GlobeCaster software. These configure panels are available from the Switcher or Editor by clicking on the **Configure** button.

When first installing cards, check to make sure the card is properly recognized by GlobeCaster by looking at the **Installed Cards** panel. All cards should be recognized and listed on this panel.

When configuring an input, start by using the **Input Sources** configure panel and choosing one of the factory presets available. The Input module supports both RGB and YUV at Beta, MII and SMPTE levels. Factory presets are available for each. For more complicated settings, or to create your own preset, use the **Input Settings** configure panel.

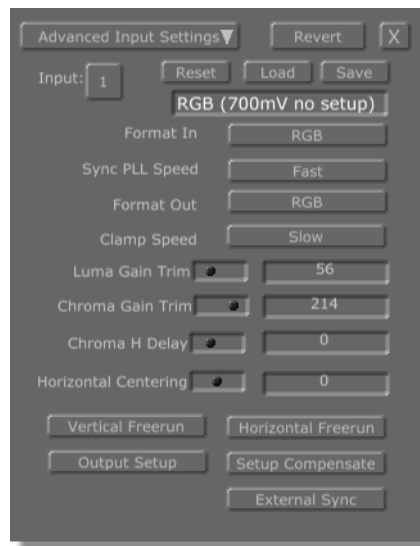


Figure 1.3: Component Input Configure Panel

The Component inputs for GlobeCaster can be configured to handle either YUV or RGB component signals. To change the input, click on the **Format In** button. The input can be set for YUV or RGB component input.

If you are working with an RGB signal with external sync, turn on the **External Sync** button. This button changes two of the pass-thru connectors into sync inputs. The connector labeled **B-Y/B** becomes the **Composite** or **Horizontal Sync** input and the connector labeled **R-Y/R** becomes **Vertical Sync** Input. The sync doesn't need to be switched; it will auto-detect composite or H/V sync. Loop-



thru output selection is limited to Composite/Luminance out when using external sync.

To adjust for different levels in YUV (such as Betacam or MII) there are different factory presents built-in. These can be loaded from the **Input Sources** configure panel, or into this panel by pressing **Load** and choosing the preset from the pop-up list. The factory presets cannot be modified, but new presets can be created based on any of the factory settings. When saving out your own factory presets, change the name of the preset to something different and press **Save**. Your preset value will be added to the list of choices in the **Input Sources** panel.

Setup Compensate should be turned on in most cases. If the input signal does not have Setup, then it can be turned off. Setup is an old broadcast way of adjusting the black values in the signal. More information about Setup is available in the appendices of the main manual.

The **Format Out** is used to choose what the three extra BNC jacks are used for on the back of the input. These jacks can provide a buffered Pass-thru of the same signal being fed into the input module. These jacks can also be set up to output a re-encoded output after the signal has passed through the color corrector. This re-encoded output can be in a different format than what goes into the input. For example, a YUV Betacam signal can be fed in, and an RGB signal can be fed out of the re-encoded outputs. This can also be set up for a composite or luminance output. Because of the limitation of space on the back of the module, if external sync is being used for an RGB input signal, only Composite or Luminance output is available because the other two BNCs are being used for sync.

NOTE: Keep in mind that the re-encoded outputs are designed as Monitor quality outputs with ~5% accurate signal levels. The buffered pass-thru signal levels are 1% accurate or better.

Clamp Speed is used to adjust the black level on a line-by-line basis. In most situations, Slow is the best setting for a high-quality signal as it is the most immune to random noise in the signal. The faster the clamp speed, the quicker it tries to compensate for errors in the black level. Use a higher clamp speed when trying, for example, to correct the black level in a signal with a 60Hz hum in the picture.

Chroma H Delay is used for adjusting out dot crawl in the picture. It moves the Chroma values relative to the luminance values.

Horizontal Centering adjusts the overall center of the image.

Chroma Gain Trim and **Luma Gain Trim** — These control the A/D dynamic range of the Chrominance and Luminance values and are used for adjusting for var-

ious Component formats, such as SMPTE, Betacam, and MII levels. The value listed is a number in steps from 0 to 255. Before adjusting these values manually, try using one of the factory presets by pressing the **Load** button and choosing from there. If the values still do not look up to your equipment’s specifications on a waveform monitor, try adjusting these levels.

Master Output Encoder Settings Panel

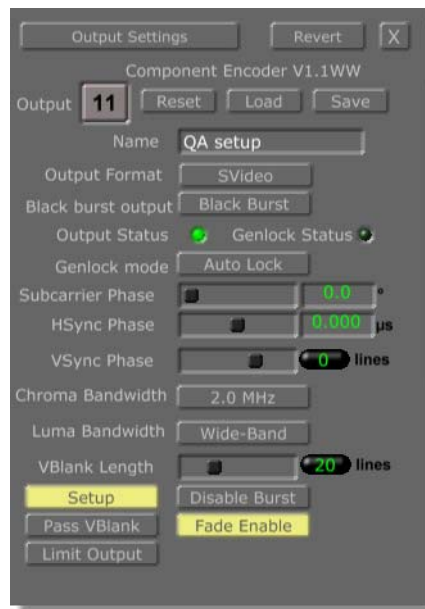


Figure 1.4: Master Multi-Format Output Configure Panel

To change the output format, click on the **Output Format** button and choose the desired output from the pop-up menu. The **Master Output** card will show up as Output 10. This differs from the slot on the back of the GlobeCaster, which is labeled slot 9. This is normal, as the labeling of the slots differs internally from the external slot labeling.

When not using the **Black Burst** out, this output can be used as a composite output by clicking on the button and choosing **Second Output**.



The **Genlock Status light** is active when a genlock signal is being fed into Globe-Caster. If the Genlock signal is a valid signal, the light will be Green. If there is a problem with the signal (missing Black Burst or Color Burst, or a PAL signal) the light will be Red. Note that if the **Black Out** is being used to genlock all other devices, this light will be off. The status light only reflects what is hooked to the Genlock input.

The **Chroma Bandwidth** of the output signal can be set to 2.0Mhz, 1.3Mhz, 1.0Mhz, or 650Khz. For component signals, the recommended setting is 2.0Mhz. When working with composite video, the other settings are recommended. To be absolutely sure the signal is within NTSC specs, set the bandwidth to 650Khz. There is an advantage in color quality to bump this value up to 1.0Mhz or 1.3Mhz.

The **Luma Bandwidth** can also be adjusted. **Wide-Band** brings the signal out to almost 6.0Mhz, while **Low-pass** is about 4.0Mhz. When sending a signal to a transmitter, having the luma bandwidth set a Wide-Band can cause interaction with the audio subcarrier and can overmodulate the transmitter. Wide-band can also cause ringing in certain types of filters. If these situations arise, it's best to use the **Low Pass** setting. Otherwise, the best picture quality can be obtained using **Wide-Band**.

The **Fade Enable** button connects this output to the **Master Fade-to-Black** button in the Switcher. Turning this button off means that this particular output will not be affected by the master Fade-to-Black.

Slave Multi-format Output Encoder



Figure 1.5: Slave Multi-Format Output Configure Panel

The Slave output is pretty straightforward and can be adjusted in the same fashion as the Master Output. Keep in mind that the Phasing adjustments are relative to the phase of the master output. If the master output is adjusted, it will adjust the phasing of the slave output by the same amount.

Remember that the **Fade Enable** button controls whether this particular input will **Fade-to-Black** when that button is pressed in Switcher. By turning the button off on a slave output encoder, and leaving it on the master encoder, only the master encoder will fade to black. This gives you added flexibility when sending a Program out feed to several different sources.





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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 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.





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