

Extron® Electronics

INTERFACING, SWITCHING AND DISTRIBUTION



SGS 408 - SEAMLESS GRAPHIC SWITCHER

Seamless video and computer switching

Twelve transition effects

Eight component and RGB inputs

Two program and two preview scaled outputs

Brightness, contrast, centering, and filtering controls for each input

16 auto recall picture set-up memories per input

Four test patterns

128 Picture setup memories for manual recall

Remote control options

Multi screen event control options



APPLICATIONS

Extron's **SGS 408** is an eight input, high-resolution component and RGB video matrix switcher that provides seamless cuts, dissolves, wipes, and titles as well as scaling capabilities to bring professionalism and style to live multimedia events and presentations. The **SGS 408** is designed for staging, and rental, applications where it performs seamless cuts and digital, presentation-quality transition effects during switches between multiple sources to a common projector. The **SGS 408** incorporates two high performance video scalers as well as a digital video mixer and can handle component video and any type of RGB input from video sources up to high-resolution workstations. Twelve, "dissolve," "wipe," and "title" effects are provided to further enhance the professional look of shows and presentations.

The **SGS 408** accepts component video and both interlaced and non-interlaced RGB formats with resolutions from 560 x 384 up to 1600 x 1200 with scan rates of 15 kHz up to 100 kHz. Eight component RGB inputs are provided with five BNC connectors each to ensure maximum system flexibility. Two different output signals are available. The first output is the "program" output for viewing by the audience. The "program" signal is available simultaneously on five BNCs and a 15-pin HD connector. It is also available on an optional Digital Visual Interface (DVI) connector. The second output is the "preview" output for viewing "next to switch" sources by the switch operator on a local monitor. The "preview" signal is available simultaneously on a five BNC output and a 15-pin HD connector.

The switch operator uses two sets of input buttons: one set controlling the "program" output and the other controlling the "preview" output. The switch operator can view the next switch by selecting it through the "preview" keys. At that time the operator can seamlessly switch the "preview" to the "program" output or choose a digital transition effect to use when the physical switch is made.

To achieve the highest quality presentation on LCD, DLP, and plasma displays, input signals must be converted to a common, high resolution signal. To optimize image quality as well as maintain maximum image brightness and detail, inputs need to be scaled to RGB resolutions that match the "sweet spot" or native resolution of the digital display being used. Using advanced digital video scaling technologies, the **SGS 408** scales component and RGB inputs to one of eighteen common computer-video, progressive HDTV, or plasma resolutions.

For control, the **SGS 408** offers front panel buttons, optional **RCP 1000** remote control panel, optional **ECP 1000** event control panel, and RS-232 control. The **RCP 1000** enables complete control over the switching functions of the **SGS 408** from a remote location.



RCP 1000



ECP 1000

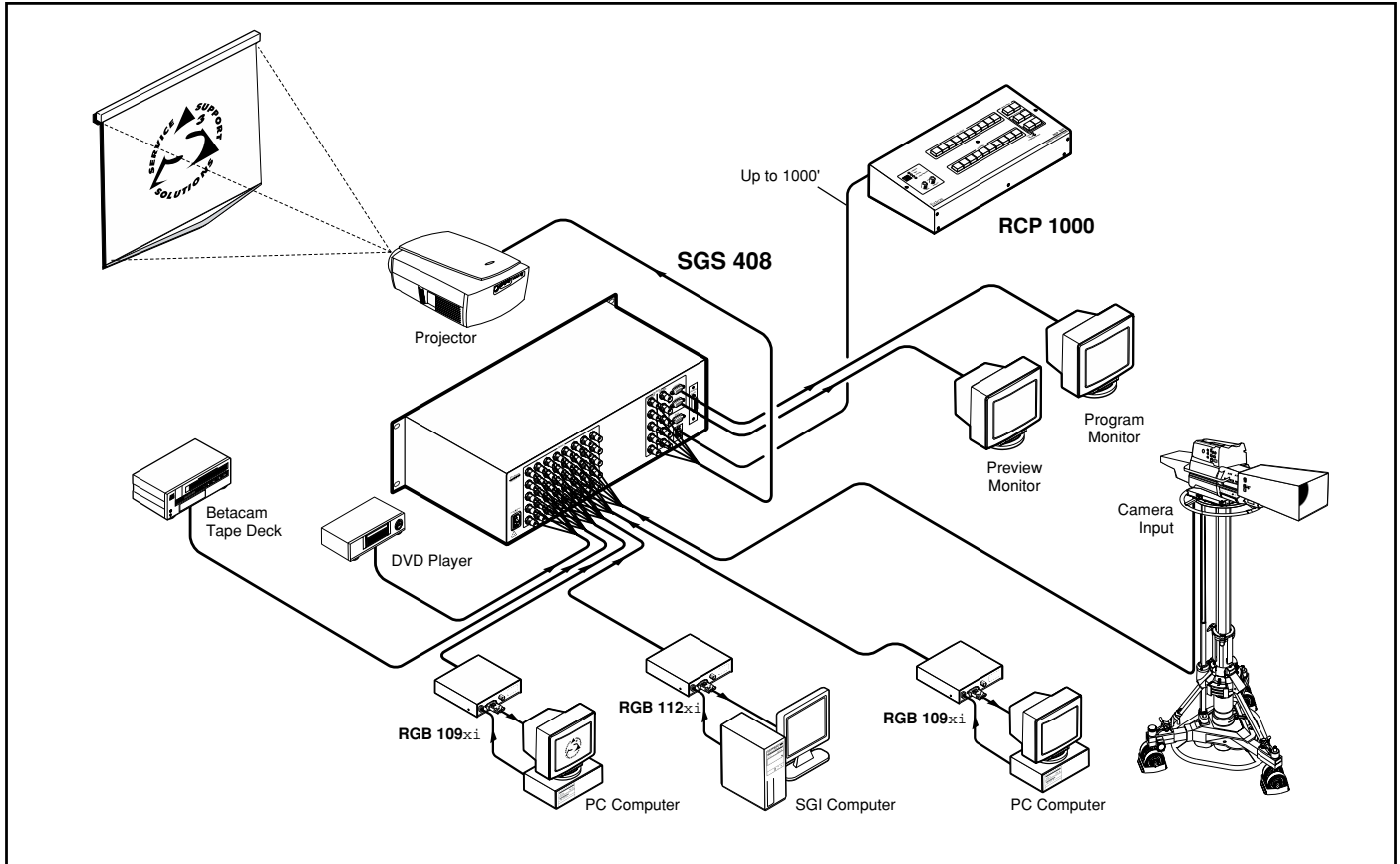
Many staging and rental applications require a device to simultaneously switch sources on multiple screens. The **ECP 1000** enables complete control over three **SGS 408** switchers, allowing them to perform simultaneous scaling, seamless cuts, and digital switching effects for three displays with the T-Bar Transition Controller. The **ECP 1000** may be used in conjunction with the **RCP 1000**. Extron's Simple Instruction Set™ is provided for RS-232 control via third-party control or Extron's Windows®-based control program.

FEATURES

- **High resolution seamless switching** – A seamless "cut" eliminates the noise and display relocking caused by switching between unsynchronized inputs.
- **Digital transition effects** – Twelve "dissolve," "wipe," and "title" effects are provided. Each effect provides a user-adjustable duration ranging up to five seconds.
- **Inputs** – Accepts up to eight component video, RGsB, RGBS, or RGBHV sources on BNCs from 15 kHz to 100 kHz.
- **Outputs** – Two program and two preview scaled outputs. Each "program" or "preview" output is provided simultaneously on five BNCs and one 15-pin HD connector; "program" output is also available on optional DVI connector.
- **Scaled output resolutions** – The **SGS 408** offers computer-video output rates: 640 x 480, 800 x 600, 832 x 624, 1024 x 768, 1280 x 1024, and 1360 x 1024. For plasma displays, the **SGS 408** features these plasma rates: 848 x 480, 852 x 480, 1280 x 768, and 1360 x 765. The **SGS 408** also provides HDTV 720p, 1080i, and 1080p output rates.
- **Picture controls** – Brightness, contrast, horizontal & vertical shift, horizontal & vertical centering, freeze frame, eight user-selectable levels of horizontal filtering, and five user-selectable levels of vertical filtering are provided and stored for each input.
- **Memory locations** – 16 auto recall memories provided for saving all picture adjustment settings.
- **128 picture setup memories for manual recall.**
- **RS-232 remote control** – Extron's Simple Instruction Set™ is provided for RS-232 control via third-party control or Extron's Windows®-based control program.
- **RCP 1000 port** – A 4-pin XLR connector is provided for connection to a **RCP 1000**, which allows remote control of the switcher up to 1000 feet away using Extron's Comlink cable.
- **ECP 1000 port** – A 9-pin D connector is provided for connection to an **ECP 1000** event control panel up to 50 feet away for multi-screen effects.
- **Executive mode** – Locks out all front panel functions; all other functions, however, remain active through RS-232.

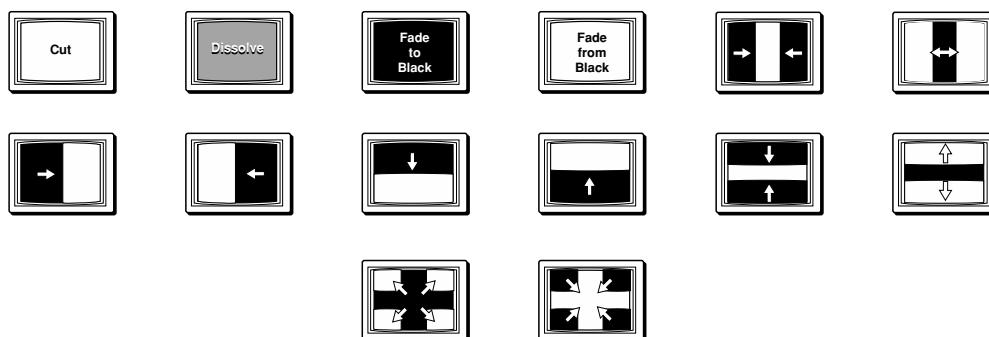
Staging Application Using the SGS 408

This application diagram depicts a staging presentation controlled by the SGS 408. Sources include a Betacam tape deck, a DVD player, two PCs, a SGI computer, and a video camera. The SGS 408 sends the “program” output to the large-screen projector and a PC monitor. The “preview” output is sent to a second PC monitor.



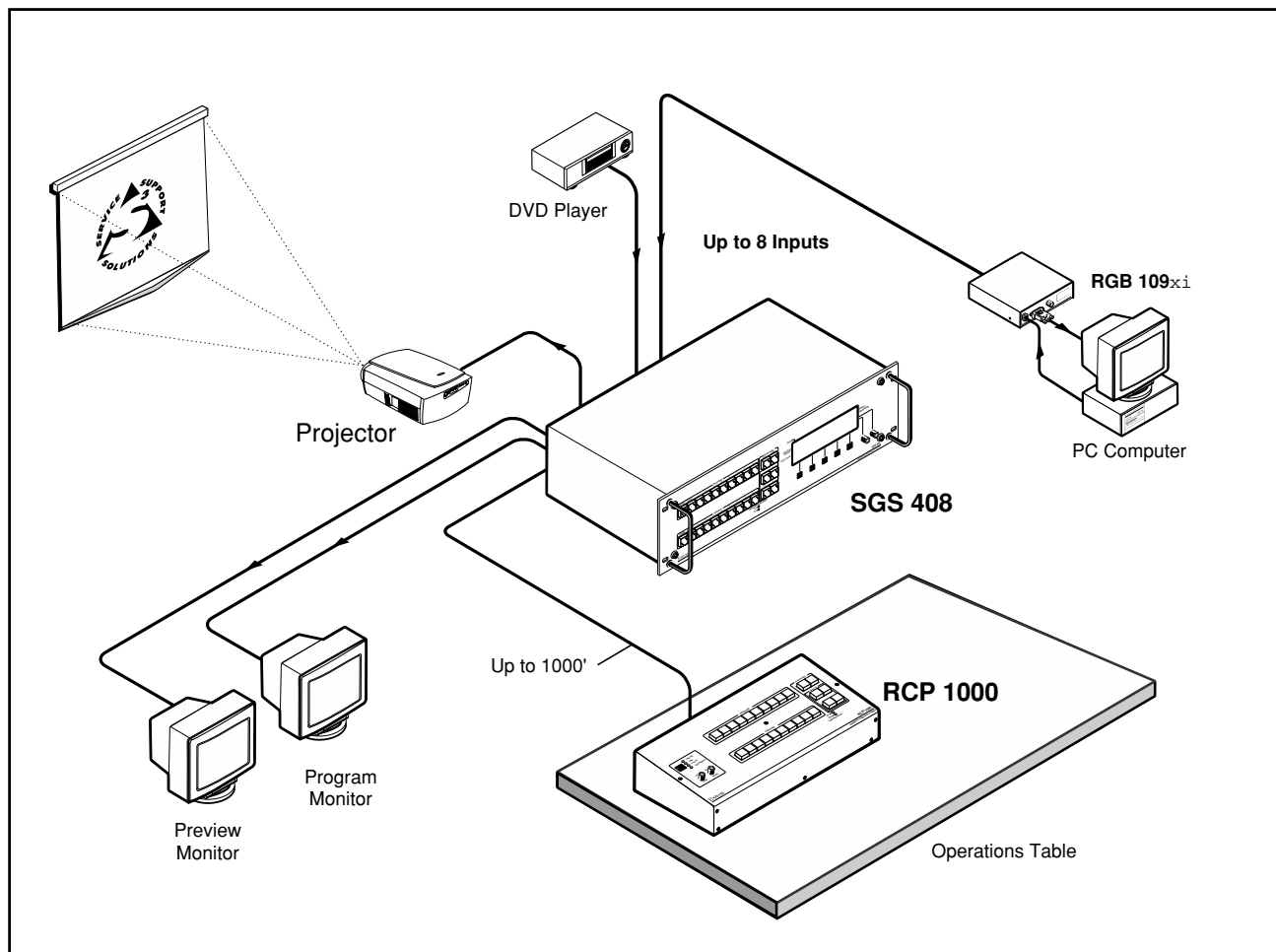
Effect Examples

When the SGS 408 switches between sources, the user has a choice of a seamless “cut” and twelve “dissolve,” “wipe,” and “title” effects for professional-quality transitions.



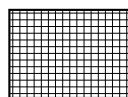
Staging Application Using the SGS 408 and RCP 1000

This application diagram depicts the same application as pictured on the left with remote control by Extron's RCP 1000 remote control panel. The RCP 1000 enables total control over the switching and picture control functions of the SGS 408. For convenient control of the show by the switch operator, the RCP 1000 is designed to be placed on the operator's table up to 1000 feet from the SGS 408 allowing the SGS 408 to be rack-mounted. The RCP 1000 has bi-directional communications with the SGS 408, allowing switches and adjustments from one device while the other device is updated. All changes may be made remotely from the RCP 1000. This is useful when there are last-minute sources added right before the presentation begins—no need to adjust the rack-mounted SGS 408. Using the RCP 1000, the user optimizes the image using the preview monitor, and the adjustments are automatically saved. 16 setup memories per input may be automatically saved for auto-recall. Using a preview monitor is convenient because the user can check the signals coming from different sources. This is especially handy when laptops are used, so the user can ensure that the external video output is active for each laptop.

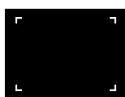


Test Pattern Output

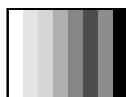
The SGS 408 provides four test patterns: crop, cross-hatch, greyscale and color bars. Each pattern may be output on both the "program" and "preview" or only the "preview." By allowing the "crop" test pattern to be shown on the preview screen only, the switch operator can then insure picture alignment before switching.



Cross Hatch



Crop



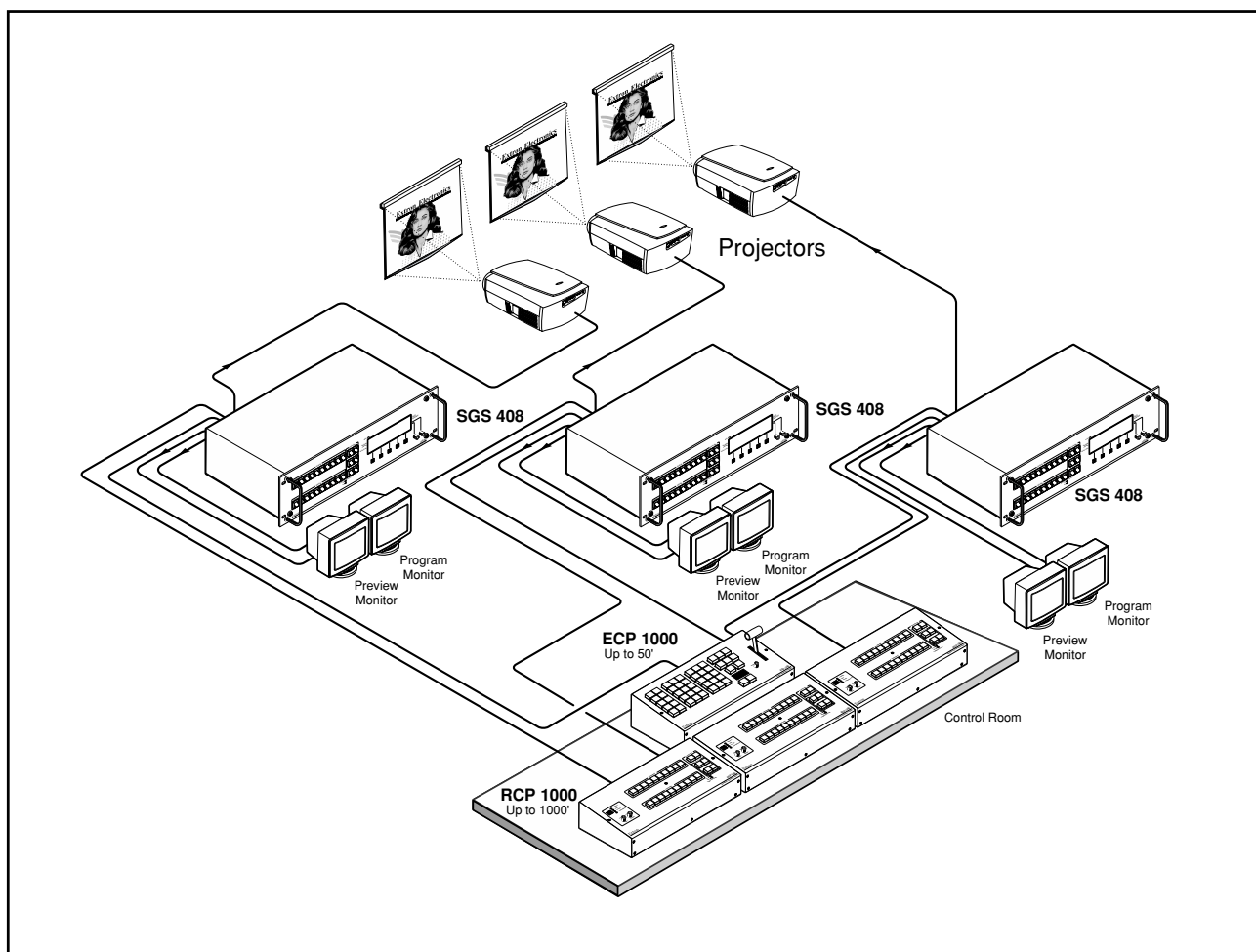
Color Bars



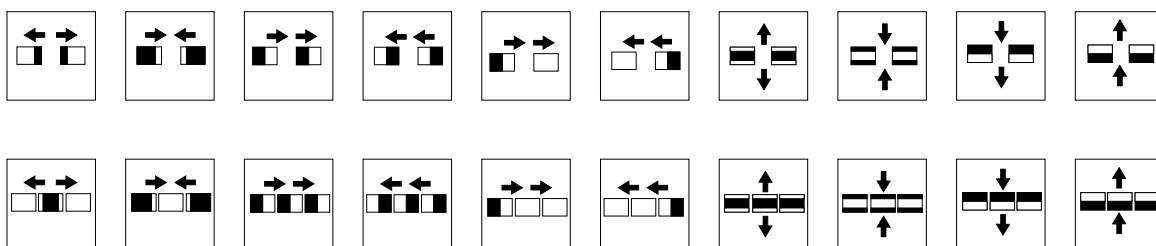
Greyscale

Staging Application Using the SGS 408, RCP 1000 and ECP 1000

This application diagram depicts a staging presentation with three SGS 408s controlled by three RCP 1000's and an ECP 1000. The operator can use the RCPs to select sources and the ECP 1000 to initiate cuts, wipes, and transitions. The ECP 1000 enables complete control over the digital switching effects of up to three SGS 408s, allowing for simultaneous cuts, dissolves, and wipes that are timed and synchronized on multiple screens. The ECP 1000 even allows transition effects across multiple screens and also offers Extron's special *T-Bar Transition Controller* for manual control of single and multi-screen events. By controlling the SGS 408s, the ECP 1000 cuts, dissolves, and wipes one, two, or three screens, enabling effects to take place on each screen simultaneously or move sequentially across the screens in a specific direction, such as a left-to-right wipe starting on the first screen and ending on the third. For total control of the show, the operator can manually control all effects using the *T-Bar Transition Controller*. The ECP 1000 provides 40 multi-screen transition presets, each selectable with a one-button push. 30 of these presets hold preprogrammed switching sequences, and 10 are user-programmable. The ECP 1000 includes Windows®-based software to allow the user to create any combination of effects and store the sequence as a preset (preprogrammed presets can be overwritten).



ECP 1000 Multi-Screen Effect Examples



SPECIFICATIONS

Video input

Number/signal type	8 RGBHV, RGBS, RGsB, component video
Connectors	8 x 5 BNC female
Nominal level(s)	0.7V to 1.0 V p-p
Minimum/maximum level(s)	0V to 2V p-p
Impedance	75 ohms
Horizontal frequency	Autoscan 15 kHz to 100 kHz
Vertical frequency	Autoscan 50 Hz to 120 Hz
Resolution range	Autoscan 560 x 384 to 1600 x 1200
Maximum DC offset	0.5V

Video throughput

Routing	8 x 2 matrix
Gain	0.75V

Video processing

Digital sampling	24 bit, 8 bits per color; 140 MHz standard
Horizontal filtering	8 levels
Vertical filtering	5 levels

Video output

Number/signal type	RGBHV, RGBS, RGsB
Connectors	10 BNC female, 2 15-pin HD female, 1 DVI (optional)
Nominal level	0.7V to 1V p-p
Minimum/maximum level(s)	0V to 0.75V p-p
Impedance	75 ohms
Scaled VGA resolution.....	640x480*†, 800x600*†, 832x624*†, 848x480*, 852x480*†, 1024x768*†, 1280x768‡, 1280x1024*, 1360x765*, 1360x1024*, 480p, 720p, 1080p, and 1080i
	* = at 60 Hz † = at 75 Hz ‡ = at 56 Hz
Frame rate delay	0-1 frame

Sync

Input type	RGBHV, RGBS, RGsB, component video
Output type.....	RGBHV, RGBS
Input level	3.0V to 5.0V p-p
Output level	TTL 5.0V p-p
Input impedance	510 ohms
Output impedance	75 ohms
Max input voltage	5.0V p-p
Polarity	Negative

Control/remote — switcher

Serial control port	RS-232 and RS-422, 9-pin female D connector
Baud rate and protocol	9600, 8-bit, 1 stop bit, no parity
Serial control pin configurations ..	2 = TX, 3 = RX, 5 = GND
RCP port	4-pin XLP connector
Program control.....	Extron's control program for Windows® Extron's Simple Instruction Set – SIS™

General

Power	100VAC to 240VAC, 50/60 Hz, 60 watts, internal, auto-switchable
Temperature/humidity.....	Storage -40° to +158°F (-40° to +70°C) / 10% to 90%, non-condensing Operating +32° to +122°F (0° to +50°C) / 10% to 90%, non-condensing
Rack mount.....	Yes, 3U high
Enclosure type	Metal
Enclosure dimensions	5.1" H x 17.5" W x 10.5" D 13.0 cm H x 43.2 cm W x 26.7 cm D
Shipping weight	19 lbs (8.6 kg)
Vibration	NSTA 1A in carton (National Safe Transit Association)
Approvals.....	CE, CUL, UL, FCC Class A
MTBF	30,000 hours
Warranty	2 years parts and labor

Part number

SGS 408	60-341-01
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OPTIONAL ACCESSORIES

DVI output option	70-122-01
RCP 1000 remote control panel ..	60-343-01
ECP 1000 event control panel.....	60-344-01



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