Annotator 300

HDCP-COMPLIANT ANNOTATION PROCESSOR WITH DTP EXTENSION

DTP SYSTEMS

Powerful Annotation Capabilities, Plus High Performance Video Processing and Output Extension

- Real-time annotation over high resolution computer and live video sources
- Integrated three-input switcher with HDMI, DisplayPort, and universal analog video inputs
- Three simultaneous video outputs
- Integrated DTP™ digital twisted pair output
- Compatible with popular touch displays and graphics tablets
- Intuitive graphical annotation interface

Extron Electronics
INTERFACING, SWITCHING AND CONTROL

Introduction

The Extron **Annotator 300** is a high performance, hardware-based annotation processor that allows a presenter to draw, point, or type over live presentations using a touch display, graphics tablet, or a keyboard and mouse. The HDCP-compliant Annotator 300 includes HDMI and DisplayPort inputs, a universal analog video input, and three simultaneous outputs including two HDMI and a DTP™ twisted pair output. It also features advanced Extron video signal processing with a high performance scaling engine and fast, reliable switching. The DTP twisted pair output extends HDMI and bidirectional control signals to a DTP receiver over a shielded CATx cable up to 330 feet (100 meters). The Annotator 300 offers a wide range of annotation tools and controls, all easily accessible by any presenter using an intuitive on-screen GUI.

Create Real-Time Annotations with a User-Friendly Interface

User-friendly graphical icons and menus provide quick access to essential annotation tools for drawing freehand or lines, adding rectangular or elliptical shapes, typing text, highlighting an area of the presentation, and pointing to objects on-screen, with various customization tools. A presenter can also isolate a specific area of the presentation by creating a spotlight with the image darkened around it. Additional annotation options include the ability to use a touch flat-panel display as a whiteboard, zoom and pan within the image, and freeze a live image. Annotated images may be captured and saved to internal memory, a removable USB flash drive, or a network location. These images can also be printed using a network printer.

Supports Popular Touch Displays and Graphics Tablets

Annotating over live video or presentations is easy using common touch displays, graphics tablets, and standard HID interfaces, including touch displays, keyboards and mice. A total of 25 devices can be connected via USB hubs. The Annotator 300 is ideal for collaboration applications requiring simultaneous on-screen annotation from two users.

High Performance Video Processing and Digital Video Integration Capabilities

The Annotator 300 features an advanced scaling engine that can scale HDMI, DisplayPort, RGB, component, and standard definition video signals to a common high resolution output. It provides high performance deinterlacing of all interlaced signals up to 1080i, and Deep Color processing to deliver optimal image quality. The universal analog video input automatically detects incoming RGB, component video, S-video, or composite video. The Annotator 300 accepts signals up to 1920x1200 and 2K, plus DisplayPort input signals at resolutions up to 2560x1600. The output can be set for various resolutions up to 1920x1200, including 1080p/60 and 2K.

To simplify integration of HDMI sources and displays, the Annotator 300 features three Extron-exclusive technologies: EDID Minder®, Key Minder®, and SpeedSwitch®. EDID Minder and Key Minder automatically manage EDID communication and HDCP key negotiation between input and output devices to ensure reliable operation. With SpeedSwitch Technology, the Annotator 300 delivers exceptional switching speeds for HDCP-encrypted content.

Integrated Digital Twisted Pair Extension

The DTP output can extend HDMI, analog audio, and bidirectional control signals up to 330 feet (100 meters) to a DTP 330 receiver or up to 230 feet (70 meters) to a DTP 230 receiver in a remote location. Bidirectional RS-232 and IR signals can be inserted from a control system and transmitted over the shielded CATx cable together with the video, enabling control of a display. The Annotator 300 can also send power to the DTP receiver over the same shielded CATx cable, streamlining system design and installation. In addition, the Annotator 300 can be integrated into a larger AV switching system with a DTP-enabled switcher or matrix switcher, such as the Extron IN1608 or DTP CrossPoint 84.

HDBaseT-Compatible Output

The DTP output can be configured for compatibility with an HDBaseT-enabled display to send digital video and embedded audio, plus bidirectional RS-232 and IR signals up to 330 feet (100 meters) over a shielded CATx cable.

Configurable Main and Confidence Outputs

One of the three outputs on the Annotator 300 can be used as a dedicated Confidence output for the presenter, while the remaining two serve as Main outputs for the audience. The Confidence output can be configured so that only the presenter can view the annotation GUI. The presenter can also use this output to preview annotations before making them live for the audience.

HDCP compliant
Worry-free display of protected content from digital video sources

Print captured images
Captured images can be sent directly to a network printer without connecting to a PC.

Advanced scaling
High-quality graphics and video upscaling and downscaling, deinterlacing, and HDMI Deep Color processing

Annotator 300 - Front

Capture, store, and recall images
Images with annotations can be captured and saved to internal memory, a removable USB flash drive, or a network location.

User-friendly interface
An intuitive LCD Interface, direct access buttons, and precise rotary controls simplify system setup and operation.

HDMI, DisplayPort, and universal analog inputs
Ensure compatibility with a wide variety of sources

Compatible with HDBaseT-enabled devices
The DTP output can be configured to send video, embedded audio, and control signals to an HDBaseT-enabled display.

DTP twisted pair extension
Supports digital signal transmission up to 330 feet (100 meters) over a shielded twisted pair cable to a DTP receiver

Supports popular touch displays and graphics tablets
Two USB ports are available to support touch displays, graphics tablets, or a keyboard and mouse. Additional devices can be connected via USB hubs.

Annotator 300 - Back

Three simultaneous outputs
One DTP output and two HDMI outputs are available to drive three displays.

Configurable Main and Confidence outputs
The outputs can be configured so that the audience views annotated video or graphics through one or two Main outputs, while a Confidence output displays the annotation GUI for a presenter or system operator.

Ethernet, RS-232, and contact closure control
The Annotator 300 can be controlled over RS-232 or Ethernet, and configured using Extron PCS - Product Configuration Software. The contact closure ports can be used for external control of source switching.

Features

Create real-time annotations over high resolution PC and video sources

The Annotator 300 allows a presenter to draw, point, or add text in real-time over live video and graphics presentations.

Integrated three-input switcher with HDMI, DisplayPort, and universal analog video inputs

The Annotator 300 delivers fast, reliable input switching between HDMI, DisplayPort, and analog video sources. The universal auto-detecting analog video input automatically detects incoming RGB, component video, S-video, or composite video signals.

Three simultaneous video outputs

One DTP twisted pair output and two HDMI outputs are available for driving three displays.

Compatible with all DTP 230 and DTP 330 Series receivers and DTP-enabled products

The Annotator 300 supports DTP twisted pair signal transmission of HDMI, analog audio, and control up to 330 feet (100 meters) over a single shielded CATx cable. The Annotator 300 can also power a DTP receiver over the twisted pair connection.

Intuitive graphical annotation 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 text, highlighting an area of an image, pointing to an object on-screen, and using the screen as a whiteboard. Customization options are available for text and graphics, including point size and color.

Hardware-based graphics and video processing

The Annotator 300 features a fully hardware-based system architecture designed to deliver the performance and operational reliability essential for mission-critical applications.

Compatible with popular touch displays and graphics tablets

The Annotator 300 supports a wide variety of touch displays and graphics tablets from third-party manufacturers, and also can be used with standard HID interfaces, including touch displays, keyboards, and mice.

Supports 25 total device connections and simultaneous annotation for two users

The Annotator 300 allows up to a total of 25 pointing device connections via USB hubs. It is ideal for collaboration applications requiring simultaneous on-screen annotation from two users.

Capture, store, and recall images

An image can be captured as a snapshot of the live video output, including annotations, and saved to internal memory, a removable USB flash drive, or a network location for archiving.

Print captured images using a network printer

The Annotator 300 supports connection to a printer on the network, enabling captured images to be sent directly to the printer without connecting to a PC.

HDCP compliant

The Annotator 300 fully supports HDCP-encrypted sources, with selectable authorization for unencrypted content.

Supported HDMI specification features include data rates up to 6.75 Gbps, Deep Color, and HD lossless audio formats

Supports DisplayPort input signals at resolutions up to 2560x1600

Extron XTP DTP 24 shielded twisted pair cable strongly recommended

XTP DTP 24 cable is highly recommended for optimal signal transmission between the Annotator 300 and the DTP receiver.

Bidirectional RS-232 and IR pass-through for AV device control

Bidirectional RS-232 control and IR signals can be transmitted alongside the video signal over the DTP connection, allowing the remote device to be controlled without the need for additional cabling. Bidirectional control extension eliminates the need for control system wiring to remote devices.

DTP output is compatible with HDBaseT-enabled devices

The DTP output can be configured to send video and embedded audio, plus bidirectional RS-232 and IR signals to an HDBaseT-enabled display.

Auto-switching between inputs Auto Input Format Detection

For the universal analog video input, the Annotator 300 detects the incoming signal format, automatically reconfiguring itself to provide the appropriate decoding and signal processing.

Selectable output rates

Available output rates include computer and video up to 1920x1200, including 1080p/60 and 2K.

Advanced scaling engine with 30-bit precision processing

Motion-adaptive deinterlacing for signals up to 1080i

Key Minder

Authenticates and maintains continuous HDCP encryption between input and output devices to ensure quick and reliable switching in professional AV environments.

EDID Minder

Automatically manages EDID communication between connected devices. EDID Minder ensures that all sources power up properly and reliably output content for display.

SpeedSwitch

Provides exceptional switching speed for HDCP-encrypted content.

Aspect Ratio Control

The aspect ratio of the video output can be controlled by selecting a FILL mode, which provides a full screen output, or a FOLLOW mode, which preserves the original aspect ratio of the input signal.

HDCP Visual Confirmation

When processing HDCP-encrypted content, the Annotator 300 outputs a full-screen green signal on any video output connected to a non-HDCP compliant display for immediate visual confirmation that protected content cannot be viewed on the display.

Auto-Image™ setup

Auto Input Memory

When activated, the unit 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.

Ethernet, USB, RS-232, and contact closure control

Features

CONFIGURABLE MAIN AND CONFIDENCE OUTPUTS

The outputs of the Annotator 300 can be configured as separate Main and Confidence outputs, with the ability to selectively control visibility of the annotations and on-screen menus. The Confidence output may be configured so that only the presenter or system operator can view the annotation GUI, while the audience sees the video and annotations through the Main outputs. The Confidence output can also be used by the presenter to preview annotations before making them live through the Main outputs for the audience.

Confidence output – with annotation menu

Main output – annotations only

COMPATIBLE WITH EXTRON DTP SYSTEM PRODUCTS

DTP SYSTEMS The Annotator 300 includes a DTP output that supports transmission of HDMI, analog audio, and bidirectional RS-232 and IR signals over a single shielded CATx cable up to 330 feet (100 meters). It may be paired with a DTP 230 or DTP 330 receiver, available in low-profile enclosures and decorator-style wallplate models. In addition, the Annotator 300 can conveniently power the receiver over the same shielded CATx cable and directly interface with control systems for sending RS-232 and IR control to display devices. These capabilities allow system integrators to create flexible yet efficient system designs that include remote display locations in a variety of presentation environments.

Additionally, the Annotator 300 can be integrated with a larger DTP-enabled switcher or matrix switcher, such as the Extron IN1608 or DTP CrossPoint 84.

Annotation User Interface

The intuitive pop-up graphical user interface of the Annotator 300 features icons for essential tools that enable the user to perform powerful markup and system control functions. Some of these are shown below. Visit **www.extron.com/annotator300demo** to try an interactive demo of the graphical user interface.

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 points

Text
Use a keyboard to place text on screen

Highlighter
Freehand translucent marking

Size
Select line thickness and text size

Eraser
Rub out on-screen annotations

Color
Select color of next annotation

Fill
Draw filled rectangles and ellipses

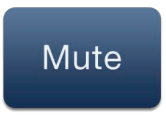
Undo
Remove the last annotation

Redo
Recreate the undone annotation

Clear
Remove all on-screen annotations

Capture
Save screen to internal memory, removable USB thumb drive, or network

Freeze
Halt/release on-screen video



Mute
Display a black screen

Whiteboard
Use screen as whiteboard

Spotlight
Gray out all video outside a defined ellipse

Zoom
Enlarge a defined area

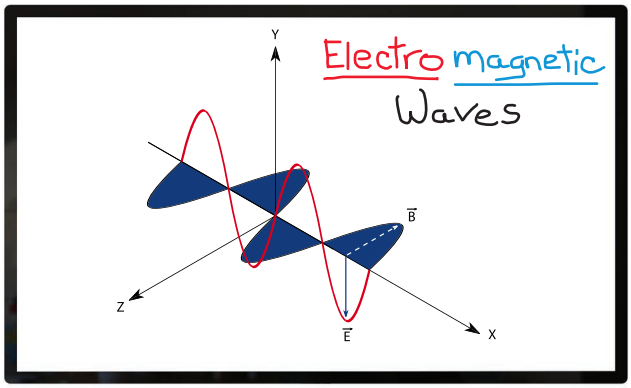
Pan
Move displayed area of zoomed image

Applications

EDUCATION AND TRAINING

The drawing and text capabilities of the Annotator 300 help in the creation of more effective presentations by enabling the instructor to emphasize important course material and tailor the instruction to meet students' needs. An educator can collaborate with another presenter on-screen to annotate diagrams, images, and other presentation material. Both presenters can elaborate on fundamental principles and provide examples by first showing a diagram and then making notations on the screen to clarify particular points. The instructor can then use the image capture function of the Annotator 300 to save the material or print the annotated slides for distribution to the students.

The Annotator 300 also enables the instructor to use the touch display or graphics tablet as a whiteboard to draw, write, and make additional notations on a blank screen. The ability to annotate over high resolution, full-motion video further expands the presenter's ability to communicate with impact, especially for medical training, scientific research, and other fields where analysis of visual material is crucial.



COURTROOM

Use of the Annotator 300 in the courtroom can greatly simplify complex exhibits, improving fact-finding by both the judge and jury. Counsel and witnesses can mark any image shown on the display by circling, drawing arrows, and underlining in several colors to highlight key points within photos, documents, or video-based evidence. The counsel can also direct the jury's attention to an area of interest within the image using the spotlight annotation tool. Once annotation is complete, the image may be printed or saved electronically for use as a record by the legal teams, and as supporting evidence during the trial.

Auto-Image and Auto Input Memory on the Annotator 300 allow new AV equipment, such as laptops, to be added or switched quickly and easily. EDID Minder ensures that the correct video formats from these sources are displayed reliably on the courtroom displays. This minimizes delays during trial proceedings. The DTP twisted pair output provides high quality video extension from the equipment location to the main display, especially considering the significant distances to cover in a large courtroom.

Specifications

VIDEO INPUT	
Number/signal type	1 RGB, RGBcvS, component (interlaced, progressive, HD), S-video, composite video 1 HDMI (HDCP compliant) 1 DisplayPort (HDCP compliant)
Horizontal frequency	15 kHz to 100 kHz
Vertical frequency	24 Hz to 75 Hz
Resolution range	
VGA and HDMI	640x480 to 1600x1200 and 1920x1200* NTSC, PAL, SECAM, 480i, 480p, 576i, 576p, 720p, 1080i, 1080p, and 2k
DisplayPort	640x480 to 1600x1200 and 2560x1600* 480p, 576p, 720p, 1080i, 1080p, and 2k *reduced blanking
DC offset (max. allowable)	0.5 V
Standards	DVI 1.0, HDMI, DisplayPort 1.1a, HDCP

VIDEO PROCESSING	
Decoder	12 bit digital (3D-adaptive comb filter)
Analog sampling	12 bits per color; 13.5 MHz standard (video), 170 MHz standard (RGB)
HDMI pixel data bit depth	8, 10, or 12 bits per channel; 165 MHz pixel clock
Display Port pixel data bit depth	8, 10, or 12 bits per channel; 270 MHz pixel clock
Colors	1 billion, (10 bit processing)

VIDEO OUTPUT	
Number/signal type	2 HDMI (HDCP compliant) 1 DTP (HDCP compliant)
Digital bit depth	8 or 10 bit, automatic
Vertical frequency	23.98 Hz, 24 Hz, 25 Hz, 29.97 Hz, 30 Hz, 50 Hz, 59.94 Hz, 60 Hz
Scaled resolution	640x480[8], 800x600[8], 1024x768[8], 1280x768[8], 1280x800[8], 1280x1024[8], 1360x768[8], 1366x768[8], 1440x900[8], 1400x1050[8], 1600x900[8], 1600x1200[8], 1680x1050[8], 1920x1200[8] HDTV: 480p[7,8], 576p[6], 720p[3,4,5,6,7,8], 1080i[6,7,8], 1080p[1,2,3,4,5,6,7,8], 2048x1080[1,2,3,4,5,6,7,8] [1] = 23.98 Hz, [2] = 24 Hz, [3] = 25 Hz, [4] = 29.97 Hz, [5] = 30 Hz, [6] = 50 Hz, [7] = 59.94 Hz, [8] = 60 Hz

INTERCONNECTION BETWEEN ANNOTATOR 300 AND DTP/HDBT RECEIVER	
Termination standard	TIA/EIA T568B
Signal transmission distance	
1080p @ 60 Hz	Up to 330' (100 m) using shielded twisted pair cable or XTP DTP 24 STP cable
Cable requirements	Solid conductor, 24 AWG or better
Cable recommendations	400 MHz bandwidth, STP (shielded twisted pair)

NOTE: Extron XTP DTP 24 shielded twisted pair cable is strongly recommended for optimal performance

SYNC	
Input type	RGBHV, RGBS, RGsB, RGBcvS, bi-level or tri-level component video
Input standards	NTSC 3.58, NTSC 4.43, PAL, SECAM

COMMUNICATION — SIGNAL PROCESSOR	
Serial control port	1 bidirectional RS-232, 3-pin captive screw connector
Contact closure	1 rear panel 3.5 mm captive screw connector, 3 pole
USB control port	1 female mini USB on front panel
USB standards	USB 2.0, high speed
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™)

COMMUNICATIONS	
External device (pass-through, unidirectional or bidirectional) (RS-232/IR over DTP)	
Serial control pass-through ports	
Annotator 300 output/DTP Rx	RS-232 via (1) 3.5 mm, 5 pole captive screw connector (shared with IR port)
IR pass-through control ports	TTL level (0 to 5 V) modulated infrared control from 30 kHz up to 60 kHz

COMMUNICATION — ANNOTATION	
Number/signal type	32 USB devices (via hubs)
Connectors	3 USB type A connectors (2 on rear and 1 on front)
USB standards	USB 2.0, USB 1.1, USB 1.0 compatible
USB data rates	Low speed (1.5 Mbps), full speed (12 Mbps)

GENERAL	
Power supply	Internal Input: 100-240 VAC, 50-60 Hz
Power consumption	37 watts
Auxiliary power output	
DTP output	Supports one endpoint (one DTP Rx)
Cooling	Fan, air flows from right to left (as viewed from the front panel)
Mounting	
Rack mount	Yes, with pre-installed brackets.
Enclosure dimensions	1.75" H x 17.5" W x 9.5" D (1U high, full rack wide) (4.4 cm H x 44.5 cm W x 24.1 cm D) (Depth excludes connectors and knobs.)
Product weight	5.4 lbs (2.4 kg)
Regulatory compliance	
Safety	CE, c-UL, UL
EMI/EMC	CE, C-tick, FCC Class A, ICES, VCCI
Environmental	Complies with the appropriate requirements of RoHS, WEEE.
Warranty	3 years parts and labor

NOTE: All nominal levels are at ±10%.

Model	Version Description	Part number
Annotator 300	Annotation Processor with DTP Extension	60-1316-01

For complete specifications, please go to www.extron.com
Specifications are subject to change without notice.

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04-2017
68-2607-01
REV. B1
Letter - English - NP