

# Annotator

## ANNOTATION GRAPHICS PROCESSOR

Annotation, Scaling and Switching  
in a Single Enclosure

- ▶ Real time annotation over high resolution PC and video graphics
- ▶ Configurable Preview and Program outputs
- ▶ Intuitive graphical user interface
- ▶ Hardware-based graphics and video processing
- ▶ RGB, HDTV, and video scaling
- ▶ Selectable output rates up to 1920x1200
- ▶ Compatible with popular touchscreen displays



**Extron® Electronics**  
INTERFACING, SWITCHING AND CONTROL

# Introduction

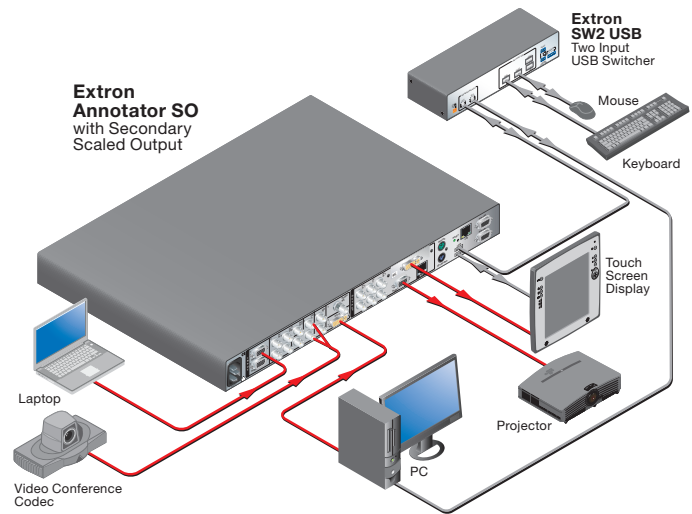
The **Extron Annotator** is a high performance, hardware-based annotation processor for video and computer-video sources. It allows the presenter to draw, point, or add text to electronic presentation materials using a touchscreen and/or a keyboard and mouse. The Annotator supports all common digital and analog video formats, from high resolution DVI, RGBHV, and optional HD-SDI to composite video. Input video is scaled and made available in a variety of output formats, including analog RGBHV and Extron MTP Twisted Pair, as well as optional DVI, 3G/HD-SDI, scan-converted video, or auxiliary scaled DVI-I. The Annotator is ideal for applications that require the overlay of graphics and text within AV presentations, including schools, law enforcement, medicine, telepresence, and live events.

## Create Real Time Annotations with a User Friendly Interface

An intuitive graphical user interface enables real-time annotations with ease. The user friendly on-screen display provides quick access to essential annotation tools for drawing freehand or lines, adding rectangular or elliptical shapes, typing in text, and highlighting any area of the presentation. An enlarged arrow cursor is also available for pointing to objects on-screen. Additionally, a presenter can isolate a specific area of the presentation by creating a "spotlight" with the image darkened around it. Various customization tools are available, including sizing and coloring for text and graphics. Additional annotation options include the capability to zoom and pan within the image, freeze a live image, and save an image with annotation to a file.

## Compatible with Popular Touchscreen Displays

Annotating over motion video or still images is easy using common touchscreen monitors, as well as any standard keyboard and mouse. Two USB ports are provided and multiple touchscreens can be used simultaneously with the Annotator via USB hubs.



## High Performance Video Processing

The Annotator employs hardware-based graphics and video processing that delivers the performance and operational reliability demanded in mission-critical applications. It features a high performance 30-bit scaling engine with the ability to scale standard definition video, high definition video, and computer-video signals up or down in resolution. It outputs RGB or component video at selectable output rates from 640x480 to 1920x1200 resolution, as well as HDTV up to 1080p/60.

## Seven Input Presentation Switcher

To accommodate a variety of sources, the Annotator features a seven input switcher that accepts composite video or S-video, component video, HDTV, high resolution computer-video, DVI, and optional SDI/HD-SDI. For increased system flexibility, the Annotator offers up to four simultaneous outputs, including two RGBHV or component video outputs, Extron MTP Twisted Pair output, and an optional output that can be ordered as DVI, 3G/HD-SDI, scan-converted video, or scaled DVI-I for supporting a touchscreen monitor.

## Configurable Preview and Program Outputs

One of the outputs from the Annotator can be a dedicated output for the presenter or system operator, with the remaining serving as outputs for the audience. The Preview output can be configured so that only the presenter or system operator can view the annotation GUI. The system operator can also use the Preview output to review annotations before sending them live through the Program outputs.





# Overview

## Integrated seven-input switcher

The Annotator accepts up to seven input sources, including composite video or S-video, component video, HDTV, high resolution computer-video, DVI, and optional SDI/HD-SDI.

## Glitch-free switching

A touch of a button engages a selectable cut or fade to black transition between RGB and video sources.

## Image freeze and capture

A live image can be frozen to facilitate annotations. Images with annotations can also be captured and stored on the Annotator or archived on a PC.

## User-friendly interface

An intuitive LCD interface, direct access buttons, and precise rotary controls simplify system set-up and operation.



Annotator 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.

## Picture adjustments

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

## Configurable high resolution inputs

The Annotator features three high resolution inputs that can be configured as RGB or HDTV component video.

## Optional SDI/HD-SDI input

This optional input facilitates integration of SDI and HD-SDI sources into analog AV systems.

## Optional DVI, 3G/HD-SDI, scan-converted, or scaled DVI-I output

A fourth output is available that can be configured with optional output boards for scan-converted video, DVI, 3G/HD-SDI, or scaled DVI-I.

## Supports popular touchpanel displays

The Annotator can also be used with a standard keyboard and mouse.

## RS-232 serial control

The Annotator can be controlled and configured via the Extron Windows-based control program, or integrated into a control system.



Annotator Back

## High resolution input compatibility

The high resolution inputs accept computer-video resolutions up to 1920x1200 as well as video sources including HDTV 720p, 1080i, and 1080p.

## Four simultaneous scaled outputs

Up to four simultaneous, scaled outputs are available at selectable output rates up to 1920x1200. The output can be selected as RGB or HDTV component video.

## Configurable Program outputs

The outputs can be configured so that the audience views annotated video or graphics through the Program outputs, while a Preview output provides the annotation GUI for a presenter or system operator.

## Twisted pair output

An Extron MTP Twisted Pair output allows for long distance signal transmission to a remote display over compact, economical CAT 5-type cable. An MTP Series receiver is required.

## Ethernet control

Monitor and control the Annotator over an IP network using the built-in Web server or the Extron Windows-based control program.

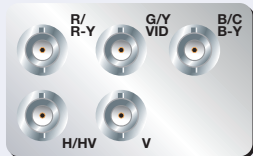
# Features

## Integrated Seven-Input Presentation Switcher Supports Multiple Video Formats, Simplifying System Design

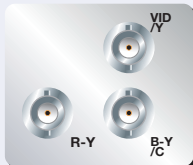
The Annotator allows for switching between DVI, RGBHV, component video, and S-video or composite video sources. An input for SDI/HD-SDI is available as an option.



Two 15HD inputs configurable for RGB, YUV-HD, YUVp



5-BNC input configurable for RGB, YUV-HD, YUVp, RGBcvs, YUVi, S-video, composite



3-BNC input configurable for YUVi, S-video, or composite video



2-BNC input configurable for S-video or composite video



DVI-D input



Optional SDI/HD-SDI input

## Create Real Time Annotations Over High Resolution PC and Video Graphics

The Annotator allows a presenter to draw, point, or add text in real time over live video and computer-video presentations.

## Hardware-Based Graphics and Video Processing

The Annotator features a fully hardware-based system architecture designed to deliver the performance and operational reliability essential for mission-critical applications.

## Intuitive Graphical User Interface

A user friendly on-screen display enables quick and easy annotation. Essential annotation tools are available for drawing freehand or lines, adding rectangular or elliptical shapes, typing in text, highlighting an area of an image, and pointing to an object on-screen. Customization options are available for text and graphics including point size and color.

## RGB, HDTV, and Video Scaling

RGB computer-video, high definition video, and standard definition video sources can all be scaled to the desired output resolution.

## Compatible With Popular Touchscreen Displays

The Annotator supports touchscreen displays from third-party manufacturers, and also can be used with a standard keyboard and mouse.

## Optional SDI/HD-SDI Input

SDI or HD-SDI signals from cameras or other professional video equipment can easily be integrated into presentations with the optional SDI/HD-SDI input board.

## Four Simultaneous Annotated Video Outputs

Two high resolution RGB or component video outputs are available, as well as Extron MTP Twisted Pair and an optional output that can be configured as DVI, 3G/HD-SDI, or scan-converted video.

## Extron MTP Twisted Pair Output

The Annotator provides built-in transmission of high resolution video signals over twisted pair cables for long distance transmission to a remote display. A compatible Extron MTP Series Twisted Pair Receiver is required.

## Output Rates From 640x480 to 1920x1200

A total of 81 output rates are available, including computer-video rates up to 1920x1200, HDTV up to 1080p/60, and 2048x1080.

## Optional DVI, 3G/HD-SDI, scan-converted, or scaled DVI-I output

In addition to the RGBHV and twisted pair outputs, a flexible output expansion port can be populated to support optional DVI, 3G/HD-SDI, scan converter, or scaler output boards. When populated, these boards serve as a third Program output and offer additional system capabilities, such as recording or digital signal transmission. The scaler output board delivers secondary scaled digital and analog video to support a touchscreen monitor.



Scaler output board



Scan converter output board



DVI output board



3G-SDI output board

## Image Freeze Control

A live image can be frozen using the annotation GUI, the freeze button on the front panel, or through RS-232 serial control and Ethernet control.

## Image Capture

An image can be captured as a snapshot of the live video output, including annotations, and stored as a BMP file on the Annotator or downloaded to a PC for archiving.

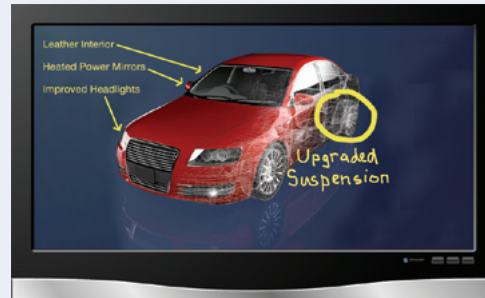
# Features

## Configurable Preview and Program Outputs

The outputs can be configured as separate Preview and Program outputs. The Preview output can allow only a presenter or system operator to view the annotation GUI, while the audience sees the video and annotation through the Program outputs. The Preview output can also be used by the system operator to preview annotations before making them live.



Preview output with GUI for Operator



Program output for main presentation display – no GUI displayed

## Auto-Image™

A press of a button on the annotation GUI or the front panel automatically adjusts the sizing, centering, and filtering to optimize the output image. This can save time and effort in fine tuning displayed images.

## Auto Input Memory

When activated, the Annotator automatically stores size, position, and picture settings based on the incoming signal. When the same signal is detected again, these image settings are automatically recalled from memory.

## Glitch-Free Switching

Switching is glitch-free between RGB and video inputs with selectable cut or fade to black transitions. Presentations can be enhanced by eliminating distracting visual

jumps, glitches, and distortion commonly seen when switching between computer and video sources.

## PIP - Picture-in-Picture Mode

Allows a video source to be displayed within an RGB image, or vice versa, with dynamic, fully adjustable window positioning for the PIP window. PIP mode is available through RS-232 serial control or IP Link Ethernet control.

## Picture Controls

Image adjustments are available, including brightness, contrast, color, tint, detail, and horizontal and vertical positioning, sizing, and zoom. A total of 16 user memory presets are available for each input to store all image settings.

## Ethernet Monitoring and Control

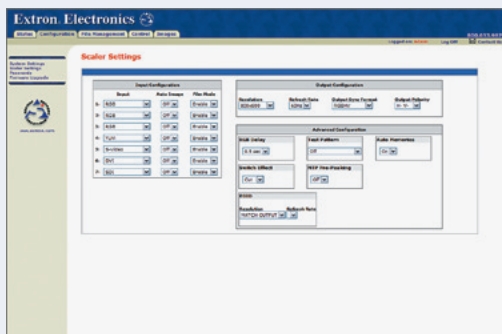
The Annotator can be controlled and proactively monitored over a LAN, WAN, or the Internet. An intuitive Web interface is provided for such common functions as input switching.

## RS-232 Control

Using serial commands, the Annotator can be controlled and configured via the Extron Windows®-based control program, or integrated into third-party control systems. Extron products use the SIS™ - Simple Instruction Set command protocol, a set of basic ASCII code commands that allow for quick and easy programming.

## Remote Control via Web Access and Control Software

The Annotator can easily be controlled by accessing the built-in Web pages, or using the Signal Processing Products Control Program on a PC. The software is available as a free download from [www.extron.com](http://www.extron.com).



The internal Web pages and the control program allow for configuring and operating the Annotator, including input selection, input and output picture settings, picture-in-picture, EDID emulation, and more.



In addition to controlling system functions, the software allows the user to customize the on-screen GUI by selecting the annotation tools to be made available to the presenter or system operator. The program can also be used to capture and save annotated images, and download them to the PC for printing or archiving.



# Annotator User Interface

The Annotator's intuitive pop-up graphical user interface features icons that enable the user to perform powerful marking and system control functions. Some of these are shown below.



**Inputs**  
Select video source for display



**Pointer**  
Direct attention without marking on the screen



**Auto Image**  
Set display parameters automatically



**Freehand**  
Draw freely on screen



**Line**  
Draw a line between two points



**Arrow**  
Draw an arrow between two points



**Rectangle**  
Draw a rectangle by pointing to two corners



**Ellipse**  
Draw an ellipse by pointing to two corners



**Text**  
Use a keyboard to place text on screen



**Highlighter**  
Freehand translucent marking



**Size**  
Select line thickness and text size



**Erase**  
Rub out onscreen annotations



**Color**  
Select color of next annotation



**Fill**  
Draw filled rectangles and ellipses



**Undo**  
Remove the last annotation



**Redo**  
Recreate the undone annotation



**Clear**  
Remove all onscreen annotations



**Pan**  
Move displayed area of zoomed image



**Capture**  
Save screen to memory or network



**Freeze**  
Halt/release on screen video



**Mute**  
Display a black screen



**Whiteboard**  
Use screen as whiteboard



**Spotlight**  
Gray out all outside a defined ellipse



**Zoom**  
Enlarge a defined area



# Applications

## Enhanced Presentations for Business and Education

The Extron Annotator can be used to make presentations more effective by adding elements of spontaneity and movement to static images.

A business presenter can better engage the audience interest by making on-the-fly annotations to charts and documents to highlight key points. The drawing and text capabilities of the Annotator enable the presenter to emphasize important material within graphs or tables.

An educator can show the development of concepts by first presenting a chart and then making notations on the screen to clarify or emphasize a particular point. The thought process can be illustrated step-by-step, so that difficult ideas can be communicated clearly. The instructor can then use the Annotator's image capture function to save the material to distribute to students.

The Annotator's high resolution, full motion video capability further expands the presenter's ability to communicate with impact. In addition to business and education, analysis of video material can be crucial in diverse fields such as security, medical care, scientific research, or sports instruction.

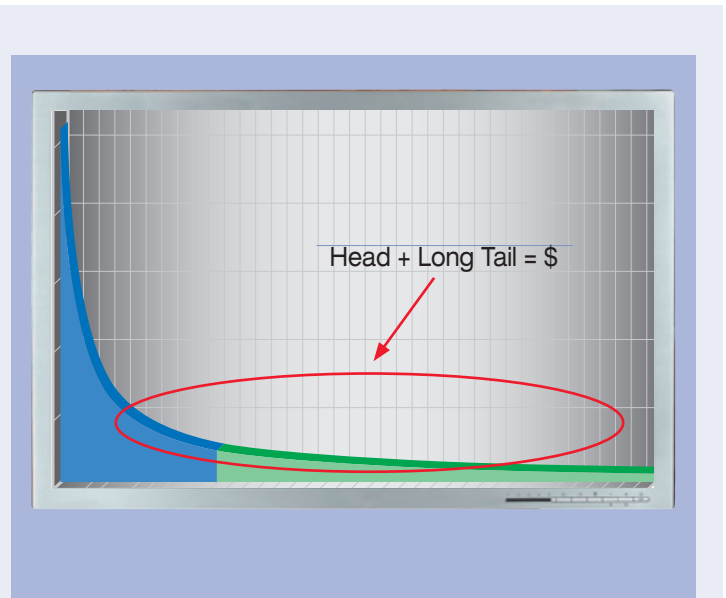
## Improved Courtroom Efficiency

In technologically advanced courtrooms, deployment of the Extron Annotator in conjunction with the existing AV system can reduce trial duration and associated costs, and improve fact-finding by both judge and jury.

Counsel and the witness can use the Annotator to mark any image displayed on video monitors by circling, drawing arrows, and underlining in several colors. Once an annotation is complete, the annotation may be printed or saved electronically for use as evidence during the trial.

With Auto-Image and Auto Input Memory, switching and adding new AV equipment such as laptops to the Annotator is quick and easy, minimizing delay during trial proceedings. Additionally, rather than separately distributing hard copies of documents to opposing counsel, the witness, the judge, and each juror, a lawyer can use an imaged copy of the document and display it to all relevant persons in a matter of seconds.

The most important benefit of annotation may be to the court system itself, as it is widely believed that judges and jurors retain far more information when it is presented visually as well as orally.



# Specifications

VIDEO INPUT	
Number/signal type	2 RGBHV, RGBS, RGsB, component video (Y, R-Y, B-Y; progressive or HD) 1 RGBHV, RGBS, RGsB, component video (Y, R-Y, B-Y; interlaced, progressive, HD), S-video, composite video 1 component video (Y, R-Y, B-Y; interlaced), S-video, composite video 1 S-video, composite video 1 single link DVI-D 1 optional SDI, HD-SDI
Horizontal frequency	Autoscan 15 kHz to 100 kHz
Vertical frequency	Autoscan 24 Hz to 120 Hz
Resolution range	640x480 to 1920x1200 <sup>1</sup> , 480i, 480p, 576i, 576p, 720p, 1080i, and 1080p, digitized pixel for pixel; higher resolutions are undersampled. *Reduced blanking
DC offset (max. allowable)	0.5 V
VIDEO PROCESSING	
Digital sampling	30 bit, 10 bits per color; 13.5 MHz standard (video), 165 MHz standard (RGB, YUVp, DVI)
Encoder (for scan converted output)	10 bit digital
VIDEO OUTPUT	
Number/signal type	2 buffered scaled RGBHV, RGBS, RGsB, or HD component video (Y, R-Y, B-Y) 1 MTP 1 optional output in one of the following formats: <ul style="list-style-type: none"> <li>• single link DVI-I (for unique scaled output)</li> <li>• DVI-D</li> <li>• 3G/HD-SDI</li> <li>• interlaced RGsB, component video, S-video, composite video</li> </ul>
Scaled resolution	640x480 <sup>6,8,9</sup> , 800x600 <sup>6,8,9</sup> , 852x480 <sup>6,8,9</sup> , 1024x768 <sup>6,8,9</sup> , 1024x852 <sup>6,8,9</sup> , 1024x1024 <sup>6,8,9</sup> , 1280x768 <sup>6,8,9</sup> , 1280x800 <sup>6,8,9</sup> , 1280x1024 <sup>6,8,9</sup> , 1360x765 <sup>6,8,9</sup> , 1360x768 <sup>6,8,9</sup> , 1365x768 <sup>6,8,9</sup> , 1365x1024 <sup>6,8,9</sup> , 1366x768 <sup>6,8,9</sup> , 1400x1050 <sup>6,8</sup> , 1440x900 <sup>6,8,9</sup> , 1600x1200 <sup>6,8</sup> , 1680x1050 <sup>6,8</sup> , 1920x1200 <sup>6,8</sup> HDTV: 480p <sup>7,8</sup> , 576p <sup>6</sup> , 720p <sup>3,4,5,6,7,8</sup> , 1080i <sup>6,7,8</sup> , 1080p <sup>1,2,3,4,5,6,7,8</sup> , 1080p CVT <sup>2</sup> , 2048x1080 <sup>1,2,3,4,5,6,7,8</sup> SDTV: NTSC, PAL (with optional scan converter output card) <sup>1</sup> = 23.98 Hz, <sup>2</sup> = 24 Hz, <sup>3</sup> = 25 Hz, <sup>4</sup> = 29.97 Hz, <sup>5</sup> = 30 Hz, <sup>6</sup> = 50 Hz, <sup>7</sup> = 59.94 Hz, <sup>8</sup> = 60 Hz
SYNC	
Input type	RGBHV, RGBS, RGsB, RGBcV, and component video (tri-level or bi-level)
Output type	RGBHV, RGBS, RGsB, and component video (tri-level or bi-level)
Standards	NTSC 3.58, NTSC 4.43, PAL, SECAM Optional SDI/HD-SDI: SMPTE 259M-C, SMPTE 292M
Polarity	Positive or negative (selectable)

CONTROL/REMOTE – SIGNAL PROCESSOR		
Serial control port	2 RS-232/RS-422, female 9-pin D connectors (rear panel) 1 RS-232, 2.5 mm mini stereo jack (front panel)	
Ethernet control port	1 RJ-45 female connector	
Web server	Up to 200 simultaneous sessions 40 MB nonvolatile user memory	
Program control	Extron control/configuration program for Windows® Extron Simple Instruction Set (SIS™) Microsoft® Internet Explorer®, Telnet	
CONTROL/REMOTE – ANNOTATION		
Number/signal type	20 USB devices (via hubs) 2 serial devices 1 PS/2 mouse 1 PS/2 keyboard	
Connectors	2 USB type A 2 RS-232, female 9-pin D (shared with standard control) 2 female PS/2	
GENERAL		
Power supply	Internal Input: 100-240 VAC, 50-60 Hz	
Power consumption	30 watts	
Cooling	Convection, vented on sides and top	
Mounting	Yes, with included brackets.	
Rack mount		
Enclosure dimensions	1.7" H x 17.5" W x 12.0" D (1U high, full rack wide) (4.3 cm H x 44.4 cm W x 30.5 cm D) (Depth excludes connectors and knobs.)	
Product weight	6.8 lbs (3.1 kg)	
Regulatory compliance		
Safety	CE, c-UL, UL	
EMI/EMC	CE, C-tick, FCC Class A, ICES, VCCI	
MTBF	30,000 hours	
Warranty	3 years parts and labor	
<b>NOTE:</b> All nominal levels are at ±10%.		
Model	Version Description	Part number
Annotator	Standard Version	60-968-01
Annotator SC	Scan Converted Output	60-968-03
Annotator SO	Second Scaled Output	60-968-05
Annotator DI/DVI	SDI/HD-SDI Input, DVI-D Output	60-968-12
Annotator DI/SC	SDI/HD-SDI Input, Scan Converted Output	60-968-13
Annotator DI/SO	SDI/HD-SDI Input, Second Scaled Output	60-968-15
Annotator DI/3G-SDI	SDI/HD-SDI Input, 3G/HD-SDI Output	60-968-16

For complete specifications, please go to [www.extron.com](http://www.extron.com)  
Specifications are subject to change without notice.

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### UNITED STATES

+800.633.9876  
Inside USA/Canada  
+1.714.491.1500

### EUROPE

+800.3987.6673  
Inside Europe  
+31.33.453.4040

### ASIA

+800.7339.8766  
Inside Asia  
+65.6383.4400

### MIDDLE EAST

+971.4.2991800