MGP Series

TWO & FOUR WINDOW MULTI-GRAPHIC PROCESSORS

High performance graphics processing for professional multi-image presentations

➤ Combines full-motion video, HDTV, and RGB input sources:
  – RGBHV, RGBS, RGsB
  – Component video
  – S-video & composite video

➤ Optional DVI and HD-SDI inputs

➤ RGB/component video and DVI outputs

➤ 76 selectable output rates to 1920x1200, including HDTV 1080p/60

➤ Custom picture-in-picture controls and configurations

➤ Graphic Still Store

➤ DVI background video input

➤ Window transition effects

➤ 128 picture-in-picture memory presets

➤ IP Link® Ethernet Control

MGP 464

Extron® Electronics

Introduction

The Extron **MGP 462xi** Two Window and **MGP 464** Four Window Multi-Graphic Processors are powerful, high resolution graphics processors that enable the simultaneous display of multiple images on a single screen. They are ideal for applications demanding critical quality graphics and video presentations, including command and control centers, videoconferencing, medical facilities, courtrooms, and boardrooms. The MGP Series combines high performance graphics scaling with flexible and customizable picture-in-picture functionality.
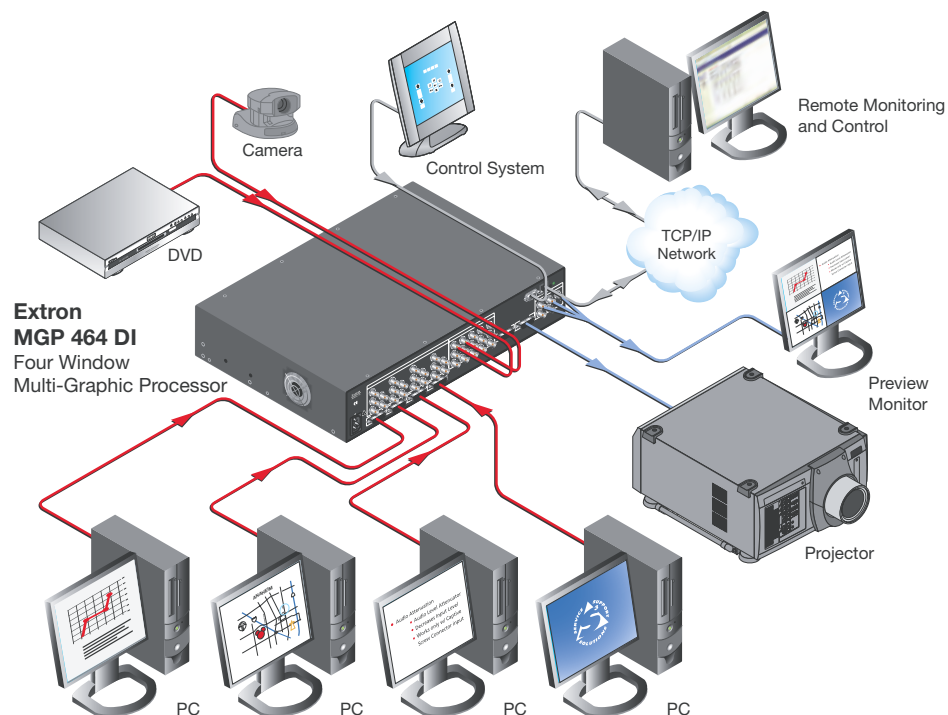
A wide range of input sources can be accommodated, from composite video to HDTV 1080p/60, and computer-video at up to 1920x1200 resolution. The MGP 462xi and MGP 464 are also available with DVI and HD-SDI inputs. Any of up to 19 available inputs can be scaled and placed in any of up to four windows for picture-in-picture display. Both models output a total of 76 scan rates, including 1920x1200 computer-video and HDTV 1080p/60, through analog RGB or component video as well as DVI.

An advanced feature set enables custom multi-image displays, including picture-in-picture window positioning, size, zoom, priority, image freeze, bordering with selectable colors, and text labeling. The MGP Series incorporates picture and window fine tuning controls for infinitely variable picture-in-picture customization. Windows can appear and disappear using elegant effects, including wipes and dissolves for enhanced, professional quality multi-image presentations.

With Extron's Graphic Still Store, screen captures of the current output can be stored for use as presentation background images. Alternatively, BMP bitmap graphics can be uploaded from a PC via the IP Link port, and recalled as a background. In addition, live video from a DVI source can also serve as the background to any presentation. Images stored on the MGP 462xi and MGP 464 can be downloaded to a PC through IP Link for archival use.

The MGP 462xi and MGP 464 feature full front panel controls for comprehensive, integrator and user-friendly access to all functions. Remote control is available via RS-232 with Extron SIS™ - Simple Instruction Set. IP Link Ethernet control enables remote management and support from any computer with a Web browser.

Camera

DVD

Control System

Remote Monitoring and Control

Extron MGP 464 DI Four Window Multi-Graphic Processor

TCP/IP Network

Preview Monitor

Projector

PC   PC   PC   PC

Overview

Image freeze control
Any selected input for each picture-in-picture window can be frozen, enabling extended viewing for analysis.

True 19x4 input matrix
Integrate up to 19 input sources, and then route any input signal source to any or all four on-screen windows.

Picture-in-picture memory presets
Custom picture-in-picture window configurations can be conveniently saved and recalled.

LCD interface
The user-friendly easy-to-read LCD display simplifies operation and control.

MGP 464 Front

Back-lit input selection buttons
Input selection buttons are easily identifiable using back-lit buttons with clear overlay labels, enabling simple front panel operation.

MGP 462xi
Two output windows on MGP 462xi version

Window selection buttons
These buttons enable selection of windows for picture and window adjustments.

Menu and Next
The Menu button steps through the set-up menus, while the Next button navigates within each set-up menu.

Picture and window adjustments
Adjustments for picture color, tint, brightness, contrast, and detail, as well as window position, size, and zoom, can be directly accessed through the front panel.

Fully configurable inputs
The MGP 462xi and MGP 464 feature four fully configurable inputs that accommodate a wide range of sources, including RGB, component video, S-video, and composite video.

Virtual video inputs
Configure these inputs for up to 15 composite video, five S-video, or five component video sources, or various customized combinations of all three formats.

RS-232 and RS-422 control
The MGP Series can be controlled and configured via the Extron Windows®-based control program, or integrated into third-party control systems.

IP Link Ethernet control enables the MGP Series to be managed and proactively monitored from any authorized Web client.

MGP 464 DI Back

High resolution input compatibility
The four fully configurable inputs accept computer-video resolutions up to WUXGA (1920x1200) as well as video sources including HDTV 720p, 1080i, and 1080p/60.

DVI and HD-SDI inputs
The MGP 462xi and MGP 464 are available with four DVI inputs, or two DVI inputs and two HD-SDI inputs, for integration of digital video sources into A/V systems.

DVI background input
This special DVI input is for providing live, high resolution background images for any presentation. Two or three MGP 462xi or MGP 464 units may be cascaded for large-scale applications that require six to 12 windows.
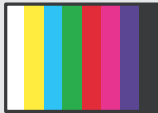
Analog RGB/Component Video and DVI Outputs
High resolution picture-in-picture video is output simultaneously as analog RGB/component video and DVI.
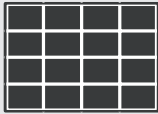
What's inside the MGP Series

Test Patterns

The MGP 462xi and MGP 464 offer several test patterns, including those shown below and others such as a crop pattern, ramp, white field, aspect ratio patterns, and a pattern for populating a 4x3 screen with 4x3 images. They also feature a blue-only mode for proper setup of video color and tint levels.
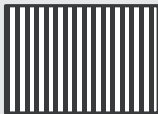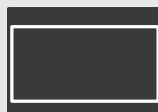
Color Bars (8)

Crosshatch 4x4

Grayscale

Alt Pixels

4x3 Side-by-side Crop

16x9 Side-by-side Crop

16x9 Pattern w/ 4x3 Images

1.85 Aspect Ratio

High Resolution, Multi-Image Presentations

The MGP 462xi and MGP 464 deliver multi-image displays comprising high resolution multimedia and video, including HDTV, enabling enhanced possibilities for high impact, professional quality A/V communications. They feature reference quality scaling and proprietary, high resolution graphics processing for full compatibility with computer-video and HDTV sources, and optimum performance with the latest presentation displays.

Fully Configurable Inputs

The MGP Series features four fully configurable inputs on BNC connectors that accommodate RGBHV, RGBS, RGsB, RGBcvS, component video, S-video, or composite video. High resolution sources can include computer-video signals up to WUXGA (1920x1200), and HDTV up to 1080p/60.

True Input Matrix Switcher

A built-in matrix switcher allows any of up to 19 input signal sources to be routed to any, or all, on-screen windows—two for the MGP 462xi and four for the MGP 464. This provides total flexibility in creating, adapting, and controlling multi-window presentations.

Custom Picture-in-Picture Windows

The MGP 462xi and MGP 464 feature picture-in-picture window configurations that are fully customizable to the requirements of any application. Each of the available windows can display any connected input source, and can be independently positioned, sized, and zoomed. Picture adjustments are also available, including color, tint, brightness, contrast, and detail. Fine tuning controls on the front panel enable precise adjustments as necessary for the needs of the presentation. In addition, colors can be selected for the picture-in-picture background and window borders.
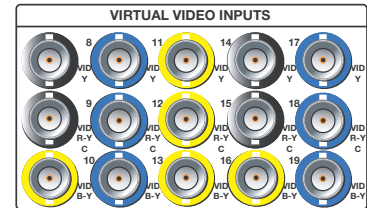
Graphic Still Store

Graphic Still Store is a powerful feature that captures any currently displayed output, and then stores the image in memory for use as a background. Additionally, BMP - bitmap graphics can be uploaded to the MGP 462xi and MGP 464 via the IP Link port, and recalled as a background. With Graphic Still Store, static images can be integrated with the four dynamic video or graphic windows for use in the multimedia presentations. Stored images can be downloaded to a PC as BMP files for archival purposes.

Live Video Background

In addition to Graphic Still Store, live, high resolution computer-video or HDTV from a DVI source can be used as a background to any presentation. The special DVI input connection for full-motion background images is also useful in cascading two or three MGP 462xi or MGP 464 units to create large-scale displays with six to 12 windows.

Virtual Video Inputs

In addition to the four fully configurable inputs, up to 15 virtual video inputs are available for component video, S-video, and composite video. The virtual video inputs accept up to 15 composite video sources, up to five component video sources, up to five S-video or five composite video connections, or wide-ranging combinations of all three formats to suit the requirements of various applications.

VIRTUAL VIDEO INPUTS

Composite   S-video   Component

Optional DVI and HD-SDI Inputs

The MGP 462xi and MGP 464 are available with four DVI inputs, or with two DVI inputs and two HD-SDI inputs. These inputs enable easy integration of digital video sources into A/V systems, and together with the DVI output, allows the MGP Series to operate within an all-digital video system. HD-SDI inputs facilitate integration of cameras and other professional video equipment.

Analog RGB/Component Video and DVI Outputs

The MGP 462xi and MGP 464 simultaneously output analog and digital - DVI - RGB computer-video or HDTV component video signals for compatibility with virtually any display device.

Scaled Output Resolutions

The MGP 462xi and MGP 464 offer 76 scaled output rates, including the following resolutions for computer-video, projectors, plasma and LCD monitors, and HDTV:

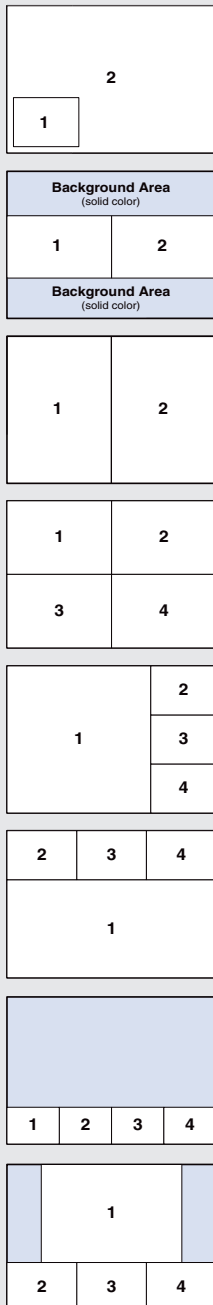|		
640x480	1360x765	1680x1050
800x600	1360x768	1920x1200
852x480	1365x768	480p
1024x768	1366x768	576p
1024x852	1365x1024	720p
1280x768	1400x1050	1080i
1280x800	1440x900	1080p
1280x1024	1600x1200	

Transition Effects

For professional quality presentations, windows can be transitioned into and out of the image. Customizable options are available, including dissolves, wipes, and cuts.

What's inside the MGP Series

Memory Presets

A total of 128 memory presets for picture-in-picture window configurations are available, including factory presets. These can be customized for quick saving of configurations and recall of size, positioning, and priority for both windows.

Text Overlay

Each picture-in-picture window can be labeled with a text label of up to 16 characters. The text can be uploaded to the MGP 462xi and MGP 464 via RS-232 or RS-422 control, or IP Link. Custom options are available for text positioning, text color, character size, translucent or opaque color background, and text border.

Freeze Control

Any input to a picture-in-picture window can be frozen via the front panel, RS-232 or RS-422 control, or IP Link. This feature enables the MGP 462xi and MGP 464 to capture frames of video or graphics to display for extended periods of time.

Auto-Image™ Setup

For expedited presentation set-up, the MGP 462xi and MGP 464 automatically optimize the image to the scaled output rate. This eliminates complex and time-consuming set-up procedures.
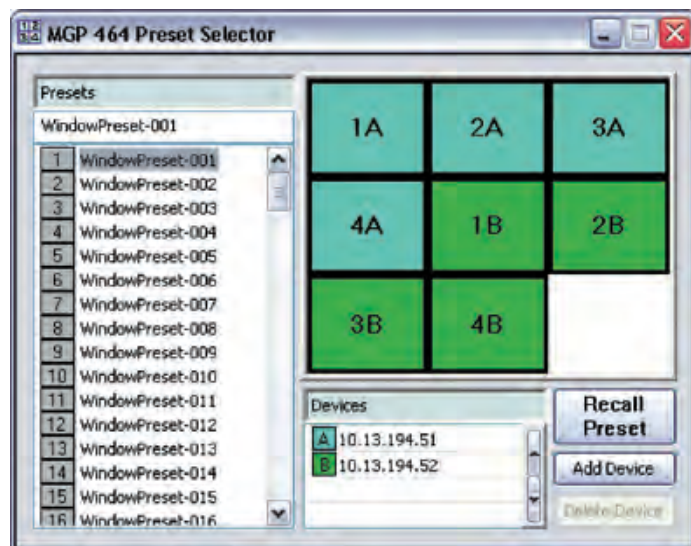
RS-232 and RS-422 Control

Through RS-232 and RS-422, the MGP Series can be controlled and configured via the Extron Windows®-based control program, or integrated into third-party control systems using Extron SIS™ - Simple Instruction Set serial commands.

Windows Control Software

The included Windows control software provides complete, real-time operation of the MGP 462xi and MGP 464. The software enables control of all functions and configuration options, including window sizing and positioning, virtual video input configuration, and Graphic Still Store. A graphic interface is included for visualization of picture-in-picture windows as they are dynamically sized and positioned.

IP Link

IP Link is a high performance intelligent network integration solution developed by Extron. Ethernet-enabled A/V products, such as the MGP Series, can be managed and supported by a technician or administrator at any time from any authorized Web client. IP Link enables network exchange of BMP image files between the MGP 462xi or MGP 464 and a PC, as well as remote access to functions and status parameters, including the internal operating temperature and the horizontal and vertical sync frequencies for any input. IP Link also provides for saving and recalling of window presets, as well as picture-in-picture customization and configuration of the virtual video inputs.

Preset Selector Tool

The MGP Preset Selector software lets a user quickly and easily recall window presets. The software can be used on any PC with an RS-232 or Ethernet connection to an MGP 462xi or MGP 464. To recall a preset, the user simply opens up the program, selects any of the 128 available presets, and then clicks a button to recall to the window layout. A preview pane is provided which shows a graphical layout of the windows associated with the selected preset.

Up to three MGP 462xi or MGP 464 units can be connected to the PC at the same time. The Preset Selector software is especially useful for quickly setting up MGP units that are cascaded together.

Key Features & Applications

Graphic Still Store

Graphic Still Store is a powerful feature that captures any currently displayed output, and then stores the image in memory for use as a background. Additionally, BMP - bitmap graphics can be uploaded to the MGP 462xi and MGP 464 via the IP Link Ethernet port, and recalled as a background.

In teaching hospitals, for example, the MGP Series seamlessly combines the wide range of high resolution computer-video sources, such as CAT scans, MRI images, and vital signs monitor outputs, with standard definition or high definition, full-motion video. A real-time, high resolution x-ray is displayed alongside a live camera feed of the surgery. Other sources may include an EKG and other measurements from the vital signs monitor, as well as CAT scans, ultrasound, and MRI images, recalled from the hospital's central image management system.

The MGP 462xi and MGP 464's Graphic Still Store is used here to provide a custom background graphic with the patient's name, ID number, and details about the case. This frees the four live windows for display of the dynamic, real-time video and computer-video information vital to the hospital's training mission.
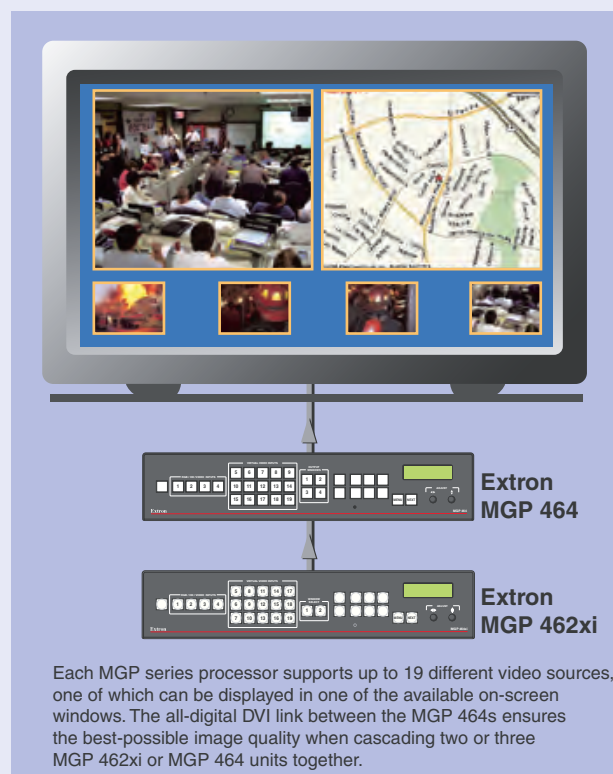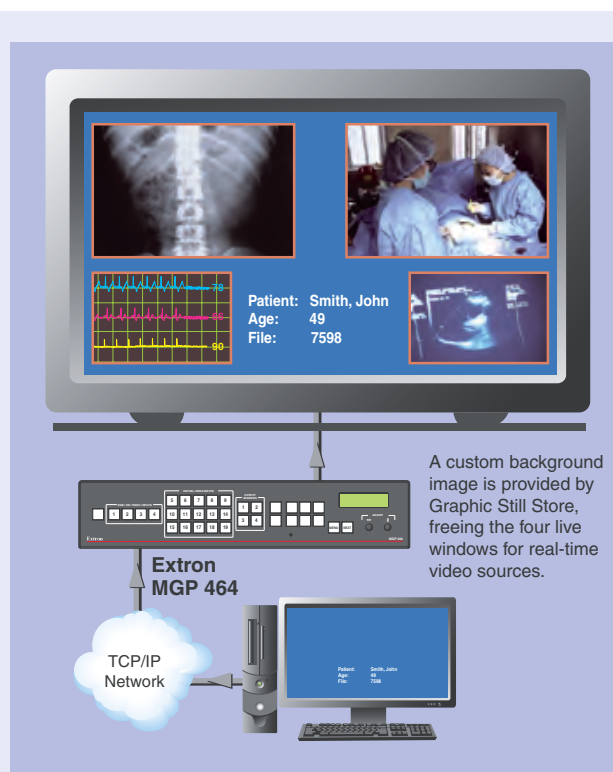
Medical facilities also benefit substantially from the capability to download, through IP Link, images captured and stored on the MGP 462xi and MGP 464. This secondary aspect of Graphic Still Store is useful in documenting case studies and archiving important visual records for future reference.

Extron MGP 464

TCP/IP Network

Patient: Smith, John
Age: 49
File: 7598

A custom background image is provided by Graphic Still Store, freeing the four live windows for real-time video sources.

Live Video Background

In addition to Graphic Still Store, live, high resolution computer-video or HDTV from a DVI source can be used as a background to any presentation. This dedicated DVI input connection for full-motion background images is useful in cascading two or three MGP 462xi or MGP 464 units to create large-scale displays with six to 12 windows.

Fast-paced environments, such as those found in emergency operations and command-and-control centers, require the ability to quickly and accurately display multiple video and graphic images simultaneously. In this example, the display of six windows is created by cascading an MGP 462xi and an MGP 464 by connecting the DVI output of one unit to the DVI Background Input of the other.

As illustrated, a graphic image of a map, sourced from a PC, provides detailed information about the location of the emerging crisis. Adjacent to the map is a live video feed of the center's director providing response instructions for the operations center staff. Below the two main windows is a row of four small windows showing various live video feeds from the scene, any one of which can be immediately enlarged to fill the screen. Up to 38 video sources, 19 from each MGP Series unit, are available to the system operator. Depending on the need and application, an additional MGP 464 unit may be cascaded to add four more windows to the display.

Extron MGP 464

Extron MGP 462xi

Each MGP series processor supports up to 19 different video sources, one of which can be displayed in one of the available on-screen windows. The all-digital DVI link between the MGP 464s ensures the best-possible image quality when cascading two or three MGP 462xi or MGP 464 units together.

Key Features & Applications

Videoconference, Distance Learning, and Corporate Applications

The MGP 462xi and MGP 464 are used in corporate presentation and distance learning applications to combine near end and far end video sources with high resolution graphics. Here, the main window displays the far end presenter. At the lower left is one of the high resolution data images being presented. Also on screen are windows for the near end video source and additional far end participants. In applications such as this, the text overlay feature of the MGP Series is effective in identifying the locations and participants from each location. Using serial control or IP Link, text labels can be customized to the content of each window. With formal presentations, such as those typically found in corporate environments, windows can be set to appear into and disappear from the display using a variety of attractive visual effects, including wipes, reveals, and dissolves.

Courtroom Applications

For proceedings in a modern courtroom with advanced A/V presentation technologies, the MGP 462xi and MGP 464 provide lawyers with the ability to incorporate and combine several of their multimedia sources, including evidence documentation, into a powerful, compelling presentation. Illustrated is a prosecutor's three-window presentation of a re-enacted auto collision, alongside a live transcript of the proceeding. The presentation includes an animated re-enactment of the accident scene, presented as a high resolution graphic source from a PC, along with video camera recordings shot on location from the vantage point of each vehicle involved in the accident. The MGP 464's multi-window output can be distributed to projectors and flat panel displays located throughout the courtroom for counsel, the judge, the witness stand, and the jury. A second, parallel output is available to record the proceedings for archival purposes.

Specifications

VIDEO INPUT

Number/signal type	4 VGA-WUXGA RGBHV, RGBS, RGsB, RsGsBs, RGBcvS, component video (interlaced or progressive), S-video, composite video
	4 to 15 (configurable) component video (interlaced), S-video, or composite video
	4 single link DVI digital video (MGP 464/MGP 462xi DI only)
	2 HD-SDI digital video, 2 single link DVI digital video (MGP 464/MGP 462xi HD-SDI only)
Connectors	
Inputs 1-4	(4) x 5 female BNC (all models)
	4 female DVI-I (DI models only)
	2 female HD-SDI, 2 female DVI-I (HD-SDI models only)
Inputs 5-19	15 female BNC
Resolution range	640x480 to 1920x1200*, 480p, 576p, 720p, 1080i, 1080p

*Only the reduced blanking version of the 1920x1200 resolution is sampled at full bit rate.

HD-SDI models accept the resolutions listed above on the non- HD-SDI inputs. The HD-SDI inputs, themselves, accept only the following resolutions:
720p[2,4,5,6,7], 1080i[5,6,7], 1080p[1,2,3,4]
[1] = at 24 Hz, [2] = at 25 Hz, [3] = at 29.97 Hz, [4] = at 30 Hz, [5] = at 50 Hz, [6] = at 59.94 Hz, [7] = at 60 Hz

VIDEO OUTPUT

Number/signal type	1 scaled RGBHV, RGBS, RGsB, HD YUV component video
Connectors	5 BNC female, 1 DVI-I female
Scaled resolution	640x480[1,2,3,4,5,6], 800x600[1,2,3,4,5,6], 852x480[1,2,3,4,5], 1024x768[1,2,3,4], 1024x852[1,2,3,4], 1024x1024[1,2,3], 1280x768[1,2], 1280x800[1,2,3], 1280x1024[1,2], 1360x765[1,2], 1360x768[1,2], 1365x768[1,2], 1365x1024[1,2], 1366x768[1,2], 1400 x 1050[1,2], 1440x900[1,2,3], 1600 x 1200[1,2], 1680x1050[2], 1920x1200[1,2]
	HDTV: 480p[2,8], 576p[1], 720p[1,2,8], 1080i[1,2,8], and 1080p[1,2,7,8]

[1] = at 50 Hz, [2] = at 60 Hz, [3] = at 72 Hz, [4] = at 96 Hz, [5] = at 100 Hz, [6] = at 120 Hz, [7] = 24 Hz, [8] = 59.94 Hz
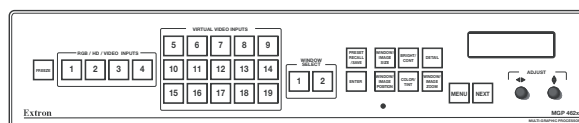
SYNC

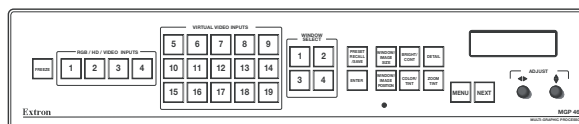|	
Input type	RGBHV, RGBS, RGsB, RsGsBs, RGBcvS, YUV (tri-level or bi-level on Y channel)
Output type	RGBHV, RGBS, RGsB, YUV (tri-level or bi-level on Y channel)
Input standards	NTSC 3.58, NTSC 4.43, PAL, SECAM, SMTPE 292M
Input level	2.75 V to 5.0 Vp-p for RGBHV or RGBS
	0.6 Vp-p for component video tri-level sync
	0.3 Vp-p for component video bi-level sync or RGsB
Output level	0.6 Vp-p for component video (tri-level sync)
	TTL: 5.0 Vp-p, unterminated for RGBHV, RGBS

CONTROL/REMOTE — PROCESSOR/DECODER/SCALER

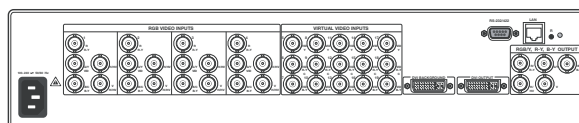|	
Serial control ports	(1) RS-232 or RS-422, 9-pin female D connector
	(1) RS-232, 2.5 mm mini stereo jack
Baud rate and protocol	300 to 115200 baud (default: 9600), 8 data bits, 1 stop bit, no parity
Ethernet control port	1 RJ-45 female connector
Ethernet data rate	10/100Base-T, half/full duplex with autodetect
Ethernet protocol	ARP, DHCP, ICMP (ping), TCP/IP, Telnet, HTTP, SMTP
Program control	Extron's Simple Instruction Set (SIS™)
	Microsoft® Internet Explorer, Telnet
	Extron's control/configuration program for Windows®

GENERAL

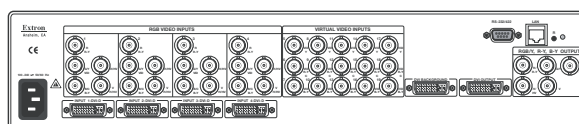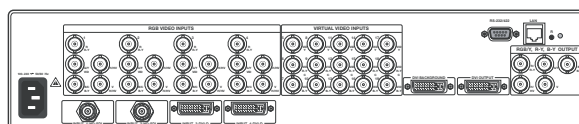|	
Power	100 VAC to 240 VAC, 50-60 Hz, 30 watts, internal
Temperature/humidity	Storage: -40 to +158 ˚F (-40 to +70 ˚C) / 10% to 90%, noncondensing
	Operating: +32 to +122 ˚F (0 to +50 ˚C) / 10% to 90%, noncondensing

MGP 462xi - Front

MGP 464 - Front

MGP 462xi / MGP 464 - Back

MGP 462xi DI / MGP 464 DI - Back

MGP 462xi HD-SDI / MGP 464 HD-SDI - Back

Cooling	Fan, right to left (as viewed from the front panel)
Mounting	Rack mountable with included brackets
Enclosure dimensions (per unit)	3.4" H x 17.5" W x 12.0" D (2U high, 1 rack wide) (8.6 cm H x 44.5 cm W x 30.5 cm D) (Depth excludes connectors and knobs. Width excludes rack ears.)
Product weight	8.5 lbs (3.9 kg)
Vibration	ISTA 1A in carton (International Safe Transit Association)
Regulatory compliance	
Safety	CE, CUL, UL
EMI/EMC	CE, C-tick, FCC Class A, ICES, VCCI
Environmental	Complies with the appropriate requirements of WEEE.
MTBF	30,000 hours
Warranty	3 years parts and labor

NOTE: All nominal levels are at ±10%.
NOTE: Specifications are subject to change without notice.

Model	Version Description	Part number
MGP 462xi	Two Windows, Standard Version	60-1023-01
MGP 462xi DI	Two Windows, With 4 DVI Inputs	60-1023-02
MGP 462xi HD-SDI	Two Windows, 2 HD-SDI & 2 DVI Inputs	60-1023-03
MGP 464	Four Windows, Standard Version	60-771-01
MGP 464 DI	Four Windows, With 4 DVI Inputs	60-771-02
MGP 464 HD-SDI	Four Windows, 2 HD-SDI & 2 DVI Inputs	60-771-03

Specifications are subject to change without notice.