

PREDATOR II - GX

PREDATOR II GX 2RU Expandable Multiviewer Series

Installation and Operation Manual

Applies to:

ZP2-HD4-GX

ZP2-HD8-GX

ZP2-HD12-GX

ZP2-HD16-GX

ZP2-HD20-GX

ZP2-HD24-GX

ZP2-HD32-GX

with firmware V4.5.2 and above

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Manual Information

Purpose

This manual details the features, installation, operation, maintenance, and specifications for the Predator II GX series of 2RU Multi-window Display Processors.

Audience

This manual is written for engineers, technicians, and operators responsible for installation, setup, maintenance, and/or operation of the Predator II GX 2RU Multi-window Display Processor.

Revision History

Table 1-1. Revision History of Manual

Edition	Date	Comments
Preliminary	2nd December 2009	Initial release
A: Full release	23rd December 2009	User upgrade chapter updated
B: Full Release	May 2010	V4.5.1 Firmware
C: Full Release	August 2010	Pin-out correction
D: Full Release	February 2011	Power rating and audio input labelling updates



Writing Conventions

To enhance your understanding, the authors of this manual have adhered to the following text conventions:

Table 1-2. Writing Conventions

Term or Convention	Description
Bold	Indicates dialog boxes, property sheets, fields, buttons, check boxes, list boxes, combo boxes, menus, submenus, windows, lists, and selection names
<i>Italics</i>	Indicates E-mail addresses, the names of books or publications, and the first instances of new terms and specialized words that need emphasis
CAPS	Indicates a specific key on the keyboard, such as ENTER, TAB, CTRL, ALT, or DELETE

Table 1-2. Writing Conventions

Term or Convention	Description
Code	Indicates variables or command-line entries, such as a DOS entry or something you type into a field
>	Indicates the direction of navigation through a hierarchy of menus and windows
hyperlink	Indicates a jump to another location within the electronic document or elsewhere
Internet address	Indicates a jump to a website or URL
	Indicates important information that helps to avoid and troubleshoot problems
	Indicates advice or recommended practice.

Obtaining Documents

Product support documents can be viewed or downloaded from our website. Alternatively, contact your Customer Service representative to request a document.

Unpacking/Shipping Information

Unpacking a Product

This product was carefully inspected, tested, and calibrated before shipment to ensure years of stable and trouble-free service.

1. Check equipment for any visible damage that may have occurred during transit.
2. Confirm that you have received all items listed on the packing list.
3. Contact your dealer if any item on the packing list is missing.
4. Contact the carrier if any item is damaged.
5. Remove all packaging material from the product and its associated components before you install the unit.

Keep at least one set of original packaging, in the event that you need to return a product for servicing.

Product Servicing

Except for firmware upgrades, Predator II modules are not designed for field servicing. All hardware upgrades, modifications, or repairs require you to return the modules to the Customer Service center.

Returning a Product

In the unlikely event that your product fails to operate properly, please contact Customer Service to obtain a Return Authorization (RA) number, and then send the unit back for servicing.

If the original package is not available, you can supply your own packaging as long as it meets the following criteria:

- The packaging must be able to withstand the product's weight.
- The product must be held rigid within the packaging.
- There must be at least 2 in. (5 cm) of space between the product and the container.
- The corners of the product must be protected.

Ship products back to us for servicing prepaid and, if possible, in the original packaging material. If the product is still within the warranty period, we will return the product prepaid after servicing.

Restriction on Hazardous Substances (RoHS) Compliance

The European Union (EU) Directive 2002/95/EC—commonly known as the Restriction on Hazardous Substances (RoHS)—sets limits on the use of certain substances found in electrical and electronic equipment. The intent of this legislation is to reduce the amount of hazardous chemicals that may leach out of landfill sites or otherwise contaminate the environment during end-of-life recycling. The Directive, which took effect on July 1, 2006, refers to the following hazardous substances:

- Lead (Pb)
- Mercury (Hg)
- Cadmium (Cd)
- Hexavalent Chromium (Cr-VI)
- Polybrominated Biphenyls (PBB)
- Polybrominated Diphenyl Ethers (PBDE)

According to this EU Directive, all products sold in the European Union will be fully RoHS-compliant and “lead-free.” (See our website for more information.) Spare parts supplied for the repair and upgrade of equipment sold before July 1, 2006 are exempt from the legislation. Equipment that complies with the EU directive will be marked with a RoHS-compliant emblem, as shown in [Figure P-1](#).



Figure P-1. RoHS Compliance Emblem

Waste from Electrical and Electronic Equipment (WEEE) Compliance

The European Union (EU) Directive 2002/96/EC—commonly known as the Waste from Electrical and Electronic Equipment (WEEE)—deals with the collection, treatment, recovery, and recycling of electrical and electronic waste products. The objective of the WEEE Directive is to assign the responsibility for the disposal of associated hazardous waste to either the producers or users of these products. As of August 13, 2005, producers or users will be required to recycle electrical and electronic equipment at end of its useful life, and may not dispose of the equipment in landfills or by using other unapproved methods. (Some EU member states may have different deadlines.)

In accordance with this EU Directive, companies selling electric or electronic devices in the EU will affix labels indicating that such products must be properly recycled. (See our website for more information.) Contact your local Sales representative for information on returning these products for recycling. Equipment that complies with the EU directive will be marked with a WEEE-compliant emblem, as shown in [Figure P-2](#).



Figure P-2. WEEE Compliance Emblem

Safety

Carefully review all safety precautions to avoid injury and prevent damage to this product or any products connected to it. If this product is rack-mountable, it should be mounted in an appropriate rack using the rack-mounting positions and rear support guides provided. To protect a frame from circuit overloading, connect each frame to a separate electrical circuit. If this product relies on forced air cooling, all obstructions to the air flow should be removed prior to mounting the frame in the rack.

If this product has a provision for external earth grounding, ground the frame to the earth using the protective earth ground on the rear panel.

IMPORTANT! Only qualified personnel should perform service procedures.

See also [“Installation Guidance and Safety”](#) on page 9.

Safety Terms and Symbols in this Manual



WARNING

Statements identifying conditions or practices that may result in personal injury or loss of life. High voltage is present.



CAUTION

Statements identifying conditions or practices that can result in damage to the equipment or other property.

Overview

Predator II GX series are multi-window display processors designed to support a mix of DVI and autosensing HD-SDI, SDI and analog video sources in 1RU and 2RU racks. Factory configured units with available slots are user expandable.

This manual discusses the 2RU series.



Figure 1-1. Predator II GX 2RU

The base range provides 4, 8, 12, 16, 20, 24 and 32 video inputs. Below 32 video inputs, DVI inputs may be selected in place of video inputs.



Due to high levels of heat dissipation, the front cover, with its integral fans, must be kept closed and ventilation grilles must not be covered.

This chapter introduces the Predator II GX multiviewer and includes the following topics:

- “Example DVI-I Outputs” on page 2
- “Main Features” on page 3
- “Applications” on page 4
- “Signal Flow and Rear I/O” on page 4
- “Introducing ZConfigurator for Predator II GX” on page 5
- “Ordering Codes” on page 7

Example DVI-I Outputs

Sources are rendered as scalable windows to one or two high resolution displays with less than 1 frame of delay from source to display.



Figure 1-2. Typical Predator II GX high quality graphics

The DVI-I output supports resolutions up to 1920×1200 (single head only).

A built-in dual head facility allows any input can be shown on any output and two displays to be driven as a single virtual display so that a single layout spans two horizontal displays.



Figure 1-3. Predator II GX in horizontal span mode

The example Predator II display outputs above show a typical use of captions, status information, digital and analog clocks, timers, audio level monitoring and on-screen alarms.

Main Features

This list includes new features supported by firmware version 4v5.

- 4, 8, 12, 16, 20, 24 or 32 factory configured autosensing inputs: Composite (PAL, NTSC), SD-SDI (525, 625), and HD-SDI (1080i/59.94, 1080i/50, 1080i/60, 720p)
- Dual DVI outputs to 1920 x 1200 single head or 1920x1080 dual head
- Input configuration is user expandable with field upgrades
- Up to eight VID4 video cards for a total of 32 video inputs
- Up to four dual input DVI-I computer cards (configuration dependent)
- Control using ZConfigurator software (supplied) and SNMP
- Visual monitoring with in-picture audio meters for 16 channels of embedded audio per input and/or optional external discrete AES and analog inputs
- AES or analog audio monitoring output to listen to a selected stereo pair
- Control View for easy switching to full-screen view of any single input with automatic AFV (**new**), PiP source selector (**new**) and audio level changes saved to layouts (**new**)
- Input source duplication
- Local LCD menu with front panel controls
- On-screen alarms, SNMP notification and GPI Output to indicate common fault conditions such as Audio Over/Under, Loss of Sync, Frozen Video and Black Picture
- UMD (Under Monitor Display) and tally control interface with support for Zandar, Thomson Ascii, Probel, TSL, Harris (LRC), Ross and Image Video native protocols
- Support for re-mapping Harris Platinum and Ross switcher source assignments (**new**)
- On-screen clocks and timers with support for NTP (Network Time Protocol) time code
- Independent clock and timer synchronisation sources (**new**)
- Main labels such as UMD text can now use the multiviewer's color range (**new**)
- Status panel over video or border (**new**)
- New layout themes Slim and Ornamental (**new**)
- Graphic elements such as tallies, labels, UMDs, borders, layout backgrounds and alarms
- Stand alone audio panel and (**new**) stand alone text box
- Video caption support for Closed Caption or D-VITC
- Minimum delay through system
- Two GPI inputs per video input for full-screen, layout, or tally recall
- Tally protocols, ballistics and layout data transferred using a local Ethernet (10/100) connection
- Easy telnet based firmware upgrade over LAN
- Dual redundant hot swappable PSUs (second PSU optional)
- Support for control via Navigator, CCS-P
- Unicode support with language packs to include Chinese, Japanese and Korean languages (**new**)



Always check with Customer Service for the latest multiviewer firmware and the latest version of ZConfigurator to support new features.



Refer to “[New Features](#)” on page 26 for an introduction to some of the new features. Also see the help file that accompanies ZConfigurator for a full discussion of all features.

Applications

The Predator II GX module can be used for:

- Broadcast monitoring in studios, production control rooms, master control rooms and OB trucks
- Command and Control Room Monitoring
- Satellite center and cable head-end monitoring.

Signal Flow and Rear I/O

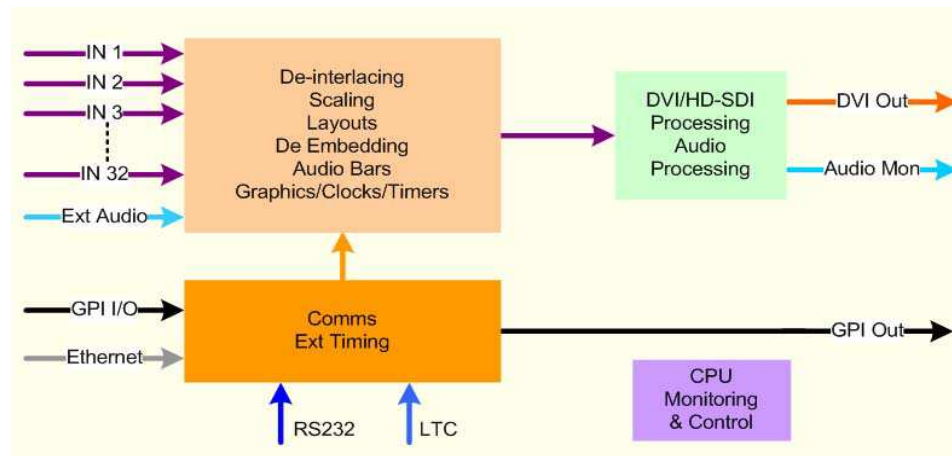


Figure 1-4. Predator II GX signal flow

All I/O connections are available at the rear of the frame.



Figure 1-5. Predator II GX with 24 video inputs and two dual DVI IN computer inputs.



Factory delivered rear I/O and installed modules are user configurable and upgradable.



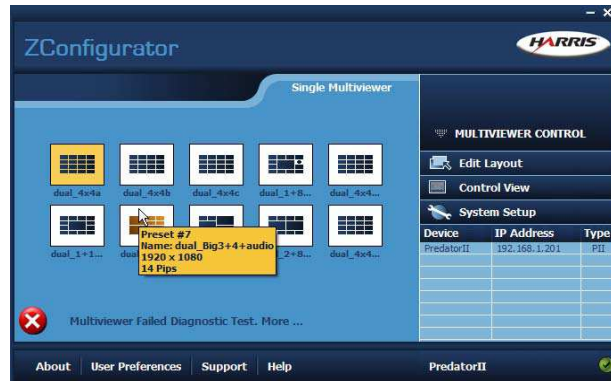
For connector pinout and cable wiring instructions refer to [Appendix 2: “Connectors and Cables”](#) on page 89.

Introducing ZConfigurator for Predator II GX

ZConfigurator is the primary configuration and control application for Predator multiviewers. It is installed on the PC that is connected to one or more multiviewers using the Ethernet connector on the rear of the frame. In addition, ZConfigurator provides signal monitoring, alarm feedback, and layout creation and design capabilities.

Presets

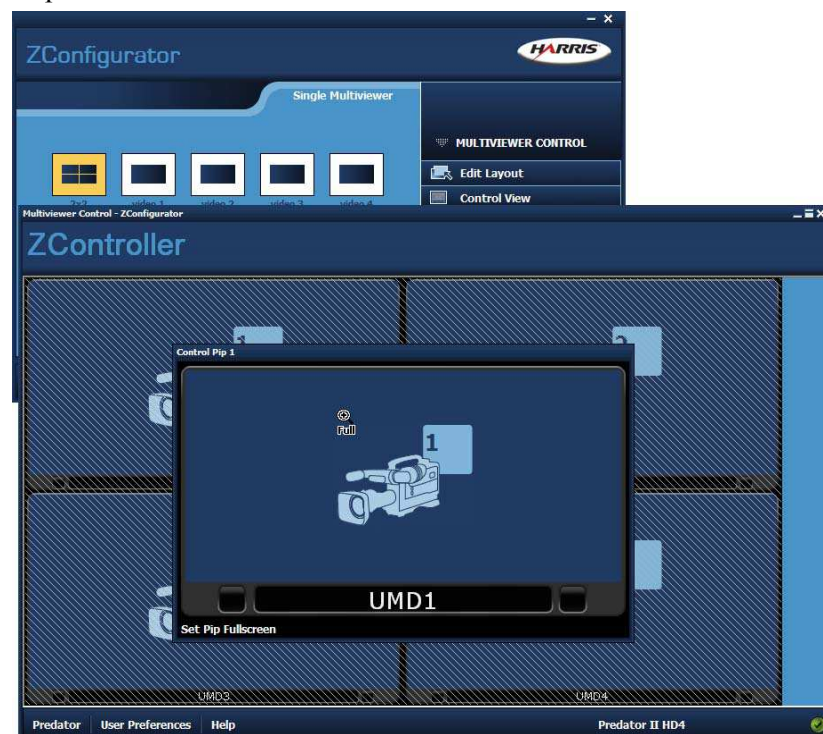
Each multiviewer is equipped with non-volatile storage to hold a number of layouts or 'presets' which can be recalled via ZConfigurator or from the front panel (if fitted).



To select a preset for display and activate it simply click on its layout icon. To view brief details of the desired preset, hover the mouse over its icon.

Control View

Control view allows easy control of taking a selected PiP to full-screen, quick video source selection and, if supported by the multiviewer, selecting and/or varying audio monitoring output audio levels.



In the example above, the PiP 1 control window is open, ready to accept a double-click of the mouse to send it full screen on the attached multiviewer.

The Layout Editor

As well as allowing layouts to be loaded into multiviewers the Layout Editor allows layouts to be created by starting with an existing template and making changes, or by building custom layouts from scratch.



Templates define the number, size, position and initial Z-Order or layering priority of each PiP.

There is also a library of ready made PiP designs with audio bargraphs, clocks and other PiP elements that can be drag-n-dropped onto a template together with a video source.

Other PiP elements that can be added include labels, UMDs, tallies, borders, clocks, timers, audio bargraphs and alarms.

For more information, press **F1** while you are using ZConfigurator to open the online help, or see [Chapter 4: “Using ZConfigurator”](#) in this manual.

User Configurable Network Control Panels

The Predator II series are supported by the rack mount and desktop Nucleus remote panels. They can be programmed to support any CSS compatible Harris product.

Both panels will be able to support applicable features from the following:

- Full screen recall
- Layout recall

- Audio monitor output selection
- Timer start/stop/reset

Ordering Codes

The ordering codes for base Predator II GX 2RU models and available options are as follows:

Table 1-1. Predator II GX 2RU base model part numbers

Predator II GX Model	Comment
ZP2-HD4-GX	1 VID4 Card for 4PAL, NTSC, SDI or HD-SDI video inputs
ZP2-HD8-GX	2 VID4 Cards for 8PAL, NTSC, SDI or HD-SDI video inputs
ZP2-HD12-GX	3 VID4 Cards for 12 PAL, NTSC, SDI or HD-SDI video inputs
ZP2-HD16-GX	4 VID4 Cards for 16 PAL, NTSC, SDI or HD-SDI video inputs
ZP2-HD20-GX	5 VID4 Cards for 20 PAL, NTSC, SDI or HD-SDI video inputs
ZP2-HD24-GX	6 VID4 Cards for 24 PAL, NTSC, SDI or HD-SDI video inputs
ZP2-HD32-GX	8 VID4 Cards for 32 PAL, NTSC, SDI or HD-SDI video inputs



HD4/8 2RU ordering codes apply to firmware V4.5.2 and above.

Table 1-2. Predator II GX option part numbers

Predator II GX Model	Comment
ZP2-OPT-VID4	Video input card and rear I/O - adds four PAL, NTSC, SDI or HD-SDI inputs
ZP2-AA	Analog audio option card; each card accepts 8 analog audio inputs; maximum of 1 card for every 4 channels of video
ZP2-DA	Digital audio option card; each card accepts 16 digital audio inputs via 8 AES channels; maximum of 1 card for every 4 channels of video
ZP2-OPT-GRF	DVI-I input card and rear I/O - adds two DVI inputs
ZP2-DVI-RGB	RGB (socket) to DVI-I (plug) adaptor for conversion between DVI-I and RGB; one required per output
ZP2-HAR	Lockable Harlink cables for breakout of GPIO connectors. 1 GPIO connector for every 2 video inputs; also used for audio monitor out. Included as standard with ZP2-AA or ZP2-DA options.
Z-DVI-EXT	DVI FM Extender to extend DVI display up to 2000 ft. away from source (from Gefen: EXT-DVI-FM); one per output
NUCLEUS-MV	2RU Programmable Panel - for Full screen recall, Layout recall, Audio monitor output selection, Timer start/stop/reset
NUCLEUS-MV-DM	Desktop Programmable Panel - for Full screen recall, Layout recall, Audio monitor output selection, Timer start/stop/reset

Overview

This chapter describes the Predator II GX installation process, including the following topics:

- “[Unpacking a Predator II GX Frame](#)” on page 8
- “[Installation Guidance and Safety](#)” on page 9
- “[Installing the Predator II GX Frame](#)” on page 10
- “[Cable Requirements](#)” on page 10
- “[Installing ZConfigurator](#)” on page 11

Unpacking a Predator II GX Frame

Preparing the Product for Installation

Before you install a Predator II GX frame, do the following:

- Check the equipment for any visible damage that may have occurred during transit.
- Confirm receipt of all items on the packing list. See “[Checking the Packing List](#)” below for more information.



Contact your Customer Service representative if parts are missing or damaged.

- Remove all packaging material.
- Retain the original packaging materials for possible re-use.

See “[Unpacking/Shipping Information](#)” on page vi for information about returning a product for servicing.

Checking the Packing List

Table 2-1. Available Product Packages

Ordered Product	Content Description
Predator II GX (all versions)	<ul style="list-style-type: none"> • One Predator II GX frame with modules and rear connectors fitted according to order. • One <i>Predator II GX Installation and Operation Manual</i> • One <i>ZConfigurator for Predator II GX CD</i>

Installation Guidance and Safety



Warning

The following warnings are intended for user guidance and safety.

Table 2-2. Safety advice for users and installers of the Predator II GX Multiviewer.

Ground	Reliable earthing of rack-mounted equipment should be maintained. Before turning on the unit, you must connect the protective earth terminal of the unit to the protective conductor of the mains power cord. The mains plug shall only be inserted in a socket outlet provided with a protective earth contact. Take care when using supply connections other than direct connections to the branch circuit (e.g. use of power strips).
Circuit Overloading	<p>Consideration should be given to the connection of the equipment to the supply circuit and the effect that overloading of the circuits might have on over current protection and supply wiring.</p> <p>The typical power consumption figures for Predator II GX frames are shown in “Power Consumption” on page 84.</p>
Service	<p>Service instructions are for trained personnel. To avoid dangerous electric shock, do not perform any service unless qualified to do so.</p> <p>Do not install substitute parts or perform any unauthorized modification to the unit.</p> <p>These are solid state units with low supply voltage rails; however, mains voltages are present on certain parts of the unit. These parts are not accessible under normal operating conditions. There are no user serviceable parts within and only suitably qualified persons should carry out any repairs or modifications. The mains supply must be disconnected before removing any covers.</p>
Ventilation - Elevated Ambient Temperature	<p>If installed in a closed or multi-unit rack assembly, the operating ambient temperature of the rack environment may be greater than room ambient. Therefore, consideration should be given to installing the equipment in an environment compatible with the rated maximum ambient temperature for the equipment.</p> <p>It is recommended that installation should be in standard 19" racks with forced cool air or convection cooling. Also, ensure that the front panel is kept closed at all times, and that any fans are fully operational.</p>
Mounting	Mounting of the equipment in the rack should be such that a hazardous condition is not achieved due to uneven mechanical loading. See “Installing the Predator II GX Frame” on page 10 .

Installing the Predator II GX Frame

Install the Predator II in a standard 19 inch rack as follows:

- Use a support tray to hold the frame securely in the rack
- Allow at least 20mm space for the ventilation grilles on the left and right hand side panels
- Do not block the fan air-intake apertures on the front panel
- Ensure that the front panel remains closed in normal use
- Ensure an adequate supply of cool air
- Power the unit by connecting the supplied power cord (s)



Figure 2-1. Predator II GX 2RU airflow

See also “[Installation Guidance and Safety](#)” on page 9.

Cable Requirements

Mains Cables

Ensure that any mains cables are correct rated for the equipment and that a protective earth circuit is maintained. See also “[Installation Guidance and Safety](#)” on page 9.

DVI Cables

When you connect sources to DVI inputs or DVI outputs to one or more displays, observe the following:

- Do not use a DVI cable that is greater than 10 m long.
- Consider using a powered extender when longer cable lengths are required.

Video Input Cables

Use high-quality video cables for the video inputs. Do not exceed the recommended cable lengths (see [Chapter 6: “Specifications” on page 79](#)).

Audio Monitoring, GPI I/O and LTC

The stereo audio analog monitoring output and contact closure GPI I/O are all brought out to the 10 way connector labelled **Audio/MGPIO** on the rear panel. A source of longitudinal timecode may be connected to the connector marked LTC on the rear panel to synchronize on-screen clocks.

High quality screened dual-core cable is recommended for both LTC and audio.

For information on cables and connector pinout refer to [Appendix 2: “Connectors and Cables” on page 89](#). For information on connector types and part numbers see [Chapter 6: “Specifications” on page 79](#).

Installing ZConfigurator

Although basic control is provided at the front panel, ZConfigurator software is required to configure and operate the Predator II GX multiviewer and must be installed before use.

Installing software

To install the software, insert the ZConfigurator CD into an available CD drive. If the program does not autorun navigate to the ZConfigurator folder on the CD and run Setup.exe. Obey the prompts when the program installs. Accept default locations for the installation directory or enter preferred locations.



The controlling PC will need to be configured when connecting to a multiviewer for the first time.

Refer to [“Using ZConfigurator” on page 25](#) for more information.

Overview

This chapter describes Predator II GX expansion, including the following topics:

- “Required Software Upgrades” on page 12
- “Expansion Kits” on page 12
- “Installation Guidance and Safety” on page 14
- “Installing Audio Daughter Cards” on page 15
- “Removing and Re-Installing Video Cards” on page 17
- “Installing New Front-loading Cards and Rear I/O” on page 18
- “Using Z_Upgrade” on page 20

Required Software Upgrades

A system software or firmware update may be needed prior to some hardware upgrades.



Always check with customer service for available software upgrades prior to adding a video or computer input card to an existing unit.

Expansion Kits

Expansion Kits for the Predator II GX are made to order and can contain a variable number of the following components:

ZP2-OPT-VID4 video modules and their rear connectors

ZP2-OPT-GRF dual DVI-I input modules and their rear connectors

ZP2-AA analog audio option daughter card - max one per VID4 card

ZP2-DA Digital audio option daughter card - max one per VID4 card

Blank plates and fitting screws, nuts and washers as required

See [Table 3-1 on page 13](#).



I/O plates for the VID4 kit carry four mounting screw holes with the generic text 'IN' under each BNC through hole. I/O plates for the DVI kit carry four mounting screw holes with the generic text 'DVI IN' under each DVI-I connector aperture.

Front loading module expansion

There are a limited number of slots available for expansion with front loading cards. The following table describes the expansion possibilities for 2RU Predator II-GX frames.

Table 3-1. Available Expansion Slots

Base Model	Max new VID4 allowed	Max GRF (DVI) allowed
ZP2-HD4-GX	1, 2, 3, 4, 5, 6 or 7	1, 2, 3, 4, 5 or 6
ZP2-HD8-GX	1, 2, 3, 4, 5 or 6	1, 2, 3, 4, 5 or 6
ZP2-HD12-GX	1, 2, 3, 4 or 5	1, 2, 3 or 4
ZP2-HD16-GX	1, 2, 3 or 4	1, 2, 3 or 4
ZP2-HD20-GX	1, 2 or 3	1 or 2
ZP2-HD24-GX	1 or 2	1 or 2
ZP2-HD32-GX	0	0



Please contact customer support when upgrading to a HD32 with more than 4 discrete audio modules.



GRF (DVI) cards may be placed in either left or right hand bays, but a single backplate cannot accommodate both a DVI and a VID4 card.

Examining the Kit

Before you install a Predator II GX Expansion Kit, do the following:

- Check the kit and its contents for any visible damage that may have occurred during transit.
- Confirm receipt of all items on the packing list against the order.



Contact your Customer Service representative if parts are missing or damaged.

- Remove all packaging material.
- Retain the original packaging materials for possible re-use.

See [“Unpacking/Shipping Information”](#) on page vi for information about returning a product for servicing.

Installation Guidance and Safety



Warning

Read the warnings in [Table 2-2 "Safety advice for users and installers of the Predator II GX Multiviewer."](#) on [page 9](#) before attempting any user upgrade.



Warning

Always remove power before inserting or removing cards. or while covers are removed.



Caution

Ensure that all handling precautions are taken to avoid electrostatic discharge or other damage to sensitive electronic components.



Caution

Wear an earth strap and perform all PCB assembly at an appropriate anti-static work station.

Installing Audio Daughter Cards

These instructions are for attaching audio daughter cards to VID4 cards at an antistatic work station before inserting or re-inserting them into frames.



A maximum of 1 AA or DA card may be plugged into each VID4 video card

The following table lists the required fasteners for each audio daughter card.

Table 3-2. Daughter cards - required fasteners

Part number	QTY	Description
FAS-ZAN-039	3	Circular, threaded through, nylon M3 pillar
FAS-ZAN-034	6	M3x4 pozi head screw



Please contact customer support when upgrading to a HD32 with more than 4 discrete audio modules.

Fitting instructions

If necessary, remove any existing VID4 cards as explained in [“Removing and Re-Installing Video Cards”](#) on page 17.

- Secure three white nylon spacers with three M3x4 screws from *underneath* a VID4 card at the three mounting holes labelled X3, X4 and X5 as shown below

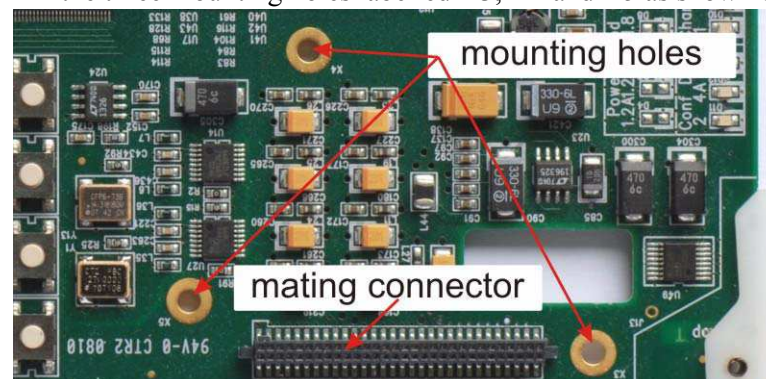


Figure 3-1. Preparing to fit an audio daughter card

- With the spacers in position, fit the daughter card ensuring that the connectors mate properly
- Then secure the daughter card into position using another three M3x4 pozi head screws

- If necessary, slacken the screws underneath the VID4 card to allow the screws securing the daughter card to line up with the thread in the nylon pillars



Figure 3-2. Securing an analog audio daughter card in place



Note

Alternatively, the nylon pillars may first be secured to the daughter card.



Tip

The digital daughter card is fitted in exactly the same way as an analog one.

- When ready, refit the VID4 cards as explained in [“Removing and Re-Installing Video Cards” on page 17](#) or fit new VID4 cards and their corresponding I/O as explained in [“Installing New Front-loading Cards and Rear I/O” on page 18](#).

Removing and Re-Installing Video Cards

This procedure is to allow VID4 cards to be removed so that audio daughter cards can be fitted (see “[Installing Audio Daughter Cards](#)” on page 15) and the VID4 cards re-installed.

- Gain access to the rear of the frame and remove the power
- Gain access to the front of the frame
- Undo the thumb screws either side of the front panel and gently ease it into the down position.
- Identify any VID4 cards in the right hand bays to be removed

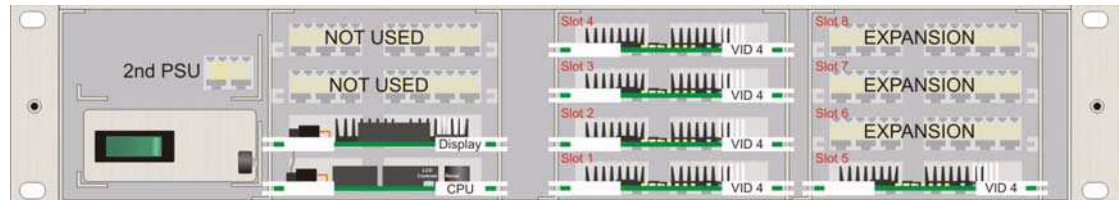


Figure 3-3. 20 Video I/Ps with 5 VID4 cards and 3 Expansion Slots

- Gently slide the VID4 cards out (and fit any desired analog or digital audio daughter cards as explained in “[Installing Audio Daughter Cards](#)” on page 15 above)
- When ready, refit the VID4 cards, taking care that they are in-line with their appropriate rear I/O and ensuring that they fit securely into the backplane



Front loading processor cards and their I/O are normally fitted so that slots are populated with VID4 cards in low number slots starting at slot 1 and DVI-I cards in high slot numbers starting at slot 8. Slot numbers are silk-screened on both sides of the backplane.

- Close the front cover
- Gain access to the rear of the frame, re-power the unit
- Ensure that any new audio I/O functions correctly

Installing New Front-loading Cards and Rear I/O

Install additional rear I/O in the Predator II GX 2RU frame as follows:

- Gain access to the rear of the frame and remove the power
- Identify any unpopulated rear slots at the left hand side of the rear of the frame, ignoring any blank panels above the display output connectors



Note

In the example above the first 16 video inputs use a 4-span VID4 panel and inputs 17 to 20 are fitted to a partially populated 2-span video panel. Expansion might consist of (say) 12 more video inputs or 4 more video inputs and 4 DVI-I computer inputs.



Tip

This might be a good time to consider fitting a 2nd PSU if its not already installed.

- Remove as many blank or partially blank, panels as required, keeping the screws and blanks for future use



Figure 3-4. Blank and partially populated panels removed ready to accept I/O cards



Note

In the example above, the BNC nuts and serrated washers have been removed from inputs 17 to 20, leaving the corresponding rear I/O card in place.

- Fit the desired new rear I/O into available slots, ensuring that they fit securely into the rear of the backplane



Note

Front loading processor cards and their I/O are normally fitted so that slots are populated with VID4 cards in low number slots starting at slot 1 and DVI-I cards in high slot numbers starting at slot 8. Slot numbers are silk-screened on both sides of the backplane.

- Fit serrated washers and nuts to secure any connectors that need them such as BNCs or DVI-I connectors

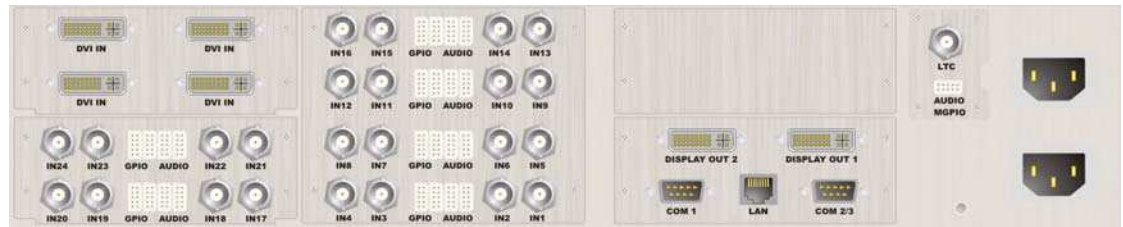


Figure 3-5. Rear I/O expansion completed

Caution

Always fit and screw into place supplied or retained blanks to cover unused positions to retain EMC compliance.

Install front loading processor cards as follows:

- Gain access to the front of the frame
- Undo the thumb screws either side of the front panel and gently ease it into the down position.
- Identify the appropriate positions in the right hand bays for additional front-loading cards, ignoring the vacant positions above the CPU and Display cards in the left hand bay near the PSU(s)

Note

Front loading processor cards and their I/O are normally fitted so that slots are populated with VID4 cards in low number slots starting at slot 1 and DVI-I cards in high slot numbers starting at slot 8. Slot numbers are silk-screened on both sides of the backplane.

- Gently slide the new front-loading processor cards into their backplane slots ensuring that they are in-line with their appropriate rear I/O

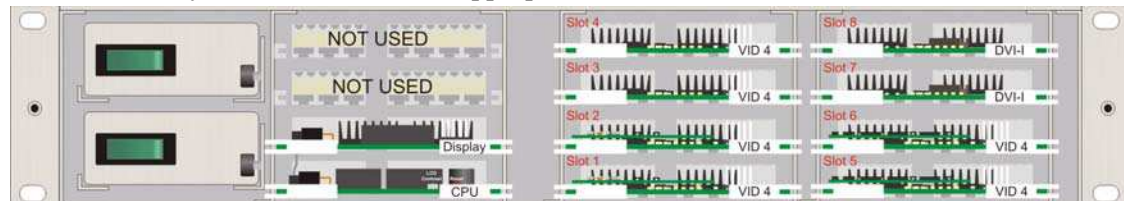


Figure 3-6. An upgrade with 4 audio daughter cards, 6 video cards, 2 DVI-I computer cards and a second PSU

- Close the front cover
- Gain access to the rear of the frame, re-power the unit and test that the new cards and any new I/O function correctly

Note

Predator II GX will auto-detect new cards at power on and configure itself accordingly.

Warning

Only power the unit with the correct rear I/O cards fitted in-line with corresponding front-loading processors.

Updating Firmware

As product developments occur, firmware updates may be released to introduce new features or or improve functionality. Firmware updates are applied to Predator multiviewers by using the Z_Upgrade utility.



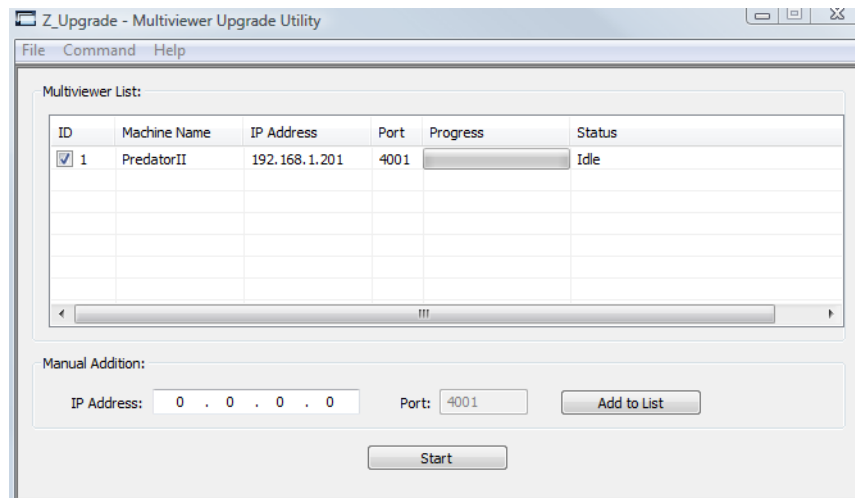
Caution

It is strongly recommended to backup any existing presets and/or language packs using ZConfigurator before starting the upgrade.

Using Z_Upgrade

Z_Upgrade searches for applicable multiviewers automatically over the network.

- To run the flash utility, locate the folder the utility was downloaded to, and then click on Z_Upgrade.exe.



Note

The required upgrade files or folders **MUST** be present within the same folder as the Z_Upgrade utility before the upgrade procedure is started.



Tip

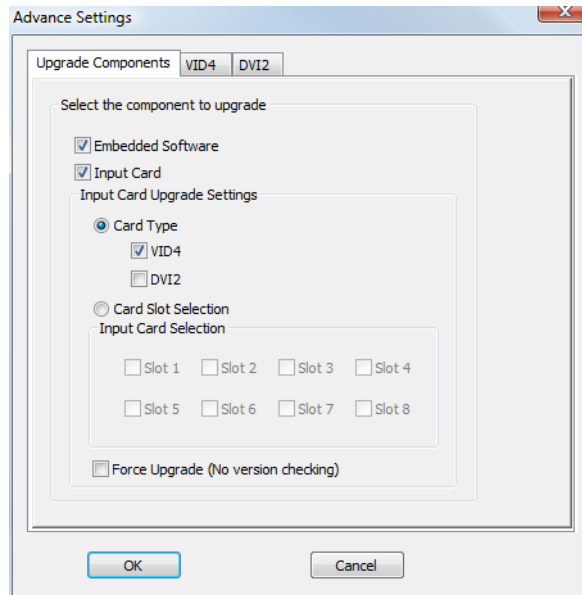
If the desired multiviewer is not shown, ensure that neither ZConfigurator or any other instance of the update tool is running. Then select **Multiviewer Search** from the **Command** menu. If necessary, type the IP address in the **Manual Addition** box provided and select **Add to List**.

- To select multiviewers to upgrade, place a tick against the desired entries in the **Multiviewer List** window.

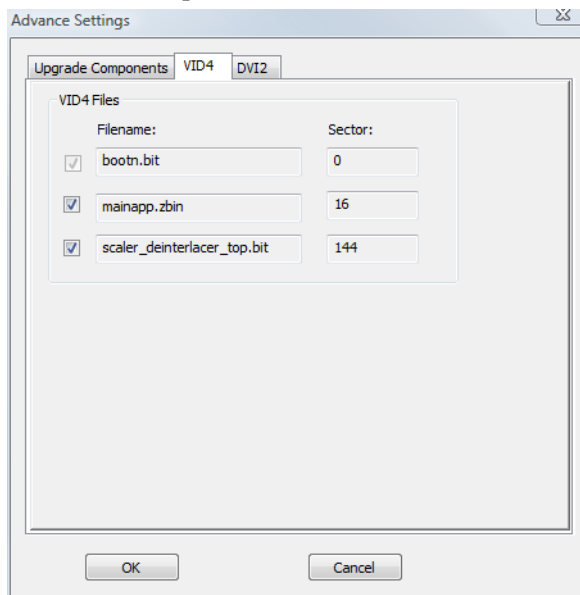
By default the upgrade will proceed to flash the main on-board software for the CPU, Display Card and any input processor cards such as VID4 and DVI2 cards.

- If only some cards should be upgraded, the default settings can be changed to specify selected input cards or only the CPU/Display card embedded software.

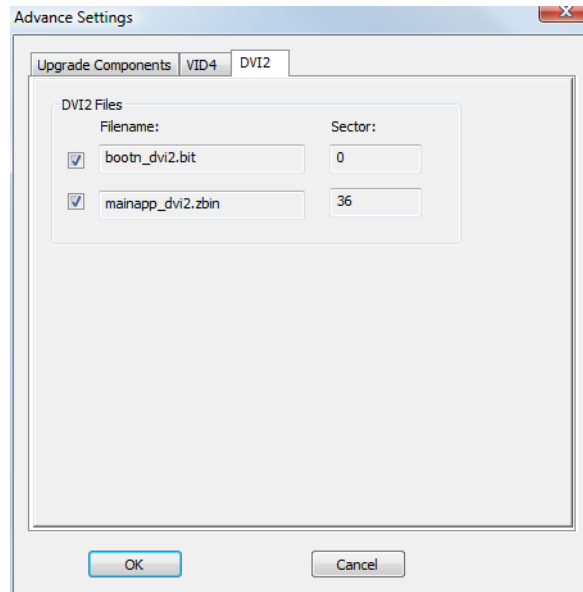
- To change the default upgrade settings click on **Command >> Advanced Settings**.



- Use the **Upgrade Components** tab to select the upgrade target between the main embedded software and/or any of the installed input cards.
- Select the appropriate input card types by checking VID4 and/or DVI2 and then select the card slots in which input cards are installed. Leave the card slot selection unchecked to have Z_Upgrade search for and upgrade all applicable input cards.
- For each input card, use the VID4 and DVI2 tabs to select the specific files to update.



The VID4 file settings should be left at default values unless otherwise instructed by Harris Customer Services.

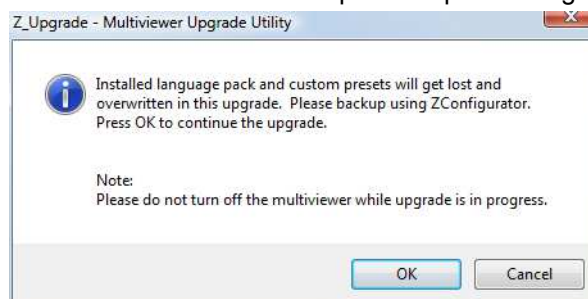
**Note**

The DVI2 file settings should be left at default values unless otherwise instructed by Harris Customer Services.

- Click on **OK** when ready and then select **Start** from the main screen to commence the upgrade.

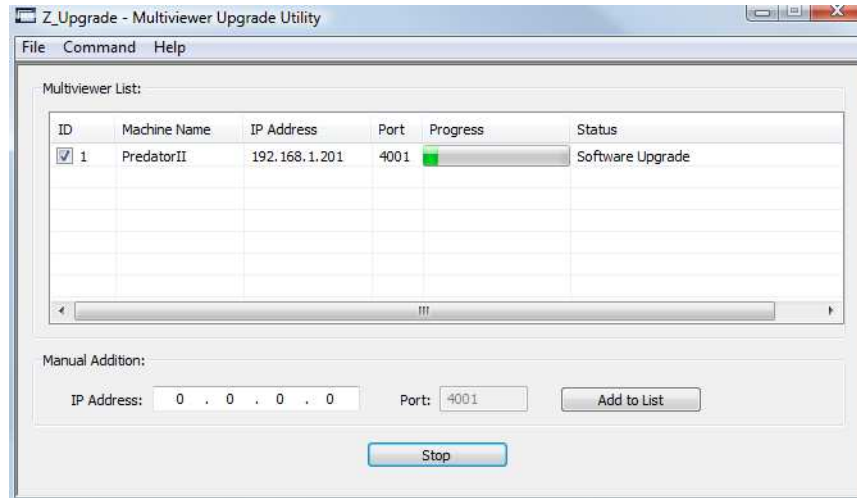
**Caution**

A message will appear warning that language packs and custom presets will be overwritten and should be backed up before proceeding.



- If the required backups have not been performed, select **Cancel** now and use ZConfigurator to perform backups. Then return to this procedure.
- Providing any required backups have been performed, select **OK** from the warning screen.

As the upgrade progresses, Z_Upgrade will display a green progress bar.



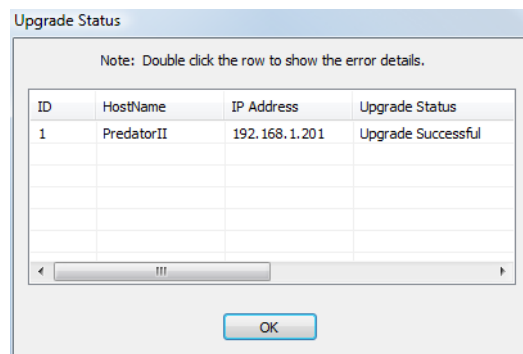
The update component in process will be shown in the Status column and on the front panel of the unit(s) being upgraded.

SW Upgrade
has started

Caution

On no account should the power be interrupted during the upgrade.

When the upgrade process is finished, Z_Upgrade will display an **Upgrade Status** message showing any errors.



- If necessary, double click on an entry row to see error details.

Z_Upgrade and the multiviewer front panel(s) should display a message asking for the unit(s) to be power cycled.

Pls power cycle
this unit

- Power cycle all multiviewers that have been upgraded, exit Z_Upgrade and check that the upgrade has been successful.

The version information of installed software and firmware can be seen at the front control panel under **System Information** and on the **System Setup >> System** tab in ZConfigurator.



ZConfigurator may need to be updated to use any new features.

Z_Update FAQ

Q: How do I know if an upgrade is necessary?

If the system is operating normally and no new features are required or have been purchased, an upgrade is probably not necessary. Most upgrades are done at the request of a support engineer.

Q: What happens if I don't wait for the shutdown prompt?

File system corruption might occur. If this happens, contact customer service as you may need to re-flash your system.

Q: A search error appears such as Error 10048, what's wrong?

It probably means that another Z_Upgrade or ZConfigurator is running. Close these applications.

Q: What happens if I try to upgrade the software of an already updated multiviewer?

A message will appear explaining that the multiviewer is already updated.

Q: What happens if I try to upgrade an already updated component?

The upgrade will always proceed even if it is already updated.

Q: How do I refresh the list of multiviewers?

Under the **Command** menu, select **Multiviewer Search** to refresh the multiviewer list.

Q: Can processor or rear I/O cards be hot-swapped?

Always remove power before pulling or inserting cards.

Q: The firmware upgrade proceeded without incident, but expected new features don't appear to be present; what's wrong?

Check with **Customer Services** that you have the appropriate version of ZConfigurator required to support any new features and that any required license(s) are in place.

Using ZConfigurator

Overview

This chapter introduces how to operate the Predator II GX using ZConfigurator.

The following topics are discussed in this chapter:

- [“Operating Notes” on page 25](#)
- [“New Features” on page 26](#)
- [“Connecting to Predator II GX for the First Time” on page 31](#)
- [“Using Control View” on page 35](#)
- [“Introduction to the Layout Editor” on page 40](#)
- [“Configuring Predator II GX Settings” on page 44](#)

Operating Notes

When you set the control parameters on the Predator II GX, observe the following:

- If changes are made to certain parameters, other related parameters may also be affected.
- When a parameter is changed, the effect is immediate. However, the module requires a few seconds to save changes. Once saved, new settings will be restored if the module loses power and is restarted.
- Terminate any unused coaxial output connectors with a 75Ω connector.

New Features

This section discusses features that are relatively new or that are being introduced with the firmware and software that this manual relates to.



Note

Please see the Help file that accompanies ZConfigurator for a full in-context discussion of new features.



Tip

Always check with Customer Service for the latest multiviewer firmware and the latest version of ZConfigurator.

Setting Source Options

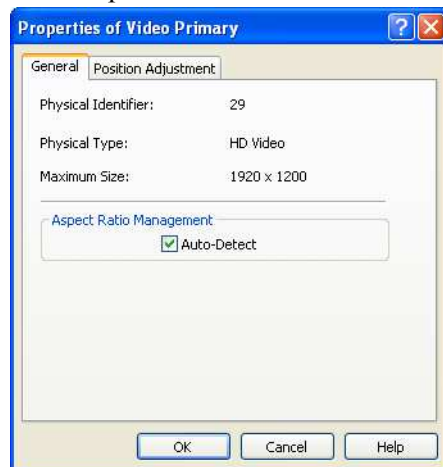
Both video and computer sources in a PiP can have Main, Video and Status Labels.

However, video sources have a much wider range of possible settings which include, Audio Bar Graphs, Tallies, Comprehensive Alarms, Border Size and Color, Safe Area and Aspect Ratio Markers and both VITC and Closed Captions.

Since DVI inputs are a relatively new introduction, basic properties are discussed in the next section [“Introduction to Using DVI Sources” on page 26](#).

Introduction to Using DVI Sources

- DVI source properties are set via their properties form obtained by right clicking on a computer source icon and selecting **Properties** or by pressing **Alt+Enter**.



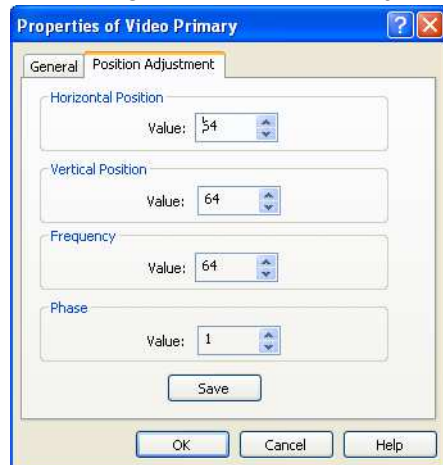
General tab settings

The general tab shows details of the DVI video source; Physical Identifier, Type and Maximum Size.

- To have ZConfigurator adjust the aspect ratio of the PiP automatically, check the **Auto-Detect** box under **Aspect Ratio Management**.

Position Adjustment, Frequency and Phase

The settings on the **Position Adjustment** tab are for analog RGB signals only.



- To adjust horizontal or vertical position of an analog computer source, use the horizontal and vertical position spin box controls provided.



Tip

Analog RGB signals can be connected to a DVI port by using the ZP2-DVI-RGB adapter.

- To adjust the DVI card re-sampling clock frequency and phase, use the frequency and phase spin box controls.



Note

Some horizontal position values may cause incorrect color to be displayed.

These controls are provided so that the re-sample clock can be set to match the clock driving the digital to analog converter at the device producing the current analog source. If this is incorrect in frequency or phase, image artefacts may appear such as moire patterning and/or loss of image quality. The effect is usually most noticeable with text and graphics.



Note

All of these adjustments operate in real time, so the effect of any adjustment can easily be seen by looking at the multiviewer output on a high quality monitor.



Tip

Always ensure that the multiviewer output is matched to the native resolution of any attached digital monitor. Failure to do this may introduce image artefacts and may make it impossible to set the re-sampling clock frequency and phase on the DVI card correctly.

Using Test Signals

Some DVI sources may have special test signals such as a fine dot grid, checker board or ramp that allow re-sampling clocks to be optimally adjusted. Check available test signals with the supplier of the source equipment, or in the case of a PC use proprietary test signal software.



Tip

If another Harris multiviewer is available, use its in-built test signals (i.e. on the System Properties >> Display tab of another Predator II GX/GRF).

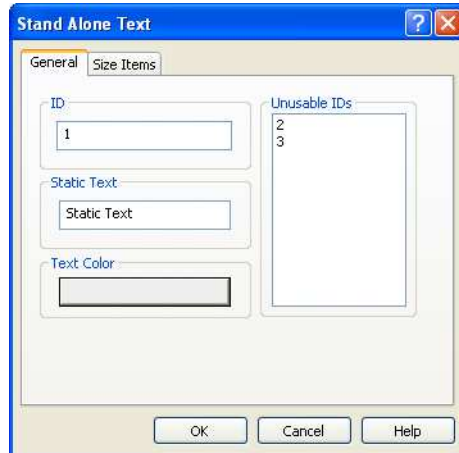
Using the Stand Alone Text Box

The stand alone text box allows a simple text message to be applied to the centre of a PiP.

- To apply, scroll the elements library to the bottom, and drag-n-drop a standalone text box to a PiP. It replaces the video source and any **Main Panel** items such as audio panels, tallies or labels.



- Right click on the text 'static text' and select **Properties**.



- On the **General** tab, select a video source **ID** from the list on the right and type in the desired text to display.
- Click on the **Text Color** box and select a suitable text color from the standard color palette.
- Using the **Size Items** tab, select a text panel size from a choice of **Small**, **Normal** or **Large**.



- A maximum character size can be selected by choosing a value from the **Textbox Max Char Size** box.
- Click on **OK** when done.



Text messages cannot be used with Main Panel features.

Status Panel Over Video

As with audio panels, the status panel can now be moved by drag-n-drop between the right border and the right video area of the same or a different PiP.

To move it from the right border into the right hand video area proceed as follows:

- Click on it with the left mouse button down and drag it over the camera icon of the target PiP
- Release the mouse button
- The status panel appears in the right hand side of the video area

To move it from the right hand video area to the right border proceed as follows:

- Click on it, hold the left mouse button down and drag it to the right of the camera icon
- Release the mouse button
- The status panel appears in the right hand border

Status Panel ‘Rules’

- The status panel cannot be re-positioned by drag-n-dropping it directly between the right hand border and video areas.
- Status panels in video belong to the video source and will move to another PiP, when the video source is moved by drag-n-drop.
- If a status panel is dropped onto a pip that has already has a status panel in the same relative position, the two panels will be swapped.



This subject is discussed more fully in the Help file topic, **Using the Status Panel**.

Fullscreen AFV and Changing Levels

When a PiP in a layout with assigned audio is taken fullscreen using **Control View**, the monitored audio changes to the first two audio channels of that PiP.

Also, if the monitoring audio level is changed in Control View, the change can be saved to the current layout.

See [“Audio Monitoring” on page 37](#) and [“Controlling Level” on page 38](#).

Using the X-Y Re-Mapping Tool

When a Ross switcher or Harris Platinum router is attached with an appropriate protocol, it is possible to re-map the sources and destinations; effectively changing the multiviewer inputs without having to unplug and replugin cables.

See [“Selecting the UMD Protocol” on page 48](#), [“Ross Switcher Setup” on page 49](#) and [“Platinum Router Setup” on page 50](#).

Quick Video Source Selection

Control View allows the video source assigned to a PiP to be changed on the fly if a Harris Platinum router has been attached and configured to use the Harris LRC protocol.

See [“Using the PiP Source Selector” on page 35](#).

Independent Clock and Timer Synchronisation

System time, which controls on-screen clocks, can be synched to the PC, an NTP server and an LTC source. It can also be left to free-run.

The Up and Down timers can be sourced to LTC, provided LTC has not already been used to lock system time. Other sources for timers include none (free-run) and a now unavailable LTC to serial converter, known as Horita.



A clock locked to timecode and be used as a timecode reader.

See [“Time Synchronisation” on page 59](#).

Unicode Support

Certain fonts installed on the PC running ZConfigurator can be installed to an attached multiviewer. The fonts are distributed in language packs available from Harris.

See [“Managing Language Packs and Fonts” on page 61](#).

Connecting to Predator II GX for the First Time

Predator II GX units are configured using the supplied ZConfigurator software. To access the setup options, ZConfigurator must be installed on the PC that is connected to the Predator II GX through the Ethernet connector.

For more information, press **F1** while you are using ZConfigurator to open the online help.

When it first starts, ZConfigurator searches for connected multiviewers.

However, the PC that is running ZConfigurator and the Predator II GX module must have IP addresses that are in the same subnet range.

If the Predator II GX is a local device, the easiest way to change its IP address to match your network is to use the Front Control Panel.

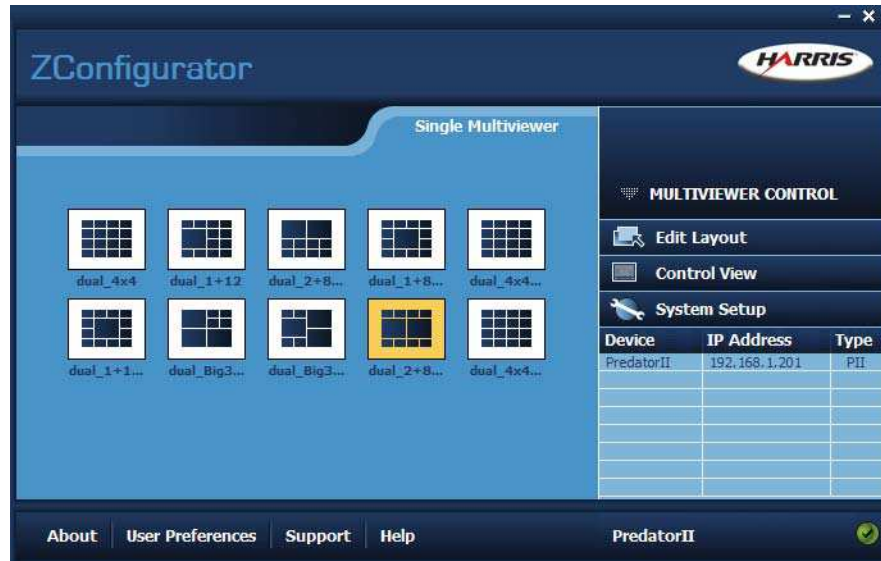


See “Changing the IP Address” on page 77 in the “Using the Front Control Panel” chapter for help with changing a multiviewer IP address using the Front Control Panel.

- Access **System Configuration >> Config Network >> Edit IP Address** and enter a unique address for your network.
- Then Launch ZConfigurator (**Start > Programs > ZConfigurator.**) and double-click on the Predator II GX connection icon (or right click and select **Connect**)



The currently loaded presets on the multiviewer are loaded.



Note

If the multiviewer cannot be connected, check that there is no firewall blocking access and that the PC's IP address is set to the same subnet as the multiviewer.

If the multiviewer is not local, or if it is more convenient, a new address can be assigned using ZConfigurator over a LAN, but the current IP address must still be known.

The default address is usually 192.168.1.250, but it can be discovered by watching its DVI output during boot up when it is displayed for a few seconds. It can also be obtained from the front control panel under **System Information** as explained in “[Viewing the Multiviewer IP Address](#)” on page 77.



Tip

It is recommended to assign new units an appropriate and unique IP address at the time of installation and to maintain an accessible list of numbers assigned.

For completeness, the recommended IP address configuration procedure using ZConfigurator is listed below.

Using ZConfigurator to Assign an IP Address

If the PC used to make the initial connection doesn't have an IP address in the same subnet space as the multiviewer you wish to connect to, you must change the IP address of the PC so that it does.

To discover the current IP address of a Predator II GX module, proceed as follows:

- Connect the Predator II GX LAN port via TCP/IP using a direct Ethernet connection (single multiviewer) or via a LAN (multiple multiviewers)
- Power the Predator II GX and wait for the front panel LCD to show the current preset.
- Then access **System Information** >> **IP address** and make a note of the address.
- Alternatively, make a note of the IP address shown on an attached display monitor during power-up.

To continue the first time connection procedure:

- Change the PC's IP address to one in the same subnet range as the Predator II GX. See “[How do I change my PC's IP Address?](#)” on page 88 for help if required.

- Launch ZConfigurator (**Start > Programs > ZConfigurator.**)
- Double-click on the Predator II GX connection icon (or right click and select **Connect**)

The currently loaded presets on the multiviewer are loaded.



If the multiviewer cannot be connected, check that there is no firewall blocking access and that the PC's IP address is set to the same subnet as the multiviewer.

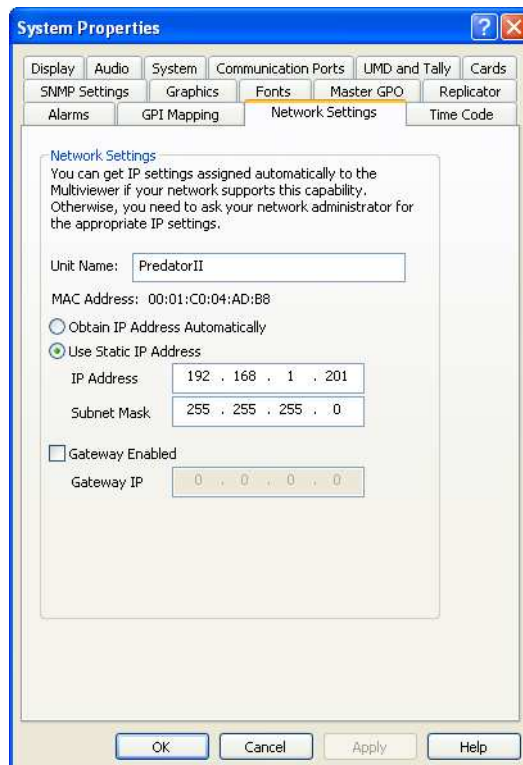
Changing Network Settings

The **Network Settings** tab under **System Setup** allow the unit name, IP address and network gateway to be edited. The IP address and unit name will be remembered by the multiviewer.

Changing the IP Address

To give the multiviewer a unique IP address to match the network it will be used on, proceed as follows:

- Select **System Setup** from the ZConfigurator **Main Panel** and click on the **Network Settings** tab.



- Enter a **Static IP Address** and appropriate **Subnet Mask** that matches the network.
- If required, enable and enter a gateway address
- Click **OK** to apply when done.
- Return the PC to its normal network address. See [“How do I change my PC’s IP Address?”](#) on page 88 for help if required.
- Right click in the blue connection area under **Device/IP Address/Type** and initiate a new search by clicking on **Scan Network** (or restart ZConfigurator)
- The Predator II GX connection icon appears

Multiviewer names

The name field will show the unit's default name when connected. A user friendly name may be entered which will be remembered by the unit.



Tip

Only use basic alphanumeric characters when entering names. The underscore character (_) may be used, but do not use any special characters such as ampersands (&), dashes (-) or slashes (/) (\).



Note

If you need more information while you use ZConfigurator, press **F1** or click **Help**.

Trouble Shooting Failed Connections

Connected multiviewers with IPs in the same range as the PC are normally discovered automatically. However, there may be times when a network scan has to be forced or a manual connection has to be made or is preferred.

- To force a **network scan**, proceed as follows:
- Right click in the **Device List** and select **Scan Network** or relaunch ZConfigurator.

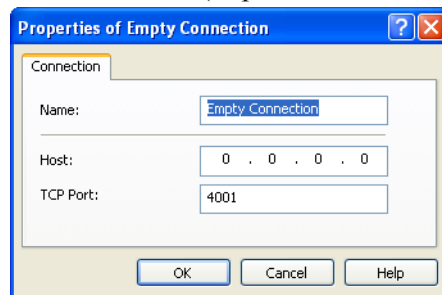


Note

ZConfigurator will only search for connected multiviewers at start-up if 'Scan TCP/IP network at application start' is checked (default) under *User Preferences >> User Interface*.

To connect to a multiviewer **manually**, proceed as follows:

- With no multiviewer connection active, right click in an *empty Device List* and select **Insert New** (or press **Connect to...**) and type in the IP address of the unit to connect to.



Note

The name field and TCP port field (normally 4001) are not used in this connect form.



Tip

See also answers to “ZConfigurator cannot access any multiviewers on the network.” on [page 87](#).

Using Control View

Control View can be used to take any selected PiP Full Screen and, for multiviewers equipped with an Audio Monitor Output, to monitor any pair of audio channels.



Note

If a Harris Platinum router is connected, Control View can also provide access to a Source Selector for each PiP.

- To launch the viewer, click on **Control View** from the **Main Application**.

This will close the layout editor if open, and display a simplified view of the currently loaded layout.

- Click on a PiP to control it. The selected PiP will increase in size with all other parts of the layout hatched out.



As the cursor is moved, it changes to reflect the currently assigned function and a text prompt at the bottom of the PiP shows available controls.

- Double click without moving the cursor to activate a specific control.



Note

If the cursor is hovered where no control functionality exists, **No Operation** is shown. If the mouse is moved off the PiP (or the right mouse button is clicked), control is deactivated.

Using the PiP Source Selector

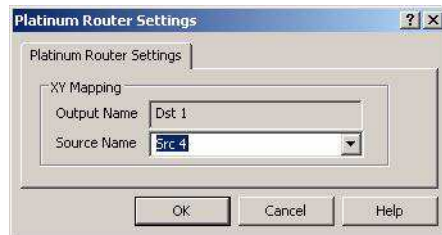
For systems with video inputs fed from a **Harris Platinum Router**, a video source selector is provided in each PiP.



Note

An attached Platinum Router must be configured to use the Harris LRC protocol as explained in [“UMD and Tally Configuration” on page 48](#) and [“Platinum Router Setup” on page 50](#).

- Select a PiP, then click on the ‘X-Y’ icon to display the Platinum Router Settings menu:



- Select a new source from the **Source Name** drop down box.



Please ignore any reference to XY Mapping, the Output Name cannot be changed here as it is the current PiP. Only source selection can be controlled by this menu.

Full Screen

Full Screen takes a selected PiP and displays it on the attached display zoomed to fill the screen on its own.

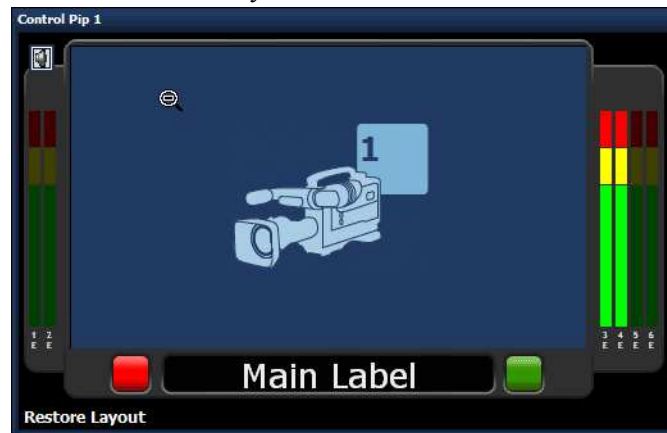
- To use the facility, move the hand cursor over the Control View layout and select a PiP by clicking on it.

The selected PiP will zoom out with the rest grayed out. **Set PiP Fullscreen** will appear at the bottom of the PiP and the word **Full** will appear just below the cursor which changes to show a '+' sign).



- To take this PiP full screen on the attached display immediately, double-click with the cursor at the current position.

The PiP will be shown full screen and the PiP in **Control View** will change to indicate how to restore the normal layout.



- Double click when the cursor changes to a '-' Zoom Out symbol and **Restore Layout** is shown.

The layout will be restored and the **Control View** PiP mimic will return to the previous view.

- To leave the **PiP Control** mode, move the mouse cursor away from the PiP (or press the right mouse button).

The **Control View** layout will return to normal (with no PiP selected) in a few seconds.

- To exit **Control View**, click on the 'x' at the top right hand corner of the layout mimic.

Audio Monitoring

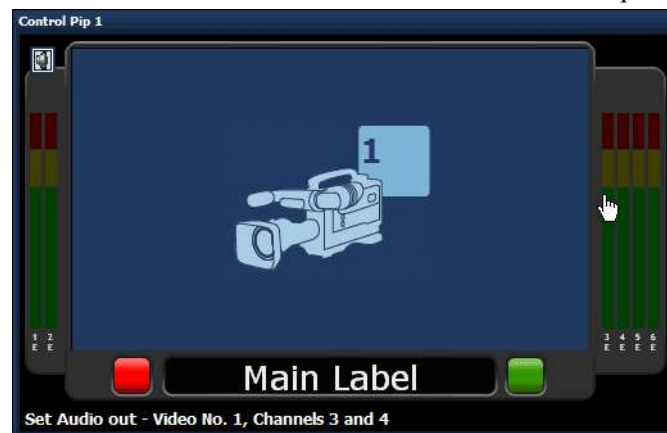


Audio monitoring is only available for multiviewers, such as the Predator II GX 2RU and QVM6800+, that are equipped with an audio monitoring output option.

- To control which audio channels in a PiP are monitored, start by clicking once on the appropriate PiP.

The selected PiP will zoom out with the rest hatched out.

- Then move the cursor over one of the audio bar pairs that you wish to listen to.



- Double click selected channels to route them to the audio output.



Double clicking on a channel will select it and it's stereo twin, for example, if embedded 2 is selected then both embedded 2 and embedded 1 will be routed.

An audio pair that is being routed to the output will appear lit up.



In the example above, audible monitoring for audio channels 3 and 4 has been enabled as is shown by the lit bargraph mimic in the right hand audio panel.


The prompt shows **Turn Off Audio** to indicate the effect of double clicking again on the routed audio channels.



Note

If a PiP displaying audio channels is taken fullscreen using Control View, the first two audio channels will be automatically routed to the audio monitoring output. When the layout is restored, the previous monitored audio channel assignment will also be restored. No change occurs if the PiP taken fullscreen has no assigned audio.

Controlling Level

- Click on the **Audio Options** loudspeaker icon  in the top left hand corner of the PiP mimic to display a level slider.



- Drag the slider with the left mouse button to change the volume.

The level is shown in dB.

- To activate the new level, release the left mouse button.



Note

A tick box may be present to save changes with older versions of ZConfigurator.

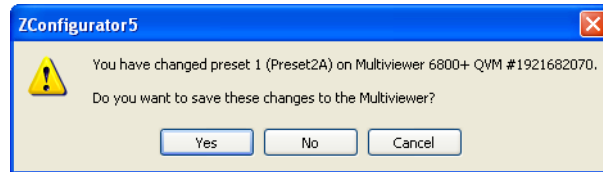
- Click on the cross symbol to dismiss the level control.
- To leave the **PiP Control** mode, move the mouse cursor away from the PiP (or press the right mouse button).

The **Control View** layout will return to normal (with no PiP selected) in a few seconds.

- To exit **Control View**, click on the 'x' at the top right hand corner of the layout mimic.

Saving level changes

When the controller window is closed, a message may appear prompting to save changes.




- Click on **Yes** to store the level and/or monitoring changes in the current layout and download the layout.

If confirmed, the active layout containing any changes will be sent to the multiviewer.

Introduction to the Layout Editor

The **Layout Editor** is the main workspace where basic templates from the Template Library are furnished with video and/or computer sources and PiP elements such as borders, labels, UMDs, clocks, timers, alarms and bitmap backgrounds.

There are also ready made PiP designs containing many of these items which can be drag-n-dropped from the Elements Library to any PiP.

- Click on **Edit Layout**  from the main start-up application to display the **Layout Editor** with the current preset loaded.



Video sources are associated with camera icons and DVI computer sources are associated with computer icons.

Templates, Sources and Elements

Layouts can also be created from scratch using **Templates**, **Sources** and **Elements**.

Templates provide a range of PiP arrangements that can be used as the underlying pattern that layouts are based on. A single template can be used to make numerous layouts.

Video sources can be **PAL**, **NTSC**, **SDI**, **HD-SDI** or **DVI (computer)** dependent on multiviewer model and installed I/O cards. These can be assigned to any PiP in the layout by drag-n-dropping their icons (camera or computer) from the **Sources** tab. Video sources can be duplicated enabling two PiPs to have the same source (but, say, different audio) while a single primary computer source can only be assigned to one PiP.

The **Elements** tab offers a variety of pre-selected PiP elements with borders, labels, alarms, bargraphs, clocks and timers.

Themes

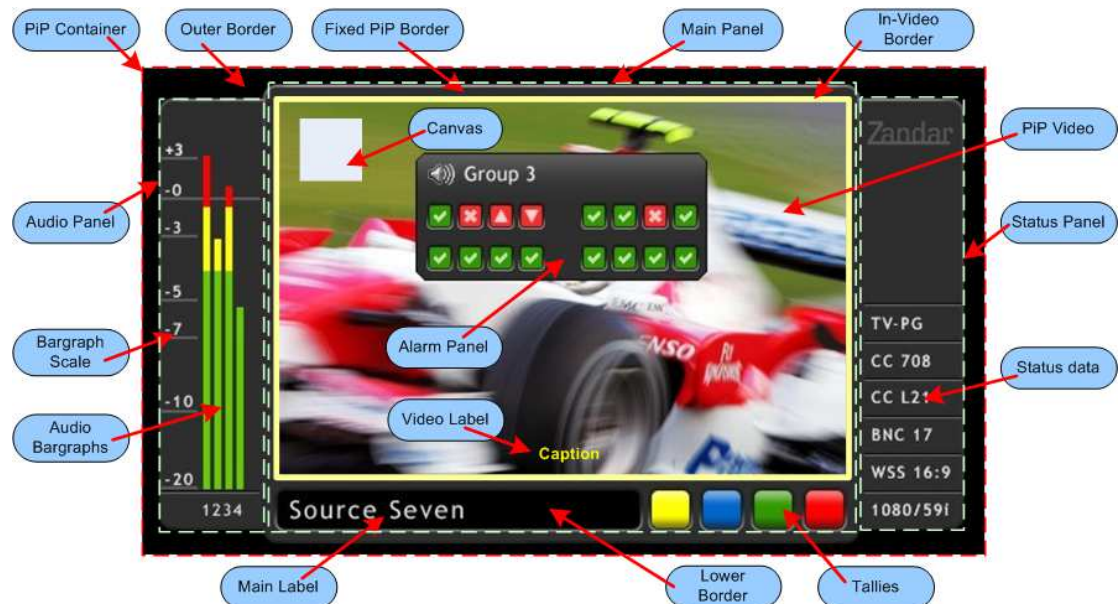
The exact graphic style used for elements varies according to the **System Theme** active on a multiviewer. The **System Theme** is the overall style used by the multiviewer when it renders each individual PiP element.

To understand how to insert and configure tallies, labels, UMDs, audio panels, bargraphs and other special graphic elements such as Canvas objects, its necessary to understand how the panels that contain these objects dock together in the **PiP Container**.

The PiP Container, Panels and Objects

The PiP Container encompasses all the elements that a PiP contains including the main panel and any audio panels or status panel in it, quick menu access icons, the lower text and tally area and the video area with its optional audio panels or canvas object. Audio and status panels can be positioned by drag-n-drop in the border or over video.

The following illustration shows some of the panels, panel objects, video objects and PiP elements that are used in a PiP.



The most basic component of a PiP Container is the **Main Panel**. It is the panel to which all other panels dock.



The only way to insert a **Main Panel** into a completely blank PiP, is to start by inserting a PiP design from the **Elements** tab that already has one.

Once a **Main Panel** has been inserted and a video source has been assigned, the objects that can be associated with a PiP can be inserted and configured from right-click menus accessible within the PiP.



A solitary clock or timer does not require a Main Panel.



Video sources are assigned by dragging a selected camera icon to a PiP from the **Sources** tab at the right of the editor interface.

Adding Audio Panels

Adding audio bargraph panels in video or border for each PiP is accomplished within the **Layout Editor of ZConfigurator**.

- Use the Edit Layout icon  in the ZConfigurator **Main Application** to launch the editor.

Audio bargraph panels can be added to PiPs using **Main Panel** and **Video Source** right-click menus. However, the easiest method is to start with an **Element** that has a main panel and one or more audio panels already present and then re-position panels if required.



To add audio panels to a PiP's border in a newly created layout insert a pre-defined element with a main panel and one or more audio panels.

- To add audio panels to a PiP's video, right click on it's video icon and select **Add Audio Left** or **Add Audio Right**.



To zoom into or enlarge a PiP shown in a layout, double-click on the PiP.

Re-positioning Audio Panels

Audio panels can be moved between video and border areas or to other PiPs.

- To move an audio panel from a PiP's left hand border to the left hand side of a PiP's video, drag-n-drop it on that PiP's video source icon.
- To move an audio panel from the right hand side of a PiP's video to another PiP's right hand border, drag-n-drop it on that PiP's main panel.

Audio panels cannot be moved between left and right hand sides by drag-n-drop.



If the cursor does not change from a no-entry sign to a rectangle during drag-n-drop, the target PiP does not have either a source or main panel assigned.



Audio panels can be deleted by highlighting them and pressing the delete key.

Assigning Audio Source Monitoring to Audio Panels

- Once one or more left and/or right **Audio Panels** have been inserted, right click one, select **Audio Setup** and map available sources as required.



Available embedded, AES and/or analog sources will be represented with corresponding tabbed source lists at the top of this menu.

The procedure for adding and removing bars is the same for all source types.

- Add audio to left and right panels by double clicking the required channel in the source list.
- Left click on audio panels in the pip graphic to select them or click the corresponding radio button
- Left click on audio bars in the pip graphic to remove them



If you need more information while you use ZConfigurator, press **F1** or click **Help**.

Configuring Predator II GX Settings

Once a connection to one or more multiviewers has been achieved, the next step is to carry out basic configuration steps to ensure that the best performance and full-feature set of each multiviewer is realized.

The following basic steps are recommended before changing any further settings.

Basic Configuration

Setting Output Type and Standard

To prevent image degradation due to scaling artefacts the display output of the multiviewer must match the *native resolution* of the attached display.

Multiviewers fitted with DVI-I connectors, such as the Predator II series, include digital and analog RGB versions of the signal. Digital signals are enabled by default; to enable the analog signal the RGB option must be manually selected.



Always select the most appropriate signal format (RGB/Digital) and resolution according to the multiviewer capability and the attached display.

Refer to [“Configuring Display Outputs” on page 46](#) in the [“Configuring Predator II GX Settings”](#) section for details.

UMD and Tally Setup

Predator II GX can emulate Under Monitor Display (UMD) functionality allowing labels to be dynamically updated by external third party equipment such as cross-point routers used to select video sources for a multiviewer to monitor.

Configuration steps include selecting a LAN or serial port to accept the source name data and setting a protocol to decode it.

Refer to [“UMD and Tally Configuration” on page 48](#) and [“Communication Ports” on page 51](#) in the [“Configuring Predator II GX Settings”](#) section for details.

Audio Scales and Transitions

The default settings for audio meter scale type and transitions are set to AES with the yellow/red transition at -11dB and the green/yellow transition at -33dB. These levels are sufficient for most purposes, but you can change them.

They are configured on the System Setup Audio tab. See [“Audio Settings” on page 55](#) in the [“Configuring Predator II GX Settings”](#) section for details.

Global Alarm Settings

Global settings that affect such things as alarm trigger sensitivity and threshold delay are set in the **System Setup Alarms** tab. These settings may also be left at their default settings when learning the interface for the first time.

See [“Global Alarm Settings” on page 56](#) in the [“Configuring Predator II GX Settings”](#) section for details.

Complete Configuration

The following settings are configured on the **System Properties** dialog box in ZConfigurator. Before you begin, make sure that you have connected the Predator II GX module to the PC that runs ZConfigurator (see [“Connecting to Predator II GX for the First Time”](#) on page 31).



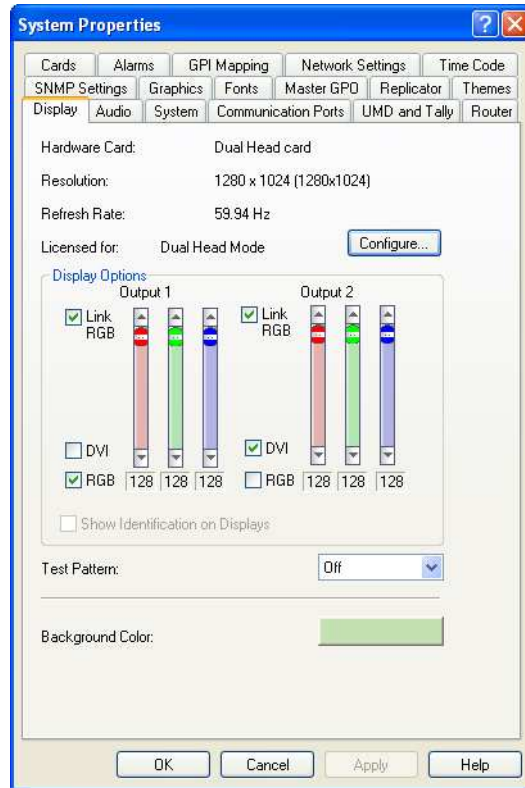
System Setup is not available unless you are connected to a multiviewer.

The following topics are discussed in this section:

- [“Configuring Display Outputs”](#) on page 46
- [“UMD and Tally Configuration”](#) on page 48
- [“Ross Switcher Setup”](#) on page 49
- [“Platinum Router Setup”](#) on page 50
- [“Communication Ports”](#) on page 51
- [“GPI Mapping”](#) on page 53
- [“Audio Settings”](#) on page 55
- [“Global Alarm Settings”](#) on page 56
- [“Enabling Alarms”](#) on page 57
- [“Time Synchronisation”](#) on page 59
- [“Managing Language Packs and Fonts”](#) on page 61
- [“Using SNMP Agents”](#) on page 64
- [“Checking and Optimizing Installed Cards”](#) on page 65
- [“Setting System Properties”](#) on page 67
- [“Copying Settings to Other Units”](#) on page 69
- [“Setting Master GPI Output Options”](#) on page 71
- [“Using Bitmap Images”](#) on page 72
- [“Changing System Themes”](#) on page 73

Configuring Display Outputs

- On the ZConfigurator **Main Panel**, click **System Setup**.
- Then click on the **Display** tab.



Select output type

- Check either DVI or RGB for each display output.

Adjusting output brightness and color balance

- Link RGB boxes to control RGB sliders as one; uncheck for independent control.

Change background color

- Click in **Background Color** bar and select color from the displayed standard color palette.

Using test patterns

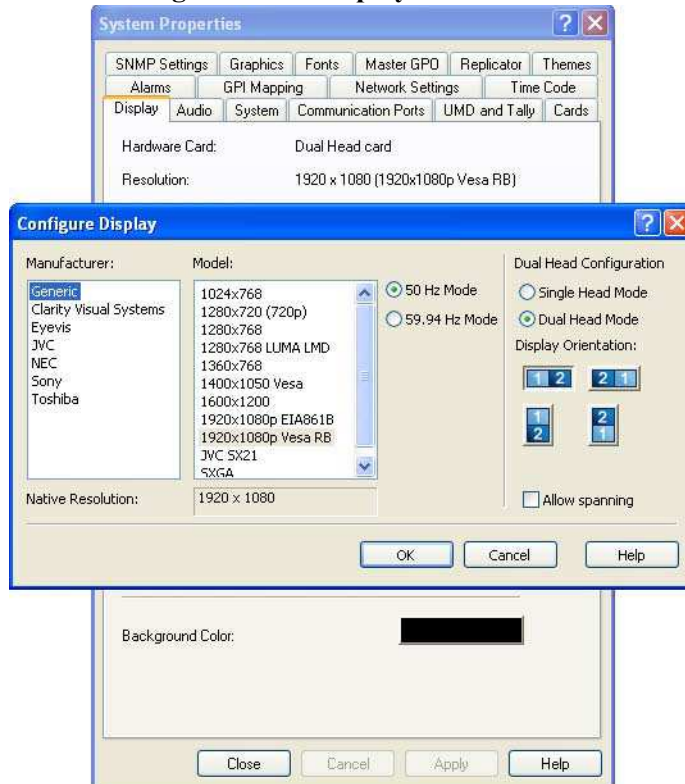
- To select a test pattern, select it from the drop-down list.

See [“Using Test Signals” on page 27](#).

- Click on **OK** or **Apply** when done.

Setting Display Mode and Resolution

- Select **Configure** on the **Display** tab.



It lists the manufacturers of the available output modules on your system.



The models and resolutions supported depend on whether Single Head Mode or Dual Head Mode (Dual Head Card only) is selected.

Dual and Single Head configurations

Select single head mode for each display output to be a clone of the other.

Using independent outputs and spanning

- Select **Dual Head Mode** for two independent outputs or one virtual output
- Select the required **Display Orientation**.
- Check allow spanning to allow one image to be spanned across two displays (first available horizontal configuration only)

Setting display model/resolution

- In the **Manufacturer** list, select the appropriate manufacturer name or select **Generic** for a list of industry standard resolutions.
- Select the desired **Model** or **Resolution**.
- Select **59.94Hz** or **50Hz** to match source refresh rate and attached display.
- Click **OK**, then click **OK** on the **System Setup** dialog box to save changes.



Further information on configuring displays using test patterns can be found in the help file that ships with ZConfigurator.

UMD and Tally Configuration

Predator II GX can emulate UMD (Under Monitor Display) functionality so that main and video labels on the PiPs can be updated dynamically by external third party equipment.

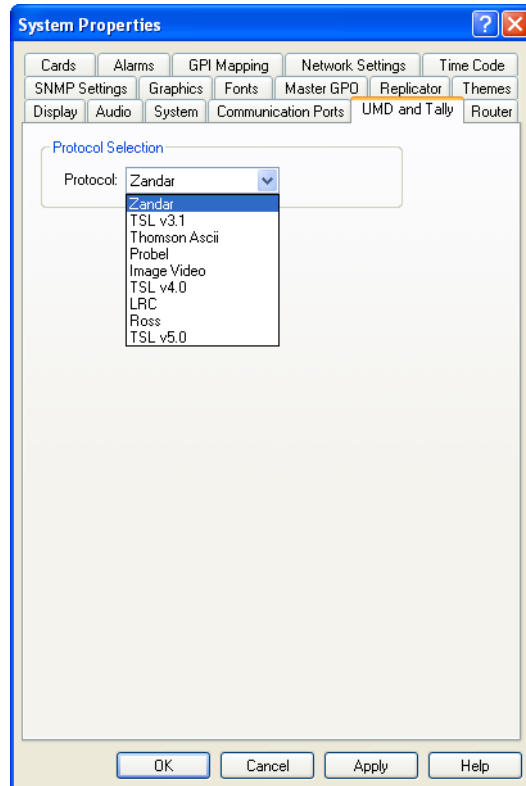
Selecting the UMD Protocol



ZConfigurator supports up to four Main Labels in a PiP, which can be a mix of static and dynamic labels. However, only the Zandar protocol can support up to four as dynamic.

To select the protocol proceed as follows:

- Open the **System Properties** dialog box and select the **UMD and Tally** tab.



- Select the desired protocol from the **Protocol** drop down box.



Tallies are added as a component to a PiP in the edit layout window.

Mapping Sources to Router Outputs

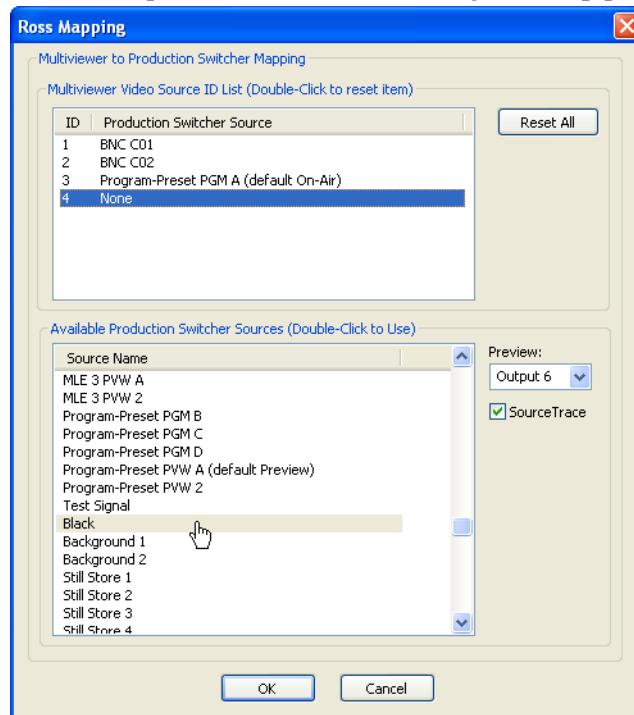
Normally, source names and destinations are extracted from a connected router or switcher when ZConfigurator connects to it via the multiviewer. Where supported, a re-map tool will be provided to change the source/destination pairing in the routing table.



If production switchers or routers are connected serially, that serial port **MUST** first be configured for source re-mapping to function. See [“Communication Ports”](#) on page 51.

Ross Switcher Setup

- If Ross protocol is selected, clicking on **Setup** produces the following mapping control.



To map any of the attached multiviewer's sources shown in the upper window to a switcher source proceed as follows:

- Highlight a multiviewer input in the upper window
- Then select an available switcher source in the lower window by double-clicking on it



Sources are removed from the list shown as they are mapped

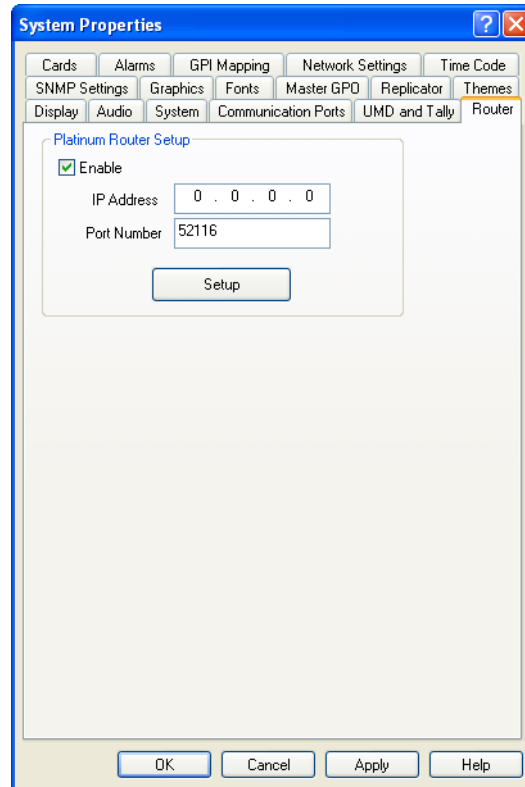
- Select an output to Preview from the drop down box; source 5 is not available to preview as it is reserved for a different use.
- Check **Source Trace** to allow ZConfigurator to dynamically query source names
- Click on **OK** to save the configuration and dismiss the mapping tool
- Finally, click the **Apply** button in the **UMD and Tally** tab to finalize the changes



To force the list to show all available resources, click on **Reset All**.

Platinum Router Setup

Use the dedicated Router tab to map sources and destinations for connected LRC routers supported by that tab (currently the Harris Platinum Router).

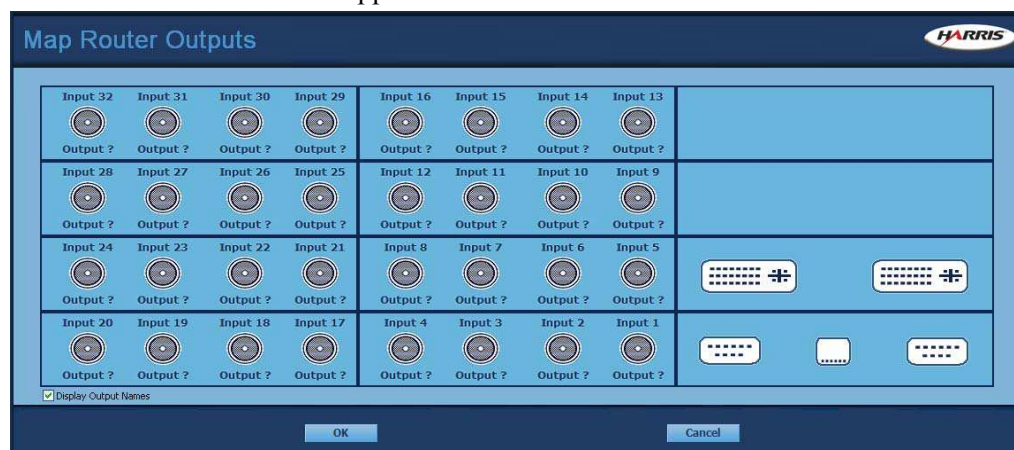


- Check the **Enable** box to work with a Platinum router and the **LRC Protocol**.



LRC must also be selected as the current **Protocol** on the **UMD and Tally** tab.

- Enter the **IP address**, but do not change the default port number of 52116.
- Then click on **Setup** to display the mapping screen. A warning will appear if no router is found at the IP address supplied.



- Click on the text related to each source to map it to a selected router output.
- Check **Display Output Names** to show output names from the Platinum router database.

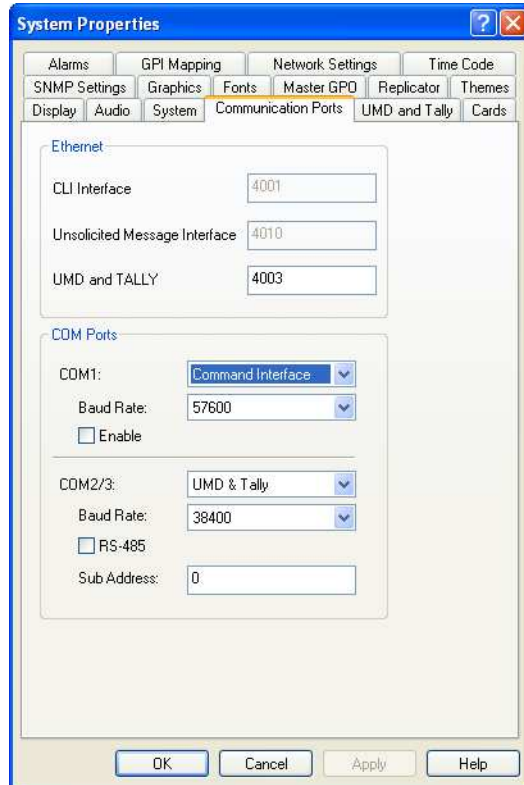
- Click **OK** when done.



The port number used here is in addition to the tally port configuration on the “Communication Ports” tab on [page 51](#).

Communication Ports

The Ethernet communication ports available on the connected multiviewer can be configured to work with external 3rd party UMD and Tally controllers. In addition if the multiviewer supports serial ports, they can be configured here.



The port(s) currently in use to establish communication will be greyed out and cannot be configured.

The interfaces or devices that use available ports can be selected from the drop-down boxes for each port.

LAN interfaces may include:

- CLI (Command Line Interface)
- Unsolicited Message Interface
- UMD and Tally Interface

Serial COM port services or devices may include:

- CLI
- Horita RTC (Real Time Clock)
- UMD and Tally

Using the UMD and Tally LAN Interface

The default port used to communicate with an external 3rd party UMD and Tally controller over a LAN is 4003.



See also the port setup for Harris Routers that use the LRC protocol in [“UMD and Tally Configuration” on page 48](#).

Using Serial Ports

For serial ports remember to select the Baud rate (default is 57600) and check the **Enable** box for Com 1 before using it. For RS485 (RS422) ports select a unique sub-address between 1 and 99 to allow multiple ports to be identified.



A device can only be assigned to one port.

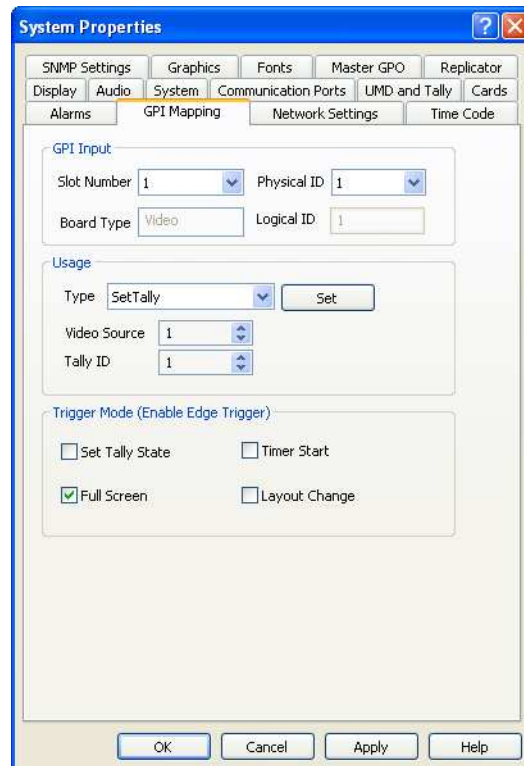
GPI Mapping

Each 4 input video card adds eight GPI input lines. Each of these GPI's can be individually configured for Tally, Full screen Recall and Layout Recall as well as Timer start, pause and reset.



GPI lines can be assigned to control any function for any PiP. They are not tied to the video sources on the video card where the physical connections happen to be fitted.

- To change the current settings select the **System >>GPI Mapping** tab.



- Start by selecting a video card slot number
- Then select the physical ID of a GPI channel at the rear of the frame.

Usage options depend on the function type selected from the drop down list.



GPI's are level triggered by default. Place a tick against one or more trigger modes to enable edge trigger for that mode. This setting affects all four GPI inputs.

Table 4-1 describes the different functions that can be assigned to each contact closure associated with a GPI input.

Table 4-1. GPI Inputs

Function	Description
Set Tally	A tally is active (on) when the contact is closed, and inactive (off) when the contact is open. For example, if a GPI with Physical ID 1 on slot 1 is assigned to Tally 1 on Source 1, it controls tally 1 for video source 1.
Full Screen	Closing the GPI contact causes the associated PiP to be displayed full screen. Opening the GPI contact switches the display back to multiviewer.
Layout	Closing the contact on the first four GPIs in the system recalls a stored layout from the first four presets. For example, a contact closure on GPI 2 recalls Layout 2 and contact closure on GPI 1 recalls Layout 1.
Timer Start	Closing the GPI contact starts count up or count down on any timer in a layout.
Timer Reset	Closing the GPI contact resets any timer in a layout back to its starting value.

1. In the **Slot Number** field, enter the video card slot number.
2. In the **Physical ID** field, enter the input number of the GPI channel.
3. In the **Type** field, select the function for the GPI (see [Table 4-1 on page 54](#)).
4. Do one of the following:
 - For **Set Tally**, set the video source number and the tally ID number.
 - For **Full Screen**, set the video source number.
 - For **Layout**, set the number of the affected preset.
 - For **Timer Start** and **Timer Reset**, set the number of the timer.



If you want to review the settings you made, select each Physical ID number and the settings are displayed.

5. Click **Set**.
6. Repeat steps 1 to 5 for each GPI that you want to add.
7. Click **OK**.

Audio Settings

The audio settings control metering options for all PiPs in all layouts.

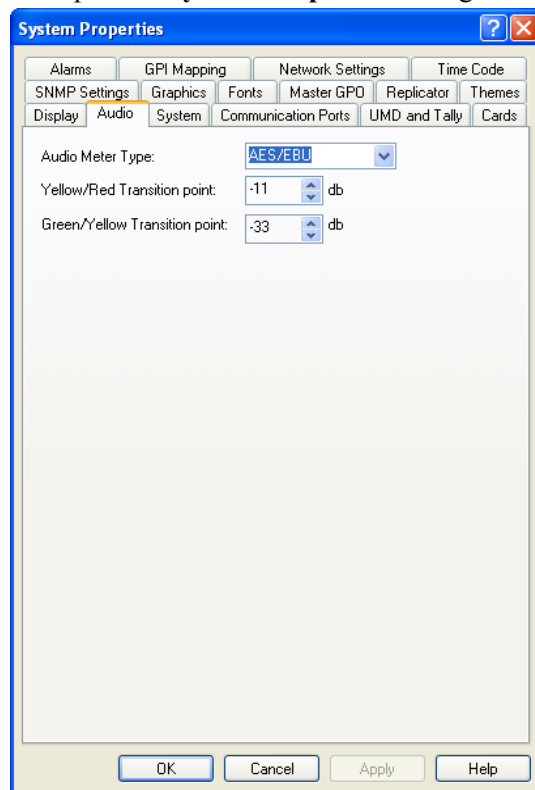
The default settings for audio meter scale type and transitions are set to AES with the yellow/red transition at -11dB and the green/yellow transition at -33dB. These levels are sufficient for most purposes, but you can change them.

The scale type must be set to AES for embedded and digital audio. De-embedded HD SDI/SDI and discrete audio channels can only be assigned to an AES bar/scale.

Table 4-2. AES Bar Scale

Scale	Dynamic Range	Attack Time	Decay Time
AES/EBU	45 dB, 0 to -45 dB	One sample	1.5 s per 20 dB decay

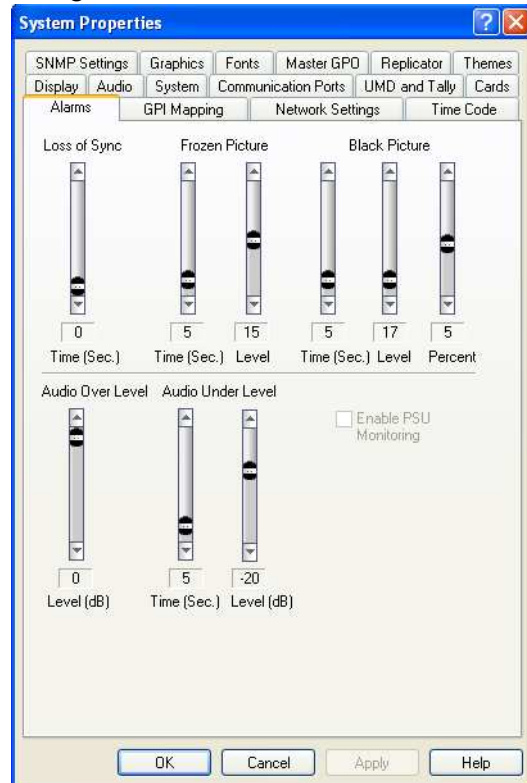
- Open the **System Properties** dialog box, and select the **Audio** tab.



- In the **Audio Meter Type**, select the appropriate option.
- Set the **Yellow/Red Transition point** (upper transition point).
- Set the **Green/Yellow Transition point** (lower transition point).
- Click **OK**.

Global Alarm Settings

The **Alarms** tab allows the global settings for all alarms supported by the multiviewer to be configured.



The alarms supported depend on the options licensed or fitted to the connected multiviewer and the threshold ranges depend on the type of audio meter standard selected on the Audio System tab.

The following settings affect all PiPs that use the corresponding alarm.

Frozen Picture Delay

Time in seconds (1-60) - the amount of a time of video source would need to remain static before being declared frozen.

Level (1-30) - the percentage of motion allowed in picture before it is deemed to no longer be static. (Normally used with noisy analog inputs)

Black Picture

Time in seconds (1-60) - the amount of time a video source would need to remain below the black level threshold before being declared black.

Level (0-255) - the video level or threshold below which pixels are deemed to be black. Black is set to 16 (default) and white is set to 235.

Percent (0-10) - the percentage of picture allowed above the black level threshold in a black picture. The threshold back-off percentage control is provided so that a brief period of blackness won't trigger the alarm.

Audio Alarms

AES/EBU meters are supported and the threshold for audio under and over alarms ranges from 0 to -45 dB.

Audio Over

Level in dB (0 to -45) - the level in dB's above which the audio is deemed to be too loud and an audio over event is triggered.

Audio Under Level

Level in dB (0 to -45) - the level in dB's below which the audio is deemed to be too low and an under level event is triggered.

Time in seconds - the amount of time an audio source must be silent or under level before an alarm is raised.

Flashing borders are supported on the Predator II GX but configured via the Edit Layout window.

PSU Monitoring

Power supply level monitoring is only available if more than one PSU is present in a frame.

Enabling Alarms

Fault detection and reporting can be enabled for audio and/or video sources assigned to a PiP. Alarms can be sent to the output display, notified by SNMP or indicated via the GPI Output.

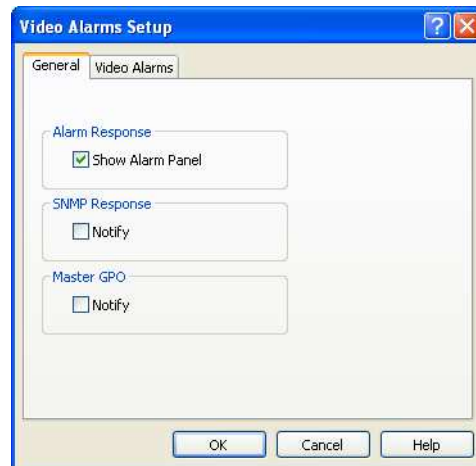
Enabling video and/or audio alarms for each PiP, including flashing borders, is accomplished within the **Layout Editor** of **ZConfigurator**.



Alarms are only relevant for PiPs with a video source and/or at least one audio panel with assigned audio sources.

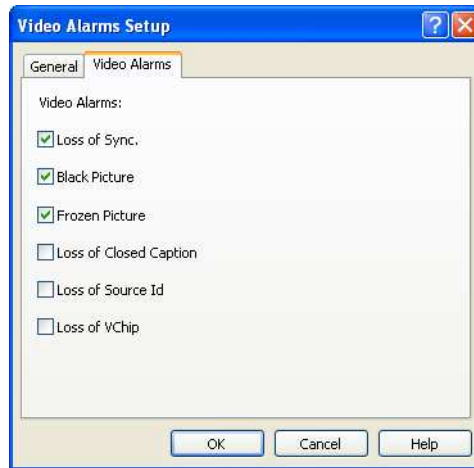
Video Alarm Setup

- To access the **Video Alarm** setup menu click on the bell icon  and select **Video Alarm**.



If only a video source is assigned, just click once on the bell icon to display the **Video Alarms Setup** menu.

- Select notification options on the **General** tab by placing a tick against the required response.
- To define which video parameters cause alarms click on the **Video Alarms** tab.




- Enable the required alarm event triggers.



Options that don't currently apply are grayed out.

Audio Alarm Setup

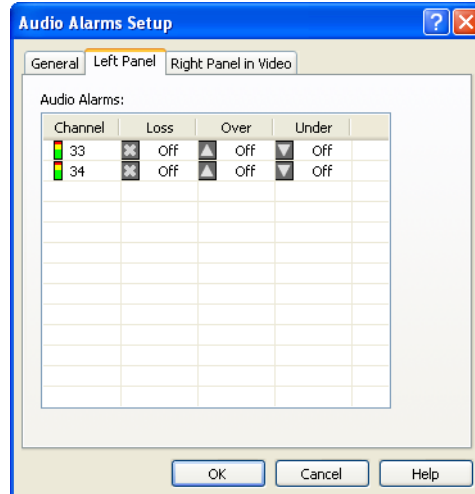
- To access the **Audio Alarm** setup menu click on the bell icon  and select **Audio Alarm**.



If only one or more audio sources are assigned, just click once on the bell icon to display the **Audio Alarms Setup** menu.

- Select notification options on the **General** tab by placing a tick against the required response.

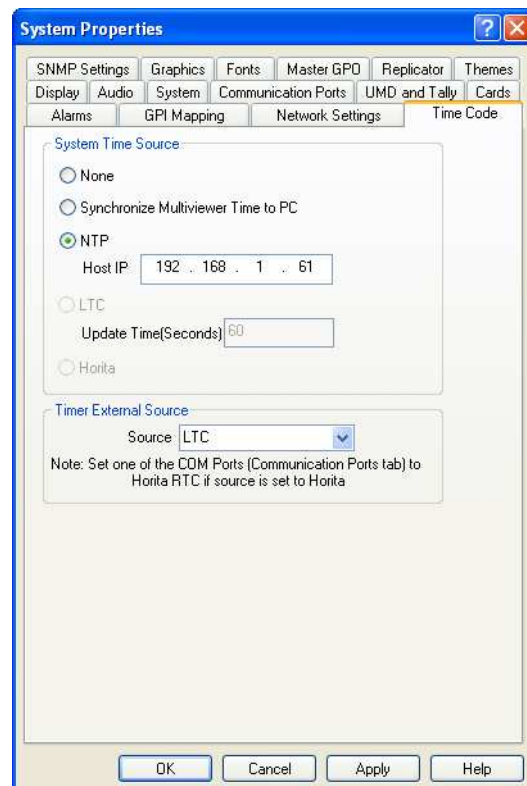
- To define which audio parameters cause alarms click on a **Panel** tab.



- Enable the required alarm event triggers.

Time Synchronisation

The Time Code tab allows the multiviewer system time to be synchronised to external time code, the PC internal clock or an NTP Server. Clocks will take their time from the system time. In addition, there is also a control to allow timers to free run or be synchronised to timecode.



System Time

The **System Time Source** may be any of the following:

- None** - no external time reference is used.
- PC clock** - to sync clocks to an internal clock check **Synchronize Multiviewer Time to PC**.

- **NTP** - to sync clocks to an NTP server, check **NTP** and enter its IP address.

The Network Time Protocol (NTP) is designed to resist the effects of variable latency and jitter when synchronizing computer system clocks over the internet with a time server.



Note

It is recommended to use NTP to synchronize to a reliable NTP server, rather than a PC clock, even if the PC also uses an internet time server, since the PC time link will only exist for as long as the ZConfigurator is in control of the multiviewer.

- **LTC** - clocks are synchronized to Longitudinal Time Code at the update rate selected. Connect an LTC signal to the LTC BNC at the rear of the frame (if available).
- **Horita** - clocks are synchronized to LTC using the Horita LTC to Serial option (no longer available) and cannot be used with multiviewers that do not possess a serial port.

Timer External Source

The **Timer External Source** may be any of the following:

- **None** – no external time reference is used (free run)
- **LTC** - longitudinal time code (if LTC input available)
- **Horita** - sync to an LTC to serial interface converter from Horita (no longer available). Requires one of the COM ports (**System Setup >> Communication Ports** tab) to be set to Horita RTC.



Note

LTC can be used to lock system time or timers, but not both simultaneously. If LTC is used to synch system time, the **Timer External Source** selector will be grayed out.



Tip

A clock locked to LTC can be used as a Time Code Reader.

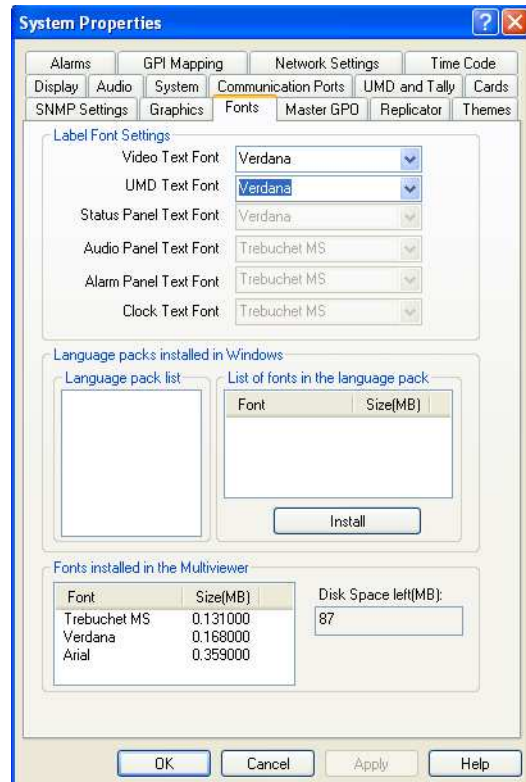
See also the **Using Clocks and Timers** topic in the **Help** file that ships with **ZConfigurator** for more information about clocks and timers.

Managing Language Packs and Fonts

The system fonts that an attached Predator II multiviewer uses to display on-screen features can be changed from a choice of fonts installed to the multiviewer.



The fonts menu is not available on multiviewers that do not support this feature.



In addition, Language Packs can be obtained from Harris to support different languages and special fonts.

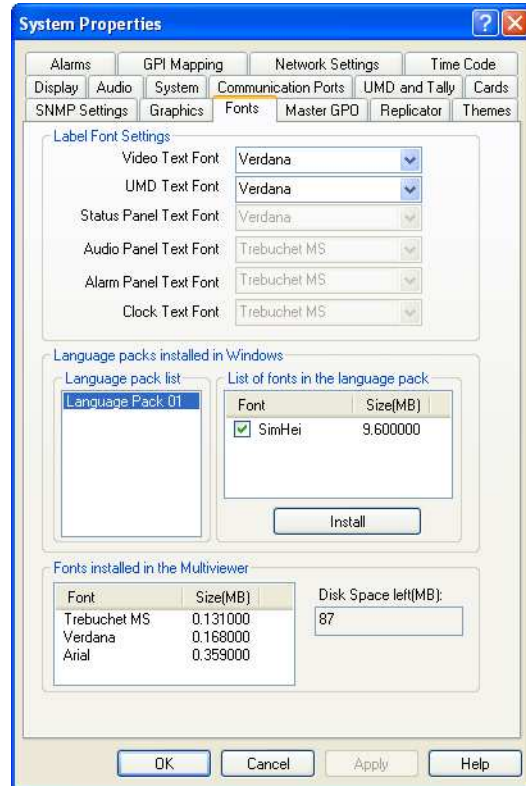
Label Fonts

- To change the font assigned to a particular feature, use the drop down box against each feature to be changed and then click **Apply** or **OK**.
- The requested change will be made on the multiviewer output.

Installing Language Packs

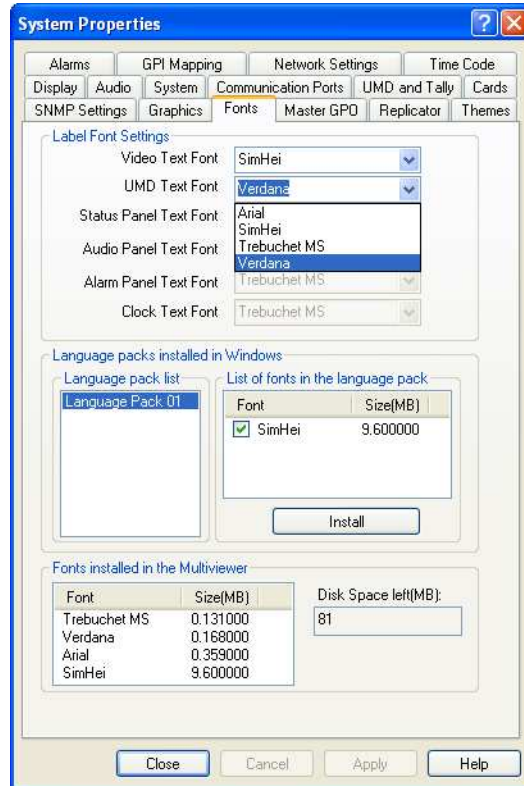
- Obtain the desired Harris language pack from Harris.
- Install the language pack on the PC normally used to run ZConfigurator.

- Navigate to **System Setup >> System Properties >> Fonts**.



- Highlight the language pack, check one or more fonts to install, then click **Install**.

- Check that the required font has been installed to the multiviewer.

**Note**

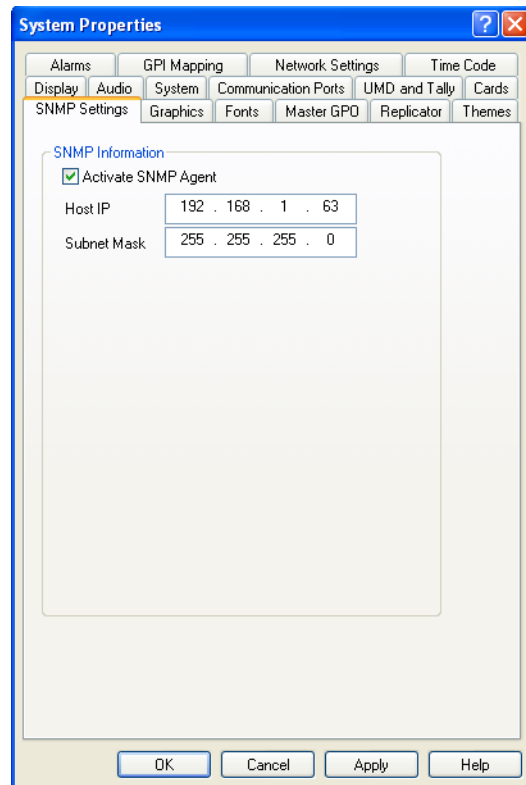
An **Input Method Editor (IME)** and or special keyboard may be required to enter a font such as *Simplified Chinese* and view it in the **Layout Editor** and use it on-screen.

**Tip**

Also refer to the documentation that came with your language pack for any additional help that may be available.

Using SNMP Agents

The Simple Network Management Protocol (SNMP) is used to allow network attached multiviewers to be monitored remotely for alarms and other conditions that might require administrative attention.



An SNMP agent receives requests from and sends responses to ZConfigurator when an event, such as a video or audio alarm occurs.

- To use an SNMP agent check the **Activate SNMP Agent** box and enter an appropriate IP address and subnet mask.

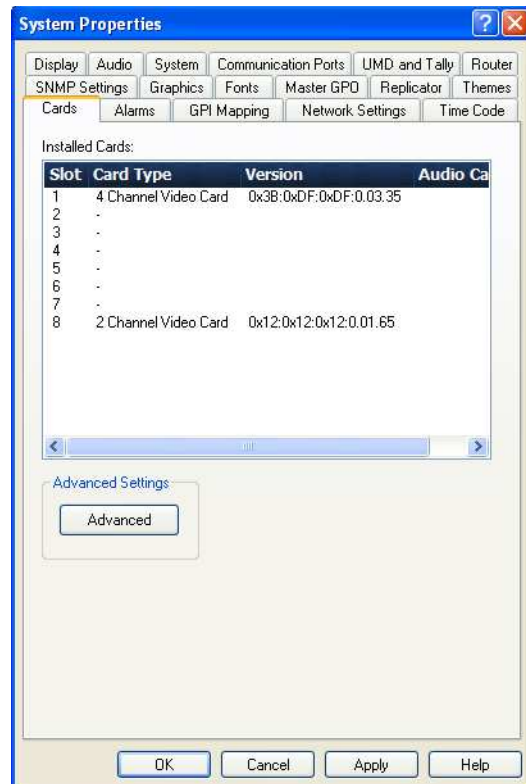


Note

Community name is a read only information field.

Checking and Optimizing Installed Cards

The Cards tab shows the installed cards and their version numbers.

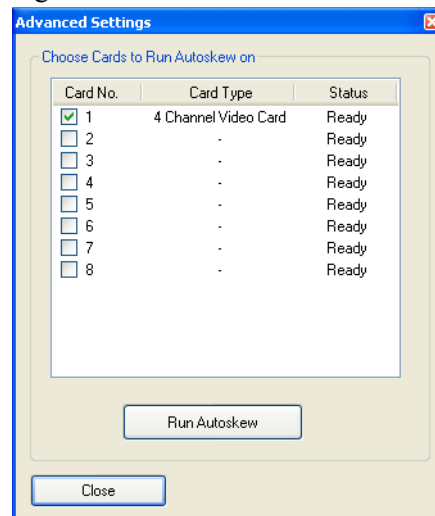


If a card is removed (or fails to respond at boot time), ZConfigurator may report an error. Please contact your local service representative for support if this problem occurs.

- Press **OK** or **Cancel** to leave the cards menu, or click on **Advanced** for other options.

Advanced Settings

Advanced Settings provides access the Autoskew tool used to compensate for quality and timing problems. It is especially useful to cure image degradation and 'sparkles' that occur when high bandwidth video is sent over low quality data cables.



- Ensure that at least one video signal is connected to each card to be optimized.
- Select the cards to optimize then click **Run Autoskew**.

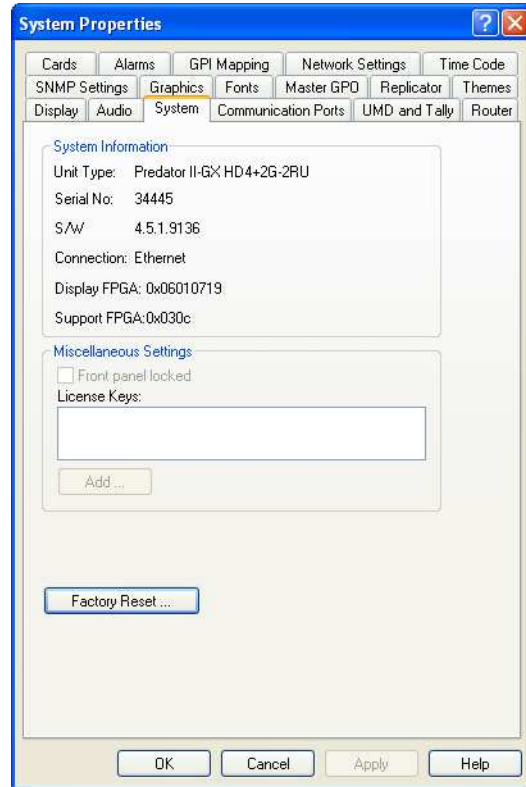


The video card optimization procedure may take some time to complete.

- Click **Close** when done.

Setting System Properties

The system tab shows information about the connected multiviewer such as Unit Type, Serial Number, Software Version and Connection Type.



System Information

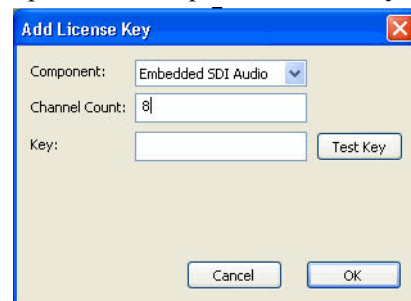
Every multiviewer has a physical serial number printed on a plate on the rear of the unit. In addition, most multiviewers also have the serial number and unit type name programmed into the CPU of the unit itself.



The connection name may be changed using ZConfigurator but the serial number and unit type name cannot.

Using License Keys

Options that require a license key to be applied are managed via the **Add License Key** form.



- To add a licensed option select the option from the drop down list, for audio channels enter the number to license, type the supplied key and click **OK**.
- To test a key without changing the licensed options just enter the key and click **Test Key**.

Locking the Front Panel

To prevent unauthorized or inadvertent user access from the multiviewer front panel (if fitted), ensure that the **Front Panel Locked** check box is ticked.

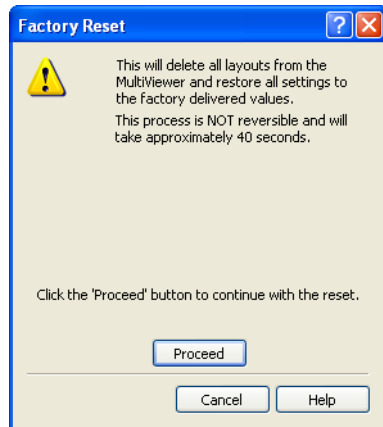
Restoring Factory Settings

- To recall the multiviewer factory settings, click the **Factory Reset** button.

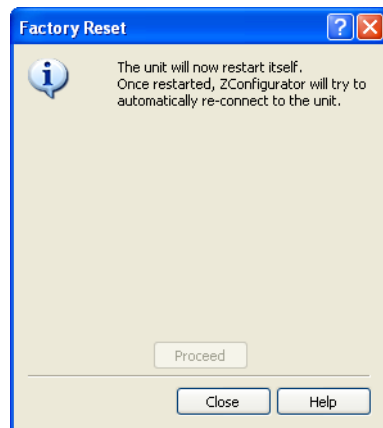
A message will be shown warning that all layouts currently stored on the multiviewer will be overwritten.



Ensure that any unsaved settings are backed up before proceeding.



- Click **Proceed** to reset the multiviewer or **Cancel** to leave the menu without making any changes.



When the reset is finished the multiviewer should reboot. ZConfigurator will then attempt to reconnect with the multiviewer, provided another connection has not been made.

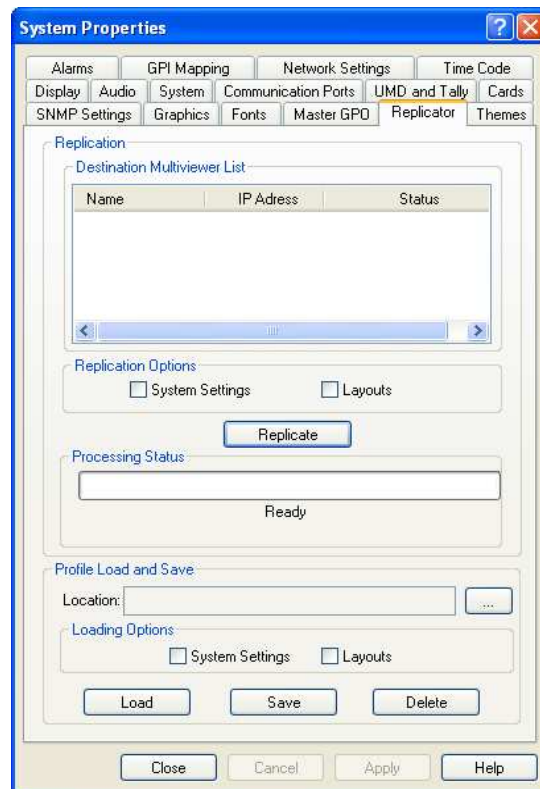


If necessary, re-connect by double clicking on the unit's connection icon.

Copying Settings to Other Units

System Settings and Layouts can be copied to other Predator II GX units by using the **Replicator** function. In addition, multiviewer **Profiles** may be saved to local storage and loaded at any time to any multiviewer (of the same type).

- To access the **Replicator** and **Profile** functions navigate to **System Settings >> Replicator**.



Replication

Replication requires that a target multiviewer is connected to the network and that its IP address is present in the **Destination Multiviewer List**.

- Highlight the desired multiviewer to receive the *current* multiviewer settings,
- Then select **System Settings** and/or **Layouts** and click on **Replicate**.

This will duplicate the chosen settings across the network to the target unit.



Tip

When Replicating or using Profile Load and Save the target multiviewers should be of the same type as the source.

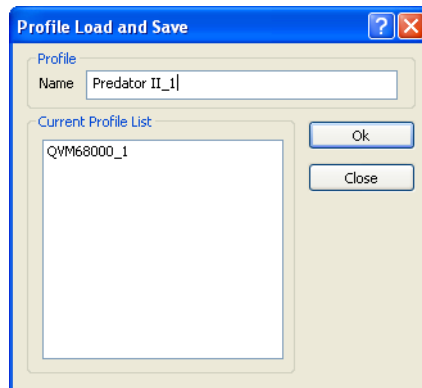


Note

Settings not applicable to the destination unit will be ignored.

Profile Save and Load

- To save both **Settings** and **Layouts** of the current unit to local storage as a named **Profile**, click on **Save**.

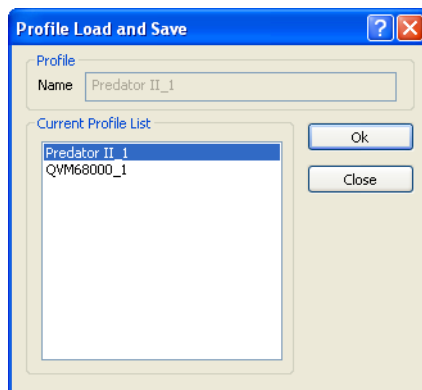


- Type a memorable name for the profile and click **OK**.



Profiles are normally located at *C:/MyDocuments/ZConfigurator/Profiles/*.

- To load a saved profile, choose **System Settings** and/or **Layouts** by placing a tick beside the desired option(s) and click on **Load**.



- Then select the desired profile from the list and click **OK**.

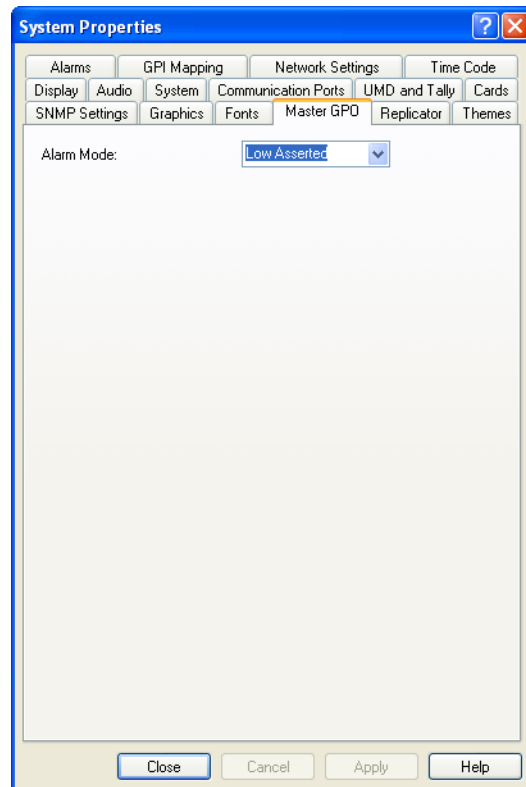


Reconnect to the unit after the profile has been loaded to enable the preset list to be updated.

Setting Master GPI Output Options

Master GPI Output settings can be changed to affect the alarm state condition for the *Master GPO*.

- Go to **System Setup >> Master GPO**.



- The alarm trigger action of the **Master GPO** may be set to either **High Asserted** or **Low Asserted** to indicate the presence of an alarm.
- Make the selection from the **Alarm Mode** drop down list and click on **OK** to save changes.



When **Low Asserted** is selected the Master GPO output will produce a voltage of 0V when an alarm is present. If **High Asserted** is selected the voltage produced will be +5V when an alarm is present.

Using Bitmap Images

Bitmap graphics may be stored on a multiviewer to provide a background to PiPs. They can be used to introduce a product image or station logo or for any other effect where a background image is applicable.

There is 10MB allocated within the multiviewer for bitmap storage and multiple bitmaps can be tiled to fill up the display. If too many tiled bitmaps are used the screen refresh time may be affected.

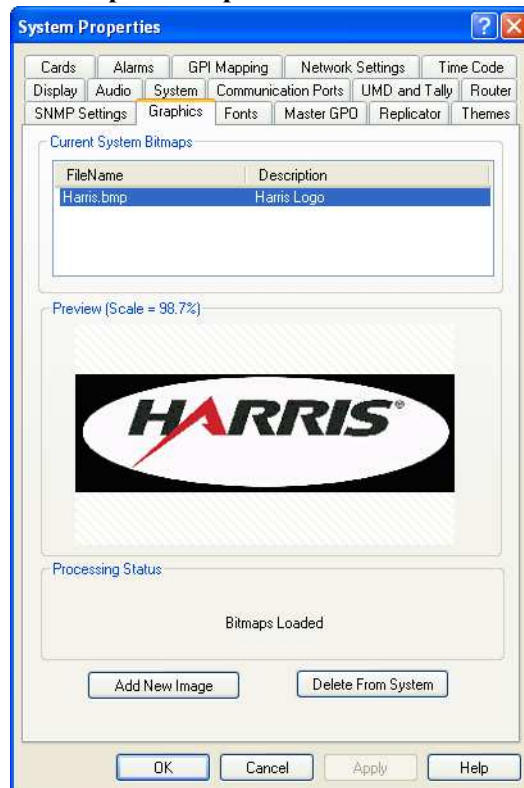
The largest single bitmap accepted is 0.5MB. The format is 8-bit bmp but 16 bit or 24 bit will be accepted and converted by ZConfigurator.



For best results, images should be chosen or pre-sized so that they map directly into a proposed layout without the need for further scaling.

Each bitmap must be loaded into a multiviewer before it can be used.

- To load a new bitmap into a multiviewer's memory or delete existing ones, access **System Setup >> Graphics**.



- To add a new bitmap, click on **Add New Image** and browse for the desired image.



At present, only the .bmp format is supported.

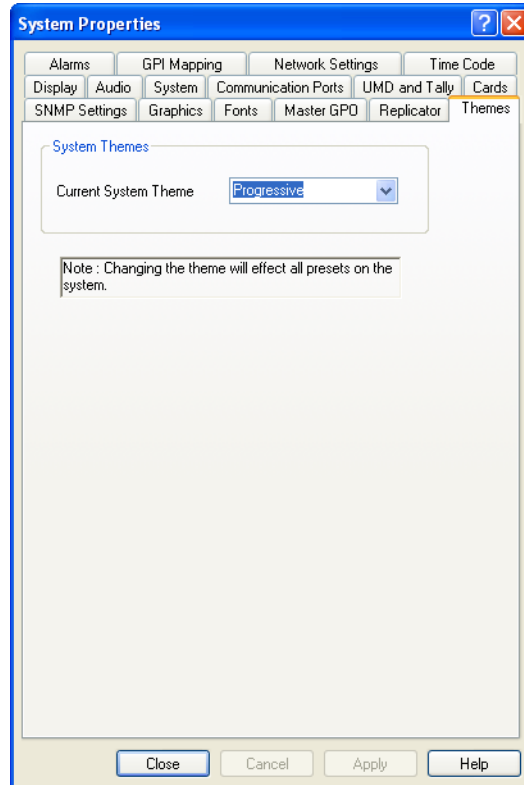
- To delete a bitmap from the multiviewer's memory, highlight it in the **Current System List** and click on **Delete From System**.
- Select **OK** when done to save changes and dismiss the Graphics tab.

Changing System Themes

A system theme is a set of on-screen ‘rendering’ styles that affect the look of every PiP element in a layout rendered by a multiviewer.

Each multiviewer can support only one active system theme at a time.

- To change the active system theme used by all currently applied layouts, select it from the **Current System Theme** drop down list.



Changing the system theme effects all presets on the system. The theme selector in the **Layout Editor** only changes the theme elements previewed when editing layouts.

Using the Front Control Panel

Overview

This chapter deals with initial set-up and system configuration from the front control panel. Refer to [Chapter 4: “Using ZConfigurator”](#) for help with creating and editing display layouts. The front panel user interface consists of 6 buttons and an LCD display.

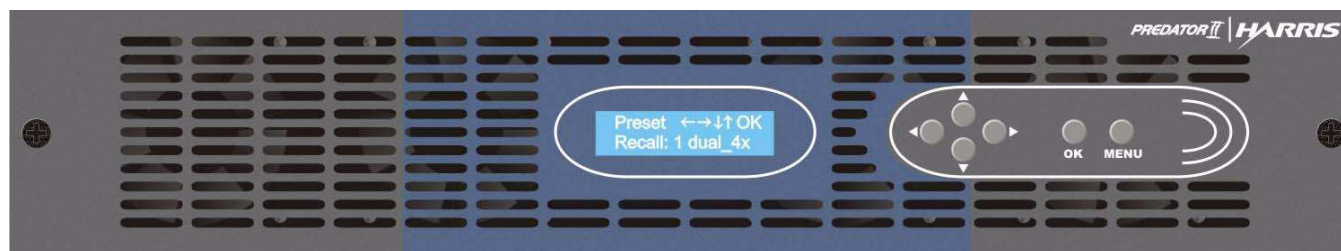


Figure 5-1. Predator II GX 2RU front control panel

Configuration Buttons

The 6 configuration buttons are used to call up LCD menus and have the following functions:

Table 5-1. Front panel button functions

Button	Descriptions
Menu	Return to top level menu
Up/Down Arrows	Cycle through available menu levels
OK	Select menu item to change, select another sub menu or change selected property
Left/Right Arrows	Cycle through available sub-menus or parameter settings

Although, the front panel can be opened or removed while the unit is running, this will disconnect all front panel functions. The LCD display, control buttons and fans will not operate unless the front panel is fully closed.



Any status changes that occur while the front panel is disconnected will be updated when it is replaced.

Navigating the menu

The LCD menus available at the front panel are intended to provide a simplified range of operation and configuration functions to allow standalone Predator II multiviewers to be operated and to allow initial configuration to be performed such as matching the output resolution to the native resolution of the attached external display.



Tip

The multiviewer output should always be configured for the native resolution of the display device and the latter calibrated to avoid picture degradation due to the external display's internal scaler.

The top-level menu is the **Preset** menu which defaults to showing the currently active preset:

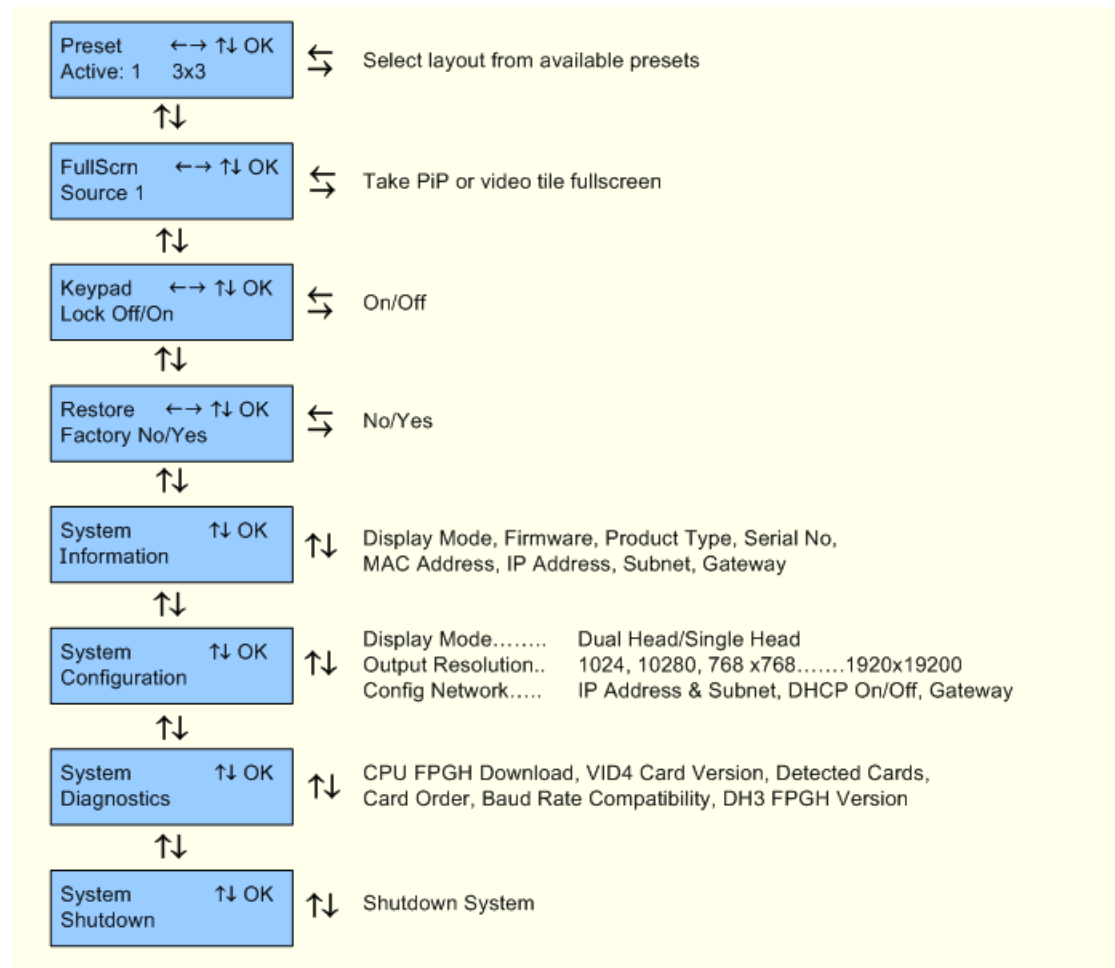


Figure 5-2. The Predator II GX front panel menu tree

- Press **OK** to enter a sub-menu. Press **Menu** to return to a higher menu.

Arrow symbols in the top line indicate the active arrow buttons.

- Use the **Down** arrow to cycle through available menus downwards and the **Up** arrow to cycle through menus in the upward direction. The **Left** and **Right** buttons change parameters or settings.

Some menus, such as the **System Configuration** menu have further submenus.

Example Menu Operations

Selecting Presets

- Use the **Left** and **Right** buttons to cycle through available layout presets.

```
Preset    < > ^↵ OK
Recall:1  2x2 1x1
```

- Press the **OK** button to **Recall** the selected preset layout, activate it and display it.

```
Preset    < > ^↵ OK
Active:1  2x2 1x1
```

Full Screen

- To make a selected PiP fill the screen, go to the **FullScrn** menu.

```
FullScrn  < > ^↵ OK
Source 1
```

- Use the **Left** or **Right** buttons to select a source.
- Press the **OK** button to take the selected PiP full screen to the display.
- To return the PiP to normal and recall the layout, return to the Preset menu.

```
Preset    < > ^↵ OK
Recall:1  2x2 1x1
```

- Recall the previous reset.

Changing Output Resolution

- Navigate to the **Output Resolution** menu in **System Configuration**.

```
Output    ^↵ OK
Resolution
```

- Press **OK** to enter the menu.

```
Resolution ^↵ OK
1280x720 (720p)
```

- Select the required resolution with the **Left** or **Right** arrows.
- Press **OK** to activate it
- Press **MENU** to leave the menu and move back up the menu system.

Change Display Mode

- Navigate to the **Display Mode** menu in **System Configuration**.
The current display mode is shown.

```
Display  < > ^↵ OK
Mode: Single Head
```

- Select the required resolution with the **Left** or **Right** arrows.

```
Display  < > ^↵ OK
Mode: Dual Head
```

- Press **OK** to activate the choice.

```
Display  < > ^↵ OK
Mode Dual Head
```

- Press **MENU** to leave the menu and move back up the menu system.

Viewing the Multiviewer IP Address

- To view configuration details including MAC, IP, Broadcast and Gateway addresses, go to **System Information**.

```
System      ^↵ OK
Information
```

- Press **OK** to enter the menu and use the **Left/Right** arrow keys to search.

```
IP Address  < > OK
192.168.1.201
```

- Press **MENU**, when ready, to leave the menu and move back up the menu system.

Changing the IP Address

- To change network settings including the multiviewer IP address navigate to **Config Network** in **System Configuration**.

```
Config      ^↵ OK
Network
```

- Press **OK** to enter the menu.
- Select **Edit IP Address**.

```
IP Address  < > OK
192.168.1.201
```

- Press **OK** to enter edit mode.

```
IP Address < > ^↵ OK
vvv.www.xxx.zzz
```

- Enter the new address.



Note

The left/right buttons move the character position, the up/down buttons change its value.

- Press **OK** when done to activate it.
- Press **MENU** to leave the menu and move back up the menu system.

Restoring Factory Settings

- To restore factory settings, go to **Restore Factory**.

```
Restore < > ^↵ OK
Factory: NO/YES
```

- Press the **Left** or **Right** arrow key to change **NO** to **YES**.
- Press **OK** to start the process.

```
Setting Factory
Defaults
```

The boot process will start after default settings are restored.

Overview

The following specification tables appear in this chapter:

Video I/O

- [“Auto-Sensing Video Inputs” on page 80](#)
- [“DVI-I Inputs” on page 80](#)
- [“DVI-I Output” on page 80](#)

Audio I/O

- [“Audio” on page 81](#)

GPI I/O

- [“GPI I/O” on page 82](#)

LTC

- [“LTC Input” on page 82](#)

Miscellaneous

- [“UMD Protocols” on page 83](#)
- [“Ancillary Data Decode” on page 83](#)
- [“Graphics Overlay” on page 83](#)
- [“Propagation Delay” on page 83](#)
- [“Housing” on page 83](#)
- [“Weight” on page 83](#)
- [“Power Consumption” on page 84](#)
- [“Environmental” on page 84](#)
- [“Compliance” on page 84](#)

Specifications and designs are subject to change without notice.

Auto-Sensing Video Inputs

Table 6-1. Video Input

Item	Auto-Sensing Video I/P Specification
Number of inputs	12, 16, 20, 24 or 32
Type	Automatic line and color standard sensing
Standards	PAL, NTSC, SDI (SMPTE 259M 270Mb/s) HD-SDI (SMPTE 292M 1.485Gb/s): 1080i/59.94, 1080i/50, 720p/59.94, 720p/50
Connectors	12, 16, 20, 24 or 32 x BNC per IEC 169-8
Impedance	75Ω
Return loss	> 15 dB (typical) to 1.5 GHz
Analog Input	12 bit (A to D conversion)
Maximum cable length	<ul style="list-style-type: none"> • SMPTE 259M: 200 m • SMPTE 292M: 100 m

DVI-I Inputs

Table 6-2. Computer Input

Item	DVI-I Specification
Number of inputs	Two per DVI processor/rear I/O card
Standards	10 bit DVI-I or RGBHV up to 165MHz
Connectors	2 x Microcross
Resolutions supported	1920x1200 50/60 Hz, 1920x1080 50/60 Hz, 1856x1392 60 Hz, 1800x1440 60 Hz, 1680x1050 60 Hz, 1600x1200 50/60 Hz, 1400x1050 50/60 Hz, 1360x768 50/60 Hz, 1280x1024 50/60 Hz, 1280x960 50/60 Hz, 1280x768 50/60 Hz, 1280x720 50/60 Hz, 1024x768 50/60 Hz, 800x600 60 Hz, 720x480 60 Hz, 640x400 60 Hz, 640x480 60Hz

DVI-I Output

Table 6-3. DVI-D Output

Item	Specification
Connector	2 x Microcross
Standards	10 bit DVI-I or RGBHV up to 165MHz
Resolution	1024x768, 1280x720 (720p), 1280x768, 1280x1024, 1400x1050, 1360x768, 1680x1050, 1600x1200, 1920x1080, 1920x1200 (single head only)

Audio

Table 6-4. Digital Audio Input

Item	Specification
Number	Channels as ordered
Type	Balanced, transformer coupled
Connector	Harlink 10 position, 2 row mating cable receptacle.
Impedance	110 Ω
Signal Amplitude	2.5 to 3.5Vpp typical across 110 Ω load
Sampling Rate	48 kHz
Sampling Bits	16 to 24 bits
Rise/Fall Time	30 to 40 ns

Table 6-5. Analog Audio Input Specifications

Item	Specification
Number	Stereo inputs as ordered
Type	Balanced
Connector	Harlink 10 position, 2 row mating cable receptacle.
Impedance	20k Ω
Max Output Level	+19.2dBu = 0dBFS
Frequency Response	± 0.1 dB from 20Hz to 20kHz, relative to 1kHz
THD+N	>75dBFS

Table 6-6. Analog Audio Output (Monitoring)

Item	Specification
Number	1 stereo output
Type	Balanced
Connector	Harlink 10 position, 2 row mating cable receptacle. Note: This connector is shared with Master GPI
Impedance	50 Ω



To connect to the 10 position Harlink connector use the Harlink breakout cable; order code, ZP2-HAR.

GPI I/O

Table 6-7. GPI Input

Item	Specification
Number of inputs	8 added per every four video input
Type	Contact closure (cannot be driven)
Connector	Harlink 10 position, 2 row mating cable receptacle. Note: This connector is shared with GPI Outputs

Table 6-8. GPI Output

Item	Specification
Number of outputs	2 added per every four video input
Output type	<ul style="list-style-type: none"> • Open collector with pull-up resistor to +5 VDC • Maximum sink current of 200 mA • Will sink up to 200 mA at 0 V • Fused output with a thermally resettable fuse
Connector	Harlink 10 position, 2 row mating cable receptacle. Note: This connector is shared with GPI Inputs

Table 6-9. Master GPI

Item	Specification
Number of inputs	1
Number of Outputs	1
Connector	Harlink 10 position, 2 row mating cable receptacle. Note: This connector is shared with Audio Monitoring Output



To connect to the 10 position Harlink connector use the Harlink breakout cable; order code, ZP2-HAR.

LTC Input

Table 6-10. LTC Input

Item	Specification
Type	Unbalanced
Connector	BNC
Input Impedance	75Ω
Supported Formats	SMPTE 12M, SMPTE 309M, Leitch

UMD Protocols

Zandar, Probel, TSL, Thomson Simple, Image Video, Harris LRC, Ross

Ancillary Data Decode

Closed Caption decode and display (EIA 608, 708)

D-VITC decode and display (RP188)

Source ID (SMPTE 291M)

WSS

AFD

Graphics Overlay

Ability to download bitmaps for logos on screen

Support for layout bitmap backgrounds

Stylized video window skins

In-picture embedded audio bargraphs - red, green, yellow

16 text & border colors

4 tally lamps - red, green, yellow, blue

Dynamic UMD/tally

2 analog clocks

6 digital clocks

6 up/down timers

Propagation Delay

The total video delay is between 0.5 to 1 frame of video depending on the relative timing of the incoming sources.

Housing

19" Rack Mount: 2RU high

Outline Dimensions: 480mm(W) x 386mm(D) x 88mm(H)

Weight

Base models as follows:

ZP2-HD4 15 lbs (6.8 kg)

ZP2-HD8 16 lbs (7.3 kg)

ZP2-HD12 17.2 lbs (7.8 kg)

ZP2-HD16 18.5 lbs (8.4 kg)

ZP2-HD20 19.4 lbs (8.8 kg)

ZP2-HD24 20.7 lbs (9.4 kg)

ZP2-HD32 22.9 lbs (10.4 kg)

Power Consumption

The power consumption for Predator II GX 2RU frames:

Table 6-11. Maximum Power Ratings for Predator II GX 2RU Frames

Predator II GX Base Model	Max. Dissipation
ZP2-HD4-GX	69 W
ZP2-HD8-GX	91W
ZP2-HD12-GX	116 W
ZP2-HD16-GX	138 W
ZP2-HD20-GX	160 W
ZP2-HD24-GX	187 W
ZP2-HD32-GX	236 W

Environmental

Operating temperature 0°C to 40°C, Storage is 0 to 50 degrees, Humidity 70% max

Compliance

CE Product Emission Standard EN55 022:1994

CE Generic Immunity Standard 50082-1:1992 (as per the EMC directive 89/336/EEC)

FCC Class A digital device, pursuant to part 15 of the FCC Rules.

RoHs Compliant.

Compliant with WEEE directive.

Troubleshooting

Card Edge Features

LEDs are fitted at the front card edge to provide status information and switches (if fitted) may help with troubleshooting.

The front cover of the frame must be lowered to provide access to modules.

VID4 Four Video Input Card

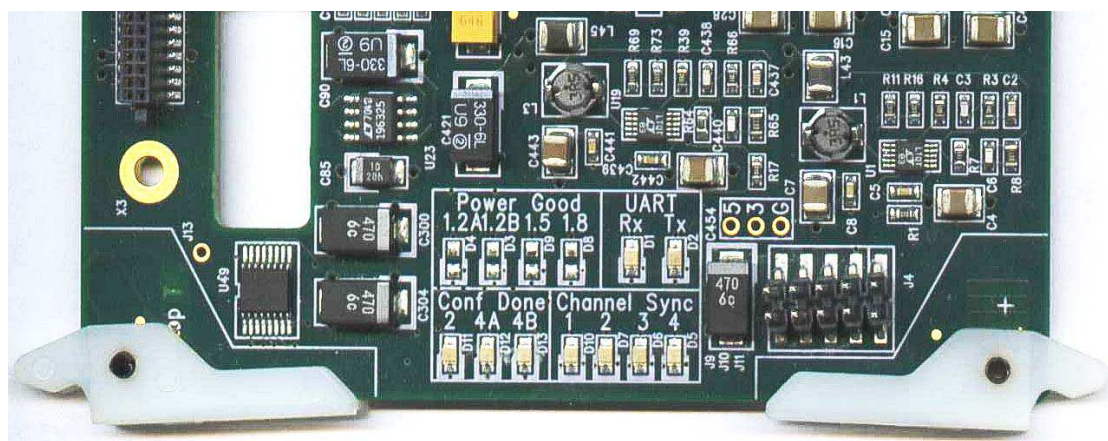


Figure 7-1. Predator II GX VID4 Processor Module (Front Edge)

Table 7-1. Predator II GX VID4 Processor LEDs

LED	Description
Conf Done	Indicates module start-up status.
Power Good	Not Fitted.
Channel Sync	I/P lock status.
UART Rx Tx	Shows serial port (J4) activity (factory use only).



I/P lock status can be seen using ZConfigurator on-screen video alarms and it is not normally necessary to view status LEDs on the front edge of installed modules.

DVI Two (Computer) Input Card

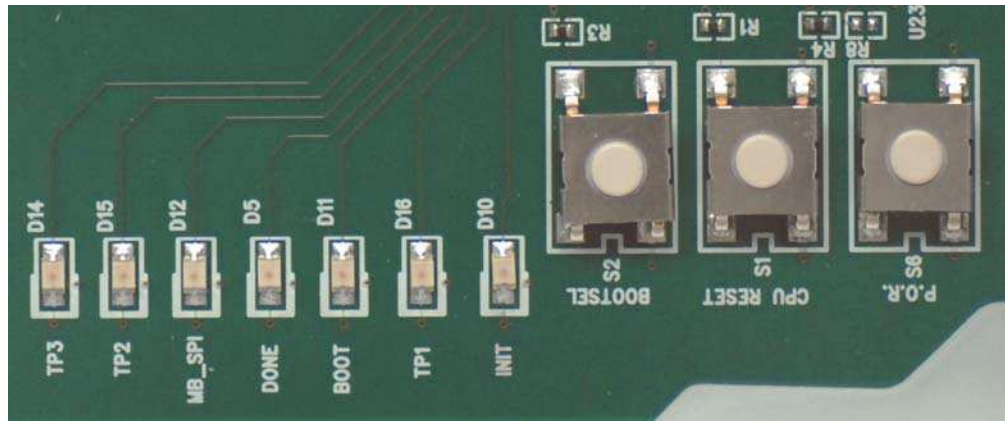


Figure 7-2. Predator II GX DVI-I Processor Module (Front Edge)

Table 7-2. LEDs and Switches

LED/Switch	Description
TP1, TP2, TP3	No user function assigned
MB_SP1	Normally green
DONE	FPGA Programmed OK; normally green
BOOT	OFF in normal operation Blinking at 1 Hz in Fail Safe mode
INIT	Normally green
BOOTSEL	Factory use only
CPU RESET	Resets the DVI card CPU
P.O.R	Power On Reset

Frequently Asked Questions

Table 7-3. Predator II GX Troubleshooting Tips

Problem	Solution
The output display is not working correctly.	<ul style="list-style-type: none"> • Check that the cables are connected correctly. • Check that the output display is calibrated for high picture quality. For example, the display brightness and contrast should be set so that neither black nor white crushing occurs. In addition, some displays require gamma adjustment to achieve full dynamic range.
Nothing appears on the output display.	<ul style="list-style-type: none"> • Check that the DVI output resolution is set to a supported resolution on the output display. • Make sure that there is power to the output display. • Make sure that the DVI cable is attached securely to both the Predator II GX and the corresponding output display. • Make sure that all Predator II GX modules are inserted into the frame correctly. • Make sure that there is one or more valid input source(s) present, and that the selected PiPs or tiles correspond to appropriate sources.
The image quality on the output display is poor.	<ul style="list-style-type: none"> • Check that the selected resolution matches the native resolution of the display and for 50Hz regions make sure your display natively supports 50Hz and does not scan convert to 59.94Hz. • Check that the supplied short DVI cable is connected securely between the Predator II GX and the corresponding output display. If a longer DVI cable is required, consider using an ACTIVE cable that includes an in-line amplifier. • Make sure that all Predator II GX modules are inserted into the frame correctly. • If the image degradation is related to a single DVI input card, try applying a P.O.R at the card edge. If this problem occurs regularly, contact customer service.
ZConfigurator cannot access any multiviewers on the network.	<ul style="list-style-type: none"> • Make sure that there is no firewall present that is blocking either ZConfigurator or the IP address range of the network. • ZConfigurator needs access to the network in order to detect and control Predator multiviewers. The first time ZConfigurator is run, Windows grants ZConfigurator network access. However, if ZConfigurator is run on a non-administrator account, personal firewalls may not allow it to access the network. Check the user documentation that came with your firewall for more information. • Check that the PC and multiviewer IP addresses are in the same subnet range as the rest of the network.
The Predator II GX is not responding.	<ul style="list-style-type: none"> • Make sure that the frame is powered on, and that all Predator II GX modules are fully inserted. • Power cycle the frame (turn the frame off, and then turn it on again). • Make sure that the host name/IP address and port number are correct for TCP/IP connections. • If necessary, try a Factory Reset (Restore Factory in top level front panel menu). See “Restoring Factory Settings” on page 68 in “Chapter 4: Using ZConfigurator” on page 25. See also Figure 5-2 in “Chapter 5: Using the Front Control Panel” on page 74.
I do not know what the IP address for the Predator II GX is.	The current IP address is displayed for a few seconds on the initial screen when the Predator II GX is powered on. I can also be found using the Front Control Panel. See “Viewing the Multiviewer IP Address” on page 77 .

Table 7-3. Predator II GX Troubleshooting Tips (*Continued*)

Problem	Solution
How do I change my PC's IP Address?	<ul style="list-style-type: none"> • In Windows™ Control Panel, double-click Network Connections. • Right-click the network on which the PC and multiviewer reside, and then choose Properties. • The Connections Properties dialog box appears. • Select Internet Protocol (TCP/IP), and then click Properties. • The Internet Protocol (TCP/IP) Properties dialog box appears. • Enter an IP address for the PC that is within the same subnet as the multiviewer. • For example, if the IP address of the multiviewer is 198.168.100.57, the IP address for the PC should be 198.168.100.xx, where xx is any number from 1 to 255, except 57. • Click OK.
I cannot use a DHCP server to assign IP addresses.	<p>A DHCP server dynamically allocates IP addresses. Although this seems to make system administration easy, static addresses are preferred. Static addresses work well with UMD Tally controllers because they only recognize a multiviewer by its IP address and not its name. DHCP servers may change assigned addresses, which causes external controllers to lose their connection with the multiviewer.</p>
What hardware checks are performed during the boot up procedure?	<p>During the initial power-up sequence, the embedded processor runs basic checks on the installed hardware to ensure that it is present and that any required firmware is in place and passes validity tests. If this is successful, the top level menu (Preset Select) is displayed on the LCD screen and the unit should be ready for use.</p> <p>See “Chapter 5: Using the Front Control Panel” on page 74.</p> <p>See “Card Edge Features” on page 85.</p>
How do I connect an RGB source to a DVI input?	<ul style="list-style-type: none"> • Connect a DVI source configured for RGB out only. • For DVI sources with BOTH digital and analog outputs on the same DVI-I connector, use an RGB socket to DVI-I plug adapter; order code Z-DVI-RGB. • Other sources may require a custom cable. See “DVI Connector” on page 94 for pinout.
Why doesn't my VGA display work?	<ul style="list-style-type: none"> • The RGB output is off by default and needs to be enabled in ZConfigurator. See “Configuring Display Outputs” on page 46. • Use an RGB socket to DVI-I plug adapter; order code Z-DVI-RGB.
How long a DVI-I cable can I use?	<ul style="list-style-type: none"> • Cable length for digital signals may be as low as two meters, but it can be increased using powered DVI extenders; order code, Z-DVI-EXT.
How do I connect to GPI I/O?	<ul style="list-style-type: none"> • Use the Harlink GPIO breakout cable; order code, ZP2-HAR.

Connectors and Cables

Predator II I/O

The initial complement of front processors and I/O connectors are factory fitted. All I/O connections are at the rear of the unit.



Figure 2-1. Predator II GX 2RU rear I/O for a 24 video/4 DVI-I input version.

Video Inputs

Each factory configured unit is made up of a pre-determined number of 4-input video cards.



Figure 2-2. VID4 card rear I/O

Each 4 input card adds eight GPI inputs, 2 GPI outputs and, potentially, up to four analog stereo inputs or up to eight channels of digital (AES) audio.

External audio capability depends on additional ‘daughter’ cards that are plugged into each 4-input video card.



See [Chapter 3 “User Upgrade” on page 12](#) for details of audio, video and DVI-I input expansion.



The following connector drawings are all rear of plug (front of connector) views, unless otherwise stated.

GPI I/O

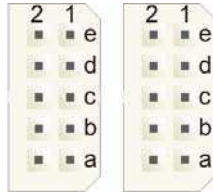


Figure 2-3. Two Harlink sockets labelled GPIO for each VID4 card

Table 2-1. GPIO pinout

	Left hand socket	Right hand socket	Wire Color
2e	GND	GND	rose
1e	Reserved for future use	Reserved for future use	black
2d	GND	GND	rose
1d	GPI Input 4	GPI Input 8	red
2c	GND	GND	rose
1c	GPI Input 3	GPI Input 7	orange
2b	GND	GND	rose
1b	GPI Input 2	GPI Input 6	yellow
2a	GND	GND	rose
1a	GPI Input 1	GPI Input 5	brown

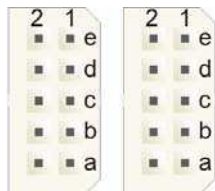


GPI inputs are active when low (grounded).

Audio I/Ps

External audio I/O may be analog or digital depending on frame configuration.

Analog Audio



Two Harlink sockets labelled **Audio** for each VID4 card.

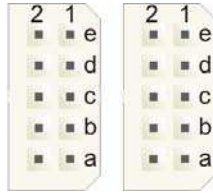
Table 2-2. Analog audio input pinout (sockets viewed from back of frame)

	Left hand socket	Right hand socket	Wire Color
2e	AUD L4-	AUD R2-	rose
1e	AUD L4+	AUD R2+	black
2d	AUD R4-	AUD L2-	rose
1d	AUD R4+	AUD L2+	red
2c	GND	GND	rose
1c	GND	GND	orange
2b	AUD R3-	AUD R1-	rose
1b	AUD R3+	AUD R1+	yellow
2a	AUD L3-	AUD L1-	rose
1a	AUD L3+	AUD L1+	brown



The analog audio input impedance is 20K ohms. Analog audio inputs are fixed at +18dBu = 0dBFS.

Digital Audio



Two Harlink sockets labelled **Audio** for each VID4 card.

Table 2-3. AES audio input pinout (sockets viewed from back of frame)

	Left hand socket	Right hand socket	Wire Color
2e	IN8-	IN4-	rose
1e	IN8+	IN4+	black
2d	IN7-	IN3-	rose
1d	IN7+	IN3+	red
2c	GND	GND	rose
1c	GND	GND	orange
2b	IN6-	IN2-	rose
1b	IN6+	IN2+	yellow
2a	IN5-	IN1-	rose
1a	IN5+	IN1+	brown



Digital audio conforms to AES3, EIAJ CP1201 and IEC-60958 at 48kHz. The digital input impedance is 110 Ohms.

Communication Ports



Figure 2-4. Communication ports and LAN interface.

Table 2-4. RS232 serial port Com 1 female 9 way 'D'

Pin No	Function	Pin No	Function
1	NC	6	NC
2	RXD	7	NC
3	TXD	8	NC
4	NC	9	NC
5	GND		

Table 2-5. RS422/485 serial port Com 2/3 female 9 way 'D'

Pin No	Function	Pin No	Function
1	NC	6	NC
2	TX+	7	TX-
3	RX+	8	RX-
4	NC	9	NC
5	GND		



Note

COM2/3 is a shared RS232/RS422 serial port designed for use with external devices such as routers.



Note

Standard RS232 cabling may be used, as shown in [Connectors and CablesTable 2-4 "RS232 serial port Com 1 female 9 way 'D'"](#) when Com2/3 is programmed to communicate as an RS-232 port. Custom cabling is required as shown in [Table 2-5 "RS422/485 serial port Com 2/3 female 9 way 'D'"](#) when Com2/3 is programmed to communicate as an RS422/485 port.

DVI Connector

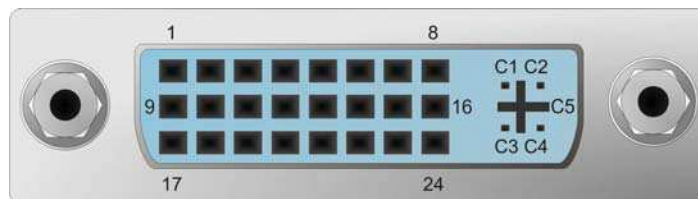


Figure 2-5. DVI connector

Table 2-6. DVI connector pinout (DVI input/output)

Pin No.	Description	Pin No.	Description
1	DATA 2+	16	Hot Plug Detect
2	DATA 2-	17	DATA 0-
3	DATA 2/4 SHIELD	18	DATA 0+
4	DATA 4-	19	DATA 0/5 SHIELD
5	DATA 4+	20	DATA 5-
6	DDC CLOCK	21	DATA 5+
7	DDC DATA	22	CLOCK SHIELD
8	N/C	23	CLOCK +
9	DATA 1-	24	CLOCK -
10	DATA 1+		
11	DATA 1/3 SHIELD	C1	N/C
12	DATA 3-	C2	N/C
13	DATA 3+	C3	N/C
14	+5V POWER	C4	N/C
15	DATA GND	C5	Analog Ground

Audio Monitoring and Master GPI I/O

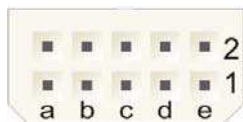


Figure 2-6. White Harlink socket near mains I/P

Table 2-7. Audio Mon/MGPO pinout

	Function	Wire Color
2e	Reserved for future use	rose
1e	Master GPI Output	black
2d	AES+	rose
1d	AES-	red
2c	GND	rose
1c	GND	orange
2b	Analog Out L-	rose
1b	Analog Out L+	yellow
2a	Analog Out R-	rose
1a	Analog Out R+	brown



GPI inputs are active when low (grounded). Analog audio outputs are set to +10dBu = 0dBFS.

External Time Code

The system clock may be locked to a studio reference Longitudinal Timecode signal connected to the LTC BNC at the rear of the frame (near mains I/P).

Proceed as follows when using a balanced timecode source:

- Connect the LTC source minus (-) and ground line to the BNC shield and the LTC positive (+) directly to the BNC input.



Do not use a balanced to coaxial converter, such as a Canare used with AES signals, as this may cause significant gain loss.

System clocks may also be synced to an NTP server or the PC's internal clock.

Refer to [“Time Synchronisation” on page 59](#) the [“Using ZConfigurator” on page 25](#) for more information.

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