Extron® Electronics

INTERFACING, SWITCHING AND DISTRIBUTION

Converts one RGB rate
to any of 33 other
standard rates

Compatible with HDTV
and digital displays

Accu-RATE Frame Lock
(AFL™)

Four levels of horizontal detail

Eight levels of vertical detail

Dual input, dual output

Freeze/reset button

Memory presets for
picture controls

RS-232 control

DDS 402 – DIGITAL DISPLAY SCALER

SERVICE SUPPORT 3 SOLUTIONS

DESCRIPTION

The **DDS 402** is the newest generation of digital display scalers from Extron. Using proprietary scaling and image optimization technologies, the high-performance DDS 402 scales computer and component video signals up or down to any of 33 standard output rates. The DDS 402 is ideal for use with digital displays, including video walls, LCDs, DLPs, and plasma displays.

For scaling inputs up, the DDS 402 takes the horizontal and vertical sync timing and number of lines for the low-resolution analog RGB input and converts them to match the native resolution of the projector or other display device, producing an undistorted, brighter looking picture. For scaling inputs down, the DDS 402 accepts any computer resolution up to 1600 x 1200, with horizontal scan rates up to 100 kHz and vertical scan rates up to 120 kHz, and converts it to match the native resolution of a lower-resolution display device. The DDS 402 offers these rates on the output: 640 x 480, 800 x 600, 832 x 624, 852 x 480, 848 x 480, 1024 x 768, 1280 x 768, 1280 x 1024, 1360 x 765, 1365 x 1024, 720p, 1080p, and 1080i. This capability is crucial when the application demands that computer video from high-resolution workstations be displayed on lower-resolution displays such as video walls, LCDs, DLPs, and plasma displays. Using the DDS 402, video created on SGI or Sun workstations can be viewed on plasma displays. For home theaters, the DDS 402 features HDTV 720p, 1080p, and 1080i outputs.

To optimize the output image quality, the DDS 402 is equipped with Extron's proprietary Accu-RATE Frame Lock (AFL™) scaling technology. AFL solves frame rate conversion issues experienced by video scalers. When input and output refresh rates differ, there are certain points in time when the two rates cross over each other. The result is usually a glitch or image freeze on the display. AFL solves this problem by locking the output frame rate to the input frame rate, resulting in superior performance, stability, and image quality.

The DDS 402 also offers a zoom feature that makes the scaler ideal for use in video wall applications. By pressing the zoom button and using the two rotary dials on the front panel, the image can be zoomed in and out up to 200% while keeping the image in its original aspect ratio. This feature lets users create a video wall effect using four displays and four DDS 402s by zooming all four of the DDS 402s to 200% and displaying one-fourth of the original image on each display.

DESCRIPTION (Cont.)

The rack-mountable DDS 402 has two video inputs for RGBHV, RGBS, RGsB, and component video: one on a female 15-pin HD connector (with buffered local monitor output) and one on five female BNCs. Video output (as RGBHV, RGBS, and HD component video) is available on five BNCs or a female 15-pin HD connector. DDS 402 features four levels of horizontal and eight levels of vertical user-selectable filters. Horizontal filtering helps prevent detail loss, and vertical filtering reduces flicker.

FEATURES

- **Display compatibility –** The DDS 402 is compatible with display devices such as VGA/SVGA monitors, HDTV devices, LCDs, DLPs, or plasma displays.

- **Input and loop-through connectors –** Input one accepts RGB signals on a female 15-pin HD connector and includes a buffered local monitor output. Input two accepts both RGB and HDTV/component video on female BNCs.

- **Scalable outputs –** The DDS 402 offers 33 standard output rates, including 640 x 480, 800 x 600, 832 x 624, 848 x 480, 852 x 480, 1024 x 768, 1280 x 768, 1280 x 1024, 1360 x 765, 1365 x 1024, 720p, 1080p, and 1080i. RGBHV, RGBS, and HDTV/component video are available simultaneously on five female BNCs or one female 15-pin HD connector.

- **Accu-RATE Frame Lock (AFL™) –** A technology exclusive to Extron that solves frame rate conversion issues experienced by video scalers. When video input and output refresh rates differ, there are certain points in time when the two rates cross over each other. The result is a glitch or image freeze on the display. AFL solves this problem by locking the output frame rate to the input frame rate.

- **Horizontal and vertical detail –** The DDS 402 offers four levels of horizontal detail and eight levels of vertical detail. Horizontal and vertical detail minimize the loss of picture fidelity.

- **Picture controls –** Brightness, contrast, zoom, horizontal and vertical sizing, and horizontal and vertical centering are available for picture adjustments.

FEATURES (Cont.)

■ **Freeze/reset button –** Any input of the DDS 402 can be frozen using the freeze button on the front panel. When the freeze button is pressed, it will light red, and the input that is selected will flash. Once an input has been frozen, the input to the unit can be removed, and the frozen output image will not be lost. This feature lets the DDS 402 be used as a still-store.

■ **Memory presets –** The DDS 402 memory feature allows the scaler to recall up to 30 user memory locations for centering, sizing, filtering, contrast, and brightness.

■ **Executive mode –** The DDS 402 features a reduced function mode that locks out all front panel functions except for input selection and centering controls; all functions, however, remain active through RS-232.

■ **RS-232 control –** A rear panel, RS-232 control port provides connection of the DDS 402 to a third-party control system.

■ **Simple Instruction Set (SIS™) –** Extron's SIS is a set of basic ASCII code commands that provide simple control through a third-party control system. Instead of programming in long obscure strings of code, SIS makes it easy to operate an Extron product using RS-232 control.

■ **Internal power supply –** The 100-240VAC, 50/60 Hz, auto-switchable internal power supply of the DDS 402 provides worldwide power compatibility.

APPLICATION DIAGRAM

Extron DDS 402

RS-232 Control

Projector

Plasma Display

HD Camera

PC Computer
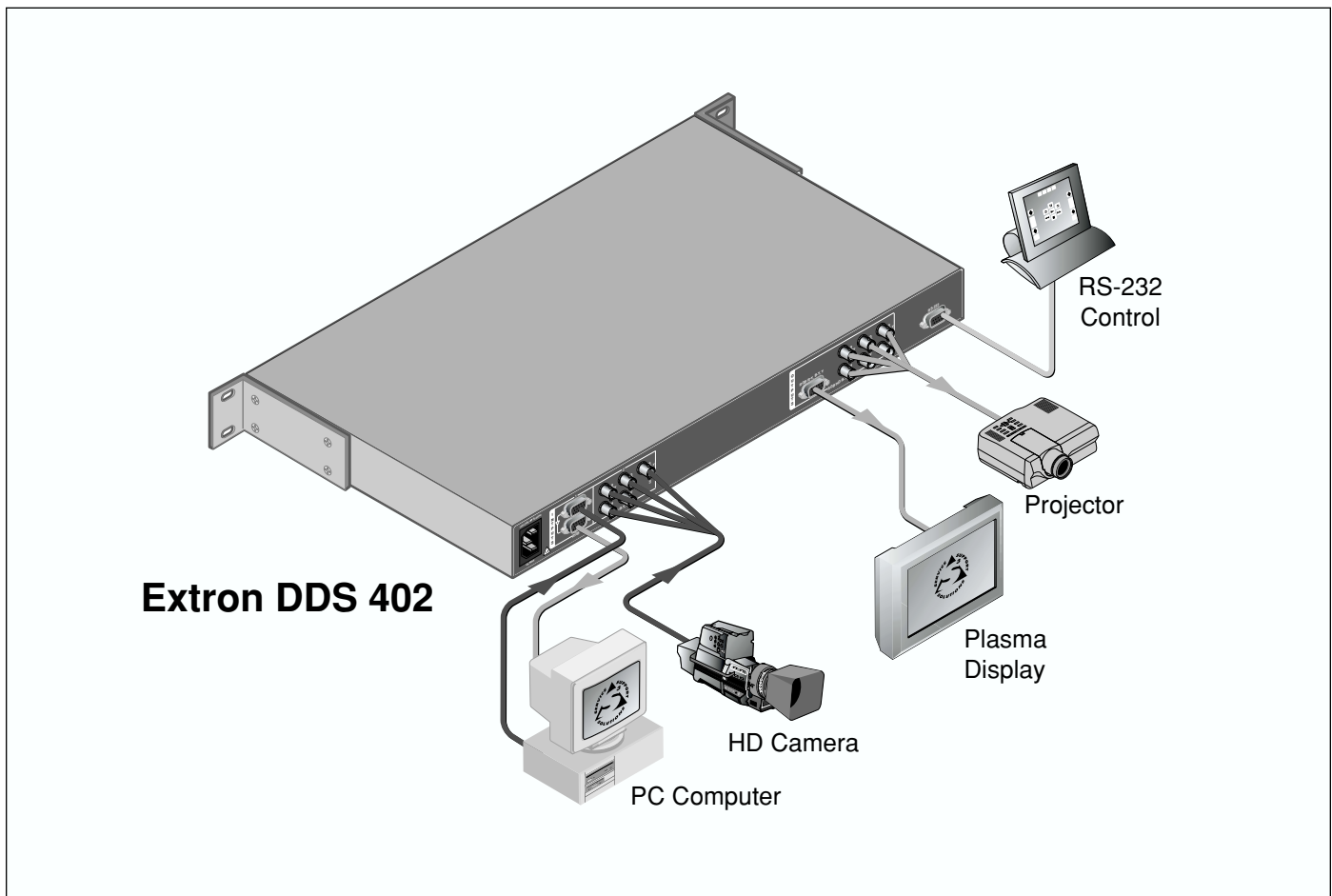
SPECIFICATIONS

Video input

Number/signal type.................. 1 RGBHV, RGBS, RGsB
1 RGBHV, RGBS, RGsB, component video

Connectors .... 1 15-pin HD female
5 BNC female

Minimum/maximum level(s).... Analog — 0.0 V to 2.0V p-p with no offset

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

Video processing

Digital sampling .... 24 bit, 8 bits per color; 140 MHz standard,
200 MHz zoom

Colors .... 16.8 million

Horizontal filtering .... 4 levels

Vertical filtering....................... 8 levels

Video output

Number/signal type.................. 1 RGBHV, RGBS, HD component
(Y, R-Y, B-Y)
1 1 RGBHV, RGBS, HD component
(Y, R-Y, B-Y)

Connectors .... 1 15-pin HD female
6 BNC female
1 15-pin HD female (buffered local
monitor output)

Minimum/maximum level(s).... 0.0V to 1.0V p-p

Impedance .... 75 ohms

Output resolutions 640x480, 800x600, 832x624, 848x480,
852x480, 1024x768, 1280x768,
1280x1024, 1360x765, 1365x1024, 720p,
1080p, and 1080i

DC offset .... ±50mV (max) with input at 0 offset

Sync

Input type .... RGBHV, RGBS, RGsB

Output type .... RGBHV, RGBS

Input level .... 0.0V to 5.0V p-p

Output level .... 0.0V to 5.0V p-p

Input impedance .... 75 ohms

Output impedance .... 510 ohms

Max input voltage .... 5.0V p-p

Polarity .... Composite sync: negative
H/V: user-selectable

Control/remote — video scaler/scan converter

Serial control port .... RS-232, 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

Program control .... Extron's control program for Windows®
Extron's Simple Instruction Set (SIS™)

General

Power .... 100VAC to 240VAC, 50/60 Hz, 30 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

Enclosure type.......................... Metal

Enclosure dimensions .... 1.75" H x 17.50" W x 12" D
4.5 cm H x 44.5 cm W x 30.5 cm D

Shipping weight .... 11 lbs (5 kg)

Vibration .... NSTA 1A in carton
(National Safe Transit Association)

Approvals................................. UL, CUL, CE, FCC Class A

MTBF...................................... 30,000 hours

Warranty .... 2 years parts and labor

Part Number

DDS 402..................................60-426-01